

**Integrated Services Digital Network (ISDN);
Network Integration testing (NIT);
ISDN End-to-end testing;
Part 2: Abstract test suite (ATS) and
partial protocol Implementation extra Information
for testing (PIXIT) proforma for the network**



Reference

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Foreword

This ETSI Guide (EG) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN), and is now submitted for the ETSI standards Membership Approval Procedure.

The present document is part 1 of a multi-part EG covering Integrated Services Digital Network (ISDN); Network Integration Testing (NIT); ISDN/PSTN end-to-end testing, as identified 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 for the network".

Introduction

The present document contains the Abstract Test Suite (ATS), Implementation Conformance Statement (ICS) and Implementation eXtra Information for Testing (IXIT) list developed in the EURESCOM project P613 "Methodology and tools for ISDN Network Integration and Traffic Route Testing" for testing the international European ISDN, covering Network Integration Testing (NIT) between ISDN-ISDN, ISDN-PSTN and PSTN-ISDN networks. The objective is to verify the level of international end-to-end support of ISDN services. Both bearer services (and associated teleservices) and supplementary services are checked for interworking capability and compatibility, in the international European ISDN.

The European ISDN is made up by connecting the different national networks and End-to-end NIT covers all the testing activities necessary to assess the correct behaviour of the interconnected network from the point of view of access interfaces, network side.

1 Scope

The present document specifies the Abstract Test Suite (ATS), the Implementation Conformance Statement (ICS) and the partial Implementation eXtra Information for TestingTest (IXIT) proformas for the network side of the T reference point or coincident S and T reference point for the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, for Network Integration Testing (NIT) covering the end-to-end support of ISDN services.

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] 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] ETS 300 103: "Integrated Services Digital Network (ISDN); Support of CCITT Recommendation X.21, X.21 bis and X.20 bis based Data Terminal Equipments (DTEs) by an ISDN Synchronous and asynchronous terminal adaptation functions".
- [3] CCITT Recommendation O.152 (1988): "Error performance measuring equipment for 64 kbit/s paths".
- [4] CCITT Recommendation I.112 (1988): "Vocabulary and terms for ISDNs".
- [5] CCITT Recommendation I.210 (1988): "Principles of the telecommunication services supported by an ISDN and the means to describe them".
- [6] CCITT Recommendation E.164 (1988): "Numbering plan for the ISDN era".
- [7] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General Concepts".
- [8] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite Specification".
- [9] ISO/IEC 9646-3: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation".
- [10] ITU-T Recommendation G.711: "Pulse code modulation (PCM) of voice frequencies".
- [11] ITU-T Recommendation H.221: "Frame structure for a 64 to 1920 kbit/s channel in audio-visual teleservices".
- [12] ITU-T Recommendation H.242: "System for establishing communication between audio-visual terminals using digital channels up to 2 Mbit/s".
- [13] ITU-T Recommendation F.721: "Videotelephony teleservice for ISDN".
- [14] ITU-T Recommendation F.182: "Guidelines for the support of the communication of documents using Group 3 facsimile between user terminals via public networks".

- [15] ISO/IEC 7776: "Information technology - Telecommunications and information exchange between systems - High-level data link control procedures - Description of the X.25 LAPB-compatible DTE data link procedures".
- [16] ISO/IEC 8208: "Information technology - Data communications - X.25 Packet Layer Protocol for Data Terminal Equipment".
- [17] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
- [18] ISO/IEC 9646-4: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 4: Test realization".
- [19] EN 300 102: "Private Integrated Services Network (PISN); Mapping functions for the employment of a circuit mode basic service and the supplementary service user-to-user signalling as a pair of on-demand inter-PINX connections (Mapping/UUS)".
- [20] EN 300 065-1: "Integrated Services Digital Network (ISDN); Completion of Calls on No Reply (CCNR) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [21] ITU-T Recommendation Q.931: "ISDN user-network interface layer 3 specification for basic call control".
- [22] ETS 300 557: "Digital cellular telecommunications system (Phase 2); Mobile radio interface; Layer 3 specification (GSM 04.08 version 4.23.1)".
- [23] ETS 300 012: "Integrated Services Digital Network (ISDN); Basic user-network interface; Layer 1 specification and test principles".
- [24] ETS 300 011: "Integrated Services Digital Network (ISDN); Primary rate user-network interface; Layer 1 specification and test principles".
- [25] ETS 300 402-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer; Part 1: General aspects [ITU-T Recommendation Q.920 (1993), modified]".
- [26] ETS 300 125: "Integrated Services Digital Network (ISDN); User-network interface data link layer specification; Application of CCITT Recommendations Q.920/I.440 and Q.921/I.441".
- [27] ETS 300 356-1: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 2 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1993), modified]".
- [28] ETS 300 267-1: "Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [29] ETS 300 388: "Integrated Services Digital Network (ISDN); File Transfer, Access and Management (FTAM) over ISDN based on simple file transfer profile".
- [30] ETS 300 383: "Integrated Services Digital Network (ISDN); File transfer over the ISDN EUROFILE transfer profile".
- [31] ETS 300 092-1: "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [32] ETS 300 093-1: "Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

- [33] ETS 300 097-1: "Integrated Services Digital Network (ISDN); Connected Line Identification Presentation (COLP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [34] ETS 300 098-1: "Integrated Services Digital Network (ISDN); Connected Line Identification Restriction (COLR) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [35] ETS 300 138-1: "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [36] ETS 300 061-1: "Integrated Services Digital Network (ISDN); Subaddressing (SUB) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [37] ETS 300 055-1: "Integrated Services Digital Network (ISDN); Terminal Portability (TP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [38] ETS 300 286-1: "Integrated Services Digital Network (ISDN); User-to-User Signalling (UUS) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [39] ETS 300 185-1: "Integrated Services Digital Network (ISDN); Conference call, add-on (CONF) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [40] ETS 300 207-1: "Integrated Services Digital Network (ISDN); Diversion supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [41] ETS 300 210-1: "Integrated Services Digital Network (ISDN); Freephone (FPH) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [42] ETS 300 130-1: "Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [43] ETS 300 188-1: "Integrated Services Digital Network (ISDN); Three-Party (3PTY) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [44] ETS 300 141-1: "Integrated Services Digital Network (ISDN); Call Hold (HOLD) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [45] ETS 300 058-1: "Integrated Services Digital Network (ISDN); Call Waiting (CW) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [46] ETS 300 369-1: "Integrated Services Digital Network (ISDN); Explicit Call Transfer (ECT) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [47] EN 300 359-1: "Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [48] ETR 299-2: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Network Integration Testing (NIT); ISDN end-to-end testing; Part 2: Implementation Conformance Statement (ICS) proforma, Abstract Test Suite (ATS) and partial Implementation eXtra Information for Testing (IXIT) proforma specification".

3 Definitions

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

3.1 Definitions related to conformance testing

Abstract Test Suite: refer to ISO/IEC 9646-1 [7]

Implementation Under Test: refer to ISO/IEC 9646-1 [7]

Lower Tester: refer to ISO/IEC 9646-1 [7]

Implementation Conformance Statement (ICS) proforma: refer to ISO/IEC 9646-1 [7]

Implementation eXtra Information for Testing (IXIT) proforma: refer to ISO/IEC 9646-1 [7]

Point of Control and Observation: refer to ISO/IEC 9646-1 [7]

Protocol Implementation Conformance Statement: refer to ISO/IEC 9646-1 [7]

Protocol Implementation eXtra Information for Testing: refer to ISO/IEC 9646-1 [7]

System Under Test: refer to ISO/IEC 9646-1 [7]

Test Purpose: refer to ISO/IEC 9646-1 [7]

3.2 Definitions related to EN 300 403-1

user: DSS1 protocol entity at the User side of the user-network interface where a T reference point or coincident S and T reference point applies

user (S/T): DSS1 protocol entity at the User side of the user-network interface where a coincident S and T reference point applies

user (T): DSS1 protocol entity at the User side of the user-network interface where a T reference point applies (User is the Private ISDN)

Integrated Services Digital Network (ISDN): see CCITT Recommendation I.112 [4], § 2.2 definition 308

service: telecommunications service: see CCITT Recommendation I.112 [4], § 2.2 definition 201

supplementary service: see CCITT Recommendation I.210 [5], § 2.4

ISDN number: number conforming to the numbering and structure specified in CCITT Recommendation E.164 [6]

3.3 Definitions related to test purpose descriptions

BC = speech: bearer capability information element with its information transfer capability field set to "speech" and its user information layer one protocol field set to "G.711 [10] A-law"

BC = 3,1 kHz audio: bearer capability information element with its information transfer capability field set to "3,1 kHz Audio" and its user information layer one protocol field set to "G.711 [10] A-law"

BC = UDI: bearer capability information element with its information transfer capability set to "unrestricted digital information"

BC = UDI/TA: bearer capability information element with its information transfer capability set to "unrestricted digital information with tones/announcements" and its user information layer one protocol field set to "ITU-T Recommendations H.221 [11] and H.242 [12]"

BC = ITU-T Recommendation V110 / ITU-T Recommendation X30: a Bearer capability information element with its information transfer capability set to "unrestricted digital information" and its user information layer 1 field set to "CCITT standardized rate adaption ITU-T Recommendation V110 / ITU-T Recommendation X30", including sync/async and user rate values

HLC = telephony: high layer compatibility information element with its high layer characteristics identification field set to "telephony"

HLC = videotelephony_ic: high layer compatibility information element with its high layer characteristics identification field set to "videotelephony (Rec. F.721 [13])" and its extended audio-visual characteristics field set to "capability set of initial channel of Rec. H.221 [11]"

HLC = facsimile group 2/3: high layer compatibility information element with its high layer characteristics identification field set to "facsimile group 2/3 (Rec. F.182 [14])"

HLC = facsimile group 4: high layer compatibility information element with its high layer characteristics identification field set to "facsimile group 4 class 1"

HLC = telex: high layer compatibility information element with its high layer characteristics identification field set to "telex"

LLC = telematic_term: low layer compatibility information element with its user information layer 2 field indicating "ISO/IEC 7776 [15] operation" and user information layer 3 field indicating "ISO/IEC 8208 [16]"

LLC = voice band data via modem: low layer compatibility information element with its user information layer 1 field indicating a "modem type" coding

LLC = ITU-T Recommendation V110 / ITU-T Recommendation X30: low layer compatibility information element with its user information layer 1 field indicating "CCITT standardized rate adaption ITU-T Recommendation V110 / ITU-T Recommendation X30" and including sync/async and user rate values

telephony 7 kHz fallback not allowed SETUP message: SETUP message containing a single BC = UDI/TA and a HLC = telephony

videotelephony fallback not allowed SETUP message: SETUP message containing a single BC = UDI/TA and a single HLC = videotelephony_ic

SI = UPVP: screening Indicator forwarded to the served user coded as "User-provided, verified and passed"

SI = NP: screening Indicator forwarded to the served user coded as "Network provided"

PI = PR: presentation Indicator forwarded to the served user coded as "Presentation restricted".

TON = international: type of number forwarded to the served user coded as "international"

TON = unknown: type of number forwarded to the served user coded as "unknown"

NPI = unknown: numbering plan identification forwarded to the served user coded as "unknown"

CUG default request: calling user do not include in the outgoing SETUP message a explicit request for the CUG supplementary service

UI length = 32: length of the User information field of the User-user information element is 32 octets.

CF active: call forwarding (U, B or NR) supplementary service is already activated with the address of user C

unavailability period: period of time beginning at the first of 10 consecutive severely erroded seconds and ending immediately before the first following period of 10 consecutive seconds none of which are severely erroded

erroded second: second with one or more bit errors

severely erroded second: second where at least 0,1% of the bits are erroded (corresponds to a one-second interval with a bit-error ratio worse than 1×10^{-3})

slip: one or more extra or missing consecutive unit intervals in the bit stream

octet slip: slip of one complete octet

Erroded Seconds Ratio: ratio of erroded seconds over all seconds within a specified measuring period, where neither are counted during unavailability periods

Severely Erroded Seconds: ratio of severely erroded seconds over all seconds within a specified measuring period, where neither are counted during unavailability periods

PRBS = 2¹¹-1: pseudo random binary sequence according to ITU-T Recommendation O.152 [3] transmitted for two consecutive periods of 24 hours. If an unavailability period of more than one hour occurred during the measuring period, it shall be extended accordingly

4 Abbreviations

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

3PTY	Three-party conference
ATS	Abstract Test Suite
BC	Bearer capability information element
CD	Call deflection
CFB	Call forwarding busy
CFNR	Call forwarding no response
CFU	Call forwarding unconditional
CLIP	Calling line identification presentation
CLIR	Calling line identification restriction
COLP	Connected line identification presentation
COLR	Connected line identification restriction
CONF	Conference (add-on)
CUG	Closed user group
CW	Call waiting
ECT	Explicit call transfer
ESR	Erroded Seconds Ratio
FPH	Freephone service
FTAM	File Transfer Access & Management
HLC	High layer compatibility information element
IUT	Implementation Under Test
LLC	Low layer compatibility information element
MCID	Malicious call identification
MHS	Message Handling Systems
NIT	Network Integration Testing
ONP	Open Network Provision
OSI	Open Systems Interconnection
P104	EURESCOM P104 ATS v1.2
PI	Presentation indicator
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
SESR	Severely Erroded Seconds
SI	Screening indicator
SUB	Subaddressing
TC	Test Case
TON	Type of number
TP	Terminal portability
TSS	Test Suite Structure
TSS&TP	Test Suite Structure and Test Purposes
UDI	Unrestricted digital information
UDI-TA	Unrestricted digital information with tones/announcements
UUS	User-to-user signalling
UUS1	UUS service 1
UUS2	UUS service 2

5 Abstract Test Method

5.1 Description of ATM used

The Abstract Test Method (ATM) chosen for this testing specification is the distributed multiparty test method. The ATM is defined at an appropriate level of abstraction so that the test cases may be specified appropriately, without adding restrictions to the implementation under test. The testing architectures are described in the following subclause.

The ATS is written in concurrent TTCN.

5.2 Test method

The requirement for testing the network SUT is to focus on the behaviour of the network SUT at two user-network interfaces where a T reference point or coincident S and T reference point applies.

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

An ATS based on a multi-party test method is considered to be more useful in that it is closer to how a real test suite would be constructed. Such a test method specifies behaviour at multiple network interfaces. The test system is made up of one Main Test Component (MTC) and one or more Parallel Test Components (PTC), see figure 1.

To observe the end-to-end mapping between DSS 1 layer 3 parameters and information elements on two remote ISDN accesses, for each side a Point of Control and Observation (PCO) is needed. The PCOs used by the lower tester to control the ISDN signalling are abbreviated with LA and LB. The ISDN PDUs to be sent and observed on the LA and the LB PCO side allow for PDU constraints to be specified and coded down to the bit level.

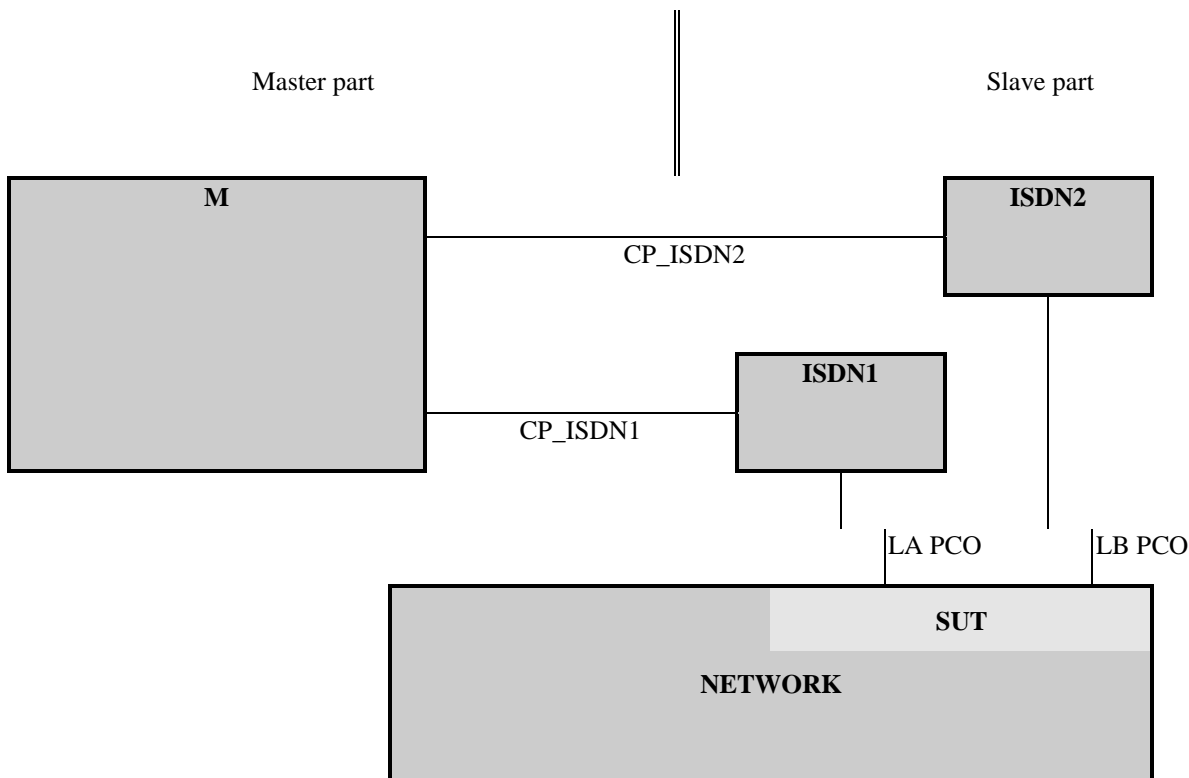


Figure 1: Test method

In a master/slave arrangement, the MTC is considered to be the master while the PTCs are the slaves. The MTC M has only one function in this configuration. It has the pure MTC function of controlling the two or more PTCs. Thus it is responsible for starting the PTCs and afterwards co-ordinates activities by exchanging Co-ordination Messages (CM) with the PTCs.

The "slave" testers are an explicit description of how to deal with the user-network interfaces during the testing process, i.e. "how to make the SUT send the required message".

6 Conformance to this ICS and IXIT proformas specification

If it claims to conform to the present document, the actual ICS proforma to be filled in by a supplier shall be technically equivalent to the text of the ICS proforma given in annex A, and shall preserve the numbering/naming and ordering of the proforma items.

An ICS which conforms to the present document shall be a conforming ICS proforma completed in accordance with the guidance for completion given in clause A.1.

A test realizer, producing a executable test suite for this ATS specification is required, as specified in ISO/IEC 9646-7 [17], to produce an augmented partial IXIT proforma conformant with the text of the partial IXIT proforma given in annex B.

An augmented partial IXIT proforma which conforms to this partial IXIT proforma specification shall, as a minimum, have contents which are technically equivalent to annex B. The augmented partial IXIT proforma may contain additional questions that need to be answered in order to prepare the Means Of Testing (MOT) for a particular IUT. The test laboratory may further augment the augmented partial IXIT proforma to produce a IXIT proforma conformant with this partial IXIT proforma specification.

An IXIT proforma which conforms to this partial IXIT proforma specification shall, as a minimum, have contents which are technically equivalent to annex B. The IXIT proforma may contain additional questions that need to be answered in order to prepare the test laboratory for a particular IUT.

7 ATS Conformance

The test realizer, producing a Means Of Testing (MOT) and Executable Test Suite (ExTS) for this Abstract Test Suite (ATS) specification, shall comply with the requirements of ISO/IEC 9646-4 [18] . In particular, these concern the realization of an Executable Test Suite (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.

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

Annex A (normative): End-to-end ICS 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 ICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed ICS.

A.1 Guidance for completing the ICS proforma

A.1.1 Purposes and structure

The purpose of this ICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined by ETSI for the network side for the pan-European Integrated Services Digital Network (ISDN), may provide information about the implementation in a standardized manner.

The proforma is subdivided into subclauses for the following categories of information:

- guidance for completing the proformas;
- identification of the implementation;
- global statement of conformance.

A.1.2 Abbreviations and conventions

The ICS proforma contained in the annex A is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7.

Item column

The item column contains a number which identifies the item in the table.

Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

Status column

The following notations, defined in ISO/IEC 9646-7, are used for the status column:

m	mandatory - the capability is required to be supported;
o	optional - the capability may be supported or not;
n/a	not applicable - in the given context, it is impossible to use the capability;
x	prohibited (excluded) - there is a requirement not to use this capability in the given context;
o.i	qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies an unique group of related optional items and the logic of their selection which is defined immediately following the table;
ci	conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying an unique conditional status expression which is defined immediately following the table.

Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7, are used for the support column:

- Y or y: supported by the implementation;
- N or n: not supported by the implementation;
- N/A, n/a or -: no answer required (allowed only if the status is n/a, directly or after evaluation of a conditional status).

It is also possible to provide a comment to an answer in the space provided at the bottom of the table.

Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following notations are used:

- range of values: <min value>..<>max value>
EXAMPLE: 5..20
- list of values: <value1>, <value2>,..., <valueN>
EXAMPLE: 2, 4, 6, 8, 9
EXAMPLE: '1101'B, '1011'B, '1111'B
EXAMPLE: '0A'H, '34'H, 2FH
- list of named values: <name1>(<val1>), <name2>(<val2>),..., <nameN>(<valN>)
EXAMPLE: reject(1), accept(2)
- length: size (<min size>..<>max size>)
EXAMPLE: size (1.. 8)

Values supported column

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

A.1.3 Instructions for completing the ICS proforma

The supplier of the implementation shall complete the ICS proforma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the support or supported column boxes provided, using the notation described in subclause A.1.2.

If necessary, the supplier may provide additional comments in space at the bottom of the tables, or separately on sheets of paper.

More detailed instructions may be given at the beginning of the different subclauses of the ICS proforma.

A.2 Identification of the implementation

Identification of the Implementation Under Test (IUT), the Integrated Services Digital Network provided by the European public telecommunications operator, should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the ICS and IXIT should be named as the contact person.

A.2.1 Date of the statement

A.2.2 Implementation Under Test (IUT) identification

IUT name:

.....

IUT version:

.....

A.2.3 ICS contact person

(A person to contact if there are any queries concerning the content of the ICS or IXIT)

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

A.3 Identification of the document

This ICS proforma apply to the following standard:

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]".

PLMN 04.08 (ETS 300 557): "Digital cellular telecommunications system (Phase 2); Mobile radio interface; Layer 3 specification (GSM 04.08 version 4.23.1)".

Other ETSI standards related to ISDN, DSS1 and PLMN signalling, layer 3 testing.

A.4 Basic ISDN capabilities

Table A.1: ISDN Access characteristics

Item	Access	Reference	Status	Support
1	Layer 1 access protocol conform to ETS 300 012 for basic rate interface	ETS 300 012	m	
2	Layer 1 access protocol conform to ETS 300 011 for primary rate interface	ETS 300 011	m	
3	Layer 2 access protocol conform to ETS 300 402-1	ETS 300 402-1	o.1	
4	Layer 2 access protocol conform to ETS 300 125	ETS 300 125	o.1	
5	Layer 3 access protocol conform to EN 300 403-1	EN 300 403-1	o.2	
6	Layer 3 access protocol conform to EN 300 102	ETS 300 102	o.2	
Please specify any national deviations:				

o.1: It is mandatory to support at least one of these options

o.2: It is mandatory to support at least one of these options

A.5 Network signalling protocol

Table A.2: Network signalling protocol

Item	Network	Reference	Status	Support
1	ISUP version 2 is supported by Network N1	ETS 300 356-1	m	
2	ISUP version 2 is supported by Network N2	ETS 300 356-1	m	
Please specify any national deviations:				

A.6 ISDN-ISDN Interworking

A.6.1 Basic call

Table A.3: Services based on bearer capability speech

Item	Service	Reference	Status	Support
1	telephony 3,1 kHz teleservice	EN 300 403-1	o	
2	telephony 3,1 kHz teleservice, Point to Point configuration for the called side		o	
Please specify any national deviations:				

Table A.4: Services based on bearer capability unrestricted digital information

Item	Service	Reference	Status	Support
1	bearer service unrestricted digital information; Point to Point configuration for the called side	EN 300 403-1	o	
2	telefax group 4 teleservice		o	
3	teletex basic and mixed mode terminals		o	
4	teletex basic and processable mode terminals		o	
5	teletex basic mode terminals		o	
6	international videotex interworking		o	
7	telex service		o	
8	message handling systems (MHS)		o	
9	OSI applications		o	
10	videotelephony teleservice (using unrestricted digital information)	ETS 300 267-1	o	
11	terminal adapters V.110/X.30 with rate adaption	ETS 300 103	o	
15	syntax-based videotex teleservice	ETS 300 102	o	
16	File Transfer Access & Management (FTAM) over ISDN teleservice	ETS 300 388	o	
17	Euro file transfer teleservice	ETS 300 383	o	
Please specify any national deviations:				

Table A.5: Services based on bearer capability 3,1 kHz audio

Item	Service	Reference	Status	Support
1	bearer service 3,1 kHz audio	EN 300 403-1	o	
2	bearer service 3,1 kHz audio, Point to Point configuration for the called side		o	
Please specify any national deviations:				

Table A.6: Services based on bearer capability unrestricted digital information with tones/announcements

Item	Service	Reference	Status	Support
1	UDI –TA Telephony teleservice	EN 300 403-1	o	
2	UDI –TA videotelephony teleservice	ETS 300 267-1	o	
3	UDI –TA Telephony teleservice is supported and Fallback is allowed		o	
4	UDI –TA Telephony teleservice is supported and Fallback is allowed. T-Point at the destination interface		o	
5	UDI –TA videotelephony teleservice and Fallback is allowed		o	
6	UDI –TA videotelephony teleservice and Fallback is allowed. T-Point at the destination interface		o	
7	UDI –TA, Point to point configuration for the called side		o	
Please specify any national deviations:				

A.6.2 ISDN Supplementary services

Table A.7: CLIP service

Item	Service	Reference	Status	Support
1	the called user is provided with CLIP	ETS 300 092-1	o	
2	the called user is provided with CLIP and a Special Arrangement applies		o	
3	the called user is provided with CLIP and a Special Arrangement applies, but the 2 Delivery Option does not apply		o	
Please specify any national deviations:				

Table A.8: CLIR service

Item	Service	Reference	Status	Support
1	The calling user is provided with CLIR permanent mode subscription, the called user is provided with CLIP	ETS 300 093-1	o	
2	The calling user is provided with CLIR temporary mode subscription, the called user is provided with CLIP and a Special Arrangement applies		o	
Please specify any national deviations:				

Table A.9: COLP service

Item	Service	Reference	Status	Support
1	The calling user is provided with COLP and a Special Arrangement applies	ETS 300 097-1	o	
2	The calling user is provided with COLP, the called user is provided with COLR permanent mode subscription		o	
Please specify any national deviations:				

Table A.10: COLR service

Item	Service	Reference	Status	Support
1	The calling user is provided with COLP, the called user is provided with COLR permanent mode subscription	ETS 300 098-1	o	
2	The calling user is provided with COLP, the called user is provided with COLR permanent mode subscription and a Special Arrangement applies		o	
Please specify any national deviations:				

Table A.11: CUG service

Item	Service	Reference	Status	Support
1	Closed user group (CUG)	ETS 300 138-1	o	
2	OA for calling user		o	
3	OCB for the calling user		o	
4	Preferential CUG		o	
5	IA for called user		o	
6	ICB for called user		o	
7	The called user belongs to the same CUG as the calling user		o	
8	The called user and calling user do not belong to the same CUG		o	
9	The calling user is a CUG subscriber and the called user is none		o	
10	The called user is a CUG subscriber and the calling user is none		o	
Please specify any national deviations, e.g. activation procedure:				

Table A.12: SUB service

Item	Service	Reference	Status	Support
1	The called user is provided with Subaddressing (SUB)	ETS 300 061-1	o	
Please specify any national deviations, e.g. activation procedure:				

Table A.13: TP service

Item	Service	Reference	Status	Support
1	Terminal portability (TP), the calling user is a basic access	ETS 300 055-1	o	
2	Terminal portability (TP), the called user is a basic access		o	
Please specify any national deviations, e.g. activation procedure:				

Table A.14: UUS service

Item	Service	Reference	Status	Support
1	The calling user is provided with UUS 1 implicitly requested	ETS 300 286-1	o	
2	The calling user is provided with UUS 1 explicitly requested		o	
3	The calling user is provided with UUS 1 explicitly requested and the requested UUS is not supported in network B		o	
4	The calling user is provided with UUS 1 explicitly requested and the called network already has obtained knowledge that the network itself cannot support service 1		o	
5	The calling user is provided with UUS 2. Point to point configuration for the called side		o	
6	The calling user is provided with UUS 3		o	
Please specify any national deviations, e.g. activation procedure:				

Table A.15: CONF service

Item	Service	Reference	Status	Support
1	User A is provided with CONF	ETS 300 185-1	o	
2	User B is provided with CONF and user A is not provided with CONF		o	
Please specify configuration: (if other than A in Originating network, B and C in Destination Network)				
Please specify any national deviations, e.g. activation procedure:				

Table A.16: CFU service

Item	Service	Reference	Status	Support
1	Call forwarding unconditional (CFU) is available to user B	ETS 300 207-1	o	
2	The calling user is notified of call diversion		o	
3	The served user is notified that the call has been forwarded		o	
4	Partial Rerouting applies		o	
5	UDUB		o	
6	NDUB		o	
7	User B has presentation allowed – no CLIR		o	
8	User C has presentation allowed – no COLR		o	
Please specify configuration: (if other than A and C in Originating network, B in Destination Network)				
Please specify any national deviations, e.g. activation procedure:				

Table A.17: CFB service

Item	Service	Reference	Status	Support
1	Call forwarding busy (CFB) is available to user B	ETS 300 207-1	o	
2	The calling user is notified of call diversion		o	
3	The served user is notified that the call has been forwarded		o	
4	Partial Rerouting applies		o	
5	UDUB		o	
6	NDUB		o	
7	User B has presentation allowed – no CLIR		o	
8	User C has presentation allowed – no COLR		o	
Please specify configuration: (if other than A and C in Originating network, B in Destination Network)				
Please specify any national deviations, e.g. activation procedure:				

Table A.18: CFNR service

Item	Service	Reference	Status	Support
1	Call forwarding no reply (CFNR) is available to user B	ETS 300 207-1	o	
2	The calling user is notified of call diversion		o	
3	The served user is notified that the call has been forwarded		o	
4	Partial Rerouting applies		o	
5	UDUB		o	
6	User B has presentation allowed – no CLIR		o	
7	User C has presentation allowed – no COLR		o	
8	The network provider option is set to: retain call until alerting begins at diverting to user		o	
9	The network provider option is set to: clear call on invocation		o	
Please specify configuration: (if other than A and C in Originating network, B in Destination Network)				
Please specify any national deviations, e.g. activation procedure:				

Table A.19: CD service

Item	Service	Reference	Status	Support
1	Call deflection (CD) is available to user B	ETS 300 207-1	o	
2	The calling user is notified of call diversion		o	
3	The served user is notified that the call has been forwarded		o	
4	Partial Rerouting applies		o	
5	UDUB		o	
6	NDUB		o	
7	User B has presentation allowed – no CLIR		o	
8	User C has presentation allowed – no COLR		o	
Please specify configuration: (if other than A and C in Originating network, B in Destination Network)				
Please specify any national deviations, e.g. activation procedure:				

Table A.20: FPH service

Item	Service	Reference	Status	Support
1	Freephone (FPH) service	ETS 300 210-1	o	
Please specify any national deviations, e.g. activation procedure:				

Table A.21: MCID service

Item	Service	Reference	Status	Support
1	The called user is provided Malicious call identification (MCID)	ETS 300 130-1 9.2.1	o	
Please specify any national deviations, e.g. activation procedure:				

Table A.22: 3PTY service

Item	Service	Reference	Status	Support
1	Three-party (3PTY) call	ETS 300 188-1	o	
Please specify configuration: (if other than A in Originating network, B and C in Destination Network)				
Please specify any national deviations, e.g. activation procedure:				

Table A.23: HOLD service

Item	Service	Reference	Status	Support
1	Call hold (HOLD)	ETS 300 141-1	o	
Please specify any national deviations, e.g. activation procedure:				

Table A.24: CW service

Item	Service	Reference	Status	Support
1	User A is provided with CW, notification allowed. One B channel of user B has to be made busy, before the test can be run.	ETS 300 058-1	o	
Please specify any national deviations, e.g. activation procedure:				

Table A.25: ECT service

Item	Service	Reference	Status	Support
1	Explicit call transfer (ECT) using implicit linkage	ETS 300 369-1	o	
2	Explicit call transfer (ECT) using explicit linkage		o	
3	Transfer while alerting		o	
4	Transfer after answer		o	
5	User A in private network and user B and user C in public net		o	
6	User A in private net and user B and user C in public net		o	
7	User A and user C in private network and user B in public network		o	
8	User B and user C are provided with COLR		o	
Please specify any national deviations, e.g. activation procedure:				

Table A.26: CCBS service

Item	Service	Reference	Status	Support
1	CCBS is available to destination	ETS 300 359-1	o	
2	The IUT can be configured during the testphase as follows: after having sent the CCBS – Available Invoke to user A, CCBS is not available to the destination		o	
3	The IUT can be configured during the testphase as follows: after having sent the CCBS – Available Invoke to user A, CCBS is not available because no compatible terminal is found.		o	
4	The IUT can be configured during the testphase as follows: after having sent the CCBS – Available Invoke to user A, CCBS is not available to the destination at this time. Point to Point configuration for both sides.		o	
5	The IUT can be configured during the testphase as follows: after having sent the CCBS – Available Invoke to user A, CCBS is not available to the destination. Point to Point configuration for both sides.		o	
6	CCBS request retention is set to YES		o	
7	Signalling procedures at the T reference point at both sides		o	
8	The IUT can be configured during the testphase as follows: after activation of CCBS by user A, the network cannot select any B-channel		o	
9	The Recall Parameter is set via PIXIT P-RECALL_MODE		o	
Please specify any national deviations, e.g. activation procedure:				

Table A.27: CCNR service

Item	Service	Reference	Status	Support
1	CCNR is available to destination	EN 300 065-1	o	
2	The IUT can be configured during the testphase as follows: after activation of CCNR by user A, the network cannot select any B-channel		o	
3	The Recall Parameter is set via PIXIT P-RECALL_MODE		o	
4	The IUT can be configured during the testphase as follows: after having sent the CCBS – Available Invoke to user A, CCNR is not available to the destination at this time.		o	
5	The IUT can be configured during the testphase as follows: after having sent the CCBS – Available Invoke to user A, CCNR is not available to the destination.		o	
6	CCBS request retention is set to YES		o	
7	Signalling procedures at the T reference point at both sides		o	
Please specify any national deviations, e.g. activation procedure:				

Table A.28: Combined services

Item	Service	Reference	Status	Support
1	The calling user is provided with COLP, UUS1 implicit request and belongs to CUG with OA. The called user is provided with CLIP and SUB		o	
2	The calling user is provided with COLP, UUS1 implicit request. The called user is provided with CLIP and CFU, the forwarded to user is provided with CLIP		o	
3	The called user is Freephone subscriber provided with CLIP		o	
Please specify any national deviations, e.g. activation procedure:				

Table A.29: DDI services

Item	Service	Reference	Status	Support
1	DDI at user B, en-bloc sending at user A	EN 300 403-1	o	
2	DDI at user B, overlap sending at user A		o	
Please specify any national deviations, e.g. activation procedure:				

Annex B (normative): Partial End-to-end IXIT 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 Instructions for completing the IXIT proforma

Before running the ISDN End-to-end test suite each participating public network operator will need to supply information concerning the allocation and availability of suitable ISDN and PSTN test numbers which will be required for setting up international connections.

This subclause contains a questionnaire, which shall be completed before performing the international ISDN end-to-end test suite. Additional information is used by the testing personnel for selecting and for setting the correct parameters on the test equipment.

This questionnaire contains only the information required to perform the tests.

B.2 Identification summary

PIXIT number:

.....

Date of issue:

.....

Issued to:

.....

B.3 Abstract test suite summary

Protocol specification: EN 300 403-1 and associated DSS1 standards for supplementary services

ATS specification: ETR 299-2

Abstract test method: Remote test method (see ISO/IEC 9646-2)

B.4 IXIT items

Table B.1: Access numbers

1	Last RerouteingNr, used if partial rerouting is tested	
2	ISDN number A	
3	ISDN number B	
4	ISDN number of subscriber 1 in private ISDN connected to access B	
5	ISDN number of suscriber 2 in private ISDN connected to access B	
6	ISDN number C	
7	UUS1 is not supported in Network B	
8	The full ISDN Number including the DDI digits	
9	Freephone number	
10	International number A	
11	International number B	
12	National number A	
13	National number B	
14	Subscriber number A	
15	Subscriber number B	
16	Unassigned number	
17	Incorrect connected number, which is sent by the called user	
18	Subaddress A	

Table B.2: Additional information

Item	Parameter	Range	Value
1	octetstring containing BCAPval, HLCval and LLCval, i.e. 04038090A3		
2	BearerCapability length		
3	BearerCapability octet 3 Information transfer capability Bitstring; User B is not subscribed to the Basic Service of user A; [BCAP_TRANS_CCBS] (TC 212107)		
4	BearerCapability octet 3 Information transfer capability; Bitstring BCAP_TRANS		
5	BearerCapability octet 5, User information Layer1 protocol, Bitstring		
6	i.e. Index = 0		
7	Interface 1 = T reference point?		
8	Interface 2 = T reference point?		
9	Interface 3 = T reference point?		
10	Length of call reference at interface 1		
11	Length of call reference at interface2		
12	Length of call reference at interface 3		
13	Default call reference value		
14	User A calls bridge, used for CONF		
15	User A calls B, used for CONF		
16	User A calls C, used for CONF		
17	C calls A, used for CONF		
18	True if Subscription Option is Specific recall; False is Global recall		
19	RESTART expected after layer 2 establishment?		
20	Value in seconds, Time for Dummyfunction CheckBChannel		
21	P_TWAIT	Value in minutes	
22	P_TWAIT_MTC	Value in minutes	
23	PC_T301	Default value: 180s	
24	PC_T303	Default value: 4s	
25	PC_T304	Default value: 20s	
26	PC_T305	Default value: 30s	
27	PC_T308	Default value: 4s	
28	PC_T310	Default value: 40s	
29	PC_T313	Default value: 4s	
30	PC_T318	Default value: 4s	
31	PC_T319	Default value: 4s	
32	PC_T_HOLD	Default value: 4s	
33	PC_T_RETRIEVE	Default value: 4s	
34	PC_T_ACTIVATE	Default value: 4s	
35	PC_T_DEACTIVATE	Default value: 4s	
36	PC_T_CFNRR	Default value: 10s, Duration of Alerting phase at B Party's PINX, to ensure that no user is connecting	
37	PC_T_CCNR	Default value: 5s, to ensure that no user is connecting	
38	PC_T_TOKEN	Default value: 4s, Timer to co-ordinate CD late release	
39	PC_T_CCBS_Denial	Default value: 20s, Timer to configure the network according to the instruction screened on the testmonitor	
40	PC_T_CCNR_Denial	Default value: 20s, Timer to configure the network according to the instruction screened on the testmonitor	

Item	Parameter	Range	Value
41	PC_T_CCBS_NoChannels	Default value: 20s, Timer to configure the network according to the instruction screened on the testmonitor	
42	ISDN1_active		
43	ISDN2_active		
44	ISDN3_active		

B.5 Test campaign report

Table B.3

ATS Reference	Selected ? (Y/N)	Run ? (Y/N)	Verdict	Observations
TO110101				
TO110102				
TO110103				
TO110104				
TO110105				
TO110106				
TO110107				
TO110201				
TO110202				
TO110203				
TO110204				
TO110205				
TO110206				
TO110207				
TO110208				
TO110209				
TO110210				
TO110211				
TO110212				
TO110213				
TO110214				
TO110215				
TO110216				
TO110217				
TO110218				
TO110219				
TO110220				
TO110221				
TO110222				
TO110223				
TO110224				
TO110225				
TO110226				
TO110227				
TO110228				
TO110229				
TO110230				
TO110231				
TO110232				
TO110233				
TO110234				
TO110235				
TO110236				
TO110237				
TO110238				
TO110239				
TO110240				
TO110241				
TO110242				
TO110243				
TO110244				
TO110245				
TO110246				
TO110247				
TO110248				
TO110249				
TO110250				
TO110251				
TO110301				

ATS Reference	Selected ? (Y/N)	Run ? (Y/N)	Verdict	Observations
TO110302				
TO110303				
TO110304				
TO110305				
TO110306				
TO110307				
TO110308				
TO110309				
TO110310				
TO110311				
TO110312				
TO110313				
TO110314				
TO110315				
TO110316				
TO110317				
TO110318				
TO110319				
TO110320				
TO110321				
TO110322				
TO110323				
TO110401				
TO110402				
TO110403				
TO110404				
TO110405				
TO110406				
TO110407				
TO110408				
TO110409				
TO110410				
TO110411				
TO110412				
TO110413				
TO110414				
TO110415				
TO110416				
TO110417				
TO110418				
TO120101				
TO120102				
TO120103				
TO120104				
TO120105				
TO120106				
TO120107				
TO120108				
TO120109				
TO120201				
TO120202				
TO120203				
TO120204				
TO120205				
TO120206				
TO120207				
TO120208				
TO120209				
TO120301				
TO120302				
TO120303				
TO120304				
TO120305				
TO120306				

ATS Reference	Selected ? (Y/N)	Run ? (Y/N)	Verdict	Observations
TO120307				
TO120308				
TO120309				
TO120401				
TO120402				
TO120403				
TO120404				
TO120405				
TO120406				
TO120407				
TO120408				
TO120409				
TO210101				
TO210102				
TO210103				
TO210104				
TO210105				
TO210106				
TO210107				
TO210108				
TO210109				
TO210201				
TO210202				
TO210203				
TO210301				
TO210302				
TO210303				
TO210304				
TO210305				
TO210306				
TO210307				
TO210308				
TO210309				
TO210310				
TO210401				
TO210402				
TO210403				
TO210404				
TO210405				
TO210501				
TO210502				
TO210503				
TO210504				
TO210505				
TO210506				
TO210507				
TO210508				
TO210509				
TO210510				
TO210511				
TO210512				
TO210513				
TO210514				
TO210515				
TO210601				
TO210602				
TO210701				
TO210702				
TO210703				
TO210801				
TO210802				
TO210803				
TO210804				
TO210805				

ATS Reference	Selected ? (Y/N)	Run ? (Y/N)	Verdict	Observations
TO210806				
TO210807				
TO210808				
TO210809				
TO210810				
TO210831				
TO210832				
TO210833				
TO210834				
TO210835				
TO210836				
TO210837				
TO210838				
TO210839				
TO210840				
TO210841				
TO210851				
TO210852				
TO210871				
TO210872				
TO210873				
TO210874				
TO210875				
TO210901				
TO210902				
TO210903				
TO210904				
TO210905				
TO210906				
TO210907				
TO210908				
TO210909				
TO211101				
TO211102				
TO211103				
TO211104				
TO211105				
TO211201				
TO211202				
TO211203				
TO211204				
TO211205				
TO211206				
TO211207				
TO211301				
TO211302				
TO211303				
TO211304				
TO211305				
TO211306				
TO211307				
TO211308				
TO211309				
TO211401				
TO211402				
TO211403				
TO211404				
TO211405				
TO211406				
TO211407				
TO211408				
TO211409				
TO211410				
TO211411				

ATS Reference	Selected ? (Y/N)	Run ? (Y/N)	Verdict	Observations
TO211412				
TO211413				
TO211414				
TO211501				
TO211601				
TO211602				
TO211701				
TO211702				
TO211703				
TO211704				
TO211705				
TO211706				
TO211707				
TO211707				
TO211801				
TO211802				
TO211803				
TO211901				
TO211902				
TO211903				
TO212001				
TO212002				
TO212003				
TO212004				
TO212005				
TO212006				
TO212007				
TO212008				
TO212009				
TO212010				
TO212011				
TO212012				
TO212101				
TO212102				
TO212103				
TO212104				
TO212105				
TO212106				
TO212107				
TO212108				
TO212109				
TO212110				
TO212111				
TO212112				
TO212113				
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ATS Reference	Selected ? (Y/N)	Run ? (Y/N)	Verdict	Observations
TO212212				
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TO212301				
TO212302				
TO212303				
TO212401				
TO212402				

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 is contained in an Adobe Portable Document Format™ file (td034.PDF contained in archive eg_20129902v020101m0.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 (td034.MP contained in archive eg_20129902v020101m0.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.

ETS 300 083: "Integrated Services Digital Network (ISDN); Circuit mode structured bearer service category usable for speech information transfer; Terminal requirements for end-to-end compatibility".

ETS 300 084: "Integrated Services Digital Network (ISDN); Circuit mode structured bearer service category usable for 3,1 kHz audio information transfer; Terminal requirements necessary for end-to-end compatibility".

ETS 300 080: "Integrated Services Digital Network (ISDN); ISDN lower layer protocols for telematic terminals".

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)" Application of the ISDN User Part (ISUP) of CCITT Signalling System No. 7 for international ISDN interconnections (ISUP version 1).

ETS 300 195-1: "ISDN Supplementary service interactions, DSS1 protocol".

ETS 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".

ETS 300 289 (1994) "Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Connection characteristics".

TBR 008: "Integrated Services Digital Network (ISDN); Telephony 3,1 kHz teleservice; Attachment requirements for handset terminals".

ETR 193: "Methods for Testing and Specification (MTS); Network Integration Testing (NIT); Methodology aspects; Test Co-ordination Procedure (TCP) style guide".

ITU-T Recommendation G.821 "Error performance of an international digital connection operating at a bit rate below the primary rate and forming part of an Integrated Services Digital Network" (White Book draft 1993).

CCITT Recommendation G.822 (1988): "Controlled slip rate objectives of an international digital connection".

CCITT Recommendation I.411 (1988): "ISDN user-network interfaces - Reference configurations".

History

Document history		
V2.1.1	December 1999	Membership Approval Procedure MV 200007: 1999-12-21 to 2000-02-18