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

Synchronous digital hierarchy (SDH) – Configuration of the payload structure for the network element view

ITU-T Recommendation G.774.2

ITU-T G-SERIES RECOMMENDATIONS

TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

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ITU-T Recommendation G.774.2

**Synchronous digital hierarchy (SDH) – Configuration of the payload
structure for the network element view**

Summary

This Recommendation provides an information model for the Payload Configuration Management of Synchronous Digital Hierarchy (SDH) Networks. This model describes the managed object classes and their properties for the Payload Configuration function as related to SDH Network Elements. These objects are useful to describe information exchanged across interfaces defined in ITU-T M.3010 Telecommunications Management Network (TMN) architecture for the management of the Payload Configuration function.

FOREWORD

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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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ITU-T Recommendation G.774.2

**Synchronous digital hierarchy (SDH) – Configuration of the payload
structure for the network element view**

1 Scope

SDH Payload Configuration Functions are used to configure the various SDH adaptation functions.

Modification of the SDH payload structure is done by applying an action on relevant managed objects. These actions are included by subclassing of existing G.774 managed object classes.

The new objects defined in this Recommendation supersede those defined in ITU-T G.774.2 (1994).

Structure of this Recommendation

Clause 5.1 provides an overview of the SDH Payload Configuration information model. Clauses 6 to 12 describe the information model using the notation mechanisms defined in ITU-T X.722 Guidelines for the Definition of Managed Objects. Clauses 13 and 14 describe the connectivity pointer constraint rules and the subordination rules applicable to the termination point fragment. Clause 15 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. Naming and Inheritance are illustrated in informative Appendix I.

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 (2001), *Synchronous digital hierarchy (SDH) − Management information model 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 definitions

This Recommendation uses the terms and definitions defined in ITU-T G.774, G.784 and M.3100.

4 Abbreviations

This Recommendation uses the following abbreviations:

AU   Administrative Unit

AUG   Administrative Unit Group

Bid   Bidirectional

CTP   Connection Termination Point

GTP   Group Termination Point

Id   Identifier

MS   Multiplex Section

NE   Network Element

OS   Operations System

OSI   Open Systems Interconnection

PDH   Plesiochronous Digital Hierarchy

RS   Regenerator Section

SDH   Synchronous Digital Hierarchy

SPI   Synchronous Physical Interface

TMN   Telecommunications Management Network

TP   Termination Point

TTP   Trail Termination Point

TU   Tributary Unit

TUG   Tributary Unit Group

VC-n   Virtual Container n

5 Payload configuration information model

5.1 Overview

Modification of the SDH frame structure is done by applying an action on relevant managed objects. These actions are included by subclassing of G.774 managed object classes. Actions are applied on the following classes:

New Managed Object Classes   *Action used*

```
modifiableAugSink                       defineAUGStructure
modifiableAugSource                     defineAUGStructure
modifiableAugBidirectional              defineAUGStructure
modifiableTug3Sink                      defineTug3Structure
modifiableTug3Source                    defineTug3Structure
modifiableTug3Bidirectional             defineTug3Structure
modifiableTug2Sink                      defineTug2Structure
modifiableTug2Source                    defineTug2Structure
modifiableTug2Bidirectional             defineTug2Structure
modifiableVC4TTPSinkR1                  defineVC4Structure
modifiableVC4TTPSourceR1                defineVC4Structure
modifiableVC4TTPBidirectionalR1         defineVC4Structure
modifiableVC3TTPSinkR1                  defineVC3Structure
```

```
modifiableVC3TTPSourceR1                    defineVC3Structure
modifiableVC3TTPBidirectionalR1             defineVC3Structure
modifiableVC2TTPSinkR1                      defineClientType
modifiableVC2TTPSource                      defineClientType
modifiableVC2TTPBidirectionalR1             defineClientType
modifiableVC12TTPSinkR1                     defineClientType
modifiableVC12TTPSource                     defineClientType
modifiableVC12TTPBidirectionalR1            defineClientType
modifiableVC11TTPSinkR1                     defineClientType
modifiableVC11TTPSource                     defineClientType
modifiableVC11TTPBidirectionalR1            defineClientType
```

Different actions are defined depending on the class of the managed object on which the action is applied.

The behaviour related to the action is specified along with the action definition.

For object classes defined in this Recommendation, the specialization is made from object classes defined in ITU-T G.774 according to the following scheme:

–   Sink from Sink;

–   Source from Source;

–   Bidirectional from Bidirectional.

The **supportableClientList** attribute is used to contain a list of managed object classes. Only instances of classes present in the list may be contained by an instance of the class which contains the **supportableClientList** attribute.

In a case where a TP or **indirectAdaptor** could only contain one type of client, the managed object classes from ITU-T G.774 should be used.

5.2   Requirements

The choice between instantiation of modifiable or non-modifiable indirect adaptor object classes is made according to the make-up and mode of operation of the network element.

The choice between instantiation of modifiable or non-modifiable trail termination point object classes is made according to the make-up and mode of operation of the network element or by direct OS operations.

All the structure below any Trail Termination Point (i.e. **vc4TTP**, **vc3TTP**, ...) is completely configured once they are created according to a predefined default configuration.

Reconfiguration of the multiplexing structure should be supported (i.e. changing a **tug3** from a not multiplexed structure into **7 tug2**).

Configuration or reconfiguration defines the complete subtrees between the Trail Termination Point of the server layer (e.g. **vc4TTP**) and the Connection Termination Points of its clients (e.g. **tu3CTP, tu12CTP**, ...).

In a case when a Trail Termination Point can be cross-connected, it can exist independently of any existing path that has to be terminated.

The management system may select if the created connection termination point (e.g. **tu3CTP**) can be flexibly assigned or not.

The concatenation of **Nxtu2CTP** or **Nxau4CTP** is done by means of GTP objects and by means of the **addTpsToGTP** and **removeTpsFromGTP** actions on the fabric managed object.

The management system should be able to select the type of mapping of the PDH payload inside virtual container.

Change of configuration of already cross-connected CTP which is contained directly or indirectly by the object on which the action is applied is not feasible. The involved connection termination points should be disconnected first using the disconnect action onto the fabric.

6 Object classes

Revisions that require re-registration

This clause provides replacement managed object class definitions for the existing ITU-T G.774.2 (1994). Any managed object class replaced by one in this clause is considered to be deprecated. The reasons for the replacement of a managed object class are as follows:

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

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

3) The replaced managed object class inherits from a managed object class which has been re-registered in this or another 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.774.2 (1994) managed object class "modifiableVC4TTPBidirectional", the revised label will become "modifiableVC4TTPBidirectionalR1".

Below is a table of classes deprecated from ITU-T G.774.2 (1994) and the G.774.2 classes which replace them:

Deprecated G.774.2 1994 Classes	Replacement G.774.2 Classes
modifiableVC4TTPBidirectional	modifiableVC4TTPBidirectionalR1
modifiableVC4TTPSink	modifiableVC4TTPSinkR1
modifiableVC4TTPSource	modifiableVC4TTPSourceR1
modifiableVC3TTPBidirectional	modifiableVC3TTPBidirectionalR1
modifiableVC3TTPSink	modifiableVC3TTPSinkR1
modifiableVC3TTPSource	modifiableVC3TTPSourceR1
modifiableVC2TTPBidirectional	modifiableVC2TTPBidirectionalR1
modifiableVC2TTPSink	modifiableVC2TTPSinkR1
modifiableVC12TTPBidirectional	modifiableVC12TTPBidirectionalR1
modifiableVC12TTPSink	modifiableVC12TTPSinkR1
modifiableVC11TTPBidirectional	modifiableVC11TTPBidirectionalR1
modifiableVC11TTPSink	modifiableVC11TTPSinkR1

6.1 Indirect Adaptors

```
modifiableAugBidirectional  MANAGED OBJECT CLASS
    DERIVED FROM "Recommendation G.774": augBidirectional;
    CHARACTERIZED BY
    modifiableAugBidPackage  PACKAGE
        BEHAVIOUR
    modifiableAugBidBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported *
;;
    ACTIONS
        defineAUGStructure;;;
REGISTERED AS { g774-02MObjectClass 1 };
```

```
modifiableAugSink  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": augSink;
     CHARACTERIZED BY
     modifiableAugSinkPackage  PACKAGE
          BEHAVIOUR
     modifiableAugSinkBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineAUGStructure;;;
REGISTERED AS { g774-02MObjectClass 2 };


modifiableAugSource  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": augSource;
     CHARACTERIZED BY
     modifiableAugSourcePackage  PACKAGE
          BEHAVIOUR
     modifiableAugSourceBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineAUGStructure;;;
REGISTERED AS { g774-02MObjectClass 3 };


modifiableTug3Bidirectional  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": tug3Bidirectional;
     CHARACTERIZED BY
     modifiableTug3BidPackage  PACKAGE
          BEHAVIOUR
     modifiableTug3BidBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineTug3Structure;;;
REGISTERED AS { g774-02MObjectClass 4 };


modifiableTug3Sink  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": tug3Sink;
     CHARACTERIZED BY
     modifiableTug3SinkPackage  PACKAGE
          BEHAVIOUR
     modifiableTug3SinkBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineTug3Structure;;;
REGISTERED AS { g774-02MObjectClass 5 };


modifiableTug3Source  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": tug3Source;
     CHARACTERIZED BY
     modifiableTug3SourcePackage  PACKAGE
          BEHAVIOUR
     modifiableTug3SourceBehaviour  BEHAVIOUR
```

```
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineTug3Structure;;;
REGISTERED AS { g774-02MObjectClass 6 };


modifiableTug2Bidirectional  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": tug2Bidirectional;
     CHARACTERIZED BY
     modifiableTug2BidPackage  PACKAGE
          BEHAVIOUR
     modifiableTug2BidBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineTug2Structure;;;
REGISTERED AS { g774-02MObjectClass 7 };


modifiableTug2Sink  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": tug2Sink;
     CHARACTERIZED BY
     modifiableTug2SinkPackage  PACKAGE
          BEHAVIOUR
     modifiableTug2SinkBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineTug2Structure;;;
REGISTERED AS { g774-02MObjectClass 8 };


modifiableTug2Source  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": tug2Source;
     CHARACTERIZED BY
     modifiableTug2SourcePackage  PACKAGE
          BEHAVIOUR
     modifiableTug2SourceBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineTug2Structure;;;
REGISTERED AS { g774-02MObjectClass 9 };
```

6.2   High Order Path Layer

```
modifiableVC4TTPBidirectionalR1  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": vc4TTPBidirectionalR1;
     CHARACTERIZED BY
     "Recommendation M.3100": supportableClientListPackage,
     modifiableVC4TTPBidR1Package  PACKAGE
          BEHAVIOUR
     modifiableVC4TTPBidR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
```

```
        ACTIONS
            defineVC4Structure;;;
REGISTERED AS { g774-02MObjectClass 25 };


modifiableVC4TTPSinkR1  MANAGED OBJECT CLASS
        DERIVED FROM "Recommendation G.774": vc4TTPSinkR1;
        CHARACTERIZED BY
        "Recommendation M.3100": supportableClientListPackage,
        modifiableVC4TTPSinkR1Package  PACKAGE
            BEHAVIOUR
        modifiableVC4TTPSinkR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
        ACTIONS
            defineVC4Structure;;;
REGISTERED AS { g774-02MObjectClass 26 };


modifiableVC4TTPSourceR1  MANAGED OBJECT CLASS
        DERIVED FROM "Recommendation G.774": vc4TTPSourceR1;
        CHARACTERIZED BY
        "Recommendation M.3100": supportableClientListPackage,
        modifiableVC4TTPSourceR1Package  PACKAGE
            BEHAVIOUR
        modifiableVC4TTPSourceR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
        ACTIONS
            defineVC4Structure;;;
REGISTERED AS { g774-02MObjectClass 27 };


modifiableVC3TTPBidirectionalR1  MANAGED OBJECT CLASS
        DERIVED FROM "Recommendation G.774": vc3TTPBidirectionalR1;
        CHARACTERIZED BY
        "Recommendation M.3100": supportableClientListPackage,
        modifiableVC3TTPBidR1Package  PACKAGE
            BEHAVIOUR
        modifiableVC3TTPBidR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
        ACTIONS
            defineVC3Structure;;;
REGISTERED AS { g774-02MObjectClass 28 };


modifiableVC3TTPSinkR1  MANAGED OBJECT CLASS
        DERIVED FROM "Recommendation G.774": vc3TTPSinkR1;
        CHARACTERIZED BY
        "Recommendation M.3100": supportableClientListPackage,
        modifiableVC3TTPSinkR1Package  PACKAGE
            BEHAVIOUR
        modifiableVC3TTPSinkR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
        ACTIONS
            defineVC3Structure;;;
REGISTERED AS { g774-02MObjectClass 29 };
```

```
modifiableVC3TTPSourceR1  MANAGED OBJECT CLASS
    DERIVED FROM "Recommendation G.774": vc3TTPSourceR1;
    CHARACTERIZED BY
    "Recommendation M.3100": supportableClientListPackage,
    modifiableVC3TTPSourceR1Package  PACKAGE
        BEHAVIOUR
    modifiableVC3TTPSourceR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
    ACTIONS
        defineVC3Structure;;;
REGISTERED AS { g774-02MObjectClass 30 };
```

6.3   Low Order Path Layer

```
modifiableVC2TTPBidirectionalR1  MANAGED OBJECT CLASS
    DERIVED FROM "Recommendation G.774": vc2TTPBidirectionalR1;
    CHARACTERIZED BY
    "Recommendation M.3100": supportableClientListPackage,
    modifiableVC2TTPBidR1Package  PACKAGE
        BEHAVIOUR
    modifiableVC2TTPBidR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
    ACTIONS
        defineClientType;;;
REGISTERED AS { g774-02MObjectClass 31 };
```

```
modifiableVC2TTPSinkR1  MANAGED OBJECT CLASS
    DERIVED FROM "Recommendation G.774": vc2TTPSinkR1;
    CHARACTERIZED BY
    "Recommendation M.3100": supportableClientListPackage,
    modifiableVC2TTPSinkR1Package  PACKAGE
        BEHAVIOUR
    modifiableVC2TTPSinkR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
    ACTIONS
        defineClientType;;;
REGISTERED AS { g774-02MObjectClass 32 };
```

```
modifiableVC2TTPSource  MANAGED OBJECT CLASS
    DERIVED FROM "Recommendation G.774": vc2TTPSource;
    CHARACTERIZED BY
    "Recommendation M.3100": supportableClientListPackage,
    modifiableVC2TTPSourcePackage  PACKAGE
        BEHAVIOUR
    modifiableVC2TTPSourceBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
    ACTIONS
        defineClientType;;;
REGISTERED AS { g774-02MObjectClass 18 };
```

```
modifiableVC12TTPBidirectionalR1  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": vc12TTPBidirectionalR1;
     CHARACTERIZED BY
     "Recommendation M.3100": supportableClientListPackage,
     modifiableVC12TTPBidR1Package  PACKAGE
          BEHAVIOUR
     modifiableVC12TTPBidR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineClientType;;;
REGISTERED AS { g774-02MObjectClass 33 };


modifiableVC12TTPSinkR1  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": vc12TTPSinkR1;
     CHARACTERIZED BY
     "Recommendation M.3100": supportableClientListPackage,
     modifiableVC12TTPSinkR1Package  PACKAGE
          BEHAVIOUR
     modifiableVC12TTPSinkR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineClientType;;;
REGISTERED AS { g774-02MObjectClass 34 };


modifiableVC12TTPSource  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": vc12TTPSource;
     CHARACTERIZED BY
     "Recommendation M.3100": supportableClientListPackage,
     modifiableVC12TTPSourcePackage  PACKAGE
          BEHAVIOUR
     modifiableVC12TTPSourceBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineClientType;;;
REGISTERED AS { g774-02MObjectClass 21 };


modifiableVC11TTPBidirectionalR1  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": vc11TTPBidirectionalR1;
     CHARACTERIZED BY
     "Recommendation M.3100": supportableClientListPackage,
     modifiableVC11TTPBidR1Package  PACKAGE
          BEHAVIOUR
     modifiableVC11TTPBidR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineClientType;;;
REGISTERED AS { g774-02MObjectClass 35 };
```

```
modifiableVC11TTPSinkR1  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": vc11TTPSinkR1;
     CHARACTERIZED BY
     "Recommendation M.3100": supportableClientListPackage,
     modifiableVC11TTPSinkR1Package  PACKAGE
          BEHAVIOUR
     modifiableVC11TTPSinkR1Behaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineClientType;;
REGISTERED AS { g774-02MObjectClass 36 };


modifiableVC11TTPSource  MANAGED OBJECT CLASS
     DERIVED FROM "Recommendation G.774": vc11TTPSource;
     CHARACTERIZED BY
     "Recommendation M.3100": supportableClientListPackage,
     modifiableVC11TTPSourcePackage  PACKAGE
          BEHAVIOUR
     modifiableVC11TTPSourceBehaviour  BEHAVIOUR
DEFINED AS
*  This CLASS shall be instantiated when change of the SDH frame structure by
management operation is supported  *
;;
     ACTIONS
          defineClientType;;
REGISTERED AS { g774-02MObjectClass 24 };
```

7   Packages

None.

8   Attributes

None.

9   Actions

9.1   Define AUG Structure

```
defineAUGStructure  ACTION
     BEHAVIOUR     defineAUGStructureBehaviour;
     MODE     CONFIRMED;
     PARAMETERS     defineSDHStructureError;
     WITH INFORMATION SYNTAX     SDHConfASN1.AUGStructureInfo;
REGISTERED AS { g774-02Action 1 };
defineAUGStructureBehaviour  BEHAVIOUR
DEFINED AS
```

*This action is used to select between a one au4 structured aug and a three au3 structured aug.

If the object(s) contained by the aug already match(es) the "**AUGStructureInfo**" parameter nothing is raised. In all other cases objects contained by the aug are deleted and corresponding to the "**AUGStructureInfo**" parameter one **au4CTP**, or three **au3CTP** are created.

The corresponding connection termination point(s) are created with the **crossConnectionPointerPackage** package according to the "**connectionInfo**" parameter. If the "unknown" choice of the "**connectionInfo**" parameter is selected the choice is left to the network element according to its make-up and mode.

When applied on a sink managed object, sink connection termination points are created.

When applied on a source managed object, source connection termination points are created.

When applied on a bidirectional managed object, bidirectional connection termination points are created.

The action fails if:

–   change of configuration applies on an already existing cross-connected connection termination point contained directly or indirectly by the object on which the action is applied;

–   the multiplexing structure is not supported by the network element;

–   at least one created connection termination point is not cross-connectable and the **crossConnectable** choice of the "**connectionInfo**" parameter is selected.

NOTE – The definition of the connection termination point managed object classes which represent the adaptation function of the characteristic information of the client inside SDH virtual container is not already defined.*
;

9.2   Define VC4 Structure

```
defineVC4Structure  ACTION
    BEHAVIOUR    defineVC4StructureBehaviour,
        defineTug3StructureBehaviour,
        defineTug2StructureBehaviour;
    MODE    CONFIRMED;
    PARAMETERS    defineSDHStructureError;
    WITH INFORMATION SYNTAX    SDHConfASN1.VC4StructureInfo;
REGISTERED AS { g774-02Action 2 };
defineVC4StructureBehaviour  BEHAVIOUR
DEFINED AS
```

*If the action parameter is "**notSubmultiplexed**" and contains "**noClient**" all contained objects are deleted. If the action parameter is "**notSubmultiplexed**" and contains a value different from "**noClient**" a CTP which corresponds to the client of the VC4 is created and the existing contained object(s) are deleted.

If the action parameter is "**threeTUG3**", three tug3 are created if they do not already exist, contained objects are deleted. Each TUG3 is structured according to the "**TUG3StructureInfo**" parameter ranked according to the time sequence of the tug3.

If the action has succeeded then the C2 signal label is updated according to the new frame structure:

–   When applied on a sink VC4 the expected signal label is updated.

–   When applied on a source VC4 the sent signal label is updated.

–   When applied on a bidirectional VC4 both the expected and sent signal label are updated.

NOTE – The definition of the connection termination point managed object classes which represent the adaptation function of the characteristic information of the client inside SDH virtual container is not already defined.*
;

9.3   Define VC3 Structure

```
defineVC3Structure  ACTION
    BEHAVIOUR     defineVC3StructureBehaviour,
        defineTug2StructureBehaviour;
    MODE     CONFIRMED;
    PARAMETERS    defineSDHStructureError;
    WITH INFORMATION SYNTAX    SDHConfASN1.VC3StructureInfo;
REGISTERED AS { g774-02Action 3 };
defineVC3StructureBehaviour  BEHAVIOUR
DEFINED AS
```

*If the action parameter is "**notSubmultiplexed**" and contains "**noClient**" all contained objects are deleted. If the action parameter is "**notSubmultiplexed**" and contains a value different from "**noClient**" a CTP which corresponds to the client of the VC3 is created and the existing contained objects are deleted.

If the action parameter is "**sevenTUG2**", seven tug2 are created if they do not already exist, contained CTP are deleted. Each TUG2 is structured according to the "**TUG2StructureInfo**" parameter ranked according to the time sequence of the tug2.

If the action has succeeded then the C2 signal label is updated according to the new frame structure:

–   When applied on a sink VC3 the expected signal label is updated.

–   When applied on a source VC3 the sent signal label is updated.

–   When applied on a bidirectional VC3 both the expected and sent signal label are updated.

NOTE – The definition of the connection termination point managed object classes which represent the adaptation function of the characteristic information of the client inside SDH virtual container is not already defined.*
;

9.4   Define Tug3 Structure

```
defineTug3Structure  ACTION
    BEHAVIOUR     defineTug3StructureBehaviour,
        defineTug2StructureBehaviour;
    MODE     CONFIRMED;
    PARAMETERS    defineSDHStructureError;
    WITH INFORMATION SYNTAX    SDHConfASN1.TUG3StructureInfo;
REGISTERED AS  { g774-02Action 4 };
defineTug3StructureBehaviour  BEHAVIOUR
DEFINED AS
```

*If the **tug3StructureInfo** parameter is "**oneTU3**" a tu3CTP is created if it does not already exist and the existing contained object(s) are deleted.

If the **tug3StructureInfo** parameter is "**sevenTUG2**", seven tug2 are created if they do not already exist, contained CTP is deleted. Each TUG2 is structured according to the "**TUG2StructureInfo**" parameter ranked according to the time sequence of the tug2.

NOTE – The definition of the connection termination point managed object classes which represent the adaptation function of the characteristic information of the client inside SDH virtual container is not already defined.*
;

9.5 Define Tug2 Structure

```
defineTug2Structure  ACTION
    BEHAVIOUR    defineTug2StructureBehaviour;
    MODE    CONFIRMED;
    PARAMETERS    defineSDHStructureError;
    WITH INFORMATION SYNTAX    SDHConfASN1.TUG2StructureInfo;
REGISTERED AS { g774-02Action 5 };
defineTug2StructureBehaviour  BEHAVIOUR
DEFINED AS
```

*If the object(s) contained by the tug2 already matche(s) the **tug2StructureInfo** parameter nothing is raised. In all other cases objects contained by the tug2 are deleted and corresponding to the "**tug2StructureInfo**" parameter one tu2CTP, three tu12CTP or four tu11CTP are created.

The corresponding connection termination point(s) are created with the **crossConnectionPointerPackage** package according to the "**connectionInfo**" parameter. If the "unknown" choice of the "**connectionInfo**" parameter is selected the choice is left to the network element according to its make-up and mode.

When applied on a sink managed object, sink connection termination points are created.

When applied on a source managed object, source connection termination points are created.

When applied on a bidirectional managed object, bidirectional connection termination points are created.

The action fails if:

– change of configuration applies on an already existing cross-connected connection termination point contained directly or indirectly by the object on which the action is applied;

– the multiplexing structure is not supported by the network element;

– at least one created connection termination point is not cross-connectable and the **crossConnectable** choice of the "**connectionInfo**" parameter is selected.*

```
;
```

9.6 Definition of the Client type

```
defineClientType  ACTION
    BEHAVIOUR    defineClientTypeBehaviour;
    MODE    CONFIRMED;
    PARAMETERS    defineSDHStructureError;
    WITH INFORMATION SYNTAX    SDHConfASN1.DefineClientTypeInfo;
REGISTERED AS { g774-02Action 6 };
defineClientTypeBehaviour  BEHAVIOUR
DEFINED AS
```

*This action is used to choose the type of the adaptation function of payload inside the SDH low order Virtual Container.

If the action parameter is "**noClient**" the contained object is deleted. If the action parameter is different from "**noClient**" a CTP which corresponds to the client of the TTP is created and the existing contained object is deleted.

When applied on a sink TTP, a sink connection termination point is created.

When applied on a source TTP, a source connection termination point is created.

When applied on a bidirectional TTP, a bidirectional connection termination point is created.

The action fails if:

–   the client type is not supported by the network element.

If the action has succeeded then the signal label V5 (bits 5-7) is updated according to the new frame structure:

–   When applied on a sink VC the expected signal label is updated.

–   When applied on a source VC the sent signal label is updated.

–   When applied on a bidirectional VC both the expected and sent signal label are updated.

NOTE – The definition of the connection termination point managed object classes which represent the adaptation function of the characteristic information of the client inside SDH virtual container is not already defined.*

;

10   Notifications

None.

11   Parameters

```
defineSDHStructureError  PARAMETER
    CONTEXT    SPECIFIC-ERROR;
    WITH SYNTAX    SDHConfASN1.DefineSDHStructureError;
REGISTERED AS { g774-02Parameter 1 };
```

12   Name Bindings

Revisions that require re-registration

This clause provides replacement namebinding definitions for the existing ITU-T G.774.2 (1994). 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 or another Recommendation.

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

4)   The replaced namebinding refers to a naming attribute which has been re-registered in this or another 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.774.2 (1994) namebinding "au3CTPSink-augSink", the revised label will become "au3CTPSink-augSinkR1". Note the "R1" is placed immediately following the revised class which impacts the namebinding.

Below is a table of namebindings deprecated from ITU-T G.774.2 (1994) and the G.774.2 namebindings which replace them:

Deprecated G.774.2 1994 Namebindings

```
au3CTPSink-augSink
au4CTPSink-augSink
tu11CTPSink-tug2Sink
tu12CTPSink-tug2Sink
tu2CTPSink-tug2Sink
tu3CTPSink-tug3Sink
tug2Source-vc3TTPSource
tug2Sink-vc3TTPSink
tug3Sink-vc4TTPSink
tug3Source-vc4TTPSource
vc11TTPSink-sdhNE
vc12TTPSink-sdhNE
vc2TTPSink-sdhNE
vc3TTPSink-sdhNE
vc3TTPSource-sdhNE
vc4TTPSink-sdhNE
vc4TTPSource-sdhNE
vcnUserChannelCTPSink-vc3TTPSink
vcnUserChannelCTPSource-vc3TTPSource
vcnUserChannelCTPSink-vc4TTPSink
vcnUserChannelCTPSource-vc4TTPSource
```

Replacement G.774 Namebindings

```
au3CTPSinkR1-augSink
au4CTPSinkR1-augSink
tu11CTPSinkR1-tug2Sink
tu12CTPSinkR1-tug2Sink
tu2CTPSinkR1-tug2Sink
tu3CTPSinkR1-tug3Sink
tug2Source-vc3TTPSourceR1
tug2Sink-vc3TTPSinkR1
tug3Sink-vc4TTPSinkR1
tug3Source-vc4TTPSourceR1
vc11TTPSinkR1-sdhNE
vc12TTPSinkR1-sdhNE
vc2TTPSinkR1-sdhNE
vc3TTPSinkR1-sdhNE
vc3TTPSourceR1-sdhNE
vc4TTPSinkR1-sdhNE
vc4TTPSourceR1-sdhNE
vcnUserChannelCTPSink-vc3TTPSinkR1
vcnUserChannelCTPSource-vc3TTPSourceR1
vcnUserChannelCTPSink-vc4TTPSinkR1
vcnUserChannelCTPSource-vc4TTPSourceR1
```

This Recommendation extends the Name Bindings currently defined in ITU-T G.774 by adding AND SUBCLASSES.

NOTE – Only the sink – sink and source – source Name Bindings are defined in this Recommendation. The also possible sink – bidirectional, source – bidirectional and bidirectional – bidirectional Name Bindings are used implicitly via Inheritance and the AND SUBCLASSES clauses. For the bidirectional – bidirectional case the sink – sink Name Binding shall be used.

```
au3CTPSinkR1-augSink  NAME BINDING
    SUBORDINATE OBJECT CLASS     "Recommendation G.774": au3CTPSinkR1  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS     "Recommendation G.774": augSink  AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": 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 NE *
;;
REGISTERED AS { g774-02NameBinding 59 };

au3CTPSource-augSource NAME BINDING
    SUBORDINATE OBJECT CLASS   "Recommendation G.774": au3CTPSource AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS   "Recommendation G.774": augSource AND SUBCLASSES;
    WITH ATTRIBUTE   "Recommendation G.774": 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 NE *
;;
REGISTERED AS { g774-02NameBinding 2 };

au4CTPSinkR1-augSink NAME BINDING
    SUBORDINATE OBJECT CLASS   "Recommendation G.774": au4CTPSinkR1 AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS   "Recommendation G.774": augSink AND SUBCLASSES;
    WITH ATTRIBUTE   "Recommendation G.774": au4CTPId;
    BEHAVIOUR
        au4CTPSinkR1-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 NE *
;;
REGISTERED AS { g774-02NameBinding 60 };

au4CTPSource-augSource NAME BINDING
    SUBORDINATE OBJECT CLASS   "Recommendation G.774": au4CTPSource AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS   "Recommendation G.774": augSource AND SUBCLASSES;
    WITH ATTRIBUTE   "Recommendation G.774": au4CTPId;
    BEHAVIOUR
        au4CTPSource-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 NE *
;;
REGISTERED AS { g774-02NameBinding 4 };

augSink-msTTPSink NAME BINDING
    SUBORDINATE OBJECT CLASS   "Recommendation G.774": augSink AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS   "Recommendation G.774": msTTPSink AND SUBCLASSES;
    WITH ATTRIBUTE   "Recommendation G.774": 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 NE *
;;
REGISTERED AS { g774-02NameBinding 5 };

```
augSource-msTTPSource  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": augSource  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": msTTPSource AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 6 };

electricalSPITTPSink-sdhNE  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": electricalSPITTPSink
     AND SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": electricalSPITTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 7 };

electricalSPITTPSource-sdhNE  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": electricalSPITTPSource
     AND SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": electricalSPITTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 8 };

msCTPSink-rsTTPSink  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": msCTPSink  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": rsTTPSink  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": msCTPId;
     BEHAVIOUR
          msCTPSink-rsTTPSinkBehaviour  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 NE  *
;;
REGISTERED AS { g774-02NameBinding 9 };

msCTPSource-rsTTPSource  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": msCTPSource  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": rsTTPSource AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": msCTPId;
     BEHAVIOUR
          msCTPSource-rsTTPSourceBehaviour  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 NE  *
;;
REGISTERED AS { g774-02NameBinding 10 };

msDatacomCTPSink-msTTPSink  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": msDatacomCTPSink  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": msTTPSink  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": msDatacomCTPId;
     BEHAVIOUR
         msDatacomCTPSink-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 11 };

msDatacomCTPSource-msTTPSource  NAME BINDING
     SUBORDINATE OBJECT CLASS     "Recommendation G.774": msDatacomCTPSource AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS     "Recommendation G.774": msTTPSource AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": msDatacomCTPId;
     BEHAVIOUR
         msDatacomCTPSource-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 12 };

msOrderwireCTPSink-msTTPSink  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": msOrderwireCTPSink  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": msTTPSink  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": msOrderwireCTPId;
     BEHAVIOUR
         msOrderwireCTPSink-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 13 };

msOrderwireCTPSource-msTTPSource  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": msOrderwireCTPSource
     AND SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS     "Recommendation G.774": msTTPSource AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": msOrderwireCTPId;
     BEHAVIOUR
         msOrderwireCTPSource-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 14 };
```

```
msTTPSink-sdhNE  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": msTTPSink  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": msTTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 15 };


msTTPSource-sdhNE  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": msTTPSource  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": msTTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 16 };


opticalSPITTPSink-sdhNE  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": opticalSPITTPSink  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": opticalSPITTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 17 };


opticalSPITTPSource-sdhNE  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": opticalSPITTPSource  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": opticalSPITTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 18 };


rsCTPSink-electricalSPITTPSink  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": rsCTPSink  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": electricalSPITTPSink  AND
     SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": rsCTPId;
     BEHAVIOUR
          rsCTPSink-electricalSPITTPSinkBehaviour  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 NE  *
;;
REGISTERED AS { g774-02NameBinding 19 };


rsCTPSource-electricalSPITTPSource  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": rsCTPSource  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": electricalSPITTPSource  AND
    SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": rsCTPId;
    BEHAVIOUR
        rsCTPSource-electricalSPITTPSourceBehaviour  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 NE  *
;;
REGISTERED AS { g774-02NameBinding 20 };


rsCTPSink-opticalSPITTPSink  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": rsCTPSink  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": opticalSPITTPSink  AND
    SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": rsCTPId;
    BEHAVIOUR
        rsCTPSink-opticalSPITTPSinkBehaviour  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 NE  *
;;
REGISTERED AS { g774-02NameBinding 21 };


rsCTPSource-opticalSPITTPSource  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": rsCTPSource  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": opticalSPITTPSource  AND
    SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": rsCTPId;
    BEHAVIOUR
        rsCTPSource-opticalSPITTPSourceBehaviour  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 NE  *
;;
REGISTERED AS { g774-02NameBinding 22 };


rsDatacomCTPSink-rsTTPSink  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": rsDatacomCTPSink  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": rsTTPSink  AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": rsDatacomCTPId;
    BEHAVIOUR
        rsDatacomCTPSink-rsTTPSinkBehaviour  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 NE *
;;
REGISTERED AS { g774-02NameBinding 23 };

rsDatacomCTPSource-rsTTPSource   NAME BINDING
    SUBORDINATE OBJECT CLASS   "Recommendation G.774": rsDatacomCTPSource   AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS   "Recommendation G.774": rsTTPSource AND SUBCLASSES;
    WITH ATTRIBUTE   "Recommendation G.774": rsDatacomCTPId;
    BEHAVIOUR
        rsDatacomCTPSource-rsTTPSourceBehaviour   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 NE *
;;
REGISTERED AS { g774-02NameBinding 24 };

rsOrderwireCTPSink-rsTTPSink   NAME BINDING
    SUBORDINATE OBJECT CLASS   "Recommendation G.774": rsOrderwireCTPSink   AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS   "Recommendation G.774": rsTTPSink   AND SUBCLASSES;
    WITH ATTRIBUTE   "Recommendation G.774": rsOrderwireCTPId;
    BEHAVIOUR
        rsOrderwireCTPSink-rsTTPSinkBehaviour   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 NE *
;;
REGISTERED AS { g774-02NameBinding 25 };

rsOrderwireCTPSource-rsTTPSource   NAME BINDING
    SUBORDINATE OBJECT CLASS   "Recommendation G.774": rsOrderwireCTPSource
    AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS   "Recommendation G.774": rsTTPSource AND SUBCLASSES;
    WITH ATTRIBUTE   "Recommendation G.774": rsOrderwireCTPId;
    BEHAVIOUR
        rsOrderwireCTPSource-rsTTPSourceBehaviour   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 NE *
;;
REGISTERED AS { g774-02NameBinding 26 };

rsTTPSink-sdhNE   NAME BINDING
    SUBORDINATE OBJECT CLASS   "Recommendation G.774": rsTTPSink   AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS   "Recommendation G.774": sdhNE   AND SUBCLASSES;
    WITH ATTRIBUTE   "Recommendation G.774": rsTTPId;
    CREATE
        WITH-REFERENCE-OBJECT,
        WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE
        DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 27 };

```
rsTTPSource-sdhNE  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": rsTTPSource  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": rsTTPId;
    CREATE
        WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE
        DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 28 };


rsUserChannelCTPSink-rsTTPSink  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": rsUserChannelCTPSink
    AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": rsTTPSink  AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": rsUserChannelCTPId;
    BEHAVIOUR
        rsUserChannelCTPSink-rsTTPSinkBehaviour  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 NE  *
;;
REGISTERED AS { g774-02NameBinding 29 };


rsUserChannelCTPSource-rsTTPSource  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": rsUserChannelCTPSource
    AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": rsTTPSource AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": rsUserChannelCTPId;
    BEHAVIOUR
        rsUserChannelCTPSource-rsTTPSourceBehaviour  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 NE  *
;;
REGISTERED AS { g774-02NameBinding 30 };


tu11CTPSinkR1-tug2Sink  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": tu11CTPSinkR1  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": tug2Sink  AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 61 };
```

```
tu11CTPSource-tug2Source  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": tu11CTPSource  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": tug2Source  AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 32 };


tu12CTPSinkR1-tug2Sink  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": tu12CTPSinkR1  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": tug2Sink  AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 62 };


tu12CTPSource-tug2Source  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": tu12CTPSource  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": tug2Source  AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 34 };


tu2CTPSinkR1-tug2Sink  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": tu2CTPSinkR1  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": tug2Sink  AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": tu2CTPId;
    BEHAVIOUR
        tu2CTPSinkR1-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 63 };
```

```
tu2CTPSource-tug2Source  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": tu2CTPSource  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": tug2Source  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": tu2CTPId;
     BEHAVIOUR
          tu2CTPSource-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 36 };


tu3CTPSinkR1-tug3Sink  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": tu3CTPSinkR1  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": tug3Sink  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": tu3CTPId;
     BEHAVIOUR
          tu3CTPSinkR1-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 64 };


tu3CTPSource-tug3Source NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": tu3CTPSource  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": tug3Source  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": tu3CTPId;
     BEHAVIOUR
          tu3CTPSource-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 38 };


tug2Sink-tug3Sink  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": tug2Sink  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": tug3Sink  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 39 };
```

```
tug2Source-tug3Source  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": tug2Source  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": tug3Source  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 40 };


tug2Sink-vc3TTPSinkR1  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": tug2Sink  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": vc3TTPSinkR1 AND
     SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 65 };


tug2Source-vc3TTPSourceR1  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": tug2Source  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": vc3TTPSourceR1  AND
     SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 66 };


tug3Sink-vc4TTPSinkR1  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": tug3Sink  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": vc4TTPSinkR1  AND
     SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 67 };
```

```
tug3Source-vc4TTPSourceR1  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": tug3Source  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": vc4TTPSourceR1  AND
     SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": 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 NE  *
;;
REGISTERED AS { g774-02NameBinding 68 };

vc11TTPSinkR1-sdhNE  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": vc11TTPSinkR1  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": vc11TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 69 };

vc11TTPSource-sdhNE  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": vc11TTPSource  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": vc11TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 46 };

vc12TTPSinkR1-sdhNE  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": vc12TTPSinkR1  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": vc12TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
     DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 70 };

vc12TTPSource-sdhNE  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": vc12TTPSource  AND
     SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": vc12TTPId;
     CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
```

```
          DELETE
              DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 48 };


vc2TTPSinkR1-sdhNE  NAME BINDING
      SUBORDINATE OBJECT CLASS     "Recommendation G.774": vc2TTPSinkR1  AND
      SUBCLASSES;
      NAMED BY
      SUPERIOR OBJECT CLASS     "Recommendation G.774": sdhNE  AND SUBCLASSES;
      WITH ATTRIBUTE     "Recommendation G.774": vc2TTPId;
      CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
      DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 71 };


vc2TTPSource-sdhNE  NAME BINDING
      SUBORDINATE OBJECT CLASS     "Recommendation G.774": vc2TTPSource  AND
      SUBCLASSES;
      NAMED BY
      SUPERIOR OBJECT CLASS     "Recommendation G.774": sdhNE  AND SUBCLASSES;
      WITH ATTRIBUTE     "Recommendation G.774": vc2TTPId;
      CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
      DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 50 };


vc3TTPSinkR1-sdhNE  NAME BINDING
      SUBORDINATE OBJECT CLASS     "Recommendation G.774": vc3TTPSinkR1  AND
      SUBCLASSES;
      NAMED BY
      SUPERIOR OBJECT CLASS     "Recommendation G.774": sdhNE  AND SUBCLASSES;
      WITH ATTRIBUTE     "Recommendation G.774": vc3TTPId;
      CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
      DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 72 };


vc3TTPSourceR1-sdhNE  NAME BINDING
      SUBORDINATE OBJECT CLASS     "Recommendation G.774": vc3TTPSourceR1  AND
      SUBCLASSES;
      NAMED BY
      SUPERIOR OBJECT CLASS     "Recommendation G.774": sdhNE  AND SUBCLASSES;
      WITH ATTRIBUTE     "Recommendation G.774": vc3TTPId;
      CREATE
          WITH-REFERENCE-OBJECT,
          WITH-AUTOMATIC-INSTANCE-NAMING;
      DELETE
          DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 73 };


vc4TTPSinkR1-sdhNE  NAME BINDING
      SUBORDINATE OBJECT CLASS     "Recommendation G.774": vc4TTPSinkR1  AND
      SUBCLASSES;
      NAMED BY
      SUPERIOR OBJECT CLASS     "Recommendation G.774": sdhNE  AND SUBCLASSES;
      WITH ATTRIBUTE     "Recommendation G.774": vc4TTPId;
```

```
        CREATE
            WITH-REFERENCE-OBJECT,
            WITH-AUTOMATIC-INSTANCE-NAMING;
        DELETE
            DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 74 };


vc4TTPSourceR1-sdhNE  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": vc4TTPSourceR1  AND
    SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": sdhNE  AND SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": vc4TTPId;
    CREATE
        WITH-REFERENCE-OBJECT,
        WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE
        DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774-02NameBinding 75 };


vcnUserChannelCTPSink-vc3TTPSinkR1  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": vcnUserChannelCTPSink
    AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": vc3TTPSinkR1  AND
    SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": vcnUserChannelCTPId;
    BEHAVIOUR
        vcnUserChannelCTPSink-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 76 };


vcnUserChannelCTPSource-vc3TTPSourceR1  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": vcnUserChannelCTPSource
    AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": vc3TTPSourceR1  AND
    SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": vcnUserChannelCTPId;
    BEHAVIOUR
        vcnUserChannelCTPSource-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 77 };


vcnUserChannelCTPSink-vc4TTPSinkR1  NAME BINDING
    SUBORDINATE OBJECT CLASS    "Recommendation G.774": vcnUserChannelCTPSink
    AND SUBCLASSES;
    NAMED BY
    SUPERIOR OBJECT CLASS    "Recommendation G.774": vc4TTPSinkR1  AND
    SUBCLASSES;
    WITH ATTRIBUTE    "Recommendation G.774": vcnUserChannelCTPId;
    BEHAVIOUR
        vcnUserChannelCTPSink-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 78 };


vcnUserChannelCTPSource-vc4TTPSourceR1  NAME BINDING
     SUBORDINATE OBJECT CLASS    "Recommendation G.774": vcnUserChannelCTPSource
     AND SUBCLASSES;
     NAMED BY
     SUPERIOR OBJECT CLASS    "Recommendation G.774": vc4TTPSourceR1  AND
     SUBCLASSES;
     WITH ATTRIBUTE    "Recommendation G.774": vcnUserChannelCTPId;
     BEHAVIOUR
          vcnUserChannelCTPSource-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 NE  *
;;
REGISTERED AS { g774-02NameBinding 79 };
```

13   Constraint rules

13.1   Constraint rules extended syntax

This clause redefines the grammar of the pointer constraint rules as previously defined in ITU-T G.774. This new grammar should only be applied to the pointer constraint rules defined in this Recommendation.

13.1.1 Constraint rules grammar

```
<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-
rule>
<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-spec> | <class-list> ,<class-spec>
<class-spec>  ::=  <class-label> | <class-label> AND SUBCLASSES
<constraint-rule>  ::=  SET { <constraint-members> }
    | SEQUENCE { <constraint-members> }
    | CHOICE { <constraint-members> }
    | SET SIZE ( <ordinality> ) OF <constraint-term>
    | SEQUENCE SIZE ( <ordinality> ) OF <constraint-term>
<constraint-members>  ::=    <constraint-term>
    | <constraint-term> , <constraint-members>
<constraint-term>  ::=  <class-spec> | <constraint-rule>
<ordinality>  ::=  <valueRange> | <valueList>
<valueRange>  ::=  <lowerValue> .. <upperValue>
<valueList>  ::=  <itemValue> | <itemValue> , <valueList>
```

```
<itemValue>  ::=  INTEGER
<lowerValue> ::=  INTEGER
<upperValue> ::=  INTEGER | N
```

13.1.2 Constraint rule templates

```
OBJECT CLASS <class-label> [AND SUBCLASSES];
    indicates the class and optionally the subclasses which are 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.
```

13.2   Connectivity pointer constraints

This clause defines the allowable values for the downstreamConnectivityPointer and upstreamConnectivityPointer attributes using the object classes defined in this Recommendation. The pointer constraint rules defined in this Recommendation replace those defined in ITU-T G.774.

Revisions that require re-registration

This clause provides replacement constraint rule definitions for the existing ITU-T G.774.2 (1994). 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 or another Recommendation.

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

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.774.2 (1994) 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.774.2 (1994) constraint "downstreamConnectivityPointer-au3CTPSource", the revised label will become "downstreamConnectivityPointerR1-au3CTPSource".

The syntax, grammar and templates used for these constraint rules are defined in ITU-T G.774 (1992) and extended in ITU-T G.774.2 (1994).

Below is a table of constraint rules deprecated from ITU-T G.774.2 (1994) and the G.774.2 constraint rules which replace them:

Deprecated G.774.2 1994 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
```

Replacement G.774.2 Constraint Rules

```
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
        "Recommendation G.774":au3CTPSinkR1 AND SUBCLASSES;
    IS RELATED TO
        vc3TTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":au3CTPSource AND SUBCLASSES,
        "Recommendation G.774":tu3CTPSource AND SUBCLASSES,
        "Recommendation G.774":vc4TTPSinkR1  AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":downstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc3TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":au3CTPSource AND SUBCLASSES,
                "Recommendation G.774":tu3CTPSource AND SUBCLASSES,
                "Recommendation G.774":vc4TTPSinkR1 AND SUBCLASSES},
        broadcast ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                SET SIZE(1..N) OF CHOICE {
                    "Recommendation G.774":vc3TTPSinkR1 AND SUBCLASSES,
                    "Recommendation G.774":tu3CTPSource AND SUBCLASSES,
                    "Recommendation G.774":au3CTPSource AND SUBCLASSES},
                SET SIZE(1..N) OF CHOICE {
                    "Recommendation G.774":vc4TTPSinkR1 AND SUBCLASSES}
            }
    };
;


upstreamConnectivityPointerR1-au3CTPSource CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":au3CTPSource AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc3TTPSourceR1 AND SUBCLASSES,
        "Recommendation G.774":au3CTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":tu3CTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":vc4TTPSourceR1 AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":upstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc3TTPSourceR1 AND SUBCLASSES,
                "Recommendation G.774":au3CTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu3CTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":vc4TTPSourceR1 AND SUBCLASSES}
    };
;

downstreamConnectivityPointer-au4CTPSinkR1 CONSTRAINT RULE
    OBJECT CLASS
        au4CTPSinkR1 AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":au4CTPSource AND SUBCLASSES,
        "Recommendation G.774":vc4TTPSinkR1 AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":downstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc4TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":au4CTPSource AND SUBCLASSES},
```

```
        broadcast ACCORDING TO RULE
            SET SIZE(1..N) OF CHOICE {
                "Recommendation G.774":vc4TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":au4CTPSource AND SUBCLASSES}
    };
;



upstreamConnectivityPointerR1-au4CTPSource CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":au4CTPSource AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":au4CTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":vc4TTPSourceR1 AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":upstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc4TTPSourceR1 AND SUBCLASSES,
                "Recommendation G.774":au4CTPSinkR1 AND SUBCLASSES}
    };
;



downstreamConnectivityPointer-msCTPSink  CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":msCTPSink AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":msTTPSink AND SUBCLASSES,
        "Recommendation G.774":msCTPSource AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100": downstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":msTTPSink AND SUBCLASSES,
                "Recommendation G.774":msCTPSource AND SUBCLASSES }
    };
;

upstreamConnectivityPointer-msCTPSource CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":msCTPSource AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":msTTPSource AND SUBCLASSES,
        "Recommendation G.774":msCTPSink AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100": upstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":msTTPSource AND SUBCLASSES,
                "Recommendation G.774":msCTPSink AND SUBCLASSES }
    };
;
```

```
upstreamConnectivityPointer-msTTPSink CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":msTTPSink AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":msCTPSink AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100": upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":msCTPSink AND SUBCLASSES }
     };
;

downstreamConnectivityPointer-msTTPSource  CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":msTTPSource AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":msCTPSource AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100": downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":msCTPSource AND SUBCLASSES }
     };
;

downstreamConnectivityPointer-rsCTPSink CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":rsCTPSink AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":rsTTPSink AND SUBCLASSES,
          "Recommendation G.774":rsCTPSource AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100": downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":rsTTPSink AND SUBCLASSES,
                    "Recommendation G.774":rsCTPSource AND SUBCLASSES }
     };
;

upstreamConnectivityPointer-rsCTPSource  CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":rsCTPSource AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":rsTTPSource AND SUBCLASSES,
          "Recommendation G.774":rsCTPSink AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100": upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":rsTTPSource AND SUBCLASSES,
                    "Recommendation G.774":rsCTPSink AND SUBCLASSES }
     };
;
```

```
upstreamConnectivityPointer-rsTTPSink  CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":rsTTPSink AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":rsCTPSink AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100": upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":rsCTPSink AND SUBCLASSES }
     };
;

downstreamConnectivityPointer-rsTTPSource  CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":rsTTPSource AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":rsCTPSource AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100": downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":rsCTPSource AND SUBCLASSES }
     };
;


downstreamConnectivityPointer-tu11CTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":tu11CTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":vc11TTPSinkR1 AND SUBCLASSES,
          "Recommendation G.774":tu11CTPSource AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":vc11TTPSinkR1 AND SUBCLASSES,
                    "Recommendation G.774":tu11CTPSource AND SUBCLASSES},
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    "Recommendation G.774":vc11TTPSinkR1 AND SUBCLASSES,
                    "Recommendation G.774":tu11CTPSource AND SUBCLASSES }
     };
;

upstreamConnectivityPointerR1-tu11CTPSource CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":tu11CTPSource AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":vc11TTPSource AND SUBCLASSES,
          "Recommendation G.774":tu11CTPSinkR1 AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":vc11TTPSource AND SUBCLASSES,
                    "Recommendation G.774":tu11CTPSinkR1 AND SUBCLASSES}
     };
;
```

```
downstreamConnectivityPointer-tu12CTPSinkR1 CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":tu12CTPSinkR1 AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc12TTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":tu12CTPSource AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":downstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc12TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu12CTPSource AND SUBCLASSES},
        broadcast ACCORDING TO RULE
            SET SIZE(1..N) OF CHOICE {
                "Recommendation G.774":vc12TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu12CTPSource AND SUBCLASSES }
    };
;


upstreamConnectivityPointerR1-tu12CTPSource CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":tu12CTPSource AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc12TTPSource AND SUBCLASSES,
        "Recommendation G.774":tu12CTPSinkR1 AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":upstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc12TTPSource AND SUBCLASSES,
                "Recommendation G.774":tu12CTPSinkR1 AND SUBCLASSES}
    };
;


downstreamConnectivityPointer-tu2CTPSinkR1 CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":tu2CTPSinkR1 AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc2TTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":tu2CTPSource AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":downstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc2TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu2CTPSource AND SUBCLASSES},
        broadcast ACCORDING TO RULE
            SET SIZE(1..N) OF CHOICE {
                "Recommendation G.774":vc2TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu2CTPSource AND SUBCLASSES }
    };
;
```

```
upstreamConnectivityPointerR1-tu2CTPSource CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":tu2CTPSource AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc2TTPSource AND SUBCLASSES,
        "Recommendation G.774":tu2CTPSinkR1 AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":upstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc2TTPSource AND SUBCLASSES,
                "Recommendation G.774":tu2CTPSinkR1 AND SUBCLASSES }
    };
;



downstreamConnectivityPointer-tu3CTPSinkR1 CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":tu3CTPSinkR1 AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc3TTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":au3CTPSource AND SUBCLASSES,
        "Recommendation G.774":tu3CTPSource AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":downstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc3TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":au3CTPSource AND SUBCLASSES,
                "Recommendation G.774":tu3CTPSource AND SUBCLASSES},
        broadcast ACCORDING TO RULE
            SET SIZE(1..N) OF CHOICE {
                "Recommendation G.774":vc3TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":au3CTPSource AND SUBCLASSES,
                "Recommendation G.774":tu3CTPSource AND SUBCLASSES }
    };
;



upstreamConnectivityPointerR1-tu3CTPSource CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":tu3CTPSource AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc3TTPSourceR1 AND SUBCLASSES,
        "Recommendation G.774":au3CTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":tu3CTPSinkR1 AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":upstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc3TTPSourceR1 AND SUBCLASSES,
                "Recommendation G.774":au3CTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu3CTPSinkR1 AND SUBCLASSES }
    };
;
```

```
upstreamConnectivityPointer-vc11TTPSinkR1 CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":vc11TTPSinkR1 AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc11TTPSource AND SUBCLASSES,
        "Recommendation G.774":tu11CTPSinkR1 AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":upstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc11TTPSource AND SUBCLASSES,
                "Recommendation G.774":tu11CTPSinkR1 AND SUBCLASSES}
    };
;


downstreamConnectivityPointerR1-vc11TTPSource CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":vc11TTPSource AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc11TTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":tu11CTPSource AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":downstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc11TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu11CTPSource AND SUBCLASSES},
        broadcast ACCORDING TO RULE
            SET SIZE(1..N) OF CHOICE {
                "Recommendation G.774":vc11TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu11CTPSource AND SUBCLASSES}
    };
;


upstreamConnectivityPointer-vc12TTPSinkR1 CONSTRAINT RULE
    OBJECT CLASS
        vc12TTPSinkR1 AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc12TTPSource AND SUBCLASSES,
        "Recommendation G.774":tu12CTPSinkR1 AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":upstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc12TTPSource AND SUBCLASSES,
                "Recommendation G.774":tu12CTPSinkR1 AND SUBCLASSES }
    };
;


downstreamConnectivityPointerR1-vc12TTPSource CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":vc12TTPSource AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc12TTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":tu12CTPSource AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":downstreamConnectivityPointer;
```

```
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc12TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu12CTPSource AND SUBCLASSES},
        broadcast ACCORDING TO RULE
            SET SIZE(1..N) OF CHOICE {
                vc12TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu12CTPSource AND SUBCLASSES}
    };
;

upstreamConnectivityPointer-vc2TTPSinkR1 CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":vc2TTPSinkR1 AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc2TTPSource AND SUBCLASSES,
        "Recommendation G.774":tu2CTPSinkR1 AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":upstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc2TTPSource AND SUBCLASSES,
                "Recommendation G.774":tu2CTPSinkR1 AND SUBCLASSES }
    };
;

downstreamConnectivityPointerR1-vc2TTPSource CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":vc2TTPSource AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc2TTPSinkR1 AND SUBCLASSES
        "Recommendation G.774":tu2CTPSource AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":downstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc2TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu2CTPSource AND SUBCLASSES},
        broadcast ACCORDING TO RULE
            SET SIZE(1..N) OF CHOICE {
                "Recommendation G.774":vc2TTPSinkR1 AND SUBCLASSES,
                "Recommendation G.774":tu2CTPSource AND SUBCLASSES }
    };
;

upstreamConnectivityPointer-vc3TTPSinkR1 CONSTRAINT RULE
    OBJECT CLASS
        "Recommendation G.774":vc3TTPSinkR1 AND SUBCLASSES;
    IS RELATED TO
        "Recommendation G.774":vc3TTPSourceR1 AND SUBCLASSES,
        "Recommendation G.774":au3CTPSinkR1 AND SUBCLASSES,
        "Recommendation G.774":tu3CTPSinkR1 AND SUBCLASSES;
    USING ATTRIBUTE
        "Recommendation M.3100":upstreamConnectivityPointer;
    CASE {
        single ACCORDING TO RULE
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vc3TTPSourceR1,
                "Recommendation G.774":au3CTPSinkR1,
                "Recommendation G.774":tu3CTPSinkR1 }
    };
;
```

```
downstreamConnectivityPointer-vc3TTPSourceR1 CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":vc3TTPSourceR1 AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":vc3TTPSinkR1 AND SUBCLASSES,
          "Recommendation G.774":au3CTPSource AND SUBCLASSES,
          "Recommendation G.774":tu3CTPSource AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":vc3TTPSinkR1 AND SUBCLASSES,
                    "Recommendation G.774":au3CTPSource AND SUBCLASSES,
                    "Recommendation G.774":tu3CTPSource AND SUBCLASSES},
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    vc3TTPSinkR1 AND SUBCLASSES,
                    "Recommendation G.774":au3CTPSource AND SUBCLASSES,
                    "Recommendation G.774":tu3CTPSource AND SUBCLASSES }
     };
;


upstreamConnectivityPointer-vc4TTPSinkR1 CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":vc4TTPSinkR1 AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":vc4TTPSourceR1 AND SUBCLASSES,
          "Recommendation G.774":au4CTPSinkR1 AND SUBCLASSES,
          "Recommendation G.774":au3CTPSinkR1 AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100":upstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":vc4TTPSourceR1 AND SUBCLASSES,
                    "Recommendation G.774":au4CTPSinkR1 AND SUBCLASSES },
          concatenated ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    SEQUENCE SIZE(3) OF
                         "Recommendation G.774":au3CTPSinkR1 AND SUBCLASSES}
     };
;


downstreamConnectivityPointer-vc4TTPSourceR1 CONSTRAINT RULE
     OBJECT CLASS
          "Recommendation G.774":vc4TTPSourceR1 AND SUBCLASSES;
     IS RELATED TO
          "Recommendation G.774":vc4TTPSinkR1 AND SUBCLASSES,
          "Recommendation G.774":au4CTPSource AND SUBCLASSES,
          "Recommendation G.774":au3CTPSource AND SUBCLASSES;
     USING ATTRIBUTE
          "Recommendation M.3100":downstreamConnectivityPointer;
     CASE {
          single ACCORDING TO RULE
               SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":vc4TTPSinkR1 AND SUBCLASSES,
                    "Recommendation G.774":au4CTPSource AND SUBCLASSES },
          broadcast ACCORDING TO RULE
               SET SIZE(1..N) OF CHOICE {
                    "Recommendation G.774":vc4TTPSinkR1 AND SUBCLASSES,
                    "Recommendation G.774":au4CTPSource AND SUBCLASSES},
```

```
            concatenated ACCORDING TO RULE
                SET SIZE(1) OF CHOICE {
                    SEQUENCE SIZE(3) OF
                        "Recommendation G.774":au3CTPSource AND SUBCLASSES},
        broadcastConcatenated ACCORDING TO RULE
                SET SIZE(1..N) OF CHOICE {
                    SEQUENCE SIZE(3) OF
                        "Recommendation G.774":au3CTPSource AND SUBCLASSES}
        };
;
```

14   Subordination rules

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.

Revisions that require re-registration

This clause provides replacement subordination rule definitions for the existing ITU-T G.774.2 (1994). 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 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.774.2 (1994) 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.774.2 (1994) subordination rule "modifiableAugSinkSubordination", the revised label will become "modifiableAugSinkSubordinationR1".

Below is a table of subordination rules deprecated from ITU-T G.774.2 (1994) and the G.774.2 subordination rules which replace them.

Deprecated G.774.2 1994 Subordination Rules

```
modifiableAugSinkSubordination
modifiableAugBidirectionalSubordination
modifiableTug2SinkSubordination
modifiableTug2BidirectionalSubordination
modifiableTug3SinkSubordination
tug3BidirectionalSubordination
modifiableVC3TTPSinkSubordination
vc3TTPSinkSubordination
modifiableVC3TTPSourceSubordination
vc3TTPSourceSubordination
modifiableVC3TTPBidirectionalSubordination
vc3TTPBidirectionalSubordination
modifiableVC4TTPSinkSubordination
vc4TTPSinkSubordination
modifiableVC4TTPSourceSubordination
vc4TTPSourceSubordination
modifiableVC4TTPBidirectionalSubordination
vc4TTPBidirectionalSubordination
```

Replacement G.774.2 Subordination Rules

```
modifiableAugSinkSubordinationR1
modifiableAugBidirectionalSubordinationR1
modifiableTug2SinkSubordinationR1
modifiableTug2BidirectionalSubordinationR1
modifiableTug3SinkSubordinationR1
tug3BidirectionalSubordinationR1
modifiableVC3TTPSinkR1Subordination
vc3TTPSinkR1Subordination
modifiableVC3TTPSourceR1Subordination
vc3TTPSourceR1Subordination
modifiableVC3TTPBidirectionalR1Subordination
vc3TTPBidirectionalR1Subordination
modifiableVC4TTPSinkR1Subordination
vc4TTPSinkR1Subordination
modifiableVC4TTPSourceR1Subordination
vc4TTPSourceR1Subordination
modifiableVC4TTPBidirectionalR1Subordination
vc4TTPBidirectionalR1Subordination
```

modifiableAugSinkSubordinationR1 SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        modifiableAugSink;
    NAMES SUBORDINATES
        "Recommendation G.774":au4CTPSinkR1,
        "Recommendation G.774":au3CTPSinkR1;
    ACCORDING TO RULE
        CHOICE {
            SET SIZE(1) OF "Recommendation G.774":au4CTPSinkR1,
            SET SIZE(3) OF "Recommendation G.774":au3CTPSinkR1
        };
;

modifiableAugSourceSubordination SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        modifiableAugSource;
    NAMES SUBORDINATES
        "Recommendation G.774":au4CTPSource,
        "Recommendation G.774":au3CTPSource;
    ACCORDING TO RULE
        CHOICE {
            SET SIZE(1) OF "Recommendation G.774":au4CTPSource,
            SET SIZE(3) OF "Recommendation G.774":au3CTPSource
        };
;

modifiableAugBidirectionalSubordinationR1 SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        modifiableAugBidirectional;
    NAMES SUBORDINATES
        "Recommendation G.774":au4CTPSinkR1,
        "Recommendation G.774":au4CTPSource,
        "Recommendation G.774":au4CTPBidirectionalR1,
        "Recommendation G.774":au3CTPSinkR1,
        "Recommendation G.774":au3CTPSource,
        "Recommendation G.774":au3CTPBidirectionalR1;

```
        ACCORDING TO RULE
            CHOICE {
                SET SIZE(1) OF CHOICE {
                    "Recommendation G.774":au4CTPSinkR1,
                    "Recommendation G.774":au4CTPSource,
                    "Recommendation G.774":au4CTPBidirectionalR1 },
                SET SIZE(3) OF CHOICE {
                    "Recommendation G.774":au3CTPSinkR1,
                    "Recommendation G.774":au3CTPSource,
                    "Recommendation G.774":au3CTPBidirectionalR1 }
            };
;


msTTPSinkSubordination  SUBORDINATION RULE
        SUPERIOR OBJECT CLASS
            "Recommendation G.774":msTTPSink;
        NAMES SUBORDINATES
            "Recommendation G.774":augSink,
            modifiableAugSink,
            "Recommendation G.774":msDatacomCTPSink,
            "Recommendation G.774":msOrderwireCTPSink;
        ACCORDING TO RULE
            SET {
                SET SIZE(1,4,16) OF CHOICE {
                    "Recommendation G.774":augSink,
                    modifiableAugSink },
                SET SIZE(0..1) OF "Recommendation G.774":msDatacomCTPSink,
                SET SIZE(0..1) OF "Recommendation G.774":msOrderwireCTPSink
            };
;


msTTPSourceSubordination  SUBORDINATION RULE
        SUPERIOR OBJECT CLASS
            "Recommendation G.774":msTTPSource;
        NAMES SUBORDINATES
            "Recommendation G.774":augSource,
            modifiableAugSource,
            "Recommendation G.774":msDatacomCTPSource,
            "Recommendation G.774":msOrderwireCTPSource;
        ACCORDING TO RULE
            SET {
                SET SIZE(1,4,16) OF CHOICE {
                    "Recommendation G.774":augSource,
                    modifiableAugSource },
                SET SIZE(0..1) OF "Recommendation G.774":msDatacomCTPSource,
                SET SIZE(0..1) OF "Recommendation G.774":msOrderwireCTPSource
            };
;


msTTPBidirectionalSubordination  SUBORDINATION RULE
        SUPERIOR OBJECT CLASS
            "Recommendation G.774":msTTPBidirectional;
        NAMES SUBORDINATES
            "Recommendation G.774":augBidirectional,
            modifiableAugBidirectional,
            "Recommendation G.774":msDatacomCTPSink,
            "Recommendation G.774":msDatacomCTPSource,
            "Recommendation G.774":msDatacomCTPBidirectional,
            "Recommendation G.774":msOrderwireCTPSink,
            "Recommendation G.774":msOrderwireCTPSource,
            "Recommendation G.774":msOrderwireCTPBidirectional;
```

```
        ACCORDING TO RULE
            SET {
                SET SIZE(1,4,16) OF CHOICE {
                    "Recommendation G.774":augBidirectional,
                    modifiableAugBidirectional },
                SET SIZE(0..1) OF CHOICE {
                    "Recommendation G.774":msDatacomCTPSink,
                    "Recommendation G.774":msDatacomCTPSource,
                    "Recommendation G.774":msDatacomCTPBidirectional },
                SET SIZE(0..1) OF CHOICE {
                    "Recommendation G.774":msOrderwireCTPSink,
                    "Recommendation G.774":msOrderwireCTPSource,
                    "Recommendation G.774":msOrderwireCTPBidirectional }
            };
;


modifiableTug2SinkSubordinationR1 SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        modifiableTug2Sink;
    NAMES SUBORDINATES
        "Recommendation G.774":tu11CTPSinkR1,
        "Recommendation G.774":tu12CTPSinkR1,
        "Recommendation G.774":tu2CTPSinkR1;
    ACCORDING TO RULE
        CHOICE {
            SET SIZE(1) OF "Recommendation G.774":tu2CTPSinkR1,
            SET SIZE(3) OF "Recommendation G.774":tu12CTPSinkR1,
            SET SIZE(4) OF "Recommendation G.774":tu11CTPSinkR1
        };
;



modifiableTug2SourceSubordination  SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        modifiableTug2Source;
    NAMES SUBORDINATES
        "Recommendation G.774":tu11CTPSource,
        "Recommendation G.774":tu12CTPSource,
        "Recommendation G.774":tu2CTPSource;
    ACCORDING TO RULE
        CHOICE {
            SET SIZE(1) OF "Recommendation G.774":tu2CTPSource,
            SET SIZE(3) OF "Recommendation G.774":tu12CTPSource,
            SET SIZE(4) OF "Recommendation G.774":tu11CTPSource
        };
;



modifiableTug2BidirectionalSubordinationR1 SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        modifiableTug2Bidirectional;
    NAMES SUBORDINATES
        "Recommendation G.774":tu11CTPSinkR1,
        "Recommendation G.774":tu11CTPSource,
        "Recommendation G.774":tu11CTPBidirectionalR1,
        "Recommendation G.774":tu12CTPSinkR1,
        "Recommendation G.774":tu12CTPSource,
        "Recommendation G.774":tu12CTPBidirectionalR1,
        "Recommendation G.774":tu2CTPSinkR1,
        "Recommendation G.774":tu2CTPSource,
        "Recommendation G.774":tu2CTPBidirectionalR1;
```

```
        ACCORDING TO RULE
            CHOICE {
                    SET SIZE(1) OF CHOICE {
                            "Recommendation G.774":tu2CTPSinkR1,
                            "Recommendation G.774":tu2CTPSource,
                            "Recommendation G.774":tu2CTPBidirectionalR1 },
                    SET SIZE(3) OF CHOICE {
                            "Recommendation G.774":tu12CTPSinkR1,
                            "Recommendation G.774":tu12CTPSource,
                            "Recommendation G.774":tu12CTPBidirectionalR1 },
                    SET SIZE(4) OF CHOICE {
                            "Recommendation G.774":tu11CTPSinkR1,
                            "Recommendation G.774":tu11CTPSource,
                            "Recommendation G.774":tu11CTPBidirectionalR1 }
            };
;


modifiableTug3SinkSubordinationR1 SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          modifiableTug3Sink;
     NAMES SUBORDINATES
          "Recommendation G.774":tug2Sink,
          modifiableTug2Sink,
          "Recommendation G.774":tu3CTPSinkR1;
     ACCORDING TO RULE
          CHOICE {
                SET SIZE(1) OF "Recommendation G.774":tu3CTPSinkR1,
                SET SIZE(7) OF CHOICE {
                       "Recommendation G.774":tug2Sink,
                       modifiableTug2Sink }
          };
;

tug3SourceSubordination   SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          "Recommendation G.774":tug3Source;
     NAMES SUBORDINATES
          "Recommendation G.774":tug2Source,
          modifiableTug2Source,
          "Recommendation G.774":tu3CTPSource;
     ACCORDING TO RULE
          CHOICE {
                SET SIZE(1) OF "Recommendation G.774":tu3CTPSource,
                SET SIZE(7) OF CHOICE {
                       "Recommendation G.774":tug2Source,
                       modifiableTug2Source }
          };
;


tug3BidirectionalSubordinationR1 SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          "Recommendation G.774":tug3Bidirectional;
     NAMES SUBORDINATES
          "Recommendation G.774":tug2Sink,
          "Recommendation G.774":tug2Source,
          "Recommendation G.774":tug2Bidirectional,
          modifiableTug2Sink,
          modifiableTug2Source,
          modifiableTug2Bidirectional,
          "Recommendation G.774":tu3CTPSinkR1,
          "Recommendation G.774":tu3CTPSource,
          "Recommendation G.774":tu3CTPBidirectionalR1;
```

```
            ACCORDING TO RULE
                CHOICE {
                    SET SIZE(1) OF CHOICE {
                        "Recommendation G.774":tu3CTPSinkR1,
                        "Recommendation G.774":tu3CTPSource,
                        "Recommendation G.774":tu3CTPBidirectionalR1 },
                    SET SIZE(7) OF CHOICE {
                        "Recommendation G.774":tug2Sink,
                        "Recommendation G.774":tug2Source,
                        "Recommendation G.774":tug2Bidirectional,
                        modifiableTug2Sink,
                        modifiableTug2Source,
                        modifiableTug2Bidirectional
                    }
                };
;


modifiableVC3TTPSinkR1Subordination SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          "Recommendation G.774":modifiableVC3TTPSinkR1;
     NAMES SUBORDINATES
          "Recommendation G.774":tug2Sink,
          modifiableTug2Sink,
          "Recommendation G.774":vcnUserChannelCTPSink;
     ACCORDING TO RULE
          SET {
              SET SIZE(7) OF CHOICE {
                  "Recommendation G.774":tug2Sink,
                  modifiableTug2Sink },
              SET SIZE(1) OF
                  "Recommendation G.774":vcnUserChannelCTPSink
          };
;

vc3TTPSinkR1Subordination SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          "Recommendation G.774":vc3TTPSinkR1;
     NAMES SUBORDINATES
          "Recommendation G.774":tug2Sink,
          modifiableTug2Sink,
          "Recommendation G.774":vcnUserChannelCTPSink;
     ACCORDING TO RULE
          SET {
              SET SIZE(7) OF CHOICE {
                  "Recommendation G.774":tug2Sink,
                  modifiableTug2Sink },
              SET SIZE(1) OF
                  "Recommendation G.774":vcnUserChannelCTPSink
          };
;


modifiableVC3TTPSourceR1Subordination SUBORDINATION RULE
     SUPERIOR OBJECT CLASS
          "Recommendation G.774":modifiableVC3TTPSourceR1;
     NAMES SUBORDINATES
          "Recommendation G.774":tug2Source,
          modifiableTug2source,
          "Recommendation G.774":vcnUserChannelCTPSource;
```

```
        ACCORDING TO RULE
            SET {
                SET SIZE(7) OF CHOICE {
                    "Recommendation G.774":tug2Source,
                    modifiableTug2Source },
                SET SIZE(1) OF
                    "Recommendation G.774":vcnUserChannelCTPSource
            };
;


vc3TTPSourceR1Subordination SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        "Recommendation G.774":vc3TTPSourceR1;
    NAMES SUBORDINATES
        "Recommendation G.774":tug2Source,
        modifiableTug2source,
        "Recommendation G.774":vcnUserChannelCTPSource;
    ACCORDING TO RULE
        SET {
            SET SIZE(7) OF CHOICE {
                "Recommendation G.774":tug2Source,
                modifiableTug2Source },
            SET SIZE(1) OF
                "Recommendation G.774":vcnUserChannelCTPSource
        };
;




modifiableVC3TTPBidirectionalR1Subordination SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        "Recommendation G.774":modifiableVC3TTPBidirectionalR1;
    NAMES SUBORDINATES
        "Recommendation G.774":tug2Bidirectional,
        modifiableTug2Bidirectional,
        "Recommendation G.774":vcnUserChannelCTPSink,
        "Recommendation G.774":vcnUserChannelCTPSource,
        "Recommendation G.774":vcnUserChannelCTPBidirectional;
    ACCORDING TO RULE
        SET {
            SET SIZE(7) OF CHOICE {
                "Recommendation G.774":tug2Bidirectional,
                modifiableTug2Bidirectional },
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vcnUserChannelCTPSink,
                "Recommendation G.774":vcnUserChannelCTPSource,
                "Recommendation G.774":vcnUserChannelCTPBidirectional }
        };
;




vc3TTPBidirectionalR1Subordination SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        "Recommendation G.774":vc3TTPBidirectionalR1;
    NAMES SUBORDINATES
        "Recommendation G.774":tug2Bidirectional,
        modifiableTug2Bidirectional,
        "Recommendation G.774":vcnUserChannelCTPSink,
        "Recommendation G.774":vcnUserChannelCTPSource,
        "Recommendation G.774":vcnUserChannelCTPBidirectional;
```

```
    ACCORDING TO RULE
        SET {
            SET SIZE(7) OF CHOICE {
                "Recommendation G.774":tug2Bidirectional,
                modifiableTug2Bidirectional },
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vcnUserChannelCTPSink,
                "Recommendation G.774":vcnUserChannelCTPSource,
                "Recommendation G.774":vcnUserChannelCTPBidirectional }
        };
;


modifiableVC4TTPSinkR1Subordination SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        "Recommendation G.774":modifiableVC4TTPSinkR1;
    NAMES SUBORDINATES
        "Recommendation G.774":tug3Sink,
        modifiableTug3Sink,
        "Recommendation G.774":vcnUserChannelCTPSink;
    ACCORDING TO RULE
        SET {
            SET SIZE(3) OF CHOICE {
                "Recommendation G.774":tug3Sink,
                modifiableTug3Sink },
            SET SIZE(1) OF
                "Recommendation G.774":vcnUserChannelCTPSink
        };
;


vc4TTPSinkR1Subordination SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        "Recommendation G.774":vc4TTPSinkR1;
    NAMES SUBORDINATES
        "Recommendation G.774":tug3Sink,
        modifiableTug3Sink,
        "Recommendation G.774":vcnUserChannelCTPSink;
    ACCORDING TO RULE
        SET {
            SET SIZE(3) OF CHOICE {
                "Recommendation G.774":tug3Sink,
                modifiableTug3Sink },
            SET SIZE(1) OF
                "Recommendation G.774":vcnUserChannelCTPSink
        };
;


modifiableVC4TTPSourceR1Subordination SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        "Recommendation G.774":modifiableVC4TTPSourceR1;
    NAMES SUBORDINATES
        "Recommendation G.774":tug3Source,
        modifiableTug3source,
        "Recommendation G.774":vcnUserChannelCTPSource;
    ACCORDING TO RULE
        SET {
            SET SIZE(3) OF CHOICE {
                "Recommendation G.774":tug3Source,
                modifiableTug3Source },
            SET SIZE(1) OF
                "Recommendation G.774":vcnUserChannelCTPSource
        };
;
```

```
vc4TTPSourceR1Subordination SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        "Recommendation G.774":vc4TTPSourceR1;
    NAMES SUBORDINATES
        "Recommendation G.774":tug3Source,
        modifiableTug3source,
        "Recommendation G.774":vcnUserChannelCTPSource;
    ACCORDING TO RULE
        SET {
            SET SIZE(3) OF CHOICE {
                "Recommendation G.774":tug3Source,
                modifiableTug3Source },
            SET SIZE(1) OF
                "Recommendation G.774":vcnUserChannelCTPSource
        };
;


modifiableVC4TTPBidirectionalR1Subordination SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        "Recommendation G.774":modifiableVC4TTPBidirectionalR1;
    NAMES SUBORDINATES
        "Recommendation G.774":tug3Bidirectional,
        modifiableTug3Bidirectional,
        "Recommendation G.774":vcnUserChannelCTPSink,
        "Recommendation G.774":vcnUserChannelCTPSource,
        "Recommendation G.774":vcnUserChannelCTPBidirectional;
    ACCORDING TO RULE
        SET {
            SET SIZE(3) OF CHOICE {
                "Recommendation G.774":tug3Bidirectional,
                modifiableTug3Bidirectional },
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vcnUserChannelCTPSink,
                "Recommendation G.774":vcnUserChannelCTPSource,
                "Recommendation G.774":vcnUserChannelCTPBidirectional }
        };
;


vc4TTPBidirectionalR1Subordination SUBORDINATION RULE
    SUPERIOR OBJECT CLASS
        "Recommendation G.774":vc4TTPBidirectionalR1;
    NAMES SUBORDINATES
        "Recommendation G.774":tug3Bidirectional,
        modifiableTug3Bidirectional,
        "Recommendation G.774":vcnUserChannelCTPSink,
        "Recommendation G.774":vcnUserChannelCTPSource,
        "Recommendation G.774":vcnUserChannelCTPBidirectional;
    ACCORDING TO RULE
        SET {
            SET SIZE(3) OF CHOICE {
                "Recommendation G.774":tug3Bidirectional,
                modifiableTug3Bidirectional },
            SET SIZE(1) OF CHOICE {
                "Recommendation G.774":vcnUserChannelCTPSink,
                "Recommendation G.774":vcnUserChannelCTPSource,
                "Recommendation G.774":vcnUserChannelCTPBidirectional }
        };
;
```
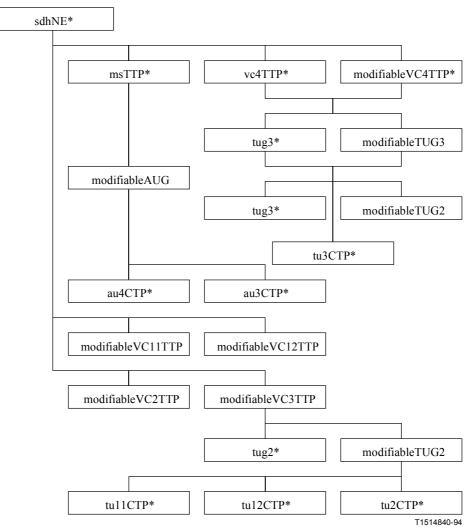
15 Supporting ASN.1 productions

```
SDHConfASN1 {itu-t(0) recommendation(0) g(7) g774(774) hyphen(127) conf(02)
informationModel(0)
asn1Module(2) sdhconf (0)}
DEFINITIONS IMPLICIT TAGS  ::=
BEGIN
-- EXPORTS everything --
sdhConf OBJECT IDENTIFIER  ::=  { itu-t(0) recommendation(0) g(7) g774(774)
hyphen(127) conf(02)
informationModel(0) }
g774-02MObjectClass OBJECT IDENTIFIER  ::=  { sdhConf managedObjectClass(3) }
g774-02Action OBJECT IDENTIFIER  ::=  { sdhConf action(9) }
g774-02NameBinding OBJECT IDENTIFIER  ::=  { sdhConf nameBinding(6) }
g774-02Parameter OBJECT IDENTIFIER  ::=  { sdhConf parameter(5) }
ClientType  ::=  ENUMERATED  {
-- For more information refer to ITU-T G.803 and G.707.  --
noClient (0),
c139264AsynchronousMappingClientType (1),
c44736AsynchronousMappingClientType (2),
c34AsynchronousMappingClientType (3),
c6312AsynchronousMappingClientType (4),
c6312BitSynchronousMappingClientType (5),
c6312ByteSynchronousMappingClientType (6),
c2048AsynchronousMappingClientType (7),
c2048BitSynchronousMappingClientType (8),
c2048ByteSynchronousMappingClientType (9),
c1544AsynchronousMappingClientType (10),
c1544BitSynchronousMappingClientType (11),
c1544ByteSynchronousMappingClientType (12),
aTMClientType (13),
fDDIClientType (14),
mANClientType (15)
    }
-- NOTE – The identification of the different type of adaptation functions
-- for a single type of characteristic  information is for further study.--
ConnectionInfo  ::=  ENUMERATED {
    crossConnectable        (1),
    notCrossConnectable     (2),
    unknown                 (3)
        }
AUGStructureInfo  ::=  CHOICE  {
    oneAU4      [0] ConnectionInfo,
    threeAU3    [1] SEQUENCE SIZE (1..3) OF  ConnectionInfo
        }
DefineClientTypeInfo  ::=  ClientType
DefineSDHStructureError  ::=  ENUMERATED  {
    structureNotSupported      (0),
    tpNotCrossConnectable      (1),
    tpAlreadyCrossConnected    (2),
    unknown                    (3)
        }
TUG3StructureInfo  ::=  CHOICE {
    oneTU3      [0] ConnectionInfo,
    sevenTUG2   [1] SEQUENCE SIZE (1..7) OF TUG2StructureInfo
        } -- ordered according to the time sequence  --
TUG2StructureInfo  ::=  CHOICE {
    oneTU2      [0] ConnectionInfo,
    threeTU12   [1] SEQUENCE SIZE (1..3) OF ConnectionInfo,
    fourTU11    [2] SEQUENCE SIZE (1..4) OF ConnectionInfo
        } -- ordered according to the time sequence  --
```

```
VC4StructureInfo  ::=  CHOICE  {
    notSubmultiplexed [0] ClientType,
    threeTUG3         [1] SEQUENCE SIZE (1..3) OF TUG3StructureInfo
        } -- ordered according to the time sequence  --
VC3StructureInfo  ::=  CHOICE  {
    notSubmultiplexed [0] ClientType,
    sevenTUG2         [1] SEQUENCE SIZE (1..7) OF TUG2StructureInfo
        } -- In case of mapping the VC3 into a VC4 only the notSubmultiplexed
           choice is permitted.  --
END  --  end of supporting asn.1 productions  --
```

APPENDIX I

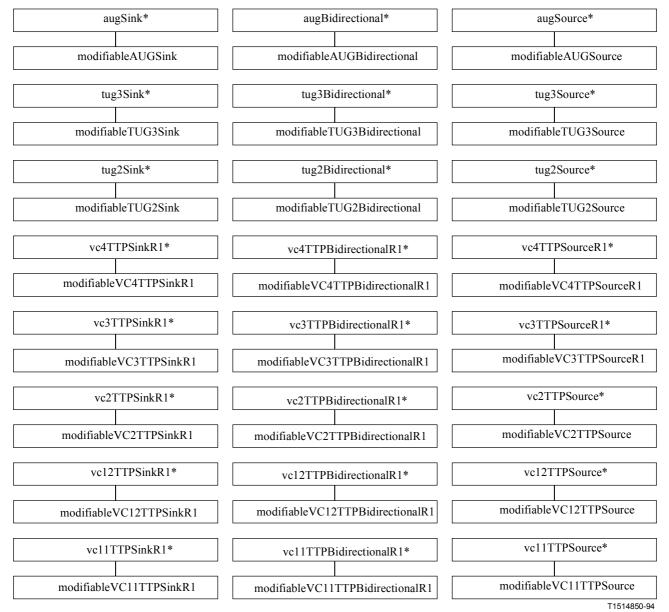### Inheritance and Naming Diagrams

See Figures I.1 and I.2.

TPs and IAs are sink, source or bidirectional.

* Not defined in this Recommendation.

Figure I.1/G.774.2 – Naming tree for managed object classes (defined in this Recommendation)

augSink*	augBidirectional*	augSource*
modifiableAUGSink	modifiableAUGBidirectional	modifiableAUGSource

tug3Sink*	tug3Bidirectional*	tug3Source*
modifiableTUG3Sink	modifiableTUG3Bidirectional	modifiableTUG3Source

tug2Sink*	tug2Bidirectional*	tug2Source*
modifiableTUG2Sink	modifiableTUG2Bidirectional	modifiableTUG2Source

vc4TTPSinkR1*	vc4TTPBidirectionalR1*	vc4TTPSourceR1*
modifiableVC4TTPSinkR1	modifiableVC4TTPBidirectionalR1	modifiableVC4TTPSourceR1

vc3TTPSinkR1*	vc3TTPBidirectionalR1*	vc3TTPSourceR1*
modifiableVC3TTPSinkR1	modifiableVC3TTPBidirectionalR1	modifiableVC3TTPSourceR1

vc2TTPSinkR1*	vc2TTPBidirectionalR1*	vc2TTPSource*
modifiableVC2TTPSinkR1	modifiableVC2TTPBidirectionalR1	modifiableVC2TTPSource

vc12TTPSinkR1*	vc12TTPBidirectionalR1*	vc12TTPSource*
modifiableVC12TTPSinkR1	modifiableVC12TTPBidirectionalR1	modifiableVC12TTPSource

vc11TTPSinkR1*	vc11TTPBidirectionalR1*	vc11TTPSource*
modifiableVC11TTPSinkR1	modifiableVC11TTPBidirectionalR1	modifiableVC11TTPSource

T1514850-94

* Not defined in this Recommendation.

**Figure I.2/G.774.2 – Inheritance tree for managed object classes
(defined in this Recommendation)**

SERIES OF ITU-T RECOMMENDATIONS

Series A	Organization of the work of ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	**Transmission systems and media, digital systems and networks**
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Cable networks and transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communications
Series Y	Global information infrastructure and Internet protocol aspects
Series Z	Languages and general software aspects for telecommunication systems