Final draft ETSI EN 302 646-4 V7.0.1 (2000-09)

European Standard (Telecommunications series)

Integrated Service Digital Network (ISDN);
Signalling System No.7;
Digital cellular telecommunications system (Phase 2+);
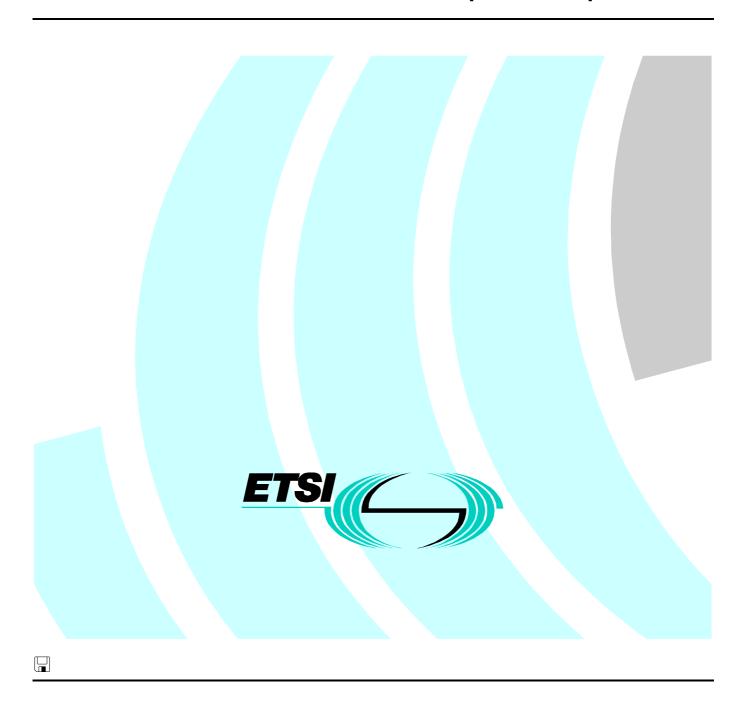## Application of ISDN User Part (ISUP) version 3
for the ISDN-Public Land Mobile Network (PLMN)
signalling interface;
Part 4: Abstract Test Suite (ATS) and Protocol
Implementation eXtra Information for Testing (PIXIT)
proforma specification

ETSI

Reference

REN/SPAN-01047-4

Keywords

ATS, ISDN, ISUP, PICS, PLMN, PIXIT, SS7,
testing

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 Voting phase of the ETSI standards Two-step Approval Procedure.

The present document is part 4 of a multi-part EN covering the Integrated Service Digital Network (ISDN); Signalling System No.7; Digital cellular telecommunications system (Phase 2+); Application of ISDN User Part (ISUP) version 3 for the ISDN-Public Land Mobile Network (PLMN) signalling interface, as identified below:

   Part 1:   "Protocol specification" (GSM 09.14 version 7.0.2 Release 1998);

   Part 2:   "Protocol Implementation Conformance Statement (PICS) proforma specification";

   Part 3:   "Test Suite Structure and Test Purposes (TSS&TP)";

   Part 4:   "Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".

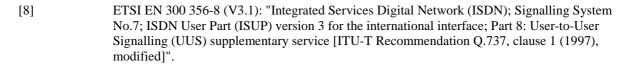| Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
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Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

1 Scope

The present document contains the validation (conformance) test specification defined in EN 302 646-1 [1]. The present document applies only to exchanges having implemented the ISUP v3 protocol specification.

The present document presents the Protocol Implementation extra information for testing (PIXIT), protocol conformance test report (PCTR) and the abstract test suite for the ISDN-Public Land Mobile Network (PLMN) signalling interface defined in compliance with the relevant requirements and in accordance with the guidance given in ISO/IEC 9646-7 [18].

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 302 646-1: "Integrated Services Digital Network (ISDN); Signalling System No.7; Digital cellular telecommunications system (Phase 2+); Application of ISDN User Part (ISUP) version 3 for the ISDN-Public Land Mobile Network (PLMN) signalling interface; Part 1: Protocol specification (GSM 09.14 version 7.0.2 Release 1998)".

[2]   ETSI EN 300 356-1 (V3.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1997), modified]".

[3]   ETSI EN 300 356-2 (V3.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 2: ISDN supplementary services [ITU-T Recommendation Q.730 (1997), modified]".

[4]   ETSI EN 300 356-3 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 3: Calling Line Identification Presentation (CLIP) supplementary service [ITU-T Recommendation Q.731, clause 3 (1993), modified]".

[5]   ETSI EN 300 356-4 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 4: Calling Line Identification Restriction (CLIR) supplementary service [ITU-T Recommendation Q.731, clause 4 (1993), modified]".

[6]   ETSI EN 300 356-5 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 5: Connected Line Identification Presentation (COLP) supplementary service [ITU-T Recommendation Q.731, clause 5 (1993), modified]".

[7]   ETSI EN 300 356-6 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 6: Connected Line Identification Restriction (COLR) supplementary service [ITU-T Recommendation Q.731, clause 6 (1993), modified]".

[8]   ETSI EN 300 356-8 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 8: User-to-User Signalling (UUS) supplementary service [ITU-T Recommendation Q.737, clause 1 (1997), modified]".

[9]   ETSI EN 300 356-11 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 11: Malicious Call Identification (MCID) supplementary service [ITU-T Recommendation Q.731, clause 7 (1997), modified]".

[10]   ETSI EN 300 356-12 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 12: Conference Call, add-on (CONF) supplementary service [ITU-T Recommendation Q.734, clause 1 (1993), modified]".

[11]   ETSI EN 300 356-14 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 14: Explicit Call Transfer (ECT) supplementary service [ITU-T Recommendation Q.732, clause 7 (1996), modified]".

[12]   ETSI EN 300 356-17 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 17: Call Waiting (CW) supplementary service [ITU-T Recommendation Q.733, clause 1 (1992), modified]".

[13]   ETSI EN 300 356-18 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 18: Completion of Calls to Busy Subscriber (CCBS) supplementary service [ITU-T Recommendation Q.733, clause 3 (1997), modified]".

[14]   ETSI EN 300 356-19 (V3.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 19: Three-Party (3PTY) supplementary service [ITU-T Recommendation Q.734, clause 2 (1996), modified]".

[15]   ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[16]   ISO/IEC 9646-3 (1996): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".

[17]   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".

[18]   ISO/IEC 9646-7 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[19]   ITU-T Recommendation Q.763 (1993): "Signalling System No. 7 - ISDN user part formats and codes".

3   Definitions and abbreviations

3.1   Definitions

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

- terms defined in ISDN User Part (ISUP) reference specification EN 300 356-1 [2], EN 300 356-2 [3], EN 300 356-3 [4], EN 300 356-4 [5], EN 300 356-5 [6], EN 300 356-6 [7], EN 300 356-8 [8], EN 300 356-11 [9], EN 300 356-12 [10], EN 300 356-14 [11], EN 300 356-17 [12], EN 300 356-18 [13] and EN 300 356-19 [14];

- terms defined in ISO/IEC 9646-1 [15], ISO/IEC 9646-3 [16] and in ISO/IEC 9646-7 [18].

In particular, the following terms apply:

Abstract Test Case (ATC): complete and independent specification of the actions required to achieve a specific test purpose, defined at the level of abstraction of a particular Abstract Test Method, starting in a stable testing state and ending in a stable testing state (see ISO/IEC 9646-1 [15], subclause 3.3.3)

Abstract Test Method (ATM): description of how an IUT is to be tested, given at an appropriate level of abstraction to make the description independent of any particular realization of a Means of Testing, but with enough detail to enable abstract test cases to be specified for this method (see ISO/IEC 9646-1 [15], subclause 3.3.5)

Abstract Test Suite (ATS): test suite composed of abstract test cases (see ISO/IEC 9646-1 [15], subclause 3.3.6)

Implementation Under Test (IUT): implementation of one or more OSI protocols in an adjacent user/provider relationship, being part of a real open system which is to be studied by testing (see ISO/IEC 9646-1 [15], subclause 3.3.43)

Means of Testing (MOT): combination of equipment and procedures that can perform the derivation, selection, parameterization and execution of test cases, in conformance with a reference standardized ATS, and can produce a conformance log (see ISO/IEC 9646-1 [15], subclause 3.3.54)

PICS proforma: document in the form of a questionnaire, which when completed for an implementation or system becomes the PICS

PIXIT proforma: document in the form of a questionnaire, which when completed for the IUT becomes the PIXIT

Point of Control and Observation: point within a testing environment where the occurrence of test events is to be controlled and observed, as defined in an Abstract Test Method (see ISO/IEC 9646-1 [15], subclause 3.3.64)

Pre-test condition: setting or state in the IUT which cannot be achieved by providing stimulus from the test environment

Protocol Implementation Conformance Statement (PICS): statement made by the supplier of a protocol claimed to conform to a given specification, stating which capabilities have been implemented (see ISO/IEC 9646-1 [15], subclause 3.3.39 and subclause 3.3.80)

Protocol Implementation eXtra Information for Testing (PIXIT): statement made by a supplier or implementor of an IUT (protocol) which contains or references all of the information related to the IUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the IUT (see ISO/IEC 9646-1 [15], subclause 3.3.41 and subclause 3.3.81)

System Under Test (SUT): real open system in which the IUT resides (see ISO/IEC 9646-1 [15], subclause 3.3.103)

3.2   Abbreviations

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

3PTY	Three-Party
ACM	Address Complete Message
ATC	Abstract Test Case
ATM	Abstract Test Method
ATP	Access Transport Parameter
ATS	Abstract Test Suite
CCBS	Completion of Calls to Busy Subscriber
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFNRc	Call Forwarding on Mobile Subscriber Not Reachable
CFU	Call Forwarding Unconditional
CIC	Circuit Identification Code
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COLP	Connected Line Identification Presentation
COLR	Connected Line Identification Restriction
CONF	Conference calling
ECT	Explicit Call Transfer
GSM	Global System for Mobile communications
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
IUT	Implementation Under Test
MAP	Mobile Application Part
MCID	Malicious Call Identification
MOT	Means Of Testing
MPTY	MultiParty
MSRN	Mobile Station Roaming Number
MTP	Message Transfer Part
NI	Network Indicator
PCTR	Protocol Conformance Test Report
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PLMN	Public Land Mobile Network
SCS	System Conformance Statement
SP	Signalling Point
TP	Test Purpose (context dependent)
TSS	Test Suite Structure
TTCN	Tree and Tabular Combined Notation
UT	Upper Tester
UUS	User-to-User signalling

The ISUP message acronyms can be found in table 2 of ITU-T Recommendation Q.763 [19].

Annex A (normative):
PIXIT proforma for Application of ISDN User Part (ISUP) v 3 for the ISDN-Public Land Mobile Network (PLMN) signalling interface

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.

The PIXIT proforma enlists all the parameters and data that are needed to configure the ATS (and/or the IUT) before executing the testing campaign. It is to be filled out as part of the preparation for testing by e.g. the test client. The testing laboratory then inputs this data into the implementation of the ATS. More information about the purpose and intent of the PIXIT can be found in ISO/IEC 9646-5.

A.1   Identification summary

PIXIT Number:	
Test Laboratory Name:	
Date of Issue:	
Issued to:	

A.2   Abstract test suite summary

Protocol Specification:	
ATS Specification:	EN 302 646-4
Abstract Test Method:	

A.3   Test laboratory

Test Laboratory Identification:	
Test Laboratory Manager:	
Test Laboratory contact:	
Means of Testing:	
Instructions for completion:	

A.4   Client identification

Client Identification:	
Client Test manager:	
Test Facilities required:	

A.5 System Under Test

Name:	
Version:	
SCS Number:	
Machine configuration:	
Operating system identification:	
IUT Identification:	
PICS Reference for IUT:	
Limitations of the SUT:	
Environmental conditions:	

A.6 Ancillary protocols

Protocol name	Version No.	PICS Ref.	PIXIT Ref.	PCTR Ref.
MTP				
Access protocol				

A.7 Protocol information for ISUP

A.7.1 Protocol identification

Name:	EN 302 646-1
Version:	
PICS references:	

A.7.2 IUT information - PIXIT proforma tables

The PIXIT information requested in the following tables is needed to provide the necessary information for the execution of the testing campaign. It is assumed that one exchange role is tested at one time. The answers to some PIXIT questions are related to an individual role. A typical example is the nature of address indicator of the called party number value, which is different in the case of international gateways and national exchanges. That is why if several roles are to be tested, one completed copy of the PIXIT proforma for each role is needed.

A.7.2.1 General configuration

Signalling point codes

Two signalling point codes - one incoming and one outgoing have to be defined for the IUT. For an international intermediate exchange the incoming and outgoing point codes are the same, whereas for an international gateway exchange there are two different signalling point codes because they belong to two separate networks (international and national).

Circuit identification codes

From a formal point of view, in most test cases it is sufficient to use only one CIC per signalling link in order to execute the testing. From a practical point of view the tester could select any CIC within a range of CICs belonging to a route, when initiating a call set-up. The tester can, however, use the first CIC in the circuit group, without reducing the generality. The ATS requires the first CIC in the group as an answer to the PIXIT questions A.1/5 and A.1/12 in table A.1

Table A.1: General configuration

Item	Parameter	Parameter Type	Explanation	Value
1	TSP_SPA_R	BIT_14	SS No. 7 Signalling point code of the SUT on the AB interface (right side)	
2	TSP_SPB	BIT_14	SS No. 7 Signalling point code of the tester on the AB interface	
3	TSP_NI_R	BIT_2	SS No. 7 Network indicator on the AB interface	
4	TSP_SLS_R	BIT_4	SS No. 7 Signalling link selection on the AB interface	
5	TSP_CIC_R	BIT_12	SS No. 7 Circuit identification code on the AB interface	
6	TSP_NB_CICS	BIT_12	Number of SS No. 7 Circuit identification codes on the AB and AC interfaces	
7	TSP_SPA_L	BIT_14	SS No. 7 Signalling point code of the SUT on the AC interface (left side)	
8	TSP_SPC	BIT_14	SS No. 7 Signalling point code of the tester on the AC interface	
9	TSP_NI_L	BIT_2	SS No. 7 Network indicator on the AC interface	
10	TSP_SLS_L	BIT_4	SS No. 7 Signalling link selection on the AC interface	
11	TSP_CIC_L	BIT_12	SS No. 7 Circuit identification code on the AC interface	
12	TSP_Link_R	BIT_12	CIC for the signalling link on the AB interface	
13	TSP_Link_L	BIT_12	CIC for the signalling link on the AC interface	

A.7.2.2   Parameter values

Called party numbers

The called party numbers have to be specified for each role which is to be tested.

Table A.2: Parameter values

Item	Parameter	Parameter Type	Explanation	Value
1	TSP_NB_A	HEX_N	Subscriber number for which the call will be routed to signalling point A (SP A)	
2	TSP_NB_B	HEX_N	Subscriber number for which the call will be routed to signalling point B (SP B)	
3	TSP_MSRN	HEX_N	Mobile Subscriber Roaming Number	
4	TSP_ISDN	HEX_N	ISDN subscriber number	

A.7.2.3   Timer values

Table A.3: Timer values

Item	Parameter	Parameter Type	Type	Value
1	TSP_T7	INTEGER	Wait for some event timer (20 s to 30 s)	
2	TSP_TearlyACM	INTEGER	Early ACM (5 s to 20 s)	
3	T_A_STEP	INTEGER	Test step execution control timer	
4	T_B_STEP	INTEGER	Test step execution control timer	
5	T_WAIT	INTEGER	Local timer	

A.7.2.4   Procedural information

No items requiring response.

Annex B (normative):
Protocol Conformance Test Report (PCTR) Proforma for ISDN User Part (ISUP) v 3 - Public Land Mobile Network (PLMN) signalling interface

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.

The PCTR Proforma is based on ISO/IEC 9646-5. Any additional information needed can be found in the present document.

B.1   Identification summary

B.1.1   Protocol conformance test report

PCTR Number:	
PCTR Date:	
Test Laboratory Identification:	
Test Laboratory Manager:	
Signature:	

B.1.2   IUT identification

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

B.1.3   Testing environment

PIXIT Number:	
ATS Specification:	
Abstract Test Method:	Distributed multiparty test method
Means of Testing identification:	
Date of testing:	
Conformance Log reference(s):	
Retention Date for Log reference(s):	

B.1.4   Limits and reservation

Additional information relevant to the technical contents or further use of the test report, or 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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B.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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B.2   IUT Conformance status

This IUT has/has not been shown by conformance assessment to be non-conforming to the referenced 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 B.3 in the present document) and there are no "FAIL" verdicts to be recorded (in clause B.6 of the present document) strike the word "has/". Otherwise strike the words "/has not".

B.3   Static conformance summary

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

Strike the appropriate words in this sentence.

B.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 B.6 of the present document) strike the word "did/". Otherwise strike the words "/did not".

Summary of the results of groups of test:

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B.5 Static conformance review report

If clause B.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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B.6 Test campaign report

Table B.1: Test campaign report - ECHO

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_BC_1_1				
PI_BC_1_2				
PI_BC_1_3				
PI_BC_1_4				
PI_BC_1_5				
PI_BC_1_6				
PI_BC_1_7				

Table B.2: Test campaign report - PLMN

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_BC_1_8				
PI_BC_1_9				
PI_BC_1_10				
PI_BC_1_11				

Table B.3: Test campaign report - FIXED

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_BC_1_12				
PI_BC_1_13				
PI_BC_1_14				
PI_BC_1_15				
PI_BC_1_16				

Table B.4: Test campaign report - CLIP

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_1				
PI_ISDN_SS_2_2				
PI_ISDN_SS_2_3				
PI_ISDN_SS_2_4				

Table B.5: Test campaign report - COLP

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_5				

Table B.6: Test campaign report - UUS

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_6				

Table B.7: Test campaign report - MCID

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_7				

Table B.8: Test campaign report - CONF

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_8				

Table B.9: Test campaign report - ECT

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_9				
PI_ISDN_SS_2_10				

Table B.10: Test campaign report - CFU

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_11				
PI_ISDN_SS_2_12				

Table B.11: Test campaign report - CFB

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_13				
PI_ISDN_SS_2_14				

Table B.12: Test campaign report - CFNR

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_15				
PI_ISDN_SS_2_16				

Table B.13: Test campaign report - CCBS

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_17				

Table B.14: Test campaign report – 3PTY

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_ISDN_SS_2_18				

Table B.15: Test campaign report - CFNRc

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_GSM_SS_3_1				
PI_GSM_SS_3_2				

Table B.16: Test campaign report - ATP

ATS Reference	Selected [Y/N]	Run [Y/N]	Verdict [P/F/I]	Observations (Reference to any observations made in clause B.7)
PI_TS_4_1				

B.7 Observations

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

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Annex C (normative):
ATS for ISDN User Part (ISUP) v3 - Public Land Mobile Network (PLMN) signalling interface

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [16].

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

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

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (sps1047_4.PDF contained in archive en_30264604v070001v0.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 (sps1047_4.MP contained in archive en_30264604v070001v0.ZIP) which accompanies the present document.

Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

- ETSI ETS 300 121: "Integrated Services Digital Network (ISDN); Application of the ISDN User Part (ISUP) of CCITT Signalling System No.7 for international ISDN interconnections (ISUP version 1)".

- ETSI ETS 300 540: "Digital cellular telecommunications system (Phase 2); Transmission planning aspects of the speech service in the GSM Public Land Mobile Network (PLMN) system (GSM 03.50 version 4.6.1)".

- ETSI ETS 300 542: "Digital cellular telecommunications system (Phase 2); Line identification supplementary services; Stage 2 (GSM 03.81 version 4.8.1)".

- ETSI ETS 300 543: "Digital cellular telecommunications system (Phase 2+); Call Forwarding (CF) supplementary services; Stage 2 (GSM 03.82)".

- ETSI ETS 300 545: "Digital cellular telecommunications system (Phase 2+); Multi Party (MPTY) supplementary services; Stage 2 (GSM 03.84)".

- ETSI TS 101 283: "Digital cellular telecommunications system (Phase 2+); Technical realization of Completion of Calls to Busy Subscriber (CCBS); Stage 2 (GSM 03.93 version 7.0.0 Release 1998)".

- ETSI ETS 300 603: "European digital cellular telecommunications system (Phase 2); Interworking between a Public Land Mobile Network (PLMN) and a Packet Switched Public Data Network/Integrated Services Digital Network (PSPDN/ISDN) for the support of packet switched data transmission services (GSM 09.06)".

- ETSI ETS 300 604: "Digital cellular telecommunications system (Phase 2); General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN) (GSM 09.07 version 4.13.1)".

- ETSI ETS 300 599: "Digital cellular telecommunications system (Phase 2); Mobile Application Part (MAP) specification (GSM 09.02 version 4.19.0)".

- ETSI ETS 300 008: "Integrated Services Digital Network (ISDN); Signalling System No.7; Message Transfer Part (MTP) to support international interconnection".

- ISO/IEC 9646-2 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".

History

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<tr><td>V7.0.1</td><td>January 2000</td><td>Public Enquiry</td><td>PE 200018:   2000-01-05 to 2000-05-05</td></tr>
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