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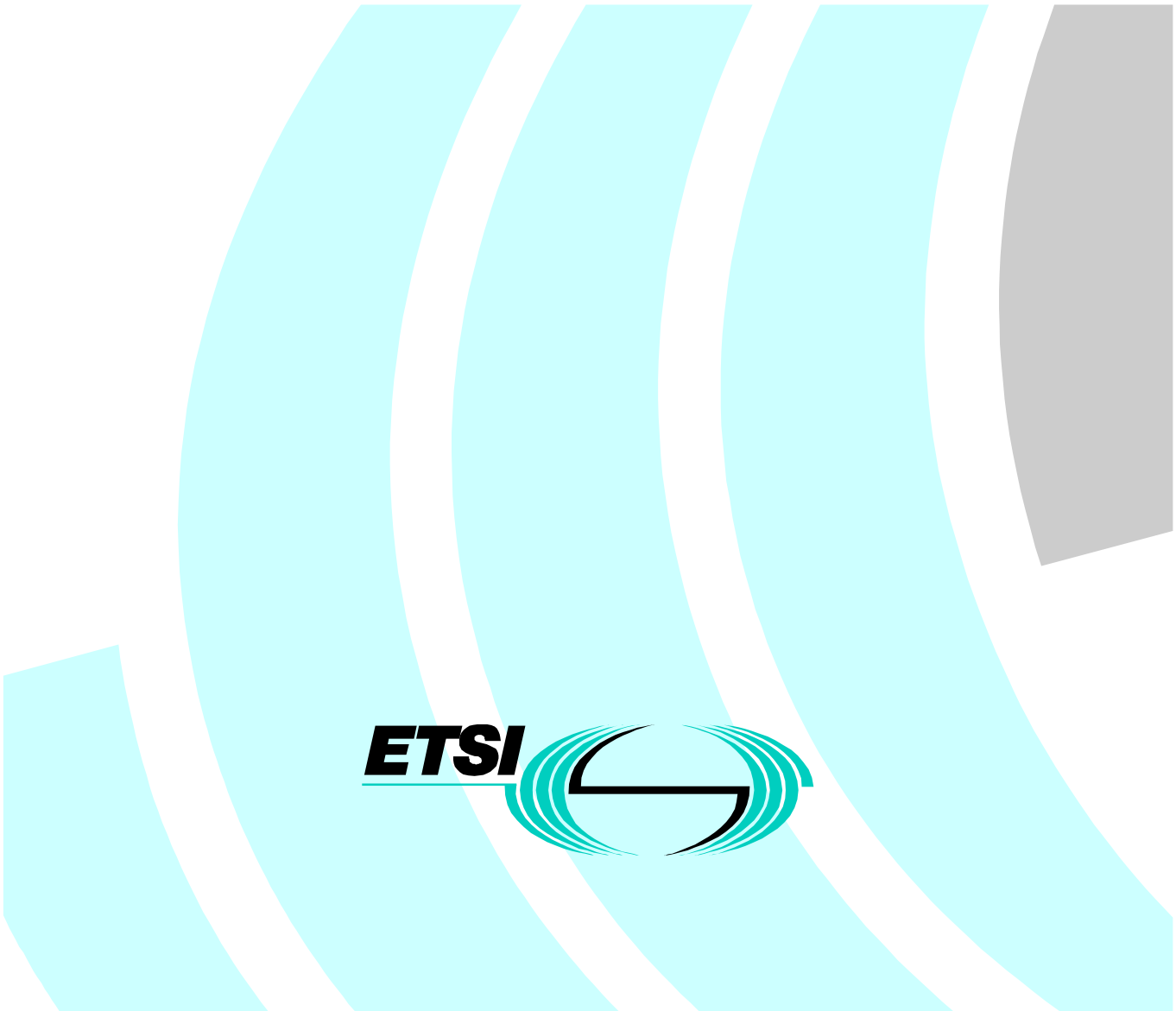
European Standard (Telecommunications series)

Synchronous Digital Hierarchy (SDH); Unidirectional performance monitoring for the network element view



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Contents

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Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Transmission and Multiplexing (TM) of the European Telecommunications Standards Institute (ETSI).

The present document describes the information model for Network Elements (NEs) for performance monitoring.

National transposition dates	
Date of adoption of this EN:	22 May 1998
Date of latest announcement of this EN (doa):	31 August 1998
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	28 February 1999
Date of withdrawal of any conflicting National Standard (dow):	28 February 1999

1 Scope

The present document provides an information model for the unidirectional performance monitoring of Synchronous Digital Hierarchy (SDH) network. This model describes the managed object classes and their properties for the performance monitoring function, as defined in ITU-T Recommendation G.784 [3] and as related to SDH Network Elements (NEs). These objects are useful to describe information exchanged across interfaces defined in ITU-T Recommendation M.3010 [5] Telecommunications Management Network (TMN) architecture for the management of the performance monitoring function.

Synchronous Digital Hierarchy (SDH) performance monitoring functions are used to monitor specified performance events of specified termination points managed objects and to report these performance data, as well as quality of service alarms to its managing system according to a given schedule.

ITU-T Recommendation M.2120 [4] defines maintenance of transport network, ITU-T Recommendation G.784 [3] defines the management of SDH based NE. The present document defines the object model based on ITU-T Recommendation Q.822 [6] according to the requirements described in ITU-T Recommendation G.784 [3] and ITU-T Recommendation M.2120 [4]. This model uses generic mechanism defined in ITU-T Recommendation Q.822 [6]. The information model for bidirectional performance monitoring is covered by ITU-T Recommendation G.774-01 [1], the one for unidirectional performance monitoring by ITU-T Recommendation G.774-06 [2]. The present document reuses functionality of ITU-T Recommendation G.774-01 [1] and G.774-06 [2] wherever possible.

The present document defines:

- an information model, as related to the unidirectional performance monitoring function for the SDH.

The present document does not define:

- the protocol stack to be used for message communication;
- the network level management processes;
- the application contexts;
- the conformance requirements to be met by an implementation of this information model;
- information models for other systems or equipment.

The information model defined here (and the corresponding message set) is concerned with the management of NEs, the equipment by which they are implemented and the functions contained within them. More precisely, it applies to an equipment domain visible at the element manager to element interface and is only concerned with information available within that domain. Information proper to the domain of a network level management process is not included within this model.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, subsequent revisions do apply.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] ITU-T Recommendation G.774-01 (1993): "Synchronous Digital Hierarchy (SDH) Performance Monitoring for the Network Element View".

[2] ITU-T Recommendation G.774-06 (1997): "Synchronous Digital Hierarchy (SDH) Unidirectional Performance Monitoring for the Network Element View".

[3] ITU-T Recommendation G.784 (1996): "Synchronous Digital Hierarchy SDH Management".

[4] ITU-T Recommendation M.2120 (1992): "Digital Path, Section and Transmission System Fault Detection and Localisation Procedures".

[5] ITU-T Recommendation M 3010 (1995): "Principles for a Telecommunication Management Networks (TMN)".

[6] ITU-T Recommendation Q.822 (1993): "Stage 1, Stage 2 and Stage 3 Description For The Q3 Interface: Preformance Management".

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

NE	Network Element
SDH	Synchronous Digital Hierarchy
TMN	Telecommunications Management Network

4 Performance monitoring management model

The SDH performance monitoring requirements are described in ITU-T Recommendation G.774.01 [1], clause 5 and in ITU-T Recommendation G.774.06 [2], clause 5.

5 Managed object class definitions

In the context of the present document, the IMPORTS clause specifies the object classes which can be instantiated in the scope of the present document. The IMPORTS clause does not include uninstantiated superclasses.

```
BEGIN
IMPORTS
sdhCurrentDataUnidirectional,
msCurrentDataNearEnd,
msCurrentDataNearEndTR,
pathTerminationCurrentDataNearEnd,
pathTerminationCurrentDataNearEndTR,
msCurrentDataFarEnd,
msCurrentDataFarEndTR,
pathTerminationCurrentDataFarEnd,
pathTerminationCurrentDataFarEndTR,
msHistoryDataNearEnd,
pathTerminationHistoryDataNearEnd,
msHistoryDataFarEnd,
pathTerminationHistoryDataFarEnd

FROM {itu-t(0) recommendation(0) g(7) g774(774) hyphen(127) pmUni(06) informationModel(0)
managedObjectClass(3) }
;
END
```

6 Packages

```
BEGIN
IMPORTS
nearEndUASCurrentDataPackage,
farEndUASCurrentDataPackage,
nearEndUASHistoryDataPackage,
farEndUASHistoryDataPackage
FROM {itu-t(0) recommendation(0) g(7) g774(774) hyphen(127) pmUni(06)  informationModel(0)
package(4) }
;
END
```

7 Attributes

```
BEGIN
IMPORTS
nEUAS,
fEUAS
FROM {itu-t(0) recommendation(0) g(7) g774(774) hyphen(127) pmUni(06) informationModel(0)
attribute(7) }
;
END
```

8 Actions

None.

9 Notifications

None.

10 Parameters

None.

11 Name bindings

```
BEGIN
IMPORTS
msCurrentDataNearEnd-msTTPSink,
msCurrentDataNearEndTR-msTTPSink,
pathTerminationCurrentDataNearEnd-vc4TTPSink,
pathTerminationCurrentDataNearEnd-vc3TTPSink,
pathTerminationCurrentDataNearEnd-vc2TTPSink,
pathTerminationCurrentDataNearEnd-vc12TTPSink,
pathTerminationCurrentDataNearEnd-vc11TTPSink,
pathTerminationCurrentDataNearEndTR-vc4TTPSink,
pathTerminationCurrentDataNearEndTR-vc3TTPSink,
pathTerminationCurrentDataNearEndTR-vc2TTPSink,
pathTerminationCurrentDataNearEndTR-vc12TTPSink,
pathTerminationCurrentDataNearEndTR-vc11TTPSink,
msCurrentDataFarEnd-msTTPSink,
msCurrentDataFarEndTR-msTTPSink,
pathTerminationCurrentDataFarEnd-vc4TTPSink,
pathTerminationCurrentDataFarEnd-vc3TTPSink,
pathTerminationCurrentDataFarEnd-vc2TTPSink,
pathTerminationCurrentDataFarEnd-vc12TTPSink,
pathTerminationCurrentDataFarEnd-vc11TTPSink,
pathTerminationCurrentDataFarEndTR-vc4TTPSink,
pathTerminationCurrentDataFarEndTR-vc3TTPSink,
pathTerminationCurrentDataFarEndTR-vc2TTPSink,
pathTerminationCurrentDataFarEndTR-vc12TTPSink,
pathTerminationCurrentDataFarEndTR-vc11TTPSink,
pathTerminationCurrentDataNearEnd-au4SupervisedCTPSink,
pathTerminationCurrentDataNearEnd-au3SupervisedCTPSink,
pathTerminationCurrentDataNearEnd-tu3SupervisedCTPSink,
pathTerminationCurrentDataNearEnd-tu2SupervisedCTPSink,
pathTerminationCurrentDataNearEnd-tu12SupervisedCTPSink,
pathTerminationCurrentDataNearEnd-tu11SupervisedCTPSink,
pathTerminationCurrentDataFarEnd-au4SupervisedCTPSink,
pathTerminationCurrentDataFarEnd-au3SupervisedCTPSink,
pathTerminationCurrentDataFarEnd-tu3SupervisedCTPSink,
pathTerminationCurrentDataFarEnd-tu2SupervisedCTPSink,
pathTerminationCurrentDataFarEnd-tu12SupervisedCTPSink,
pathTerminationCurrentDataFarEnd-tu11SupervisedCTPSink,
pathTerminationCurrentDataNearEndTR-au4SupervisedCTPSink,
pathTerminationCurrentDataNearEndTR-au3SupervisedCTPSink,
pathTerminationCurrentDataNearEndTR-tu3SupervisedCTPSink,
pathTerminationCurrentDataNearEndTR-tu2SupervisedCTPSink,
pathTerminationCurrentDataNearEndTR-tu12SupervisedCTPSink,
pathTerminationCurrentDataNearEndTR-tu11SupervisedCTPSink,
pathTerminationCurrentDataFarEndTR-au4SupervisedCTPSink,
pathTerminationCurrentDataFarEndTR-au3SupervisedCTPSink,
pathTerminationCurrentDataFarEndTR-tu3SupervisedCTPSink,
pathTerminationCurrentDataFarEndTR-tu2SupervisedCTPSink,
pathTerminationCurrentDataFarEndTR-tu12SupervisedCTPSink,
pathTerminationCurrentDataFarEndTR-tu11SupervisedCTPSink,
pathTerminationCurrentDataNearEnd-vc4TTPSinkR1,
pathTerminationCurrentDataNearEnd-vc3TTPSinkR1,
pathTerminationCurrentDataNearEnd-vc2TTPSinkR1,
pathTerminationCurrentDataNearEnd-vc12TTPSinkR1,
pathTerminationCurrentDataNearEnd-vc11TTPSinkR1,
pathTerminationCurrentDataNearEndTR-vc4TTPSinkR1,
pathTerminationCurrentDataNearEndTR-vc3TTPSinkR1,
pathTerminationCurrentDataNearEndTR-vc2TTPSinkR1,
pathTerminationCurrentDataNearEndTR-vc12TTPSinkR1,
pathTerminationCurrentDataNearEndTR-vc11TTPSinkR1,
pathTerminationCurrentDataFarEnd-vc4TTPSinkR1,
pathTerminationCurrentDataFarEnd-vc3TTPSinkR1,
pathTerminationCurrentDataFarEnd-vc2TTPSinkR1,
pathTerminationCurrentDataFarEnd-vc12TTPSinkR1,
pathTerminationCurrentDataFarEnd-vc11TTPSinkR1,
pathTerminationCurrentDataFarEndTR-vc4TTPSinkR1,
pathTerminationCurrentDataFarEndTR-vc3TTPSinkR1,
pathTerminationCurrentDataFarEndTR-vc2TTPSinkR1,
pathTerminationCurrentDataFarEndTR-vc12TTPSinkR1,
pathTerminationCurrentDataFarEndTR-vc11TTPSinkR1

FROM {itu(0) recommendation(0) g(7) g774(774) hyphen(127) pmUni(06) informationModel(0)
nameBinding(6) }
;
END
```

Annex A (informative): Bibliography

The following material, though not specifically referenced in the body of the present document, gives supporting information.

ITU-T Recommendation G.707 (1995): "Network-Node Interface for the Synchronous Digital Hierarchy".

ITU-T Recommendation G.773 (1992): "Q Interface Protocols".

ITU-T Recommendation G.774 (1992): "SDH Management Information Model for the Network Element".

ITU-T Recommendation G.783 (1995): "Characteristics of Synchronous Digital Hierarchy (SDH) Multiplexing Equipment Functional Blocks".

ITU-T Recommendation G.805 (1995): "Generic Functional Architecture of Transport Networks".

ITU-T Recommendation G.826 (1993): "Error Performance Parameters and Objectives for International Constant Bit Rate Digital Paths at or above the Primary Rate".

ITU-T Recommendation M.3100 (1992): "Generic Network Information Model".

ITU-T Recommendation M.60 (1993): "TMN Terminology".

ITU-T Recommendation Q.811 (1990): "Q3 - Lower layers Protocols".

ITU-T Recommendation Q.812 (1990): "Q3 -Higher layers Protocols".

ITU-T Recommendation X.208 (1990): "Specification of Abstract Syntax Notation One (ASN.1) [17]".

ITU-T Recommendation X.701(1992): "Systems Management Overview".

ITU-T Recommendation X.710 (1990): "Common Management Information Service".

ITU-T Recommendation X.711(1990): "Common Management Information Protocol".

ITU-T Recommendation X.720 (1992): "Information Technology - OSI - Structure of Management Information: Management Information Model".

ITU-T Recommendation X.721 (1992): "Definition Of Management Information".

ITU-T Recommendation X.722 (1992): "Information Technology - OSI - Structure of Management Information Guidelines for the Definition of Managed Objects".

ITU-T Recommendation X.731 (1992): "State Management Function".

ITU-T Recommendation X.730 (1992): "Object Management Function".

ITU-T Recommendation X.733 (1992): "Alarm Reporting Function".

ITU-T Recommendation X.734 (1992): "Event Report Management Function".

ITU-T Recommendation X.735 (1992): "Log Control Function".

ITU-T Recommendation X.739 (1993): "Information Technology - OSI - Metric Objects and A".

History

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