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Transmission and Multiplexing (TM); Generic requirements of transport functionality of equipment; Part 6-2: Synchronization layer functions; Implementation Conformance Statement (ICS) proforma specification

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# ETSI EN 300 417-6-2 V1.1.1 (2000-09)

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*European Standard (Telecommunications series)*

**Transmission and Multiplexing (TM);  
Generic requirements of  
transport functionality of equipment;  
Part 6-2: Synchronization layer functions;  
Implementation Conformance Statement (ICS)  
proforma specification**

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## Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Transmission and Multiplexing (TM).

The present document has been produced in order to provide the Implementation Conformance Statement (ICS) proforma to be used in connection with conformance/approval testing of SDH equipment. It is one of a family of ENs covering various aspects of SDH equipment standards.

The ICS proforma consists of 8 parts, numbered 1-2 to 8-2 each of them corresponding to the 8 parts of EN 300 417, numbered 1-1 to 8-1.

The present document is part 6-2 of a multi-part EN covering the generic requirements of transport functionality of equipment, as identified below:

Part 1-1: "Generic processes and performance";

Part 1-2: "General information about Implementation Conformance Statement (ICS) proforma";

Part 2-1: "Synchronous Digital Hierarchy (SDH) and Plesiochronous Digital Hierarchy (PDH) physical section layer functions";

Part 2-2: "Synchronous Digital Hierarchy (SDH) and Plesiochronous Digital Hierarchy (PDH) physical section layer functions; Implementation Conformance Statement (ICS) proforma specification";

Part 3-1: "Synchronous Transport Module-N (STM-N) regenerator and multiplex section layer functions";

Part 3-2: "Synchronous Transport Module-N (STM-N) regenerator and multiplex section layer functions; Implementation Conformance Statement (ICS) proforma specification";

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

Part 4-2: "Synchronous Digital Hierarchy (SDH) path layer functions; Implementation Conformance Statement (ICS) proforma specification";

Part 5-1: "Plesiochronous Digital Hierarchy (PDH) path layer functions";

Part 5-2: "Plesiochronous Digital Hierarchy (PDH) path layer functions; Implementation Conformance Statement (ICS) proforma specification";

Part 6-1: "Synchronization layer functions";

**Part 6-2: "Synchronization layer functions; Implementation Conformance Statement (ICS) proforma specification";**

Part 7-1: "Equipment management and Auxiliary layer functions";

Part 7-2: "Auxiliary layer functions; Implementation Conformance Statement (ICS) proforma specification".

Parts 2 to 7 specify the layers and their atomic functions.

NOTE: The SDH radio equipment functional blocks are addressed by ETSI WG TM4.

Various of the above parts have previously been published as parts of ETS 300 417.

They have been converted into parts of EN 300 417 without technical changes, but some editorial changes have been necessary (e.g. references). In particular:

- Parts 2-1, 2-2 and 3-2 have been modified to take account of editorial errors present in edition 1;
- Part 1-1 has had its title changed to align with other parts published at a later date.

Also note that in the meantime parts 8-1 and 8-2 together will all parts x-3 (Abstract Test Suites) have been stopped.

<b>National transposition dates</b>	
Date of adoption of this EN:	4 August 2000
Date of latest announcement of this EN (doa):	30 November 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 May 2001
Date of withdrawal of any conflicting National Standard (dow):	31 May 2001

## iTeh STANDARD PREVIEW (standards.iteh.ai)

### Introduction

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a telecommunication specification. Such a statement is called an Implementation Conformance Statement (ICS). <https://standards.iteh.ai/catalog/standards/sist/ec05d16c-7b3c-4f15-9711-8c2eda16fd85/sist-en-300-417-6-2-v1-1-1-2003>

A client of a test laboratory who requests a conformance/approval test shall provide to the test laboratory a completed ICS proforma for each layer to be tested and a detailed system description of the implementation.

The ICS proforma is not another complete description of the related specification, but rather a compact form of its static conformance requirements, to be used by the test laboratory to identify which test shall be performed on a given implementation. Not every feature of a profile specification is contained in the related ICS proforma. For particular cases requiring specific information the ICS can refer to the appropriate clause of the related specification by means of references, notes and or comments.

The ICS proforma captures the implementation flexibility allowed by the related specification and details which option are left to the implementor, which are conditionally dependent on other option taken by the implementor.

**The ICS items in the present document are developed following an atomic-function basis, which means reporting the requirements atomic function per atomic function.**

**The ICS tables are organized in subclauses following the subclauses structure of the relevant base specification.**

---

## 1 Scope

The present document provides the Implementation Conformance Statement (ICS) proforma for the SDH Path layer functions defined in EN 300 417-6-1 [1] in compliance with the relevant requirements, and in accordance with the relevant guidance given in ISO/IEC 9646-7 [5] and ETS 300 406 [3].

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## 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, the latest version applies.
- 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] ETSI EN 300 417-6-1: "Transmission and Multiplexing (TM); Generic requirements of transport functionality of equipment; Part 6-1: Synchronization layer functions".
- [2] ETSI EN 300 417-1-1: "Transmission and Multiplexing (TM); Generic requirements of transport functionality of equipment; Part 1-1: Generic processes and performance".
- [3] ETSI ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- [4] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [5] ISO/IEC 9646-7 (1995): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
- [6] ETSI EN 300 462-1-1: "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 1: Definitions and terminology for synchronization networks".
- [7] ETSI EN 300 462-2-1: "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 2: Synchronization network architecture".
- [8] ETSI EN 300 462-5-1: "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 5: Timing characteristics of slave clocks suitable for operation in Synchronous Digital Hierarchy (SDH) equipment".
- [9] ETSI 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 ITU-T Recommendation G.702 hierarchical rates of 2 048 kbit/s, 34 368 kbit/s and 139 264 kbit/s".
- [10] ETSI ETS 300 166: "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".
- [11] ETSI ETS 300 167: "Transmission and Multiplexing (TM); Functional characteristics of 2 048 kbit/s interfaces".
- [12] ETSI EN 300 417-2-1: "Transmission and Multiplexing (TM); Generic requirements of transport functionality of equipment; Part 2-1: Synchronous Digital Hierarchy (SDH) and Plesiochronous Digital Hierarchy (PDH) physical section layer functions".

- [13] ETSI ETS 300 147: "Transmission and Multiplexing (TM); Synchronous Digital Hierarchy (SDH); Multiplexing structure".

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 300 417-6-1 [1], ISO/IEC 9646-1 [4], and in ISO/IEC 9646-7 [5] apply.

In particular, the following terms and definitions given in ISO/IEC 9646-1 [4] apply:

**Implementation Conformance Statement (ICS):** statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented. The ICS can take several forms: protocol ICS, profile ICS, profile specific ICS, information object ICS, etc.

**ICS proforma:** document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS.

### 3.2 Abbreviations

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

AI	Adaptation Information
AIS	Alarm Indication Signal
AP	Access Point
CI	Characteristic Information
CK	timing information - Clock signal
CLR	Clear
CP	Connection Point
CS	timing information - Clock Source
CSid	Clock Source identifier
DNU	Do Not Use
ES1	STM-1 Electrical Section layer
EXTCMD	External Command
FS	timing information - Frame Start
FSw	Forced Switch
HO	Hold Over mode
HO	Hold Off time
ID	IDentifier
INVx	INValid x
LC	Layer Clock
LO	Lock Out
LO	Locked mode
LOS	Loss Of Signal
LSB	Least Significant Bit
LTI	Loss of Timing Information
MA	Maintenance and Adaptation
MI	Management Information
MON	MONitored
MFP	MultiFrame Present
MFS	MultiFrame Start
MS	Multiplex Section
MSB	Most Significant Bit
MSw	Manual Switch
MTIE	Maximum Time Interval Error
NE	Network Element
n/a	non applicable
NS	Network Synchronization

NSUPP	Not supported
OSn	STM-N Optical Section layer
P12s	2 048 kbit/s PDH path layer with synchronous 125 ms frame structure according to ETS 300 167 [11]
P31s	34 368 kbit/s PDH path layer with synchronous 125 ms frame structure according to ETS 300 337 [9]
P4s	139 264 kbit/s PDH path layer with synchronous 125 ms frame structure according to ETS 300 337 [9]
PDH	Plesiochronous Digital Hierarchy
PRC	Primary Reference Clock
QL	Quality Level
RI	Remote Information
RSn	STM-N Regenerator Section layer
SASE	Stand Alone Synchronization Equipment
SD	Synchronization Distribution
SDH	Synchronous Digital Hierarchy
SDL	Specification and Description Language
SEC	SDH Equipment Clock
SF	Signal Fail
SQLCH	Squelch
SSF	Server Signal Fail
SSM	Synchronization Status Message
SSU	Synchronization Supply Unit
SSUL	Local SSU
SSUT	Transit SSU
STM-N	Synchronous Transport Module, level N
Sk	Sink
So	Source
tba	to be attributed
TCP	Termination Connection Point
TDEV	Time DEVIation
TI	Timing Information
TL	Transport Layer
TM	Timing Marker
TT	Trail Termination
TSF	Trail Signal Fail
UNC	UNConnected
VC-n	Virtual Container, level n
WTR	Wait to Restore

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<https://standards.iteh.ai/catalog/standards/sist/ec05d16c-7b3c-4f15-9711-8c2eda16fd85/sist-en-300-417-6-2-v1-1-1-2003>

## 4 Conformance to this ICS proforma specification

If it claims to conform to the present document, the actual ICS proforma to be filled in by a supplier shall be technically equivalent to the text of the ICS proforma given in the annexes of the present document, and shall preserve the numbering/naming and ordering of the proforma items.

An ICS which conforms to the present document shall be a conforming ICS proforma completed in accordance with the instructions for completion given in clause A.1.

For each layer instance, it's needed to fill a separate ICS Proforma depending on the layer instance.

## Annex A (normative): ICS proforma for EN 300 417-6-1

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the ICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed ICS.

### A.1 Guidance for completing the ICS proforma

#### A.1.1 Purposes and structure

The purpose of this ICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in EN 300 417-6-1 [1] may provide information about the implementation in a standardized manner.

The ICS proforma is subdivided into subclauses for the following categories of information:

- instructions for completing the ICS proforma;
- identification of the implementation;
- identification of the EN;
- global statement of conformance.

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#### A.1.2 Abbreviations and conventions

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The ICS proforma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [5].

##### Item column

The item column contains a number which identifies the item in the table.

##### Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

##### Status column

The following notations, defined in ISO/IEC 9646-7 [5], are used for the status column:

m	mandatory - the capability is required to be supported;
o	optional - the capability may be supported or not;
n/a	not applicable - in the given context, it is impossible to use the capability;
x	prohibited (excluded) - there is a requirement not to use this capability in the given context;
o.i	qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies a unique group of related optional items and the logical of their selection which is defined immediately following the table;
ci	conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression which is defined immediately following the table. For nested conditional expressions, the syntax "IF ... THEN (IF ... THEN ... ELSE...) ELSE ..." shall be used to avoid ambiguities.

**Reference column**

The reference column gives reference to EN 300 417-6-1 [1], except where explicitly stated otherwise.

**Support column**

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [5], are used for the support column:

Y or y	supported by the implementation;
N or n	not supported by the implementation;
N/A, n/a or -	no answer required (allowed only if the status is n/a, directly or after evaluation of a conditional status).

If this ICS proforma is completed in order to describe a multiple-profile support in a system, it is necessary to be able to answer that a capability is supported for one profile and not supported for another. In that case, the supplier shall enter the unique reference to a conditional expression, preceded by "?" (e.g. ?3). This expression shall be given in the cell provided at the bottom of the table. It uses predicates defined in the SCS, each of which refers to a single profile and which takes the value TRUE if and only if that profile is to be used.

EXAMPLE 1: ?3: IF prof1 THEN Y ELSE N

It is also possible to provide a comment to an answer in the space provided at the bottom of the table.

**Values allowed column**

The values allowed column contains the values or the ranges of values allowed.

**Values supported column**

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

**Mnemonic column**

The Mnemonic column contains mnemonic identifiers for each item.

**References to items**

For each possible item answer (answer in the support column) within the ICS proforma exists a unique reference, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table. If there is more than one support column in a table, the columns shall be discriminated by letters (a, b, etc.), respectively.

EXAMPLE 2: C.5/4 is the reference to the answer of item 4 in table C.5.

EXAMPLE 3: C.6/3b is the reference to the second answer (i.e. in the second support column) of item 3b in table C.6.

**Prerequisite line**

A prerequisite line takes the form: Prerequisite: <predicate>.

A prerequisite line after a clause or table title indicates that the whole clause or the whole table is not required to be completed if the predicate is FALSE.

## A.1.3 Instructions for completing the ICS proforma

The supplier of the implementation shall complete the ICS proforma in each of the spaces provided. However, the tables containing in "user role" subclause shall only be completed for user implementations, and the tables containing in "network role" subclause shall only be completed for network implementations. If necessary, the supplier may provide additional comments separately.

More detailed instructions are given at the beginning of the different subclauses of the ICS proforma.