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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 6: Abstract Test Suite (ATS) and partial Protocol  
Implementation eXtra Information for Testing (PIXIT)  
proforma specification for the network**

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**Reference**

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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 6 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 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 Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the Network side of the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [11]) 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 [2].

EN 300 359-5 [4] specifies the Test Suite Structure and Test Purposes (TSS&TP) related to this ATS and partial PIXIT proforma specification. 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 [2].

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# 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 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]".
- [2] 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".
- [3] ETSI EN 300 359-2 (V1.4.1): "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".
- [4] ETSI EN 300 359-5 (V1.4.1): "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".
- [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] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [7] ISO/IEC 9646-2 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".
- [8] ISO/IEC 9646-3 (1998): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".
- [9] ISO/IEC 9646-4 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 4: Test realization".

- [10] ISO/IEC 9646-5 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process".
- [11] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".
- [12] ITU-T Recommendation X.209 (1988): "Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1)".
- [13] 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".

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## 3 Definitions and abbreviations

### 3.1 Definitions

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

**Abstract Test Suite (ATS):** See ISO/IEC 9646-1 [6].

**Implementation Under Test (IUT):** See ISO/IEC 9646-1 [6].

**Lower Tester (LT):** See ISO/IEC 9646-1 [6].

**Point of Control and Observation (PCO):** See ISO/IEC 9646-1 [6].

**Protocol Conformance Test Report (PCTR):** See ISO/IEC 9646-1 [6].

**Protocol Implementation Conformance Statement (PICS):** See ISO/IEC 9646-1 [6].

**PICS proforma:** See ISO/IEC 9646-1 [6].

**Protocol Implementation eXtra Information for Testing (PIXIT):** See ISO/IEC 9646-1 [6].

**PIXIT proforma:** See ISO/IEC 9646-1 [6].

**System Under Test (SUT):** See ISO/IEC 9646-1 [6].

**Upper Tester (UT):** See ISO/IEC 9646-1 [6].

### 3.2 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
BER	Basic Encoding Rules
CCBS	Completion of Calls to Busy Subscriber
CM	Co-ordination Message
ExTS	Executable Test Suite
IUT	Implementation Under Test
LT	Lower Tester
MOT	Means Of Testing
MTC	Main Test Component
PCO	Point of Control and Observation
PCTR	Protocol Conformance Test Report
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PTC	Parallel Test Component

SUT	System Under Test
TP	Test Purpose
TSS	Test Suite Structure
TTCN	Tree and Tabular Combined Notation
UT	Upper Tester

## 4 Abstract Test Method (ATM)

### 4.1 Description of ATM used

The requirement for testing the network IUT is to focus on the behaviour of the network IUT at the user-network interface where a T reference point or coincident S and T reference point applies. Thus the IUT is the network DSS1 protocol entity at a particular user-network interface and is not the whole network.

In practice the behaviour at a single user-network interface does not occur in isolation, but depends on the activity at other user-network interfaces. Therefore a multi-party test method is used.

The general configuration used is shown in figure 1. In this ATS the PTCs act as slaves to the MTC; all active behaviour at the PTCs is initiated by CMs sent by the MTC and all verdicts are assigned by the MTC (using information sent in CMs by the PTCs where appropriate). Not all components are used in every test case.

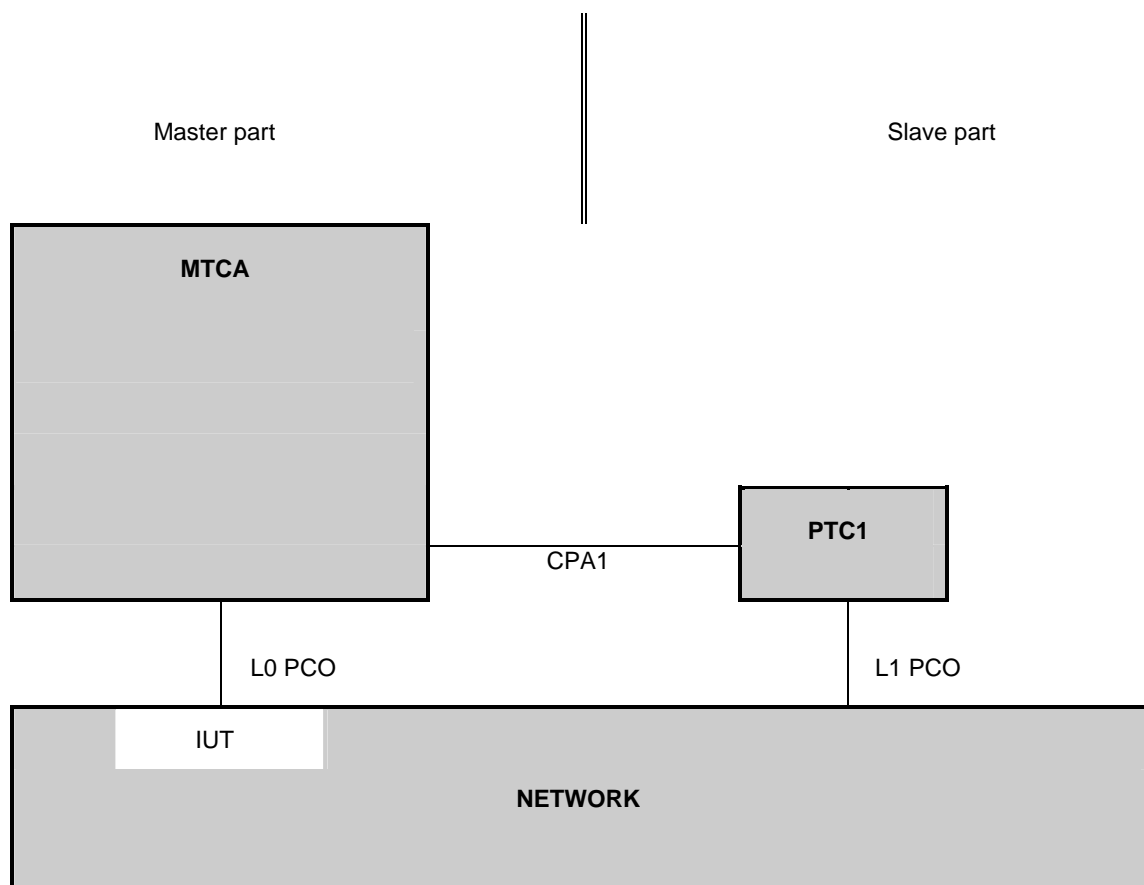


Figure 1: Multi-party test method



## 4.2 S/T reference point - network A test cases

For these test cases the IUT is connected to the MTC. Depending on the test case zero or one PTC is used. The verdict depends only on the behaviour observed at the PCO between the IUT and the MTC. The PTC is used only to provoke the IUT to send messages to the MTC or to handle behaviour at the remote user interface as a result of activity at the IUT interface.

In general the correlation of messages between the served and remote user interfaces (which is part of the functionality of the supplementary service rather than the protocol) is not tested. If a message is expected at the MTC as a result of an action at a remote user and is not received this usually leads to an inconclusive verdict.

NOTE: The same test component configuration, including one PTC, is used for all these test cases. For test cases requiring no PTC the PTC is never created. This is to facilitate re-use of test steps.

## 4.3 S/T reference point - network B test cases

For these test cases the IUT is connected to the PTC. The verdict is assigned by the MTC taking into account information passed to it by the PTC concerning behaviour at its PCO. The MTC is used to indirectly examine certain aspects of the status of the IUT (such as reservation of B-channels) in addition to provoking the IUT to send messages to the MTC and handling behaviour at the calling user interface as a result of activity at the IUT interface.

The verdict in these test cases depends on the behaviour at both interfaces.

## 4.4 T reference point test cases

For these test cases the IUT is connected to the MTC and one PTC is used. The verdict depends only on the behaviour observed at the PCO between the IUT and the MTC. The PTC is used only to provoke the IUT to send messages to the MTC or to handle behaviour at the remote user interface as a result of activity at the IUT interface.

In general the correlation of messages between the served and remote user interfaces (which is part of the functionality of the supplementary service rather than the protocol) is not tested. If a message is expected at the MTC as a result of an action at a remote user and is not received this usually leads to an inconclusive verdict.

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# 5 Untestable test purposes

The test purposes indicated below are untestable for both Basic access and Primary rate access.

- CCBS\_N01\_008 and CCBS\_N01\_009

NOTE 1: These TPs are untestable because they require situations to occur which it is not practical to produce using standardized procedures in the test method used in this ATS.

The test purposes indicated below are untestable for Primary rate access. The corresponding test cases are selected only for Basic access.

- CCBS\_N07\_001 to CCBS\_N07\_006
- CCBS\_N08\_003 to CCBS\_N08\_006
- CCBS\_N09\_003 to CCBS\_N09\_006

NOTE 2: These TPs are untestable for Primary rate access because it is impractical to test if a B-channel is reserved on Primary rate access. These TPs are concerned with either starting B-queue processing when this results in no observable behaviour other than the reservation of a B-channel or specifically with the continuation or cancellation of the reservation during B-queue processing.

The test purposes indicated below are not fully testable for Primary rate access. The corresponding test cases only test that a B-channel is reserved or not reserved for Basic access.

- CCBS\_N08\_001
- CCBS\_N08\_007 to CCBS\_N08\_011
- CCBS\_N09\_001
- CCBS\_N09\_007 to CCBS\_N09\_017

NOTE 3: These TPs are not fully testable for Primary rate access because it is impractical to test if a B-channel is reserved on Primary rate access. These TPs are concerned with starting B-queue processing in situations where this results in observable behaviour in addition to the reservation of a B-channel and therefore can be substantially covered without a check of the B-channel reservation.

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## 6 ATS conventions

### 6.1 Version of TTCN used

The version of TTCN used is that defined in ISO/IEC 9646-3 [8].

### 6.2 Use of ASN.1

#### 6.2.1 Situations where ASN.1 is used

ASN.1 has been used for three major reasons. First, types defined in ASN.1 can model problems that "pure" TTCN cannot. For instance, data structures modelling ordered or unordered sequences of data are preferably defined in ASN.1. Second, ASN.1 provides a better restriction mechanism for type definitions by using sub-type definitions. Third, it is necessary to use ASN.1 to reproduce the type definitions for remote operation components as specified in the base standards.

The possibility to use TTCN and ASN.1 in combination is used, i.e. referring to an ASN.1 type from a TTCN type.

Some test case variable have types defined in ASN.1.

##### 6.2.1.1 Specification of encoding rules

There is a variation in the encoding rules applied to ASN.1 types and constraints specified in this ATS and therefore a mechanism is needed to differentiate the encoding rules. However the mechanism specified in ISO/IEC 9646-3 [8] does not facilitate definition of the encoding rules as needed for this ATS. A solution is therefore used which is broadly in the spirit of ISO/IEC 9646-3 [8] in which comment fields have been used as a means of encoding rules.

For ASN.1 used in this ATS, two variations of encoding rules are used. One is the commonly known Basic Encoding Rules (BER) as specified in ITU-T Recommendation X.209 [12]. In the second case the encoding is according to ISDN, i.e. the ASN.1 data types are a representation of structures contained within the ISDN specification (basic call, Generic functional protocol or individual supplementary service). For example, if octets of an information element are specified in ASN.1 as a SEQUENCE then this should be encoded in an Executable Test Suite (ExTS) as any other ISDN information element specified using tabular TTCN. This ISDN encoding variation is the default encoding rule for this ATS. This means that all ASN.1 constraint tables are encoded using ISDN (non-BER) encoding unless stated otherwise. BER encoding should never be applied to an ASN.1 constraint where BER encoding has not been specified.

For BER encoding, an indication is given in the comments field of the table header. For this ATS such indications appear in the ASN.1 type constraint declaration tables only. In the first line of the table header comment field, the notation "ASN1\_Encoding: *BER*" is used.

Note that within BER, there are a number of variations for the encoding of lengths of fields. According to EN 300 196-1 [5], an IUT should be able to interpret all length forms within BER for received PDUs. When sending PDUs containing BER encoding, EN 300 196-1 [5] gives guidelines but makes no restrictions on the length forms within BER which an IUT may apply.

In this particular ATS all ASN.1 type constraints which are of type "Component" are to be encoded using BER.

**Table 1: ASN.1 type constraint declaration showing use of encoding variation**

ASN.1 Type Constraint Declaration			
Constraint Name : Beg3PTYinv			
ASN.1 Type : Component			
Derivation Path :			
Comments : ASN1_Encoding: BER			
Receive component: Begin3PTY invoke component			
Description			
begin3PTY_Components			
begin3PTY_InvokeComp			
{ invokeID ? ,			
operation_value localValue 4}			
Detailed comments :			

Static chaining, that is a fixed reference to a specific constraint, is used in this ATS. The static chaining is used for static binding of both variables and sub-structures.

## 6.3 Conventions for variables and parameters

Table 2

MTCA - S/T reference point test cases		
call reference B channel	CREF1 (assigned by IUT)	to PTC1 - call which encounters busy or CCBS Call
call reference B channel	CREF2 (assigned by IUT)	to PTC1 - additional call e.g. to make a B-channel busy at network B
PCO L0	IPN0, LIPN0	
PTC1 - S/T reference point test cases		
call reference B channel	P1CREF (assigned by IUT)	from MTC - used for calls which are not cleared immediately; or to PTC1 to test if B-channel available
call reference B channel	P1CREF2 (assigned by IUT)	from MTC or from PTC1 - used for calls which are cleared immediately
PCO L1	IPN1, LIPN1	
MTCA - T reference point test cases		
call reference B channel (basic) channel nr (primary)	CREF1 bch_num1 CH_NUM1	to/from PTC1
call reference B-channel	CREF2 (none)	signalling connection
PCO L0	IPN0, LIPN0	
PTC1 - T reference point test cases		
call reference B channel (basic) channel nr (primary)	P1CREF P1_bch_num P1_CH_NUM	from/to MTC
PCO L1	IPN1, LIPN1	

---

## 7 ATS to TP map

The identifiers used for the TPs are reused as test case names. Thus there is a straightforward one-to-one mapping.

---

## 8 PCTR conformance

A test laboratory, when requested by a client to produce a PCTR, is required, as specified in ISO/IEC 9646-5 [10], to produce a PCTR conformant with the PCTR template given in annex B of ISO/IEC 9646-5 [10].

Furthermore, a test laboratory, offering testing for the ATS specification contained in annex C, when requested by a client to produce a PCTR, is required to produce a PCTR conformant with the PCTR proforma contained in annex A of the present document.

A PCTR which conforms to this PCTR proforma specification shall preserve the content and ordering of the clauses contained in annex A. Clause A.6 of the PCTR may contain additional columns. If included, these shall be placed to the right of the existing columns. Text in *italics* may be retained by the test laboratory.

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## 9 PIXIT conformance

A test realizer, producing an executable test suite for the ATS specification contained in annex C, is required, as specified in ISO/IEC 9646-4 [9], to produce an augmented partial PIXIT proforma conformant with this partial PIXIT proforma specification.

An augmented partial PIXIT proforma which conforms to this partial PIXIT proforma specification shall, as a minimum, have contents which are technically equivalent to annex B. The augmented partial PIXIT proforma may contain additional questions that need to be answered in order to prepare the Means Of Testing (MOT) for a particular IUT.

A test laboratory, offering testing for the ATS specification contained in annex C, is required, as specified in ISO/IEC 9646-5 [10], to further augment the augmented partial PIXIT proforma to produce a PIXIT proforma conformant with this partial PIXIT proforma specification.

A PIXIT proforma which conforms to this partial PIXIT proforma specification shall, as a minimum, have contents which are technically equivalent to annex B. The PIXIT proforma may contain additional questions that need to be answered in order to prepare the test laboratory for a particular IUT.

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## 10 ATS conformance

The test realizer, producing MOT and ExTS for this ATS specification, shall comply with the requirements of ISO/IEC 9646-4 [9]. In particular, these concern the realization of an ExTS based on each ATS. The test realizer shall provide a statement of conformance of the MOT to this ATS specification.

An ExTS which conforms to this ATS specification shall contain test groups and test cases which are technically equivalent to those contained in the ATS in annex C. All sequences of test events comprising an abstract test case shall be capable of being realized in the executable test case. Any further checking which the test system might be capable of performing is outside the scope of this ATS specification and shall not contribute to the verdict assignment for each test case.

Test laboratories running conformance test services using this ATS shall comply with ISO/IEC 9646-5 [10].

A test laboratory which claims to conform to this ATS specification shall use an MOT which conforms to this ATS.

## 11 Configurations required in testing

This ATS covers procedures at both the S/T and T reference points. If the IUT supports both S/T and T reference points then it is necessary to run different test cases with the IUT configured for each. Table 3 indicates how the interfaces on the IUT connected to PCOs L0 and L1 should be configured for each test group. The configuration shown in bold is that of the interface being tested in the test cases of the group concerned.

**Table 3: Reference points**

Test groups	Description	Configuration of access at PCO L0	Configuration of access at PCO L1
CCBS_N01 to CCBS_N06	S/T - network A	<b>S/T</b>	S/T
CCBS_N07 to CCBS_N09	S/T - network B	S/T	<b>S/T</b>
CCBS_N11 to CCBS_N13	T - network A	<b>T</b>	S/T or T
CCBS_N14 to CCBS_N16	T - network B	<b>T</b>	S/T

Certain test cases require the IUT to be configured with certain values of subscription options. These are indicated in table 4 below. Either value of these subscription options may be used for all other test cases.

**Table 4: Subscription options**

Subscription option	Value	Test cases
Recall mode (at L0)	Global recall	CCBS_N04_005, 009, 010
	Specific recall	CCBS_N04_004, 008
Status request procedures for existing services (at L1)	Supported	CCBS_N08_001-011 CCBS_N09_001, 007-011
	Not supported	CCBS_N07_001-006 CCBS_N09_012-017

Table 5 below indicates the PICS and PIXIT items and test suite parameters associated with these configuration items. The "Static parameter" corresponding to each option should be set to indicate support of that option according to the PICS. In order to determine the complete set of test cases applicable to the IUT all the dynamic parameters should be set to TRUE. During test case execution the dynamic parameters should be set according to the actual configuration of the IUT.

**Table 5: Test suite parameters for Reference points and subscription options**

Option	PICS reference	PIXIT reference	Static parameter	Dynamic parameter
S/T reference point	R 3.1	2.13	PC_ST	PX_ST_MTC (L0) PX_ST_PTC (L1)
T reference point	R 3.2	2.14	PC_T	PX_PRIVATE_MTC (L0) PX_PRIVATE_PTC (L1)
Global recall	MC 7.1	2.22	PC_GLOB_RECALL	PX_GLOB_RECALL (L0)
Specific recall	MC 7.2	2.23	PC_SPEC_RECALL	PX_SPEC_RECALL (L0)
Status request supported for existing services	(none)	2.9	(none)	PX_STAT_REQ (L1)
Status request not supported for existing services	(none)	2.10	(none)	PX_NO_STAT_REQ (L1)

Some test cases require the IUT to be configured in special ways. These test cases and the special configurations are indicated in table 6 below. Except where indicated otherwise these special configurations should not be used for other test cases.

**Table 6: Special configurations**

Configuration	PIXIT reference	Test Suite Parameter	Test cases
CCBS is not subscribed	2.1	PX_CCBS_NOT_SUBSCR	CCBS_N03_003, 005 CCBS_N11_009
Call retention occurs for another service (S/T only) (see note 1)	2.2	PX_CALL_RET_OTHER_SERV	CCBS_N01_003-006 CCBS_N02_003
The A Queue limit exceeded (S/T only)	2.3	PX_A_Q_LIMIT_EXCEED	CCBS_N01_005
CCBS request fails due to long term denial (T only)	2.4	PX_LONG_TERM_DENIAL	CCBS_N11_010
CCBS request fails due to short term denial (T only)	2.5	PX_SHORT_TERM_DENIAL	CCBS_N11_011
Retained call information not needed for any other SS after CCBD activation (S/T only) (see note 1)	2.8	PX_NO_NEED_INFO	CCBS_N05_002, 003
CCBS call fails before destination (T only)	2.15	PX_CALL_FAIL_END	CCBS_N11_021
Implicit send for Deactivate CCBS possible (T only) (see note 2)	2.16	PX_CCBS_DEACT	CCBS_N11_002 CCBS_N14_013
Implicit send for Suspend CCBS possible(T only) (see note 2)	2.17	PX_NEED_CCBS_SUSP	CCBS_N14_006-7
Implicit send for Resume CCBS possible(T only) (see note 2)	2.18	PX_CCBS_RESUME	CCBS_N14_008-9
NOTE 1: These special configuration may be enabled for test cases other than those indicated here.			
NOTE 2: The IUT may be configured so that these implicit sends are possible for other test cases, although the would not be required.			

Certain test cases require the IUT to be configured in ways that are mutually incompatible according to the PICS proformas for CCBS (EN 300 359-2 [3]) or basic call (EN 300 403-3 [13]). These are indicated in table 7 below.

**Table 7**

Description	PICS reference	PIXIT reference	Test Suite Parameter	Test cases
Point-to-point	R 7.1 (see note)	NOT (1.6)	NOT (PX_MULTIPPOINT)	CCBS_N04_001, 014, 016, 018, 020, 024, 027 CCBS_N05_002 CCBS_N06_001, 003, 005, 007
Point-to-multipoint	R 7.2 (see note)	1.6	PX_MULTIPPOINT	CCBS_N04_002, 005, 009, 010, 015, 017, 019, 021, 023, 025, 025 CCBS_N05_003 CCBS_N06_002, 004, 006, 008
Request retention	MC6	N/A	PC_REQ_RETENTION	CCBS_N04_013, 016, 017 CCBS_N11_002, 018 CCBS_N14_001
No request retention	NOT (MC6)	N/A	NOT (PC_REQ_RETENTION)	CCBS_N04_014-015, 018-019 CCBS_N11_003, 019 CCBS_N14_002
NOTE: These items are in the Basic Call PICS EN 300 403-3 [13].				

## Annex A (normative): Protocol Conformance Test Report (PCTR) proforma

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the PCTR proforma in this annex so that it can be used for its intended purposes and may further publish the completed PCTR.

### A.1 Identification summary

#### A.1.1 Protocol conformance test report

PCTR number:	
PCTR date:	
Corresponding SCTR number:	
Corresponding SCTR date:	
Test laboratory identification:	
Test laboratory manager:	
Signature:	

#### A.1.2 IUT identification

Name:	
Version:	
Protocol specification:	EN 300 359-1
PICS:	
Previous PCTRs (if any):	

#### A.1.3 Testing environment

PIXIT reference number:	
ATS specification:	EN 300 359-6
Abstract test method:	Multi-party test method (see ISO/IEC 9646-2)
Means of testing identification:	
Dates of testing:	
Conformance log reference(s):	
Retention date for log reference(s):	



## A.1.4 Limits and reservations

*Additional information relevant to the technical contents or further use of the test report, or to the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.*

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## A.1.5 Comments

*Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.*

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## A.2 IUT conformance status

This IUT has / has not been shown by conformance assessment to be non-conforming to the specified protocol specification.

*Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements (as specified in clause A.3 of this report) and there are no "FAIL" verdicts to be recorded (in clause A.6) strike the word "has", otherwise strike the words "has not".*

---

## A.3 Static conformance summary

The PICS for this IUT is / is not consistent with the static conformance requirements in the specified protocol.

*Strike the appropriate words in this sentence.*

---

## A.4 Dynamic conformance summary

The test campaign did/did not reveal errors in the IUT.

*Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded (in clause A.6 of this report) strike the word "did", otherwise strike the words "did not".*

Summary of the results of groups of tests:

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## A.5 Static conformance review report

*If clause A.3 indicates non-conformance, this clause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.*

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## A.6 Test campaign report

ATS reference	Selected? (Y/N)	Run? (Y/N)	Verdict	Observations
CCBS_N01_001				
CCBS_N01_002				
CCBS_N01_003				
CCBS_N01_004				
CCBS_N01_005				
CCBS_N01_006				
CCBS_N01_007				
CCBS_N01_010				
CCBS_N02_001				
CCBS_N02_002				
CCBS_N02_003				
CCBS_N03_001				
CCBS_N03_002				
CCBS_N03_003				
CCBS_N03_004				
CCBS_N03_005				
CCBS_N03_006				
CCBS_N04_001				
CCBS_N04_002				
CCBS_N04_003				
CCBS_N04_004				
CCBS_N04_005				
CCBS_N04_006				
CCBS_N04_007				
CCBS_N04_008				
CCBS_N04_009				
CCBS_N04_010				
CCBS_N04_011				
CCBS_N04_012				
CCBS_N04_013				
CCBS_N04_014				
CCBS_N04_015				
CCBS_N04_016				
CCBS_N04_017				
CCBS_N04_018				
CCBS_N04_019				
CCBS_N04_020				
CCBS_N04_021				
CCBS_N04_022				

ATS reference	Selected? (Y/N)	Run? (Y/N)	Verdict	Observations
CCBS_N04_023				
CCBS_N04_024				
CCBS_N04_025				
CCBS_N04_026				
CCBS_N04_027				
CCBS_N04_028				
CCBS_N04_029				
CCBS_N04_030				
CCBS_N05_001				
CCBS_N05_002				
CCBS_N05_003				
CCBS_N06_001				
CCBS_N06_002				
CCBS_N06_003				
CCBS_N06_004				
CCBS_N06_005				
CCBS_N06_006				
CCBS_N06_007				
CCBS_N06_008				
CCBS_N07_001				
CCBS_N08_001				
CCBS_N08_002				
CCBS_N08_003				
CCBS_N08_004				
CCBS_N08_005				
CCBS_N08_006				
CCBS_N08_007				
CCBS_N08_008				
CCBS_N08_009				
CCBS_N08_010				
CCBS_N08_011				
CCBS_N09_001				
CCBS_N09_002				
CCBS_N09_003				
CCBS_N09_004				
CCBS_N09_005				
CCBS_N09_006				
CCBS_N09_007				
CCBS_N09_008				
CCBS_N09_009				
CCBS_N09_010				
CCBS_N09_011				
CCBS_N09_012				
CCBS_N09_013				
CCBS_N09_014				
CCBS_N09_015				
CCBS_N09_016				
CCBS_N09_017				
CCBS_N10_001				
CCBS_N10_002				
CCBS_N10_003				
CCBS_N10_004				
CCBS_N11_001				
CCBS_N11_002				
CCBS_N11_003				
CCBS_N11_004				
CCBS_N11_005				
CCBS_N11_006				
CCBS_N11_007				
CCBS_N11_008				
CCBS_N11_009				
CCBS_N11_010				

ATS reference	Selected? (Y/N)	Run? (Y/N)	Verdict	Observations
CCBS_N11_011				
CCBS_N11_012				
CCBS_N11_013				
CCBS_N11_014				
CCBS_N11_015				
CCBS_N11_016				
CCBS_N11_017				
CCBS_N11_018				
CCBS_N11_019				
CCBS_N11_020				
CCBS_N11_021				
CCBS_N11_022				
CCBS_N12_001				
CCBS_N13_001				
CCBS_N13_002				
CCBS_N13_003				
CCBS_N13_004				
CCBS_N13_005				
CCBS_N14_001				
CCBS_N14_002				
CCBS_N14_003				
CCBS_N14_004				
CCBS_N14_005				
CCBS_N14_006				
CCBS_N14_007				
CCBS_N14_008				
CCBS_N14_009				
CCBS_N14_010				
CCBS_N14_011				
CCBS_N14_012				
CCBS_N14_013				
CCBS_N15_001				
CCBS_N16_001				
CCBS_N16_002				

## A.7 Observations

*Additional information relevant to the technical content of the PCTR are given here.*

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

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## Annex B (normative): Partial PIXIT proforma

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the partial PIXIT proforma in this annex so that it can be used for its intended purposes and may further publish the completed PIXIT.

---

### B.1 Identification summary

PIXIT number:

.....

Test laboratory name:

.....

Date of issue:

.....

Issued to:

.....

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### B.2 Abstract test suite summary

Protocol specification: EN 300 359-1

ATS specification: EN 300 359-6

Abstract test method: Multi-party test method (see ISO/IEC 9646-2)

---

### B.3 Test laboratory

Test laboratory identification:

.....

Accreditation status of the test service:

.....

Accreditation reference:

.....

Test laboratory manager:

.....

Test laboratory contact:

.....

Means of testing:

.....

Test laboratory instructions for completion:

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## B.4 Client (of the test laboratory)

Client identification:

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Client test manager:

.....

Client contact:

.....

Test facilities required:

.....

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## B.5 System Under Test (SUT)

Name:

.....

Version:

.....

SCS reference:

.....

Machine configuration:

.....

Operating system identification:

.....

IUT identification:

.....

PICS (all layers):

.....

.....

Limitations of the SUT:

.....

Environmental conditions:

.....

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## B.6 Protocol information

NOTE: Two PCOs are used in the ATS, in this PIXIT proforma the terms "network A" and "network B" refer to the DSS1 protocol entities at these interfaces respectively. For tests at the S/T reference point network A is at the interface to the served (calling) user and network B is at the interface to the called user, both of these need to be configured for the S/T reference point. For tests at the T reference point network A is at the interface being tested (which is the calling or called user depending on the test group) and network B is the corresponding called or calling user. For certain T reference point test cases it is necessary to configure network B for the S/T reference point.

### B.6.1 Protocol identification

Specification reference: EN 300 359-1

Protocol version:

PICS reference:

NOTE: The PICS reference should reference a completed PICS which is conformant with the PICS proforma contained in EN 300 359-2.



## B.6.2 IUT information

### B.6.2.1 Parameter values

**Table B.1: Parameter values**

Item	Question	Supported? (Y/N)	Allowed values	Value
1.1.1	Does the IUT support basic access (except for network B for T reference point tests)?		N/A	N/A
1.1.2	Does the IUT support basic access for network B for T reference point tests?		N/A	N/A
1.2.1	What length of Call Reference value is used (except for network B for T reference point tests)?		1, 2	
1.2.2	What length of Call Reference value is used for network B for T reference point tests?		1, 2	
1.3	Void			
1.4	Does the IUT allow the release and re-establishment of the layer 2 multiple frame established operation at the start of each test case? (see note 1)		N/A	N/A
1.5	Does the IUT support basic services other than "existing services"? (see note 2) [2.12]			N/A
1.6	Does the IUT support a multipoint configuration? [2.6]			
1.7	Does the IUT send RESTART messages after re-establishment of multiple frame operation?		N/A	
<p>NOTE 1: This procedure is used to re-initialize all layer 2 counters before starting a test case. The value of this PIXIT item can be set to "No" for accesses where the layer 2 multiple frame established operation release and re-establishment may cause problems.</p> <p>NOTE 2: "Existing services" are those basic telecommunication services associated with the speech, 3,1 kHz audio and 64 kbit/s unrestricted bearer capabilities. Services other than the existing services include services based on, for example, the unrestricted digital information with tones/announcements bearer capability.</p> <p>NOTE 3: The numbers in square brackets after certain items indicate the corresponding item in the previous version of the present document.</p>				

## B.6.2.2 Configuration of IUT

Table B.2: Actions required to configure the IUT

Item	Action: What actions, if possible, have to be taken to configure the IUT ...	Supported? (Y/N)	Stimulus (action taken)
2.1	for access NOT subscribed to CCBS supplementary service?		
2.2	for the invoke of call retention procedure for service other than CCBS (see note 1)?		
2.3	to have exceeded the user A CCBS queue limit?		
2.4	so that the network B cannot accept CCBS request due to a "longTermDenial" situation? (see note 2)		
2.5	so that the network B cannot accept CCBS request due to a "shortTermDenial" situation? (see note 2)		
2.6	Void		
2.7	Void		
2.8	so that it has the knowledge that no other supplementary service will need the call information after invocation of CCBS?		
2.9	so that the status request subscription parameter at network B indicates "status request procedures supported for existing services"?		
2.10	so that the status request subscription parameter at network B indicates "status request procedures not supported for existing services"?		
2.11	Void		
2.12	Void		
2.13	for connection to a TE that is not a private ISDN at the S/T reference point?		
2.14	for connection to a private ISDN at the T reference point?		
2.15	so that the CCBS call will fail before reaching the destination?(see note 2)		
2.16	to be able to deactivate the CCBS request on demand?		
2.17	to be able to send a CCBS-T-Suspend invoke component on demand?		
2.18	to be able to send a CCBS-T-Resume invoke component on demand?		
2.19	Void		
2.20	Void		
2.21	Void		
2.22	For "global recall"?		
2.23	For "specific recall"?		
NOTE 1: When the SUT is configured as described in the response to this item call information retention should occur when the response to a call attempt from the called user is ALERTING followed by DISCONNECT with cause #17 (user busy) or cause #31 (normal, unspecified). This could be achieved if CCNR is supported by the SUT and subscribed for the served user.			
NOTE 2: Only required for T reference point testing.			

### B.6.2.3 Timer values

**Table B.3: Timer values**

Item	Timer duration	Supported? (Y/N)	Allowed values	Value
3.1	T-RETENTION (in seconds)		(> 15 s)	
3.2	T-CCBS2 (in minutes)		(> 15 min)	
3.3	T-CCBS3 (in seconds)		(10 s < t < 20 s)	
3.4	T-CCBS4 (in seconds)		(0 s < t < 15 s)	
3.5	Timer that is used to wait for the test operator to perform an implicit send action or to wait for a PTC to react (TWAIT) (in seconds)		N/A	
3.6	Timer that is used to wait for the IUT to respond to a stimulus sent by the tester (TAC) (in seconds)		N/A	
3.7	Timer that is used to control that the IUT does not respond to a stimulus sent by the tester (TNOAC) (in seconds)		N/A	
3.8	Timer that is used to wait for the IUT to send RESTART messages after re-establishment of multiple frame operation (in seconds)		N/A	
NOTE: The IUT provider may fill in a value range rather than a fixed value for the test management timers. During test execution the test laboratory will choose specific values for the timers dependant on the means of testing used. These specific values may even be beyond the range given by the IUT provider, if this is necessary for achieving satisfactory test results.				

## B.7 Basic call PIXIT items

### B.7.1 Parameter values - information element codings

**Table B.4: Codings of information elements**

Item	Information element: provide, if possible, ...	Supported? (Y/N)	Allowed values	Value
4.1	for an "existing service" supported by the IUT...			
4.1.1	Bearer capability		see note 1	
4.1.2	High layer compatability (if any)			
4.1.3	Low layer compatability (if any)			
4.2	for a basic service that is not an "existing service" and is supported by the IUT (see note 2)...			
4.2.1	Bearer capability			
4.2.2	High layer compatability (if any)			
4.2.3	Low layer compatability (if any)			
4.3	a Called party number IE for use in calls to the user attached to			
4.3.1	network A (see note 3)			
4.3.2	network B			
4.4	preferred channel number to be used for the purpose of accepting received SETUP messages, for ... (see note 4)			
4.4.1	first call at network A			
4.4.2	first call at network B			
NOTE 1: Existing services are basic services associated with the bearer capabilities speech, 3,1 kHz audio and 64 kbit/s unrestricted (see EN 300 359-1, annex B).				
NOTE 2: If the IUT does not support any services other than existing services then items 4.2.1 to 4.2.3 should be completed for an existing service with a different bearer capability from that given in 4.1.1.				
NOTE 3: Only required for T reference point testing.				
NOTE 4: Only required for primary rate access T reference point testing.				

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## Annex C (normative): Abstract Test Suite (ATS)

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [8].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the table contents. The ATS itself contains a test suite overview part which provides additional information and references.

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### C.1 The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (CCBS\_N13.PDF contained in archive en\_30035906v010401p0.zip) which accompanies the present document.

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### C.2 The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (CCBS\_N13.MP contained in archive en\_30035906v010401p0.zip) which accompanies the present document.

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## Annex D (informative): Change record

### D.1 Changes with respect to EN 300 359-6 V1.3.6

- Updating of ATS for alignment with EN 300 359-1 [2] and corresponding changes to PCTR. This has involved a major revision of the part of the ATS testing behaviour at the coincident S/T reference point.
- Revision of test case selection and PIXIT.
- Revision including removal of superfluous and out of date material from clauses 4 and 6 and old annex D.
- Addition of information on configuration of the SUT needed for testing.

---

### D.2 Changes with respect to EN 300 359-6 V1.2.4

To handle corrections to the ATS.

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### D.3 Changes with respect to the previous ETS 300 359-6

The following changes have been done:

- conversion to EN layout;
- replacement of references to ETS 300 102 with EN 300 403-1 [1];
- substitution of non-specific references to basic standards where the intention is to refer to the latest version.

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## Annex E (informative): Bibliography

- ETSI ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control"

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## History

Document history		
Edition 1	September 1997	Publication as ETS 300 359-6
V1.2.4	June 1998	Publication
V1.3.6	June 2000	Publication
V1.4.1	July 2001	One-step Approval Procedure      OAP 20011116: 2001-07-18 to 2001-11-16
V1.4.1	November 2001	Publication