

SLOVENSKI STANDARD
SIST EN 300 369-6 V1.5.1:2005**01-januar-2005**

8 [[]HJbc`ca fYy`n]bhY[f]fUb]a]g]cf]hj Ua]f]G8 BL`E`Dfclt_c`X[[]HJbY`bUfc b]y_Y
g[[bU]nUWY`yH`%f8 GG`L`E`8 cdc`b]bUg]cf]Hj . bYXj ci a bUdfYXU`U`]WJf07 H`L`E`* "
XY. `5 Vg]fU`Hb]dfYg_i yU]b]b]n`f5 HGL]b`XY`bUXcXU]b]bZ`fa UWY`U`nUdfYg_i yU]b`Y
]nj YXVY`dfclt_c`UfD`L`H`L`E`Dfclt`Z`fa UgdYWZ`UWY`U`nUca fYy`Y

Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Explicit Call Transfer (ECT) supplementary service; Part 6: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network

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33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)
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European Standard (Telecommunications series)

**Integrated Services Digital Network (ISDN);
Digital Subscriber Signalling System No. one (DSS1) protocol;
Explicit Call Transfer (ECT) supplementary service;
Part 6: Abstract Test Suite (ATS) and partial Protocol
Implementation eXtra Information for Testing (PIXIT)
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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 6 of a multi-part deliverable covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) Explicit Call Transfer (ECT) supplementary service, as described 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 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

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Date of latest publication of new National Standard or endorsement of this EN (dop/e):	28 February 2003
Date of withdrawal of any conflicting National Standard (dow):	28 February 2003

1 Scope

The present document specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the Network side of the T reference point or coincident S and T reference point of implementations conforming to the stage three standard for the Explicit Call Transfer (ECT) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, EN 300 369-1 [1].

EN 300 369-5 [3] 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 User side of the T reference point or coincident S and T reference point of implementations conforming to EN 300 369-1 [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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] ETSI EN 300 369-1 (V1.2.4): "Integrated Services Digital Network (ISDN); Explicit Call Transfer (ECT) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [2] ETSI EN 300 369-2 (V1.2.4): "Integrated Services Digital Network (ISDN); Explicit Call Transfer (ECT) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".
- [3] ETSI EN 300 369-5 (V1.3.1): "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Explicit Call Transfer (ECT) supplementary service; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network".
- [4] ETSI EN 300 196-1: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [5] ETSI TR 101 101 (V1.1.1): "Methods for Testing and Specification (MTS); TTCN interim version including ASN.1 1994 support [ISO/IEC 9646-3] (Second Edition Mock-up for JTC1/SC21 Review)".
- [6] ISO/IEC 8825-1: "Information technology - ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)". (See also ITU-T Recommendation X.690).
- [7] ISO/IEC 9646 (all parts): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646 [7] apply.

3.2 Abbreviations

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

ASN.1	Abstract Syntax Notation One
ATM	Abstract Test Method
ATS	Abstract Test Suite
BA	Basic Access
BER	Basic Encoding Rules
CES	Connection Endpoint Suffix
CM	Co-ordination Message
COLR	COnnected Line identification Restriction (supplementary service)
CPA	Critical Path Analysis
DSS1	Digital Subscriber Signalling System No.one
ECT	Explicit Call Transfer
ETS	Executable Test Suite
IUT	Implementation Under Test
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
PRA	Primary Rate Access
PTC	Parallel Test Component
SCS	System Conformance Statement
SUT	System Under Test
TC	Test Component
TP	Test Purpose
TTCN	Tree and Tabular Combined Notation

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 reference point or coincident S and T reference point applies. Thus the IUT is the network DSS1 protocol entity at a particular user-network interface and is not the whole network.

In practice the behaviour at a single user-network interface does not occur in isolation, but depends on the activity at other user-network interfaces. Therefore a multi-party test method is used.

The general configuration used is shown in figure 1. In this ATS the PTCs act as slaves to the MTC; all active behaviour at the PTCs is initiated by CMs sent by the MTC and all verdicts are assigned by the MTC (using information sent in CMs by the PTCs where appropriate). Not all components are used in every test case and the relationship between the IUT and the tester depends on the test group.

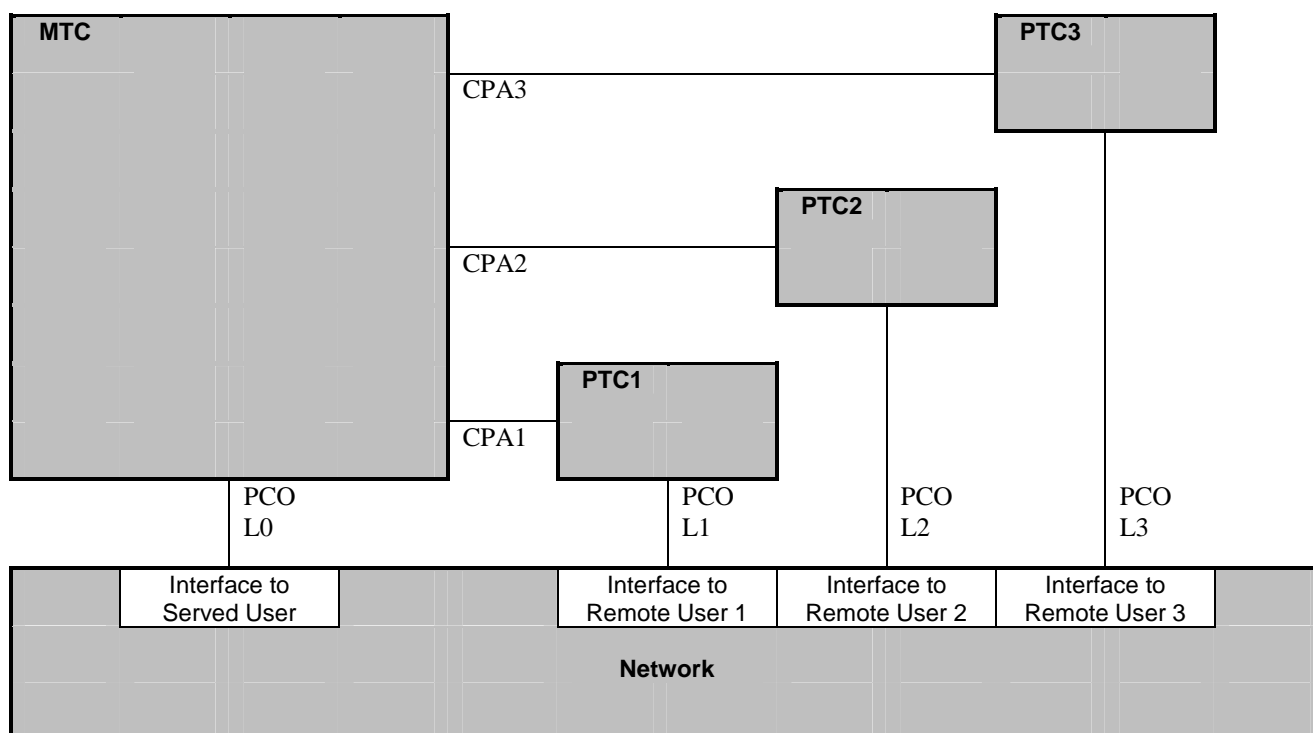


Figure 1. Multi-party test method
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4.2 Served user test cases

For these test cases the IUT is connected to the MTC. Depending on the test case zero to three PTCs are used. The verdict depends only on the behaviour observed at the PCO between the IUT and the MTC. The PTC(s) are used only to provoke the IUT to send messages to the MTC or to handle behaviour at the remote user interface(s) as a result of activity at the IUT interface.

In general the correlation of messages between the served and remote user interfaces (which is part of the functionality of the supplementary service rather than the protocol) is not tested. If a message is expected at the MTC as a result of an action at a remote user and is not received this usually leads to an inconclusive verdict.

PTC3 is only used in certain test cases for the explicit linkage procedures.

4.3 Remote user test cases

For these test cases the IUT is the protocol entity connected to either PTC1 or PTC2. The verdict is assigned by the MTC on the basis of behaviour reported in a CM by the PTC connected to the IUT and the behaviour of the served user attached to the MTC. A consequence of this is that incorrect behaviour by the served user can lead to a Fail verdict.

PTC3 is never used in the remote user test cases.

5 Untestable test purposes

There are no untestable test cases (see EN 300 369-5 [3]) associated with this ATS and ATM.

6 ATS conventions

6.1 Version of TTCN used

The version of TTCN used is that defined in TR 101 101 [5].

6.2 Use of ASN.1

6.2.1 Situations where ASN.1 is used

ASN.1 has been used for three major reasons. First, types defined in ASN.1 can model problems that "pure" TTCN cannot. For instance, data structures modelling ordered or unordered sequences of data are preferably defined in ASN.1. Second, ASN.1 provides a better restriction mechanism for type definitions by using sub-type definitions. Third, it is necessary to use ASN.1 to reproduce the type definitions for remote operation components as specified in the base standards in ASN.1.

The possibility to use TTCN and ASN.1 in combination is used, i.e. referring to an ASN.1 type from a TTCN type.

6.2.2 Specification of encoding rules

There is a variation in the encoding rules applied to ASN.1 types and constraints specified in this ATS and therefore a mechanism is needed to differentiate the encoding rules. However the mechanism specified in ISO/IEC 9646-3 [7] and in TR 101 101 [5] does not facilitate definition of the encoding rules as needed for this ATS. A solution is therefore used which is broadly in the spirit of ISO/IEC 9646-3 [7] in which comment fields have been used as a means of encoding rules.

For ASN.1 used in this ATS, two variations of encoding rules are used. One is the commonly known Basic Encoding Rules (BER) as specified in ISO/IEC 8825-1 [6]. In the second case the encoding is according to ISDN, i.e. the ASN.1 data types are a representation of structures contained within the ISDN specification (basic call, generic functional protocol or individual supplementary service). For example, if octets of an information element are specified in ASN.1 as a SEQUENCE then this should be encoded in an Executable Test Suite (ETS) as any other ISDN information element specified using tabular TTCN. This ISDN encoding variation is the default encoding rule for this ATS. This means that all ASN.1 constraint tables are encoded using ISDN (non-BER) encoding unless stated otherwise. BER encoding shall not be applied to an ASN.1 constraint where BER encoding has not been specified. This encoding rule is sometimes named "Direct Encoding".

For BER encoding, an indication is given in the comments field of the table header. For this ATS such indications appear in the ASN.1 type constraint declaration tables only. In the first line of the table header comment field, the notation "ASN1_Encoding: *BER*" is used.

Note that within BER, there are a number of variations for the encoding of lengths of fields. According to EN 300 196-1 [4], an IUT should be able to interpret all length forms within BER for received PDUs. When sending PDUs containing BER encoding, EN 300 196-1 [4] gives guidelines but makes no restrictions on the length forms within BER which an IUT may apply.

In this particular ATS all ASN.1 type constraints which are of type "Component" are to be encoded using BER.