



SLOVENSKI STANDARD
SIST EN 300 207-3 V1.3.2:2003
01-december-2003

8 [[]HJbc`ca fYy`Y`n`]bhY[f]fUb]a]glcf]hj Ua]fIG8 BLË8 cdc`b]bY]nga Yf]hj YbY
glcf]hj YË`Dfclc`c`X[[]HJbY`bUfc b]ý_Yg[[bU]nUWY`ýH`r`%fB GG%LË' "XY.`N[fUXVU
dfYg_i ýUbY[Ub]nU]b`bUa Yb]dfYg_i ýUb`UfHGG/ HDLË`GdYWZ_ UWY`U`nU`i dcfUVb_U

Integrated Services Digital Network (ISDN); Diversion 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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Ta slovenski standard je istoveten z: EN 300 207-3 Version 1.3.2

ICS:

33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)
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SIST EN 300 207-3 V1.3.2:2003 **en**

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EN 300 207-3 V1.3.2 (1999-06)

European Standard (Telecommunications series)

**Integrated Services Digital Network (ISDN);
Diversion supplementary services;
Digital Subscriber Signalling System No. one (DSS1) protocol;
Part 3: Test Suite Structure and Test Purposes (TSS&TP)
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Reference

REN/SPS-05065-3 (1x0r0j1c.PDF)

Keywords

ISDN, DSS1, supplementary service, TSS&TP,
user, SCF

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Sous-Prefecture de Grasse (06) N° 7803/88

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocols and Switching (SPS).

The present document is part 3 of a multi-part EN covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) Diversion 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: "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:	28 May 1999
Date of latest announcement of this EN (doa):	31 August 1999
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	29 February 2000
Date of withdrawal of any conflicting National Standard (dow):	29 February 2000

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 [7]) of implementations conforming to the stage three standard for the diversion supplementary services for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, EN 300 207-1 [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 300 207-1 [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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

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- [1] EN 300 207-1: "Integrated Services Digital Network (ISDN); Diversion supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [2] EN 300 207-2: "Integrated Services Digital Network (ISDN); Diversion 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] ISO/IEC 9646-3: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".
- [6] 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".
- [7] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces – Reference configurations".
- [8] 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]".
- [9] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".
- [10] CCITT Recommendation E.164 (1991): "Numbering plan for the ISDN era".
- [11] ITU-T Recommendation I.210 (1993): "Principles of telecommunication services supported by an ISDN and the means to describe them".

- [12] 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".
- [13] 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".
- [14] ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

3 Definitions and abbreviations

3.1 Definitions

3.1.1 Definitions related to conformance testing

For the purposes of the present document, the following terms and definitions apply:

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].

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

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].

3.1.2 Definitions related to EN 300 207-1

For the purposes of the present document, the following terms and definitions apply:

call reference: see EN 300 403-1-1 [8], subclause 4.3.

component: see EN 300 196-1 [6], subclause 11.2.2.1.

Integrated Services Digital Network (ISDN): see ITU-T Recommendation I.112 [9], definition 308.

ISDN number: number conforming to the numbering and structure specified in CCITT Recommendation E.164 [10].

invoke component: see EN 300 196-1 [6], subclause 11.2.2.1.

return error component: see EN 300 196-1 [6], subclause 11.2.2.1.

return result component: see EN 300 196-1 [6], subclause 11.2.2.1.

served user: user who invokes the call diversion supplementary service.

service; telecommunication service: see ITU-T Recommendation I.112 [9], definition 201.

supplementary service: see ITU-T Recommendation I.210 [11], subclause 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 User 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).

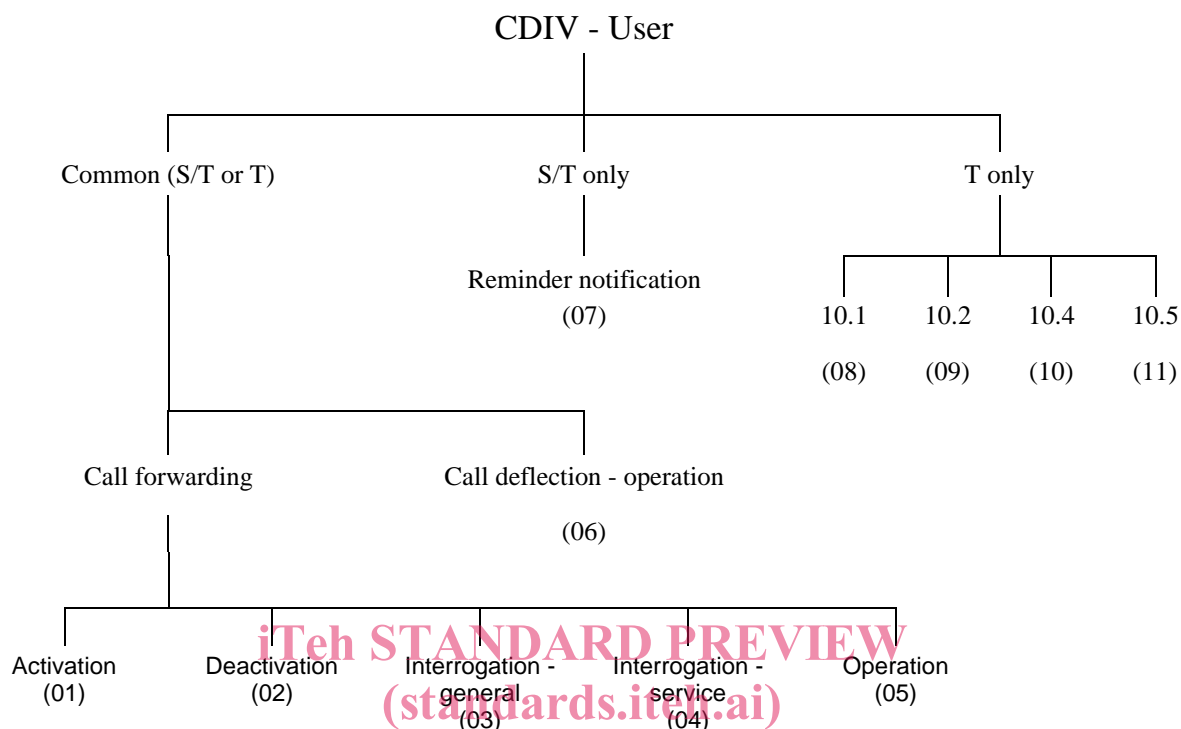
3.2 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
CD	Call Deflection
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
DSS1	Digital Subscriber Signalling System No. one
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
SCF	Selective Call Forwarding
SCFB	Selective Call Forwarding Busy
SCFNR	Selective Call Forwarding No Reply
SCFU	Selective Call Forwarding Unconditional
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
U09	Incoming Call Proceeding call state
U10	Active call state
U25	Overlap Receiving call state

4 Test Suite Structure (TSS)

4.1 TSS for call diversion excluding SCF



NOTE 1: Numbers in brackets represent group numbers and are used in TP identifiers.

NOTE 2: See EN 300 207-1 [1] for titles of referenced subclauses (9.2.2 etc.).

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Figure 1: Test suite structure

4.2 TSS for SCF

Signalling procedures at the coincident S and T reference point

SCFB supplementary service

Activation	U01
Deactivation	U02

SCFU supplementary service

Activation	U03
Deactivation	U04

SCFNR supplementary service

Activation	U05
Deactivation	U06

Interrogation - SCF

U07

Interrogation - screening list

U08

NOTE: Numbers in brackets represent group numbers and are used in TP identifiers.

5 Test Purposes (TP)

5.1 Introduction

For each test requirement a TP is defined.

5.1.1 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 supplementary service and whether it applies to the network or the user (see table 1).

Table 1: TP identifier naming convention scheme

Identifier: <ss>_<iut><group>_ [<service>_] <nnn>			
<ss>	=	supplementary service:	"CDIV" or "SCF"
<iut>	=	type of IUT:	U User
			N Network
<group>	=	group	2 digit field representing group reference according to TSS
<service>	=	forwarding service field designating	CFNR, CFB or CFU
<nnn>	=	sequential number	(001-999)

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5.1.2 Source of TP definition

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The TPs are based on EN 300 207-1 [1].

5.1.3 TP structure

A particular structure, compatible with ETS 300 406 [14] 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	TP Identifier Reference to the subclause of the base specification containing the conformance requirement. Reference to selection criteria	see table 1 subclause 9.1.1 see NOTE 1
Stimulus	Ensure that the IUT in the <basic call state> and <supplementary service state> <trigger> <i>see below for message structure</i> <i>or</i> <goal>	U00, U10 etc. SCNFR Wait Deactivation state 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 enters <supplementary service state> <i>and/or</i> and remains in the same call state(s) <i>or</i> and enters call 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, ... see NOTE 2
Selection	Selection criteria reference	Call forwarding supported. PICS: R 1.3
NOTE 1: In order to use the same structure as for test group selection, the selection criteria is indicated at the bottom of the test purpose.		
NOTE 2: Unless specified the messages are valid and contain at least the mandatory information elements and possibly optional information elements, the information elements are valid and contain at least the mandatory parameters and possibly optional parameters.		

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5.1.4 Test strategy

The TPs were generated as a result of an analysis of the base standard EN 300 207-1 [1] and the PICS specification EN 300 207-2 [2].

The TPs are only based on conformance requirements related to the externally observable behaviour of the IUT, and are limited to conceivable situations to which a real implementation is likely to be faced (ETS 300 406 [14]).

All the test purposes are mandatory unless they have a selection criteria. Optional test purposes (with selection criteria), are applicable according to the configuration options of the IUT. The configuration option shall be covered by a PICS item.