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Transmission and Multiplexing (TM); Generic requirements of transport functionality of equipment; Part 4-1: Synchronous Digital Hierarchy (SDH) path layer functions

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Part 4-1: Synchronous Digital Hierarchy (SDH)
path layer functions**

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Foreword

This European Telecommunication Standard (ETS) was produced by the Transmission and Multiplexing (TM) Technical Committee of the European Telecommunications Standards Institute (ETSI) in order to provide inter-vendor and inter-operator compatibility of SDH equipments.

This ETS has been produced in order to provide inter-vendor and inter-operator compatibility for transport functionality of equipment.

This ETS consists of 8 parts as follows:

- Part 1: "Generic processes and performance" (ETS 300 417-1-1);
- Part 2: "SDH and PDH physical section layer functions" (ETS 300 417-2-1);
- Part 3: "STM-N regenerator and multiplex section layer functions" (ETS 300 417-3-1);
- Part 4: "SDH path layer functions" (ETS 300 417-4-1);**
- Part 5: "PDH path layer functions" (ETS 300 417-5-1);
- Part 6: "Synchronization distribution layer functions" (ETS 300 417-6-1);
- Part 7: "Auxiliary layer functions" (ETS 300 417-7-1);
- Part 8: "Compound and major compound functions" (ETS 300 417-8-1).

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1 Scope

This European Telecommunication Standard (ETS) specifies a library of basic building blocks and a set of rules by which they are combined in order to describe transport functionality of equipment. The library comprises the functional building blocks needed to completely specify the generic functional structure of the European Transmission Hierarchies. Equipment which is compliant with this ETS shall be describable as an interconnection of a subset of these functional blocks contained within this ETS. The interconnections of these blocks shall obey the combination rules given. The generic functionality is described in ETS 300 417-1-1 [1].

2 Normative references

This ETS incorporates by dated or 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 amendments or revisions. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 417-1-1: "Transmission and Multiplexing (TM); Generic functional requirements for Synchronous Digital Hierarchy (SDH) equipment; Part 1-1: Generic processes and performance".
- [2] ETS 300 147: "Transmission and Multiplexing (TM); Synchronous Digital Hierarchy (SDH) Multiplexing structure".
- [3] ETS 300 166 (1993): "Transmission and Multiplexing (TM); Physical and electrical characteristics of hierarchical digital interfaces for equipment using the 2 048 kbit/s - based plesiochronous or synchronous digital hierarchies".
- [4] ETS 300 417-3-1: "Transmission and Multiplexing (TM); Generic requirements of transport functionality of equipment; Part 3-1: STM-N regenerator and multiplex section layer functions".
- [5] ETS 300 417-6-1: "Transmission and Multiplexing (TM); Generic requirements of transport functionality of equipment; Part 6-1: Synchronization distribution layer functions".
- [6] ETS 300 216 (1992): "Network Aspects (NA); Metropolitan Area Network (MAN) Physical layer convergence procedure for 155,520 Mbit/s".
- [7] ITU-T Recommendation G.823: "The control of jitter and wander within digital networks which are based on the 2 048 kbit/s hierarchy".
- [8] ITU-T Recommendation G.751 (1988): "Digital multiplex equipments operating at the third order bit rate of 34 368 kbit/s and the fourth order bit rate of 139 264 kbit/s and using positive justification".
- [9] ITU-T Recommendation O.151: "Error performance measuring equipment operating at the primary rate and above".
- [10] ITU-T Recommendation O.181: "Equipment to assess error performance on STM-N interfaces".
- [11] IEEE Standard 802.6: "Information technology-Telecommunications and information exchange between systems-Local and metropolitan area networks-Specific requirements-Part 6: Distributed Queue Dual Bus (DQDB) access method and physical layer specifications".
- [12] ETS 300 167 (1993): "Transmission and Multiplexing (TM); Functional characteristics of 2 048 kbit/s interfaces".

[13]

ETS 300 337: "Transmission and Multiplexing (TM); Generic frame structures for the transport of various signals (including Asynchronous Transfer Mode (ATM) cells and Synchronous Digital Hierarchy (SDH) elements) at the CCITT Recommendation G.702 hierarchical rates of 2 048 kbit/s, 34 368 kbit/s and 139 264 kbit/s".

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3 Definitions, abbreviations and symbols

3.1 Definitions

The functional definitions are described in ETS 300 417-1-1 [1].

3.2 Abbreviations

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

A	Adaptation function
AcSL	Accepted Signal Label
AcTI	Accepted Trace Identifier
ADM	Add-Drop Multiplexer
AI	Adapted Information
AIS	Alarm Indication Signal
AP	Access Point
APId	Access Point Identifier
APS	Automatic Protection Switch
ARCH	ARCHitecture
ATM	Asynchronous Transfer Mode
AU	Administrative Unit
AUG	Administrative Unit Group
AU-n	Administrative Unit, level n
Avp	ATM virtual path
BER	Bit Error Ratio
BIP	Bit Interleaved Parity
BIP-N	Bit Interleaved Parity, width N
C	Connection function
CI	Characteristic Information
CK	Clock
CLR	CLear
CM	Connection Matrix
CP	Connection Point
CRC	Cyclic Redundancy Check
CS	Clock Source
D	Data
DCC	Data Communications Channel
DEC	DECrement
DEG	DEGraded
DEGM	DEGraded Monitor period
DEGTHR	DEGraded THreshold
DS	Defect Second
DSTATUS	Data STATUS
DTYPE	Data TYPE
EBC	Errored Block Count
ECC	Embedded Communications Channel
ECC(x)	Embedded Communications Channel, layer x
EDC	Error Detection Code
EDCV	Error Detection Code Violation
EMF	Equipment Management Function
EQ	EQUIPMENT
ES	Electrical Section
ES	Errored Second
EXER	EXERcise
EXTCMD	EXTernal CoMmanD
ExTI	Expected Trace Identifier
F_B	Far-end Block
FAS	Frame Alignment Signal
FOP	Failure Of Protocol
FORCEDN	FORCE Down
FS	Frame Start signal
FSw	Forced Switch

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