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Digitalno omreģje z integriranimi storitvami (ISDN) - Protokol digitalne naroļ niģke signalizacije ģt. 1 (DSS1) - Dopolnilna storitev konļ anja klica, ko ni odziva (CCNR) ï 5. del: Specifikacija zgradbe preskuģevalnega niza in namenov preskuģanja (TSS&TP) za omreģje

Integrated Services Digital network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Completion of Calls on No Reply (CCNR) supplementary service; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network

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Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Completion of Calls on No Reply (CCNR) supplementary service; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network

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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
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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 deliverable covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN); Completion of Calls on No Reply (CCNR) 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".

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1 Scope

The present document 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 [7]) of implementations conforming to the stage three standard for the Completion of Calls on No Reply (CCNR) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, EN 301 065-1 [1].

A further part of the present document specifies the Abstract Test Suite (ATS) and partial 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 301 065-1 [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 301 065-1 (V1.2.2): "Integrated Services Digital Network (ISDN); Completion of Calls on No Reply (CCNR) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[2] ETSI EN 301 065-2 (V1.2.2): "Integrated Services Digital Network (ISDN); Completion of Calls on No Reply (CCNR) 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] 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".

[7] ITU-T Recommendation I.411: "ISDN user-network interfaces - Reference configurations".

[8] 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]".

[9] ITU-T Recommendation I.112: "Vocabulary of terms for ISDNs".

[10] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

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

[12] 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".

3 Definitions and abbreviations

3.1 Definitions

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

3.1.1 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

NOTE: 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].

3.1.2 Definitions related to EN 301 065-1

component: See EN 300 196-1 [6], clause 11.2.2.1.

dummy call reference: See EN 300 403-1 [8], clause 4.3.

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 ITU-T Recommendation E.164 [10]

invoke component: See EN 300 196-1 [6], clause 11.2.2.1.

return error component: See EN 300 196-1 [6], clause 11.2.2.1.

return result component: See EN 300 196-1 [6], clause 11.2.2.1.

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

supplementary service: See ITU-T Recommendation I.210 [11], clause 2.4.

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

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

3.2 Abbreviations

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

ATS	Abstract Test Suite
CCNR	Completion of Calls on No Reply
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
N0	Null call state
N10	Active call state
N11	Disconnect Request call state
N19	Release Request call state
N3	Outgoing Call Proceeding call state
N31	Bearer Independent Transport call state
N4	Call Delivered call state
N7	Call Received call state
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
TP	Test Purpose
TSS	Test Suite Structure

4 Test Suite Structure (TSS)

Signalling procedures at the coincident S and T reference point	**Group**
Activation	N01
Deactivation	N02
General interrogation	N03
Specific interrogation	N04
Recall indication	N05
CCNR call request	N06
CCNRCallEstablishment	N07
B free but A busy procedure	N09
User A monitoring procedure	N09
Call information retention	N10
Procedures for interworking with private ISDNs	
Procedures for the originating T reference point	N11
Procedures for the destination T reference point	N12

Figure 1: Test suite structure

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 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:	"CCNR"	
<iut>	=	type of IUT:	U	User
			N	Network
<group>	=	group	2 digit field representing group reference according to TSS	
<nnn>	=	sequential number	(001-999)	

5.1.2 Source of TP definition

The TPs are based on EN 301 065-1 [1].

5.1.3 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 for CCNR

TP part	Text	Example
Header	**<Identifier>** *tab* **<paragraph number in base ETS>** *tab* **<condition>** *CR*	see table 1 **clause 0.0.0** **mandatory, optional (see note 1)**
Stimulus	Ensure that the IUT in the <basic call state> or <CCNR state> <trigger> *see below for message structure* *or* <goal>	 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 remains in the same state *or* 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 *or* including <coding of the field> and *back to a or b*	SETUP, FACILITY, CONNECT, ... Bearer capability, Facility, ...
NOTE 1: Mandatory test purpose are always applicable. Optional test purposes are applicable according to the configuration options of the IUT. If the configuration option is covered by a PICS item, a selection criteria is indicated, else the selection of the corresponding test cases will depend on test suite parameters (PIXIT) in the ATS. NOTE 2: 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.		

5.1.4 Test strategy

As the base standard EN 301 065-1 [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 301 065-2 [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.

5.2 Network TPs for CCNR

All PICS items referred to in this clause are as specified in EN 301 065-2 [2] unless indicated otherwise by another numbered reference.

Unless specified:

- the messages indicated are valid and contain at least the mandatory information elements and possibly optional information elements;
- the information elements indicated are valid and contain at least the mandatory parameters and possibly optional parameters.