Final draft ETSI EN 300 138-6 V1.5.1 (2001-12)
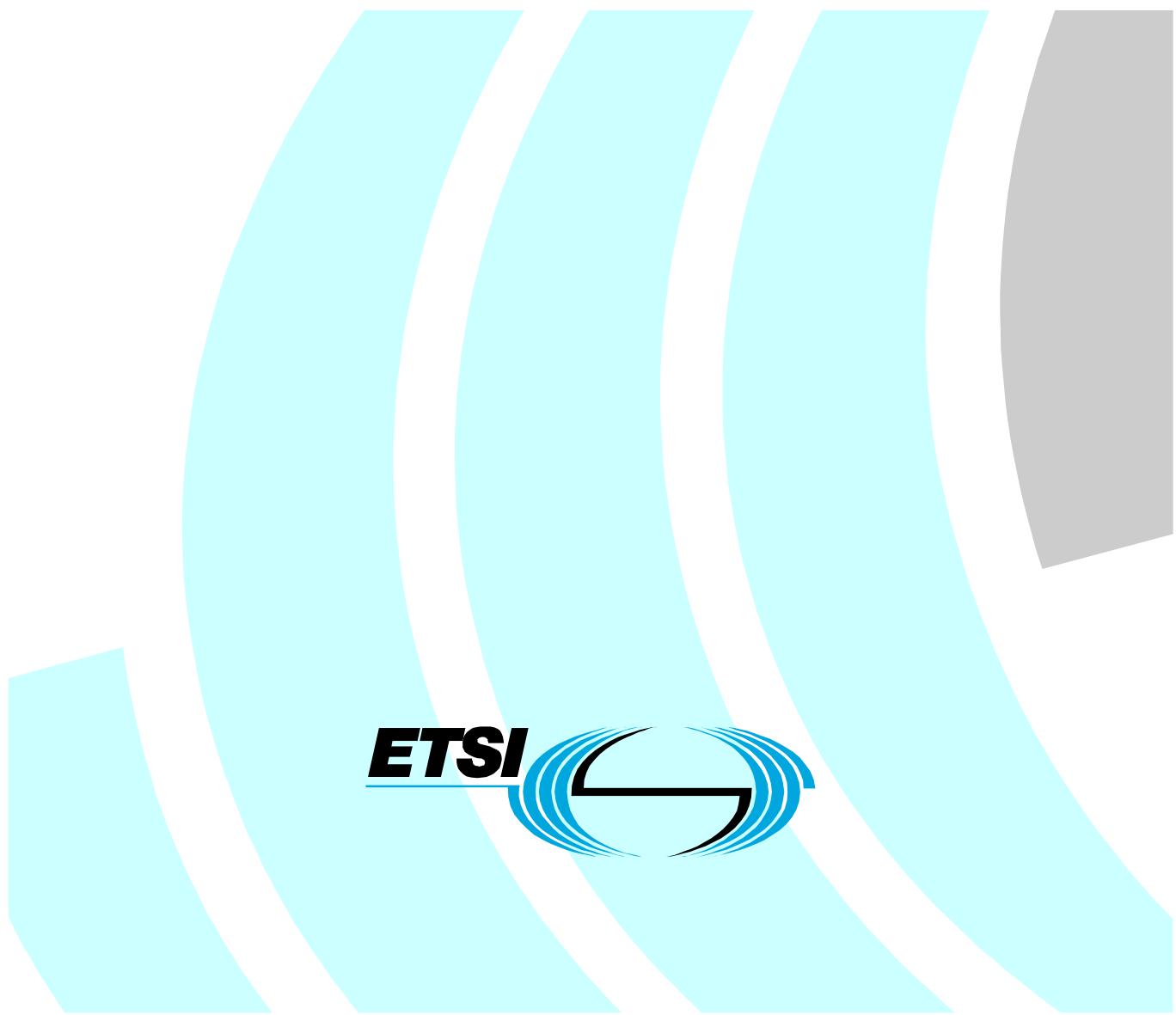
European Standard (Telecommunications series)

Integrated Services Digital Network (ISDN); Closed User Group (CUG) 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

ETSI

Reference

REN/SPAN-130257-6

Keywords

ATS, CUG, DSS1, ISDN, network, PIXIT,
supplementary service

ETSI

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

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

Siret N° 348 623 562 00017 - NAF 742 C
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Contents

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN), and is now submitted for the ETSI standards One-step Approval Procedure.

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) Closed User Group (CUG) 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".

The present version updates the references to the basic call specifications.

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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 [10]) of implementations conforming to the stage three standard for the Closed User Group (CUG) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, EN 300 138-1 [2].

EN 300 138-5 [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 300 138-1 [2].

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 300 138-1 (V1.3.4): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[3]   ETSI EN 300 138-2 (V1.3.4): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

[4]   ETSI EN 300 138-5 (V1.3.4): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) 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]   ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[6]   ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification".

[7]   ISO/IEC 9646-3: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".

[8]   ISO/IEC 9646-4: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 4: Test realization".

[9]   ISO/IEC 9646-5: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process".

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

[11]   ITU-T Recommendation X.209 (1988): "Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1)".

[12]   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".

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 [5].

Implementation Under Test (IUT): See ISO/IEC 9646-1 [5].

Lower Tester (LT): See ISO/IEC 9646-1 [5].

Point Of Control And Observation (PCO): See ISO/IEC 9646-1 [5].

Protocol Implementation Conformance Statement (PICS): See ISO/IEC 9646-1 [5].

PICS proforma: See ISO/IEC 9646-1 [5].

Protocol Implementation Extra Information For Testing (PIXIT): See ISO/IEC 9646-1 [5].

PIXIT proforma: See ISO/IEC 9646-1 [5].

System Under Test (SUT): See ISO/IEC 9646-1 [5].

Upper Tester (UT): See ISO/IEC 9646-1 [5].

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
CM	Co-ordination Message
CP	Co-ordination Point
CUG	Closed User Group
ExTS	Executable Test Suite
IA	Incoming Access
ICB	Incoming Calls Barred
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
LT	Lower Tester
MOT	Means Of Testing
MTC	Main Test Component
OA	Outgoing Access
OCB	Outgoing Calls Barred
PCO	Point of Control and Observation
PCTR	Protocol Conformance Test Report
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
UDI	Unrestricted Digital Information
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.

It is possible to specify an ATS based on a Single party (remote) test method for such an IUT. However, it is considered that an ATS based on such an approach is of limited use as the only way to specify IUT generated PDUs is to use the "implicit send" statement. Many users of such an ATS would replace the "implicit send" statements with descriptions of the behaviour at other interfaces.

An ATS based on a multi-party test method is considered to be more useful in that it is closer to how a real test suite would be constructed. Such a test method specifies behaviour at multiple network interfaces. One very important limitation here is that tests are focused on one particular interface. Thus the test system is made up one Main Test Component (MTC) and one or more Parallel Test Components (PTC), see figure 1.

4.1.1   Conventions for test components and PCOs
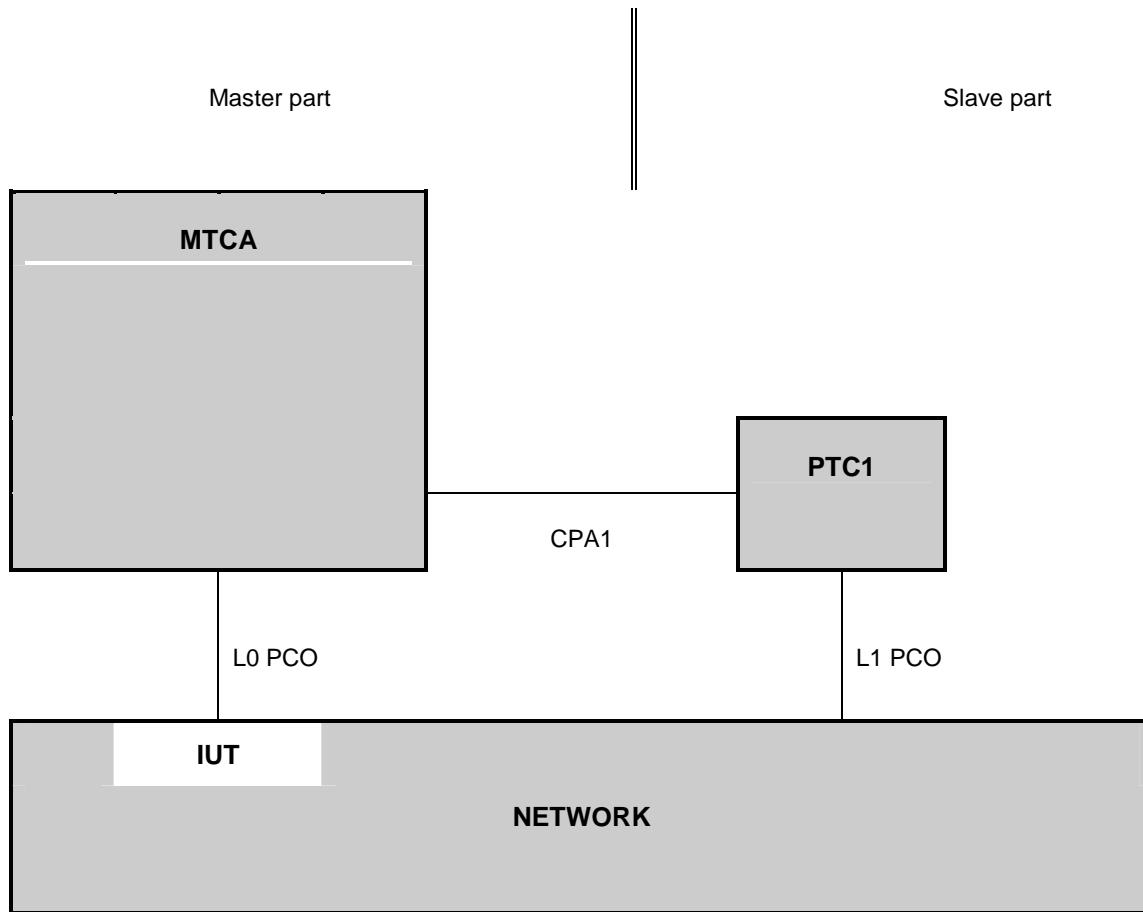
Figure 1: Multi-party test method

In a master/slave arrangement, the MTC is considered to be the master while the PTCs are the slaves. The "slave" testers are only an explicit description of how to deal with the "other" interfaces during the testing process, i.e. "how to make the IUT send the required message".

This means, in particular, that the verdict will only be assigned from the protocol aspects observed on the interface under test (i.e. by the "master" tester), as it would be observed by a terminal connected to this interface. A failure in the correlation between the protocol at the different interfaces to which the different testers are connected, i.e. in the mechanism of the functional service itself, will not cause a FAIL verdict. For instance, if the IUT fails to send a message on the tested interface after another interface has received the proper stimulus, the verdict will be INCONCLUSIVE.

The MTC MTCA has two functions in this configuration. Firstly, it has the MTC function of controlling the one or more PTCs. Thus it is responsible for starting the PTCs and afterwards co-ordinates activities by exchanging Co-ordination Messages (CM) with the PTCs. Secondly it is responsible for the behaviour of the Lower Tester (LT) at PCO L0.

A combination of the remote and multi-party test methods is applied. As can be seen from figure 1, several PCOs are used. All PCOs reside at the service access points between layers 2 and 3.
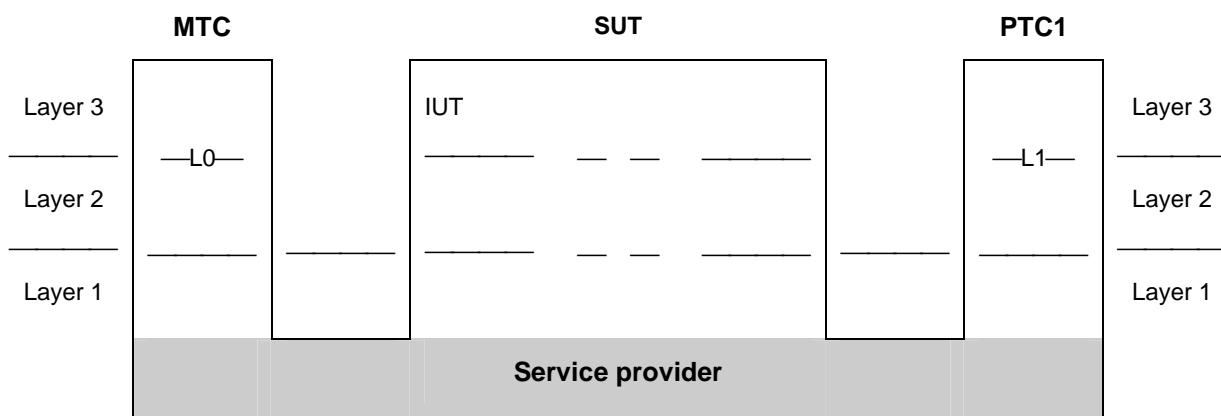
Figure 2: Combination of the remote and multi-party test methods

The MTC PCO is named "L0" ("L" for Lower). PCO L0 is used to control and observe the behaviour of the IUT and test case verdicts are assigned depending on the behaviour observed at this PCO. The PTC PTC1 uses PCO L1. This PCO is used to control and, in a limited way, observe the behaviour of the network equipment at interfaces other than the one under test. No verdicts are assigned at this PCO.

As stated in a previous clause, the non-receipt of network generated messages at L0, which are stimulated by events at the L1, will result in INCONCLUSIVE rather than FAIL verdicts being assigned.

4.1.2   Conventions for variables and parameters

MTCA

call reference	CREF1	
B channel (basic)	bch_num1	(to PTC1)
channel nr (primary)	CH_NUM1	
PCO L0	IPN0, LIPN0	

PTC1

call reference	P1CREF
B channel (basic)	P1_bch_num
channel nr (primary)	P1_CH_NUM
PCO L1	IPN1, LIPN1

4.2   Alternative ATM

As stated in clause 4.1, an ATS based on a single-party (remote) ATM is possible. Such an ATS may be generated from the one specified in the present document. The following general steps should be taken:

1) remove all PTC behaviour;

2) remove all CREATE statements;

3) replace CMs which are used to provoke PDUs at the MTC, with implicit send statements.

An example, showing the difference between the multi-party ATM and single-party ATM for a single test case, is given in tables 1 and 2.

Table 1: Test case dynamic behaviour table using multi-party ATM

```
                                TEST CASE DYNAMIC BEHAVIOUR
Test Case Name  HOLD_N04_001
Group   RemoteUser_ST_OR_T/Holding/
Purpose Ensure that the IUT, while in the Active call state N10, to notify the non-served user
that the call is held
sends a NOTIFY message with a notification indicator coded as "remote hold" to user B and
remains in the Active call state.
Default DF69901(1)
Configuration   CONFIG1
Comments    9.2.1   valid   optional
 Nr  | Label |  BEHAVIOUR DESCRIPTION  |  CREF   |  V  |  COMMENTS
1    |       |CREATE /PTC1: PTC1_IN_servedUser) |    |    |
2    |       | +PR31002  |    |    |preamble N10
3    |       |  CPA1!CP_M START TWAIT   |S_HL   |    |
4    |       |   L0?NOTIFYr  |A_NO20(CREF1,hold_NID) |(P)   |
5    |       |    +CS59901(10,1) |    |    |check N10
6    |       |   ?TIMEOUT TWAIT  |    |(I)  |
7    |       |    +PO49901(1)   |    |    |postamble N0
DETAILED COMMENTS:

```

Table 2: Test case dynamic behaviour table using single-party ATM

```
                                TEST CASE DYNAMIC BEHAVIOUR
Test Case Name  HOLD_N04_001
Group   RemoteUser_ST_OR_T/Holding/
Purpose Ensure that the IUT, while in the Active call state N10, to notify the non-served user
that the call is held
sends a NOTIFY message with a notification indicator coded as "remote hold" to user B and
remains in the Active call state.
Default DF69901(1)
Configuration
Comments    9.2.1   valid   optional
 Nr  | Label |  BEHAVIOUR DESCRIPTION  |  CREF   |  V  |  COMMENTS
1    |       | +PR31002    |    |    |preamble N10
2    |       | <IUT!NOTIFY>  |NO20(CREF1,hold_NID)   |    |
3    |       |   L0?NOTIFYr  |A_NO20(CREF1,hold_NID) |(P)   |
4    |       |    +CS59901(10,1) |    |    |check N10
5    |       |   ?TIMEOUT TWAIT   |    |(I)   |
6    |       |    +PO49901(1) |    |    |postamble N0
DETAILED COMMENTS:

```

5   Untestable test purposes

There are no untestable test cases associated with this ATS and ATM.

6 ATS conventions

6.1 Version of TTCN used

The version of TTCN used is that defined in ISO/IEC 9646-3 [7].

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.

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 [7] 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 [7] 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 [11]. 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 [12], 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 [12] 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 3: ASN.1 type constraint declaration showing use of encoding variation

```
ASN.1 Type Constraint Declaration
Constraint Name: COMP03/INV_ID: InvokeIDType;  ERR_VAL:INTEGER)
ASN.1 Type      : Component
Derivation Path:
Comments        : Receive component
Description
cUGCall_Components
cUGCall_ReturnErrorComp
    {invokeID            INV_ID,                         -- value for the invoke identifier
     error                  ERR_VAL
    }
Detailed comments:
```

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 [9], to produce a PCTR conformant with the PCTR template given in annex B of ISO/IEC 9646-5 [9].

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.

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 [8], 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 [9], 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 ExTS for this ATS specification, shall comply with the requirements of ISO/IEC 9646-4 [8]. 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 [9]. 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 300 138-1
PICS:	
Previous PCTRs (if any):	

A.1.3   Testing environment

PIXIT reference number:	
ATS specification:	EN 300 138-6
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 present document.

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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 the present document) 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 the present document) 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
CUG_N01_001				
CUG_N01_002				
CUG_N01_003				
CUG_N01_004				
CUG_N01_005				
CUG_N01_006				
CUG_N01_007				
CUG_N01_008				
CUG_N01_009				
CUG_N01_010				
CUG_N01_011				
CUG_N01_012				
CUG_N01_013				
CUG_N01_014				
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CUG_N02_027				
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CUG_N02_031				
CUG_N02_032				
CUG_N02_033				
CUG_N03_001				
CUG_N03_002				
CUG_N03_004				
CUG_N03_005				
CUG_N03_006				
CUG_N04_001				
CUG_N04_002				
CUG_N04_003				
CUG_N04_004				
CUG_N04_005				

ATS reference	Selected? (Y/N)	Run? (Y/N)	Verdict	Observations
CUG_N04_006				
CUG_N05_001				
CUG_N05_002				
CUG_N05_003				
CUG_N05_004				
CUG_N05_005				
CUG_N05_006				
CUG_N06_001				
CUG_N06_002				
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CUG_N06_019				
CUG_N06_020				
CUG_N06_021				
CUG_N07_001				
CUG_N07_002				
CUG_N08_001				
CUG_N08_002				
CUG_N08_003				
CUG_N08_004				
CUG_N08_005				
CUG_N09_001				
CUG_N09_002				
CUG_N10_001				
CUG_N10_002				
CUG_N10_003				
CUG_N10_004				

A.7   Observations

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

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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:

....

B.2   Abstract test suite summary

Protocol specification: EN 300 138-1

ATS specification: EN 300 138-6

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:

....

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: EN 300 138-1

Protocol version:

PICS reference:

> NOTE: The PICS reference should reference a completed PICS which is conformant with the PICS proforma contained in EN 300 138-2.

B.6.2   Parameter values

Table B.1: Parameter values

Item	Question	Supported? (Y/N)	Allowed values	Value
1.1	Does the IUT support basic access?		N/A	N/A
1.2	What length of Call Reference value is used?		1, 2	
1.3	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)		N/A	N/A
NOTE:	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.			

Table B.2: Parameter values

Item	Provide, if possible, a CUGIndex for a CUG with the following attributes:	Supported? (Y/N)	Value
2.1	Network can create a CUG where: A:OA not allowed, not OCB, not preferential CUG B:IA allowed, not ICB and CUGIndex=CUGIndex1		
2.2	Network can create a CUG where: A:OA allowed, not OCB, not preferential CUG B:IA allowed, not ICB and CUGIndex=CUGIndex2		
2.3	Network can create a CUG where: A:OA not allowed, not OCB, preferential CUG B:IA allowed, not ICB and CUGIndex=CUGIndex3		
2.4	Network can create a CUG where: A:OA allowed, not OCB, preferential CUG B:IA allowed, not ICB and CUGIndex=CUGIndex4		
2.5	Network can create a CUG where: option <> speech but is set, e.g. to UDI A:OA allowed, not OCB, not preferential CUG IA allowed, not ICB and CUGIndex=CUGIndex5		
2.6	The CUGIndex is not used by the network, i.e. does not exist and CUGIndex=CUGIndex6		
2.7	Network can create a CUG where: OA not allowed, OCB, not preferential CUG IA allowed, not ICB and CUGIndex=CUGIndex7		
2.8	Network can create a CUG where: UDI option OA allowed, not OCB, not preferential CUG IA allowed, not ICB and CUGIndex=CUGIndex8		
2.9	Network can create a CUG where: OA allowed, OCB, not preferential CUG IA allowed, not ICB and CUGIndex=CUGIndex9		
2.10	Network can create a CUG where: UDI option OA not allowed, not OCB, preferential CUG IA allowed, not ICB and CUGIndex=CUGIndex10		
2.11	Network can create a CUG where: OA not allowed, OCB, preferential CUG IA allowed, not ICB and CUGIndex=CUGIndex11		
2.12	Network can create a CUG where: UDI option OA allowed, not OCB, preferential CUG IA allowed, not ICB and CUGIndex=CUGIndex12		
2.13	Network can create a CUG where: OA allowed, OCB, preferential CUG IA allowed, not ICB and CUGIndex=CUGIndex13		
2.14	Network can create a CUG where: OA allowed, not OCB, not preferential CUG, IA not allowed, ICB and CUGIndex=CUGIndex14		

Item	Provide, if possible, a CUGIndex for a CUG with the following attributes:	Supported? (Y/N)	Value
2.15	Network can create a CUG where: OA allowed, not OCB, not preferential CUG IA allowed, ICB and CUGIndex=CUGIndex15		
2.16	Network can create a CUG where: OA not allowed, not OCB, not preferential CUG IA not allowed, not ICB and CUGIndex=CUGIndex17		

B.6.3 Configuration of IUT

Table B.3: 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)
3.1	not to recognize the CUG supplementary service?		
3.2	so that the calling user is not a member of the CUG in Item 2.1 and has not subscribed to the CUG supplementary service?		
3.3	so that the calling user has not subscribed to the CUG supplementary service?		

B.6.4 Parameter values - information element codings

Table B.4: Codings of information elements

Item	Information element: provide, if possible, ...	Supported? (Y/N)	Value
4.1	a coding of a Bearer Capability information element, which the IUT is compatible with, for the purpose of accepting received SETUP messages and which may be used in SETUP messages to be transmitted and which supports speech.		

B.6.5 Parameter values - information elements received from IUT

Table B.5: Codings of information elements

Item	Question	Supported? (Y/N)	Value
5.1	Are the Called Party IE and SCI octet included in the SETUP from the network?		

B.6.6   CUG features

Table B.6: Parameter values

Item	Question	Supported? (Y/N)
6.1	Does the network offer preferential CUGs ?	
6.2	Does the network allow the service option to be set for a CUG ?	

B.6.7   Timer values

Table B.7: Timer values

Item	Timer: Give a value for the timer that is used to ...	Value (in seconds)
7.1	wait for the test operator to perform an implicit send action or to wait for a PTC to react (TWAIT)	
7.2	wait for the IUT to respond to a stimulus sent by the tester (TAC) (see note)	
7.3	control that the IUT does not respond to a stimulus sent by the tester (TNOAC)	
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.8: Codings of information elements

Item	Information element: provide, if possible, ...	Supported? (Y/N)	Value
N1.1	a coding of a Bearer Capability information element, which the IUT is compatible with, for the purpose of accepting received SETUP messages and which may be used in SETUP messages to be transmitted		
N1.2	a coding of a High layer compatibility information element, which the IUT is compatible with, for the purpose of accepting received SETUP messages and which may be used in SETUP messages to be transmitted		
N1.3	a coding of a Low layer compatibility information element, which the IUT is compatible with, for the purpose of accepting received SETUP messages and which may be used in SETUP messages to be transmitted		
N1.4	a Called party number information element, which the IUT is compatible with, for ... (see note 2)		
N1.4.1	served user access (see note 2)		
N1.4.2	first remote user access (see note 2)		
N1.4.3	second remote user access (see note 2)		
N1.4.4	third remote user access (see note 2)		
N1.5	preferred channel number to be used for the purpose of accepting received SETUP messages, for ... (see notes 1 and 2)		
N1.5.1	single call at served user side (see note 2)		
N1.5.2	second call at served user side (see note 2)		
N1.5.3	first call at remote user side (see note 2)		
N1.5.4	second call at remote user side (see note 2)		
N1.5.5	third call at remote user side (see note 2)		
NOTE 1: Items N1.5.1 to N1.5.5 are applicable for primary rate access only. NOTE 2: As this is a general table used for all supplementary services, all items N1.4.1 to N1.4.4, and N1.5.1 to N1.5.5 (if primary rate access is supported), are not always required, but should be supplied if possible.			

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.

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 (see also annex D).

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

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (CUG_n10.PDF contained in archive en_30013806v010501o0.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 (cug_n10.MP contained in archive en_30013806v010501o0.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.

Annex D (informative):
Changes with respect to the previous EN 300 138-6 V1.4.5

The following comments received in document 4DT174 (for the Plenary Meeting 11-2000) were analysed and included in the ATS when needed.

Table D.1: Comments and actions for the CUG ATS

Ident No	Object concerned	problem description	Comment. Proposal	STf164 comment
CUG_008	CUG_N03_004 CUG_N06_009	check for the incoming DISC with incorrect cause value #87 instead of #29	ATS change acc. ETS 300 138-1, clause 9.2.1.1	Accepted
CUG_009	CUG_N02_021 CUG_N03_005	Specification error in the ATS: the test purpose mentions that the OARequest value shall be set to TRUE, however, it is set to FALSE actually.	ATS change	Accepted
CUG_010	CUG_N05_005 CUG_N05_006	Specification error in the ATS: Normal call, so the IUT has to answer with DISC indicating cause #18 no user responding	ATS change	Accepted
CUG_011	CUG_N06_011	Specification error in the ATS; the call is not a CUG call (i.e. passes all checks at both calling/called party side with no CUG), and thus the DISCONNECT has to arrive with cause #18 no user responding	ATS change	Accepted
CUG_015	CUG_N02_034	Incorrect reference clause 9.2.1.2 (calling user not CUG-subscribed) instead of clause 9.2.3.2	ATS change	Rejected this test case does not exist

In addition, revisions including the update of the PIXIT tables and the removal of superfluous and out of date material from clause 6 and old appendix D were done.

Annex E (informative):
Bibliography

ETSI ETS 300 102: "Integrated Services Digital Network (ISDN); User-network interface layer 3".

History

Document history		
Edition 1	Mai 1997	Publication as ETS 300 138-6
V1.3.4	June 1998	Publication
V1.4.5	Novembre 1999	Publication
V1.5.1	December 2001	One-step Approval Procedure OAP 20020419: 2001-12-19 to 2002-04-19