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**Transmission and Multiplexing (TM);
Generic functional requirements for Synchronous Digital
Hierarchy (SDH) equipment;
Part 1-2: General information about
Implementation Conformance Statement (ICS) proforma**

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Foreword

This final draft European Telecommunication Standard (ETS) has been produced by the Transmission and Multiplexing (TM) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Voting phase of the ETSI standards approval procedure.

This ETS is one of a family of ETSs covering various aspects of Synchronous Digital Hierarchy (SDH) equipment standards and 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.

The structure of this ETS

The ICS proforma will ultimately consist of 8 sub-parts of ETS 300 417, numbered 1-2 to 8-2, each of which will correspond to sub-parts 1-1 to 8-1 of ETS 300 417, respectively. The ICS sub-parts are:

- Part 1-2: ETS 300 417-1-2: "General information about Implementation Conformance Statement (ICS) proforma";**
- Part 2-2: ETS 300 417-2-2: "Physical section layer functions Implementation Conformance Statement (ICS) proforma";
- Part 3-2: ETS 300 417-3-2: "STM-N regenerator and multiplex section layer functions Implementation Conformance Statement (ICS) proforma";
- Part 4-2: ETS 300 417-4-2: "SDH path layer functions Implementation Conformance Statement (ICS) proforma";
- Part 5-2: ETS 300 417-5-2: "PDH path layer functions Implementation Conformance Statement (ICS) proforma";
- Part 6-2: ETS 300 417-6-2: "Synchronisation distribution layer functions Implementation Conformance Statement (ICS) proforma";
- Part 7-2: ETS 300 417-7-2: "Auxiliary layer functions Implementation Conformance Statement (ICS) proforma";
- Part 8-2: ETS 300 417-8-2: "Major compound functions, Implementation Conformance Statement (ICS) proforma".

Proposed transposition dates	
Date of latest announcement of this ETS (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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 given profile. Such a statement is called an Implementation Conformance Statement (ICS).

A client of a test laboratory who requests a conformance/approval test should provide the test laboratory with 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 should 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 options are left to the implementor, and which are conditionally dependent on other options taken by the implementor.

1 Scope

This European Telecommunication Standard (ETS) provides general information about the Implementation Conformance Statement (ICS) proforma structure and contents, as well as guidance for filling-in the document. The ICS proforma for a Synchronous Digital Hierarchy (SDH) Network Element (NE) are defined in compliance with the relevant requirements, and in accordance with the relevant guidance, given in ISO/IEC 9646-7 [4], in ETS 300 406 [5] and in ETR 212 (see annex C).

The ICS proforma is a normative part of the reference specification.

The supplier of an implementation which is claimed to conform to ETS 300 417-1-1 [6] is required to complete a copy of these ICS proforma, namely this ETS, and is further required to provide all information necessary to identify both the implementation (e.g. specify it by means of a detailed system description) and the supplier.

The client of the test laboratory might be identified by means of the System Conformance Statement (SCS) and a client checklist. Those proforma are included in annex B of this ETS. The use of SCS proforma and client checklist is not mandatory, any suitable means of providing such information is acceptable.

According to ETS 300 406 [5] the ICS proforma has two main objectives:

- within the context of conformance testing, to be the reference document for the conformance assessment process related to the Implementation Under Test (IUT);
- outside the context of conformance testing, to provide an overview of the implementation.

Concerning the conformance assessment process, the ICS proforma is used:

- as the description of the IUT for the static conformance review;
- as an element of description of the IUT capabilities for the test case deselection;
- as an element of description of the IUT for the test suite parametrization;
- as a reference document for the analysis of the results;
- for inclusion with the final test report.

Outside the conformance testing context, the ICS proforma is or may be used:

- to provide an overview of the capability supported by the implementation; ¹⁾
- to statically check the interworking capacities of two implementations;
- as a standard checklist of the base specification conformance requirements.

When requesting conformance/approval testing of an SDH layer implementation, the supplier should always fill all the ICS proforma relevant for that layer. In the case where more than one instance of the same layer appears in the detailed system description, the client of a test laboratory should clearly identify any differences existing between these instances (if any).

¹⁾ Each capability of the ICS associated implementation is described as a conformance statement which is the result of the answer, by the supplier, to the dedicated ICS item.

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] ISO/IEC 9646-1 (1991): "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [2] ISO/IEC 9646-2 (1991): "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".
- [3] ISO/IEC 9646-5 (1991): "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process".
- [4] ISO/IEC 9646-7 (1995): "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
- [5] ETS 300 406 (1994): "Method for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- [6] ETS 300 417-1-1 (1996): "Transmission and Multiplexing (TM); Generic functional requirements for Synchronous Digital Hierarchy (SDH) equipment; Part 1-1: Generic processes and performance".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS the following definitions apply:

homogeneous layer instances: (refer also to the definition of a layer instance given below) Homogeneous layer instances are a set of layer instances supporting the same features; hence, under the point of view of a conformance verdict they can be considered as one single Implementation Under Test (IUT).

ICS: An Implementation Conformance Statement (ICS) is necessary to evaluate the performance of a particular system. It is a statement of the capabilities and options which have been implemented, for each specification which is supported in order that the system can be tested against relevant requirements and those requirements only.

layer instance: A layer instance is the real (hardware, software and firmware) implementation of a layer into a transmission equipment.

profile: A profile identifies a consistent set of chosen options from a base specification or from a set of base specifications, in order to provide a given function in a given environment.

By restricting choices among the options available in the base specifications, a profile increases the probability that systems will inter-operate, i.e. perform together the given function to which the profile is aimed at.

The base specifications upon which a profile is based are called components of this profile. In other words, a profile specifies a superset of subsets of base specifications. Further details on the definition of a profile may be found in ETS 300 406 [5].

profile specific ICS proforma: A profile requirements list plus the set of ICS proformas which when completed for a system and taken together with the profile requirements list become a profile ICS.

profile specific ICS: An ICS for a system claimed to conform to a given profile, answering questions which are profile-specific and which are additional to the base specification ICS proforma items listed in the profile requirements list.

reference specification(S): It is a standard which specifies a base specification, or a set of base specifications, or a profile, or a set of profiles, and for conformance against which test specifications are written.

reference standard(S): Synonymous to reference specification.

3.2 Abbreviations

For the purposes of this ETS the following abbreviations apply:

CTR	Conformance Test Report
DSD	Detailed System Description
ICS	Implementation Conformance Statement
IXIT	Implementation eXtra Information for Testing
IUT	Implementation Under Test
RSE	Remote Single layer Embedded
SCS	System Conformance Statement
SCTR	System Conformance Test Report
SUT	System Under Test

4 ICS proforma structure and contents

The ICS proforma is a set of tables containing pre-printed text and structured according to ISO/IEC 9646-7 [4]. They describe any layer implementation which is specified in ETS 300 417-1-1 [6].

The structure of these ICS proforma is in accordance with what is specified in clause 5 of ISO/IEC 9646-7 [4] and satisfies the requirements specified in subclauses 8.1 to 8.4, 9.1 to 9.5 and clause 10 of that document. These tables have to be written and filled in according to ETR 212 (see annex C).

Each of the ICS proforma is composed of:

- main part;
- annex A, which contains guidelines for filling in the ICS tables and gives details about the content of the pre-printed tables and about the status of ICS items;
- subsequent annexes, which contain the identification of the IUT the ICS tables for one layer.

5 Relationship between ICS proforma and detailed system description

A Detailed System Description (DSD) gives an overview on what layer instances compose the System Under Test (SUT) and on how they are combined. The rules of combination between layers are given in ETS 300 417-1-1 [6], subclause 5.1, figure 8 and figure 9.

A DSD of the SUT has to be provided together with the completed ICS proforma.

No requirements are given, in this ETS, on the format of the DSD.

The detailed system description shall at least contain the following type of information:

- identification of sets of homogeneous instances of a layer;
- the references of the instances in each homogeneous set.

Homogeneous layer instances of a layer in the DSD are associated with the filled in ICS proforma related to all these homogeneous layer instances. This association process allows answers to questions such as - for which instance of a layer function a conformance requirement is defined.

This association between instances in the Detailed System Description and ICS table is made via the "identification of the IUT" field given at the beginning of each of the annexes containing ICS tables.

Annex B (informative): Client test preparation information related to conformance/approval testing of SDH network element System Conformance Statement (SCS) including client checklist

B.1 Introduction

A client who requests a conformance/approval test needs to provide the test laboratory with a System Conformance Statement (SCS) and a client checklist. The proforma in this ETS may be used.

The main purpose of the SCS is to identify the client organization and the test candidate.

The purpose of the client checklist is to provide a record of test-related information.

B.2 Proforma structure and contents

The proforma consists of the following tables containing pre-printed guide text:

CLIENT ORGANIZATION: For identification of the client organization;

TEST CANDIDATE: For identification and itemizing of the test candidate;

TEST STATUS OF THE TEST CANDIDATE and TESTING CLAIMS: For indication of the test status of the test candidate, summarizing of the testing claims, provision of references to associated ICS proforma;

CLIENT CHECKLIST: For provision of a record of test-related information.

B.3 Guidance on completion of proforma

The pre-printed guide text in the proforma indicates the kind of information to be filled in by the client.

B.4 Client organization

CLIENT

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

CLIENT MANAGER

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

CONTACT PERSON

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

B.5 Test candidate

TEST CANDIDATE IDENTIFICATION:			
Name	Model	Version	Serial Number
System Under Test (SUT) identification: SUT name:			
Hardware configuration:			
SUT Software version:			
SUT Firmware version:			
Operating system:			
SUPPLIER (OPTIONAL, if different from client):			
Company: _____		Telephone _____	
Street/No.: _____		Telefax: _____	
Postal Code/City: _____		Telex: _____	
Country: _____		E-mail address: _____	
MANUFACTURER (OPTIONAL, if different from client):			
Company: _____		Telephone _____	
Street/No.: _____		Telefax: _____	
Postal Code/City: _____		Telex: _____	
Country: _____		E-mail address: _____	

B.6 Test status of the test candidate and testing claims

TEST CANDIDATE REFERENCE (short identification):								
TESTING CLAIMS								
	If "Yes" in the right column "Tested before?", indicate references to existing test documents (which should be at the disposal of the test laboratory)				Answer by Yes(=Y) or No(=N) according to the claims:			
Layer Identifier	ICS	IXIT	SCTR	CTR	Tested before? (optional)	Test wanted?	PCTR wanted?	Log wanted?
OTHER INFORMATION (indicate any other information that may itemize the test candidate or the testing claims):								

B.7 Client checklist

<p>Reference subclauses/notes of subclause 6.3.1.3 of ISO/IEC 9646-5 [3]. Details may be specified in the appropriate IXIT(s) and reference(s) to the relevant IXIT(s) indicated in this checklist</p>	
Reference a)	COMPLIANCE WITH ISO/IEC 9646-5 [3] (list exceptions, if any):
Reference b)	The information (specification of the test candidate, implementation profile to be tested) is given in clause B.5 TEST CANDIDATE and clause B.6 TEST STATUS OF THE TEST CANDIDATE and TESTING CLAIMS.
Reference c)	The Remote Single layer Embedded (RSE) test method is used, implying that the degree of equipment testability is sufficient.
Reference d)	TEST CO-ORDINATION PROCEDURES (explain the procedures suitable for use with the test candidate, and which correspond to the RSE test method or indicate references to clauses of manuals etc. giving such explanations):
Reference Note a)	PHYSICAL REQUIREMENTS and OTHER PRACTICAL INFORMATION (indicate any physical test requirements)
Reference Note b)	The information on whom to contact during the conformance assessment process is given in clause B.4

Annex C (informative): Bibliography

- ETR 212 (1995): "Methods for Testing and Specification (MTS); The Implementation Conformance Statement (ICS) proforma style guide".

History

Document history			
September 1995	Public Enquiry	PE 92:	1995-09-25 to 1996-01-19
August 1996	Vote	V 108:	1996-08-05 to 1996-09-27