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8 [[]HJbc`ca fYy`Y`n`]bhY[f]fUb]a]`gkcf]hj Ua]`fG8 Bk!`G][bU]nUWY`U`yh`+`!
A YXgYVc`bc`j`d`]j Ub`Y`fYhY`fUn`]]WY`G8 B!i dcfUVb]y`Y[UXYU]b`Ud`]_UWYg`Y[U
XYU]bhY`][YbhbY[Uca fYy`U!(`"XY. `5 VgUfU`fb]dfYg_i`yUb]`b]n`f5 HGL`]b`XYbU
XcXUtbU]bZ`fa UWY`UnUdfYg_i`yUb`Y`nj YXVY`dfcfc`c`U`fD`L`+`K!`DfcZ`fa U
gdYWZ`_UWY`U

Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 3 interactions with the Intelligent Network Application Part (INAP); Part 4: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification

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Signalling System No.7 (SS7);
ISDN User Part (ISUP) version 3 interactions
with the Intelligent Network Application Part (INAP);
Part 4: Abstract Test Suite (ATS) and partial Protocol
Implementation eXtra Information for Testing (PIXIT)
proforma specification**

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

The present document is part 4 of a multi-part EN covering the application of Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 interactions with the Intelligent Network Application Part (INAP), as identified below:

- Part 1: "Protocol specification [ITU-T Recommendation Q.1600 (1997), modified]";
- 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) proforma specification"**.

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National transposition dates

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| Date of adoption of this EN: | 27 October 2000 |
| Date of latest announcement of this EN (doa): | 31 January 2001 |
| Date of latest publication of new National Standard or endorsement of this EN (dop/e): | 31 July 2001 |
| Date of withdrawal of any conflicting National Standard (dow): | 31 July 2001 |

1 Scope

The present document contains the validation (conformance) test specification for the interaction between ISUP v3 and INAP CS1 defined in [1]. This Recommendation applies only to exchanges having implemented the ISUP v3 protocol specification in the call control function (CCF) and the INAP CS1 in the service switching function (SSF) of the exchange. It is applicable for validation testing of all types of exchanges as defined in the ISUP v3 protocol specification. The present document does not deal with compatibility testing.

The present document presents the PIXIT, PCTR the ATS and the requirements regarding the chosen test method.

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.

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51670-1/iec/sist-301-070-4-v1.1.2-2004
- [1] ETSI EN 301 070-1 (V1.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 interactions with the Intelligent Network Application Part (INAP); Part 1: Protocol specification [ITU-T Recommendation Q.1600 (1997), modified]".
 - [2] ETSI EN 300 356-1 (V3.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1997), modified]".
 - [3] ITU-T Recommendation Q.762: "Specifications of Signalling System No. 7 - ISDN user part".
 - [4] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection -Conformance testing methodology and framework - Part 1: General concepts".
 - [5] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection -Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".
 - [6] ISO/IEC 9646-3: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".
 - [7] ISO/IEC 9646-5: "Information technology - Open Systems Interconnection -Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process".
 - [8] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection -Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
 - [9] ETSI ETS 300 374-1 (1994): "Intelligent Network (IN); Intelligent Network Capability Set 1 (CS1); Core Intelligent Network Application Protocol (INAP); Part 1: Protocol specification".
 - [10] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".
 - [11] ETSI EN 301 067-3: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; Negotiation during call/connection establishment phase; Part 3: Test Suite Structure and Test Purposes (TSS&TP) specification for the user".

- [12] ISO/IEC 9646-4: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 4: Test realization".

3 Definitions and abbreviations

3.1 Definitions

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

- terms defined in ISDN User Part (ISUP) reference specification [1] to [2];
- terms defined in ISO/IEC 9646-1 [4], ISO/IEC 9646-3 [6] and in ISO/IEC 9646-7 [8].

In particular, the following terms 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 [4], 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 [4], subclause 3.3.5).

Abstract Test Suite (ATS): test suite composed of abstract test cases (see [4], subclause 3.3.6).

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 [4], subclause 3.3.43).

ISDN number: number conforming to the numbering and structure specified in ITU-T Recommendation E.164 [10].

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 [4], subclause 3.3.54).

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

PIXIT proforma: document, in the form of a questionnaire, which when completed for the IUT becomes the PIXIT.

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 [4], 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 [4], 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 [4], subclause 3.3.41 and subclause 3.3.81).

System Under Test (SUT): real open system in which the IUT resides (see [4], subclause 3.3.103).

3.2 Abbreviations

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

| | |
|--------|---|
| ASE | Application Service Entity |
| ASP | Abstract Service Primitive |
| ASSP | Assisting Signalling Switching Point |
| ATM | Abstract Test Method |
| ATS | Abstract Test Suite |
| CCBS | Completion of Calls to Busy Subscriber |
| CCF | Call Control Function |
| CD | Call Deflection |
| CDIV | Call DIVersion |
| CLIP | Calling Line Identification Presentation |
| CLIR | Calling Line Identification Restriction |
| COLP | Connected Line Identification Presentation |
| COLR | Connected Line Identification Restriction |
| CS1 | capability set 1 |
| DLE | Destination Local Exchange |
| ECT | Explicit Call Transfer |
| ICS | Implementation Conformance Statement |
| INAP | Intelligent Network Application Protocol |
| ISDN | Integrated Services Digital Network |
| ISUP | ISDN User Part |
| ISSP | Initiating Signalling Switching Point |
| IUT | Implementation Under Test |
| OLE | Originating Local Exchange |
| LT | Lower Tester |
| MCID | Malicious Call Identification |
| MOT | Means Of Testing |
| MTC | Main Test Component |
| MTP | Message Transfer Part |
| PCO | Point of Control and Observation |
| PICS | Protocol Implementation Conformance Statement |
| PIXIT | Protocol Implementation eXtra Information for Testing |
| PTC | Parallel Test Component |
| P&C | Prompt and Collect User Information Operation |
| SCCP | Signalling Connection Control Part |
| SSF | Service Switching Function |
| SP | Signalling Point |
| SUT | System Under Test |
| TP | Test Purpose (context dependent) |
| TCP | Test Co-ordination Procedures |
| TSS | Test Suite Structure |
| TSS&TP | Test Suite Structure and Test Purposes |
| TTCN | Tree and Tabular Combined Notation |

The ISUP message acronyms can be found in table 2 of ITU-T Recommendation Q.762 [3].

The following abbreviations apply for ISUP parameters and parameter values.

| | |
|---------|---------------------------------|
| AdSg | Address Signals |
| CgPN | Calling Party Number |
| GenNot | Generic Notification |
| TMR | Transmission Medium Requirement |
| USIUser | Service Indicator |

4 Abstract Test Method (ATM)

The remote test method is applied for the user ATS. The Point of Control and Observation (PCO) resides at the service access point between layers 2 and 3. This PCO is named "L0" (for Lower). The L0 PCO is used to control and observe the behaviour of the Implementation Under Test (IUT) and test case verdicts are assigned depending on the behaviour observed at this PCO.

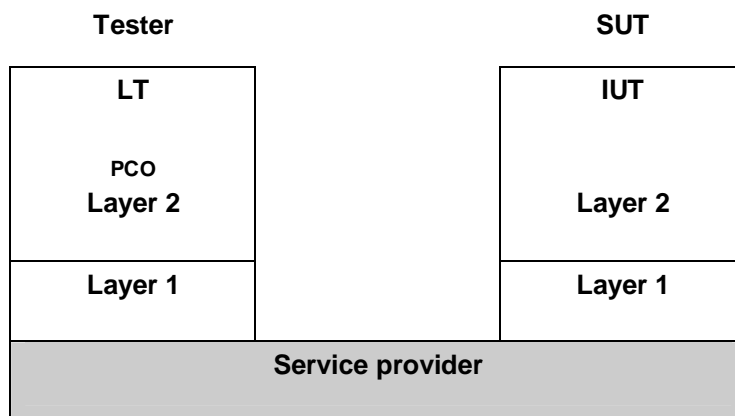


Figure 1: Remote test method

ISO/IEC 9646-2 [5] allows the informal expression of Test Co-ordination Procedures (TCP) between the System Under Test (SUT) upper layer(s) and the Lower Tester (LT). In the ATS contained in annex C, TCP is achieved by use of a second "informal" PCO, called "O" (for Operator). This PCO is used to specify control but not observation above the IUT and consequently, events at this PCO are never used to generate test case verdicts. The use of this O PCO is regarded as a preferred alternative to the use of the implicit send event, in that it allows the ATS to specify in a clear and meaningful way what actions are required to be performed on the IUT.

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5 Untestable test purposes

There are no untestable test purposes associated with this ATS.

6 ATS to TP map

The identifiers used for the TPs (see EN 301 067-3 [11]) are reused as test case names. Thus there is a straightforward one-to-one mapping.

7 PCTR conformance

A test laboratory, when requested by a client to produce a PCTR, is required, as specified in ISO/IEC 9646-5 [7], to produce a PCTR conformant with the PCTR template given in annex B of ISO/IEC 9646-5 [7].

Furthermore, a test laboratory, offering testing for the ATS specification contained in annex C, when requested by a client to produce a PCTR, is required to produce a PCTR conformant with the PCTR proforma contained in annex A of the present document.

A PCTR which conforms to this PCTR proforma specification shall preserve the content and ordering of the clauses contained in annex A. Clause A.6 of the PCTR may contain additional columns. If included, these shall be placed to the right of the existing columns. Text in italics may be retained by the test laboratory.