



SLOVENSKI STANDARD

SIST EN 300 771-6 V1.1.2:2005

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Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; B-ISDN user-network interface layer 3 specification for point-to-multipoint call/bearer control; Part 6: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network

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European Standard (Telecommunications series)

**Broadband Integrated Services Digital Network (B-ISDN);
Digital Subscriber Signalling System No. two (DSS2) protocol;
B-ISDN user-network interface layer 3
specification for point-to-multipoint call/bearer control;
Part 6: Abstract Test Suite (ATS) and partial Protocol
Implementation eXtra Information for Testing (PIXIT)
proforma specification for the network**

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ETSI

Postal address

F-06921 Sophia Antipolis Cedex - FRANCE

Office address

650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE

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

Siret N° 348 623 562 00017 - NAF 742 C

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Internet

secretariat@etsi.fr

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Foreword

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

The present document is part 6 of a multi-part EN covering the Digital Subscriber Signalling System No. two (DSS2) protocol specification for the Broadband Integrated Services Digital Network (B-ISDN) signalling user-network layer 3 specification for point-to-multipoint call/bearer control, as described below:

- Part 1: "Protocol specification [ITU-T Recommendation Q.2971 (1995), modified]";
- Part 2: "Protocol Implementation Conformance Statement (PICS) specification proforma specification";
- Part 3: "Test Suite Structure and Test Purposes (TSS&TP) for the user";
- Part 4: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the user";
- Part 5: "Test Suite Structure and Test Purposes (TSS&TP) specification for the network";
- Part 6: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network".**

National transposition dates

Date of adoption of this EN:	5 June 1998
Date of latest announcement of this EN (doa):	30 September 1998
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 1999
Date of withdrawal of any conflicting National Standard (dow):	31 March 1999

1 Scope

This sixth part of EN 300 771 specifies the network Abstract Test Suite (ATS) for the T_B reference point or coincident S_B and T_B reference point (as defined in ITU-T Recommendation I.413 [8]) of implementations conforming to the standards for the signalling user-network layer 3 specification for point-to-multipoint call/bearer control of the Digital Subscriber Signalling System No. two (DSS2) protocol for the pan-European Broadband Integrated Services Digital Network (B-ISDN), ETS 300 771-1 [1].

A further part of this EN specifies the Test Suite Structure and Test Purposes (TSS&TP) related to this ATS and partial PIXIT proforma. Other parts specify the TSS&TP and the ATS and partial PIXIT proforma for the user side of the T_B reference point or coincident S_B and T_B reference point of implementations conforming to ETS 300 771-1 [1].

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.

- IT'S STANDARD PREVIEW
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- [1] ETS 300 771-1: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; B-ISDN user-network interface layer 3 specification for point-to-multipoint call/bearer control; Part 1: Protocol specification [ITU-T Recommendation Q.2971 (1995), modified]"; <http://standards.iteh.ai/catalog/standards/sist/e4adb9b2-9ca6-410b-bb03-9fd45416cf79/sist-en-300-771-6-v1-1-2-2005>
- [2] ETS 300 771-2: "Broadband Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; B-ISDN user-network interface layer 3 specification for point-to-multipoint call/bearer control; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".
- [3] ISO/IEC 9646-1: "Information technology - Open System Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [4] ISO/IEC 9646-2: "Information technology - Open System Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification".
- [5] ISO/IEC 9646-3: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 3: The Tree and Tabular Combined Notation".
- [6] ISO/IEC 9646-4: "Information technology - Open System Interconnection - Conformance testing methodology and framework - Part 4: Test realization".
- [7] ISO/IEC 9646-5: "Information technology - Open System Interconnection Conformance testing methodology and framework, Part 5: Requirements on test laboratories and clients for the conformance assessment process".
- [8] ITU-T Recommendation I.413 (1993): "B-ISDN user-network interface".
- [9] EN 300 443-2: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; B-ISDN user-network interface layer 3 specification for basic call/bearer control; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

3 Definitions and abbreviations

3.1 Definitions

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

Implementation Under Test (IUT): see ISO/IEC 9646-1 [3].

System Under Test (SUT): see ISO/IEC 9646-1 [3].

Abstract Test Suite (ATS): see ISO/IEC 9646-1 [3].

Protocol Implementation Conformance Statement (PICS): see ISO/IEC 9646-1 [3].

PICS proforma: see ISO/IEC 9646-1 [3].

Protocol Implementation Extra Information For Testing (PIXIT): see ISO/IEC 9646-1 [3].

PIXIT proforma: see ISO/IEC 9646-1 [3].

Lower Tester (LT): see ISO/IEC 9646-1 [3].

Upper Tester (UT): see ISO/IEC 9646-1 [3].

Point Of Control And Observation (PCO): see ISO/IEC 9646-1 [3].

3.2 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
B-ISDN	Broadband Integrated Services Digital Network
CM	Coordination Message
CP	Coordination Point
DSS2	Digital Subscriber Signalling System No. two
ExTS	Executable Test Suite
IUT	Implementation Under Test
LT	Lower Tester
MOT	Means Of Testing
MTC	Main Test Component
PCO	Point of Control and Observation
PCTR	Protocol Conformance Test Report
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PTC	Parallel Test Component
SUT	System Under Test
TCP	Test Co-ordination Procedures
TP	Test Purpose
TTCN	Tree and Tabular Combined Notation
UT	Upper Tester
TP	Test Purpose
TSS	Test Suite Structure

4 Abstract Test Method (ATM)

4.1 Description of ATM used

The requirement for testing the network IUT is to focus on the behaviour of the network IUT at the user-network interface where a T_B reference point or coincident S_B and T_B reference point applies. Thus the IUT is the network DSS2 protocol entity at a particular user-network interface and is not the whole network.

It is possible to specify an ATS based on a Single party (remote) test method for such an IUT. However, it is considered that an ATS based on such an approach is of limited use as the only way to specify IUT generated PDUs is to use the "implicit send" statement. Many users of such an ATS would replace the "implicit send" statements with descriptions of the behaviour at other interfaces.

An ATS based on a multi-party test method is considered to be more useful in that it is closer to how a real test suite would be constructed. Such a test method specifies behaviour at multiple network interfaces. One very important limitation here is that tests are focused on one particular interface. Thus the test system is made up one Main Test Component (MTC) and one or more Parallel Test Components (PTC), see figure 1.

4.2 Conventions for test components and PCOs

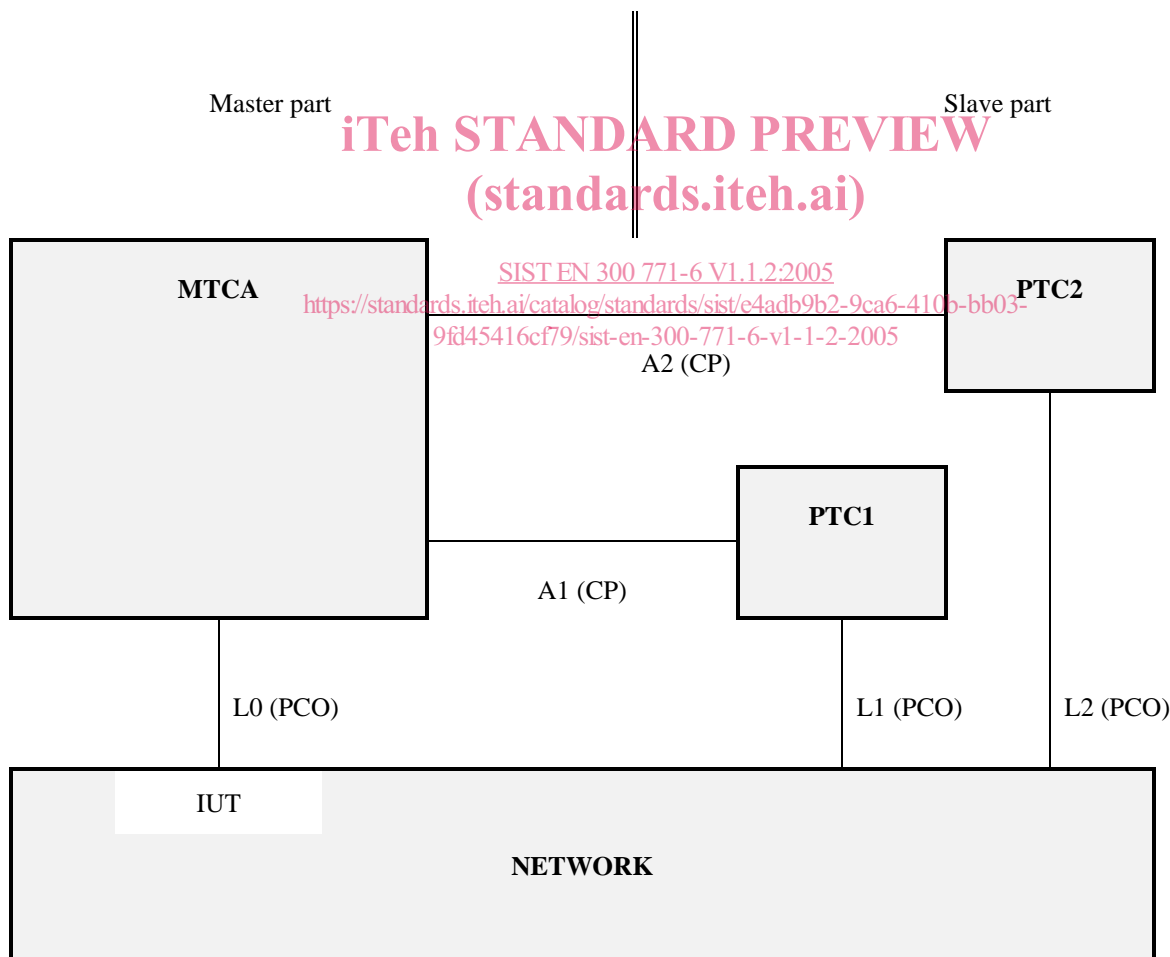


Figure 1: Multi-party test method

In a master/slave arrangement, the MTC is considered to be the master while the PTCs are the slaves. The "slave" testers are only an explicit description of how to deal with the remote interfaces during the testing process, i.e. "how to make the IUT send the required message".

This means, in particular, that the verdict will only be assigned from the protocol aspects observed on the interface under test (i.e. by the "master" tester), as it would be observed by a terminal connected to this interface. A failure in the correlation between the protocol at the different interfaces to which the different testers are connected, i.e. in the mechanism of the functional service itself, will not cause a FAIL verdict. For instance, if the IUT fails to send a message on the tested interface after another interface has received the proper stimulus, the verdict will be INCONCLUSIVE.

The MTC MTCA has two functions in this configuration. Firstly, it has the MTC function of controlling the one or more PTCs. Thus it is responsible for starting the PTCs and afterwards coordinates activities by exchanging Coordination Messages (CM) with the PTCs. Secondly it is responsible for the behaviour of the Lower Tester (LT) at PCO L0.

A combination of the remote and multi-party test methods is applied. As can be seen from figure 1, several Point of Control and Observations (PCOs) are used. All PCOs reside at the service access points between layers 2 and 3.

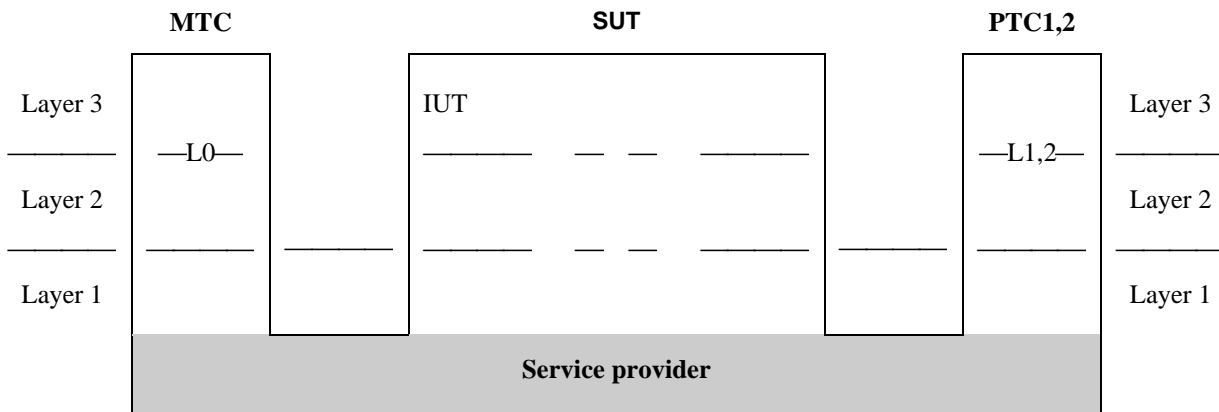


Figure 2: Combination of the remote and multi-party test methods

The MTC PCO is named "L0" ("L" for Lower). The L0 PCO is used to control and observe the behaviour of the IUT and test case verdicts are assigned depending on the behaviour observed at this PCO. The PTCs PTC1, PTC2 etc. use PCOs L1, L2 etc. These PCOs are used to control and, in a limited way, observe the behaviour of the network equipment at interfaces other than the one under test. No verdicts are assigned at these PCOs.

As stated in a previous paragraph, the non-receipt of network generated messages at L0, which are stimulated by events at the L1, L2 etc., will result in INCONCLUSIVE rather than FAIL verdicts being assigned.

PTC2 is only activated in that test cases that test the procedures at the access between a root user and the IUT, when more than one party is involved in the call between the root user and the IUT. In test cases which verify that the IUT rejects invalid or unacceptable SETUP messages, no PTC is activated at all, as these rejection procedures are considered local to the access between IUT and MTC.

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 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 Protocol Conformance Test Report (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.

8 PIXIT conformance

A test realizer, producing an executable test suite for the Abstract Test Suite (ATS) specification contained in annex C, is required, as specified in ISO/IEC 9646-4 [6], to produce an augmented partial PIXIT proforma conformant with this partial PIXIT proforma specification.

An augmented partial PIXIT proforma which conforms to this partial PIXIT proforma specification shall, as a minimum, have contents which are technically equivalent to annex B. The augmented partial PIXIT proforma may contain additional questions that need to be answered in order to prepare the Means Of Testing (MOT) for a particular IUT.

A test laboratory, offering testing for the ATS specification contained in annex C, is required, as specified in ISO/IEC 9646-5 [7], to further augment the augmented partial PIXIT proforma to produce a PIXIT proforma conformant with this partial PIXIT proforma specification.

A PIXIT proforma which conforms to this partial PIXIT proforma specification shall, as a minimum, have contents which are technically equivalent to annex B. The PIXIT proforma may contain additional questions that need to be answered in order to prepare the test laboratory for a particular IUT.

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9 ATS conformance (standards.iteh.ai)

The test realizer, producing a MOT and Executable Test Suite (ExTS) for this ATS specification, shall comply with the requirements of ISO/IEC 9646-4. In particular, these concern the realization of an ExTS based on each ATS. The test realizer shall provide a statement of conformance of the MOT to this ATS specification.

An ExTS which conforms to this ATS specification shall contain test groups and test cases which are technically equivalent to those contained in the ATS in annex C. All sequences of test events comprising an abstract test case shall be capable of being realized in the executable test case. Any further checking which the test system might be capable of performing is outside the scope of this ATS specification and shall not contribute to the verdict assignment for each test case.

Test laboratories running conformance test services using this ATS shall comply with ISO/IEC 9646-5 [7].

A test laboratory which claims to conform to this ATS specification shall use an MOT which conforms to this ATS.