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Contents

Foreword	5
Introduction	5
1 Scope	7
2 References (Second numbered Clause).....	7
3 Definitions and abbreviations	7
3.1 Definitions	7
3.2 Abbreviations	8
4 Assigned work items (WIs)	9
5 SDH project coordination issues and activities	10
Annex A: Work items considered within the ETSI TC TM SDH project	11
A.1 Generic and basic issues	11
A.1.1 Architecture.....	11
A.1.1.1 Structure and functions	11
A.1.1.2 Structure functions of radio systems	12
A.1.2 Interfaces/protocols	12
A.1.3 Management.....	12
A.1.4 Performance	12
A.1.4.1 Information model	12
A.1.4.2 Quality of Service (QOS).....	13
A.1.5 Miscellaneous	13
A.1.5.1 Equipment practice.....	13
A.1.5.2 Environmental engineering.....	13
A.2 Network element areas	13
A.2.1 Architecture.....	13
A.2.1.1 Structure and functions	13
A.2.1.2 Structure and functions of radio systems	16
A.2.2 Interfaces/protocols	18
A.2.2.1 Network Node Interface (NNI).....	18
A.2.2.2 User-Network Interface (UNI).....	18
A.2.2.3 Management network interfaces	19
A.2.3 Management aspects	19
A.2.3.1 Information model	19
A.2.3.2 Operation And Maintenance (OAM)/fault management	21
A.2.4 Performance	21
A.2.4.1 Information model	21
A.2.4.2 Quality of Service (QOS).....	21
A.2.5 Miscellaneous	22
A.2.5.1 Equipment practice.....	22
A.3 Synchronization networks area	22
A.3.1 Architecture.....	22
A.3.1.1 Structure and functions	22
A.3.2 Interfaces/protocols	23
A.3.3 Management.....	23
A.3.4 Performance	23
A.3.4.1 Information model	23
A.3.4.2 Quality of Service (QOS).....	23

A.3.5	Miscellaneous.....	23
A.4	Access networks area	24
A.4.1	Architecture	24
A.4.1.1	Structure and functions.....	24
A.4.2	Interfaces/protocols	24
A.4.3	Management	24
A.4.3.1	Information model.....	24
A.4.3.2	Operation and Maintenance(OAM)/fault management.....	24
A.4.4	Performance.....	25
A.4.5	Miscellaneous.....	25
A.5	Transport networks area.....	25
A.5.1	Architecture	25
A.5.1.1	Structure and functions.....	25
A.5.1.2	Structure radio systems	26
A.5.1.3	Protection.....	26
A.5.2	Interface aspects.....	27
A.5.2.1	Network Node Interface (NNI)	27
A.5.2.2	User-Network Interface (UNI)	27
A.5.3	Management aspects.....	28
A.5.3.1	Information odel.....	28
A.5.3.2	Operation And Maintenance(OAM)/fault management	28
A.5.3.3	Resources.....	29
A.5.3.4	Configuration	29
A.5.4	Performance aspects	29
A.5.4.1	Information model.....	29
A.5.4.2	Quality of Service (QOS)	29
A.5.4.3	Availability	30
A.5.5	Miscellaneous.....	30
A.6	Leased lines area	30
A.6.1	Architecture	30
Annex B:	Terms of reference for the SDH project in TM	31
B.1	Objective of SDH project management.....	31
B.2	Terms of Reference.....	31
B.3	Work procedures	31
B.4	Term of office.....	32
History	33

Foreword

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

ETRs are informative documents resulting from ETSI studies which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature, relating to the use or the application of ETSs or I-ETSs, or which is immature and not yet suitable for formal adoption as an ETS or an I-ETS.

Introduction

The 6th ordinary meeting of TC TM, when reviewing the TM Work Items, acknowledged that interesting and extensive work on the standardization of different aspects of Synchronous Digital Hierarchy (SDH) is progressing in STCs TM1, TM2, TM3 and TM4.

Considering the importance of this standardization area the meeting decided to create a project covering the activities related to SDH in TC TM. The terms of reference of the TC TM SDH project are given in annex B.

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1 Scope

This ETSI Technical Report (ETR) provides a current overview of work recognized as already done or in progress within the ETSI TC TM on issues covering the Synchronous Digital Hierarchy (SDH) and also it searches for compatibility with other future, current and past technologies and hierarchies. The ETR will in future describe all SDH aspects to be standardized and their relationship to appropriate work items (WIs), and already released European Telecommunication Standards (ETTs) and ETSI Technical Reports (ETRs).

Also work done in other Technical Committees (TCs) with aspects of SDH or impact on SDH will be considered and harmonized. The TCs recognized to be standardizing architecture, protocols, and interfaces being on the boundary with SDH or using SDH networks are: NA, BTC, and TE.

NOTE: The TC list is exhaustive and will be updated with any new TC recognized.

2 References (Second numbered Clause)

For the purposes of this ETR, the following references apply:

- [1] ETSI TC TM: "Terms of Reference for the SDH Project in TM", May 1994 - approved by the SDH Project Management Team on February 24, 1995 (reproduced in annex B).
- [2] ETSI/TA18(93)32: "Project-oriented management of standardization", October 1993.
- [3] ETR 239 (1996): "Transmission and Multiplexing (TM); List of documents relevant to SDH Transmission Equipment".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETR, the following definitions apply:

Standardization aspects:

This subclause provides basic information on structuring of SDH aspects and issues to be standardized, reported or considered:

Basic and overview standards and reports:

- SDH multiplexing structure and hierarchy;
- performance management;
- (Standardization) methods and modelling techniques.

SDH transport network:

- architecture:
 - structure;
 - protection;
 - tandem connection;
- interfaces:
 - network/Network Node Interface (UNI);
 - users/services/User Network Interface (UNI);
 - access networks;
 - leased lines;

- network management:
 - resources;
 - configuration;
 - alarms;
 - security;
 - accounting;
 - interfaces to other operating systems (network management);
 - performance (Quality of Service);
 - testing.

SDH equipment:

- Transmission media dependent interfaces and functions:
 - optical;
 - electrical ;
 - radio links;
- associated equipment standards:
 - characteristics and processing of digital signals;
 - operating environment;
 - equipment practices;
 - safety;
 - testing;
- SDH equipment management:
 - information model;
 - functions, commissioning, maintenance, performance monitoring;
 - interface to Telecommunications Management Network (TMN);
 - reliability and availability.

Synchronization network:

- transport of synchronization signals;
- synchronization of, and for, SDH network(s);
- performance of synchronization network(s);
- synchronization network management.

3.2 Abbreviations

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

ATM	Asynchronous Transfer Mode
ATS	Abstract Test Suite
CP	Customer Premises
DTR	Draft Technical Report
ETR	ETSI Technical Report
ETS	European Telecommunications Standard
ETSI	European Telecommunications Standards Institute
ICS	Implementation Conformance Statement
MI	Miscellaneous Item
MT	Management Team
NE	Network Element
NM	Network Management
NNI	Network Node Interface
OAM	Operations and Maintenance
ODP	Open Distributed Processing
OS	Operating System
PDH	Plesiochronous Digital Hierarchy
QoS	Quality of Service

SDH	Synchronous Digital Hierarchy
TA	Technical Assembly
TC	Technical Committee
TM	Transmission and Multiplexing
TMN	Telecommunications Management Network
UNI	User Network Interface
WI	Work Item
WP	Work Programme

4 Assigned work items (WIs)

The WIs assigned to the TC TM SDH Project can be categorized in a matrix as depicted in table 1 below, displaying also a number of WIs assigned to each standardization area and aspect. This allows more detailed structuring of the standardization issues than when using only the PAC (Programme Advisory Committee) keywords. Annex A contains the detailed information on the assigned WIs, structured according to the standardization areas and aspects, table 1 shows the number of associated WIs.

Table 1: Work item matrix

Standardization areas:	A.1 General and basic issues	A.2 Network elements	A.3 Synchroni- zation networks	A.4 Access networks	A.5 Transport networks	A.6 Leased lines
Standardization aspects:						
1. Architecture:						
1.1 Structure (non-radio)	4	10/14	2	2	6	1
1.2 Structure (radio systems)	3	16/2		1		
1.3 Protection		(4)			3	
1.4 Tandem connection		(1)			(1)	
2. Interfaces / Protocols:						
2.1 Network Node Interface (NNI)		2/1			3	
2.2 User Network Interface (UNI)					4	
2.3 Management network interface		1				
3. Management:						
3.1 Information model		11		4	3	
3.2 OAM/fault management		(1)		(4)/1	1	
3.4 Resources		(1)			1	
3.5 Configuration		(2)			1	
3.6 Security		(1)				
3.7 Accounting		(1)				
4. Performance:						
4.1 Information model		2				
4.2 Quality Of Service (QOS)	1	3	3		5	
4.3 Availability	1	(1)			1/1	
5. Miscellaneous:						
5.1 Equipment practice		3(6)				
5.2 Environmental engineering	1	(4)				
Legend:	/Nr. - Number of WIs on testing		(Nr.) - Issue covered in a common WI			

NOTE 1: The area of management network(s) is intentionally not included as it has been recognized not to be a part of SDH standardization. However, interfaces to the management and protocols to be applied are mentioned.

NOTE 2: Some of the WIs do not handle SDH but they are related to the SDH project in terms of using the same description methodology used in TC TM and also to ensure proper interworking between different types of networks (i.e. PDH, ATM, ...).

TM1 Work Items

DE/TM-01009, DE/TM-01011, DE/TM-01015-x-y, DE/TM-01016, DTR/TM-01018, RE/TM-01025, DTR/TM-01026, DE/TM-01033, MI/TM-01038, MI/TM-01039, DE/TM-01040, RE/TM-01042, MI/TM-01044.

TM2 Work Items

DE/TM-02001, MI/TM-02102, MI/TM-02103, DI/TM-02105, DI/TM-02105-1, DE/TM-02109, DE/TM-02201, DE/TM-02207, DE/TM-02208, DE/TM-02209-1, DI/TM-02209-2, DE/TM-02209-3, DI/TM-02209-4, DI/TM-02209-5, DE/TM-02209-6, DE/TM-02210, DTR/TM-02212, RE/TM-02213, RE/TM-02213-1, DE/TM-02215, DE/TM-02216, DE/TM-02217, DE/TM-02218, DE/TM-02219, DE/TM-02220, DTR/TM-02221, RE/TM-02223, DE/TM-02229, DE/TM-02230, DE/TM-02231, DE/TM-02232, DE/TM-02233.

TM3 Work Items

DE/TM-03001, DE/TM-03002, DTR/TM-03006, DE/TM-03007, RE/TM-03013, DTR/TM-03016, DE/TM-03017-x, DTR/TM-03024, DTR/TM-03025, RE/TM-03029, RE/TM-03030, DTR/TM-03031, DTR/TM-03041, DE/TM-03042, RE/TM-03045, RE/TM-03056, MI/TM-03058, MI/TM-03059, MI/TM-03060, DTR/TM-03062, DE/TM-03064, RTR/TM-03066, DE/TM-03067.

TM4 Work Items

DE/TM-04001, DE/TM-04003, DE/TM-04005, MI/TM-04008, MI/TM-04009, DTR/TM-04010, DE/TM-04011, DE/TM-04013, DE/TM-04016, DTR/TM-04017, DTR/TM-04021, DE/TM-04022, DE/TM-04026-1, DE/TM-04026-2, DE/TM-04027, DE/TM-04028, DE/TM-04029, RTR/TM-04030, DTR/TM-04032-1, DTR/TM-04032-2, DE/TM-04033, DE/TM-04037, DE/TM-04041, DE/TM-04043, MI/TM-04048.

NOTE 3: Where suffixes such as "-x" or "-x-y" are shown, this indicates all parts or sub-parts are relevant.

5 SDH project coordination issues and activities

There have been three major issues for co-ordination during the activity in 1995:

- Alignment of methodology of functional modelling in STC TM4 with methodology used in STC TM1;
- Alignment of methodology of description of Implementation Conformance Statement (ICS) proforma specifications used in STC TM1 with new guidelines developed within the TC MTS causing slip in delivery time of some WIs within STC TM1 (ETS 300 417-x-2);
- Alignment of methodology of management issues used within TM1 and TM2 with new methodology used in ITU-T study group 15. This task might have a serious impact on delivery time of some WIs within STC TM2 and also on continuous work within STC TM1 (ETS 300 417-x-y).

Details on activities and co-ordination issues within the SDH Project are available from the ETSI Secretariat.

Annex A: Work items considered within the ETSI TC TM SDH project

The following work item ETR 239 [3] is actually an informative document and therefore not considered to be a part of any of the indicated standardization areas.

Work Item Doc number Status	Title	Scope
DTR/TM-01018 ETR 239 Published 1996	List of documents relevant to SDH transmission equipment	This ETR contains lists of references of SDH related documents from ETSI, ITU and other standardization bodies.

Status:

Indicates the current status within the approval process (or publication date) or the planned STC approval date.

Scope:

The scope texts of the assigned WIs in tables below are taken (if available) from the original documents or from the WI sheets. In some case not full text is displayed to show only the quintessence of the work considered within the document. It has been recognized that this presentation will help to better recognize the gaps and overlaps within the standardization work.

When the scope text is missing, the relevant text is not written yet or it has been created within another TC or the scope is self explaining from the title (in the case of testing).

The WIs covering testing issues (ICS, ATS) are not presented as a special standardization aspect but are supposed to be a part of the associated function.

A.1 Generic and basic issues

A.1.1 Architecture

A.1.1.1 Structure and functions

Work Item Doc number Status	Title	Scope
DE/TM-03001, RE/TM-03013 ETS 300 147, ETS 300 147 Edition 2 Published 03/92, Published 01/95	Synchronous Digital Hierarchy (SDH) Multiplexing structure	This ETS specifies the hierarchical bit rates, the multiplexing structure and the mapping schemes to be used in the transmission networks based on Synchronous Digital Hierarchy (SDH).
RE/TM-03045 ETS 300 147 Edition 2 A1 04/96	SDH multiplexing structure	This amendment to ETS 300 147 will take account if changes in the ITU as a result of the publication of ITU-T Recommendation G.707 (3/96) "Network node interface for the synchronous digital hierarchy" which replaces former ITU-T Recommendations G.707, G.708 and G.709.

Work Item Doc number Status	Title	Scope
DE/TM-03007 ETS 300 337 Published 02/95	Generic frame structures for the transport of various signals (including ATM cells and SDH elements) at the ITU-T Recommendation G.702 hierarchical rates of 2 048 kbit/s, 34 368 kbit/s and 139 264 kbit/s	This ETS specifies generic frame structures for the transport of various signals at the ITU-T Recommendation G.702 hierarchical rates of 2 048 kbit/s, 34 368 kbit/s and 139 264 kbit/s. The support of Asynchronous Transfer Mode (ATM) cells and Synchronous Digital Hierarchy (SDH) Tributary Units (TUs) in the Plesiochronous Digital Hierarchy (PDH) bit rates is covered in this ETS. Functions specific to the support of ATM cells performed in the transmitter and receiver are not part of this interface standard but are given for information in annex A.
RE/TM-03056 ETS 300 337 A1 03/96	Maintenance of ETS 300 337 (DE/TM-03007)	not started yet

A.1.1.2 Structure functions of radio systems

Work Item Doc number Status	Title	Scope
DTR/TM-04021 TM-TR 004 Published 07/95	Synchronous Digital Hierarchy (SDH) aspects regarding Digital Radio Relay Systems	Future digital radio-relay systems (DRRS) have to support the SDH defined by the ITU-T. Study Group 9 of the ITU-R in its Final Meeting in Sept. 89 has approved a New Report (1190) dealing with general aspects of DRRS in an SDH Network and containing a list of items which need further study.
DTR/TM-04032-1 TM TR 006-01 Published 08/96	Specification of digital radio-relay systems characteristics - generic standard Part 1: General aspects and Point-to-Point equipment parameters	This TC-TR defines the major standardizable issues for DRRS in order to maintain a generic format for the editorial and technical contents. It is also essential to maintain a common understanding of the reasons behind the way certain parameters are defined among the various DRRS standards, which deal with the same general topics and may differ from each other merely from the point of view of numerical requirements. This TC-TR therefore also explains the reasoning behind why the parameters in DRRS standards are defined in the way they are. This TC-TR aims to cover every issue that may be required.
DTR/TM-04032-2 (Draft TM-TR 006-02) 10/96	Specification of digital radio-relay systems characteristics - generic standard. Part 2: Additional parameters for Point-to-Multipoint equipment	id.

A.1.2 Interfaces/protocols

For further study.

A.1.3 Management

For further study.

A.1.4 Performance

A.1.4.1 Information model

For further study.

A.1.4.2 Quality of Service (QOS)

Work Item Doc number Status	Title	Scope
MI/TM-04008 continuous	Activity on error performance and availability	To express TM4 considerations on performance and availability standards to TM2 and ITU-R Study Groups (continuous activities).

A.1.5 Miscellaneous

A.1.5.1 Equipment practice

For further study.

A.1.5.2 Environmental engineering

Work Item Doc number Status	Title	Scope
T/TR 02-12(A)rv TR 035 Published	Environmental engineering - Guidance and terminology	

A.2 Network element areas

A.2.1 Architecture

A.2.1.1 Structure and functions

Work Item Doc number Status	Title	Scope
DTR/TM-01026 (Draft ETR) Published 04/96	Physical aspects of SDH long-haul systems for 10 Gbit/s capacity	The technical possibilities of 10 Gbit/s long-haul systems at 1 310 nm and 1 550 nm shall be investigated, taking into account: methods for overcoming fibre dispersion limitations; TDM and TDM & WDM procedures and application of Optical Fibre Amplifiers (OFA). Impact on existing or new standards shall be pointed out.
DE/TM-01015-1-1 ETS 300 417-1-1 Published 01/96	Generic functional requirements for SDH equipment, Part 1-1: Generic processes and performance	This ETS specifies a library of basic building blocks and a set of rules by which they may be combined in order to describe a digital transmission equipment. The library comprises the functional building blocks needed to specify completely the generic functional structure of the European digital transmission hierarchy. In order to be compliant with this ETS, equipment needs to 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. This ETS specifies both the components and the methodology that should be used in order to specify SDH equipment; it does not specify an individual SDH equipment as such.
RE/TM-01042 ETS 300 417-1-1 A1 12/97	Generic functional requirements for SDH equipment, Part 1-1: Generic processes and performance, Amendment to ETS 300 417-1-1	SDH PM note: Proposed new WI, no text available.

Work Item Doc number Status	Title	Scope
DE/TM-01015-2-1 ETS 300 417-2-1 PE 105 ends 08/96	Generic functional requirements for SDH equipment, Part 2-1: Physical section layer functions	This ETS specifies a library of basic building blocks and a set of rules by which they are combined in order to describe a digital transmission equipment. The library of a subset of these functional blocks contained within this ETS. The interconnection of these comprises the functional building blocks needed to completely specify the generic functional structure of the European Digital Transmission Hierarchy. Equipment which is compliant with this standard must be describable as an interconnection blocks must obey the combination rules given. The generic functionality is described in the main body document ETS 300 417-1-1.
DE/TM-01015-3-1 ETS 300 417-3-1 PE 105 ends 08/96	Generic functional requirements for SDH equipment, Part 3-1: STM-N regenerator and multiplex section layer functions	Same as Part 2.
DE/TM-01015-4-1 ETS 300 417-4-1 PE 105 ends 08/96	Generic functional requirements for SDH equipment, Part 4-1: SDH path layer functions	Same as Part 2.
DE/TM-01015-5-1 ETS 300 417-5-1 02/96	Generic functional requirements for SDH equipment, Part 5-1: PDH path layer functions	Same as Part 2.
DE/TM-01015-6-1 ETS 300 417-6-1 05/96	Generic functional requirements for SDH equipment, Part 6-1: Synchronization distribution layer functions	This ETS specifies a library of basic synchronization distribution building blocks and a set of rules by which they are combined in order to describe a digital transmission equipment. The library comprises the functional building blocks needed to completely specify the generic functional structure of the European Digital Transmission Hierarchy. Equipment which is compliant with this standard must be describable as an interconnection of a subset of these functional blocks contained within this ETS. The interconnection of these blocks must obey the combination rules given. The generic functionality is described in the main body document ETS 300 417-1-1. The specification method is based on functional decomposition of the equipment into atomic, compound and major compound functions. The equipment is then described by its Equipment Functional Specification (EFS), which lists the constituent atomic and compound functions,
DE/TM-01015-8-1 ETS 300 417-8-1 06/96	Generic functional requirements for SDH equipment, Part 8-1: Major compound functions	Same as Part 2.
DE/TM-01016 10/96	Specification for ATM transmission equipment	SDH PM note: No text exists yet. The physical layer functions are covered within the ETS 300 417-2-1.
DE/TM-01015-1-2 ETS 300 417-1-2 Vote 108 ends 09/96	Generic processes and performance Implementation Conformance Statement (ICS) proforma	

Work Item Doc number Status	Title	Scope
DE/TM-01015-2-2 ETS 300 417-2-2 PE 112 ends 12/96	Physical section layer functions Implementation Conformance Statement (ICS) proforma	
DE/TM-01015-3-2 ETS 300 417-3-2 PE 112 ends 12/96	STM-N regenerator and multiplex section layer functions Implementation Conformance Statement (ICS) proforma	
DE/TM-01015-4-2 ETS 300 417-4-2 10/96	SDH path layer functions Implementation Conformance Statement (ICS) proforma	
DE/TM-01015-5-2 ETS 300 417-5-2 01/97	PDH path layer functions Implementation Conformance Statement (ICS) proforma	
DE/TM-01015-6-2 ETS 300 417-6-2 10/97	Synchronization distribution layer functions Implementation Conformance Statement (ICS) proforma	
DE/TM-01015-8-2 ETS 300 417-8-2 02/98	Compound and major compound functions Implementation Conformance Statement (ICS) proforma	
DE/TM-01015-1-3 ETS 300 417-1-3 01/97	Generic processes and performance Abstract Test Suite (ATS)	
DE/TM-01015-2-3 ETS 300 417-2-3 06/97	Physical section layer functions Abstract Test Suite (ATS)	
DE/TM-01015-3-3 (ETS 300 417-3-3) 06/97	STM-N regenerator and multiplex section layer functions Abstract Test Suite (ATS)	
DE/TM-01015-4-3 ETS 300 417-4-3 06/97	SDH path layer functions Abstract Test Suite (ATS)	
DE/TM-01015-5-3 ETS 300 417-5-3 06/97	PDH path layer functions Abstract Test Suite (ATS)	
DE/TM-01015-6-3 ETS 300 417-6-3 06/97	Synchronization distribution layer functions Abstract Test Suite (ATS)	

Work Item Doc number Status	Title	Scope
DE/TM-01015-8-3 ETS 300 417-8-3 02/99	Compound and major compound functions Abstract Test Suite (ATS)	

A.2.1.2 Structure and functions of radio systems

Work Item Doc number Status	Title	Scope
RTR/TM-04030 ETR 019 Edition 2 Published 08/96	High capacity digital radio systems carrying 2xSTM-1 SDH signals in frequency bands with 40 MHz channel spacing	This ETR provides proposals for a new generation of high capacity Digital Radio Relay Systems carrying 2xSTM-1 SDH signals in frequency bands with 40 MHz channel spacing.
DE/TM-04011 ETS 300 430 TM4 reviewed 10/95 (PE67)	High capacity digital radio-relay systems carrying 1 x Synchronous Transport Module-level 1 (1 x STM-1) signals operating in the 18 GHz frequency band with channel spacing of 55 Mhz	This ETS specifies parameters for digital radio-relay systems with a capacity of 1 x Synchronous Transport Module-level 1 (1 x STM-1) designed to operate in the 17,7 to 19,7 GHz band. The channel spacing between adjacent co-polar channels shall be 55 MHz. Operation in the Co-Channel Dual Polarized (CCDP) mode with orthogonal polarizations is also foreseen. Systems considered in this ETS should be able to respect ITU-R high grade performance objectives, i.e. ITU-R Recommendation 634 and 695, ITU-T Recommendation G.821 and the forthcoming performance objectives derived from ITU-T Recommendation G.826 by ITU-R Study Group 9.
DE/TM-04013 ETS 300 431 Vote 102 ends 08/96	Digital fixed point-to-point radio link equipment operating in the frequency range 24,25 GHz to 29,50 GHz	This ETS defines the minimum technical requirements for terrestrial digital radio relay systems operating in the frequency range 24,25 GHz to 29,50 GHz. Digital systems covered by this ETS are intended to be used for point-to-point connections in local and regional networks at data rates between 2 Mbit/s and 155 Mbit/s. Typical applications include: a) network extensions; b) customer connections; c) inter-cellular links. For digital systems, with capacities up to 34 Mbit/s, two types of equipment are specified: Grade A equipment, intended for applications where moderate frequency congestion is envisaged; Grade B equipment, intended for applications where higher nodal capacity is required.
DE/TM-04016 ETS 300 639 Vote 108 ends 09/96	Sub STM-1 digital radio-relay systems (DRRS) operating in the 13 GHz, 15 GHz and 18 GHz frequency band.	Standardization of sub-STM-1 digital radio relay systems.
DE/TM-04028 ETS 300 635 Vote 108 ends 09/96	SDH radio specific functional blocks for transmission of M-times STM-N	This ETS defines functional blocks specific to the Digital Radio Relays Systems (DRRS) which use the Synchronous Digital Hierarchy (SDH) for transmitting M-times STM-N signal.
DE/TM-04029 ETS 300 785 PE 111 ends 11/96	SDH radio specific functional blocks for transmission of M-times Sub STM-1	This ETS defines functional blocks specific to the Digital Radio Relays Systems (DRRS) which use the Synchronous Digital Hierarchy (SDH) for transmitting sub-STM-1 rate (51.84 Mbit/s) signal.

Work Item Doc number Status	Title	Scope
DE/TM-04005 ETS 300 234 Published 07/95	High capacity digital radio-relay systems carrying 1 x STM-1 signals and operating in frequency bands with about 30 Mhz channel spacing and alternated arrangements	This ETS specifies parameters for digital radio-relay systems with a channel capacity of 1 STM-1 designed to operate in defined bands up to 15 GHz utilising approximately 30 MHz between adjacent cross-polar channels. As regards the STM-1 signal the Section Overhead (SOH) processing is covered in a separate ETSI STC TM 4 document (a report on SDH aspects) and in ITU-R Recommendation 750.
DE/TM-04022 ETS 300 638 Vote 109 ends 10/96	Fixed point-to-point radio link equipment for the transmission of digital signals and analogue video signal operating at frequency bands with 20 MHz alternate channel spacing	This ETS covers the minimum performance requirements for terrestrial fixed services radio-communications equipment, as given below, in bands in the frequency ranges 10 GHz and 14 GHz using 20 MHz channel spacing. The standardization includes the following specifications: transmitter and receiver characteristics; baseband and RF interface characteristics; diversity system characteristics. As regards SDH systems, the SOH processing is covered in a separate ETSI-TM4 document (Report on SDH aspects) and in ITU-R Recommendation 750.
DE/TM-04027 ETS 300 432 TM 4 reviewed 11/95 (PE67)	High capacity digital radio-relay systems carrying 1 x STM-1 signals operating in the 18 GHz frequency band with channel spacing of 110 Mhz	This ETS specifies parameters for digital radio-relay systems with a capacity of 1 x STM-1 designed to operate in the 17,7 to 19,7 GHz band. The channel spacing between adjacent co-polar channels shall be 110 Mhz. Operation in the Co-Channel Dual Polarized (CCDP) mode with orthogonal polarizations is also foreseen.
DE/TM-04033 ETS 300 786 PE 112 ends 12/96	Sub STM-1 digital radio-relay systems - copolar channel spacing of 14 MHz in the 13, 15 and 18 GHz band	This ETS covers equipment for transmission of sub-STM-1 digital signals with a VC-3 payload capacity.
DTR/TM-04010 (Draft ETR) TM4 revision (TM not approved 2/96)	High capacity digital radio relay systems carrying SDH signals (1 x STM-1) in frequency band with about 30 Mhz channel spacing and using co-channel (ortho-gonal) arrangements	Extension of existing ITU-R channel arrangements to include CCDP working required.
DE/TM-04041 10/96	High capacity digital radio relay systems 4 x STM-1 (STM-4) in a 40 MHz radio frequency channel using co-channel dual polarized operation CCDP)	This ETS will specify technical parameters for high capacity digital radio relay systems operating in frequency bands with 40 MHz channel spacing e.g. 4 GHz, 5 GHz, U6 GHz and 11 GHz bands transmitting four STM-1 (STM-4) per 40 MHz RF-channel by using both polarizations in the co-channel dual polarized mode operation. The system is intended for operation on trunk routes.
DE/TM-04001, RE/TM-04024 ETS 300 197, ETS 300 197 Amendment 1 Published 04/94, Published 04/95	Parameters for radio relay systems for the transmission of digital signals and analogue video signals operating at 38 GHz	This ETS covers the minimum performance requirements for terrestrial fixed services radiocommunications equipment, as given below, in the frequency band 37 GHz to 39,5 GHz. One of the main applications for the 38 GHz frequency bands will be for providing connection of the base stations of mobile telecommunication systems to the network. This will introduce the need for large quantities of links either for Global System for Mobile communications (GSM) or, furthermore, for Digital Communications System 1800 (DCS 1800). To fulfil this requirement, specific designs of equipment, suitable for large-scale production, will need to be produced.
DE/TM-04003 ETS 300 198 Published 04/94	Parameters for radio relay systems for transmission of digital signals and analogue signals operating at 23 GHz	This ETS covers the minimum performance parameters for terrestrial fixed services radio communication equipment below, in the frequency band 21,2 GHz to 23,6 GHz.

Work Item Doc number Status	Title	Scope
DE/TM-4026-1 06/96	Conformance testing for digital radio-relay systems Part 1: P-P equipment parameters	SDH PM note: No text available yet. The type of deliverable has changed (TC-TR -> ETS).
DE/TM-4026-2 10/96	Conformance testing for digital radio-relay systems Part 2: Additional parameters for P-MP equipment	SDH PM note: No text available yet. The type of deliverable has changed (TC-TR -> ETS).
DTR/TM-04017 TM TR 005 Published 04/96	TMN aspects regarding digital radio-relay systems (DRRS)	At present the scope of this report covers all radio-relay systems. It is intended that this scope will be reviewed on the basis of future contributions. WP's scope and application field text: To identify parameters and functionality relevant to TMN aspect of DRRS. SDH PM note: Waiting for electronic version.
MI/TM-04048 continuous	Description of SDH radio specific functionalities using DE/TM-1015 (ETS 300 417) methodology	New.

A.2.2 Interfaces/protocols

A.2.2.1 Network Node Interface (NNI)

Work Item Doc number Status	Title	Scope
DE/TM-01011, RE/TM-01025 ETS 300 232, ETS 300 232 Amendment 1 Published 06/93, Published 03/96	Optical interfaces for equipments and systems relating to the Synchronous Digital Hierarchy, Amendment 1	This ETS specifies the optical interfaces for equipment and systems relating to the Synchronous Digital Hierarchy (SDH).
DE/TM-01033 01/97	Synchronous cross connect equipment 64, n x 64 kbit/s and 2 Mbit/s cross connect connection rate - 2 048, 8 448, 34 368, and 139 264 kbit/s PDH access ports and 155520 kbit/s SDH access ports	This ETS describes requirements of 64, n x 64 kbit/s and 2 Mbit/s cross connect equipment for use in digital leased line networks. It covers equipment having PDH access ports at 2048, 8448, 34368, and 139264 kbit/s and SDH access port at 155520 kbit/s.
DE/TM-01040 02/97	Conformance testing of optical interface parameter values for equipment and systems relating to the SDH	SDH PM note: New WI, no text available.

A.2.2.2 User-Network Interface (UNI)

For further study.

A.2.2.3 Management network interfaces

Work Item Doc number Status	Title	Scope
DE/TM-02001 ETS 300 150 Published 12/92	Protocol suites for Q interfaces for management of transmission systems	This ETS defines the characteristics of protocol suites for Q interfaces for transmission systems/equipments, as defined in ITU-T Recommendation M.3010 and G.773. Protocol suites for Q interfaces for other systems/equipments are to be specified in other ETSs. The interfaces will support bidirectional data transfer for the management of telecommunications systems. This ETS defines: the layer services; the layer protocols; the application service elements and protocols; the conformance requirements to be met by an implementation of these interfaces.

A.2.3 Management aspects

A.2.3.1 Information model

Work Item Doc number Status	Title	Scope
DE/TM-02201 ETS 300 304 Published 11/94	Synchronous Digital Hierarchy (SDH) information model for the Network Element (NE) view	This ETS defines the information model to be used at the interface between Network Elements (NEs) and management systems, for the management of SDH NEs.
RE/TM-02213 ETS 300 304 Edition 2 UAP 47 ends 10/96	SDH information model for the Network Element (NE) view; Maintenance and enhancement of ETS 300 304	id.
DE/TM-02213-1 ETS 300 304 Edition 2 Amendment 1 04/97	SDH information model for the Network Element (NE) view; Maintenance and enhancement of ETS 300 304 ed 2	Provides modifications, additions and enhancements to the ETS 300 304 edition 2
DE/TM-02218 ETS 300 645 PE 105 ends 08/96	SDH radio relay Network Element information model for the use on Q interfaces	This ETS defines the information model to be used at the interface between network elements and management systems, for the management of Radio Relays equipments which use the SDH.
DE/TM-02208 ETS 300 371 Published 11/94	Plesiochronous Digital Hierarchy (PDH) information model for the Network Element (NE) view	ETS defines the information model to be used at the interface between NEs and management systems, for the management of equipment which use PDH including PDH interfaces of SDH network elements.
RE/TM-02223 ETS 300 371 Edition 2 UAP 46 ends 08/96	Plesiochronous Digital Hierarchy (PDH) information model for the Network Element (NE) view, Edition 2	Provides an modifications, additions and enhancements to the ETS 300 371. Each new or modified item is described in a separate section.

Work Item Doc number Status	Title	Scope
DE/TM-02219 ETS 300 413 Published 05/95	Multiplex section protection information model for the Network Element (NE) view	This ETS provides an information model, as related to the multiplex section protection function for the SDH as defined in ITU-T Recommendation G.707, G.708 and G.709. This ETS identifies the TMN object classes required for the management of the protectionfunction for SDH NEs. These objects are relevant to information exchanged across standardized interfaces defined in the ITU-T Recommendation M.3010 TMN architecture. This ETS applies to SDH NEs which support the multiplex section protection switching function, as defined in ITU-T Recommendation G.783. Performance monitoring requirements for multiplex section protection (for the management of SDH equipment with this capability) are provided in ITU-T Recommendation G.784, however, the information model which supports these can befound in ITU-T Recommendation G.774.1.
RE/TM-02229 ETS 300 413 Amendment 1 04/97	Enhancement of the ETS 300 413	Maintain and enhance the information model for Management of SDH Multiplex Section Protection contained in the ETS 300 413.
DE/TM-02216 ETS 300 493 Published 06/96	Synchronous Digital Hierarchy (SDH) information model of the Sub Network Connection Protection (SNCP) for the Network Element (NE) view	This ETS addresses the management of the automatic protection switching within network element at the high and low order path layers. It covers the sub network connection protection as described in G.803.
DE/TM-02220 ETS 300 484 Vote 102 ends 08/96	Connection Supervision Function (HCS / LCS) for the Network Element view	This ETS defines the information model to be used at the interface between network elements and management systems, for the management of network elements which use the connection supervision function (HCS/LCS). The HCS and LCS functional blocks (connection supervision) are specified as optional components and a standardized modelling at the Q3 interface is provided by the proposed draft ETS. The connection supervision functionality is included into subclasses of SDH connection termination points.
DE/TM-02217 ETS 300 412 Published 05/95	Payload configuration information model for the Network Element (NE) view	This ETS provides an information model for the payload configuration management of SDH networks. This model describes the managed object classes and their properties for the payload configuration function as related to SDH NEs. These objects are useful to describe information exchanged across interfaces defined in ITU-T Recommendation M.3010 Telecommunications Management Network (TMN) architecture for the management of the payload configuration function.

A.2.3.2 Operation And Maintenance (OAM)/fault management

Work Item Doc number Status	Title	Scope
DE/TM-02210 04/96	Management of SDH transmission equipment	The purpose of this ETS is to specify the requirements for management of SDH equipments. It is intended to be a comprehensive document summarizing ITU-T Recommendation and ETSI standards. The TMN provides management functions which cover the planning, installation, operations, administration, maintenance and provisioning of telecommunications networks and services. ITU-T Recommendation M.3010 proposes five management functional areas identified as follows: Fault management; Performance management; Configuration management; Security management; and Accounting management. According to these five types of management areas, this ETS should provide guidance and supporting information for the definition of object-oriented models within SDH equipments.

A.2.4 Performance

A.2.4.1 Information model

Work Item Doc number Status	Title	Scope
DE/TM-02215 ETS 300 411 Published 05/95	Performance monitoring information model for the Network Element (NE) view	This ETS provides an information model for the performance monitoring of 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 and as related to SDH NEs. These objects are useful to describe information exchanged across interfaces defined in ITU-T Recommendation M.3010 Telecommunications Management Network (TMN) architecture for the management of the performance monitoring function. This ETS defines the object model based on ITU-T Recommendation Q.822 according to the requirements described in ITU-T Recommendation G.784 and M.2120. This model uses generic mechanism defined in ITU-T Recommendation Q.822.
DE/TM-02232 04/97	Radio specific performance monitoring information model for SDH Radio Relay Network Element (NE)	New.

A.2.4.2 Quality of Service (QOS)

Work Item Doc number Status	Title	Scope
MI/TM-02103 12/96	Contribution to the development of Recommendation M.21xx series	Influence the work of SG 4/5 in the further development of Recommendation M.550. The study has two phases: 1) PDH and SDH POH used to derive ES and SES of G.821. 2) PDH and SDH POH used to derive parameters in G.826.
DE/TM-04037 12/96	System performance monitoring parameters of SDH digital radio-relay systems.	ETS describing the additional parameters relevant for performance monitoring of SDH DRRS and giving guidance on the generation of performance notifications SDH PM note: No text available yet.

Work Item Doc number Status	Title	Scope
DE/TM-03017-5 ETS 300 462-5 Vote 102 ends 08/96	Timing characteristics of slave clocks suitable for operation in SDH equipment	This ETS outlines requirements for timing devices used in synchronizing network equipment that operates according to the principles governed by the SDH. These requirements apply under the normal environmental conditions specified for SDH equipment. Typical SDH equipment contains a slave clock linked to a master, or a primary reference clock. In general the SDH equipment clock (SEC) will have multiple reference inputs. In the event that all links between the master and the slave clock fail, the equipment should be capable of maintaining operation (holdover) within prescribed performance limits.

A.2.5 Miscellaneous

A.2.5.1 Equipment practice

Work Item Doc number Status	Title	Scope
DE/TM-01015-7-1 ETS 300 417-7-1 02/97	Generic functional requirements for SDH equipment, Part 7-1: Auxiliary layer functions	No text.
DE/TM-01015-7-2 ETS 300 417-7-2 02/98	Auxiliary layer functions Implementation Conformance Statement (ICS) proforma	
DE/TM-01015-7-3 ETS 300 417-7-3 02/99	Auxiliary layer functions Abstract Test Suite (ATS)	

A.3 Synchronization networks area

A.3.1 Architecture

A.3.1.1 Structure and functions

Work Item Doc number Status	Title	Scope
DE/TM-03017-1 ETS 300 462-1 PE 103 ends 06/96	Definitions and terminology for synchronization networks	This part of the ETS specifies the definitions, abbreviations, symbols and diagrammatic conventions used in the other parts of the family of ETSs.
DE/TM-03017-2 ETS 300 462-2 Vote 102 ends 08/96	Synchronization network architecture	This ETS specifies the architectural principles that should be applied for the design of synchronization networks that are suitable for the synchronization of SDH and PDH networks. It supports both the construction of synchronization networks that support the short term stability requirements of SDH networks and the long term stability requirements of PDH networks. It applies to the design of new synchronization networks. It does not characterize existing PDH synchronization networks.

A.3.2 Interfaces/protocols

For further study.

A.3.3 Management

For further study.

A.3.4 Performance

A.3.4.1 Information model

For further study.

A.3.4.2 Quality of Service (QOS)

Work Item Doc number Status	Title	Scope
DE/TM-03017-6 ETS 300 462-6 03/96	Timing characteristics of primary reference clocks	This document outlines requirements for Primary Reference Clocks (PRC's) suitable for synchronization supply to SDH and PDH equipment. These requirements apply under the normal environmental conditions specified for digital equipment.
DE/TM-03017-4 ETS 300 462-4 03/96	Timing characteristics of slave clocks suitable for synchronization supply to SDH and PDH equipment	This ETS outlines requirements for timing devices called Synchronization Supply Units used in synchronizing network equipment such as the SDH transport network and the PSTN network. The requirements in this ETS apply under normal environmental conditions specified for equipment. ...
DE/TM-03017-3 ETS 300 462-3 PE 105 ends 08/96	Control of jitter and wander within synchronization networks	This ETS outlines requirements for the control of jitter and wander within Synchronization Networks that are constructed according to the architectural principles described in ETS 300 462-2. A Synchronization Network that complies with the Network Limits for jitter and wander specified in this ETS will be suitable for the synchronization of SDH and PSTN networks. It combines the short term stability requirements of SDH network with the long term stability requirements of the PSTN. Values specified in this ETS refer to the design of new Synchronization Networks. They do not necessarily represent the performance of existing PSTN Synchronization Networks.

A.3.5 Miscellaneous

For further study.

A.4 Access networks area

A.4.1 Architecture

A.4.1.1 Structure and functions

Work Item Doc number Status	Title	Scope
DTR/TM-03024 (Draft ETR) 10/96	Generic functional architecture for access networks	SDH PM note: New WI, no text available.
DE/TM-01009 PE 100 ends 05/96	Optical distribution network for OANs	This ETS defines the Optical Distribution Network (ODN) which is that part of the Optical Access Network (OAN) between the Optical Network Unit (ONU) and the Optical Line Terminal (OLT). The ODN specified in this ETS has a passive distribution function. It shall be able to provide: Future Proof Cable Plant; Easily Maintainable Network; Compatibility; Network Structure; Transport Capacity, means to allow integration of Interactive and Distributive Services; Availability.
DE/TM-04043 10/96	Digital radio systems for broadband local access network connections	New. This standard will cover point-to-multipoint systems which provide broadband connections to customers (i.e. in the local access network). The links will be bi-directional and the equipment would typically (although not necessarily) provide an asymmetrical link (i.e. such that the data rates in the two directions are different). Typical applications include Interactive Multimedia, Video Transmission, high bandwidth data transmission, etc.

A.4.2 Interfaces/protocols

For further study.

A.4.3 Management

A.4.3.1 Information model

For further study.

A.4.3.2 Operation and Maintenance(OAM)/fault management

Work Item Doc number Status	Title	Scope
DE/TM-02209-1 ETS 300 736-1 09/96	Operation and maintenance of optical access networks - Information model	Study Operation and Maintenance requirements for Optical Access Network. SDH PM note: New WI, no text available.
DI/TM-02209-2 I-ETS 300 736-2 PE 105 ends 08/96	Operation and maintenance of optical access networks: Common fragment	This ETS provides the Common Fragment for an Information Model for the Operations and Maintenance of Optical Access Networks and it defines Managed Objects to model the Common Aspects of OANs.
DE/TM-02209-3 ETS 300 736-3 09/96	Operation and maintenance of optical access networks: Transmission fragment (Element view)	This ETS provides the Network Fragment for an Information Model for the Operations and Maintenance of Optical Access Networks and it defines Managed Objects to model the Common Aspects of OANs.

Work Item Doc number Status	Title	Scope
DI/TM-02209-4 I-ETS 300 736-4 PE 105 ends 08/96	Operation and maintenance of optical access networks: Transmission fragment (Network view)	This ETS provides the Network Fragment for an Information Model for the Operations and Maintenance of Optical Access Networks it defines Managed Objects to model the Network Level management of OANs.
DI/TM-02209-5 I-ETS 300 736-5 PE 105 ends 08/96	Operation and maintenance of optical access networks: Equipment fragment	This ETS provides the Equipment Fragment for an Information Model for the Operations and Maintenance of Optical Access Networks and it defines Managed Objects to model the Equipment Aspects of OANs.
DE/TM-02209-6 ETS 300 736-6 09/96	Operation and maintenance of optical access networks: Testing fragment	This work will produce the Testing Fragment for the O&M of OANs. SDH PM note: New WI, no text available.

A.4.4 Performance

For further study.

A.4.5 Miscellaneous

For further study.

A.5 Transport networks area

A.5.1 Architecture

A.5.1.1 Structure and functions

Work Item Doc number Status	Title	Scope
DTR/TM-03016 ETR 085 Published 07/93	Generic functional architecture of transport network	This ETR describes the functional architecture of transport networks in a technology independent way. The generic functional architecture of transport networks should be taken as the basis for a harmonized set of functional architecture standards for ATM, SDH, and PDH networks and corresponding management standards, performance analysis and equipment specification.
MI/TM-03058 new, 07/99	Maintenance of the generic functional architecture of transport networks (harmonization of generic architectures) ETR 085	Describes the functional architecture of transport networks in a technology independent way. Envisaged to be a reference description of generic functional architecture of transport networks to be taken as the basis of a harmonized set of functional architecture standards for ATM, SDH, PDH network layers and corresponding management standards, performance analysis and equipment specification. Issues related to asymmetrical and point-to-multipoint trails to be described.
MI/TM-03059 new, 07/99	Functional architecture of synchronous digital hierarchy (SDH) transport networks	Describes the SDH-specific aspects of functional architecture transport networks. Makes strong reference to the generic architecture developed in ETR 085 and ETR 085 Edition 2 (stopped).
MI/TM-03060 new, 07/99	Functional architecture ATM transport networks	Describes the ATM-specific aspects of functional architecture transport networks. Makes strong reference to the generic architecture developed in ETR 085 and ETR 085 Edition 2 (stopped). Includes correspondance table with terms used in the context of B-ISDN protocol reference model.

Work Item Doc number Status	Title	Scope
DTR/TM-03006 ETR 114 Published 11/93	Functional architecture of Synchronous Digital Hierarchy (SDH) Transport networks	This ETR covers the functional architecture and network issues of transport networks as applied to Synchronous Digital Hierarchy (SDH)-based networks. It is firmly based upon ITU-T Recommendation G.803 and the generic functional architecture of transport networks covered under ETR 085. It also covers interconnection of Plesiochronous Digital Hierarchy (PDH)-based and SDH-based networks and evolution to SDH-based transport networks.
MI/TM-01039	Functional characteristics of systems using OAs: ETSI contributions to ITU-T Draft Recommendation G.Ion	

A.5.1.2 Structure radio systems

For further study.

A.5.1.3 Protection

Work Item Doc number Status	Title	Scope
DE/TM-03042 ETS 300 746 PE 105 ends 08/96	Synchronous digital hierarchy (SDH) automatic protection switching (APS) protocols - ring and other schemes	This ETS specifies the automatic protection switching (APS) requirements, switching initiation criteria, and the APS protocols of SDH shared multiplex section bidirectional self healing ring, dedicated multiplex section unidirectional self healing ring, multiplex section linear protection and path trail and subnetwork connection protection schemes. The APS protocols are specified in terms of their multiplex section or path overhead requirements, the signalling messages and their operations under various failure conditions.
DTR/TM-03025 ETR 273 For publication in 11/96	Synchronous Digital Hierarchy (SDH) ring protection	This ETR describes the functional requirements and classification of SDH protection schemes, namely SDH shared multiplex section bidirectional self healing ring, dedicated multiplex section unidirectional self healing ring, multiplex section linear protection and path trail and subnetwork connection protection schemes. The various SDH protection schemes are specified in terms of their network objectives, network architectures, functional modelling and network operations.
DTR/TM-03041 ETR 274 09/96	Synchronous digital hierarchy (SDH) protection interworking - rings and other schemes	This ETR describes the interworking criteria, principles, objectives, requirements and architectures of protection interconnection between SDH shared multiplex section bidirectional self healing ring, dedicated multiplex section unidirectional self healing ring, multiplex section linear protection and path trail and subnetwork connection protection schemes. The SDH protection interconnection scenarios between the same and different protection schemes are described.

A.5.2 Interface aspects

A.5.2.1 Network Node Interface (NNI)

Work Item Doc number Status	Title	Scope
DE/TM-03002 ETS 300 166 Published 08/93	Physical and electrical characteristics of hierarchical digital interfaces for equipment using the 2 048 kbit/s - based plesiochronous or synchronous digital hierarchies	This ETS describes the requirements for the physical and electrical parameters of interfaces based on ITU-T Recommendation G.702, G703 and G.707 for interconnection of digital network elements: 1. in-station (i.e. for distances below a few hundred metres); 2. using metallic (symmetrical or coaxial) pairs; 3. at 64, 2 048, 8 448, 34 368 and 139 264 kbit/s hierarchical levels of the PDH and at the first level of the SDH (STM-1 at 155 520 kbit/s). This ETS also describes the requirements for the physical and electrical parameters of the 2 048 kHz synchronization interface.
MI/TM-01038 12/96	Optical interfaces for SDH; ETSI contributions to ITU-T Draft Recommendation G.scs	SDH PM note: New WI, no text available.
MI/TM-01044 12/96	ETSI contributions to ITU-T on draft Recommendation G.mcs	New.

A.5.2.2 User-Network Interface (UNI)

Work Item Doc number Status	Title	Scope
DE/NA-52511 ETS 300 299 Published 02/95	Cell based user network access, physical layer interfaces for B-ISDN	SDH PM note: Electronic version not available.
RE/TM-03030 ETS 300 299 Edition 2 PE 107 ends 09/96	Cell-based user network access physical layer interface for B-ISDN applications	This ETS defines the physical layer interface to be applied to the S_B and T_B reference points of the reference configuration of the B-ISDN cell based UNI at 155 520 kbit/s and 622 080 kbit/s. It addresses separately the physical media and the transmission system used at these interfaces and addresses also the implementation of UNI related OAM functions.
RE/TM-03029 ETR 300 300 Edition 2 PE 106 ends 09/96	SDH based user network access, Physical layer interfaces for B-ISDN applications	This ETS defines the physical layer interface to be applied to the S_B and T_B reference points of the reference configuration of the B-ISDN cell based UNI at 155 520 kbit/s and 622 080 kbit/s. It addresses separately the physical media and the transmission system used at these interfaces and addresses also the implementation of UNI related OAM functions.
DE/TM-03064 ETS 300 742 PE 105 ends 04/96	Physical layer UNI for 2 Mbit/s ATM signals	This ETS defines the physical layer interface to be applied to the S_B and T_B reference points of the reference configuration of the B-ISDN cell based UNI at 2 048 kbit/s. It addresses separately the physical media and the transmission system used at these interfaces and addresses also the implementation of UNI related OAM functions.
DE/NA-53031 ETS 300 216 Published 12/92	PLCP 155M	

Work Item Doc number Status	Title	Scope
DE/NA-53032 ETS 300 272 Published 03/94	PICS PLCP 155M	
DE/NA-53033 ETS 300 270 Published 03/94	PLCP 622M	
DE/NA-53034 ETS 300 277 Published 03/94	PICS PLCP 622M	

A.5.3 Management aspects

A.5.3.1 Information odel

Work Item Doc number Status	Title	Scope
DE/TM-02207 09/96	SDH network information model	Agree an information model which describes in object-oriented terms a model for management of synchronous digital networks.
DTR/TM-02212 ETR 269 Published 04/96	Requirements for a transmission level information model	This ETR describes some of the issues related to the modelling of the network layer of a transmission network, in particular those issues related to the production of interface specifications described in terms of GDMO templates using the ensemble technique. It describes the principles to be used when developing ensembles in terms of the use of G.803, the use of M.3010, the functional management architecture, the use of a standard class library, the modelling methodology to be used, the need to support multiple managers and the management capabilities to be supported. It also describes the structure required in the ensemble document and shows how this conforms to the NM Forum Ensemble specification technique.
DTR/TM-02221 (Draft ETR) 04/96	Application of ODP to the management of a transmission network	No scope text written yet. Establish rules for the management of an SDH network taking into account the distributive aspects of management capabilities.

A.5.3.2 Operation And Maintenance(OAM)/fault management

Work Item Doc number Status	Title	Scope
DE/TM-02233 new, 09/96	Transport network monitoring service	New.

A.5.3.3 Resources

Work Item Doc number Status	Title	Scope
DE/TM-02230 09/96	Transport network resource model	New WI (April 1995): Establish a ODP model for transport network resources.

A.5.3.4 Configuration

Work Item Doc number Status	Title	Scope
DE/TM-02231 09/96	Sub-network connection configuration management	New WI (April 1995): Specify the management capabilities and establish a model for the configuration of sub-network connections accross subnetworks.

A.5.4 Performance aspects

A.5.4.1 Information model

For further study.

A.5.4.2 Quality of Service (QOS)

Work Item Doc number Status	Title	Scope
DTR/TM-03031 ETR 275 Published 04/96	Hypothetical reference model and planning guidelines for signal transfer delay	The purpose of this ETR is to examine those components which contribute to the transmission delay on connections supporting speech traffic over evolving digital networks. It provides typical values which can be used to develop echo and delay guidance documents for network operators/planners.
RTR/TM-03066 (Draft revision) ETR new, 04/97	Transmission delay; Hypothetical reference model and planning guidelines	Maintenance and revision of ETR 275.
DE/TM-03067 new, 03/98	Control of Jitter and wander in transport networks	New.
DE/TM-02109 09/96	Transmission performance for SDH section	No text available.
MI/TM-02102 07/96	Further development of G.826: the new error performance Recommendation for international digital paths at or above the primary rate	Influence the work of SG 13/4 in the further development of G.826

A.5.4.3 Availability

Work Item Doc number Status	Title	Scope
DI/TM-02105 I-ETS 300 416 Published 07/95	Availability performance of path elements of international digital path	This Interim ETS is applicable to international constant bit rate digital paths at or above 64 kbit/s supported by digital networks. International constant bit rate digital paths may be based on the PDH, the SDH or some other transport network such as cell-based. This ETS is generic in that it defines parameters and requirements independent of the physical transport network providing the paths. Two types of paths are considered; paths between ISCs which consist of an international portion only and paths between CP which consist of national and international portions. These paths are referred to as "type a" and "type b" respectively. Both the national and international portions are made up of Path Elements (PEs). For the national portion of path of "type b", this ETS specifies parameters and requirements as a whole. The end-to-end availability performance of an international digital path can be calculated from the arrangement of the constituent PEs and their associated requirements.
DI/TM-02105-1 09/97	Conformance testing specification for I-ETS 300 416	SDH PM note: New WI, no text available yet.

A.5.5 Miscellaneous

For further study.

A.6 Leased lines area

A.6.1 Architecture

Work Item Doc number Status	Title	Scope
DTR/TM-03062 ETR 276 Published 04/96	Technical report on SDH leased lines	This ETR has been produced in response to a mandate forwarded to ETSI by the European Commission DG III. The object of the mandate is to produce ETSs for access to SDH leased lines with STM-N network presentation at the NTP. The two parts of the mandate are firstly, an investigation of the technical feasibility and the requirements and secondly, depending on the agreement of the Commission, the production of the relevant ETS. This report addresses the first part of the mandate. The report is written in the ONP context defined in the ONP framework Directive 90/387/EEC (2) and the leased line Directive 92/44/EEC (3). It is intended that ETS's produced as a result of the second part of the mandate will be published in the indicative, non-mandatory section in the Official Journal of the European Community. The report examines the technical aspects of the standardization of SDH leased lines and details the work needed to produce the ETS. It covers the various technical options taking into account the current situation of SDH networks and their expected evolution.

Annex B: Terms of reference for the SDH project in TM

B.1 Objective of SDH project management

The objective of the project management activity is to ensure co-ordinated deliverables about SDH issues. The co-ordination concerns work done in TC TM and regards both timing and content of the deliverables.

B.2 Terms of Reference

The project manager is responsible for the following specific tasks (that is he/she carries them out him/herself or with the help of TC/STC officials and the ETSI Secretariat as he/she sees suitable):

- 1) Draft an overview document for approval by TM, containing:
 - a) a structured overview of the SDH aspects to be standardized, suitable for the following;
 - b) general scopes and purposes of the deliverables covering these aspects;
 - c) information which relations between groups of deliverables must exist;
 - d) allocation of aspects to STC (according to the general ToR for the STCs);
 - e) general prioritization.
- 2) Analyse the ongoing work for reporting to TM:
 - a) identify SDH work items;
 - b) check whether work is proper to the STC;
 - c) identify work items that are dependent on other work items;
 - d) compare planned STC completion dates and identify inconsistencies;
 - e) check work items for overlap, omission and inconsistency; consistency regarding both **the present content and the description methodology**.
- 3) Make Recommendation to appropriate level based on analysis above, in particular on:
 - a) priorities of specific work items;
 - b) scope of work items, allocation to STCs;
 - c) joint activities of STCs;
 - d) specific methodologies;
 - e) numbering of ETSs (for reference in information models).
- 4) Monitor the future work and make Recommendations:
 - a) monitor the implementation of accepted Recommendations (see B.3) and propose corrections to the appropriate body;
 - b) analyse new work items along the criteria under B.2;
 - c) propose new work items.

B.3 Work procedures

The project manager is primarily responsible to TC TM. He/She organises the work in the most efficient way, primarily in co-operation with the STC Chairmen, the ETSI Secretariat and other officials of the TC (Chairman, PRO, Vice-Chairman, Rapporteurs) and other experts.

B.4 Term of office

The project manager is expected to be in office for at least two years, after which the management project may be terminated, the person may be willing and mandated to continue or other person may be mandated.

NOTE: These ToR have been approved during the first meeting of the TC TM SDH project management team on February 24, 1995 in Darmstadt, Germany.

History

Document history	
August 1996	First Edition