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Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP); Application transport mechanism; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification

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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00   Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocol and Switching (SPS).

The present document is part 2 of a multi-part EN covering Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP); Application transport mechanism, as identified below:

  Part 1:   "Protocol Specification";

  Part 2:   "Protocol Implementation Conformance Statement (PICS) proforma specification";

  Part 3:   "Test Suite Structure and Test Purposes (TSS&TP) specification";

  Part 4:   "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) specification".

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1   Scope

The present document contains the validation (conformance) test specification for the Application Transport Mechanism defined in EN 301 069-1 [1]. The present document applies only to exchanges having implemented the ISUP v3 protocol specification for the Application Transport Mechanism of the exchange. It is applicable for validation testing of all types of exchanges as defined in the ISUP v3 protocol specification. It does not deal with compatibility testing.

The main body of the present document presents the Protocol Implementation Conformance Statements (PICS) for the Application Transport Mechanism defined in compliance with the relevant requirements and in accordance with the guidance given in ISO/IEC 9646-7 [4]. EN 301 069-3 [8] provides the Test Suite Structure and Test Purposes (TSS&TP) for the Application Transport Mechanism (APM).

This statement indicates which capabilities and options of a telecommunication specification have been implemented. It is necessary for evaluating the conformance of a particular implementation.

The supplier of an implementation that is claimed to comply with the reference specification for the Signalling System No.7, Application Transport Mechanism EN 301 069-1 [1], is required to complete a copy of the PICS proforma.

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 301 069-1 (V1.2.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP); Application transport mechanism; Part 1: Protocol specification [ITU-T Recommendation Q.765, modified]".

[2]   ISO/IEC 9646-1 (1997): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General Concepts".

[3]   ISO/IEC 9646-3 (1997): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".

[4]   ISO/IEC 9646-7 (1997): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[5]   ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[6]   ITU-T Recommendation Q.762: "Signalling System No. 7 – ISDN user part general functions of messages and signals".

[7]   ETSI EN 300 356-31: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 31: Protocol Implementation Conformance Statement (PICS) proforma specification for basic services".

[8]   ETSI EN 301 069-3: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP); Application transport mechanism; Part 3: Test Suite Structure and Test Purposes (TSS&TP) specification".

[9]   ETSI EN 301 070-2: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 interactions with the Intelligent Network Application Part (INAP); Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

[10]   ITU-T Recommendation Q.761: "Signalling System No. 7 – ISDN User Part functional description".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the ATS specification, the following terms and definitions apply:

-    terms defined in ISDN User Part (ISUP) reference specification [1];

-    terms defined in ISO/IEC 9646-1 [2], ISO/IEC 9646-3 [3] and in ISO/IEC 9646-7 [4].

For the purposes of the present document, the following terms and definitions apply:

Abstract Test Case (ATC): complete and independent specification of the actions required to achieve a specific test purpose, defined at the level of abstraction of a particular Abstract Test Method, starting in a stable testing state and ending in a stable testing state (see ISO/IEC 9646-1 [2], subclause 3.3.3).

Abstract Test Method (ATM): description of how an IUT is to be tested, given at an appropriate level of abstraction to make the description independent of any particular realization of a Means of Testing, but with enough detail to enable abstract test cases to be specified for this method (see ISO/IEC 9646-1 [2], subclause 3.3.5).

Implementation Under Test (IUT): implementation of one or more OSI protocols in an adjacent user/provider relationship, being part of a real open system which is to be studied by testing (see ISO/IEC 9646-1 [2], subclause 3.3.43).

ISDN number: number conforming to the numbering and structure specified in ITU-T Recommendation E.164 [5].

Means of Testing (MOT): combination of equipment and procedures that can perform the derivation, selection, parameterization and execution of test cases, in conformance with a reference standardized ATS, and can produce a conformance log (see ISO/IEC 9646-1 [2], subclause 3.3.54).

point of control and observation: point within a testing environment where the occurrence of test events is to be controlled and observed, as defined in an Abstract Test Method (see ISO/IEC 9646-1 [2], subclause 3.3.64).

pre-test condition: setting or state in the IUT which cannot be achieved by providing stimulus from the test environment.

Protocol Implementation Conformance Statement (PICS): statement made by the supplier of a protocol claimed to conform to a given specification, stating which capabilities have been implemented (see ISO/IEC 9646-1 [2], subclause 3.3.39 and subclause 3.3.80).

Protocol Implementation eXtra Information for Testing (PIXIT): statement made by a supplier or implementor of an IUT (protocol) which contains or references all of the information related to the IUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the IUT (see ISO/IEC 9646-1 [2], subclause 3.3.41 and subclause 3.3.81).

System Under Test (SUT): real open system in which the IUT resides (see ISO/IEC 9646-1 [2], subclause 3.3.103).

3.2   Abbreviations

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

APM	Application Transport Mechanism
ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
ICS	Implementation Conformance Statement
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
IUT	Implementation Under Test
MOT	Means Of Testing
MTP	Message Transfer Part
PAN	Public Addressed Node
PICS	Protocol Implementation Conformance Statement
PIN	Public Initiated Node
PIXIT	Protocol Implementation eXtra Information for Testing
SP	Signalling Point
SUT	System Under Test
TE_P	Transit Exchange PIN/PAN
TP	Test Purpose (context dependent)
TSS	Test Suite Structure
TTCN	Tree and Tabular Combined Notation
UT	Upper Tester

The ISUP message acronyms can be found in table 2 of ITU-T Recommendation Q.762 [6].

The APM primitives acronyms can be found in the different tables of EN 301 069-1 [1].

The following abbreviations apply for ISUP parameters and parameter values:

ACI	Application Context Identifier
APP	Application Transport Parameter
ATII	Application Transport Instruction Indicator
PRI	Pre-Release
SLR	Segmentation Local Reference

4   Conformance to the PICS proforma specification

A PICS proforma that conforms to this PICS proforma specification shall be technically equivalent to the present document, and shall preserve the numbering and ordering of the items in the present document.

A PICS that conforms to this PICS proforma specification shall:

a)   describe an implementation which is claimed to conform to ISDN User part (ISUP) v3 reference specification EN 301 069-1 [1];

b)   be a conforming PICS proforma which has been completed in accordance with the instructions for completion given in clause A.1;

c)   include the information necessary to uniquely identify both the supplier and the implementation.

Annex A (normative):
PICS proforma

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 PICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed PICS.

A.1   Instructions for completing the PICS proforma

The supplier of the implementation shall complete the PICS proforma in each of the spaces provided. If necessary, the supplier may provide additional comments separately.

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

A.1.1   Purposes and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in ISDN User Part (ISUP) '97 reference specification EN 301 069-1 may provide information about the implementation in a standardized manner.

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

- instructions for completing the PICS proforma;

- identification of the implementation;

- identification of the reference protocol specification;

- PICS proforma tables (containing the global statement of conformance).

A.1.2   Abbreviations and conventions

The PICS proforma contained in this annex is composed of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7.

Item column

It contains a number that identifies the item in the table.

Item description column

It describes each respective item (e.g. parameters, timers, etc.).

Reference column

It gives reference to the ISUP v3 specification for the supplementary services EN 301 069-1, except where explicitly stated otherwise.

Status column

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

- m: mandatory: the capability is required to be supported.

- n/a: not applicable: in the given context, it is impossible to use the capability. No answer in the support column is required.

- o: optional: the capability may be supported or not.

- 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 logic of their selection which is defined immediately following the table.

- ci: conditional: the requirement on the capability ("m", "o" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression that is defined immediately following the table. For nested conditional expressions, the syntax "IF... THEN (IF... THEN... ELSE...) ELSE..." shall be used to avoid ambiguities. If an ELSE clause is omitted, "ELSE n/a" shall be implied.

NOTE: Support of a capability means that the capability is implemented in conformance to the ISUP v3 specification EN 301 069-1.

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, are used for the support column:

Y or y   supported by the implementation.

N or n   not supported by the implementation.

N/A or -   no answer required (allowed only if the status is N/A, directly or after evaluation of a conditional status).

Values allowed column

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

Values supported column

The support 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.

References to items

For each possible item answer (answer in the support column) within the PICS proforma a unique reference exists. It is defined as the table identifier, followed by a slash 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 1:   A.5/4 is the reference to the answer of item 4 in table A.5 of EN 301 070-2.

Example 2:   A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table A.6 of EN 301 070-2.

A.2   Identification of the implementation

Identification of the Implementation Under Test (IUT) and the system in which it resides - the System Under Test (SUT) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the ICS should be named as the contact person.

A.2.1   Date of the statement

Date of the statement:	

A.2.2 Implementation under test (IUT) identification

IUT name:	
IUT version:	

A.2.3 System under test (SUT) identification

SUT name:	
Hardware configuration:	
Operating system:	

A.2.4 Product supplier

Name:	
Address:	
Telephone number:	
Facsimile number:	
Additional information:	

A.2.5 Client

Name:	
Address:	
Telephone number:	
Facsimile number:	
Additional information:	

A.2.6 ICS contact person

Name:	
Telephone number:	
Facsimile number:	
Additional information:	

A.3 Identification of the reference specification

This PICS proforma applies to the following standard: EN 301 069-1.

Note that as prerequisite it is necessary to support the basic services described in EN 300 356-31. A separate PICS proforma has been specified for ISUP basic services EN 300 356-31.

A.4 PICS proforma tables

A.4.1 Global statement of conformance

	(Yes/No)
Are all mandatory capabilities implemented?	

NOTE: Answering "No" to this question indicates non-conformance to the reference protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming.

A.4.2 Roles

Table A.1: Roles

Item	Is the implementation an...	Reference	Status	Support
1	Local - Local exchange PIN or PAN	6.1/EN 301 069-1	o.1	
2	TE_P - National transit exchange PIN or PAN	6.1/EN 301 069-1	o.1	
3	Transit - National transit exchange	ITU-T Recommendation Q.761	o.1	

o.1:   It is mandatory to support at least one of these items.

A.4.3 Capabilities

Table A.2: APM Major Capabilities

Item	Is the exchange able to...	Reference	Status	Support
1	carry data in the first message (Initial Address Message (IAM)) during the establishment phase? (no segmentation necessary)	7.2.1/ EN 301 069-1		
2	acknowledge the receipt of an IAM with an Address Complete Message (ACM) as the first backward message.	7.2.3.3.1/ EN 301 069-1		
3	transport the data in the initial segment if the segmentation procedure applies. (This means the size is not of zero length)	10.2.4.1/ EN 301 069-1		
4	re-assemble the message of the first segment if there are more than zero octets of Encapsulated Application Information.	10.2.4.2/ EN 301 069-1		
5	send an early Address Complete Message?			

Table A.3: APM TIMERS

Item	Use of...	Reference	Status	Support	Values in seconds	
					allowed	supported
1	T - reass	Table 30 / EN 301 069-1	m		10-18	

Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

ITU-T Recommendation Q.763 (1997): "Signalling System No. 7 - ISDN user part formats and codes".

ITU-T Recommendation Q.764 (1997): "Signalling System No. 7 - ISDN user part signalling procedures".

ISO/IEC 9646-2 (1997): "Information technology - Open Systems Interconnection -Conformance testing methodology and framework - Part 2: Abstract Test Suite Specification".

ISO/IEC 9646-5 (1997): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process".

ITU-T Recommendation Q.784.1 (1997): "ISUP basic call test specification: Validation and compatibility for ISUP'92 and Q.767 protocols".

History

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