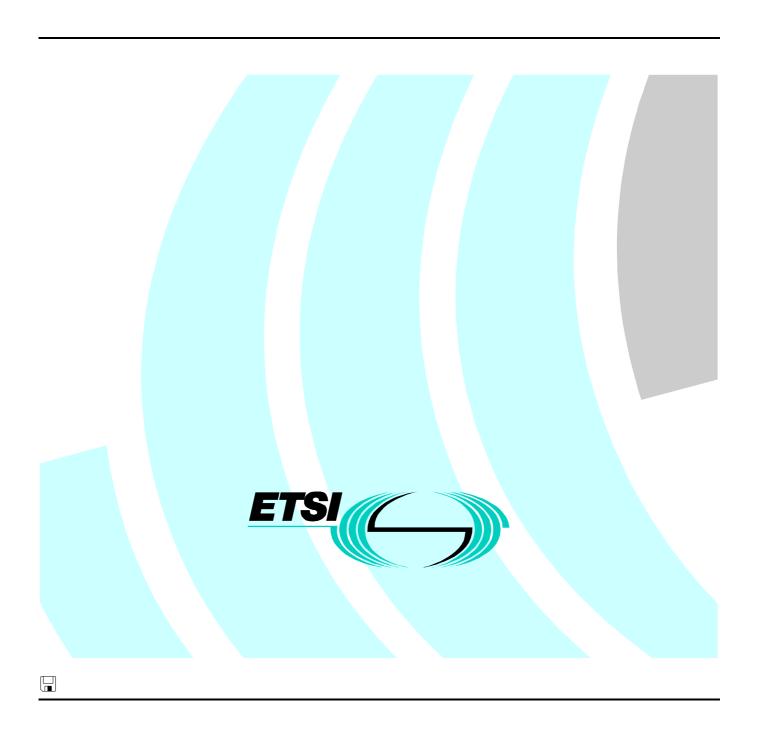# ETSI EN 300 138-4 V1.4.3 (2000-05)

European Standard (Telecommunications series)

Integrated Services Digital Network (ISDN);
Closed User Group (CUG) supplementary service;
Digital Subscriber Signalling System No. one (DSS1) protocol;
Part 4: Abstract Test Suite (ATS) and partial Protocol
Implementation eXtra Information for Testing (PIXIT)
proforma specification for the user

ETSI

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 4 of a multi-part EN 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".

National transposition dates	
Date of adoption of this EN:	28 April 2000
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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 User 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 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 300 138-3 [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 Network 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, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[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): "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): "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 300 138-3 (V1.3): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 3: Test Suite Structure and Test Purposes (TSS&TP) specification for the user".

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

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

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:

ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
BER	Basic Encoding Rules
CUG	Closed User Group
ExTS	Executable Test Suite
IUT	Implementation Under Test
LT	Lower Tester
MOT	Means Of Testing
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
SUT	System Under Test
TCP	Test Co-ordination Procedures

TP   Test Purpose
TTCN   Tree and Tabular Combined Notation
UT   Upper Tester

4 Abstract Test Method (ATM)

The remote test method is applied for the CUG user ATS. The Point of Control and Observation (PCO) resides at the service access point between layers 2 and 3. This PCO is named "L" (for Lower). The L PCO is 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 this PCO.

Figure 1: Remote test method

ISO/IEC 9646-2 [7] allows the informal expression of Test Co-ordination Procedures (TCP) between the System Under Test (SUT) upper layer(s) and the Lower Tester (LT). In the ATS contained in annex C, TCP is achieved by use of a second "informal" PCO, called "O" (for Operator). This PCO is used to specify control but not observation above the IUT and consequently, events at this PCO are never used to generate test case verdicts. The use of this O PCO is regarded as a preferred alternative to the use of the implicit send event, in that it allows the ATS to specify in a clear and meaningful way what actions are required to be performed on the IUT.

5 Untestable test purposes

There are no untestable test purposes associated with this ATS.

6 ATS conventions

This clause is structured similarly to the structure of a TTCN ATS. However, the names of the subclauses are arranged in a way more suitable to the present document.

6.1 Declarations part

6.1.1 Type definitions

6.1.1.1 Simple type definitions

Where appropriate, simple types have a length, a value list or a range restriction attached.

Simple types defined as being of some string type (e.g. BIT STRING, OCTET STRING), have a length restriction or a value list attached.

Simple types, defined as being of INTEGER type, have a value list or a range restriction attached.

6.1.1.2 Structured type definitions

6.1.1.2.1 TTCN structured type definitions

All structured type definitions are provided with a full name.

All elements in every structured type definition, defined as being of some string type (e.g. BIT STRING, OCTET STRING), have a length restriction attached.

If an element in a structured type definition is defined as being of a referenced type, the (possible) restriction is defined in that referenced type.

For information elements the identifier, which is unique for each element, has its type defined as a simple type where the value list is restricted to the single value which is the identifier itself. This has the advantage that it allows a test system derived from this ATS to easily identify information elements embedded in messages. An ATS where information element identifiers are represented as unrestricted types can present difficulties for a derived test system in the case where it needs to find one information element embedded in a number of others and the constraints for the other elements have the any-or-omit value. In such a case the test system cannot easily find the beginning of each information element.

6.1.1.2.2 ASN.1 structured type definitions

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 fact that ASN.1 provides a better restriction mechanism for type definitions is used for the purpose of achieving type-compatibility.

Tables 1 and 2 show the typical use of ASN.1. The FIE type in table 1 is written in ASN.1 to permit the use of the SET OF construction in the components field. Constraints of the FIE type can therefore be written using the SUPERSET function which allows to match a single component which may be delivered together with a set of other components. Table 2 shows the reject component type which is defined following the ASN.1 declaration in EN 300 196-1 [5].

Table 1: ASN.1 type definition FIE

ASN.1 Type Definition
Type Name : FIE **Comments** : Facility information element taken from EN 300 196; 11.2.2.1.   Specified here for both send & receive event.
Type Definition

SEQUENCE {
  informationElementIdentifier FIE_I,
  length   FIE_LengthType,
  extBit   BIT STRING (SIZE (1)),
  spareBits   BIT STRING (SIZE (2)),
  protocolProfile   BIT STRING (SIZE (5)),
  components   SET OF Component }

Table 2: ASN.1 type definition RejectComponent

ASN.1 Type Definition
Type Name : RejectComponent **Comments** : Reject Component is not specific to any particular operation. The invokeID may be   used to identify a specific operation.
Type Definition

SEQUENCE {
  invokedID CHOICE {
              invokeID InvokeIDType,
              null   NULL },
  problem   CHOICE {
              generalProblem   [0] IMPLICIT GeneralProblem,
              invokeProblem   [1] IMPLICIT InvokeProblem,
              returnResultProblem [2] IMPLICIT ReturnResultProblem,
              returnErrorProblem [3] IMPLICIT ReturnErrorProblem } }

Table 3 shows an example of how ASN.1 can be used to model unordered sequences.

Table 3: ASN.1 type definition FIES

ASN.1 Type Definition
Type Name : FIES
Comments   :
Type Definition
SET OF FIE

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

6.1.1.3   ASP type definitions

6.1.1.3.1   TTCN ASP type definitions

TTCN ASP type definitions only contain one PDU or no PDU at all. The relationship between an ASP type and a PDU type is one-to-one. That is, there exists one ASP type definition for each PDU type definition (if that ASP type contains a PDU).

All TTCN ASP type definitions are provided with a full identifier.

Some ASPs are not parameterized as shown in the example in table 4. Such ASPs are only used for requesting or receiving service from the lower layer.

Table 4: TTCN ASP type definition DL_REL_IN

TTCN ASP Type Definition		
ASP NAME : DL_REL_IN(DL_RELEASE_INDICATION)		
PCO Type : SAP		
Comments :		
Parameter Name	Parameter Type	Comments
Detailed Comments :		

Table 5 shows an example of a parameterized ASP. All ASPs containing PDUs contain only that PDU and no other parameters.

Table 5: TTCN ASP type definition DL_DATA_RQ_ALERT

TTCN ASP Type Definition		
ASP NAME : DL_DATA_RQ(DL_DATA_Request)		
PCO Type : SAP		
Comments : CEId: = (SAPI,CES) mapped onto		
DLCI: = (SAPI,TEI)		
ASP is used to request the transmission of layer 3 PDUs		
Parameter Name	Parameter Type	Comments
mun (MessageUnit)	PDU	
Detailed Comments :		

6.1.1.3.2   ASN.1 ASP type definitions

There are no ASN.1 ASP type definitions in the ATS.

6.1.1.4   PDU type definitions

6.1.1.4.1   TTCN PDU type definitions

The TTCN PDU type reflects the actual data being transferred or received. All PDUs are embedded in ASPs.

If a specific PDU type definition contains elements defined in terms of a pre-defined type, that element has a restriction attached to it.

6.1.1.4.2 ASN.1 PDU type definitions

There are no ASN.1 PDU type definitions in the ATS.

6.1.2 Test suite constants

No test suite constants are used or defined in this ATS.

6.1.3 Test suite parameters

Each test suite parameter is defined in terms of a predefined type or a referenced type. A referenced type is used when it is necessary to attach restrictions to these type definitions (it is not allowed to include restrictions directly in the test suite parameter table). The referenced type can have a length or value restriction attached to it in its declaration table.

6.1.4 Variables

6.1.4.1 Test suite variables

No test suite variables are used or defined in this ATS.

6.1.4.2 Test case variables

Each test case variable is defined in terms of a predefined type or a referenced type. A referenced type is used when it is necessary to attach restrictions to these type definitions (it is not allowed to include restrictions directly in the test case variable table). The referenced type can have a length or value restriction attached to it in its declaration table.

Where test case variables are used in constraints, they are passed as formal parameters.

6.1.5 Test suite operation definitions

No test suite operations are used or defined in this ATS.

6.1.6 Alias definitions

Alias definitions are used to highlight the exchange of PDUs embedded in ASPs.

EXAMPLE: Alias "SETUP" is expanded with "DL_DATA_RQ" to send a SETUP PDU constraint by ASP constraint Ms (SUnn(Par,Par).

6.2 Constraints part

6.2.1 Structured type constraint declaration

For every structured type definition there exists one or more structured type constraint.

6.2.2   ASN.1 type constraint declaration

Constraints of this type are used to assign the corresponding type a specific value. These constraints are used for the purpose of modelling unordered data or specific types that cannot be expressed in TTCN.

A value assigned to an element of type SET OF differs depending on whether it is a send or receive constraint.

Table 6: ASN.1 type constraint declaration FAs (send constraint)

ASN.1 Type Constraint Declaration
Constraint Name : FAs(comp : Component) **ASN.1 Type**   : FIE **Derivation Path** : **Comments**   : Send FA which will contain one component "comp".
Description

{
  informationElementIdentifier '00011100'B,
  length   CALC_FIE_LENGTH(comp),
  extBit   '1'B,
  spareBits   '00'B,
  protocolProfile   '10001'B,
  components   {COMP}
}

Detailed comments :

NOTE 1:   The last element in the constraint, *components*, is of type *SET OF Component* where *Component* is structured data of some type.

If the constraint is a send constraint (as in table 6) the value for the component element is stated as "{comp}" where comp is an argument received as a parameter. The "{"and"}" turns the value into a SET OF value which is correct according to that element's type definition.

Table 7: ASN.1 type constraint declaration FAr (receive constraint)

ASN.1 Type Constraint Declaration
Constraint Name : FAr(COMP : Component) **ASN.1 Type**   : FA **Derivation Path** : **Comments**   : A received FA which can contain several components, but which contains at least "comp".
Description

{
  informationElementIdentifier '00011100'B,
  length   ?,
  extBit   '1'B,
  spareBits   '00'B,
  protocolProfile   '10001'B,
  components   SUPERSET({COMP})
}

Detailed comments :

NOTE 2:   The last element in the constraint, *components*, is of type *SET OF Component* where *Component* is structured data of some type.

If the constraint is a receive constraint (as in table 7) the corresponding matching value is assigned by using SUPERSET. The key-word SUPERSET has an argument that is type compatible with the type definition of that field. In table 7, the element named *components* is defined as "SET OF Component" and this implies that the argument to SUPERSET should be of type SET OF Component. This is achieved the same way as for send constraints, enclosing the value in curly brackets.

The semantic of SUPERSET is stated in ISO/IEC 9646-3 [8], subclause 11.6.4.7. In short it defines the semantic as follows: "*A value that uses SUPERSET matches the incoming value if, and only if, the incoming value contains **at least all of the elements** defined within the SUPERSET, and **may contain more elements**.*" This is exactly the semantic definition used in this ATS.

6.2.2.1 Specification of encoding rules

At the time of specifying this ATS the mechanisms related to encoding of ASN.1 types, specified in DAM-2 of ISO/IEC 9646-3 [8], were not yet stable. Nevertheless as there is a variation in the encoding rules as applied to ASN.1 types and constraints specified in this ATS, a mechanism is used to differentiate the different encoding rules. Given the non-finalized status of DAM-2, a solution which is broadly in the spirit of DAM-2 has been created. Comment fields have been used as a means of including the 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 CCITT 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 relation to components sent by the tester to the IUT, implementors of this ATS shall use a variety of length forms such that at least one of each of the length forms is sent to the IUT during a test campaign. The variations of length forms to be used are indefinite, short definite and long definite.

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

Table 8: ASN.1 type constraint declaration showing use of encoding variation

```
                             ASN.1 Type Constraint Declaration
Constraint Name : COMP1_CUG
ASN.1 Type      : Component
Derivation Path :
Comments        : ASN1_Encoding: BER
                  Receive component
                                     Description
cUGCall_Components
  cUGCall_InvokeComp
    { invokeID          ? ,
      operation_value    localValue    2,
      argument { oARequested    ?,
                 cUGIndex        * }
    }
Detailed comments :
```

6.2.3 ASP type constraint declaration

6.2.3.1 ASN.1 ASP type constraint declaration

No ASN.1 ASP type constraint declaration exists in this ATS.

6.2.3.2 TTCN ASP type constraint declaration

For TTCN ASP constraint declarations there is a one-to-one relationship between its type and the constraint. That is, there is only one constraint for each TTCN ASP type declaration. The reason for this is that the ASPs are used only for carrying PDU values.

6.2.4   PDU type constraint declaration

6.2.4.1   ASN.1 PDU type constraint declaration

No ASN.1 PDU type constraint declaration exists in this ATS.

6.2.4.2   TTCN PDU type constraint declaration

PDU constraints are used for assigning values or patterns to the data being sent or received.

6.2.5   Chaining of constraints

6.2.5.1   Static chaining

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.

6.2.5.2   Dynamic chaining

Dynamic chaining is achieved when having a reference to a value which is unknown. The only thing known (before run-time) is the type of that reference. The reference is passed as a parameter. Strict dynamic chaining is not used in this ATS. What is used is something that is called "semi-dynamic chaining". The definition of semi-dynamic chaining is that the fixed reference is parameterized with an unknown value. That value is received as a parameter.

Table 9: TTCN ASP constraint declaration Ms

TTCN ASP Constraint Declaration		
Constraint Name : Ms(PARAM: PDU)		
ASP Type : DL_DATA_RQ		
Derivation Path :		
Comments :		
Parameter Name	Parameter Value	Comments
mun	PARAM	
Detailed comments :		

Table 9 is an example of semi-dynamic chaining. The TTCN ASP constraint is parameterized with metatype PDU value named PARAM. That value is passed further down in the structure as a value to the message unit.

6.2.6   Derived constraint

No derivation of any constraints is used. All constraints are considered to be base constraints.

6.2.7   Parameterized constraints

Parameterized constraints are used in this ATS.

6.2.8   Value assignment

6.2.8.1   Specific values

For specific value assignment both explicit values and references to explicit values are used.

6.2.8.2   Matching values

As matching values the following mechanisms are used:

Instead of Value:

AnyOrOmit	"*"
AnyValue	"?"
Omit	"-"

Inside value:

AnyOne	"?"
AnyOrNone	"*"

6.3   Dynamic part

6.3.1   Test cases

Each test case contains the test purpose text from EN 300 138-3 [4]. To be able to read and understand the test case dynamic behaviour it is recommended that the test steps are understood first.

6.3.2   Test steps

Much use has been made of test steps to avoid needless repetition of dynamic behaviour. Many test steps are based on those used for the ISDN basic call ATS.

6.3.3   Defaults

The RETURN statement which is defined in DAM1 of ISO/IEC 9646-3 [8] is not used. This statement allows valid background behaviour to be handled in the default tree with a possibility to return to the original set of alternatives in the test case.

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.

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.

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.

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

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 300 138-4
Abstract test method:	Remote 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.

....

....

....

....

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.

....

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....

A.6 Test campaign report

ATS reference	Selected? (Y/N)	Run? (Y/N)	Verdict	Observations
CUG_U01_001				
CUG_U01_002				
CUG_U01_003				
CUG_U01_004				
CUG_U01_005				
CUG_U01_006				
CUG_U01_007				
CUG_U01_008				
CUG_U02_001				
CUG_U02_002				
CUG_U02_003				

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 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 300 138-4

Abstract test method: Remote 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 IUT information

B.6.2.1 Parameters

Table B.1: Parameters

Item	Question	Supported? (Y/N)	Value
1.1	Does the IUT support CUG for basic access point-to-multipoint?		N/A
1.2	Does the IUT support CUG for basic access point-to-point?		N/A
1.3	Does the IUT support CUG for primary rate access?		N/A
1.4	Does the IUT recognize incoming CUG requests?		N/A

B.6.2.2 Parameter values

Table B.2: Parameter values

Item	Description	Supported? (Y/N)	Value
2.1	CUG index value, that will be sent by the IUT and that is acceptable for the user in incoming calls.	N/A	
2.2	CUG index value, that is not acceptable for the IUT in incoming calls.	N/A	

B.6.2.3   Timer values

Table B.3: Timer values

Item	Timer: Give a value for the timer that is used to ...	Value (in seconds)
3.1	wait for the test operator to perform an implicit send action (TWAIT)	
3.2	wait for the IUT to respond to a stimulus sent by the tester (TAC)	
3.3	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.	

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.

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

The TTCN.GR representation of this ATS are contained in an Adobe Portable Document Format™ files (cugb_u02.PDF and cugp_u02.PDF contained in archive en_30013804v010403p0.ZIP) which accompanies the present document.

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

The TTCN.MP representation corresponding to this ATS are contained in an ASCII files (cugb_u02.MP and cugp_u02.MP contained in archive en_30013804v010403p0.ZIP) which accompanies the present document.

Annex D (informative):
General structure of ATS

This annex gives a simple listing of the order of types of tables which appear in a typical supplementary service ATS. This is intended as an aid in helping readers find particular sections quickly.

Test Suite Overview

Test Suite Structure

Test Case Index

Test Step Index

Default Index

Declarations Part

Simple Type Definitions

Structured Type Definitions

ASN.1 Type Definitions

Test Suite Operation Definitions

Test Suite Parameter Declarations

Test Case Selection Expression Definitions

Test Suite Constant Declarations

Test Case Variable Declarations

PCO Declarations

Co-ordination Point Declarations

Timer Declarations

Test Component Declarations

Test Components Configuration Declarations

TTCN ASP Type Definition

TTCN PDU Type Definition

TTCN CM Type Definition

Alias Definitions

Constraints Part

Structured Type Constraint Declarations

ASN.1 Type Constraint Declarations

TTCN ASP Constraint Declarations

TTCN PDU Constraint Declarations

TTCN CM Constraint Declarations

Dynamic Part

Test Case Dynamic Behaviour

Test Step Dynamic Behaviour

Default Dynamic Behaviour

Annex E (informative):
Change record

E.1   Changes between EN 300 138-4 V1.3 and V1.4

Revised ATS.

E.2   Changes between ETS 300 138-4 and EN 300 138-4 V1.3

The following changes have been done:

- conversion to EN layout;

- replacement of references to ETS 300 102 [13] with EN 300 403-1 [1];

- substitution of non-specific references to basic standards where the intention is to refer to the latest version.

History

Document history			
Edition 1	September 1997	Publication as ETS 300 138-4	
V1.3.4	June 1998	Publication	
V1.4.2	July 1999	Public Enquiry	PE 9949: 1999-07-07 to 1999-11-05
V1.4.3	February 2000	Vote	V 200017: 2000-02-28 to 2000-04-28
V1.4.3	May 2000	Publication	