



SLOVENSKI STANDARD

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8 [[]HJbc`ca fYy`Y`n`]bH[f]fUb]a]glcf]hj Ua]fG8 BL`E`8 cdc`b] bUglcf]Hj .
Xc_cb Ub`Y`]WUb`UnUgYXYbY[UbUfc b] Uf7 6 GL`E`Dfctc_c`X[[]HJbY`bUfc b]y_Y
g[[bU]nUWY`Y`yH`"%fB GG`L`E`) "XY. `N[fUXVUdfYg_i yUbY[Ub]nU]b`bUa Yb]
dfYg_i yUb`U`fHGG/ HDL`E`GdYWZ`_UWY`UnU`ca fYy`Y`

Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) 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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European Standard (Telecommunications series)

**Integrated Services Digital Network (ISDN);
Completion of Calls to Busy Subscriber (CCBS)
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 EN covering the Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) supplementary service; 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:	19 May 2000
Date of latest announcement of this EN (doa):	31 August 2000
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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 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 User 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, 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] ETSI EN 300 359-1 (V1.2): "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".
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- [2] ETSI EN 300 359-2 (V1.2): "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 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [4] ISO/IEC 9646-2 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification".
- [5] ISO/IEC 9646-3 (1998): "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 (1993): "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 (1993): "Vocabulary of terms for ISDNs".
- [10] ITU-T Recommendation E.164 (1997): "The international public telecommunication numbering plan".

- [11] ITU-T Recommendation I.210 (1993): "Principles of telecommunication services supported by an ISDN and the means to describe them".
- [12] ETSI EN 300 359-5 (V1.2): "Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network".
- [13] ETSI ETS 300 359-5: "Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network".

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]

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

lower tester: refer to ISO/IEC 9646-1 [3] [SIST EN 300 359-5 V1.3.6:2005](https://standards.iteh.ai/catalog/standards/sist/b6ec95ac-70e0-44ce-9adb-7c173ca38570/sist-en-300-359-5-v1-3-6-2005)

point of control and observation: refer to ISO/IEC 9646-1 [3] <https://standards.iteh.ai/catalog/standards/sist/b6ec95ac-70e0-44ce-9adb-7c173ca38570/sist-en-300-359-5-v1-3-6-2005>

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 Reference (CR): see EN 300 403-1 [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 ITU-T Recommendation E.164 [10]

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

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)

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: served user is the user who invokes the CCBS 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

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
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
N10	Active call state
N12	Disconnect Indication call state
N31	Bearer Independent Transport call state
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
TP	Test Purpose
TSS	Test Suite Structure
UI	Unnumbered Information

4 Test Suite Structure (TSS)

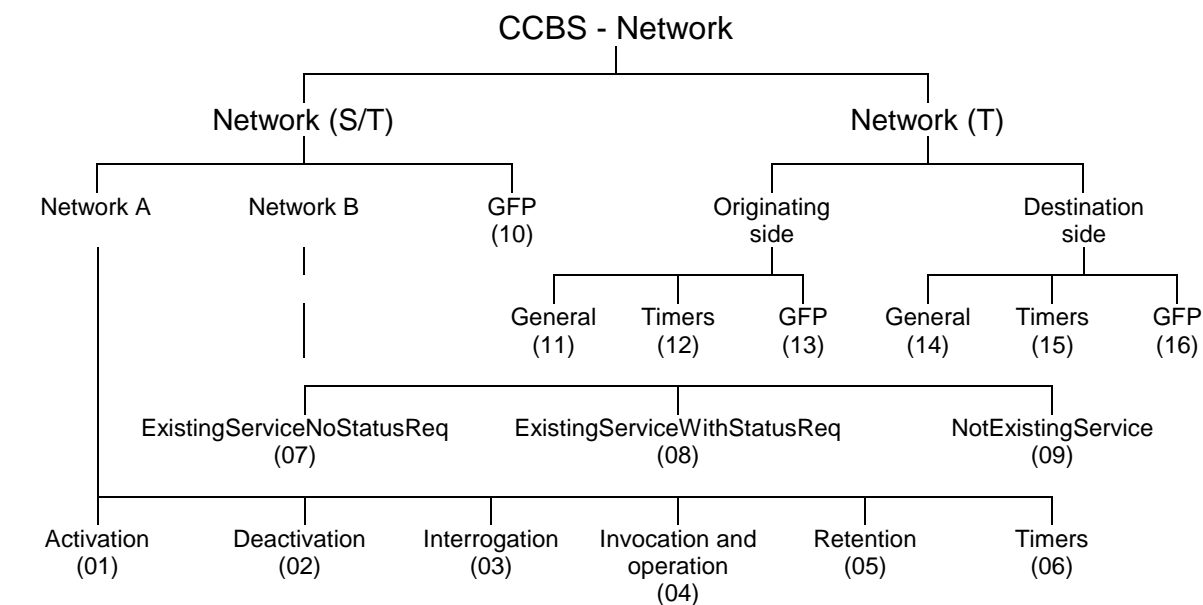


Figure 1: Test suite structure

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5 Test Purposes (TP)

5.1 Introduction

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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>_<nnn>					
<ss>	= supplementary service: e.g. "CCBS"				
<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				
<group>	= group <table style="margin-left: 20px;"> <tr> <td>2 digit field representing group reference according to TSS</td> </tr> </table>	2 digit field representing group reference according to TSS			
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> <i>tab</i> <paragraph number in base ETS> <i>tab</i> <type of test> <i>tab</i> <condition> <i>CR</i> .	see table 1 subclause 0.0.0 valid, invalid, inopportune mandatory, optional, conditional
Stimulus	Ensure that the IUT in the <basic call state> and <supplementary service state> <trigger> <i>see below for message structure</i> or <goal>	N10, N12, etc. CCBS Idle 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>, etc. and enters <supplementary service state> <i>and/or</i> and remains in the same state(s) <i>or</i> 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 <i>or</i> including <coding of the field> 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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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 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 CCBS

5.2.1 Network (S/T)

NOTE 1: All FACILITY messages in TPs associated with clause 9, use the dummy call reference as specified in subclauses 8.3.2.2 and 8.3.2.4 of EN 300 196-1 [6] (bearer independent connectionless transport mechanism). Unless stated otherwise, FACILITY messages are sent/received using point-to-point data link (I frame) and the IUT is configured so that it "knows" that a point-to-point configuration exists at the user's access.

NOTE 2: Although the sending or receiving of a message using the dummy call reference is independent of any particular call state, in the following TPs call state N12 is used to show that the IUT has just begun clearing of a call and call state N00 is used to indicate that Layer 2 is active and capable of carrying bearer independent messages.

5.2.1.1 Network A

5.2.1.1.1 Activation

CCBS_N01_001 subclause 9.1.1 **valid** **mandatory**

Ensure that the IUT in the Disconnect Indication call state N12 and CCBS Idle state and Retention Active state for CCBS, on receipt of a FACILITY message containing a Facility information element with a CCBSRequest invoke component including the CallLinkageID, sends a FACILITY message containing a Facility information element with a CCBSRequest return result component including the CCBSReference and recallMode and remains in call state N12.

CCBS_N01_002 subclause 9.1.2 **inopportune** **optional**

Ensure that the IUT in the Disconnect Indication call state N12 and CCBS Idle state and Retention Active state, on receipt of a FACILITY message containing a Facility information element with a CCBSRequest invoke component including the CallLinkageID from a user who has not subscribed to CCBS, sends a FACILITY message containing a Facility information element with a CCBSRequest return error component indicating "notSubscribed" and remains in call state N12.

Selection: IUT provides Call Information Retention procedures even though CCBS not subscribed.

CCBS_N01_003 subclause 9.1.2 **inopportune** **mandatory**

Ensure that the IUT in the Disconnect Indication call state N12 and CCBS Idle state and Retention Active state for CCBS, on receipt of a FACILITY message containing a Facility information element with a CCBSRequest invoke component including an invalid CallLinkageID, sends a FACILITY message containing a Facility information element with a CCBSRequest return error component indicating "invalidCallLinkageID" and remains in call state N12.

CCBS_N01_004 subclause 9.1.2 **inopportune** **optional**

Ensure that the IUT in the Disconnect Indication call state N12 and CCBS Idle state and Retention Active state, on receipt of a FACILITY message containing a Facility information element with a CCBSRequest invoke component including the CallLinkageID even though the attempted call failed for a reason other than the called user was busy, sends a FACILITY message containing a Facility information element with a CCBSRequest return error component indicating "callFailureReasonNotBusy" and remains in call state N12.

Selection: IUT provides Call Information Retention procedures for service other than CCBS.

CCBS_N01_005 subclause 9.1.2 **inopportune** **optional**

Ensure that the IUT in the Disconnect Indication call state N12 and CCBS Idle state and Retention Active state, on receipt of a FACILITY message containing a Facility information element with a CCBSRequest invoke component including the CallLinkageID but user A's CCBS queue is full, sends a FACILITY message containing a Facility information element with a CCBSRequest return error component indicating "outgoingCCBSQueueFull" and remains in call state N12.

Selection: IUT provides Call Information Retention procedures for service other than CCBS OR IUT provides Call Information Retention procedures for CCBS even when user A's CCBS queue is full.

CCBS_N01_006 subclause 9.1.2 **inopportune** **mandatory**

Ensure that the IUT in the Null call state N00 and CCBS Activated state, on receipt of a FACILITY message containing a Facility information element with a CCBSRequest invoke component including the CallLinkageID (but the served user has already activated the CCBS supplementary service for the call identified by the CallLinkageID), sends a FACILITY message containing a Facility information element with a CCBSRequest return error component indicating "cBSIsAlreadyActivated" and remains in call state N00.