



# SLOVENSKI STANDARD SIST ETS 300 404 E2:2003

01-december-2003

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ü]fc\_cdUgcj bc`X][ ]HJbc`ca fYy`Y`n`]bhY[ f]fUbj]a ]`g]cf]h] Ua ]`f6 !=G8 BŁĚ`BU YU]b  
Z b\_W]Y`nUcVfUrcj Ub`Y`]b`j nXfYj Ub`Y`fC5 AŁg]ghYa U6 !=G8 B

Broadband Integrated Services Digital Network (B-ISDN); B-ISDN Operation And Maintenance (OAM) principles and functions

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Ta slovenski standard je istoveten z: <sup>SIST ETS 300 404 E2:2003</sup> **ETS 300 404 Edition 2**  
<https://standards.iteh.ai/catalog/standards/sist/54a095ae-6409-4465-967c-7baa29afc864/sist-ets-300-404-e2-2003>

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**ICS:**

33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)
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**SIST ETS 300 404 E2:2003**

**en**

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**E**UROPEAN  
**T**ELECOMMUNICATION  
**S**TANDARD

**ETS 300 404**

April 1997

Second Edition

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Source: ETSI TC-NA

Reference: RE/NA-052213

ICS: 33.020

Key words: B-ISDN, OAM

**iTeh STANDARD PREVIEW**  
**Broadband Integrated Services Digital Network (B-ISDN);**  
**B-ISDN Operation And Maintenance (OAM)**  
**principles and functions**

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## Foreword

This second edition European Telecommunication Standard (ETS) has been produced by the Network Aspects (NA) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This second edition of ETS 300 404, upgrades the standard from interim (I-ETS) status to full ETS status and takes into account the latest edition of ITU-T Recommendation I.610 (1995).

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

Transposition dates	
Date of adoption:	21 February 1997
Date of latest announcement of this ETS (doa):	31 July 1997
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 January 1998
Date of withdrawal of any conflicting National Standard (dow):	31 January 1998

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## 1 Scope

This European Telecommunication Standard (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 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 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 (1995): "B-ISDN operation and maintenance principles and functions".
- [2] ITU-T Recommendation I.356: "B-ISDN ATM layer cell transfer performance".
- [3] ITU-T Recommendation G.783: "Characteristics of synchronous digital hierarchy (SDH) equipment functional blocks".
- [4] ITU-T Recommendation I.361: "B-ISDN ATM layer specification".

## 3 Abbreviations

For the purpose of this ETS, the following abbreviations apply:

ATM	Asynchronous Transfer Mode
B-ISDN	Broadband Integrated Services Digital Network
BR	Backward Reporting
CC	Continuity Check
CP	Connection Point

NOTE: The use of the expression "Connecting Point" in Recommendation I.610 is ambiguous in the sense that, depending on the context, it may stand for either an actual "Connecting Point" as defined in Recommendation I.311 or for a "Connection Point" as defined in ITU-T Recommendation I.326. This ETS uses only the concept of "Connection Point", abbreviated as "CP" since it is more appropriate to describe OAM functions that apply at the VP/VC levels for a specific VP/VC connection.

CPID	Connection Point Identifier
FM	Forward Monitoring
LB	Loopback
LI	Loopback indication
LLID	Loopback Location Identifier
NNI	Network Node Interface
NPC	Network Parameter Control
OAM	Operation And Maintenance
PDH	Plesiochronous Digital Hierarchy
PM	Performance Management
PTI	Payload Type Identifier
SDH	Synchronous Digital Hierarchy
Seg.	Segment (of VPC/VCC)
T <sub>B</sub>	T Reference Point in B-ISDN
UNI	User Network Interface
UPC	Usage Parameter Control
VC	Virtual Channel

VCC	Virtual Channel Connection
VCI	Virtual Channel Identifier
VP	Virtual Path
VPC	Virtual Path Connection
VPI	Virtual Path Identifier
VC AIS	Alarm Indication for VC
VC RDI	Remote Defect Indication for VC
VP AIS	Alarm Indication for VP
VP RDI	Remote Defect Indication for 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]. ITU-T Recommendation I.610 [1] has the following structure, which is given here for information:

Clause 1:	Introduction
Clause 2:	OAM principles
Clause 3:	OAM levels and flows
Clause 4:	Mechanisms to provide OAM flows
Clause 5:	OAM functions of the Physical Layer
Clause 6:	OAM functions of the ATM Layer
Clause 7:	ATM Layer OAM cell format
Annex A:	Virtual Channel/Virtual Path Status Monitoring
Annex B:	SDLs for activation/deactivation using OAM cells
Annex C:	Procedures to be performed when receiving Loopback OAM cells
Appendix A:	Examples of OAM Cell Error Detection Codes

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

This ETS endorses ITU-T Recommendation I.610 [1], with the following changes/additions/clarifications. The following statements give the interpretation of open issues in this Recommendation, to apply in this ETS.

##### subclause 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 ETS at a later stage.

##### subclause 4.2.1 F4 flow mechanism

Intermediate points along the VPC or along the VPC segment may monitor OAM cells passing through them and insert new OAM cells, but they can not terminate the OAM flow except when **segment** loopbacks are performed.

NOTE: In ITU-T Recommendation I.361 [4] a modification of the PTI field is allowed. If this is done without control of the type of cell, this can lead to a loss of OAM F5 cells.

##### Table 3/I.610

The reference to ITU-T Recommendation G.783 [3] in note 4 shall not be considered.

Add the following note in the last row (about Cell Delineation function), last column (about Path RDI):

NOTE 6: In future release of I.432 the appropriate information could be transmitted in the payload dependent byte.

**Table 5/I.610 and subclause 6.2.1.1.1**

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

**subclause 6.2.1.1.2 VPC continuity check**

Permanent end-to-end CC mechanisms (source and sink processes) shall be provided simultaneously for all reserved, permanent and semi-permanent VPCs. It is recognized that this requirement may not be fulfilled by some existing ATM equipments that have been already deployed at the time this ETS was published. Nevertheless it is intended that ATM equipment OAM capabilities shall evolve to satisfy this requirement.

This requirement applies to the VPCs which are terminated, at both ends, within the domain controlled by one network operator (e.g. all VPCs which link VC Switches within the network operator domain or VPCs which link ATM MUXs under the control of one network operator) and to the VPC Segments corresponding to such VPCs.

The handling of CC of VPCs terminated in domains controlled by different network operators is subject to bilateral agreement between those network operators.

Activation/deactivation of the CC mechanisms shall be performed by using the Telecommunications Management Network (TMN) procedure at the setting-up/release of the VPC or the VPC Segment. However, depending on the operational requirement of a network operator, the CC mechanism may be activated/deactivated at any time by using the TMN procedure.

Whether the end-to-end or Segment CC mechanisms can be activated or not for reserved, permanent and semi-permanent VPCs terminated, at both ends, within the domain controlled by Customers, depends on the Customer Equipment capability and is under Customer responsibility.

Only option 1) is retained, that is a CC cell is sent downstream by a VPC source-point or a VPC Segment source-point when no user cell has been sent for a period of nominally 1 second.

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**subclause 6.2.1.1.3.2 Principles of operation**

Replace the second sentence under item 1 by the following text.

There is no need to remove a Seg\_LB cell at the intermediate CP along the VPC, that originated the Seg\_LB cell since the Seg\_LB will be removed at the Segment end point. This applies also to annex C of ITU-T Recommendation I.610 [1].

Replace the third sentence under item 2 by the following text.

The possibility to analyse the content of the LLID field of Seg\_LB cell shall be provided so as to identify the CPs where the loopback action has to be performed. It shall be possible to use the default all "1s" value for the LLID field. In this case Seg\_LB cells shall be copied and forwarded in the opposite direction from any CP within the Segment for which the LLID option is enabled by the TMN.

NOTE: See also annex II/ETS 300 404.

**subclause 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.

NOTE: Concerning the forced and non-forced insertion of Forward monitoring cells see also annex I/ETS 300 404.