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Digitalno omreġje z integriranimi storitvami (ISDN) ï Dopolnilna storitev: dokonļ anje klica do zasedenega naroļ nika (CCBS) ï Protokol digitalne naroļ niġke signalizacije ġt. 1 (DSS1) ï 3. del: Zgradba preskuġalnega niza in namen preskuġanja (TSS&TP) ï Specifikacija za uporabnika

Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) supplementary service; 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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Contents

Intellectual Property Rights 4

Foreword 4

1 Scope 5

2 References 5

3 Definitions and abbreviations 6
3.1 Definitions 6
3.1.1 Definitions related to conformance testing 6
3.1.2 Definitions related to EN 300 359-1 6
3.2 Abbreviations 7

4 Test Suite Structure (TSS) 7

5 Test Purposes (TP) 8
5.1 Introduction 8
5.1.1 TP naming convention 8
5.1.2 Source of TP definition 8
5.1.3 TP structure 8
5.1.4 Test strategy 9
5.2 User TPs for CCBS 9
5.2.1 User (S/T) 9
5.2.1.1 User A 10
5.2.1.1.1 Activation 10
5.2.1.1.2 Deactivation 11
5.2.1.1.3 Interrogation 12
5.2.1.1.4 Invocation and operation 13
5.2.1.1.5 Retention 16
5.2.1.2 User B 16
5.2.1.3 GFP 16
5.2.2 User (T) 17
5.2.2.1 Originating side 17
5.2.2.1.1 General 17
5.2.2.1.2 GFP 20
5.2.2.2 Destination side 20
5.2.2.2.1 General 20
5.2.2.2.2 GFP 23

6 Compliance 25

7 Requirements for a comprehensive testing service 25

Annex A (informative): Changes with respect to the previous EN 300 359-3 V1.2.4 26

History 27

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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 Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) Completion of Calls to Busy Subscriber (CCBS) supplementary service, 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".

The present version updates the references to the protocol specification.

National transposition dates	
Date of adoption of this EN:	8 June 2001
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Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 2002
Date of withdrawal of any conflicting National Standard (dow):	31 March 2002

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 [6]) of implementations conforming to the stage three standard of the Completion of Calls to Busy Subscriber (CCBS) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, EN 300 359-1 [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 300 359-1 [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, subsequent revisions do apply.

[1] ETSI EN 300 359-1 (V1.3.2): "Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[2] ETSI EN 300 359-2 (V1.2.4): "Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) 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] 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".

[6] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".

[7] 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]".

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

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

[10] ETSI ETS 300 196-3: "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".

[11] ETSI EN 300 406:"Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

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]

Implementation Under Test (IUT): 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 300 359-1

Call Held auxiliary state: see EN 300 196-1 [5], clause 7.1.2

call reference: see EN 300 403-1 [7], clause 4.3

component: see EN 300 196-1 [5], clause 11.2.2.1

Idle auxiliary state: see EN 300 196-1 [5], clause 7.1.2

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

invoke component: see EN 300 196-1 [5], clause 11.2.2.1

return error component: see EN 300 196-1 [5], clause 11.2.2.1

return result component: see EN 300 196-1 [5], clause 11.2.2.1

served user: the served user is the user who invokes the CCBS supplementary service

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

supplementary service: see ITU-T Recommendation I.210 [9], clause 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 User side of the user-network interface where a coincident S and T reference point applies

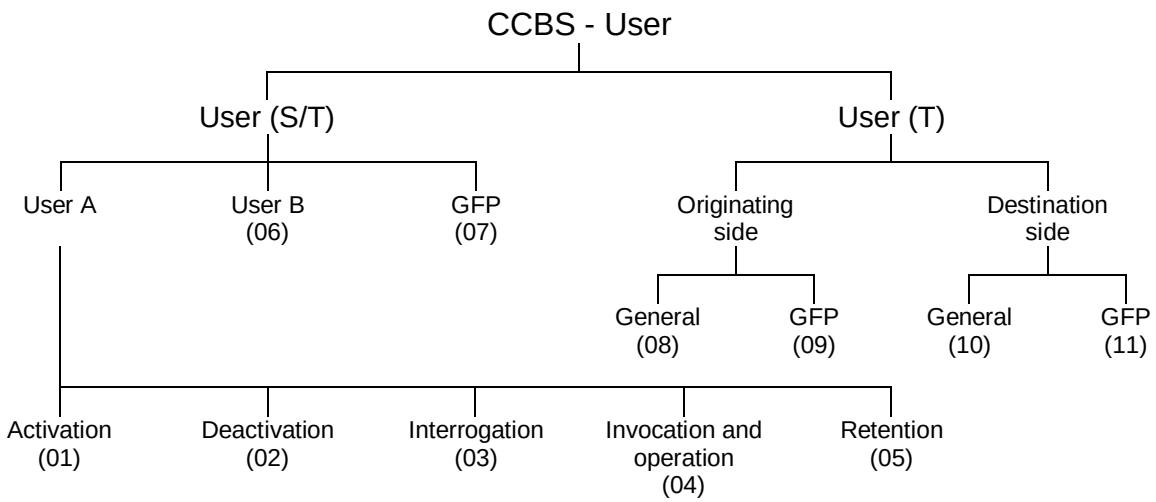
user (T): the DSS1 protocol entity at the User side of the user-network interface where a T reference point applies (User is the Private ISDN)

3.2 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
CCBS	Completion of Calls to Busy Subscriber
CR	Call Reference
CR1	normal (bearer related) CR
CR2	CR used for bearer independent transport mechanism
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
U01	Call Initiated call state
U03	Outgoing Call Proceeding call state
U04	Call Delivered call state
U06	Call Present call state
U07	Call Received call state
U08	Connect Request call state
U09	Incoming Call Proceeding call state
U10	Active call state
U12	Disconnect Indication call state
U25	Overlap Receiving call state
U31	Bearer Independent Transport call state
UI	Unnumbered Information

4 Test Suite Structure (TSS)



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

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:	e.g. "CCBS"	
<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 300 359-1 [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

TP part	Text	Example
Header	<Identifier> *tab* <paragraph number in base ETS> *tab*	see table 1 clause 0.0.0
Stimulus	Ensure that the IUT in the <basic call state> and <supplementary service state> <trigger> *see below for message structure* *or* <goal>	 U10, U12, etc. CCBS Idle state 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 call state(s) *or* 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 *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.	

5.1.4 Test strategy

As the base standard EN 300 359-1 [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 300 359-2 [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 (EN 300 406 [11]).

All test purposes are mandatory unless they have 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.

5.2 User TPs for CCBS

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;
- all PICS items referred to in this clause are as specified in EN 300 359-2 [2] unless indicated otherwise by another numbered reference.

5.2.1 User (S/T)

Selection: IUT supports coincident S and T reference point procedures. PICS: R 3.2.

NOTE: Unless stated otherwise, all FACILITY messages in TPs in this clause use the dummy call reference as specified in clause 8.3.2.2 of EN 300 196-1 [5] (bearer independent connectionless transport mechanism). Where an Unnumbered Information (UI) frame is specified for a FACILITY message, the message is sent or received using broadcast procedures; otherwise point-to-point procedures are used.