

# ETSI EN 301 455-2 V1.3.1 (2000-12)

---

*European Standard (Telecommunications series)*

**Private Integrated Services Network (PISN);  
Inter-exchange signalling protocol;  
Cordless Terminal Mobility (CTM);  
Incoming call additional network feature  
for the VPN "b" service entry point;  
Part 2: Abstract Test Suite (ATS) and partial Protocol  
Implementation eXtra Information for Testing (PIXIT)  
proforma**

---



---

**Reference**

DEN/SPAN-05194-3

---

**Keywords**ANF, ATS, CTM, mobility, PISN, PSS1, PIXIT,  
testing, VPN**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  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

---

**Important notice**

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at <http://www.etsi.org/tb/status/>

If you find errors in the present document, send your comment to:  
editor@etsi.fr

---

**Copyright Notification**

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2000.  
All rights reserved.

# Contents

Intellectual Property Rights .....	5
Foreword.....	5
1 Scope.....	6
2 References.....	6
3 Definitions and abbreviations.....	7
3.1 Definitions .....	7
3.2 Abbreviations.....	7
4 Abstract Test Method (ATM).....	7
4.1 Description of ATM used .....	7
5 Untestable test purposes.....	8
6 ATS conventions .....	9
6.1 Version of TTCN used .....	9
6.2 Use of ASN.1 .....	9
6.2.1 Situations where ASN.1 is used.....	9
6.2.2 Specification of encoding rules.....	9
7 ATS to TP map.....	10
8 PCTR conformance .....	10
9 PIXIT conformance .....	11
10 ATS conformance.....	11
<b>Annex A (normative): Protocol Conformance Test Report (PCTR) proforma .....</b>	<b>12</b>
A.1 Identification summary .....	12
A.1.1 Protocol conformance test report.....	12
A.1.2 IUT identification.....	12
A.1.3 Testing environment.....	13
A.1.4 Limits and reservations.....	13
A.1.5 Comments.....	13
A.2 IUT conformance status.....	13
A.3 Static conformance summary .....	13
A.4 Dynamic conformance summary.....	14
A.5 Static conformance review report.....	14
A.6 Test campaign report .....	14
A.7 Observations.....	15
<b>Annex B (normative): Partial PIXIT proforma.....</b>	<b>16</b>
B.1 Identification summary .....	16
B.2 Abstract test suite summary .....	16
B.3 Test laboratory.....	16
B.4 Client (of the test laboratory) .....	17
B.5 System Under Test (SUT).....	17
B.6 Protocol information .....	18
B.6.1 Protocol identification .....	18

B.6.2	IUT information .....	18
B.6.2.1	Parameter values .....	18
B.6.2.2	Configuration of IUT .....	18
B.6.2.3	Timer values .....	19
B.6.2.4	Information parameter values .....	19
B.7	Basic call PIXIT items .....	20
B.7.1	Parameter values - information element codings .....	20
<b>Annex C (normative):</b>	<b>Abstract Test Suite (ATS).....</b>	<b>21</b>
C.1	The TTCN Graphical form (TTCN.GR).....	21
C.2	The TTCN Machine Processable form (TTCN.MP) .....	21
	Bibliography.....	22
	History .....	23

---

## Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://www.etsi.org/ipr>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

---

## 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 2 for a multi-part deliverable covering the Inter-exchange signalling protocol; Cordless Terminal Mobility (CTM); Incoming call additional network feature for the VPN "b" service entry point, as described below:

Part 1: "Test Suite Structure and Test Purposes (TSS&TP) specification";

**Part 2: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".**

<b>National transposition dates</b>	
Date of adoption of this EN:	8 December 2000
Date of latest announcement of this EN (doa):	31 March 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 September 2001
Date of withdrawal of any conflicting National Standard (dow):	30 September 2001

---

# 1 Scope

This second part of EN 301 455 specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the VPN "b" reference point of implementations conforming to the standard for the Cordless Terminal Incoming Call Additional Network Feature (ANF-CTMI).

EN 301 455-1 [5] specifies the Test Suite Structure and Test Purposes (TSS&TP) related to this ATS and partial PIXIT proforma specification.

---

# 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.
- 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] ISO/IEC 9646 (all parts): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework".
- [2] ETSI TR 101 101 (V1.1.1): "Methods for Testing and Specification (MTS); TTCN interim version including ASN.1 1994 support [ISO/IEC 9646-3] (Second Edition Mock-up for JTC1/SC21 Review)".
- [3] ISO/IEC 8825-1: "Information technology - ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)" (See also ITU-T Recommendation X.690)".
- [4] ETSI ETS 300 696 (1996): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Cordless Terminal Incoming Call additional network feature".
- [5] ETSI EN 301 455-1 (V1.1.4): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Cordless Terminal Incoming Call additional network feature (ANF-CTMI) for the VPN b service entry point; Part 1: Test Suite Structure and Test Purposes (TSS&TP) specification".

---

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646 [1] apply.

### 3.2 Abbreviations

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

ANF	Additional Network Feature
ANF-CTMI	Additional Network Feature Incoming CTM Call Handling
ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
BER	Basic Encoding Rules
CM	Co-ordination Message
ETS	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
TTCN	Tree and Tabular Combined Notation
VPN	Virtual Private Network

---

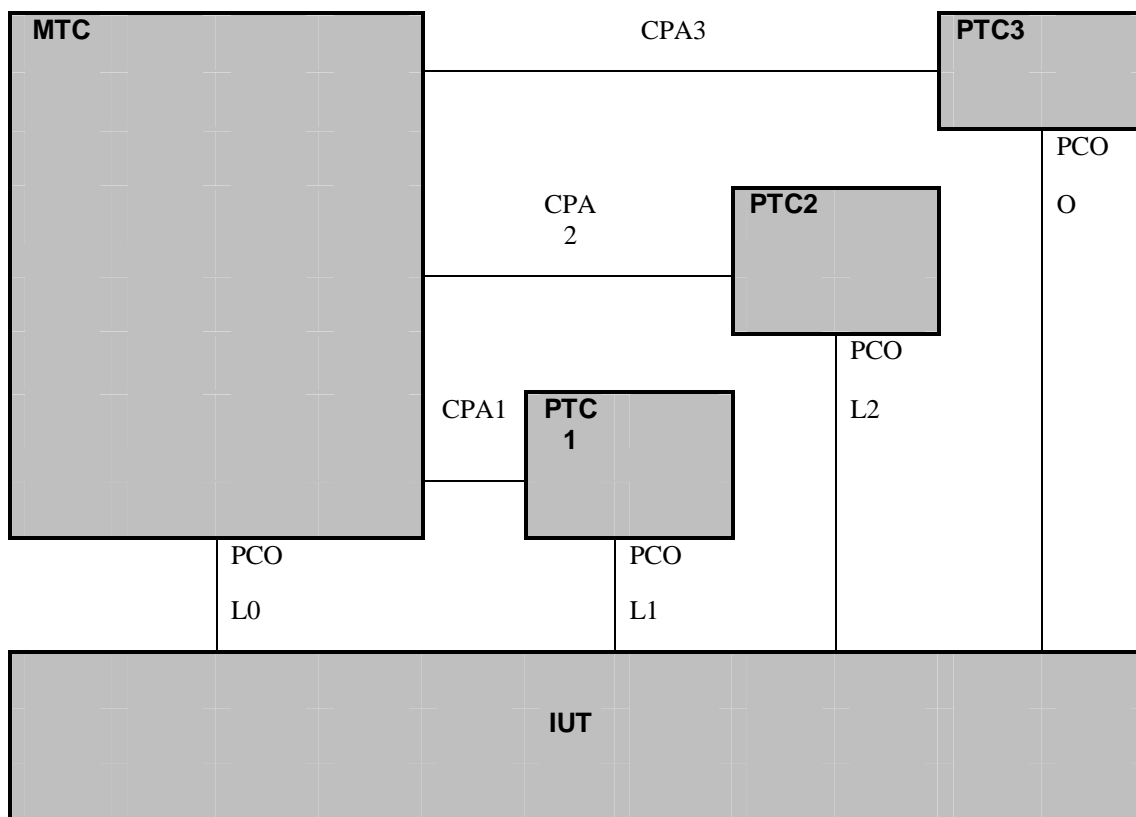
## 4 Abstract Test Method (ATM)

### 4.1 Description of ATM used

The multi-party test method is applied for testing the IUT. The general configuration used is shown in figure 1.

A Point of Control and Observation (PCO) resides at the service access point between layers 2 and 3 in the test system. The PCO used by the MTC is named "L0" (for Lower), the PCO used by the PTC1 is named "L1", and the PCO used by the PTC2 is named "L2". These PCOs are used to control and observe the behaviour of the Implementation Under Test (IUT) and test case verdicts are assigned depending on the behaviour observed at these PCOs.

A fourth "informal" PCO, called "O" (for Operator) is used to specify control but not observation above the IUT; events at this PCO are never used to generate test case verdicts. Messages sent by the tester at this PCO explicitly indicate to the operator actions which are to be performed on the SUT. This is regarded as a preferred alternative to the use of the implicit send event.



**Figure 1: Multi-party test method**

Not all components are used in every test case and the relationship between the IUT and the tester depends on the test group:

- when the IUT is in the Home, Visitor or Detect (with Home functionality) configuration, the IUT is connected to the MTC. The verdict depends only on the behaviour observed at the PCO between the IUT and the MTC. The PCO O is used to specify control above the IUT, using the PTC process;
- when the IUT is in the Rerouting or Detect configuration, the PTC1 and the MTC are both used. The verdict is assigned by the MTC or the PTC1 depending on the test purpose. The PCO O is used to specify control above the IUT, using the PTC process;
- when the IUT is the Detect configuration providing Rerouting functionality, PTC1, PTC2 and the MTC are used. The verdict is assigned by the MTC or the PTCs depending on the test purpose. The PCO O is used to specify control above the IUT, using the PTC process.

## 5 Untestable test purposes

The Test Purpose CTMI\_Visitor01\_001 is untestable because the receive event by the operator (by the CTM User) cannot be controlled by the test system.



---

## 6 ATS conventions

### 6.1 Version of TTCN used

The version of TTCN used is that defined in TR 101 101 [2].

### 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 in ASN.1.

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

#### 6.2.2 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/AM2 [1] and in TR 101 101 [2] 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/AM2 [1] 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 ISO/IEC 8825-1 [3]. 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 (ETS) 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. This encoding rule is sometimes named "Direct Encoding".

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.

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	
<b>Constraint Name</b>	: CtmiEnquiry_inv_R1
<b>ASN.1 Type</b>	: Component
<b>Derivation Path</b>	:
<b>Encoding Variation</b>	:
<b>Comments</b>	: ASN1_Encoding: BER Receive Component: CtmiEnquiry Invoke Component
Description	
<pre> ctmiEnquiry_Comp ctmiEnquiry_InvokeComp {   invokeID ?,   operation_value localValue 54,   argument   {     pishNumber privatePartyNumber {       privateTypeOfNumber ?,       privateNumberDigits OCTETSTR_TO_NUMERICSTR(PX_CPN_PTC1),       qSIGInfoElement ? }} </pre>	
<b>Detailed comments</b>	:

---

## 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 [1], to produce a PCTR conformant with the PCTR template given in annex B of ISO/IEC 9646-5 [1].

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.

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.

---

## 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 [1], 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 [1], 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.

---

## 10 ATS conformance

The test realizer, producing MOT and ETS for this ATS specification, shall comply with the requirements of ISO/IEC 9646-4 [1]. In particular, these concern the realization of an ETS based on each ATS. The test realizer shall provide a statement of conformance of the MOT to this ATS specification.

An ETS 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 [1].

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

---

## 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 300 696
PICS:	
Previous PCTRs (if any):	

### A.1.3 Testing environment

PIXIT reference number:	
ATS specification:	EN 301 455-2
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.*

.....

.....

.....

.....

### 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.*

.....

.....

.....

.....

---

## 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 words "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:

.....

.....

.....

## 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.*

.....

.....

.....

.....

.....

.....

## A.6 Test campaign report

ATS reference	Selected? (Y/N)	Run? (Y/N)	Verdict	Observations
Reroute01_001				
Reroute01_002				
Reroute01_003				
Detect01_001				
Detect01_002				
Detect01_003				
Detect02_001				
Detect02_002				
Detect02_003				
Detect02_004				
Detect02_005				
Detect02_006				
Detect02_007				
Detect02_008				
Detect02_009				
Detect02_010				
Detect03_001				
Detect03_002				
Home01_001				
Home02_001				
Home02_002				
Home02_003				



---

## 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:

.....

---

### B.2 Abstract test suite summary

Protocol specification:	ETS 300 696
ATS specification:	EN 301 455-2
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:

.....

---

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

Client identification:

.....

Client test manager:

.....

Client contact:

.....

Test facilities required:

.....

---

## 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:

.....

## B.6 Protocol information

### B.6.1 Protocol identification

Specification reference: ETS 300 696

Protocol version:

PICS reference:

NOTE: The PICS reference should reference a completed PICS which is conformant with the PICS proforma contained in ETS 300 696.

### B.6.2 IUT information

#### B.6.2.1 Parameter values

**Table B.1: Parameter values**

Item	Question	Supported? (Y/N)	Value
1.1	Length of Business group identification value (including octet 3)		
1.2	Business group identifier value (bitstring [3])		
1.3	Business group identification value		

#### B.6.2.2 Configuration of IUT

**Table B.2: Actions required to configure the IUT**

Item	Question	Supported? (Y/N)	Stimulus (action taken)
2.1	Is the CTM User defined in the HDB?		
2.2	Has the CTM USER deregistered?		
2.3	Is the CTM User defined in the VDB?		
2.4	Is the CTM User accessible?		
2.5	Is the requested Basic Service provided to the CTM User?		
2.6	Is the current location of the CTM User known?		
2.7	Is SS-CFU active?		
2.8	Is the Rerouting PINX configured such that it cannot proceed with ANF CTMI?		

### B.6.2.3 Timer values

**Table B.3: Timer values**

Item	Timer duration	Supported? (Y/N)	Allowed values	Value
3.1	Wait for the IUT to respond to a stimulus sent by the tester (TAC). Duration in s.		Integer	
3.2	Control that the IUT does not respond to a stimulus sent by the tester (TNOAC). Duration in s.		Integer	
3.3	Wait for the test operator to perform an implicit send action or to wait for a PTC to react (TWAIT). Duration in s.		Integer	
3.4	Timer that is used to wait for RESTART messages (T_RESTART) (in s). Timer used in the initialisation preamble only.		integer	

### B.6.2.4 Information parameter values

**Table B.4: Parameter values**

Item	Parameter values Give ...	Supported? (Y/N)	Value
4.1	Visitor PINX Number		
4.2	Calling Party Number		
4.3	Calling User Name		
4.4	Private Type of Number		
4.5	Length of the Called Party Number information element		
4.6	Octet 3 (Type of number, Numberig plan identification) of the Called Party Number information element		
4.7	Number digits (IA5) of the Called Party Number information element		
4.8	Length of the Called Party Number information element with incomplete number information( insufficient to route the call)		
4.9	Number digits (IA5) of the Called Party Number information element with incomplete number information		

## B.7 Basic call PIXIT items

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

Table B.5: Parameter values

Item	Information element: provide, if possible, ...	Supported? (Y/N)	Value
5.1	What length of Call Reference value is used?		
5.2	Does the IUT send RESTART messages after re-establishment of the multiple frame operation?		
5.3	Does the IUT initiate release of the multiple frame established operation after entering U00?		
5.4	Length of the Bearer capability information element to be sent to the IUT		
5.5	Contents (octet3 onwards) of the Bearer capability information element to be sent to the IUT		
5.6	Preferred channel number (Integer)		Possible value: Basic access 1...2 Primary rate access 1...30
5.7	Preferred channel number (Integer) for the second call		Possible value: Basic access 1...2 Primary rate access 1...30
5.8	Length of the High layer compability information element to be sent to the IUT		
5.9	Contents (octet3 onwards) of the High layer compability information element to be sent to the IUT		
5.10	Length of the Low layer compability information element to be sent to the IUT		
5.11	Contents (octet3 onwards) of the invalid Low layer compability information element to be sent to the IUT		

---

## 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 [1].

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

---

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

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (sp519433 v1.3.1.PDF contained in archive en\_30145502v010301p0.ZIP) which accompanies the present document.

---

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

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (sp519433 v1.3.1.MP contained in archive en\_30145502v010301p0.ZIP) which accompanies the present document.

**NOTE:** Where an ETSI Abstract Test Suite (in TTCN) is published in both .GR and .MP format these two forms shall be considered equivalent. In the event that there appears to be syntactical or semantic differences between the two then the problem shall be resolved and the erroneous format (whichever it is) shall be corrected.

---

## Bibliography

ETSI EN 300 171 (V1.2.1): "Private Integrated Services Network (PISN); Specification, functional models and information flows; Control aspects of circuit-mode basic services [ISO/IEC 11574 (1994) modified]".

ETSI EN 300 172 (V1.4.1): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Circuit-mode basic services [ISO/IEC 11572 (1996) modified]".

ETSI ETS 300 239 (1995): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Generic functional protocol for the support of supplementary services [ISO/IEC 11582 (1995), modified]".

ETSI EN 301 060-1 (1.2.2): "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Basic call control; Enhancement at the "b" service entry point for Virtual Private Network (VPN) applications; Part 1: Protocol specification".

ETSI EN 301 061-1 (1.2.2): "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Generic functional protocol for the support of supplementary services at the "b" service entry point for Virtual Private Network (VPN) applications; Part 1: Protocol specification".

---

## History

<b>Document history</b>			
V1.1.3	November 1999	Public Enquiry	PE 200009: 1999-11-03 to 2000-03-03
V1.3.1	October 2000	Vote	V 20001208: 2000-10-09 to 2000-12-08
V1.3.1	December 2000	Publication	