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G.774.04

Corrigendum 1

(11/96)

SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

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

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Synchronous Digital Hierarchy (SDH) management of the subnetwork connection protection for the network element view

Corrigendum 1

ITU-T Recommendation G.774.04 – Corrigendum 1

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION G.774.04

SYNCHRONOUS DIGITAL HIERARCHY (SDH) MANAGEMENT OF THE SUBNETWORK CONNECTION PROTECTION FOR THE NETWORK ELEMENT VIEW

CORRIGENDUM 1

Source

Corrigendum 1 to ITU-T Recommendation G.774.04 was prepared by ITU-T Study Group 15 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 8th of November 1996.

FOREWORD

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

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1.

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

NOTE

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

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

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

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SYNCHRONOUS DIGITAL HIERARCHY (SDH) MANAGEMENT OF THE SUBNETWORK CONNECTION PROTECTION FOR THE NETWORK ELEMENT VIEW

CORRIGENDUM 1

(Geneva, 1996)

1 Scope

Revisions that do not require re-registration

The following text replaces the entire text within clause 1/G.774.04 (1995). All additions are marked in **bold** for clarity.

This Recommendation addresses the management of the automatic protection switching within network element at the high and low order path layers. It covers the subnetwork connection protection as described in Recommendation G.803[13] and G.841 [16].

This Recommendation provides an information model, as related to the subnetwork connection protection function for the Synchronous Digital Hierarchy (SDH). It identifies the Telecommunications Management Network (TMN) object classes required for the management of the subnetwork connection protection function for SDH network elements. These objects are relevant to information exchanged across standardized interfaces defined in Recommendation M.3010 (TMN architecture) [4].

This Recommendation applies to SDH network elements which perform the subnetwork connection protection function and those systems in the TMN that manage SDH network elements.

The new objects defined in this Recommendation supersede those defined in Recommendation G.774.04 (1995). For each object class, attribute, action, notification, parameter defined in this Recommendation it shall be indicated what the impacts upon the existing Recommendation G.774.04 (1995) are.

1.1 Structure of this Recommendation

No revisions are required.

2 References

No revisions are required.

3 Definitions

No revisions are required.

4 Abbreviations

No revisions are required.

5 Subnetwork connection protection management model

5.1 Overview

No revisions are required.

5.2 SDH subnetwork connection protection requirements

No revisions are required.

6 Managed Object Class Definitions

Revisions that require re-registration

This clause provides replacement managed object class definitions for the existing Recommendation G.774.04 (1995). 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.774.04 (1995) managed object class "connectionProtectionGroup", the revised label will become "connectionProtectionGroupR1".

Below is a table of classes deprecated from Recommendation G.774.04 (1995) and the G.774.04 classes which replace them:

Deprecated G.774.04 (1995) Classes	**Replacement G.774.04 Classes**
connectionProtectionGroup	connectionProtectionGroupR1

Connection Protection Group

```
connectionProtectionGroupR1  MANAGED OBJECT CLASS
        DERIVED FROM    “Recommendation G.774.03”:protectionGroupR1;
        CHARACTERIZED BY
                connectionProtectionGroupPkgR1  PACKAGE
                        BEHAVIOUR connectionProtectionGroupR1Behaviour;
                        ATTRIBUTES
                                "Recommendation G.774.04":protectionCriteria
                                GET-REPLACE ADD-REMOVE;
                        NOTIFICATIONS
                                protectionSwitchReportingR1
                                "Recommendation G.774.04":switchStatusParameter;;;
        CONDITIONAL PACKAGES
                "Recommendation G.774.04":holdOffTimePackage
                PRESENT IF "an instance supports it";
REGISTERED AS { g774-04MObjectClass 5 } ;

connectionProtectionGroupR1Behaviour BEHAVIOUR
        DEFINED AS     "This object class is used to model an automatic protection
system for subnetwork connection protection. The protectionGroupType attribute indicates
```

that the protection scheme used is 1+1 (plus). This object class is a focal point for management operations and notifications related to management of the protection system. Actual signal flow across the subnetwork connection protection is reflected by the connectivity pointers of the TPs involved in the subnetwork connection protection. At instantiation time of an instance of this class the protectionCriteria attribute is intitialized by local initial value.";

7 Packages

No revisions are required.

8 Attributes

No revisions are required.

9 Actions

No revisions are required.

10 Parameters

No revisions are required.

11 Namebindings

Revisions that require re-registration

This clause provides replacement namebinding definitions for the existing Recommendation G.774.04 (1995). 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.774.04 (1995) namebinding "connectionProtection-connectionProtectionGroup", the revised label will become "connectionProtection-connectionProtectionGroupR1". Note the "R1" is placed immediately following the revised class which impacts the namebinding.

Below is a table of namebindings deprecated from Recommendation G.774.04 (1995) and the G.774.04 namebindings which replace them:

Deprecated G.774.04 (1995) Namebindings
connectionProtection-connectionProtectionGroup
connectionProtectionGroup-sncpFabric
mpConnectionProtection-connectionProtectionGroup

Replacement G.774.04 Namebindings

connectionProtection-connectionProtectionGroupR1
connectionProtectionGroupR1-sncpFabric
mpConnectionProtection-connectionProtectionGroupR1

connectionProtection-connectionProtectionGroupR1 NAME BINDING
SUBORDINATE OBJECT CLASS
"Recommendation G.774.04”:connectionProtection AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS connectionProtectionGroupR1
AND SUBCLASSES;
WITH ATTRIBUTE "Recommendation G.774.03"::protectionUnitId;
BEHAVIOUR
connectionProtection-connectionProtectionGroupR1Beh BEHAVIOUR
DEFINED AS "The connection protection is contained by a connection protection Group managed object instance. There must be two and only two CP (Connection Protection) in the CPG (Connection Protection Group), with the same signal type and the same directionality. This is used to represent a point-to-point unidirectional or bidirectional connection protection. One of these CPs must be the protected one (protecting attribute with the value 'FALSE'), and the other must be the protecting one (protecting attribute with the value 'TRUE')." ;;
REGISTERED AS { g774-04NameBinding 7 }
;

connectionProtectionGroupR1-sncpFabric NAME BINDING
SUBORDINATE OBJECT CLASS
connectionProtectionGroupR1 AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS
"Recommendation G.774.04":sncpFabric AND SUBCLASSES;
WITH ATTRIBUTE "Recommendation G.774.03":protectionGroupId;
BEHAVIOUR connectionProtectionGroupR1-sncpFabricBeh BEHAVIOUR
DEFINED AS "A Connection Protection Group is created as the result of the establishment of a protected connection (point-to-point or point-to-multipoint) or of the protection of an existing non-protected connection. When disconnecting a TP involved in a protected connection :

– if the TP is the reliable resource of a point-to-point connection protection, or the last reliable resource (last leg) of a multipoint connection protection, this leads to the disconnection of the protection, resulting in the deletion of the connection protection group and all contained objects.
– if the TP is the unreliable resource of a connection protection or multipoint connection protection, the corresponding Unreliable Resource Pointer is set to NULL. Such a disconnection shall be considered as a signal failure. A new unreliable resource (TP) may be connected using the capability to add a new unreliable resource of the protected connect action. When both unreliable TPs are disconnected, this leads to the disconnection of the protection, resulting in the deletion of the connection protection group and all contained objects. ";;
REGISTERED AS { g774-04NameBinding 8 };

mpConnectionProtection-connectionProtectionGroupR1 NAME BINDING
SUBORDINATE OBJECT CLASS
"Recommendation G.774.04":mpConnectionProtection AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS
connectionProtectionGroupR1 AND SUBCLASSES;
WITH ATTRIBUTE "Recommendation G.774.03":protectionUnitId;
BEHAVIOUR mpConnectionProtection-connectionProtectionGroupR1Beh
BEHAVIOUR
DEFINED AS "MultiPoint Connection Protection are created as the result of the establishment of a protected multipoint connection or of the protection of an existing non-protected multipoint connection. The multipoint connection protections are contained directly by the connection protection Group managed object instance. There must be two and only two mpConnectionProtections in the connectionProtectionGroup, with the

same signal type. This is used to represent the point to multipoint unidirectional connection protection.
One of these mpConnectionProtection must be the protected one (protecting attribute with the value FALSE), and the other must be the protecting one (protecting attribute with the value TRUE).
Only the protected mpConnectionProtection can contain cross-connections representing the reliable resources. The configuration may be done prior to any existing cross-connection or on an existing multipoint cross-connection." ;;
REGISTERED AS { g774-04NameBinding 9 };

12 Subordination Rules

No revisions are required.

13 Pointer Constraints

No revisions are required.

14 Supporting ASN.1 Productions

No revisions are required.

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