
Digitalno omrežje z integriranimi storitvami (ISDN) - Protokol digitalne naročniške signalizacije št. 1 (DSS1) - Podatkovna povezovalna plast - 7. del: Abstraktni preskušalni niz (ATS) in delna dodatna informacija za preskušanje izvedbe protokola (PIXIT) - Proforma specifikacije za generični protokol

Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer; Part 7: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the general protocol

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Part 7: Abstract Test Suite (ATS) and partial Protocol
Implementation eXtra Information for Testing (PIXIT) proforma
specification for the general protocol**

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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 7 of a multi-part standard covering the Integrated Services Digital Network (ISDN) Digital Subscriber Signalling System No. one (DSS1) data link layer specification as described below:

- Part 1: "General aspects [ITU-T Recommendation Q.920 (1993), modified]";
- Part 2: "General protocol specification [ITU-T Recommendation Q.921 (1993), modified]";
- Part 3: "Frame relay protocol specification";
- Part 4: "Protocol Implementation Conformance Statement (PICS) proforma specification for the general protocol";
- Part 5: "PICS proforma specification for the frame relay protocol";
- Part 6: "Test Suite Structure and Test Purposes (TSS&TP) specification for the general protocol";
- Part 7: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the general protocol".**

Transposition dates	
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1 Scope

This seventh part of ETS 300 402 specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the user-network interface data link layer at the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [9]) of implementations conforming to the standard for the general data link layer protocol for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, ETS 300 402-2 [1].

ETS 300 402-6 [3] specifies the Test Suite Structure and Test Purposes (TSS&TP) related to this ATS and partial PIXIT proforma specification.

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 300 402-2: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer; Part 1: General protocol specification [ITU-T Recommendation Q.921 (1993), modified]".
- [2] ETS 300 402-4: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer; Part 4: Protocol Implementation Conformance statement (PICS) proforma specification for the general protocol".
- [3] ETS 300 402-6: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer; Part 6: Test Suite Structure and Test Purposes (TSS&TP) specification for the general protocol".
- [4] ISO/IEC 9646-1: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 1: General Concepts".
- [5] ISO/IEC 9646-2: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 2: Abstract Test Suite Specification".
- [6] ISO/IEC 9646-3: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 3: The Tree and Tabular Combined Notation".
- [7] ISO/IEC 9646-4: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 4: Test realization".
- [8] 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".
- [9] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".
- [10] CCITT Recommendation X.209 (1988): "Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)".

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 [4].

Implementation Under Test (IUT): See ISO/IEC 9646-1 [4].

Lower Tester (LT): See ISO/IEC 9646-1 [4].

Point of Control and Observation (PCO): See ISO/IEC 9646-1 [4].

Protocol Conformance Test Report (PCTR): See ISO/IEC 9646-1 [4].

Protocol Implementation Conformance Statement (PICS): See ISO/IEC 9646-1 [4].

PICS proforma: See ISO/IEC 9646-1 [4].

Protocol Implementation eXtra Information for Testing (PIXIT): See ISO/IEC 9646-1 [4].

PIXIT proforma: See ISO/IEC 9646-1 [4].

System Under Test (SUT): See ISO/IEC 9646-1 [4].

Upper Tester (UT): See ISO/IEC 9646-1 [4].

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
BER	Basic Encoding Rules
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
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 this ATS. The Point of Control and Observation (PCO) resides at the service access point between layers 1 and 2. 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.

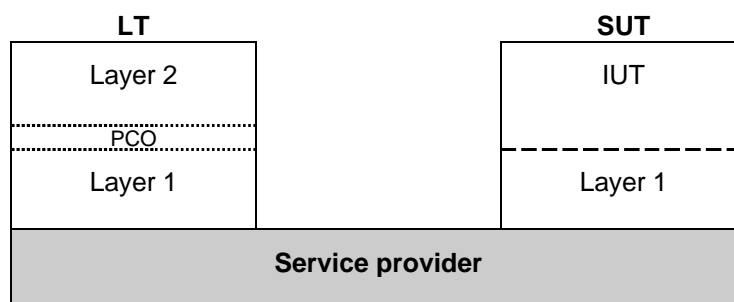


Figure 1: Remote test method

5 Untestable test purposes

There are no untestable test purposes associated with this ATS.

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 (standards.iteh.ai)

6.1.1 Type definitions [SIST ETS 300 402-7:1999](https://standards.iteh.ai/catalog/standards/sist/3c6675a9-0ad6-4d6f-afae-501cc0529c86/sist-ets-300-402-7-1999)

6.1.1.1 Simple type definitions <https://standards.iteh.ai/catalog/standards/sist/3c6675a9-0ad6-4d6f-afae-501cc0529c86/sist-ets-300-402-7-1999>

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.

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 PH_ACT_IN

TTCN ASP Type Definition		
ASP NAME : PH_ACT_IN(PH_Activate_Indication)		
PCO Type : PSAP		
Comments :		
Parameter Name	Parameter Type	Comments
Detailed Comments :		

Table 2 shows an example of a parameterized ASP, PH_DATA_RQ, which is an ASP to be sent and contains a PDU and a Priority Indicator.

Table 2: TTCN ASP type definition PH_DATA_RQ

TTCN ASP Type Definition		
ASP NAME : PH_DATA_RQ(PH_DATA_Request)		
PCO Type : PSAP		
Comments :		
Parameter Name	Parameter Type	Comments
PI (Priority Indicator)	INTEGER	
MU (MessageUnit)	PDU	Data Link Layer peer to peer message
Detailed Comments :		

Table 3 shows an example of a parameterized ASP, PH_DATA_IN, which is an ASP to be received and contains a PDU and no Priority Indicator.

Table 3: TTCN ASP type definition PH_DATA_IN

TTCN ASP Type Definition		
ASP NAME : PH_DATA_IN(PH_DATA_Indication)		
PCO Type : PSAP		
Comments :		
Parameter Name	Parameter Type	Comments
MU (MessageUnit)	PDU	Data Link Layer peer to peer message
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.

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.

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 a procedural definition.

Table 4: Test suite operation definition using natural language

Test Suite Operation Definition	
Operation Name	: RANDOM (low:INTEGER; high:INTEGER)
Result Type	: INTEGER
Comments	:
Description	
The return value represents a random value between "low" and "high" values. This operation is useful to provide the RI value during TEI management.	
Detailed comments	:

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Table 5: Test suite operation definition using a procedural definition

Test Suite Operation Definition	
Operation Name	: CR_CMD (S_R, IUT_TYPE:BOOLEAN)
Result Type	: BITSTRING
Comments	: Calculate the C/R bitstring for a command frame according to the given condition (send or receive, user or network).
Description	
<pre> /* S_R: parameter to indicate if the send is to be sent or received. */ /* S_R = 1 -> send, */ /* S_R = 0 -> receive. */ IF IUT_TYPE THEN /* IUT has the user role */ IF S_R THEN /* frame to be sent */ RETURNVALUE '1'B ELSE /* frame to be received */ RETURNVALUE '0'B ENDIF ELSE /* IUT has the network role */ IF S_R THEN /* frame to be sent */ RETURNVALUE '0'B ELSE /* frame to be received */ RETURNVALUE '1'B ENDIF ENDIF </pre>	
Detailed comments	:

6.2 Constraints part

6.2.1 Structured type constraint declaration

For every structured type definition there exists one or more structured type constraints.

6.2.2 ASN.1 type constraint declaration

There are no ASN.1 type constraint declarations in the ATS.