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New presentation - see History box

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Contents

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Foreword

This Interim European Telecommunication Standard (I-ETS) has been prepared by the Network Aspects (NA) Technical Committee of the European Telecommunications Standards Institute (ETSI).

NOTE: This I-ETS was submitted to the Public Enquiry phase of the ETSI standards approval procedure as a draft ETS. Following resolution of the comments received, the document was converted into an I-ETS.

An ETSI standard may be given I-ETS status either because it is regarded as a provisional solution ahead of a more advanced standard, or because it is immature and requires a "trial period". The life of an I-ETS is limited to three years after which it can be converted into an ETS, have it's life extended for a further two years, be replaced by a new version, or be withdrawn.

This I-ETS describes the Operation And Maintenance (OAM) principles and functions for the Asynchronous Transfer Mode (ATM) based Broadband Integrated Digital Network (B-ISDN).

Announcement date	
Date of latest announcement of this I-ETS (doa):	31 July 1995

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1 Scope

This Interim European Telecommunication Standard (I-ETS) identifies the minimum set of functions required to operate and maintain the Physical Layer and the Asynchronous Transfer Mode (ATM) layer aspects of the Broadband Integrated Services Digital Network (B-ISDN) User-Network Interface (UNI) as well as the individual Virtual Path (VP) and the Virtual Channel (VC) connections that may be routed through the B-ISDN.

The functions of the layers above the ATM layer are not considered.

2 Normative references

This I-ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this I-ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] ITU-T Recommendation I.610 (1993): "B-ISDN operation and maintenance principles and functions".

[2] CCITT Recommendation I.113 (1992): "Vocabulary of terms for broadband aspects of ISDN", CCITT SG XVIII report R122, Geneva 9-19 June 1992.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of this I-ETS, the definitions given in CCITT Recommendation I.113 [2] apply.

3.2 Symbols and abbreviations

For the purposes of this I-ETS, the following symbols and abbreviations apply:

F1 ... F5	OAM Flows 1 ... 5
FM	Fault Management
LOC	Loss Of Cell delineation
LOM	Loss Of OAM flow
LOP	Loss Of Pointer
LT	Line Termination
MS	Multiplex Section
MSN	Monitoring cell Sequence Number
OAM	Operation And Maintenance
PDH	Plesiochronous Digital Hierarchy
PL-OAM	Physical Layer OAM
PM	Performance Management
PTI	Payload Type Identifier
SDH	Synchronous Digital Hierarchy
T_B	T Reference Point in B-ISDN
TUC	Total User Cell number
UNI	User-Network Interface
UPC/NPC	Usage Parameter Control / Network Parameter Control
VC	Virtual Channel
VCI	Virtual Channel Identifier
VP	Virtual Path
VC(VP)-FERF	Far End Receive Failure for VC (VP)
VC(VP)-AIS	Alarm Indication Signal for VC (VP)

4 B-ISDN operation and maintenance principles and functions

The B-ISDN operation and maintenance principles and functions are specified in ITU-T Recommendation I.610 [1]. This ITU-T Recommendation has the following sections, which are given here for information:

§ 1:	Introduction
§ 2:	OAM principles
§ 3:	OAM Levels and Flows
§ 4:	Mechanisms to provide OAM flows
§ 5:	OAM functions of the Physical Layer
§ 6:	OAM functions of the ATM Layer
§ 7:	ATM Layer OAM Cell Format
APPENDIX I:	ATM layer loopback capability

5 Requirements for the application of ITU-T Recommendation I.610 (1993) as an European Telecommunication Standard

The following statements give the interpretation of open issues in ITU-T Recommendation I.610 [1], to apply in this I-ETS.

§§ 1.2 Scope

The functions of the layers above the ATM layer are not considered. Results of the further study of these layers in ITU-T may not be included in this I-ETS at a later stage.

§§ 5.2.2 OAM Functions with regard to the System Management

Whenever a regenerator is used for a section crossing a TB reference point for the Synchronous Digital Hierarchy (SDH) based User-Network Interface (UNI), this regenerator shall have regenerator section error monitoring by System Management.

Figure 4/I.610

Plesiochronous Digital Hierarchy (PDH) shall be considered instead of CCITT Recommendation G.702 in note 1 to the figure.

Table 1/I.610

The reference to CCITT Recommendation G.783 in note 4 shall not be considered. A reference to a new note 5 shall be added (rightmost column, third row, top) with the following added to the list of notes:

"5 Creates no failure indication."

Table 2/I.610

A reference to a new note 4 shall be added (rightmost column, third row, top) with the following added to the list of notes:

"4 Creates no failure indication."

§§ 6.2 OAM functions

Additional functions for testing, fault localization and performance measurement shall not be considered in this I-ETS (first paragraph, second sentence).

§§ 6.2.1.1.1 VP-AIS and VP-FERF Alarms

For VP-AIS and VP-FERF cells the VCI for end-to-end OAM cells shall be used.

Table 3/I.610 and §§ 6.2.1.1.1.1

System protection and failure information for VP/VC failures at the ATM level will be proposed for a later version of this I-ETS as soon as they are agreed for inclusion in ITU-T Recommendation I.610 [1].

§§ 6.2.1.1.2 VPC continuity check

The parameters for the continuity check procedure will be proposed for a later version of this I-ETS as soon as they are agreed for inclusion in ITU-T Recommendation I.610 [1].

§§ 6.2.1.2 VP Performance Management Functions

Forced insertion of performance monitoring cells is permitted at segment level for the VP and VC level.

§§ 6.2.2.1.1 VC-AIS and VC-FERF Alarms

For VC-AIS and VC-FERF cells the PTI for end-to-end OAM cells shall be used.

§§ 6.2.2.2 VC Performance Management Functions

Since the potential interference between performance monitoring and UPC/NPC actions is still a matter under study, impact on OAM functions has not been considered in this I-ETS (last paragraph).

§§ 7.2 Specific Fields for Fault Management Cell

The use of the failure type and failure location field is not considered.

§§ 7.3 Specific Fields for Performance Management Cell

The function type field for Performance Management applications will be used to identify the following possible functions: Forward Monitoring, Backward Reporting and Monitoring & Reporting.

The following two subclauses shall be considered in this I-ETS.

§§ 7.3.1 Forward Monitoring Cell

The Forward Monitoring Cell shall have the following specific fields:

1) Monitoring cell Sequence Number (MSN) (8 bits) - This field indicates the sequence number of the Forward Monitoring OAM cell modulo 256.

2) Total User Cell Number (TUC) (16 bits) - This field indicates the total number of transmitted user cells, modulo 65536 before the Forward Monitoring cell is inserted.

3) Block Error Detection Code (16 bits) - This field carries the even parity BIP-16 error detection code (see note in ITU-T Recommendation I.610, §§ 7.3, item 3) computed over the information field of the block of user cells transmitted after the last Forward Monitoring cell.

4) Time Stamp (32 bits) - As an option this field may be used to represent the time at which the Forward Monitoring OAM cell was inserted. Default value for this field shall be all ones.

The location of these fields is given in figure 10/I.610. The other octets are unused and coded as 6AH.

§§ 7.3.2 Backward Reporting Cell and Monitoring & Reporting Cell

The specific fields for the Backward Reporting Cell and the Monitoring & Reporting Cell will be specified in a future revision of this I-ETS.

History

Document history	
April 1995	First Edition
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