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Digitalno omrežje z integriranimi storitvami (ISDN) - Generični funkcijski protokol za podporo dopolnilnih storitev - Protokol digitalne naročniške signalizacije št. 1 (DSS1) - 3. del: Zgradba preskušalnega niza in namen preskušanja (TSS&TP) - Specifikacija za uporabnika

Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 3: Test Suite Structure and Test Purposes (TSS&TP) specification for the user

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ICS:

33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)
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Generic functional protocol for the support of
supplementary services;
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Part 3: Test Suite Structure and Test Purposes (TSS&TP)
specification for the user**

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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 3 of a multi-part standard covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) generic functional protocol for the support of supplementary services, 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: "TSS&TP specification for the network";

Part 6: "ATS and partial PIXIT proforma specification for the network".

Transposition dates	
Date of adoption	8 November 1996
Date of latest announcement of this ETS (doa):	30 April 1997
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 October 1997
Date of withdrawal of any conflicting National Standard (dow):	31 October 1997

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1 Scope

This third part of ETS 300 196 specifies the Test Suite Structure and Test Purposes (TSS&TP) for the User side of the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [6]) of implementations conforming to the stage three standard for the generic functional protocol for the support of supplementary services for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, ETS 300 196-1 [1].

A further part of this ETS specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma based on this ETS. 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 300 196-1 [1].

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 300 196-1: "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".
- [2] ETS 300 196-2: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".
- [3] ISO/IEC 9646-1: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 1: General Concepts".
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- [4] ISO/IEC 9646-2: "Information Technology - OSI 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] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".
- [7] ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control".
- [8] ITU-T Recommendation I.112 (1993): "Vocabulary and terms for ISDNs".
- [9] CCITT Recommendation E.164 (1991): "Numbering plan for the ISDN era".
- [10] ITU-T Recommendation I.210 (1993): "Principles of the telecommunication services supported by an ISDN and the means to describe them".
- [11] I-ETS 300 314: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1); Protocol Implementation Conformance Statement (PICS) proforma specification for signalling network layer protocol for circuit-mode basic call control (basic access, user)".
- [12] CCITT Recommendation X.209 (1988): "Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)".

3 Definitions

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

3.1 Definitions related to conformance testing

abstract test case: Refer to ISO/IEC 9646-1 [3].

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

active test: A test case where the IUT is required to send a particular message, but not in reaction to a received message. This would usually involve the use of PIXIT information to see how this message can be generated and quite often is specified in an ATS using an implicit send event.

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

implicit send event: Refer to ISO/IEC 9646-3 [5].

lower tester: Refer to ISO/IEC 9646-1 [3].

passive test: A test case where the IUT is required to respond to a protocol event (e.g. received message) with another protocol event (sends message) and normally does not require any special operator intervention such as is associated with the implicit send event.

point of control and observation: Refer to ISO/IEC 9646-1 [3].

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

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

Protocol Implementation eXtra Information for Testing (PIXIT): Refer to ISO/IEC 9646-1 [3].

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

system under test: Refer to ISO/IEC 9646-1 [3].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [3].

3.2 Definitions related to ETS 300 196-1

call held auxiliary state: See ETS 300 196-1 [1], subclause 7.1.2.

call reference: See ETS 300 102-1 [7], subclause 4.3.

called user: The user at the origination side of the call.

calling user: The user at the destination side of the call.

component: See ETS 300 196-1 [1], subclause 11.2.2.1.

hold requested auxiliary state: See ETS 300 196-1 [1], subclause 7.1.2.

idle auxiliary state: See ETS 300 196-1 [1], subclause 7.1.2.

Integrated Services Digital Network (ISDN): See ITU-T Recommendation I.112 [8], definition 308.

ISDN number: A number conforming to the numbering and structure specified in CCITT Recommendation E.164 [9].

invoke component: See ETS 300 196-1 [1], subclause 11.2.2.1.

retrieve requested auxiliary state: See ETS 300 196-1 [1], subclause 7.1.2.

return error component: See ETS 300 196-1 [1], subclause 11.2.2.1.

return result component: See ETS 300 196-1 [1], subclause 11.2.2.1.

service; telecommunication service: See ITU-T Recommendation I.112 [8], definition 201.

supplementary service: See ITU-T Recommendation I.210 [10], subclause 2.4.

user: The DSS1 protocol entity at the User side of the user-network interface where a T reference point or coincident S and T reference point applies.

user (S/T): The DSS1 protocol entity at the network side of the user-network interface where a coincident S and T reference point applies.

user (T): The DSS1 protocol entity at the User side of the user-network interface where a T reference point applies (User is the Private ISDN).

4 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
CR	Call Reference
DSS1	Digital Subscriber Signalling System No. one
GFP	Generic Functional Protocol
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
TP	Test Purpose
TSS	Test Suite Structure
U00	Null call state
U03	Outgoing Call Proceeding call state
U04	Call Delivered call state
U07	Call Received call state
U08	Connect Request call state
U09	Incoming Call Proceeding call state
U10	Active call state
U25	Overlap Receiving call state
UI	Unnumbered Information

5 General Test Suite Structure (TSS)

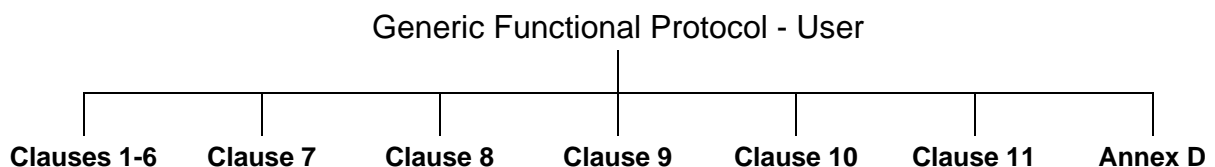


Figure 1: Test suite structure

More detailed TSSs for each group (branch) are contained in separate subclauses.

6 TSS&TP

6.1 Introduction

For each test requirement a TP is defined.

6.1.1 TP naming convention

TPs are numbered, starting at 001, within each group. Groups are organized according to the TSS. Additional references are added to identify the actual test suite and whether it applies to the network or the user (see table 1).

Table 1: TP identifier naming convention scheme

Identifier:	<ss>_<iut><clause>_<group>_<nnn>						
<ss>	=	supplementary service: e.g. "GFP"					
<iut>	=	type of IUT:	<table border="0"> <tr> <td>U</td> <td>User</td> </tr> <tr> <td>N</td> <td>Network</td> </tr> </table>	U	User	N	Network
U	User						
N	Network						
<clause>	=	clause	1 or 2 character field representing a clause number from ETS 300 196-1 [1]				
<group>	=	group	2 digit field representing group reference according to TSS				
<nnn>	=	sequential number	(001-999)				

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6.1.2 Source of TP definition

The TPs are based on ETS 300 196-1 [1]. [SIST ETS 300 196-3:1997
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6.1.3 TP structure

Each TP has been written in a manner which is consistent with all other TPs. The intention of this is to make the TPs more readable and checkable. A particular structure has been used and this is illustrated in table 2. This table should be read in conjunction with any TP, i.e. use a TP as an example to fully understand the table.

Table 2: Structure of a single TP

TP part	Text	Example
Header	<Identifier> <i>tab</i> <paragraph number in base ETS> <i>tab</i> <type of test> <i>CR</i>	see table 1 subclause 0.0.0 valid, invalid, inopportune
Stimulus	Ensure that the IUT in the <basic call state> <trigger> <i>see below for message structure</i> <i>or</i> <goal>	U10, U10, etc. receiving a XXXX message to request a ...
Reaction	<action> <conditions> <i>if the action is sending</i> <i>see below for message structure</i> <next action>, <i>etc.</i> and remains in the same state <i>or</i> and enters state <state>	sends, saves, does, etc. using en-bloc sending, ...
Message structure	<message type> message containing a a) <info element> information element with b) a <field name> encoded as <i>or</i> including <coding of the field> and <i>back to a or b,</i>	SETUP, FACILITY, CONNECT, ... Bearer capability, Facility, ...
NOTE:	Text in italics will not appear in TPs and text between <> is filled in for each TP and may differ from one TP to the next.	

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6.1.4 Test strategy (standards.iteh.ai)

As the base standard ETS 300 196-1 [1] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification ETS 300 196-2 [2]. The criteria applied include the following:

- only the requirements from the point of view of the T or coincident S and T reference point are considered;
- whether or not a test case can be built from the TP is not considered.

6.1.5 Test of call states

Many TPs include a reference to the IUT's final call state after the realization of the TP. In these cases the TP includes the requirement to ensure that the IUT has entered this particular final call state. Ensuring that the IUT is in a particular call state shall be realized by following the procedures described in subclause 5.8.10 of ETS 300 102-1 [7]. According to these procedures, the IUT on receipt of a STATUS ENQUIRY message, shall respond with a STATUS message indicating, in the third octet of the Call state information element, the current call state of the IUT. This exchange of messages is not mentioned explicitly in each TP but is considered to be implicit in the reference to the final call state. This way of phrasing the TPs has been used to avoid over-complicating the text and structure of the TPs and to improve the readability.