



SLOVENSKI STANDARD

SIST ETS 300 403-5:1999

01-januar-1999

Digitalno omrežje z integriranimi storitvami (ISDN) - Protokol digitalne naročniške signalizacije št. 1 (DSS1) - Signalizacijska omrežna plast za krmiljenje vodovnega osnovnega klica - 5. del: Abstraktni preskušalni niz (ATS) in delna dodatna informacija za preskušanje izvedbe protokola (PIXIT) - Proforma specifikacije za uporabnika

Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 5: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the user

<https://standards.iteh.ai/catalog/standards/sist/a0d079f4-8fb9-43f2-9b52-474f2301e055/sist-ets-300-403-5-1999>

Ta slovenski standard je istoveten z: ETS 300 403-5 Edition 1

ICS:

| | | |
|-----------|---|--|
| 33.080 | Digitalno omrežje z integriranimi storitvami (ISDN) | Integrated Services Digital Network (ISDN) |
| 35.100.30 | Omrežni sloj | Network layer |

SIST ETS 300 403-5:1999 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 403-5:1999](#)

<https://standards.iteh.ai/catalog/standards/sist/a0d079f4-8fb9-43f2-9b52-474f2301e055/sist-ets-300-403-5-1999>



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 403-5

September 1997

Source: SPS

Reference: DE/SPS-05092

ICS: 33.020

Key words: ISDN, DSS1, layer 3, testing, ATS, PIXIT, user

**Integrated Services Digital Network (ISDN);
Digital Subscriber Signalling System No. one (DSS1) protocol;
Signalling network layer for circuit-mode basic call control;
Part 5: Abstract Test Suite (ATS) and partial Protocol
Implementation eXtra Information for Testing (PIXIT) proforma
specification for the user**

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE

Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

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

Copyright Notification: No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1997. All rights reserved.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ETS 300 403-5:1999](https://standards.iteh.ai/catalog/standards/sist/a0d079f4-8fb9-43f2-9b52-474f2301e055/sist-ets-300-403-5-1999)

<https://standards.iteh.ai/catalog/standards/sist/a0d079f4-8fb9-43f2-9b52-474f2301e055/sist-ets-300-403-5-1999>

Contents

| | |
|---|----|
| Foreword | 5 |
| 1 Scope | 7 |
| 2 Normative references | 7 |
| 3 Definitions and abbreviations | 8 |
| 3.1 Definitions | 8 |
| 3.2 Abbreviations | 8 |
| 4 Abstract Test Method (ATM) | 9 |
| 5 Untestable test purposes | 9 |
| 6 ATS conventions | 9 |
| 6.1 Declarations part | 9 |
| 6.1.1 Type definitions | 9 |
| 6.1.1.1 Simple type definitions | 9 |
| 6.1.1.2 Structured type definitions | 9 |
| 6.1.1.2.1 TTCN structured type definitions | 9 |
| 6.1.1.2.2 ASN.1 structured type definitions | 10 |
| 6.1.1.3 ASP type definitions | 10 |
| 6.1.1.3.1 TTCN ASP type definitions | 10 |
| 6.1.1.3.2 ASN.1 ASP type definitions | 10 |
| 6.1.1.4 PDU type definitions | 10 |
| 6.1.1.4.1 TTCN PDU type definitions | 10 |
| 6.1.1.4.2 ASN.1 PDU type definitions | 11 |
| 6.1.2 Test suite constants | 11 |
| 6.1.3 Test suite parameters | 11 |
| 6.1.4 Variables | 11 |
| 6.1.4.1 Test suite variables | 11 |
| 6.1.4.2 Test case variables | 11 |
| 6.1.5 Test suite operation definitions | 11 |
| 6.2 Constraints part | 12 |
| 6.2.1 Structured type constraint declaration | 12 |
| 6.2.2 ASN.1 type constraint declaration | 12 |
| 6.2.3 ASP type constraint declaration | 12 |
| 6.2.3.1 ASN.1 ASP type constraint declaration | 12 |
| 6.2.3.2 TTCN ASP type constraint declaration | 12 |
| 6.2.4 PDU type constraint declaration | 12 |
| 6.2.4.1 ASN.1 PDU type constraint declaration | 12 |
| 6.2.4.2 TTCN PDU type constraint declaration | 12 |
| 6.2.5 Derived constraints | 12 |
| 6.2.6 Parameterized constraints | 12 |
| 6.2.7 Value assignment | 13 |
| 6.2.7.1 Specific values | 13 |
| 6.2.7.2 Matching values | 13 |
| 6.3 Dynamic part | 13 |
| 6.3.1 Test cases | 13 |
| 6.3.2 Test steps | 13 |
| 6.3.3 Defaults | 13 |
| 7 ATS to TP map | 13 |
| 8 PCTR conformance | 13 |

| | | |
|-------|---|----|
| 9 | PIXIT conformance..... | 14 |
| 10 | ATS conformance..... | 14 |
| | Annex A (normative): Protocol Conformance Test Report (PCTR) proforma | 15 |
| A.1 | Identification summary..... | 15 |
| A.1.1 | Protocol conformance test report..... | 15 |
| A.1.2 | IUT identification..... | 15 |
| A.1.3 | Testing environment..... | 15 |
| A.1.4 | Limits and reservations | 16 |
| A.1.5 | Comments..... | 16 |
| A.2 | IUT conformance status | 16 |
| A.3 | Static conformance summary | 16 |
| A.4 | Dynamic conformance summary | 16 |
| A.5 | Static conformance review report..... | 17 |
| A.6 | Test campaign report..... | 18 |
| A.7 | Observations..... | 38 |
| | Annex B (normative): Partial PIXIT proforma | 39 |
| B.1 | Identification summary..... | 39 |
| B.2 | Abstract test suite summary | 39 |
| B.3 | Test laboratory..... | 39 |
| B.4 | Client (of the test laboratory) | 40 |
| B.5 | System Under Test (SUT) | 40 |
| B.6 | Protocol information..... | 41 |
| B.6.1 | Protocol identification | 41 |
| B.6.2 | Configuration to be tested | 41 |
| B.6.3 | Configuration options | 41 |
| B.6.4 | Test management timers | 42 |
| B.6.5 | Sending of messages by IUT | 42 |
| B.6.6 | Parameter values | 43 |
| | Annex C (normative): Abstract Test Suite (ATS) | 45 |
| C.1 | The TTCN Graphical form (TTCN.GR) | 45 |
| C.2 | The TTCN Machine Processable form (TTCN.MP) | 45 |
| | Annex D (informative): General structure of ATS | 46 |
| | History | 47 |

iTech STANDARD PREVIEW
(standards.itech.ai)

[SIST ETS 300 403-5:1999](https://standards.itech.ai/catalog/standards/sist/a0d079f4-8fb9-43f2-9b52-474f2301e055/sist-ets-300-403-5-1999)

<https://standards.itech.ai/catalog/standards/sist/a0d079f4-8fb9-43f2-9b52-474f2301e055/sist-ets-300-403-5-1999>

Foreword

This European Telecommunication Standard (ETS) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS is part 5 of a multi-part standard covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) signalling network layer for circuit-mode basic call control, as described below:

- Part 1: "Protocol specification [ITU-T Recommendation Q.931 (1993), modified]";
- Part 2: "Specification and Description Language (SDL) diagrams";
- Part 3: "Protocol Implementation Conformance Statement (PICS) proforma specification";
- Part 4: "Test Suite Structure and Test Purposes (TSS&TP) specification for the user";
- Part 5: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the user";**
- Part 6: "TSS&TP specification for the network";
- Part 7: "ATS and partial PIXIT proforma specification for the network".

| Transposition dates | |
|---|------------------|
| Date of adoption: | 5 September 1997 |
| Date of latest announcement of this ETS (doa): | 31 December 1997 |
| Date of latest publication of new National Standard or endorsement of this ETS (dop/e): | 30 June 1998 |
| Date of withdrawal of any conflicting National Standard (dow): | 30 June 1998 |

Blank page

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 403-5:1999](https://standards.iteh.ai/catalog/standards/sist/a0d079f4-8fb9-43f2-9b52-474f2301e055/sist-ets-300-403-5-1999)

<https://standards.iteh.ai/catalog/standards/sist/a0d079f4-8fb9-43f2-9b52-474f2301e055/sist-ets-300-403-5-1999>

1 Scope

This fifth part of ETS 300 403 specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the User side of the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [10]) of implementations conforming to the standards for the signalling network layer for circuit-mode basic call control of the Digital Subscriber Signalling System No. one (DSS1) protocol for the pan-European Integrated Services Digital Network (ISDN), ETS 300 403-1 [1] and ETS 300 403-2 [2].

ETS 300 403-4 [4] specifies the Test Suite Structure and Test Purposes (TSS&TP) related to this ATS and partial PIXIT proforma specification. Other parts specify the TSS&TP and the ATS and partial PIXIT proforma for the Network side of the T reference point or coincident S and T reference point of implementations conforming to ETS 300 403-1 [1] and ETS 300 403-2 [2].

2 Normative references

This ETS incorporates by dated and 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 amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 403-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".
- [2] ETS 300 403-2: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 2: Specification and Description Language (SDL) diagrams".
- [3] ETS 300 403-3: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 3: Protocol Implementation Conformance Statement (PICS) proforma specification".
- [4] ETS 300 403-4: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 4: Test Suite Structure and Test Purposes (TSS&TP) specification for the user".
- [5] ISO/IEC 9646-1: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 1: General Concepts".
- [6] ISO/IEC 9646-2: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 2: Abstract Test Suite Specification".
- [7] ISO/IEC 9646-3: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 3: The Tree and Tabular Combined Notation".
- [8] ISO/IEC 9646-4: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 4: Test realization".
- [9] ISO/IEC 9646-5: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 5: Requirements on test laboratories and clients for the conformance assessment process".
- [10] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the following definitions apply:

Abstract Test Suite (ATS): See ISO/IEC 9646-1 [5].

Implementation Under Test (IUT): See ISO/IEC 9646-1 [5].

Lower Tester (LT): See ISO/IEC 9646-1 [5].

Point of Control and Observation (PCO): See ISO/IEC 9646-1 [5].

Protocol Conformance Test Report (PCTR): See ISO/IEC 9646-1 [5].

Protocol Implementation Conformance Statement (PICS): See ISO/IEC 9646-1 [5].

PICS proforma: See ISO/IEC 9646-1 [5].

Protocol Implementation eXtra Information for Testing (PIXIT): See ISO/IEC 9646-1 [5].

PIXIT proforma: See ISO/IEC 9646-1 [5].

System Under Test (SUT): See ISO/IEC 9646-1 [5].

Upper Tester (UT): See ISO/IEC 9646-1 [5].

3.2 Abbreviations

For the purposes of this ETS, the following abbreviations apply :

| | |
|-------|---|
| ASP | Abstract Service Primitive |
| ATM | Abstract Test Method |
| ATS | Abstract Test Suite |
| BA | Basic Access |
| CES | Connection Endpoint Suffix |
| CM | Co-ordination Message |
| ExTS | Executable Test Suite |
| IUT | Implementation Under Test |
| LT | Lower Tester |
| MOT | Means Of Testing |
| 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 |
| PRA | Primary Rate Access |
| SUT | System Under Test |
| TP | Test Purpose |
| TTCN | Tree and Tabular Combined Notation |
| UT | Upper Tester |

4 Abstract Test Method (ATM)

The Remote test method is applied for the basic call user ATS. The Point of Control and Observation (PCO) resides at the service access point between layers 2 and 3. This PCO is named "L" (for Lower). The L 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.

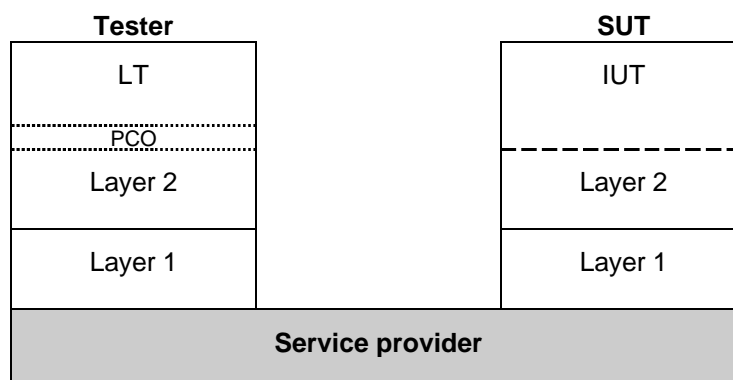


Figure 1: Remote test method

5 Untestable test purposes

In some test purposes, an ESTABLISH-INDICATION is to be received by the IUT. This layer 2 primitive will only be transmitted by the layer 2 of the IUT on receipt of a SABME frame and only if $V(S) \lt V(A)$. This condition can not be reached considering the test method used. So this test purposes are not testable:

L3U_U00_I_012, L3U_U01_I_009, L3U_U02_I_009, L3U_U03_I_009, L3U_U04_I_009,
 L3U_U07_I_010, L3U_U08_I_010, L3U_U09_I_010, L3U_U10I_I_010, L3U_U10O_I_009,
 L3U_U11I_I_009, L3U_U11O_I_008, L3U_U12I_I_010, L3U_U12O_I_009, L3U_U15I_I_010,
 L3U_U15O_I_009, L3U_U17_I_009, L3U_U19I_I_008, L3U_U19O_I_007, L3U_U25_I_010,
 L3U_SEG_I_004.

6 ATS conventions

This clause is structured similarly to the structure of a TTCN ATS. However, the names of the subclauses are arranged in a way more suitable to this ETS.

6.1 Declarations part

6.1.1 Type definitions

6.1.1.1 Simple type definitions

Where appropriate, simple types have a length, a value list or a range restriction attached.

Simple types defined as being of some string type (e.g. BIT STRING, OCTET STRING), have a length restriction or a value list attached.

Simple types, defined as being of INTEGER type, have a value list or a range restriction attached.

6.1.1.2 Structured type definitions

6.1.1.2.1 TTCN structured type definitions

All structured type definitions are provided with a full name.

All elements in every structured type definition, defined as being of some string type (e.g. BIT STRING, OCTET STRING), have a length restriction attached.

If an element in a structured type definition is defined as being of a referenced type, the (possible) restriction is defined in that referenced type.

For information elements the identifier, which is unique for each element, has its type defined as a simple type where the value list is restricted to the single value which is the identifier itself. This has the advantage that it allows a test system derived from this ATS to easily identify information elements embedded in messages. An ATS where information element identifiers are represented as unrestricted types can present difficulties for a derived test system in the case where it needs to find one information element embedded in a number of others and the constraints for the other elements have the any-or-omit value. In such a case the test system cannot easily find the beginning of each information element.

6.1.1.2.2 ASN.1 structured type definitions

There are no ASN.1 structured type definitions in the ATS.

6.1.1.3 ASP type definitions

6.1.1.3.1 TTCN ASP type definitions

TTCN ASP type definitions only contain one PDU or no PDU at all.

All TTCN ASP type definitions are provided with a full identifier.

Some ASPs are not parameterized as shown in the example in table 1. Such ASPs are only used for requesting or receiving service from the lower layer.

Table 1: TTCN ASP type definition DL_REL_IN

| TTCN ASP Type Definition | | |
|---|----------------|----------|
| ASP NAME : DL_REL_IN(DL_RELEASE_INDICATION) | | |
| PCO Type : SAP | | |
| Comments : | | |
| Parameter Name | Parameter Type | Comments |
| Detailed Comments : | | |

<https://standards.iteh.ai/catalog/standards/sist/a0d079f4-8fb9-43f2-9b52-474f2301e055/sist-ets-300-403-5-1999>

Table 2 shows an example of a parameterized ASP. All ASPs containing PDUs contain only that PDU and no other parameters.

Table 2: TTCN ASP type definition DL_DATA_RQ

| TTCN ASP Type Definition | | |
|--|----------------|----------|
| ASP NAME : DL_DATA_RQ(DL_DATA_REQUEST) | | |
| PCO Type : SAP | | |
| Comments : | | |
| Parameter Name | Parameter Type | Comments |
| mun (MessageUnit) | PDU | |
| Detailed Comments : | | |

6.1.1.3.2 ASN.1 ASP type definitions

There are no ASN.1 ASP type definitions in the ATS.

6.1.1.4 PDU type definitions

6.1.1.4.1 TTCN PDU type definitions

The TTCN PDU type reflects the actual data being transferred or received. All PDUs are embedded in ASPs.

If a specific PDU type definition contains elements defined in terms of a pre-defined type, that element has a restriction attached to it.

6.1.1.4.2 ASN.1 PDU type definitions

There are no ASN.1 PDU type definitions in the ATS.

6.1.2 Test suite constants

Each test suite constant is defined in terms of a predefined type or a referenced type. The values given in the value column will remain unchanged throughout the test suite.

6.1.3 Test suite parameters

Each test suite parameter is defined in terms of a predefined type or a referenced type. A referenced type is used when it is necessary to attach restrictions to these type definitions (it is not allowed to include restrictions directly in the test suite parameter table). The referenced type can have a length or value restriction attached to it in its declaration table.

6.1.4 Variables**6.1.4.1 Test suite variables**

No Test Suite Variables are used or defined in this ATS.

6.1.4.2 Test case variables

Each test case variable is defined in terms of a predefined type or a referenced type. A referenced type is used when it is necessary to attach restrictions to these type definitions (it is not allowed to include restrictions directly in the test case variable table). The referenced type can have a length or value restriction attached to it in its declaration table.

Where test case variables are used in constraints, they are passed as formal parameters.

6.1.5 Test suite operation definitions

The description part of a test suite operation definition uses either natural language or meta C.

Table 3: Test suite operation definition ASSIGN_CHI

| Test Suite Operation Definition | |
|--|---|
| Operation Name | : ASSIGN_CHI(basic, primary : CHI; basic_flag : BOOLEAN) |
| Result Type | : CHI |
| Comments | : This operation is used to assign a correct Channel identification information element to PDUs dependent on the type of access that is tested. |
| Description | |
| CHI ASSIGN_CHI(basic,primary,basic_flag) | |
| If the value of the basic_flag is set to TRUE, the result of the operation ASSIGN_CHI will be the value represented by the parameter basic which is of type CHI. Else the operation results in the value represented by the parameter primary. | |
| Examples: ASSIGN_CHI(CHI1b_R1, CHI1p_R1, TRUE) = CHI1b_R1 ASSIGN_CHI(CHI1b_R1, CHI1p_R1, FALSE) = CHI1p_R1 | |
| Detailed comments : | |

The test suite operation definition shown in table 3 is used in the constraints part when assigning an element of type CHI a value. The CHI type can be defined in two ways depending on whether the ATS is testing basic or primary rate access. To avoid duplicate types and thereby duplicate test cases this operation is used to assign a value to an element of CHI type. It takes three parameters:

```
primary:      a constraint of type CHI valid for primary rate access;
basic:        a constraint of type CHI valid for basic access;
basic_flag:   a Boolean value: TRUE if basic access is applicable, FALSE otherwise.
```

This operation returns the correct constraint according to the Boolean flag basic_flag. That constraint will then be assigned to the specific element of type CHI.