



SLOVENSKI STANDARD
SIST EN 300 196-3 V1.2.1:2004
01-april-2004

8 [[]HJbc`ca fYy`Y`n]bhY[f]fUb]a]'glcf]hj Ua]'fIG8 BŁ!'; YbYf] b]Z b_Wy'g_]dfcfc_c`
nUdcXdcfc`Xcdc`b]b]`'glcf]hYj`!'Dfcfc_c`X[[]HJbYbUfc b]y_Yg[[bU]nUWY`yH"%
fB GG%Ł!" "XY.`N[fUXVUdfYg_i yUby[U'b]nU]b'bUa Yb'dfYg_i yUb`UfHGG/ HDŁ!
GdYVWZ_UWY`UnUi dcfUVb_U

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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European Standard (Telecommunications series)

**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)
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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 3 of a multi-part deliverable covering the Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; 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

Date of adoption of this EN:	9 November 2001
Date of latest announcement of this EN (doa):	28 February 2002
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1 Scope

The present document 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 [5]) 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, EN 300 196-1 [1].

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

The present document adds the TSS and TPs relating to the bearer independent connection oriented transport mechanism.

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 300 196-1: "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] ETSI EN 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 - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [4] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification".
- [5] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".
- [6] ETSI EN 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]".
- NOTE: There are no clause numbering in EN 300 403-1; the clause numbers used in the present document actually refer to the clause numbers of ITU-T Recommendation Q.931.
- [7] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".
- [8] ITU-T Recommendation I.210 (1993): "Principles of the telecommunication services supported by an ISDN and the means to describe them".
- [9] ETSI EN 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".

- [10] ITU-T Recommendation X.209 (1988): "Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)".
- [11] ITU-T Recommendation X.208 (1988): "Specification of Abstract Syntax Notation One (ASN.1)".
- [12] ITU-T Recommendation X.680: "Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".
- [13] ITU-T Recommendation X.690: "Information technology - ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)".
- [14] ETSI EN 301 813-3: "Integrated Services Digital Network (ISDN) and Broadband Integrated Services Digital Network (B-ISDN); Generic Addressing and Transport (GAT) protocol; Part 3: Test Suite Structure and Test Purposes (TSS&TP) specification".

3 Definitions

For the purposes of the present document, the following terms and 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].

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

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

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 EN 300 196-1

bearer-related transport mechanism: procedure tied to the procedures for basic call control and tied to a connection in progress, active or in the clearing phase

NOTE: The call reference used by the basic call control procedure is adopted by the bearer-related service invocations to correlate with the appropriate basic call control transaction.

bearer-independent transport mechanism: procedure independent of the procedures for basic call control and not correlated to a connection

connection-oriented transport mechanism: mechanism requiring the establishment of a data link and a transport association between the service requesting entity and the service provider

NOTE: It provides a facility to access common information element category operations where success and/or failure reporting is required. It provides a call reference within the transport association as a means to associate uniquely among the related transport messages.

connectionless transport mechanism: mechanism where no transport association exists but a single transport message transfer is provided using the dummy call reference

call held auxiliary state: See EN 300 196-1 [1], clause 7.1.2.

call reference: See EN 300 403-1 [9], clause 4.3.

called user: user at the origination side of the call

calling user: user at the destination side of the call

component: See EN 300 196-1 [1], clause 11.2.2.1.

general signalling: signalling procedure for the exchange of APDUs between application entities that need not be adjacent

hold requested auxiliary state: See EN 300 196-1 [1], clause 7.1.2.

idle auxiliary state: See EN 300 196-1 [1], clause 7.1.2.

Integrated Services Digital Network (ISDN): See ITU-T Recommendation I.112 [7], definition 308.

invoke component: See EN 300 196-1 [1], clause 11.2.2.1.

local signalling: signalling procedure restricted to the exchange of APDUs between adjacent application entities

retrieve requested auxiliary state: See EN 300 196-1 [1], clause 7.1.2.

return error component: See EN 300 196-1 [1], clause 11.2.2.1.

return result component: See EN 300 196-1 [1], clause 11.2.2.1.

service; telecommunication service: See ITU-T Recommendation I.112 [7], definition 201.

supplementary service: See ITU-T Recommendation I.210 [8], clause 2.4.

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

user (T): 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 the present document, 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
NCICS	Networked Call Independent Signalling Connection
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)

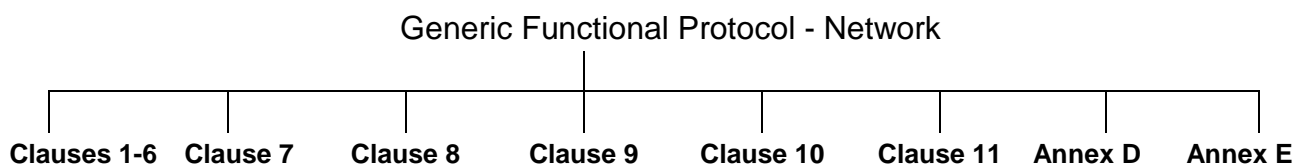


Figure 1: Test suite structure

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

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 style="margin-left: 20px;"> <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 EN 300 196-1 [1]				
<group>	= group 2 digit field representing group reference according to TSS				
<nnn>	= sequential number (001-999)				

6.1.2 Source of TP definition

The TPs are based on EN 300 196-1 [1].

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	<i><Identifier> tab</i> <i><paragraph number in base EN> tab</i> <i><type of test> CR</i>	see table 1 clause 0.0.0 valid, invalid, inopportune
Stimulus	Ensure that the IUT in the <i><basic call state></i> <i><trigger> see below for message structure</i> <i>or <goal></i>	U10, U10, etc. receiving a XXXX message to request a ...
Reaction	<i><action></i> <i><conditions></i> <i>if the action is sending</i> <i>see below for message structure</i> <i><next action>, etc.</i> and remains in the same state <i>or and enters state <state></i>	sends, saves, does, etc. using en-bloc sending, ...
Message structure	<i><message type></i> message containing a a) <i><info element></i> information element with b) a <i><field name></i> encoded as <i>or including</i> <i><coding of the field></i> 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

As the base standard EN 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 EN 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 clause 5.8.10 of EN 300 403-1 [6]. 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.

NOTE: Timer T322 is associated with that STATUS ENQUIRY/STATUS procedure.

6.2 User TSS&TP for the generic functional protocol

6.2.1 TSS&TP for clauses 1 to 6

None identified.

6.2.2 TSS&TP for clause 7

6.2.2.1 TSS for clause 7

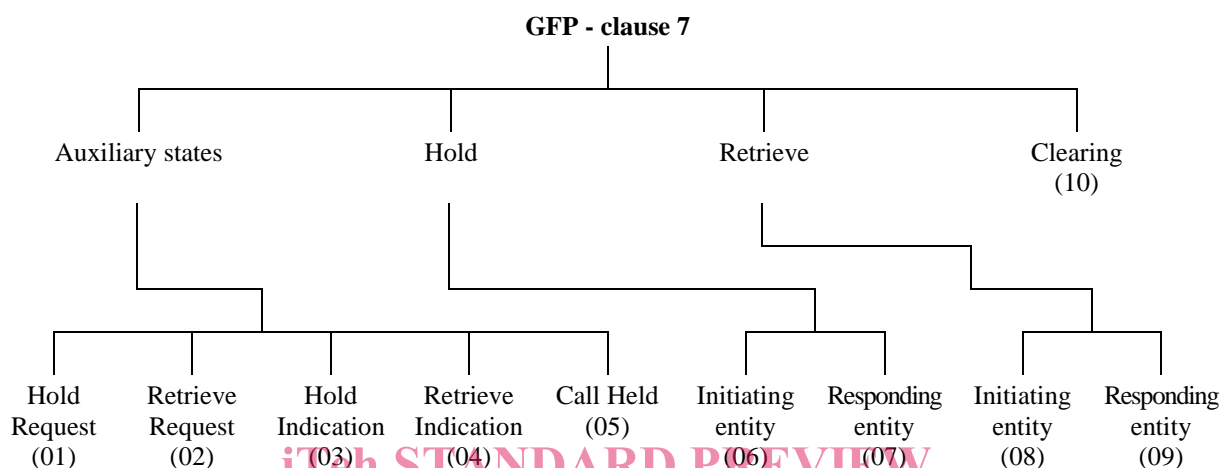


Figure 2: TSS
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6.2.2.2 TPs for clause 7

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Selection: IUT supports the functional protocol for the control of supplementary services. PICS: MCu 1.

NOTE 1: There are no auxiliary states relating to bearer independent connection oriented transport mechanism for general signalling.

NOTE 2: These TPs for clause 7 do not apply to NCICS.

6.2.2.2.1 Auxiliary states

6.2.2.2.1.1 Hold Request

Selection: IUT supports the functions of an initiating entity. PICS: R 5.1.

GFP_U7_01_001 clause 7.1.2, 3rd paragraph

Ensure that IUT, while in the Active call state U10 and Hold Request auxiliary state, entering the Null call state U00, enters the Idle auxiliary state.

GFP_U7_01_002 clause 7.1.2, 3rd paragraph

Ensure that IUT, while in the Active call state U10 and Hold Request auxiliary state, entering the Disconnect Request call state U11, enters the Idle auxiliary state.

GFP_U7_01_003 clause 7.1.2, 4th paragraph

Ensure that IUT, while in the Active call state U10 and Hold Request auxiliary state, entering the Disconnect Indication call state U12, enters the Idle auxiliary state.