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Digital terminal equipments – Operations, administration and maintenance features of transmission equipment

Synchronous digital hierarchy (SDH) – Management information model for the network element view

ITU-T Recommendation G.774

(Formerly CCITT Recommendation)

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ITU-T Recommendation G.774

Synchronous digital hierarchy (SDH) – Management information model for the network element view

Summary

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 ITU-T M.3010 telecommunications management network (TMN) architecture. This Recommendation specialises the generic object classes of ITU-T M.3100 to provide management information specifically for the SDH.

Document history	
Issue	**Notes**
2001	First revision incorporated the changes documented in the G.774 Corrigendum 1 (1996).
09/1992	Initial version of the Recommendation.

Source

ITU-T Recommendation G.774 was revised by ITU-T Study Group 15 (2001-2004) and approved under the WTSA Resolution 1 procedure on 9 February 2001.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

CONTENTS

ITU-T Recommendation G.774

Synchronous digital hierarchy (SDH) – Management information model for the network element view

1 Scope

This Recommendation provides an information model for the synchronous digital hierarchy (SDH). 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 ITU-T M.3010 TMN architecture. The managed object classes in this Recommendation are specialized from the generic managed object classes defined in ITU-T M.3100 generic network information model.

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 ITU-T G.783, and aspects of the management of SDH equipment are provided in ITU-T G.784. This Recommendation provides the management information required for use with the protocols specified in ITU-T G.784.

The new objects defined in this Recommendation supersede those defined in the previous version of the Recommendation (i.e. the 1992 version). For each object class, attribute, action, notification, parameter defined in this version of the Recommendation, it shall be indicated what the impacts are upon the existing ITU-T G.774 (1992).

Structure of this Recommendation

Clause 5 provides an overview of the SDH information model. Clauses 6 to 9 describe the information model using the notation mechanisms defined in ITU-T X.722 Guidelines for the definition of managed Objects. Section 10 contains the syntax definitions of the information carried in the protocol using Abstract Syntax Notation One (ASN.1) defined in ITU-T X.680-X.683. The relationships between the SDH managed object classes contained in this Recommendation are defined in clause 11. Diagrams illustrating the construction of the SDH model are provided in Annex A.

2 References

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

- ITU-T G.707/Y.1322 (2000), *Network node interface for the synchronous digital hierarchy (SDH)*.
- ITU-T G.773 (1993), *Protocol suites for Q-interfaces for management of transmission systems*.
- ITU-T G.774.1 (2001), *Synchronous digital hierarchy (SDH) – Bidirectional performance monitoring for the network element view*.
- ITU-T G.774.3 (2001), *Synchronous digital hierarchy (SDH) – Management of multiplex-section protection for the network element view*.

- ITU-T G.783 (2000), *Characteristics of synchronous digital hierarchy (SDH) equipment functional blocks*.
- ITU-T G.784 (1999), *Synchronous digital hierarchy (SDH) management*.
- ITU-T G.803 (2000), *Architecture of transport networks based on the synchronous digital hierarchy (SDH)*.
- ITU-T G.831 (2000), *Management capabilities of transport networks based on the synchronous digital hierarchy (SDH)*.
- ITU-T G.958 (1994), *Digital line systems based on the synchronous digital hierarchy for use on optical fibre cables*.
- ITU-T M.60 (1993), *Maintenance terminology and definitions*.
- ITU-T M.2120 (2000), *PDH path, section and transmission system and SDH path and multiplex section fault detection and localization procedures*.
- ITU-T M.3010 (2000), *Principles for a telecommunications management network*.
- ITU-T M.3013 (2000), *Considerations for a telecommunications management network*.
- ITU-T M.3100 (1995), *Generic network information model*.
- ITU-T Q.811 (1997), *Lower layer protocol profiles for the Q3 and X interfaces*.
- ITU-T Q.812 (1997), *Upper layer protocol profiles for the Q3 and X interfaces*.
- ITU-T Q.822 (1994), *Stage 1, Stage 2 and Stage 3 description for the Q3-interface – Performance management*.
- ITU-T X.680 to X.683 (1997), *Information technology – Abstract Syntax Notation One (ASN.1)*.
- ITU-T X.701 (1997), *Information technology – Open Systems Interconnection – Systems management overview*.
- ITU-T X.710 (1997), *Information technology – Open Systems Interconnection – Common management information service*.
- ITU-T X.711 (1997), *Information technology – Open Systems Interconnection – Common management information protocol: Specification*.
- ITU-T X.720 (1992), *Information technology – Open Systems Interconnection – Structure of Management Information: Management information model*, *plus* Amd.1 (1995) and Cor.1 (1994).
- ITU-T X.721 (1992), *Information technology – Open Systems Interconnection – Structure of management information: Definition of management information, plus* Cor.1 (1994), Cor.2 (1996), Cor.3 (1998) and Cor.4 (2000).
- ITU-T X.722 (1992), *Information technology – Open Systems Interconnection – Structure of management information: Guidelines for the definition of managed objects*, *plus* Amd.1 (1995), Amd.2 (1997) and Cor.1 (1996).
- ITU-T X.730 (1992), *Information technology – Open Systems Interconnection – Systems management: Object management function, plus* Amd.1 (1995) and Amd.1/Cor.1 (1996).
- ITU-T X.731 (1992), *Information technology – Open Systems Interconnection – Systems management: State management function, plus* Amd.1 (1995), Cor.1 (1995) and Amd.1/Cor.1 (1996).

– ITU-T X.733 (1992), *Information technology – Open Systems Interconnection – Systems management: Alarm reporting function, plus* Cor.1 (1994), Amd.1 (1995), Amd.1/Cor.1 (1996) and Cor.2 (1999).

– ITU-T X.734 (1992), *Information technology – Open Systems Interconnection – Systems management: Event report management function, plus* Cor.1 (1994), Amd.1 (1995), Amd.1/Cor.1 (1996) and Cor.2 (1999).

– ITU-T X.735 (1992), *Information technology – Open Systems Interconnection – Systems management: Log control function, plus* Amd.1 (1995) and Amd.1/Cor.1 (1996).

3 Terms and Definition

This Recommendation uses the terms and definitions defined in ITU-T G.783, G.784, and M.3100.

4 Abbreviations

This Recommendation uses the following abbreviations:

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

5 SDH information model

5.1 Overview

The SDH information model is based on the Generic Network Information Model of ITU-T 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 ITU-T M.3100 and other Recommendations.

The information exchanged at a management interface is modelled using design principles outlined in ITU-T X.720 Management Information Model. 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 ITU-T 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.

5.2 Requirements

To allow SDH equipment to be represented in a consistent manner across the interface, some of the conditional packages in ITU-T M.3100 are made mandatory in this Recommendation. The following conditional packages inherited from ITU-T 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 clauses 6 to 10 and the requirements identified in this clause and clause 11.

In the context of this Recommendation, the various objects defined hereafter will be named using local distinguished naming.

6 Object classes

This clause provides replacement managed object class definitions for the existing Recommendation G.774 (1992). Any managed object class replaced by the one in this clause is considered to be deprecated. The reasons for the replacement of a managed object class are as follows:

a) The replaced managed object class is faulty and must be fixed.

b) The replaced managed object class includes an attribute, package, notification or action that has been re-registered in this Recommendation.

c) The replaced managed object class inherits from a managed object class that has been re-registered in this Recommendation.

In each case where a class is replaced, the new class will be registered within this Recommendation. The textual label for the class will be revised to include the text "R1". For example, in the revision of the G.774 (1992) "au4CTPSink" managed object class, the revised label will become "au4CTPSinkR1".

Below is a table of classes deprecated from Recommendation G.774 (1992) and the new G.774 classes that replace them:

Deprecated G.774 (1992) Classes	*Replacement G.774 Classes*
au3CTPSink	**au3CTPSinkR1**
au3CTPBidirectional	**au3CTPBidirectionalR1**
au4CTPSink	**au4CTPSinkR1**
au4CTPBidirectional	**au4CTPBidirectionalR1**
tu11CTPSink	**tu11CTPSinkR1**
tu11CTPBidirectional	**tu11CTPBidirectionalR1**
tu12CTPSink	**tu12CTPSinkR1**
tu12CTPBidirectional	**tu12CTPBidirectionalR1**
tu2CTPSink	**tu2CTPSinkR1**
tu2CTPBidirectional	**tu2CTPBidirectionalR1**
tu3CTPSink	**tu3CTPSinkR1**
tu3CTPBidirectional	**tu3CTPBidirectionalR1**
vc11TTPBidirectional	**vc11TTPBidirectionalR1**

```
     vc11TTPSink                    vc11TTPSinkR1
     vc12TTPBidirectional           vc12TTPBidirectionalR1
     vc12TTPSink                    vc12TTPSinkR1
     vc2TTPBidirectional            vc2TTPBidirectionalR1
     vc2TTPSink                     vc2TTPSinkR1
     vc3TTPBidirectional            vc3TTPBidirectionalR1
     vc3TTPSink                     vc3TTPSinkR1
     vc3TTPSource                   vc3TTPSourceR1
     vc4TTPBidirectional            vc4TTPBidirectionalR1
     vc4TTPSink                     vc4TTPSinkR1
     vc4TTPSource                   vc4TTPSourceR1
```

New Object Classes to support trail trace management at regenerator section level:

```
rsTTPTrailTraceTrailTraceBidirectional
rsTTPTrailTraceSink
rsTTPTrailTraceSource
```

6.1 Administrative Unit 3 Object Classes

```
au3CTPBidirectionalR1 MANAGED OBJECT CLASS
     DERIVED FROM
     "Recommendation M.3100":connectionTerminationPointBidirectional,
     au3CTPSinkR1,
     au3CTPSource;
REGISTERED AS { g774ObjectClass 83 };

au3CTPSinkR1 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,
     au3CTPSinkR1Pkg PACKAGE
          BEHAVIOUR
          au3CTPSinkR1PkgBehaviour 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).
               A change in the operational state shall cause a state change
               notification *
          ;;
          ATTRIBUTES
          au3CTPId           GET,
          pointerSinkType    GET;
     ;;
REGISTERED AS { g774ObjectClass 84 };
```

```
au3CTPSource MANAGED OBJECT CLASS
     DERIVED FROM  "Recommendation M.3100":connectionTerminationPointSource;
     CHARACTERIZED BY
          "Recommendation M.3100":createDeleteNotificationsPackage,
          au3CTPSourcePkg PACKAGE
               BEHAVIOUR
                    au3CTPSourcePkgBehaviour BEHAVIOUR
                         DEFINED AS
               *This object class represents a termination point where an AU-3
               Connection is originated.
               The AU-3 consists of a VC-3 plus an AU pointer which indicates the
               phase alignment of the VC-3 with respect to the STM-N frame.*

          ;;
          ATTRIBUTES
     au3CTPId               GET,
     pointerSourceType      GET;
;;
REGISTERED AS { g774ObjectClass 3 };
```

6.2 Administrative Unit 4 Object Classes

```
au4CTPBidirectionalR1 MANAGED OBJECT CLASS
     DERIVED FROM
     "Recommendation M.3100":connectionTerminationPointBidirectional,
     au4CTPSinkR1,
     au4CTPSource;
REGISTERED AS { g774ObjectClass 85 };

au4CTPSinkR1 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,
     au4CTPSinkR1Pkg PACKAGE
          BEHAVIOUR
          au4CTPSinkR1PkgBehaviour 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).
               A change in the operational state shall cause a state change
               notification *
               ;;
          ATTRIBUTES
           au4CTPId              GET,
           pointerSinkType       GET;
     ;;
REGISTERED AS { g774ObjectClass 86 };
```

```
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 };
```

6.3 Administrative Unit Group Object Classes

```
augBidirectional MANAGED OBJECT CLASS
     DERIVED FROM       indirectAdaptorBidirectional,
                        augSink,
                        augSource;
REGISTERED AS { g774ObjectClass 7 };
augSink MANAGED OBJECT CLASS
     DERIVED FROM       indirectAdaptorSink;
     CHARACTERIZED BY
          augSinkPkg PACKAGE
               BEHAVIOUR
                    augSinkPkgBehaviour BEHAVIOUR
                         DEFINED AS
               *This object class is instantiated if AU-n Connection(s) are being
               terminated.
               An AUG consists of a homogeneous, byte interleaved, assembly of
               either three AU-3s or one AU-4.
               This object class represents the point at which the AU-3/4 pointer
               is derived, based on the phase of the VC-3/4 POH relative to the
               STM-N SOH. Also, the STM-N payload is byte-demultiplexed into its
               component AU Groups (AUGs).*
     ;;
     ATTRIBUTES
          augId                                                GET,
          "Recommendation M.3100":supportableClientList      GET;
     ;;
REGISTERED AS { g774ObjectClass 8 };

augSource MANAGED OBJECT CLASS
     DERIVED FROM  indirectAdaptorSource;
     CHARACTERIZED BY
          augSourcePkg PACKAGE
               BEHAVIOUR
                    augSourcePkgBehaviour BEHAVIOUR
                         DEFINED AS
          *This object class is instantiated if AU-n Connection(s) are being
          originated.
          An AUG consists of a homogeneous, byte interleaved, assembly of either
          three AU-3s or one AU-4.
```

```
        This object class represents the point at which the AU-3/4 pointer is
        generated to indicate the phase of the VC-3/4 POH relative to the STM-N
        SOH. Also, the AU Groups (AUGs) are byte-multiplexed to construct the
        complete STM-N frame.*
             ;;
             ATTRIBUTES
                  augId              GET,
                  "Recommendation M.3100":supportableClientList  GET;
    ;;
REGISTERED AS { g774ObjectClass 9 };
```

6.4 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.
          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).
          The upstream connectivity pointer is NULL for an instance of this class
          when the upstream
          termination point is not contained within the same network element.
          *
     ;;;;
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 when the downstream termination point is not contained within the
          same network element.
          *
     ;;;;
REGISTERED AS { g774ObjectClass 12 };
```

6.5 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 };
```

6.6 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 };
```

6.7 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
                    msDatacomCTPIdGET;
     ;;
REGISTERED AS { g774ObjectClass 21 };
```

6.8 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 };
```

6.9 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 };
```

6.10 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).
        The upstream connectivity pointer is NULL for an instance of this class
        when the upstream termination point is not contained within the same
        network element.*
    ;;;;
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.
        The downstream connectivity pointer is NULL for an instance of this
        class when the downstream termination point is not contained within the
        same network element.*
    ;;;;
REGISTERED AS { g774ObjectClass 30 };
```

6.11 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 };
```

6.12 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 };
```

6.13 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 };
```

6.14 Regenerator Section Trail Termination Point Object Classes

```
rsTTPBidirectional MANAGED OBJECT CLASS
     DERIVED FROM       "Recommendation M.3100":
                        trailTerminationPointBidirectional,
                        rsTTPSink,
                        rsTTPSource;
REGISTERED AS { g774ObjectClass 40 };

rsTTPTrailTraceBidirectional MANAGED OBJECT CLASS
     DERIVED FROM       rsTTPBidirectional, -- This derivation is necessary for
                        name binding purposes
                        rsTTPTrailTraceSink,
                        rsTTPTrailTraceSource;
REGISTERED AS { g774ObjectClass 107 };

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 };

rsTTPTrailTraceSink MANAGED OBJECT CLASS
     DERIVED FROM       rsTTPSink;
     CHARACTERIZED BY
          trailTraceSinkPackage,
          rsTTPTrailTraceSinkPkg PACKAGE
               BEHAVIOUR
                    rsTTPTrailTraceSinkBehaviourPkg BEHAVIOUR
                         DEFINED AS
               *This object class represents the termination of the regenerator
               section trail and supports trail trace management.*
     ;;;;
REGISTERED AS { g774ObjectClass 108 };

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 represents 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 };

rsTTPTrailTraceSource MANAGED OBJECT CLASS
     DERIVED FROM       rsTTPSource;
     CHARACTERIZED BY
          trailTraceSourcePackage,
          rsTTPTrailTraceSourcePkg PACKAGE
               BEHAVIOUR
                    rsTTPTrailTraceSourceBehaviourPkg BEHAVIOUR
                         DEFINED AS
               *This object class represents the origination of the regenerator
               section trail and supports trail trace management.*
     ;;;;
REGISTERED AS { g774ObjectClass 109 };
```

6.15 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 };
```

6.16 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 };
```

6.17 Tributary Unit 11 Object Classes

```
tu11CTPBidirectionalR1 MANAGED OBJECT CLASS
     DERIVED FROM
     "Recommendation M.3100":connectionTerminationPointBidirectional,
     tu11CTPSinkR1,
     tu11CTPSource;
REGISTERED AS { g774ObjectClass 87 };

tu11CTPSinkR1 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,
     tu11CTPSinkR1Pkg PACKAGE
          BEHAVIOUR
          tu11CTPSinkR1BehaviourPkg BEHAVIOUR
```

```
                DEFINED AS
                *This object class terminates a tu-11 connection.
                A change in the operational state shall cause a state change
                notification *
           ;;
           ATTRIBUTES
            tu11CTPId    GET;
     ;;
REGISTERED AS { g774ObjectClass 88 };

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 };
```

6.18 Tributary Unit 12 Object Classes

```
tu12CTPBidirectionalR1 MANAGED OBJECT CLASS
     DERIVED FROM
     "Recommendation M.3100":connectionTerminationPointBidirectional,
     tu12CTPSinkR1,
     tu12CTPSource;
REGISTERED AS { g774ObjectClass 89 };

tu12CTPSinkR1 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,
     tu12CTPSinkR1Pkg PACKAGE
          BEHAVIOUR
          tu12CTPSinkR1BehaviourPkg BEHAVIOUR
               DEFINED AS
               *This object class terminates a tu-12 connection.
               A change in the operational state shall cause a state change
               notification *
          ;;
          ATTRIBUTES
           tu12CTPId GET;
     ;;
REGISTERED AS { g774ObjectClass 90 };

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 };
```

6.19 Tributary Unit 2 Object Classes

```
tu2CTPBidirectionalR1 MANAGED OBJECT CLASS
     DERIVED FROM
     "Recommendation M.3100":connectionTerminationPointBidirectional,
     tu2CTPSinkR1,
     tu2CTPSource;
REGISTERED AS { g774ObjectClass 91 };

tu2CTPSinkR1 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,
     tu2CTPSinkR1Pkg PACKAGE
          BEHAVIOUR
          tu2CTPSinkR1BehaviourPkg BEHAVIOUR
               DEFINED AS
               *This object class terminates a tu-2 connection.
               A change in the operational state shall cause a state change
               notification.*
          ;;
          ATTRIBUTES
           tu2CTPId     GET;
     ;;
REGISTERED AS { g774ObjectClass 92 };

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 };
```

6.20 Tributary Unit 3 Object Classes

```
tu3CTPBidirectionalR1 MANAGED OBJECT CLASS
     DERIVED FROM
     "Recommendation M.3100":connectionTerminationPointBidirectional,
     tu3CTPSinkR1,
     tu3CTPSource;
REGISTERED AS { g774ObjectClass 93 };
```

```
tu3CTPSinkR1 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,
     tu3CTPSinkR1Pkg PACKAGE
          BEHAVIOUR
          tu3CTPSinkR1BehaviourPkg BEHAVIOUR
               DEFINED AS
               *This object class terminates a tu-3 connection.
               A change in the operational state shall cause a state change
               notification.*
          ;;
          ATTRIBUTES
          tu3CTPId           GET;
     ;;
REGISTERED AS { g774ObjectClass 94 };

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 };
```

6.21 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 };
```

6.22 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 };
```

6.23 Virtual Container 11 Object Classes

```
vc11TTPBidirectionalR1 MANAGED OBJECT CLASS
     DERIVED FROM
     "Recommendation M.3100":trailTerminationPointBidirectional,
     vc11TTPSinkR1,
     vc11TTPSource;
     CHARACTERIZED BY
     vc11-2BidirectionalPackageR1;
REGISTERED AS { g774ObjectClass 95 };

vc11TTPSinkR1 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,
     vc11-2SinkPackageR1,
     vc11TTPSinkPkgR1 PACKAGE
          BEHAVIOUR
          vc11TTPSinkPkgR1Behaviour 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 96 };

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 };
```

6.24 Virtual Container 12 Object Classes

```
vc12TTPBidirectionalR1 MANAGED OBJECT CLASS
     DERIVED FROM
     "Recommendation M.3100":trailTerminationPointBidirectional,
     vc12TTPSinkR1,
     vc12TTPSource;
     CHARACTERIZED BY
     vc11-2BidirectionalPackageR1;
REGISTERED AS { g774ObjectClass 97 };

vc12TTPSinkR1 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,
     vc11-2SinkPackageR1,
     vc12TTPSinkPkgR1 PACKAGE
          BEHAVIOUR
          vc12TTPSinkPkgR1Behaviour 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 98 };

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 };
```

6.25 Virtual Container 2 Object Classes

```
vc2TTPBidirectionalR1 MANAGED OBJECT CLASS
     DERIVED FROM
     "Recommendation M.3100":trailTerminationPointBidirectional,
     vc2TTPSinkR1,
     vc2TTPSource;
     CHARACTERIZED BY
     vc11-2BidirectionalPackageR1;
REGISTERED AS { g774ObjectClass 99 };
```

```
vc2TTPSinkR1 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,
     vc11-2SinkPackageR1,
     vc2TTPSinkPkgR1 PACKAGE
          BEHAVIOUR
          vc2TTPSinkPkgR1Behaviour 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 100 };

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 };
```

6.26 Virtual Container 3 Object Classes

```
vc3TTPBidirectionalR1 MANAGED OBJECT CLASS
     DERIVED FROM
     "Recommendation M.3100":trailTerminationPointBidirectional,
     vc3TTPSinkR1,
     vc3TTPSourceR1;
     CHARACTERIZED BY
     vc3-4BidirectionalPackageR1;
REGISTERED AS { g774ObjectClass 101 };

vc3TTPSinkR1 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,
     vc3-4SinkPackageR1,
     vc3TTPSinkPkgR1 PACKAGE
          BEHAVIOUR
          vc3TTPSinkPkgR1Behaviour 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 102 };

vc3TTPSourceR1 MANAGED OBJECT CLASS
    DERIVED FROM "Recommendation M.3100":trailTerminationPointSource;
    CHARACTERIZED BY
    "Recommendation X.721":administrativeStatePackage,
    "Recommendation M.3100":createDeleteNotificationsPackage,
    "Recommendation M.3100":stateChangeNotificationPackage,
    vc3-4SourcePackageR1,
    vc3TTPSourcePkgR1 PACKAGE
        BEHAVIOUR
        vc3TTPSourcePkgR1Behaviour 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 103 };
```

6.27 Virtual Container 4 Object Classes

```
vc4TTPBidirectionalR1 MANAGED OBJECT CLASS
    DERIVED FROM
    "Recommendation M.3100":trailTerminationPointBidirectional,
    vc4TTPSinkR1,
    vc4TTPSourceR1;
    CHARACTERIZED BY
    vc3-4BidirectionalPackageR1;
REGISTERED AS { g774ObjectClass 104 };

vc4TTPSinkR1 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,
    vc3-4SinkPackageR1,
    vc4TTPSinkPkgR1 PACKAGE
        BEHAVIOUR
        vc4TTPSinkPkgR1Behaviour 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 105 };
```

```
vc4TTPSourceR1 MANAGED OBJECT CLASS
     DERIVED FROM       "Recommendation M.3100":trailTerminationPointSource;
     CHARACTERIZED BY
     "Recommendation X.721":administrativeStatePackage,
     "Recommendation M.3100":createDeleteNotificationsPackage,
     "Recommendation M.3100":stateChangeNotificationPackage,
     vc3-4SourcePackageR1,
     vc4TTPSourcePkgR1 PACKAGE
          BEHAVIOUR
          vc3-4TTPSourcePkgR1Behaviour 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 106 };
```

6.28 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 };
```

7 Packages

This clause provides replacement package definitions for the existing Recommendation G.774 (1992). Any package replaced by one in this clause is considered to be deprecated. The reasons for the replacement of a package are as follows:

1) The replaced package is faulty and must be fixed.

2) The replaced package includes an attribute, package, notification or action which has been re-registered in this Recommendation.

In each case where a package is replaced, the new package will be registered within this Recommendation. The textual label for the package will be revised to include the text "R1". For example, in the revision of the G.774 (1992) package "vc3-4SourcePackage", the revised label will become "vc3-4SourcePackageR1".

Below is a table of packages deprecated from Recommendation G.774 (1992) and the G.774 packages which replace them:

Deprecated G.774 (1992) Packages	*Replacement G.774 Packages*
vc11-2BidirectionalPackage	**vc11-2BidirectionalPackageR1**
vc11-2SinkPackage	**vc11-2SinkPackageR1**
vc3-4BidirectionalPackage	**vc3-4BidirectionalPackageR1**
vc3-4SinkPackage	**vc3-4SinkPackageR1**
vc3-4SourcePackage	**vc3-4SourcePackageR1**

New Packages to support trail trace management at regenerator section level:

trailTraceSinkPackage
trailTraceSourcePackage

7.1 electricalSPIPackage

```
electricalSPIPackage PACKAGE
     ATTRIBUTES
          electricalSPITTPId GET,
          stmLevel           GET;
;
```

7.2 msCTPPackage

```
msCTPPackage PACKAGE
     ATTRIBUTES
          msCTPId            GET,
          stmLevel           GET;
;
```

7.3 msTTPPackage

```
msTTPPackage PACKAGE
     ATTRIBUTES
          msTTPId            GET,
          stmLevel           GET;
;
```

7.4 opticalSPIPackage

```
opticalSPIPackage PACKAGE
     ATTRIBUTES
          opticalSPITTPId    GET,
          opticalReach       GET,
          opticalWavelength  GET,
          stmLevel           GET;
;
```

7.5 rsCTPPackage

```
rsCTPPackage PACKAGE
     ATTRIBUTES
          rsCTPId            GET,
          stmLevel           GET;
;
```

7.6 rsTTPPackage

```
rsTTPPackage PACKAGE
     ATTRIBUTES
          rsTTPId            GET,
          stmLevel           GET;
;
```

7.7 trailTraceSinkPackage

```
trailTraceSinkPackage PACKAGE
     BEHAVIOUR
     trailTraceSinkPackageBehaviour BEHAVIOUR
          DEFINED AS
          *This Package supports trail trace management at the termination sink.*
     ;;
     ATTRIBUTES
     trailTraceExpected
          REPLACE-WITH-DEFAULT
          DEFAULT VALUE SDH.defaultNull
          GET-REPLACE,
     trailTraceReceive       GET;
;
```

7.8 trailTraceSourcePackage

```
trailTraceSourcePackage PACKAGE
     BEHAVIOUR
     trailTraceSourcePackageBehaviour BEHAVIOUR
          DEFINED AS
          *This Package supports trail trace management at the termination
          source.*
     ;;
     ATTRIBUTES
     trailTraceSend          GET-REPLACE;
;
```

7.9 tu-nSinkPackage

```
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;
;
```

7.10 vc11-2BidirectionalPackageR1

```
vc11-2BidirectionalPackageR1 PACKAGE
     BEHAVIOUR
     vc11-2BidirectionalPackageR1Behaviour 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).*
;;;
```

7.11 vc11-2SinkPackageR1

```
vc11-2SinkPackageR1 PACKAGE
     BEHAVIOUR
     vc11-2SinkPackageR1Behaviour 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,
           v5SignalLabelReceive       GET;
;
```

7.12 vc3-4BidirectionalPackageR1

```
vc3-4BidirectionalPackageR1 PACKAGE
     BEHAVIOUR
     vc3-4BidirectionalPackageR1Behaviour 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).*
;;;
```

7.13 vc3-4SinkPackageR1

```
vc3-4SinkPackageR1 PACKAGE
     BEHAVIOUR
     vc3-4SinkPackageR1Behaviour 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.
          When 16 bytes are supported, the 16 bytes of the path trace shall be
          conveyed at the management interface in both ways. This is a local
          issue whether the NE recompute the CRC-7 under a replace operation.*
     ;;
```

```
     ATTRIBUTES
     j1PathTraceExpected
          REPLACE-WITH-DEFAULT
          DEFAULT VALUE SDH.defaultNull
          GET-REPLACE,
     "Recommendation G.774.05": j1PathTraceReceive          GET,
     c2SignalLabelExpected       GET,
     c2SignalLabelReceive        GET;
;
```

7.14 vc3-4SourcePackageR1

```
vc3-4SourcePackageR1 PACKAGE
     BEHAVIOUR
     vc3-4SourcePackageR1Behaviour BEHAVIOUR
          DEFINED AS
          *When 16 bytes are supported, the 16 bytes of the path trace shall be
          conveyed at the management interface.*
     ;;
     ATTRIBUTES
     "Recommendation G.774.5": j1PathTraceSend  GET-REPLACE,
      c2SignalLabelSend GET;
;
```

8 Attributes

This clause provides replacement attribute definitions for the existing Recommendation G.774 (1992). Any attribute replaced by one in this clause is considered to be deprecated. The reasons for the replacement of an attribute are as follows:

1) The replaced attribute is faulty and must be fixed.

Below is a table of attributes deprecated from Recommendation G.774 (1992):

Deprecated G.774 (1992) Attributes

```
          ferfState
```

New Attributes to support trail trace management at regenerator section level:

```
trailTraceExpected
trailTraceReceive
trailTraceSend
```

8.1 AU-3 Identification

```
au3CTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX       SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING;
     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 };
```

8.2 AU-4 Identification

```
au4CTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX       SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING;
     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 };
```

8.3 AUG Identification

```
augId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX            SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING;
     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 };
```

8.4 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.
     See Recommendation G.707/Y.1322 for a list of valid values.*
     ;;
REGISTERED AS { g774Attribute 4 };
```

8.5 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.
          See Recommendation G.707/Y.1322 for a list of valid values.*
     ;;
REGISTERED AS { g774Attribute 5 };
```

8.6 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.
     See Recommendation G.707/Y.1322 for a list of valid values.*
     ;;
REGISTERED AS { g774Attribute 6 };
```

8.7 Electrical SDH Physical Interface Trail Termination Point Identification

```
electricalSPITTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX       SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING, SUBSTRINGS;
     BEHAVIOUR
     electricalSPITTPIdBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used as an RDN for naming instances of the
          electricalSPITTP object classes.
          If the string choice of the syntax is used then matching on substrings
          is permitted. If the number choice for the syntax is used then matching
          on ordering is permitted.*
     ;;
REGISTERED AS { g774Attribute 7 };
```

8.8 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 };
```

8.9 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. If the value of this
          attribute is  set to NULL then any Received Path Trace shall be
          considered to match.*
     ;;
REGISTERED AS { g774Attribute 10 };
```

8.10 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.*
     ;;
REGISTERED AS { g774Attribute 11 };
```

8.11 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. The NULL choice is
          not supported.*
     ;;
REGISTERED AS { g774Attribute 12 };
```

8.12 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 };
```

8.13 MS Data Communications Channel CTP 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 };
```

8.14 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 };
```

8.15 Multiplex Section Trail Termination Point Identification

```
msTTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING, SUBSTRINGS;
     BEHAVIOUR
     msTTPIdBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used as an RDN for naming instances of the msTTP
          object class.
          If the string choice of the syntax is used then matching on substrings
          is permitted.
          If the number choice for the syntax is used then matching on ordering
          is permitted.*
     ;;
REGISTERED AS { g774Attribute 16 };
```

8.16 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 };
```

8.17 Optical SDH Physical Interface Trail Termination Point Identification

```
opticalSPITTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX       SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING, SUBSTRINGS;
     BEHAVIOUR
     opticalSPITTPIdBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used as an RDN for naming instances of the
          opticalSPITTP object class.
          If the string choice of the syntax is used then matching on substrings
          is permitted.
          If the number choice for the syntax is used then matching on ordering
          is permitted.*
     ;;
REGISTERED AS { g774Attribute 18 };
```

8.18 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 };
```

8.19 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 };
```

8.20 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 };
```

8.21 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 timeslot of this type.
     The value of this attribute shall be integer one.*
     ;;
REGISTERED AS { g774Attribute 22 };
```

8.22 Regenerator Section Data Communications Channel CTP 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 timeslot of
     this type. The value of this attribute shall be integer one.*
     ;;
REGISTERED AS { g774Attribute 23 };
```

8.23 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 timeslot of this type. The value of this attribute shall be
     integer one.*
     ;;
REGISTERED AS { g774Attribute 24 };
```

8.24 Regenerator Section Trail Termination Point Identification

```
rsTTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING, SUBSTRINGS;
     BEHAVIOUR
     rsTTPIdBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used as an RDN for naming instances of the rsTTP
          object classes.
          If the string choice of the syntax is used then matching on substrings
          is permitted.
          If the number choice for the syntax is used then matching on ordering
          is permitted.*
     ;;
REGISTERED AS { g774Attribute 25 };
```

8.25 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 timeslot of
     this type. The value of this attribute shall be integer one.*
     ;;
REGISTERED AS { g774Attribute 26 };
```

8.26 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 };
```

8.27 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 };
```

8.28 Trail Trace Expected

```
trailTraceExpected ATTRIBUTE
     WITH ATTRIBUTE SYNTAX       SDH.PathTrace;
     MATCHES FOR EQUALITY;
     BEHAVIOUR
     trailTraceExpectedBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used to specify the value of the expected Trail
          Trace information.
          If the value of this attribute is set to NULL then any Trail Trace
          shall be considered to match.*
     ;;
REGISTERED AS { g774Attribute 44 };
```

8.29 Trail Trace Receive

```
trailTraceReceive ATTRIBUTE
     WITH ATTRIBUTE SYNTAX       SDH.TrailTraceReceiveSend;
     MATCHES FOR EQUALITY;
     BEHAVIOUR
     trailTraceReceiveBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used to indicate the value of the incoming Trail
          Trace information.*
     ;;
REGISTERED AS { g774Attribute 45 };
```

8.30 Trail Trace Send

```
trailTraceSend ATTRIBUTE
     WITH ATTRIBUTE SYNTAX       SDH.TrailTraceReceiveSend;
     MATCHES FOR EQUALITY;
     BEHAVIOUR
          trailTraceSendBehaviour BEHAVIOUR
               DEFINED AS
     *This attribute is used to indicate the value of the outgoing Trail Trace
     information.*
     ;;
REGISTERED AS {g774Attribute 46};
```

8.31 Tributary Unit 11 Connection Termination Point Identification

```
tu11CTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX   SDH.NameType;
     MATCHES FOR   EQUALITY, ORDERING;
     BEHAVIOUR
          tu11CTPIdBehaviour BEHAVIOUR
               DEFINED AS
     *This attribute is used as an RDN for naming instances of the tu11CTP object
     classes. This attribute specifies the timeslot of the TU-11 CTP 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 29 };
```

8.32 Tributary Unit 12 Connection Termination Point Identification

```
tu12CTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX       SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING;
     BEHAVIOUR
          tu12CTPIdBehaviour BEHAVIOUR
               DEFINED AS
     *This attribute is used as an RDN for naming instances of the tu12CTP object
     classes. This attribute specifies the timeslot of the TU-12 CTP 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 30 };
```

8.33 Tributary Unit 2 Connection Termination Point Identification

```
tu2CTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX   SDH.NameType;
     MATCHES FOR   EQUALITY, ORDERING;
     BEHAVIOUR
          tu2CTPIdBehaviour BEHAVIOUR
               DEFINED AS
     *This attribute is used as an RDN for naming instances of the tu2CTP object
     classes. This attribute specifies the timeslot of the TU-2 CTP 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 31 };
```

8.34 Tributary Unit 3 Connection Termination Point Identification

```
tu3CTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX       SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING;
     BEHAVIOUR
          tu3CTPIdBehaviour BEHAVIOUR
          DEFINED AS
     *This attribute is used as an RDN for naming instances of the tu3CTP object
     classes. This attribute specifies the timeslot of the TU-3 CTP 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 32 };
```

8.35 TUG-2 Identification

```
tug2Id ATTRIBUTE
     WITH ATTRIBUTE SYNTAX   SDH.NameType;
     MATCHES FOR   EQUALITY, ORDERING;
     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 timeslot of the TUG2 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 33 };
```

8.36 TUG-3 Identification

```
tug3Id ATTRIBUTE
     WITH ATTRIBUTE SYNTAX       SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING;
     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 timeslot of the TUG3 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 34 };
```

8.37 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.
     See Recommendation G.707/Y.1322 for a list of valid values.*
     ;;
REGISTERED AS { g774Attribute 35 };
```

8.38 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. See
     Recommendation G.707/Y.1322 for a list of valid values.*
     ;;
REGISTERED AS { g774Attribute 36 };
```

8.39 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.
          See Recommendation G.707/Y.1322 for a list of valid values.*
     ;;
REGISTERED AS { g774Attribute 37 };
```

8.40 Virtual Container 11 Trail Termination Point Identification

```
vc11TTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING, SUBSTRINGS;
     BEHAVIOUR
     vc11TTPIdBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used as an RDN for naming instances of the vc11TTP
          object classes.
          If the string choice of the syntax is used then matching on substrings
          is permitted.
          If the number choice for the syntax is used then matching on ordering
          is permitted.*
     ;;
REGISTERED AS { g774Attribute 38 };
```

8.41 Virtual Container 12 Trail Termination Point Identification

```
vc12TTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING, SUBSTRINGS;
     BEHAVIOUR
     vc12TTPIdBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used as an RDN for naming instances of the vc12TTP
          object classes.
          If the string choice of the syntax is used then matching on substrings
          is permitted.
          If the number choice for the syntax is used then matching on ordering
          is permitted.*
     ;;
REGISTERED AS { g774Attribute 39 };
```

8.42 Virtual Container 2 Trail Termination Point Identification

```
vc2TTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING, SUBSTRINGS;
     BEHAVIOUR
     vc2TTPIdBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used as an RDN for naming instances of the vc2TTP
          object classes.
          If the string choice of the syntax is used then matching on substrings
          is permitted.
          If the number choice for the syntax is used then matching on ordering
          is permitted.*
     ;;
REGISTERED AS { g774Attribute 40 };
```

8.43 Virtual Container 3 Trail Termination Point Identification

```
vc3TTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING, SUBSTRINGS;
     BEHAVIOUR
     vc3TTPIdBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used as an RDN for naming instances of the vc3TTP
          object classes.
          If the string choice of the syntax is used then matching on substrings
          is permitted.
          If the number choice for the syntax is used then matching on ordering
          is permitted.*
     ;;
REGISTERED AS { g774Attribute 41 };
```

8.44 Virtual Container 4 Trail Termination Point Identification

```
vc4TTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX SDH.NameType;
     MATCHES FOR EQUALITY, ORDERING, SUBSTRINGS;
     BEHAVIOUR
     vc4TTPIdBehaviour BEHAVIOUR
          DEFINED AS
          *This attribute is used as an RDN for naming instances of the vc4TTP
          object classes.
          If the string choice of the syntax is used then matching on substrings
          is permitted.
          If the number choice for the syntax is used then matching on ordering
          is permitted.*
     ;;
REGISTERED AS { g774Attribute 42 };
```

8.45 VC-n User Channel Identification

```
vcnUserChannelCTPId ATTRIBUTE
     WITH ATTRIBUTE SYNTAX   SDH.NameType;
     MATCHES FOR EQUALITY;
     BEHAVIOUR
          vcnUserChannelCTPIdBehaviour BEHAVIOUR
               DEFINED AS
     *This attribute is used as an RDN for naming instances of the vcnUserChannel
     object classes. This attribute represents the first and only timeslot of
     this type. The value of this attribute shall be integer one.*
     ;;
REGISTERED AS { g774Attribute 43 };
```

9 Name Bindings

This clause provides replacement namebinding definitions for the existing Recommendation G.774 (1992). Any namebinding replaced by one in this clause is considered to be deprecated. The reasons for the replacement of a namebinding are as follows:

1) The replaced namebinding is faulty and must be fixed.

2) The replaced namebinding refers to a superior managed object class which has been re-registered in this Recommendation.

3) The replaced namebinding refers to a subordinate managed object class which has been re-registered in this Recommendation.

4) The replaced namebinding refers to a naming attribute which has been re-registered in this Recommendation.

In each case where a namebinding is replaced, the new namebinding will be registered within this Recommendation. The textual label for the namebinding will be revised to include the text "R1". For example, in the revision of the G.774 (1992) namebinding "vcnUserChannelCTPSource-vc4TTPSource", the revised label will become "vcnUserChannelCTPSource-vc4TTPSourceR1" or in the case of the "vc4TTPSink-sdhNE" namebinding, the revised label becomes "vc4TTPSinkR1-sdhNE". Note the "R1" is placed immediately following the revised class which impacts the namebinding.

Below is a table of namebindings deprecated from Recommendation G.774 (1992) and the G.774 namebindings which replace them:

Deprecated G.774 (1992) Namebindings

vcnUserChannelCTPBidirectional-vc3TTPBidirectional
vcnUserChannelCTPSink-vc3TTPBidirectional
vcnUserChannelCTPSink-vc3TTPSink
vcnUserChannelCTPSource-vc3TTPBidirectional
vcnUserChannelCTPSource-vc3TTPSource
vcnUserChannelCTPBidirectional-vc4TTPBidirectional
vcnUserChannelCTPSink-vc4TTPBidirectional
vcnUserChannelCTPSink-vc4TTPSink
vcnUserChannelCTPSource-vc4TTPBidirectional
vcnUserChannelCTPSource-vc4TTPSource
au3CTPBidirectional-augBidirectional
au3CTPSink-augBidirectional
au3CTPSink-augSink
au4CTPBidirectional-augBidirectional
au4CTPSink-augBidirectional
au4CTPSink-augSink
tu11CTPBidirectional-tug2Bidirectional
tu11CTPSink-tug2Bidirectional
tu11CTPSink-tug2Sink
tu12CTPBidirectional-tug2Bidirectional
tu12CTPSink-tug2Bidirectional
tu12CTPSink-tug2Sink
tu2CTPBidirectional-tug2Bidirectional
tu2CTPSink-tug2Bidirectional
tu2CTPSink-tug2Sink
tu3CTPBidirectional-tug3Bidirectional
tu3CTPSink-tug3Bidirectional
tu3CTPSink-tug3Sink
tug2Bidirectional-vc3TTPBidirectional
tug2Sink-vc3TTPSink
tug2Source-vc3TTPSource
tug3Bidirectional-vc4TTPBidirectional
tug3Sink-vc4TTPSink
tug3Source-vc4TTPSource
vc11TTPBidirectional-sdhNE
vc11TTPSink-sdhNE
vc12TTPBidirectional-sdhNE
vc12TTPSink-sdhNE
vc2TTPBidirectional-sdhNE
vc2TTPSink-sdhNE
vc3TTPBidirectional-sdhNE
vc3TTPSink-sdhNE
vc3TTPSource-sdhNE
vc4TTPBidirectional-sdhNE
vc4TTPSink-sdhNE
vc4TTPSource-sdhNE

```
     vcnUserChannelCTPBidirectional-vc3TTPBidirectionalR1
     vcnUserChannelCTPSink-vc3TTPBidirectionalR1
     vcnUserChannelCTPSink-vc3TTPSinkR1
     vcnUserChannelCTPSource-vc3TTPBidirectionalR1
     vcnUserChannelCTPSource-vc3TTPSourceR1
     vcnUserChannelCTPBidirectional-vc4TTPBidirectionalR1
     vcnUserChannelCTPSink-vc4TTPBidirectionalR1
     vcnUserChannelCTPSink-vc4TTPSinkR1
     vcnUserChannelCTPSource-vc4TTPBidirectionalR1
     vcnUserChannelCTPSource-vc4TTPSourceR1
     au3CTPBidirectionalR1-augBidirectional
     au3CTPSinkR1-augBidirectional
     au3CTPSinkR1-augSink
     au4CTPBidirectionalR1-augBidirectional
     au4CTPSink-augBidirectional
     au4CTPSinkR1-augSink
     tu11CTPBidirectionalR1-tug2Bidirectional
     tu11CTPSinkR1-tug2Bidirectional
     tu11CTPSinkR1-tug2Sink
     tu12CTPBidirectionalR1-tug2Bidirectional
     tu12CTPSinkR1-tug2Bidirectional
     tu12CTPSinkR1-tug2Sink
     tu2CTPBidirectionalR1-tug2Bidirectional
     tu2CTPSinkR1-tug2Bidirectional
     tu2CTPSinkR1-tug2Sink
     tu3CTPBidirectionalR1-tug3Bidirectional
     tu3CTPSinkR1-tug3Bidirectional
     tu3CTPSinkR1-tug3Sink
     tug2Bidirectional-vc3TTPBidirectionalR1
     tug2Sink-vc3TTPSinkR1
     tug2Source-vc3TTPSourceR1
     tug3Bidirectional-vc4TTPBidirectionalR1
     tug3Sink-vc4TTPSinkR1
     tug3Source-vc4TTPSourceR1
     vc11TTPBidirectionalR1-sdhNE
     vc11TTPSinkR1-sdhNE
     vc12TTPBidirectionalR1-sdhNE
     vc12TTPSinkR1-sdhNE
     vc2TTPBidirectionalR1-sdhNE
     vc2TTPSinkR1-sdhNE
     vc3TTPBidirectionalR1-sdhNE
     vc3TTPSinkR1-sdhNE
     vc3TTPSourceR1-sdhNE
     vc4TTPBidirectionalR1-sdhNE
     vc4TTPSinkR1-sdhNE
     vc4TTPSourceR1-sdhNE
```

9.1 au3CTP

```
au3CTPBidirectionalR1-augBidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         au3CTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   augBidirectional;
     WITH ATTRIBUTE                   au3CTPId;
     BEHAVIOUR
     au3CTPBidirectionalR1-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 121 };
```

```
au3CTPSinkR1-augBidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         au3CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   augBidirectional;
     WITH ATTRIBUTE                   au3CTPId;
     BEHAVIOUR
     au3CTPSinkR1-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 122 };

au3CTPSinkR1-augSink NAME BINDING
     SUBORDINATE OBJECT CLASS         au3CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   augSink;
     WITH ATTRIBUTE                   au3CTPId;
     BEHAVIOUR
     au3CTPSinkR1-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 123 };

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 };
```

9.2 au4CTP

```
au4CTPBidirectionalR1-augBidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         au4CTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   augBidirectional;
     WITH ATTRIBUTE                   au4CTPId;
     BEHAVIOUR
     au4CTPBidirectionalR1-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 124 };
```

```
au4CTPSinkR1-augBidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         au4CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   augBidirectional;
     WITH ATTRIBUTE                   au4CTPId;
     BEHAVIOUR
     au4CTPSinkR1-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 125 };

au4CTPSinkR1-augSink NAME BINDING
     SUBORDINATE OBJECT CLASS         au4CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   augSink;
     WITH ATTRIBUTE                   au4CTPId;
     BEHAVIOUR
     au4CTPSinkR1-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 126 };

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 };
```

9.3 aug

```
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 };
```

9.4 electricalSPITTP

```
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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 };
```

9.5 msCTP

```
msCTPSink-rsTTPBidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         msCTPSink AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPSink AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPSource AND SUBCLASSES;
     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 };
```

9.6 msDatacomCTP

```
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 };
```

9.7 msOrderwireCTP

```
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 };
```

9.8 msTTP

```
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 };
```

9.9 opticalSPITTP

```
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 };
```

9.10 rsCTP

```
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 };
```

9.11 rsDatacomCTP

```
rsDatacomCTPBidirectional-rsTTPBidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         rsDatacomCTPBidirectional AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPSink AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY SUPERIOR OBJECT CLASS   rsTTPSource AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 };
```

9.12 rsOrderwireCTP

```
rsOrderwireCTPSink-rsTTPBidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         rsOrderwireCTPSink AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPSink AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPSource AND SUBCLASSES;
     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 };
```

9.13 rsTTP

```
rsTTPBidirectional-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     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 AND SUBCLASSES;
     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 };
```

9.14 rsUserChannelCTP

```
rsUserChannelCTPBidirectional-rsTTPBidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         rsUserChannelCTPBidirectional AND
                                      SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPSink AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPBidirectional AND SUBCLASSES;
     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 AND SUBCLASSES;
     NAMED BY  SUPERIOR OBJECT CLASS  rsTTPSource AND SUBCLASSES;
     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 };
```

9.15 tu11CTP

```
tu11CTPBidirectionalR1-tug2Bidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         tu11CTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug2Bidirectional;
     WITH ATTRIBUTE                   tu11CTPId;
     BEHAVIOUR
     tu11CTPBidirectionalR1-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 127 };

tu11CTPSinkR1-tug2Bidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         tu11CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug2Bidirectional;
     WITH ATTRIBUTE                   tu11CTPId;
     BEHAVIOUR
     tu11CTPSinkR1-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 128 };
tu11CTPSinkR1-tug2Sink NAME BINDING
     SUBORDINATE OBJECT CLASS         tu11CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug2Sink;
     WITH ATTRIBUTE                   tu11CTPId;
     BEHAVIOUR
     tu11CTPSinkR1-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 129 };
```

```
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 };
```

9.16 tu12CTP

```
tu12CTPBidirectionalR1-tug2Bidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         tu12CTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug2Bidirectional;
     WITH ATTRIBUTE                   tu12CTPId;
     BEHAVIOUR
     tu12CTPBidirectionalR1-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 130 };

tu12CTPSinkR1-tug2Bidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         tu12CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug2Bidirectional;
     WITH ATTRIBUTE                   tu12CTPId;
     BEHAVIOUR
     tu12CTPSinkR1-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 131 };

tu12CTPSinkR1-tug2Sink NAME BINDING
     SUBORDINATE OBJECT CLASS         tu12CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug2Sink;
     WITH ATTRIBUTE                   tu12CTPId;
     BEHAVIOUR
     tu12CTPSinkR1-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 132 };

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 };
```

9.17 tu2CTP

```
tu2CTPBidirectionalR1-tug2Bidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         tu2CTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug2Bidirectional;
     WITH ATTRIBUTE                   tu2CTPId;
     BEHAVIOUR
     tu2CTPBidirectionalR1-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 133 };
tu2CTPSinkR1-tug2Bidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         tu2CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug2Bidirectional;
     WITH ATTRIBUTE                   tu2CTPId;
     BEHAVIOUR
     tu2CTPSinkR1-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 134 };
```

```
tu2CTPSinkR1-tug2Sink NAME BINDING
     SUBORDINATE OBJECT CLASS         tu2CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug2Sink;
     WITH ATTRIBUTE                   tu2CTPId;
     BEHAVIOUR
     tu2CTPSinkR1-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 135 };

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 };
```

9.18 tu3CTP

```
tu3CTPBidirectionalR1-tug3Bidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         tu3CTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug3Bidirectional;
     WITH ATTRIBUTE                   tu3CTPId;
     BEHAVIOUR
     tu3CTPBidirectionalR1-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 136 };

tu3CTPSinkR1-tug3Bidirectional NAME BINDING
     SUBORDINATE OBJECT CLASS         tu3CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug3Bidirectional;
     WITH ATTRIBUTE                   tu3CTPId;
     BEHAVIOUR
     tu3CTPSinkR1-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 137 };

tu3CTPSinkR1-tug3Sink NAME BINDING
     SUBORDINATE OBJECT CLASS         tu3CTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   tug3Sink;
     WITH ATTRIBUTE                   tu3CTPId;
     BEHAVIOUR
     tu3CTPSinkR1-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 138 };

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 };
```

9.19 tug2

```
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-vc3TTPBidirectionalR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         tug2Bidirectional;
     NAMED BY SUPERIOR OBJECT CLASS   vc3TTPBidirectionalR1;
     WITH ATTRIBUTE                   tug2Id;
     BEHAVIOUR
     tug2Bidirectional-vc3TTPBidirectionalR1Behaviour 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 139 };

tug2Sink-vc3TTPSinkR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         tug2Sink;
     NAMED BY SUPERIOR OBJECT CLASS   vc3TTPSinkR1;
     WITH ATTRIBUTE                   tug2Id;
     BEHAVIOUR
     tug2Sink-vc3TTPSinkR1Behaviour 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 140 };

tug2Source-vc3TTPSourceR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         tug2Source;
     NAMED BY SUPERIOR OBJECT CLASS   vc3TTPSourceR1;
     WITH ATTRIBUTE                   tug2Id;
     BEHAVIOUR
     tug2Source-vc3TTPSourceR1Behaviour 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 141 };
```

9.20 tug3

```
tug3Bidirectional-vc4TTPBidirectionalR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         tug3Bidirectional;
     NAMED BY SUPERIOR OBJECT CLASS   vc4TTPBidirectionalR1;
     WITH ATTRIBUTE                   tug3Id;
     BEHAVIOUR
     tug3Bidirectional-vc4TTPBidirectionalR1Behaviour 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 142 };

tug3Sink-vc4TTPSinkR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         tug3Sink;
     NAMED BY SUPERIOR OBJECT CLASS   vc4TTPSinkR1;
     WITH ATTRIBUTE                   tug3Id;
     BEHAVIOUR
     tug3Sink-vc4TTPSinkR1Behaviour 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 143 };

tug3Source-vc4TTPSourceR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         tug3Source;
     NAMED BY SUPERIOR OBJECT CLASS   vc4TTPSourceR1;
     WITH ATTRIBUTE                   tug3Id;
     BEHAVIOUR
     tug3Source-vc4TTPSourceR1Behaviour 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 144 };
```

9.21 vc11TTP

```
vc11TTPBidirectionalR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc11TTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc11TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 145 };

vc11TTPSinkR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc11TTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc11TTPId;
```

```
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 146 };

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 };
```

9.22 vc12TTP

```
vc12TTPBidirectionalR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc12TTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc12TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 147 };

vc12TTPSinkR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc12TTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc12TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 148 };

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 };
```

9.23 vc2TTP

```
vc2TTPBidirectionalR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc2TTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc2TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
```

```
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 149 };

vc2TTPSinkR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc2TTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc2TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 150 };

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 };

vc3TTPBidirectionalR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc3TTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc3TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 151 };
```

9.24 vc3TTP

```
vc3TTPSinkR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc3TTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc3TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 152 };

vc3TTPSourceR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc3TTPSourceR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc3TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 153 };
```

9.25 vc4TTP

```
vc4TTPBidirectionalR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc4TTPBidirectionalR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc4TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 154 };

vc4TTPSinkR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc4TTPSinkR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc4TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 155 };

vc4TTPSourceR1-sdhNE NAME BINDING
     SUBORDINATE OBJECT CLASS         vc4TTPSourceR1;
     NAMED BY SUPERIOR OBJECT CLASS   sdhNE;
     WITH ATTRIBUTE                   vc4TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 156 };
```

9.26 vcnUserChannelCTP

```
vcnUserChannelCTPBidirectional-vc3TTPBidirectionalR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         vcnUserChannelCTPBidirectional;
     NAMED BY SUPERIOR OBJECT CLASS   vc3TTPBidirectionalR1;
     WITH ATTRIBUTE                   vcnUserChannelCTPId;
     BEHAVIOUR
     vcnUserChannelCTPBidirectional-vc3TTPBidirectionalR1Behaviour 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 157 };

vcnUserChannelCTPSink-vc3TTPBidirectionalR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         vcnUserChannelCTPSink;
     NAMED BY SUPERIOR OBJECT CLASS   vc3TTPBidirectionalR1;
     WITH ATTRIBUTE                   vcnUserChannelCTPId;
     BEHAVIOUR
     vcnUserChannelCTPSink-vc3TTPBidirectionalR1Behaviour 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 158 };
```

```
vcnUserChannelCTPSink-vc3TTPSinkR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         vcnUserChannelCTPSink;
     NAMED BY SUPERIOR OBJECT CLASS   vc3TTPSinkR1;
     WITH ATTRIBUTE                   vcnUserChannelCTPId;
     BEHAVIOUR
     vcnUserChannelCTPSink-vc3TTPSinkR1Behaviour 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 159 };

vcnUserChannelCTPSource-vc3TTPBidirectionalR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         vcnUserChannelCTPSource;
     NAMED BY SUPERIOR OBJECT CLASS   vc3TTPBidirectionalR1;
     WITH ATTRIBUTE                   vcnUserChannelCTPId;
     BEHAVIOUR
     vcnUserChannelCTPSource-vc3TTPBidirectionalR1Behaviour 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 160 };

vcnUserChannelCTPSource-vc3TTPSourceR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         vcnUserChannelCTPSource;
     NAMED BY SUPERIOR OBJECT CLASS   vc3TTPSourceR1;
     WITH ATTRIBUTE                   vcnUserChannelCTPId;
     BEHAVIOUR
     vcnUserChannelCTPSource-vc3TTPSourceR1Behaviour 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 161 };

vcnUserChannelCTPBidirectional-vc4TTPBidirectionalR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         vcnUserChannelCTPBidirectional;
     NAMED BY SUPERIOR OBJECT CLASS   vc4TTPBidirectionalR1;
     WITH ATTRIBUTE                   vcnUserChannelCTPId;
     BEHAVIOUR
     vcnUserChannelCTPBidirectional-vc4TTPBidirectionalR1Behaviour 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 162 };

vcnUserChannelCTPSink-vc4TTPBidirectionalR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         vcnUserChannelCTPSink;
     NAMED BY SUPERIOR OBJECT CLASS   vc4TTPBidirectionalR1;
     WITH ATTRIBUTE                   vcnUserChannelCTPId;
     BEHAVIOUR
     vcnUserChannelCTPSink-vc4TTPBidirectionalR1Behaviour 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 163 };
```

```
vcnUserChannelCTPSink-vc4TTPSinkR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         vcnUserChannelCTPSink;
     NAMED BY SUPERIOR OBJECT CLASS   vc4TTPSinkR1;
     WITH ATTRIBUTE                   vcnUserChannelCTPId;
     BEHAVIOUR
     vcnUserChannelCTPSink-vc4TTPSinkR1Behaviour 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 164 };

vcnUserChannelCTPSource-vc4TTPBidirectionalR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         vcnUserChannelCTPSource;
     NAMED BY SUPERIOR OBJECT CLASS   vc4TTPBidirectionalR1;
     WITH ATTRIBUTE                   vcnUserChannelCTPId;
     BEHAVIOUR
     vcnUserChannelCTPSource-vc4TTPBidirectionalR1Behaviour 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 165 };

vcnUserChannelCTPSource-vc4TTPSourceR1 NAME BINDING
     SUBORDINATE OBJECT CLASS         vcnUserChannelCTPSource;
     NAMED BY SUPERIOR OBJECT CLASS   vc4TTPSourceR1;
     WITH ATTRIBUTE                   vcnUserChannelCTPId;
     BEHAVIOUR
     vcnUserChannelCTPSource-vc4TTPSourceR1Behaviour 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 166 };
```

10 Supporting ASN.1

```
SDH {itu-t(0) recommendation(0) g(7) sdhm(774) informationModel(0) asn1Module(2)
sdh(0)}

DEFINITIONS IMPLICIT TAGS ::=
BEGIN

IMPORTS
NameType  -- Recommendation M.3100
FROM ASN1DefinedTypesModule {itu-t(0) recommendation(0) m(13) gnm(3100)
informationModel(0) asn1Modules(2) asn1DefinedTypeModule(0)}
;
g774 OBJECT IDENTIFIER ::= {itu-t(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)

defaultNull Null ::= NULL
Null ::= NULL

Integer ::= INTEGER

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

OpticalWavelength ::= ENUMERATED {
     wl1310(0),
     wl1550(1)
}

PathTrace ::= CHOICE {
     null          NULL,
     pathtrace     [1] GraphicString
}
-- Reffering to PointerSinkType. The ENUMERATED value of invalidPointer(2)
-- should be used when a LOP condition exists or if the pointer value is unknown.

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

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

TrailTraceReceiveSend   ::=  GraphicString

V5SignalLabel ::= INTEGER (0..7)

END
```

11 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.

11.1 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
```

11.1.1 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.

11.1.2 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.

11.2 Connectivity pointer constraints

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

This clause provides replacement constraint rule definitions for the existing Recommendation G.774 (1992). Any constraint rule replaced by one in this clause is considered to be deprecated. The reasons for the replacement of a constraint rule are as follows:

1) The replaced constraint rule is faulty and must be fixed.

2) The replaced constraint rule refers to a managed object class which has been re-registered in this Recommendation.

3) The replaced constraint rule refers to an attribute which has been re-registered in this Recommendation.

In each case where a constraint is replaced, the new constraint will be registered within this Recommendation. The textual label for the constraint will be revised to include the text "R1". For example, in the revision of the G.774 (1992) constraint "downstreamConnectivityPointer-au3CTPSink", the revised label will become "downstreamConnectivityPointer-au3CTPSinkR1". Note the "R1" is placed immediately following the revised class which impacts the constraint. In the case where the class within the label has not changed but the constraint is still altered because the constraint refers to a class that has changed, then the "R1" is placed immediately following the "downstreamConnectivityPointer" text of the revised constraint label. For example, in the revision of the G.774 (1992) constraint "downstreamConnectivityPointer-au3CTPSource", the revised label will become "downstreamConnectivityPointerR1-au3CTPSource".

Below is a table of constraint rules deprecated from Recommendation G.774 (1992) and the G.774 constraint rules which replace them:

Deprecated G.774 (1992) Constraint Rules

downstreamConnectivityPointer-au3CTPSink
upstreamConnectivityPointer-au3CTPSource
downstreamConnectivityPointer-au4CTPSink
upstreamConnectivityPointer-au4CTPSource
downstreamConnectivityPointer-tu11CTPSink
upstreamConnectivityPointer-tu11CTPSource
downstreamConnectivityPointer-tu12CTPSink
upstreamConnectivityPointer-tu12CTPSource
downstreamConnectivityPointer-tu2CTPSink
upstreamConnectivityPointer-tu2CTPSource
downstreamConnectivityPointer-tu3CTPSink
upstreamConnectivityPointer-tu3CTPSource
upstreamConnectivityPointer-vc11TTPSink
downstreamConnectivityPointer-vc11TTPSource
upstreamConnectivityPointer-vc12TTPSink
downstreamConnectivityPointer-vc12TTPSource
upstreamConnectivityPointer-vc2TTPSink
downstreamConnectivityPointer-vc2TTPSource
upstreamConnectivityPointer-vc3TTPSink
downstreamConnectivityPointer-vc3TTPSource
upstreamConnectivityPointer-vc4TTPSink
downstreamConnectivityPointer-vc4TTPSource

```
     downstreamConnectivityPointer-au3CTPSinkR1
     upstreamConnectivityPointerR1-au3CTPSource
     downstreamConnectivityPointer-au4CTPSinkR1
     upstreamConnectivityPointerR1-au4CTPSource
     downstreamConnectivityPointer-tu11CTPSinkR1
     upstreamConnectivityPointerR1-tu11CTPSource
     downstreamConnectivityPointer-tu12CTPSinkR1
     upstreamConnectivityPointerR1-tu12CTPSource
     downstreamConnectivityPointer-tu2CTPSinkR1
     upstreamConnectivityPointerR1-tu2CTPSource
     downstreamConnectivityPointer-tu3CTPSinkR1
     upstreamConnectivityPointerR1-tu3CTPSource
     upstreamConnectivityPointer-vc11TTPSinkR1
     downstreamConnectivityPointerR1-vc11TTPSource
     upstreamConnectivityPointer-vc12TTPSinkR1
     downstreamConnectivityPointerR1-vc12TTPSource
     upstreamConnectivityPointer-vc2TTPSinkR1
     downstreamConnectivityPointerR1-vc2TTPSource
     upstreamConnectivityPointer-vc3TTPSinkR1
     downstreamConnectivityPointer-vc3TTPSourceR1
     upstreamConnectivityPointer-vc4TTPSinkR1
     downstreamConnectivityPointer-vc4TTPSourceR1

downstreamConnectivityPointer-au3CTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          au3CTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          vc3TTPSinkR1, vc3TTPBidirectionalR1,
          au3CTPSource, au3CTPBidirectionalR1,
          tu3CTPSource, tu3CTPBidirectionalR1,
          vc4TTPSinkR1, vc4TTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc3TTPSinkR1,vc3TTPBidirectionalR1,
                    au3CTPSource,
                    au3CTPBidirectionalR1,
                    tu3CTPSource,
                    tu3CTPBidirectionalR1,
                    vc4TTPSinkR1,vc4TTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    SET SIZE(1..N) OF CHOICE {
                         vc3TTPSinkR1, vc3TTPBidirectionalR1,
                         tu3CTPSource,
                         tu3CTPBidirectionalR1,
                         au3CTPSource,
                         au3CTPBidirectionalR1 },
                    SET SIZE(1..N) OF CHOICE {
                         vc4TTPSinkR1, vc4TTPBidirectionalR1 }
               }
     };
;
```

```
upstreamConnectivityPointerR1-au3CTPSource CONSTRAINT RULE
     OBJECT CLASS
          au3CTPSource AND SUBCLASSES;
     IS RELATED TO
          vc3TTPSourceR1, vc3TTPBidirectionalR1,
          au3CTPSinkR1, au3CTPBidirectionalR1,
          tu3CTPSinkR1, tu3CTPBidirectionalR1,
          vc4TTPSourceR1, vc4TTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE { vc3TTPSourceR1,vc3TTPBidirectionalR1,
                    au3CTPSinkR1,au3CTPBidirectionalR1,
                    tu3CTPSinkR1,tu3CTPBidirectionalR1,
                    vc4TTPSourceR1,vc4TTPBidirectionalR1 }
     };
;

downstreamConnectivityPointer-au4CTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          au4CTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          au4CTPSource, au4CTPBidirectionalR1,
          vc4TTPSinkR1, vc4TTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc4TTPSinkR1,vc4TTPBidirectionalR1,
                    au4CTPSource,
                    au4CTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc4TTPSinkR1, vc4TTPBidirectionalR1,
                    au4CTPSource,
                     au4CTPBidirectionalR1 }
     };
;

upstreamConnectivityPointerR1-au4CTPSource CONSTRAINT RULE
     OBJECT CLASS
          au4CTPSource AND SUBCLASSES;
     IS RELATED TO
          au4CTPSinkR1, au4CTPBidirectionalR1,
          vc4TTPSourceR1, vc4TTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc4TTPSourceR1, vc4TTPBidirectionalR1,
                    au4CTPSinkR1, au4CTPBidirectionalR1 }
     };
;

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,
          rsTTPTrailTraceSink, rsTTPTrailTraceBidirectional,
          rsCTPSource, rsCTPBidirectional;
```

```
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    rsTTPSink, rsTTPBidirectional,
                    rsTTPTrailTraceSink, rsTTPTrailTraceBidirectional,
                    rsCTPSource, rsCTPBidirectional }
     };
;

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

upstreamConnectivityPointer-rsTTPSink CONSTRAINT RULE
     OBJECT CLASS
          rsTTPSink 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
          rsTTPSource 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-tu11CTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          tu11CTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          vc11TTPSinkR1, vc11TTPBidirectionalR1,
          tu11CTPSource, tu11CTPBidirectionalR1;
```

```
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc11TTPSinkR1, vc11TTPBidirectionalR1,
                    tu11CTPSource,
                    tu11CTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc11TTPSinkR1, vc11TTPBidirectionalR1,
                    tu11CTPSource,
                    tu11CTPBidirectionalR1 }
     };
;

upstreamConnectivityPointerR1-tu11CTPSource CONSTRAINT RULE
     OBJECT CLASS
          tu11CTPSource AND SUBCLASSES;
     IS RELATED TO
          vc11TTPSource, vc11TTPBidirectionalR1,
          tu11CTPSinkR1, tu11CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc11TTPSource,
                    vc11TTPBidirectionalR1,
                    tu11CTPSinkR1, tu11CTPBidirectionalR1 }
     };
;

downstreamConnectivityPointer-tu12CTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          tu12CTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          vc12TTPSinkR1, vc12TTPBidirectionalR1,
          tu12CTPSource, tu12CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc12TTPSinkR1, vc12TTPBidirectionalR1,
                    tu12CTPSource,
                    tu12CTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc12TTPSinkR1, vc12TTPBidirectionalR1,
                    tu12CTPSource,
                    tu12CTPBidirectionalR1 }
     };
;

upstreamConnectivityPointerR1-tu12CTPSource CONSTRAINT RULE
     OBJECT CLASS
          tu12CTPSource AND SUBCLASSES;
     IS RELATED TO
          vc12TTPSource, vc12TTPBidirectionalR1,
          tu12CTPSinkR1, tu12CTPBidirectionalR1;
```

```
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc12TTPSource,
                     vc12TTPBidirectionalR1,
                    tu12CTPSinkR1, tu12CTPBidirectionalR1 }
     };
;

downstreamConnectivityPointer-tu2CTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          tu2CTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          vc2TTPSinkR1, vc2TTPBidirectionalR1,
          tu2CTPSource, tu2CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc2TTPSinkR1, vc2TTPBidirectionalR1,
                    tu2CTPSource,
                    tu2CTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc2TTPSinkR1, vc2TTPBidirectionalR1,
                    tu2CTPSource,
                    tu2CTPBidirectionalR1 }
     };
;

upstreamConnectivityPointerR1-tu2CTPSource CONSTRAINT RULE
     OBJECT CLASS
          tu2CTPSource AND SUBCLASSES;
     IS RELATED TO
          vc2TTPSource, vc2TTPBidirectionalR1,
          tu2CTPSinkR1, tu2CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc2TTPSource,
                    vc2TTPBidirectionalR1,
                    tu2CTPSinkR1, tu2CTPBidirectionalR1 }
     };
;

downstreamConnectivityPointer-tu3CTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          tu3CTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          vc3TTPSinkR1, vc3TTPBidirectionalR1,
          au3CTPSource, au3CTPBidirectionalR1,
          tu3CTPSource, tu3CTPBidirectionalR1;
```

```
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc3TTPSinkR1, vc3TTPBidirectionalR1,
                    au3CTPSource,
                    au3CTPBidirectionalR1,
                    tu3CTPSource,
                    tu3CTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc3TTPSinkR1, vc3TTPBidirectionalR1,
                    au3CTPSource,
                    au3CTPBidirectionalR1,
                    tu3CTPSource,
                    tu3CTPBidirectionalR1 }
     };
;

upstreamConnectivityPointerR1-tu3CTPSource CONSTRAINT RULE
     OBJECT CLASS
          tu3CTPSource AND SUBCLASSES;
     IS RELATED TO
          vc3TTPSourceR1, vc3TTPBidirectionalR1,
          au3CTPSinkR1, au3CTPBidirectionalR1,
          tu3CTPSinkR1, tu3CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc3TTPSourceR1, vc3TTPBidirectionalR1,
                    au3CTPSinkR1, au3CTPBidirectionalR1,
                    tu3CTPSinkR1, tu3CTPBidirectionalR1 }
     };
;

upstreamConnectivityPointer-vc11TTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          vc11TTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          vc11TTPSource, vc11TTPBidirectionalR1,
          tu11CTPSinkR1, tu11CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc11TTPSource,
                    vc11TTPBidirectionalR1,
                    tu11CTPSinkR1, tu11CTPBidirectionalR1 }
     };
;

downstreamConnectivityPointerR1-vc11TTPSource CONSTRAINT RULE
     OBJECT CLASS
          vc11TTPSource AND SUBCLASSES;
     IS RELATED TO
          vc11TTPSinkR1, vc11TTPBidirectionalR1,
          tu11CTPSource, tu11CTPBidirectionalR1;
```

```
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc11TTPSinkR1, vc11TTPBidirectionalR1,
                    tu11CTPSource,
                    tu11CTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc11TTPSinkR1, vc11TTPBidirectionalR1,
                    tu11CTPSource,
                    tu11CTPBidirectionalR1 }
     };
;

upstreamConnectivityPointer-vc12TTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          vc12TTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          vc12TTPSource, vc12TTPBidirectionalR1,
          tu12CTPSinkR1, tu12CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc12TTPSource,
                    vc12TTPBidirectionalR1,
                    tu12CTPSinkR1, tu12CTPBidirectionalR1 }
     };
;

downstreamConnectivityPointerR1-vc12TTPSource CONSTRAINT RULE
     OBJECT CLASS
          vc12TTPSource AND SUBCLASSES;
     IS RELATED TO
          vc12TTPSinkR1, vc12TTPBidirectionalR1,
          tu12CTPSource, tu12CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc12TTPSinkR1, vc12TTPBidirectionalR1,
                    tu12CTPSource,
                    tu12CTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc12TTPSinkR1, vc12TTPBidirectionalR1,
                    tu12CTPSource,
                    tu12CTPBidirectionalR1 }
     };
;

upstreamConnectivityPointer-vc2TTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          vc2TTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          vc2TTPSource, vc2TTPBidirectionalR1,
          tu2CTPSinkR1, tu2CTPBidirectionalR1;
```

```
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc2TTPSource,
                    vc2TTPBidirectionalR1,
                    tu2CTPSinkR1, tu2CTPBidirectionalR1 }
     };
;

downstreamConnectivityPointerR1-vc2TTPSource CONSTRAINT RULE
     OBJECT CLASS
          vc2TTPSource AND SUBCLASSES;
     IS RELATED TO
          vc2TTPSinkR1, vc2TTPBidirectionalR1,
          tu2CTPSource, tu2CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc2TTPSinkR1, vc2TTPBidirectionalR1,
                    tu2CTPSource,
                    tu2CTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc2TTPSinkR1, vc2TTPBidirectionalR1,
                    tu2CTPSource,
                    tu2CTPBidirectionalR1 }
     };
;

upstreamConnectivityPointer-vc3TTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          vc3TTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          vc3TTPSourceR1, vc3TTPBidirectionalR1,
          au3CTPSinkR1, au3CTPBidirectionalR1,
          tu3CTPSinkR1, tu3CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc3TTPSourceR1, vc3TTPBidirectionalR1,
                    au3CTPSinkR1, au3CTPBidirectionalR1,
                    tu3CTPSinkR1, tu3CTPBidirectionalR1 }
     };
;

downstreamConnectivityPointer-vc3TTPSourceR1 CONSTRAINT RULE
     OBJECT CLASS
          vc3TTPSourceR1 AND SUBCLASSES;
     IS RELATED TO
          vc3TTPSinkR1, vc3TTPBidirectionalR1,
          au3CTPSource, au3CTPBidirectionalR1,
          tu3CTPSource, tu3CTPBidirectionalR1;
```

```
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc3TTPSinkR1, vc3TTPBidirectionalR1,
                    au3CTPSource,
                    au3CTPBidirectionalR1,
                    tu3CTPSource,
                    tu3CTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc3TTPSinkR1, vc3TTPBidirectionalR1,
                    au3CTPSource,
                    au3CTPBidirectionalR1,
                    tu3CTPSource,
                    tu3CTPBidirectionalR1 }
     };
;

upstreamConnectivityPointer-vc4TTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          vc4TTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          vc4TTPSourceR1, vc4TTPBidirectionalR1,
          au4CTPSinkR1, au4CTPBidirectionalR1,
          au3CTPSinkR1, au3CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc4TTPSourceR1, vc4TTPBidirectionalR1,
                    au4CTPSinkR1, au4CTPBidirectionalR1 },
          concatenated ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    SEQUENCE SIZE(3) OF au3CTPSinkR1,
                    SEQUENCE SIZE(3) OF au3CTPBidirectionalR1 }
     };
;

downstreamConnectivityPointer-vc4TTPSourceR1 CONSTRAINT RULE
     OBJECT CLASS
          vc4TTPSourceR1 AND SUBCLASSES;
     IS RELATED TO
          vc4TTPSinkR1, vc4TTPBidirectionalR1,
          au4CTPSource, au4CTPBidirectionalR1,
          au3CTPSource, au3CTPBidirectionalR1;
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    vc4TTPSinkR1, vc4TTPBidirectionalR1,
                    au4CTPSource,
                    au4CTPBidirectionalR1 },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc4TTPSinkR1, vc4TTPBidirectionalR1,
                    au4CTPSource,
                    au4CTPBidirectionalR1 },
```

```
        concatenated ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                SEQUENCE SIZE(3) OF
                    au3CTPSource,
                SEQUENCE SIZE(3) OF au3CTPBidirectionalR1 },
        broadcastConcatenated ACCORDING TO RULE
            SET SIZE(1..N) OF CHOICE {
                SEQUENCE SIZE(3) OF
                    au3CTPSource,
                SEQUENCE SIZE(3) OF au3CTPBidirectionalR1 }
    };
;
```

11.3 Naming constraints

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

This clause provides replacement subordination rule definitions for the existing Recommendation G.774 (1992). Any subordination rule replaced by one in this clause is considered to be deprecated. The reasons for the replacement of a subordination rule are as follows:

1) The replaced subordination rule is faulty and must be fixed.

2) The replaced subordination rule refers to a managed object class which has been re-registered in this Recommendation.

In each case where a subordination rule is replaced, the new subordination rule will be registered within this Recommendation. The textual label for the subordination rule will be revised to include the text "R1". For example, in the revision of the G.774 (1992) subordination rule "vc3TTPSinkSubordination", the revised label will become "vc3TTPSinkR1Subordination". Note the "R1" is placed immediately following the revised class which impacts the subordination rule. In the case where the class within the label has not changed but the subordination rule is still altered because the subordination rule refers to a class that has changed, then the "R1" is placed at the end of the revised subordination rule label. For example, in the revision of the G.774 (1992) subordination rule "tug3BidirectionalSubordination", the revised label will become "tug3BidirectionalSubordinationR1".

Below is a table of subordination rules deprecated from Recommendation G.774 (1992) and the G.774 subordination rules which replace them.

Deprecated G.774 (1992) Subordination Rules

augSinkSubordination
augBidirectionalSubordination
sdhNESubordination
tug2SinkSubordination
tug2BidirectionalSubordination
tug3SinkSubordination
tug3BidirectionalSubordination
vc3TTPSinkSubordination
vc3TTPSourceSubordination
vc3TTPBidirectionalSubordination
vc4TTPSinkSubordination
vc4TTPSourceSubordination
vc4TTPBidirectionalSubordination

```
     augSinkSubordinationR1
     augBidirectionalSubordinationR1
     sdhNESubordinationR1
     tug2SinkSubordinationR1
     tug2BidirectionalSubordinationR1
     tug3SinkSubordinationR1
     tug3BidirectionalSubordinationR1
     vc3TTPSinkR1Subordination
     vc3TTPSourceSubordinationR1
     vc3TTPBidirectionalR1Subordination
     vc4TTPSinkR1Subordination
     vc4TTPSourceR1Subordination
     vc4TTPBidirectionalR1Subordination

augSinkSubordinationR1 SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          augSink;
     NAMES SUBORDINATES
          au3CTPSinkR1,
          au4CTPSinkR1;
     ACCORDING TO RULE
          CHOICE {
               SET SIZE(1) OF au4CTPSinkR1,
               SET SIZE(3) OF au3CTPSinkR1
          };
;

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
          };
;

augBidirectionalSubordinationR1 SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          augBidirectional;
     NAMES SUBORDINATES
          au3CTPSinkR1, au3CTPSource,
           au3CTPBidirectionalR1,
          au4CTPSinkR1, au4CTPSource,
          au4CTPBidirectionalR1;
     ACCORDING TO RULE
          CHOICE {
               SET SIZE(1) OF CHOICE {
                    au4CTPSinkR1, au4CTPSource,
                    au4CTPBidirectionalR1 },
               SET SIZE(3) OF CHOICE {
                    au3CTPSinkR1, au3CTPSource,
                    au3CTPBidirectionalR1 }
          };
;
```

```
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 AND SUBCLASSES;
     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 AND SUBCLASSES;
     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 AND SUBCLASSES;
     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 }
          };
;

sdhNESubordinationR1 SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          sdhNE;
     NAMES SUBORDINATES
          electricalSPITTPSink,
          electricalSPITTPSource,
          electricalSPITTPBidirectional,
          msTTPSink,
          msTTPSource,
          msTTPBidirectional,
          opticalSPITTPSink,
          opticalSPITTPSource,
          opticalSPITTPBidirectional,
          rsTTPSink,
          rsTTPSource,
          rsTTPBidirectional,
          rsTTPTrailTraceSink,
          rsTTPTrailTraceSource,
          rsTTPTrailTraceBidirectional,
          vc11TTPSinkR1,
          vc11TTPSource,
          vc11TTPBidirectionalR1,
```

```
          vc12TTPSinkR1,
          vc12TTPSource,
          vc12TTPBidirectionalR1,
          vc2TTPSinkR1,
          vc2TTPSource,
          vc2TTPBidirectionalR1,
          vc3TTPSinkR1, vc3TTPSourceR1, vc3TTPBidirectionalR1,
          vc4TTPSinkR1, vc4TTPSourceR1, vc4TTPBidirectionalR1;
     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 rsTTPTrailTraceSink,
               SET SIZE(0..N) OF rsTTPTrailTraceSource,
               SET SIZE(0..N) OF rsTTPTrailTraceBidirectional,
               SET SIZE(0..N) OF vc11TTPSinkR1,
               SET SIZE(0..N) OF vc11TTPSource,
               SET SIZE(0..N) OF vc11TTPBidirectionalR1,
               SET SIZE(0..N) OF vc12TTPSinkR1,
               SET SIZE(0..N) OF vc12TTPSource,
               SET SIZE(0..N) OF vc12TTPBidirectionalR1,
               SET SIZE(0..N) OF vc2TTPSinkR1,
               SET SIZE(0..N) OF vc2TTPSource,
               SET SIZE(0..N) OF vc2TTPBidirectionalR1,
               SET SIZE(0..N) OF vc3TTPSinkR1,
               SET SIZE(0..N) OF vc3TTPSourceR1,
               SET SIZE(0..N) OF vc3TTPBidirectionalR1,
               SET SIZE(0..N) OF vc4TTPSinkR1,
               SET SIZE(0..N) OF vc4TTPSourceR1,
               SET SIZE(0..N) OF vc4TTPBidirectionalR1
          };
;

tug2SinkSubordinationR1 SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          tug2Sink;
     NAMES SUBORDINATES
          tu11CTPSinkR1,
          tu12CTPSinkR1,
          tu2CTPSinkR1;
     ACCORDING TO RULE
          CHOICE {
               SET SIZE(1) OF tu2CTPSinkR1,
               SET SIZE(3) OF tu12CTPSinkR1,
               SET SIZE(4) OF tu11CTPSinkR1
          };
;
```

```
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
          };
;

tug2BidirectionalSubordinationR1 SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          tug2Bidirectional;
     NAMES SUBORDINATES
          tu11CTPSinkR1,
          tu11CTPSource,
          tu11CTPBidirectionalR1,
          tu12CTPSinkR1,
          tu12CTPSource,
          tu12CTPBidirectionalR1,
          tu2CTPSinkR1,
          tu2CTPSource,
          tu2CTPBidirectionalR1;
     ACCORDING TO RULE
          CHOICE {
               SET SIZE(1) OF CHOICE {
                    tu2CTPSinkR1,
                    tu2CTPSource,
                    tu2CTPBidirectionalR1 },
               SET SIZE(3) OF CHOICE {
                    tu12CTPSinkR1,
                    tu12CTPSource,
                    tu12CTPBidirectionalR1 },
               SET SIZE(4) OF CHOICE {
                    tu11CTPSinkR1,
                    tu11CTPSource,
                    tu11CTPBidirectionalR1 }
          };
;

tug3SinkSubordinationR1 SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          tug3Sink;
     NAMES SUBORDINATES
          tug2Sink,
          tu3CTPSinkR1;
     ACCORDING TO RULE
          CHOICE {
               SET SIZE(1) OF tu3CTPSinkR1,
               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
          };
;

tug3BidirectionalSubordinationR1 SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          tug3Bidirectional;
     NAMES SUBORDINATES
          tug2Sink,
          tug2Source,
          tug2Bidirectional,
          tu3CTPSinkR1,
          tu3CTPSource,
          tu3CTPBidirectionalR1;
     ACCORDING TO RULE
          CHOICE {
               SET SIZE(1) OF CHOICE {
                    tu3CTPSinkR1,
                    tu3CTPSource,
                    tu3CTPBidirectionalR1 }
               SET SIZE(7) OF CHOICE {
                    tug2Sink,
                    tug2Source,
                    tug2Bidirectional }
          };
;

vc3TTPSinkR1Subordination SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          vc3TTPSink;
     NAMES SUBORDINATES
          tug2Sink,
          vcnUserChannelCTPSink;
     ACCORDING TO RULE
          SET {
               SET SIZE(7) OF tug2Sink,
               SET SIZE(1) OF vcnUserChannelCTPSink
          };
;

vc3TTPSourceSubordinationR1 SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          vc3TTPSourceR1;
     NAMES SUBORDINATES
          tug2Source,
          vcnUserChannelCTPSource;
     ACCORDING TO RULE
          SET {
               SET SIZE(7) OF tug2Source,
               SET SIZE(1) OF vcnUserChannelCTPSource
          };
;
```

```
vc3TTPBidirectionalR1Subordination SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          vc3TTPBidirectionalR1;
     NAMES SUBORDINATES
          tug2Bidirectional,
          vcnUserChannelCTPSink,
          vcnUserChannelCTPSource,
          vcnUserChannelCTPBidirectional;
     ACCORDING TO RULE
          SET {
               SET SIZE(7) OF tug2Bidirectional,
               SET SIZE(1) OF CHOICE {
                    vcnUserChannelCTPSink,
                    vcnUserChannelCTPSource,
                    vcnUserChannelCTPBidirectional }
          };
;

vc4TTPSinkR1Subordination SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          vc4TTPSinkR1;
     NAMES SUBORDINATES
          tug3Sink,
          vcnUserChannelCTPSink;
     ACCORDING TO RULE
          SET {
               SET SIZE(3) OF tug3Sink,
               SET SIZE(1) OF vcnUserChannelCTPSink
          };
;

vc4TTPSourceR1Subordination SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          vc4TTPSourceR1;
     NAMES SUBORDINATES
          tug3Source,
          vcnUserChannelCTPSource;
     ACCORDING TO RULE
          SET {
               SET SIZE(3) OF tug3Source,
               SET SIZE(1) OF vcnUserChannelCTPSource
          };
;

vc4TTPBidirectionalR1Subordination SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          vc4TTPBidirectionalR1;
     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

Entity relationship diagrams

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

Figure A.2 shows the naming tree for the SDH information model.

Figure A.3 illustrates the naming, connectivity pointer and cross-connect relationships for the SDH information model.

Figures A.4 and A.5 are an example of how the managed objects are used to represent a SDH multiplexer and regenerator.

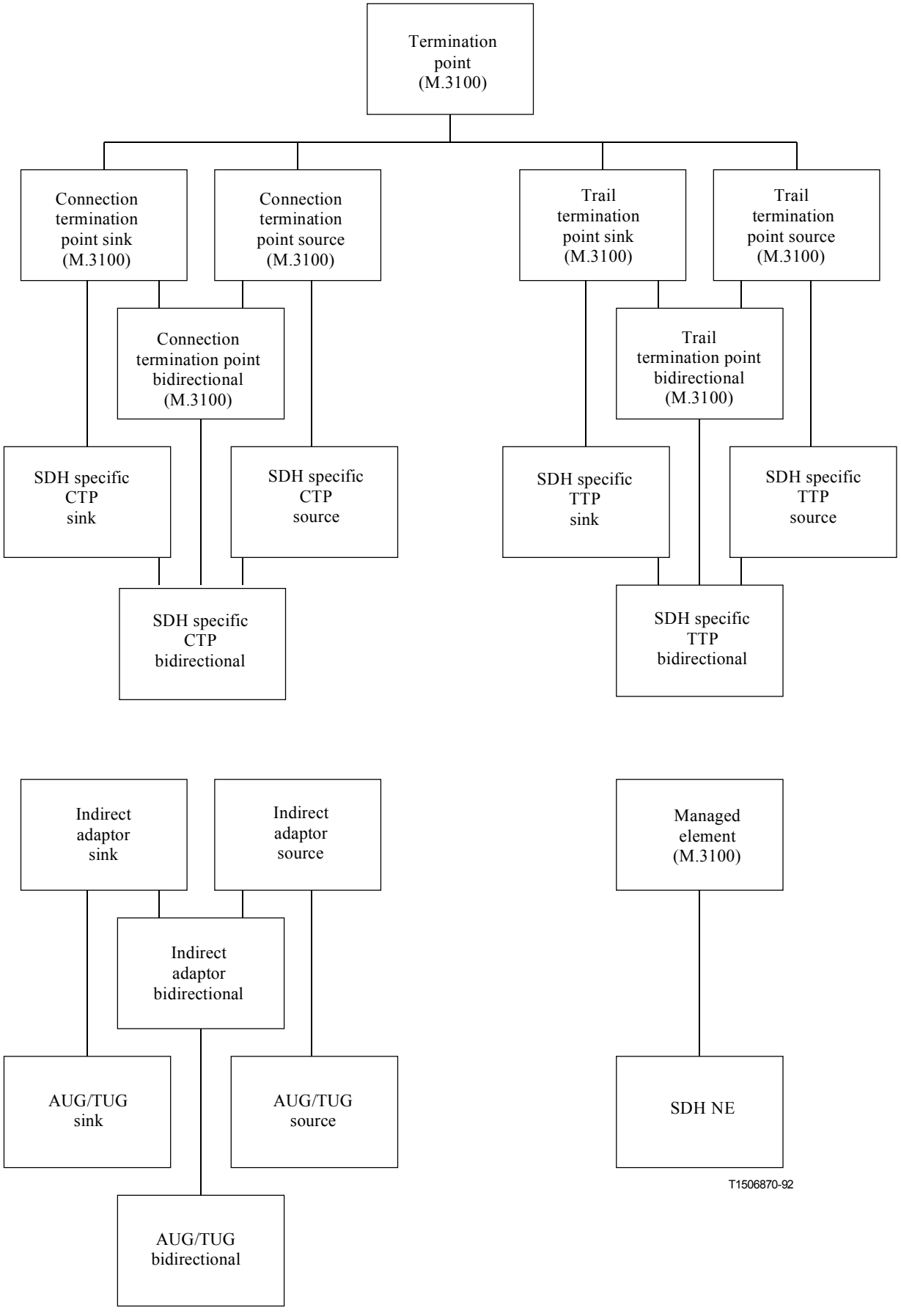


Figure A.1/G.774 – Inheritance hierarchy

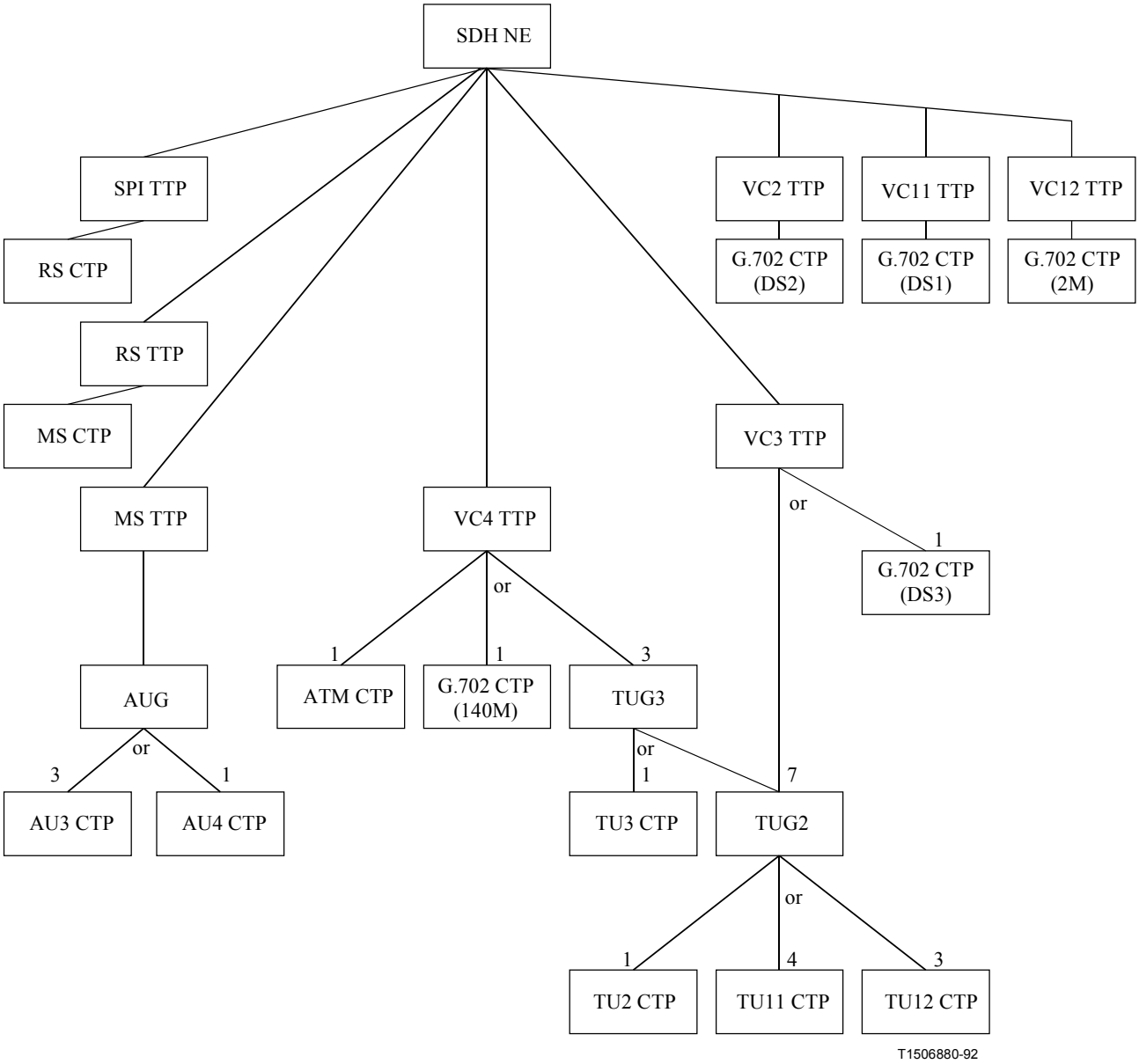


Figure A.2/G.774 – Naming tree

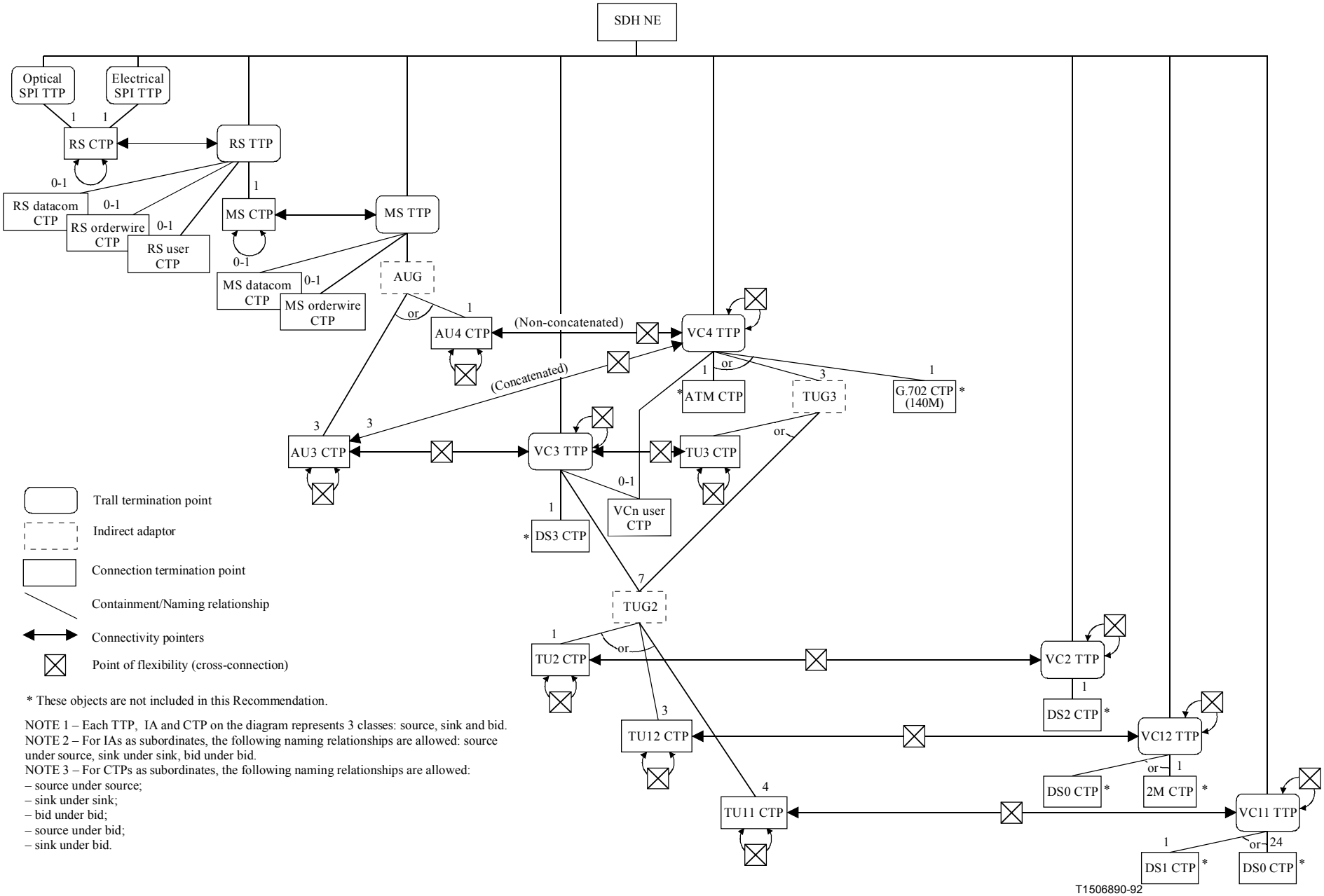


Figure A.3/G.774 – Naming, pointer and cross-connect relationships for the SDH model

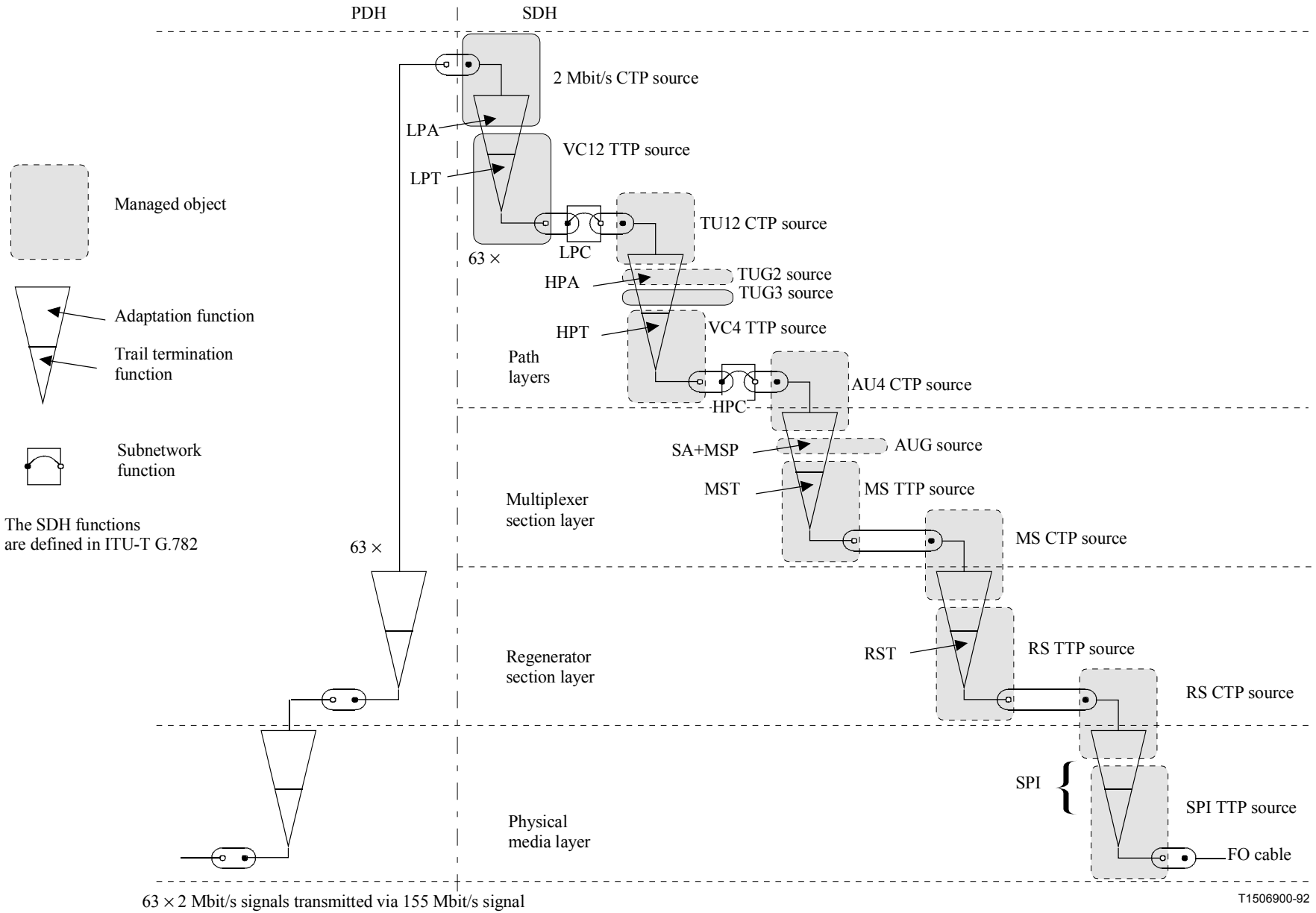
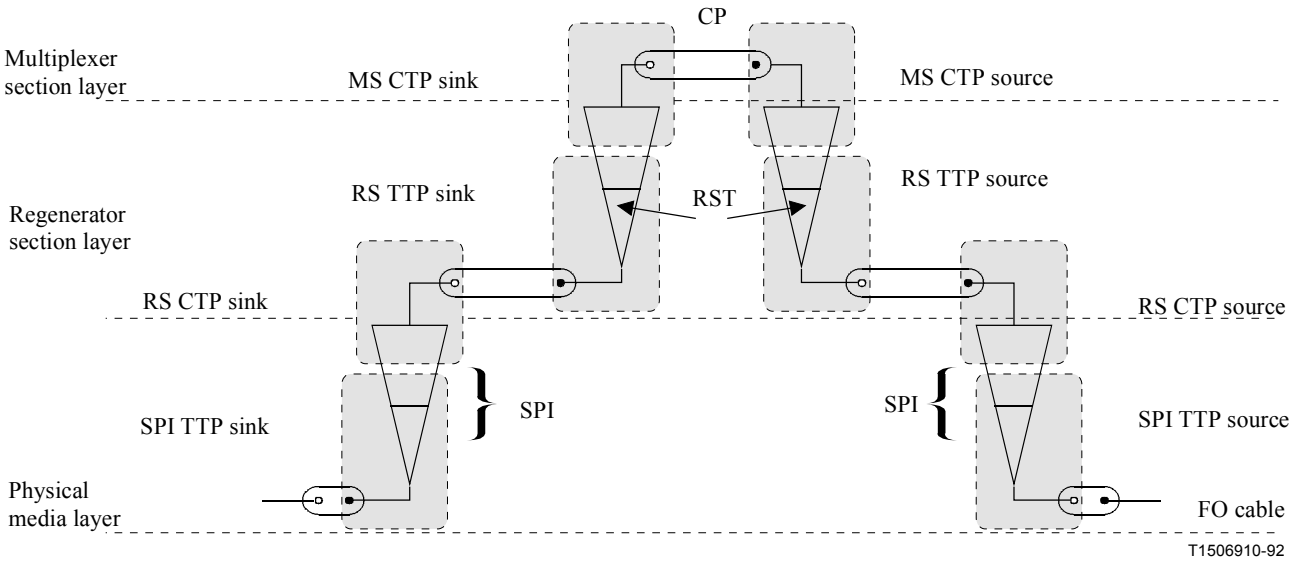


Figure A.4/G.774 – Example of information model (SDH multiplexer)



Unidirectional transmission 155 Mbit/s
CP Connection point

Figure A.5/G.774 – Example of information model (SDH regenerator)

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Geneva, 2002