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European Standard (Telecommunications series)

**Private Integrated Service Network (PISN);
Inter-exchange signalling protocol;
Diversion supplementary services;
Part 2: Abstract Test Suite (ATS) and partial Protocol
Implementation eXtra Information for Testing (PIXIT)
proforma specification**



Reference

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Keywords

ANF, ATS, PISN, PIXIT, QSIG, supplementary service, 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
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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 2 of a multi-part deliverable covering the Private Integrated Service Network (PISN); Inter-exchange signalling protocol; Diversion supplementary services, 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".

National transposition dates	
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Date of latest announcement of this EN (doa):	30 April 2002
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 October 2002
Date of withdrawal of any conflicting National Standard (dow):	31 October 2002

1 Scope

The present document 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 Call Diversion supplementary service (SS-CDIV) as described in ETS 300 257 [1].

EN 301 453-1 [2] 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 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 ETS 300 257 (1995): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Diversion supplementary services [ISO/IEC 13873 (1995) modified]".
- [2] ETSI EN 301 453-1 (V1.1.2): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Diversion supplementary services [ISO/IEC 13873 (1995) modified]; Part 1: Test Suite Structure and Test Purposes (TSS&TP) specification".
- [3] ISO/IEC 9646: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework" (all parts)".
- [4] 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)".
- [5] 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)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646 [3] apply.

3.2 Abbreviations

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

ANF	Additional Network Feature
ATM	Abstract Test Method
ATS	Abstract Test Suite
BER	Basic Encoding Rules
ETS	Executable Test Suite
IUT	Implementation Under Test
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 originating 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). This 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.

A second "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.

The relationship between the IUT and the tester is as in figure 1.

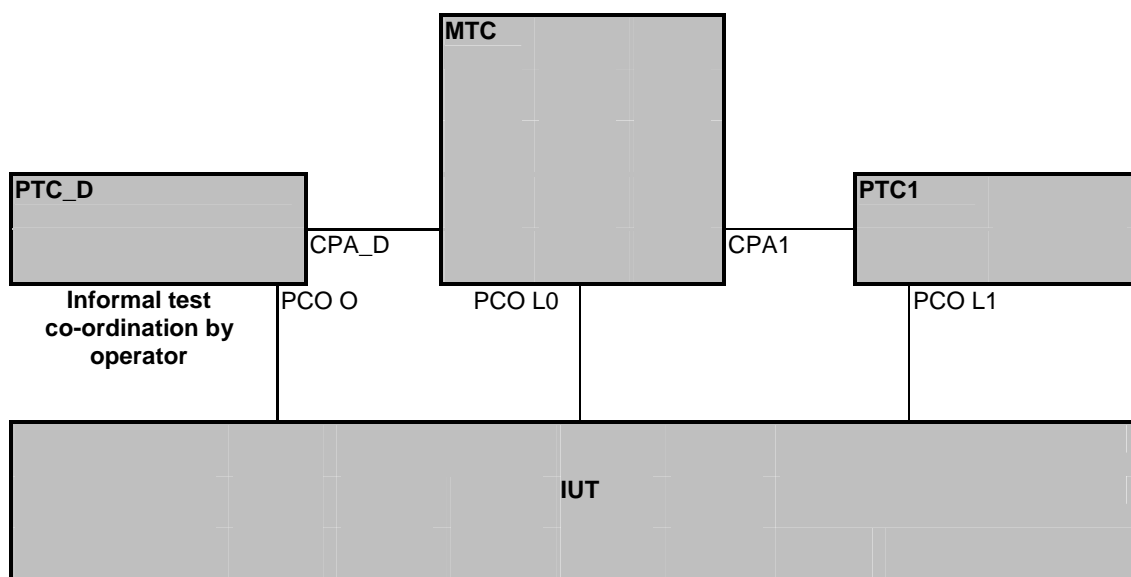


Figure 1: Multi-party test method

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

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 TR 101 101 [4].

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 [3] and in TR 101 101 [4] 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 [3] 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 [5]. 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	
Constraint Name :	CheckRest_Inv_S4(INV_ID : InvokeIDType)
ASN.1 Type :	Component
Derivation Path :	
Comments :	ASN1_Encoding: BER Send checkRestriction_Comp
Description	
CheckRestriction_Comp CheckRestriction_InvokeComp <pre> { invokeID inv_ID, operation_value lovalValue 18, argument { servedUserNr String2PartyNumber (PX_SERVED_USER_NR_INVALID) , basicServive PX_BASIC_SERVICE , divertedToNr String2PartyNumber (PX_DIVERTED_TO_NR) , extension OMIT } } </pre>	
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 [3], to produce a PCTR conformant with the PCTR template given in annex B of ISO/IEC 9646-5 [3].

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 [3], 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 [3], 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 [3]. 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 [3].

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 300 257
PICS:	
Previous PCTRs (if any):	

A.1.3 Testing environment

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

A.1.4 Limits and reservations

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

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A.1.5 Comments

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

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A.2 IUT conformance status

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

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements (as specified in clause A.3 of 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
Orig01				
CDIV_Orig01_CFU_001				
CDIV_Orig01_CFU_002				
CDIV_Orig01_CFU_003				
CDIV_Orig01_CFU_004				
CDIV_Orig01_CFU_005				
CDIV_Orig01_CFU_006				
CDIV_Orig01_CFU_007				
CDIV_Orig01_CFU_008				
CDIV_Orig01_CFU_009				
CDIV_Orig01_CFU_010				
CDIV_Orig01_CFU_011				
CDIV_Orig01_CFU_012				
CDIV_Orig01_CFU_013				
CDIV_Orig01_CFU_014				
CDIV_Orig01_CFU_015				
CDIV_Orig01_CFU_016				
CDIV_Orig01_CFU_017				
CDIV_Orig01_CFB_001				
CDIV_Orig01_CFB_002				
CDIV_Orig01_CFB_003				
CDIV_Orig01_CFB_004				
CDIV_Orig01_CFB_005				
CDIV_Orig01_CFB_006				
CDIV_Orig01_CFB_007				
CDIV_Orig01_CFB_008				
CDIV_Orig01_CFB_009				
CDIV_Orig01_CFB_010				
CDIV_Orig01_CFB_011				
CDIV_Orig01_CFB_012				
CDIV_Orig01_CFB_013				
CDIV_Orig01_CFB_014				
CDIV_Orig01_CFB_015				
CDIV_Orig01_CFB_016				
CDIV_Orig01_CFB_017				
CDIV_Orig01_CFNR_001				
CDIV_Orig01_CFNR_002				
CDIV_Orig01_CFNR_003				
CDIV_Orig01_CFNR_004				
CDIV_Orig01_CFNR_005				
CDIV_Orig01_CFNR_006				

ATS reference	Selected? (Y/N)	Run? (Y/N)	Verdict	Observations
CDIV_Orig01_CFNR_007				
CDIV_Orig01_CFNR_008				
Served01				
CDIV_Served01_CFU_001				
CDIV_Served01_CFU_002				
CDIV_Served01_CFU_003				
CDIV_Served01_CFU_004				
CDIV_Served01_CFU_005				
CDIV_Served01_CFU_006				
CDIV_Served01_CFU_007				
CDIV_Served01_CFB_001				
CDIV_Served01_CFB_002				
CDIV_Served01_CFB_003				
CDIV_Served01_CFB_004				
CDIV_Served01_CFB_005				
CDIV_Served01_CFB_006				
CDIV_Served01_CFB_007				
CDIV_Served01_CFNR_001				
CDIV_Served01_CFNR_002				
CDIV_Served01_CFNR_003				
CDIV_Served01_CFNR_004				
CDIV_Served01_CFNR_005				
CDIV_Served01_CFNR_006				
CDIV_Served01_CFNR_007				
Served02				
CDIV_Served02_CFU_001				
CDIV_Served02_CFU_002				
CDIV_Served02_CFU_003				
CDIV_Served02_CFU_004				
CDIV_Served02_CFB_001				
CDIV_Served02_CFB_002				
CDIV_Served02_CFB_003				
CDIV_Served02_CFB_004				
CDIV_Served02_CFNR_001				
CDIV_Served02_CFNR_002				
CDIV_Served02_CFNR_003				
CDIV_Served02_CFNR_004				
Served03				
CDIV_Served03_CFU_001				
CDIV_Served03_CFU_002				
CDIV_Served03_CFB_001				
CDIV_Served03_CFB_002				
CDIV_Served03_CFNR_001				
CDIV_Served03_CFNR_002				
Served04				
CDIV_Served04_CFU_001				
CDIV_Served04_CFU_002				
CDIV_Served04_CFU_003				
CDIV_Served04_CFB_001				
CDIV_Served04_CFB_002				
CDIV_Served04_CFB_003				
CDIV_Served04_CFNR_001				
CDIV_Served04_CFNR_002				
CDIV_Served04_CFNR_003				
CDIV_Served04_CFNR_004				
CDIV_Served04_CFNR_005				
Rerout01				
CDIV_Rerout01_CFU_001				
CDIV_Rerout01_CFU_002				
CDIV_Rerout01_CFU_003				
CDIV_Rerout01_CFU_004				
CDIV_Rerout01_CFU_005				

ATS reference	Selected? (Y/N)	Run? (Y/N)	Verdict	Observations
CDIV_Rerout01_CFB_001				
CDIV_Rerout01_CFB_002				
CDIV_Rerout01_CFB_003				
CDIV_Rerout01_CFB_004				
CDIV_Rerout01_CFB_005				
CDIV_Rerout01_CFU_006				
CDIV_Rerout01_CFU_007				
CDIV_Rerout01_CFU_008				
CDIV_Rerout01_CFU_009				
CDIV_Rerout01_CFB_006				
CDIV_Rerout01_CFB_007				
CDIV_Rerout01_CFB_008				
CDIV_Rerout01_CFB_009				
CDIV_Rerout01_CFNR_001				
CDIV_Rerout01_CFNR_002				
CDIV_Rerout01_CFNR_003				
CDIV_Rerout01_CFNR_004				
CDIV_Rerout01_CFNR_005				
CDIV_Rerout01_CFNR_006				
CDIV_Rerout01_CFNR_007				
CDIV_Rerout01_CFNR_008				
CDIV_Rerout01_CFNR_009				
CDIV_Rerout01_CFNR_010				
CDIV_Rerout01_CFNR_011				
CDIV_Rerout01_CFNR_012				
CDIV_Rerout01_CFNR_013				
CDIV_Rerout01_CFNR_014				
CDIV_Rerout01_CFNR_015				
CDIV_Rerout01_CFNR_016				
CDIV_Rerout01_CFNR_017				
CDIV_Rerout01_CFNR_018				
CDIV_Rerout01_CFNR_019				
CDIV_Rerout01_CFNR_020				
CDIV_Rerout01_CFNR_021				
CDIV_Rerout01_CFNR_022				
CDIV_Rerout01_CFNR_023				
CDIV_Rerout01_CFNR_024				
Divert01				
CDIV_Divert01_CFU_001				
CDIV_Divert01_CFU_002				
CDIV_Divert01_CFU_003				
CDIV_Divert01_CFB_001				
CDIV_Divert01_CFB_002				
CDIV_Divert01_CFB_003				
CDIV_Divert01_CFNR_001				
CDIV_Divert01_CFNR_002				
CDIV_Divert01_CFNR_003				
Divert02				
CDIV_Divert02_001				
CDIV_Divert02_002				
CDIV_Divert02_003				
CDIV_Divert02_004				
Act01				
CDIV_Act01_CFU_001				
CDIV_Act01_CFU_002				
CDIV_Act01_CFU_003				
CDIV_Act01_CFU_004				
CDIV_Act01_CFU_005				
CDIV_Act01_CFB_001				
CDIV_Act01_CFB_002				
CDIV_Act01_CFB_003				
CDIV_Act01_CFB_004				

ATS reference	Selected? (Y/N)	Run? (Y/N)	Verdict	Observations
CDIV_Act01_CFB_005				
CDIV_Act01_CFNR_001				
CDIV_Act01_CFNR_002				
CDIV_Act01_CFNR_003				
CDIV_Act01_CFNR_004				
CDIV_Act01_CFNR_005				
Deact01				
CDIV_Deact01_CFU_001				
CDIV_Deact01_CFU_002				
CDIV_Deact01_CFU_003				
CDIV_Deact01_CFU_004				
CDIV_Deact01_CFU_005				
CDIV_Deact01_CFB_001				
CDIV_Deact01_CFB_002				
CDIV_Deact01_CFB_003				
CDIV_Deact01_CFB_004				
CDIV_Deact01_CFB_005				
CDIV_Deact01_CFNR_001				
CDIV_Deact01_CFNR_002				
CDIV_Deact01_CFNR_003				
CDIV_Deact01_CFNR_004				
CDIV_Deact01_CFNR_005				
Inter01				
CDIV_Inter01_CFU_001				
CDIV_Inter01_CFU_002				
CDIV_Inter01_CFU_003				
CDIV_Inter01_CFU_004				
CDIV_Inter01_CFU_005				
CDIV_Inter01_CFB_001				
CDIV_Inter01_CFB_002				
CDIV_Inter01_CFB_003				
CDIV_Inter01_CFB_004				
CDIV_Inter01_CFB_005				
CDIV_Inter01_CFNR_001				
CDIV_Inter01_CFNR_002				
CDIV_Inter01_CFNR_003				
CDIV_Inter01_CFNR_004				
CDIV_Inter01_CFNR_005				
Int01				
CDIV_Int01_CFU_001				
CDIV_Int01_CFB_001				
Int02				
CDIV_Int02_CFU_001				
CDIV_Int02_CFB_001				
CDIV_Int02_CFNR_001				
Int03				
CDIV_Int03_CFNR_001				
CDIV_Int03_CFNR_002				
CDIV_Int03_CFNR_003				
CDIV_Int03_CFNR_004				

A.7 Observations

Additional information relevant to the technical content of the PCTR is 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 300 257

ATS specification: EN 301 453-2

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 300 257

Protocol version: 1.2.1

PICS reference:

NOTE: The PICS reference should reference a completed PICS which is conform to the PICS proforma contained in EN 300 257.

B.6.2 IUT information

B.6.2.1 Parameter values

Table B.1: Parameter values

Item	Question	Supported? (Y/N)	Allowed values	Value
1.1	A value for the length of the Business Group Identification.		Bitstring	
1.2	A value for the Business Group Identifier.		Bitstring	
1.3	A value for the Business Group Identification.		Octetstring	
1.4	A valid Basic Service.		ASN1 Type	
1.5	An invalid Basic Service.		ASN1 Type	

B.6.2.2 Timer values

Table B.2: Timer values

Item	Timer duration	Supported? (Y/N)	Allowed values	Value
2.1	Wait for the test operator to perform an implicit send action or to wait for a PTC to react (T_WAIT). Duration in second.		Integer	
2.2	Wait for the IUT to respond to a stimulus sent by the tester (TAC). Duration in second.		Integer	
2.3	Wait for the IUT to respond to a further stimulus sent by the tester (TAC1). Duration in second.		Integer	
2.4	Control that the IUT does not respond to a stimulus sent by the tester (TNOAC). Duration in second.		Integer	
2.5	Timer that is used to wait for a RESTART PDU (T_RESTART). Duration in second.		Integer	
2.6	Timer that is used to control the expiration of other timers (T_EXPIRE). Duration in second.		Integer	
2.7	Timer that is started if a SETUP is sent (T303). Duration in second.		Integer	
2.8	Timer that is started if a DISC is received (T305). Duration in second.		Integer	
2.9	Timer that is started if a REL COM is received (T308). Duration in second.		Integer	

B.6.2.3 Information parameter values

Table B.3: Parameter values

Item	Question	Supported? (Y/N)	Value
3.1	Length of the Called Party Number information element.		
3.2	Octet 3 (Type of number, Numbering plan identification) of the Called party number information element.		
3.3	Numberdigits of the Called Party Number information element.		
3.4	Length of the Calling Party Number information element.		
3.5	Octet 3 (Type of number, Numbering plan identification) of the Calling party number information element.		
3.6	Octet 4 of the Calling party number information element.		
3.7	Numberdigits of the Calling Party Number information element.		
3.8	Number of the DivertedTo PINX. Used as the contents of the field divertedToAddress of a ActivateDiversionQ invoke component/ calledAddress of a CallRerouteing invoke component/ divertedToNr of a CheckRestriction invoke component/ nominatedNr of a DivLeg1 invoke component/ divertedToAddress of an InterrogateDiversionQ invoke component.		
3.9	Number of the DivertedTo PINX. Used as the contents of the field CalledPartyNumber in a SETUP message.		
3.10	Number of the second DivertedTo PINX, the call is diverted twice. Used as the contents of the field nominatedNumber of a DivLeg1 invoke component.		
3.11	Number of the DivertedTo PINX. Used as the contents of the field calledAddress of a CallRerouteing invoke component		
3.12	Number of the DivertedTo PINX. Used as the contents of the field numberB of a CCBSRequest invoke component. Used as the contents of the field numberB of a CCNRRequest invoke component.		
3.13	Equal to the calledAddress of a CallRerouteing invoke component. Used as the contents of the field nominatedNr of a DivLeg1 invoke component.		
3.14	Invalid divertedToNumber. Used as the contents of the field divertedToNumber of a CheckRestriction invoke component. Used as the contents of the field divertedToAddress of an ActivateDiversion invoke component.		

Item	Question	Supported? (Y/N)	Value
3.15	Number of the ServedUserPINX. Used as the contents of the field servedUserNr of a InterrogateDiversionQ invoke component/ originalCalledNr of a DivLeg2 invoke component/ servedUserNr of a DeactivateDiversionQ invoke component/ servedUserNr of a checkRestriction invoke component/ originalCalledNr of a CallRerouteing invoke component/ originalCalledNr of an ActivateDiversionQ invoke component.		
3.16	Number of the ServedUserPINX. Used as the contents of the field originalCalledNr of a DivLeg2 invoke component.		
3.17	Number of the ServedUserPINX. Used as the contents of the field originalCalledNr of a CallRerouteing invoke component.		
3.18	Invalid Number of the ServedUserPINX. Used as the contents of the field servedUserNr of a DeactivateDiversionQ invoke component. Used as the contents of the field servedUserNr of a checkRestriction invoke component.		
3.19	Number of the ActivatingUserPINX. Used as the contents of the field activatingUserNr of a ActivateDiversionQ invoke component.		
3.20	Number of the DeactivatingUserPINX. Used as the contents of the field deactivatingUserNr of an DeactivateDiversionQ invoke component.		
3.21	Invalid Number of the DeactivatingUserPINX. Used as the contents of the field deactivatingUserNr of a DeactivateDiversionQ invoke component.		
3.22	Number of the InterrogatingUserPINX. Used as the contents of the field interrogatingUserNr of a InterrogateDiversionQ invoke component.		
3.23	Number of the last diverting user. Used as the contents of the field lastRerouteingNr in a CallRerouteing invoke component.		
3.24	Number of the last diverting user. Used as the contents of the field lastRerouteingNr in a CallRerouteing invoke component. Used as the contents of the field divertingNr in a DivLeg2 invoke component.		
3.25	Number of A. Used as the contents of the field callingNumber in a CallRerouteing invoke component.		
3.26	Number of A. Used as the contents of the field CallingPartyNumber in a SETUP message.		
3.27	Number of A. Used as the contents of the field callingNumber in a CallRerouteing invoke component.		
3.28	Applies only for interworking testing with CT: Number of the Originating PINX. Used as the contents of the field redirectionNumber in a CallTransferComplete invoke component.		

Item	Question	Supported? (Y/N)	Value
3.29	Equal to the information element CallingPartySubaddress sent in a SETUP message. Used as the contents of the field callingPartySubaddress of the callRerouting component.		

B.7 Basic call PIXIT items

B.7.1 Parameter values - information element coding

Table B.4: Coding of information elements

Item	Information element: provide, if possible, ...	Supported? (Y/N)	Value
4.1	a value for the length of the Call Reference (bitstring [4]).		
4.2	a value to select if the IUT sends RESTART PDUs after re-establishment of the multiple frame operation.		
4.3	a value to select if the IUT initiates release of the multiple frame established operation after entering U00/N00.		
4.4	a value for the length of the Bearer Capability information element.		
4.5	a coding of the content of the Bearer Capability information element.		
4.6	a value for the preferred channel number.		
4.7	a value for the preferred channel number for the second call.		
4.8	a value for the length of the High Layer Compatibility information element.		
4.9	a coding of the content of the High Layer Compatibility information element.		
4.10	a value for the length of the Low Layer Compatibility information element.		
4.11	a coding of the content of the Low Layer Compatibility information element.		

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 [3].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the contents table. 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 (sp518934.PDF contained in archive en_30145302v010201p0.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 (sp518934.MP contained in archive en_30145302v010201p0.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

D.1 Comment 2 of 4TD 175 clause 1.2

Comment 2	
Location	Test step 'Synchronize'.
Description	All dual configurations shall be updated with the test step 'Synchronize'. This test step coordinates the MTC and PTC.

The synchronization of multiple test components is shown in figure D.1.

Each test component is performing a preamble in order to establish a connection to the IUT and to load test parameters.

After the successful establishment the test components are synchronized. The synchronization is done in order to avoid run time problem and in order to ensure that the test procedure is started at the same time by each test component.

A further synchronization during the test procedure is only needed, if the MTC triggers an action of the IUT and the PTC observes the IUT's reaction.

In order to ensure that the postamble of each test component is performed at the same time, a synchronization shall be performed before the execution of the postambles.

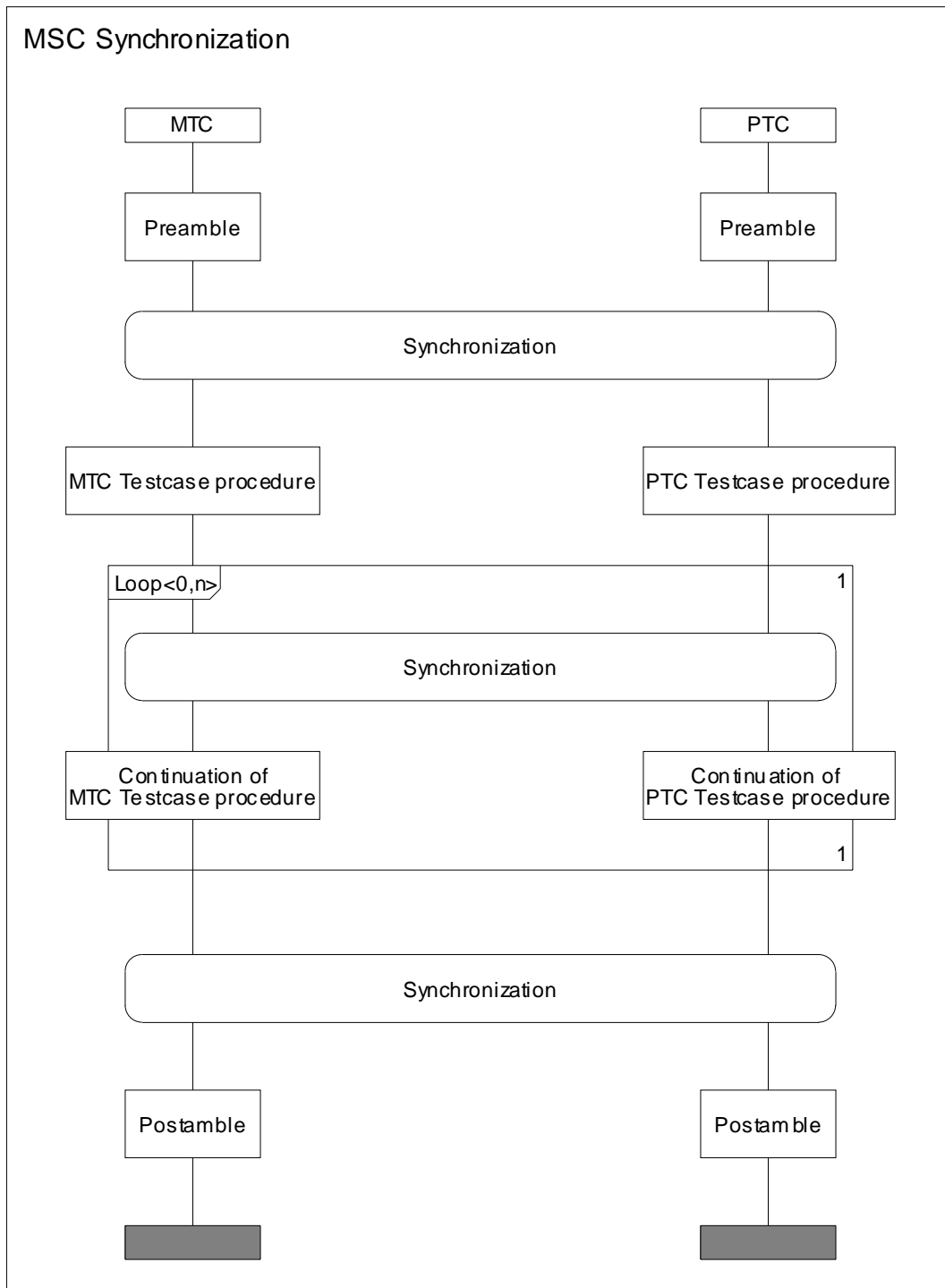


Figure D.1: Synchronization

D.2 Comment 3 of 4TD 175 clause 1.2

Comment 3	
Location	Testmessages to the Dummy PTC.
Description	The test messages are unclear. Instead of a test message a test constant shall be sent. The test operator shall read then the description of the sent test constant. A description is clearer than a small test message.

The test operator receives via the PCO O instructions. These instructions describe the action which the test operator shall perform. Instead of a whole text, only the number of the instruction is prompted on the screen (TSC_action1, TSC_action2, etc.). As soon as an instruction is prompted on the screen, the test operator shall use the table D.1 of the present document, in order to see which action he shall perform.

This approach allows a more detailed description of the of the action which shall be performed.

All the possible test actions are shown in table D.1.

Table D.1: Description of test actions

Test action	Description of test action
TSC_action1	The operator shall use an appropriate action to trigger that the IUT sends a SETUP msg in Overlap mode.
TSC_action2	The operator shall use an appropriate action to trigger that the IUT sends a SETUP msg WITHOUT Overlap mode.
TSC_action3	The operator shall use an appropriate action to trigger that the IUT sends an INFORMATION msg.
TSC_action4	The operator shall use an appropriate action to trigger that the IUT releases the call with cause #17.
TSC_action5	The operator shall use an appropriate action to trigger that the IUT sends an ALERTING msg.
TSC_action6	The operator shall use an appropriate action to trigger that the IUT sends an ALERTING msg and a CONNECT msg.
TSC_action7	The operator shall use an appropriate action to trigger that the IUT invokes ActivateDiversionQ CFU.
TSC_action8	The operator shall use an appropriate action to trigger that the IUT invokes ActivateDiversionQ CFB.
TSC_action9	The operator shall use an appropriate action to trigger that the IUT invokes ActivateDiversionQ CFNR.
TSC_action10	The operator shall use an appropriate action to trigger that the IUT invokes DeactivateDiversionQ CFU.
TSC_action11	The operator shall use an appropriate action to trigger that the IUT invokes DeactivateDiversionQ CFB.
TSC_action12	The operator shall use an appropriate action to trigger that the IUT invokes DeactivateDiversionQ CFNR.
TSC_action13	The operator shall use an appropriate action to trigger that the IUT invokes InterrogateDiversionQ CFU.
TSC_action14	The operator shall use an appropriate action to trigger that the IUT invokes InterrogateDiversionQ CFB.
TSC_action15	The operator shall use an appropriate action to trigger that the IUT invokes InterrogateDiversionQ CFNR.
TSC_action16	The operator shall use an appropriate action to trigger that the IUT initiates a CCBS call to the DivertedTo User PINX.
TSC_action17	The operator shall use an appropriate action to trigger that the IUT initiates a CCNR call to the DivertedTo User PINX.
TSC_action18	The operator shall use an appropriate action to trigger that the IUT initiates a call to the Primary PINX.
TSC_action19	The operator shall use an appropriate action to trigger that the IUT invokes CallTransfer.

Annex E (informative): Bibliography

- ETSI EN 301 452-1: "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Call completion supplementary service for the VPN b service entry point; Part 1: Test Suite Structure and Test Purposes (TSS&TP) specification".
- ETSI EN 300 172 (1997): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Circuit-mode basic services [ISO/IEC 11572 (1996) modified]".
- ETSI ETS 300 239 (edition 2): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Generic functional protocol for the support of supplementary services".
- ETSI EN 301 060-1 (1998): "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 (1998): "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

Document history		
V1.1.1	December 2000	Publication
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V1.2.1	January 2002	Publication