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Digitalno omrežje z integriranimi storitvami (ISDN) - Protokol digitalne naročniške signalizacije št. 1 (DSS1) - Dopolnilna storitev: zaprta skupina uporabnikov (CUG) - 5. del: Zgradba preskušalnega niza in nameni preskušanja (TSS&TP) - Specifikacija za omrežje

Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network

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Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network

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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 5 of a multi-part standard covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) Closed User Group (CUG) supplementary service, as identified 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".

The present version updates the references to the basic call specifications.

National transposition dates	
Date of adoption of this EN:	21 January 2000
Date of latest announcement of this EN (doa):	30 April 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 October 2000
Date of withdrawal of any conflicting National Standard (dow):	31 October 2000

1 Scope

This fifth part of EN 300 138 specifies the Test Suite Structure and Test Purposes (TSS&TP) for the Network 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 Closed User Group (CUG) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, EN 300 138-1 [1].

A further part of this EN 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 User side of the T reference point or coincident S and T reference point of implementations conforming to EN 300 138-1 [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.

[1] EN 300 138-1 (V1.3): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[2] EN 300 138-2 (V1.3): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; 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] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".

[7] 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]".

[8] ITU-T Recommendation I.112: "Vocabulary and terms for ISDNs".

[9] CCITT Recommendation E.164: "Numbering plan for the ISDN era".

[10] ITU-T Recommendation I.210: "Principles of the telecommunication services supported by an ISDN and the means to describe them".

3 Definitions

For the purposes of the present document, 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: 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: test case where the IUT is required to respond to a protocol event (e.g. received message) with another protocol event (e.g. send message) which normally does not require any special operator intervention as 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 EN 300 138-1

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

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

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

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

network (T): DSS1 protocol entity at the Network side of the user-network interface where a T reference point applies (Network connected to Private ISDN)

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

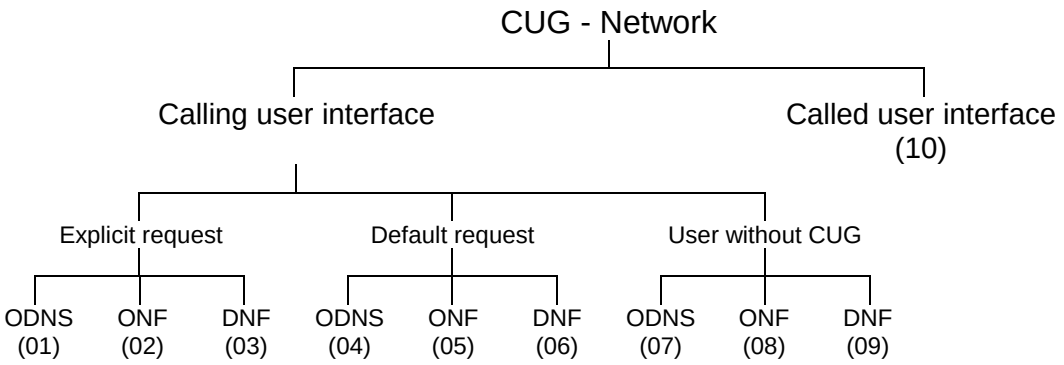
supplementary service: see ITU-T Recommendation I.210 [10], subclause 2.4

4 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
CUG	Closed User Group
DNF	call at Destination Network Failed
IA	Incoming Access
ICB	Incoming Calls Barred
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
N00	Null call state
N01	Call Initiated call state
N03	Outgoing Call Proceeding call state
N04	Call Delivered call state
N06	Call Present call state
N07	Call Received call state
N08	Connect Request call state
N09	Incoming Call Proceeding call state
N12	Disconnect Indication call state
N19	Release Request call state
OA	Outgoing Access
OCB	Outgoing Calls Barred
ODNS	call at Originating and at Destination Network Successful
ONF	call at Originating Network Failed
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
TP	Test Purpose
TSS	Test Suite Structure

5 Test Suite Structure (TSS)



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

Figure 1: Test suite structure

6 Test Purposes (TP)

6.1 Introduction

For each test requirement a TP is defined.

6.1.1 Test purpose naming convention

The 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><group>_<nnn>**				
<ss>	=	supplementary service:	e.g. "CUG"	
<iut>	=	type of IUT:	U	User
			N	Network
<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 300 138-1 [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	<Identifier> *tab* <paragraph number in base ETS> *CR*	see table 1 subclause X.X.X
Stimulus	Ensure that the IUT in the <basic call state> <trigger> *see below for message structure* *or* <goal>	 N00, N10, etc. receiving a XXXX message to request a...
Reaction	<action> <conditions> *if the action is sending* *see below for message structure* <next action>, *etc.* and enters <supplementary service state> *and/or* and remains in the same state(s) *or* and enters state <state> with CR<number(s)>	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 *or* including <coding of the field> and *back to a or b,*	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.		

6.1.4 Test strategy

As the base standard EN 300 138-1 [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 300 138-2 [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 EN 300 403-1 [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.