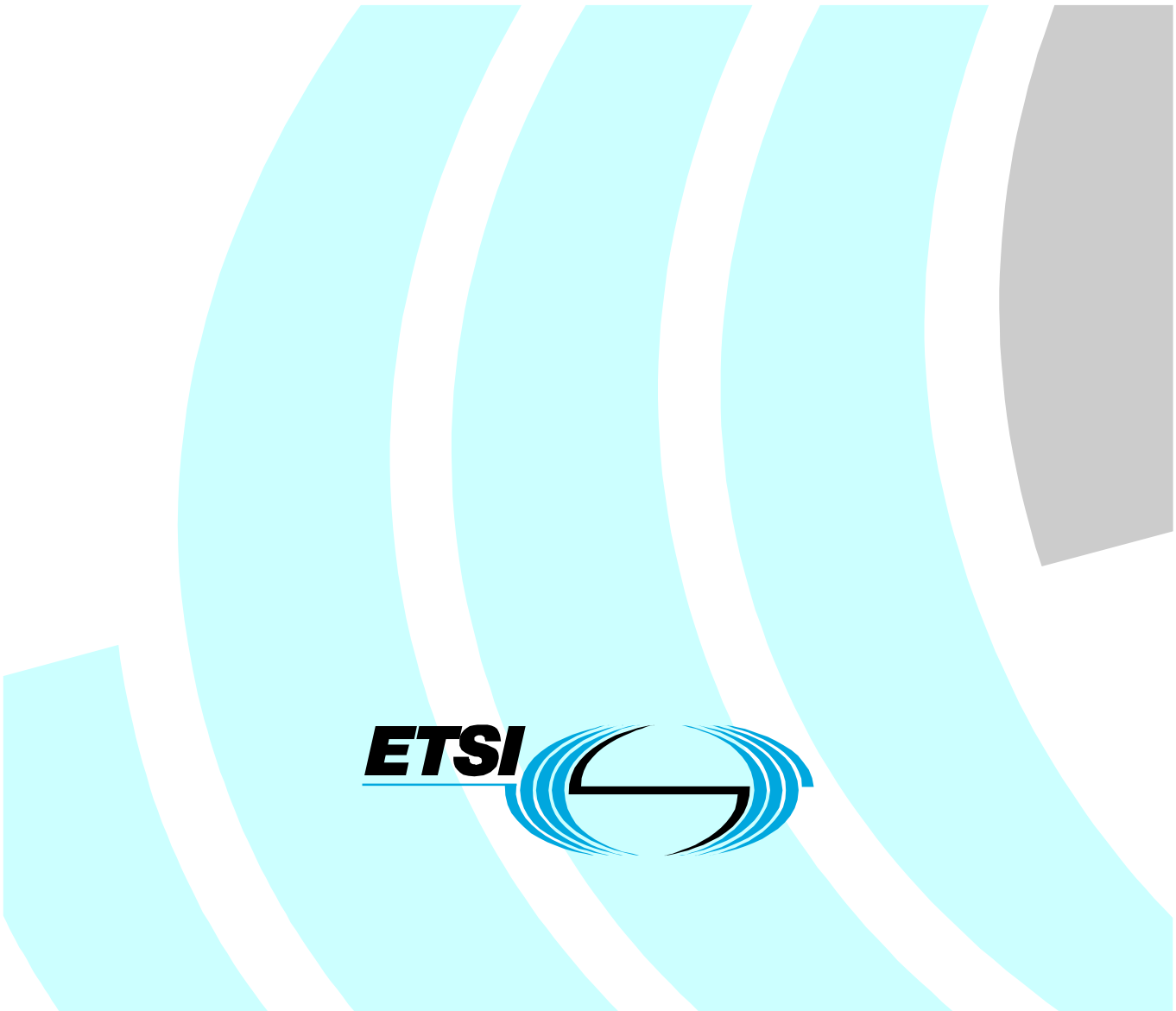
ETSI TS 102 112-2 V1.1.1 (2002-10)

Technical Specification

Services and Protocols for Advanced Networks (SPAN); Network Integration Testing between IN, PLMN and ISDN; Part 2: Implementation Conformance Statement (ICS), partial Implementation eXtra Information for Testing (IXIT) proformas and Abstract Test Suite (ATS)



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Contents

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Foreword

This Technical Specification (TS) 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 Network Integration Testing between IN, PLMN and ISDN as identified below:

Part 1: "Test Suite Structure and Test Purposes (TSS&TP)";

Part 2: "Implementation Conformance Statement (ICS), partial Implementation eXtra Information for Testing (IXIT) proformas and Abstract Test Suite (ATS)".

The present document was developed by EURESCOM P1106 as Deliverable 3 Volume 3, Parts 1 and 2, and made freely and publicly available to ETSI TC SPAN for publication.

1 Scope

The present document specifies the Implementation Conformance Statement (ICS) and Implementation eXtra Information for Testing (IXIT) for Network Integration Testing (NIT) to verify the overall compatibility of for the most used IN services based on the CS3 and the INAP/CAP/ISUP interworking between the mobile and fix networks.

Network Integration Testing will assure that the appropriate requested features pass between an ISDN subscriber and the mobile subscriber across the national or international ISUP (ISUP V2) interface and the IN interfaces CAP/INAP.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] ETSI EN 300 403-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".

[2] ISO/IEC 9646-1: "Information Technology-Open Systems Interconnection- Conformance testing methodology and framework, Part 1: General Concepts".

[3] ISO/IEC 9646-2: "Information Technology- Open Systems Interconnection- Conformance testing methodology and framework, Part 2: Abstract Test Suite Specification".

[4] ISO/IEC 9646-3: "Information Technology- Open Systems Interconnection- Conformance testing methodology and framework, Part 3: The Tree and Tabular Combined Notation".

[5] ETSI TS 124 008: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile radio interface Layer 3 specification; Core network protocols; Stage 3 (3GPP TS 24.008 version 3.2.1 Release 1999)".

[6] ETSI TS 129 078: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Customised Applications for Mobile network Enhanced Logic (CAMEL) Phase 3; CAMEL Application Part (CAP) specification (3GPP TS 29.078 version 4.0.0 Release 4)".

[7] ETSI EN 301 931-2 (V1.1.2): "Intelligent Network (IN); Intelligent Network Capability Set 3 (CS3); Intelligent Network Application Protocol (INAP); Protocol specification; Part 2: SCF-SSF interface".

[8] ITU-T Recommendation Q.1601: "Signalling system No. 7 - Interaction between N-ISDN and INAP CS2".

[9] Contribution to PIR 2.1: NETWORK INTEGRATION TESTING OF G_UMTS WITH GSM, PSTN AND ISDN; IN Test purposes; version 3.8, 07/09/2001.

[10] How to write nice TTCN – A Style Guide for the P1016 GSM_ISDN-ATS" (MINIT-31-CH04c, Project P1016).

[11] 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".

[12] ISO/IEC 8208: "Information technology - Data communications - X.25 Packet Layer Protocol for Data Terminal Equipment".

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

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

[15] ITU-T Recommendation H.221: "Frame structure for a 64 to 1 920 kbit/s channel in audiovisual teleservices".

[16] ITU-T Recommendation H.242: "System for establishing communication between audiovisual terminals using digital channels up to 2 Mbit/s".

[17] ITU-T Recommendation V.110: "Support by an ISDN of data terminal equipments with V-Series type interfaces".

[18] ITU-T Recommendation X.30: "Support of X.21, X.21 bis and X.20 bis based Data Terminal Equipments (DTEs) by an Integrated Services Digital Network (ISDN)".

[19] ITU-T Recommendation F.182: "Operational provisions for the international public facsimile service between subscribers with Group 3 facsimile terminals (Telefax 3)".

3 Definitions

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

3.1 Definitions related to conformance testing

Abstract Test Case (ATC): Refer to ISO/IEC 9646-1 [2].

Abstract Test Suite (ATS): Refer to ISO/IEC 9646-1 [2].

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1 [2].

lower tester: Refer to ISO/IEC 9646-1 [2].

Implementation Conformance Statement (ICS) proforma: Refer to ISO/IEC 9646-1 [2].

Implementation eXtra Information for Testing (IXIT) proforma: Refer to ISO/IEC 9646-1 [2].

Point of Control and Observation (PCO): Refer to ISO/IEC 9646-1 [2].

Protocol Implementation Conformance Statement (PICS): Refer to ISO/IEC 9646-1 [2].

Protocol Implementation eXtra Information for Testing (PIXIT): Refer to ISO/IEC 9646-1 [2].

System Under Test (SUT): Refer to ISO/IEC 9646-1 [2].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [2].

3.2 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 A-law" [2]

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 A-law" [3]

BC=UDI: Bearer capability information element with its information transfer capability set to "unrestricted digital information" [1]

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 "Recommendations H.221 and H.242" [4]

BC= V110/X30: Bearer capability information element with its information transfer capability set to "unrestricted digital information" and its user information layer 1 field set to "ITUstandardised rate adaption V.110/X.30", including sync/async and user rate values [1]

HLC=telephony: High Layer compatibility information element with its high layer characteristics identification field set to "telephony" [28]

HLC=videotelephony_ic: High Layer compatibility information element with its high layer characteristics identification field set to "videotelephony (Recommendation F.721)" and its extended audiovisual characteristics field set to "capability set of initial channel of Recommendation H.221" [4]

HLC = Facsimile G2/G3: High Layer compatibility information element with its high layer characteristics identification field set to "facsimile group 2/3 (Recommendation F.182)" [1]

HLC=facsimile group 4: High Layer compatibility information element with its high layer characteristics identification field set to "facsimile group 4 class 1" [1], [5]

HLC=telex: High Layer compatibility information element with its high layer characteristics identification field set to "telex" [1]

LLC=telematic_term: Low Layer compatibility information element with its user information layer 2 field indicating "ISO/IEC 7776 DTE-DTE operation" and user information layer 3 field indicating "ISO/IEC 8208" [1], [5]

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

LLC = V110/X30: Low Layer compatibility information element with its user information layer 1 field indicating "ITUstandardised rate adaption V.110/X.30" and including sync/async and user rate values [6]

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

SI=NP: Screening Indicator coded as "Network provided" [1]

PI=PR: Presentation Indicator coded as "Presentation restricted" [1]

TON=international: Type of number coded as "international" [1]

TON=unknown: Type of number coded as "unknown" [1]

NPI=unknown: Numbering plan identification coded as "unknown" [1]

CUG default request: calling user do not include in the outgoing SETUP message a explicit request for the CUG supplementary service [11]

UI length=32: the length of the User information field of the User-user information element is 35 octets

CF active: call forwarding (U, B or NR) supplementary service is already activated with the address of user C [17]

GSM - Bearer service categories: All bearer service categories provide information transfer between R/S reference points and allow the use of sub-rate information streams which are rate adapted

GSM-BC=UD: Unrestricted Digital Information (UD); Provides the transfer of unrestricted digital information.

GSM-BC= 3,1 kHz (External to the PLMN): used to select a "3,1 kHz audio" interworking function at the MSC

NOTE: This service category is used when interworking with the ISDN or PSTN "3,1 kHz audio" service and includes the capability to select a modem at the interworking function. "External to the PLMN" indicates that the "3,1 kHz audio" service is only used outside of the PLMN, in the ISDN/PSTN. The connection within the PLMN, user access point to the interworking function, is an unrestricted digital connection.

Alternate Speech/Data: provides the capability to swap between speech and data during a call

If either the speech or data portion of the call requires a full rate channel, a full rate channel shall be used for the duration of the call.

The access interface at the mobile station for the data portion is assumed to be a standard data interface. Some means must be provided to select the speech/data capability.

Speech followed by Data: provides a speech connection first and then at some time while the call is in progress, the user can switch to a data connection
The user cannot switch back to speech after the data portion. If either the speech or data portion of the call requires a full rate channel, a full rate channel shall be used from the start of the call. The network may then change to a half rate channel for the data portion.

GSM teleservices: teleservices supported by a GSM PLMN are described by a number of attributes which are intended to be largely independent. They are grouped into five categories:

- High layer attributes;
- Low layer attributes (describing the Bearer capabilities which support the Teleservice);
- Information transfer attributes;
- Access attributes;
- General attributes.

GSM-BC= Speech (TS 11): this service provides the transmission of speech information and audible signalling tones of the PSTN/ISDN
In the GSM PLMN and the fixed network processing technique appropriate for speech such as analogue transmission, echo cancellation and low bit rate voice encoding may be used.

Alternate speech and facsimile group 3 (TS 61): this Teleservice allows the connection of ITUgroup 3 fax apparatus (send and/or receive) to the mobile stations of a GSM PLMN
Facsimile connections may be established to/from group 3 apparatus in the PSTN, ISDN or GSM PLMN.

Automatic Facs. group 3 (TS 62): this teleservice allows connection of ITUgroup 3 fax apparatus to and from the mobile stations of a GSM PLMN
Facsimile connections may be established to and from group 3 apparatus in the PSTN, ISDN or GSM PLMN.

4 Abbreviations

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

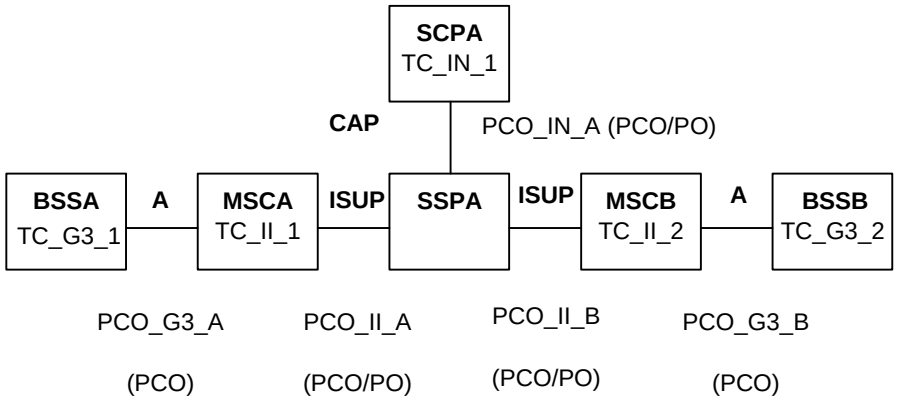
3PTY	Three-ParTY conference
ATS	Abstract Test Suite
BC	Bearer Capability information element
BSC	Base Station Controller
BSS	Base Station Sub-system
BSS	Base Station System
CAMEL	Customized Applications for Mobile network Enhanced Logic
CD	Call Deflection
CFB	Call Forwarding Busy
CFU	Call Forwarding 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
FPH	FreePHone service
GSM	Global System for Mobile Communication

HLC	High Layer Compatibility information element
HPLMN	Home Public Land Mobile Network
IMSI	International Mobile Subscriber Identity
IN	Intelligent Network
INAP	Intelligent Network Application Part
IP	Internet Protocol
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
IUT	Implementation Under Test
IXIT	Implementation eXtra Information for Testing
LLC	Low Layer Compatibility information element
MAP	Mobile Application Part
MCID	Malicious Call IDentification
MS	Mobile Station
MS	Mobile Subscriber
MSC	Mobile Switching Center
MT	Mobile Terminal
MT	Mobile Terminated
MTC	Mobile Terminated Call
MTP	Message Transfer Part
NIT	Network Integration Testing
PC	Preferential CUG
PI	Presentation Indicator
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PLMN	Public Land Mobile Network
PSTN	Public Switched Telephone Network
SCCP	Signaling Connection and Control Part
SCF	Service Control Function
SCP	Service Control Point
SGSN	Serving GPRS Support Node
SI	Screening Indicator
SMS	Short Message Service
SS7	Signaling System number 7
SSP	Service Switching Point
SUB	SUBaddressing
TCAP	Transaction Capabilities Application Part
TON	Type Of Number
TP	Terminal Portability
TP	Test Plant
TSS	Test Suite Structure
TSS&TP	Test Suite Structure and Test Purposes
UD	Unrestricted Digital information
UMTS	Universal Mobile Telecommunications System
UUS	User-to-User Signalling
VLR	Visitor Location Register
VPLMN	Visited Public Land Mobile Network

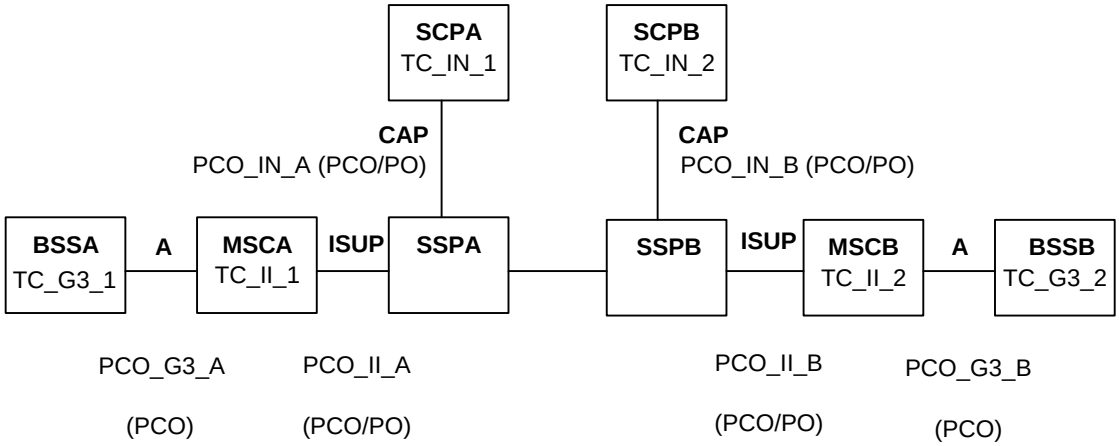
5 Test Configurations

Three different test configurations have been defined, which were mapped into abstract test configurations (Test Suite Configuration Declarations) as shown in the following figures:

Configuration 1 (GSM_II_IN_II_GSM):

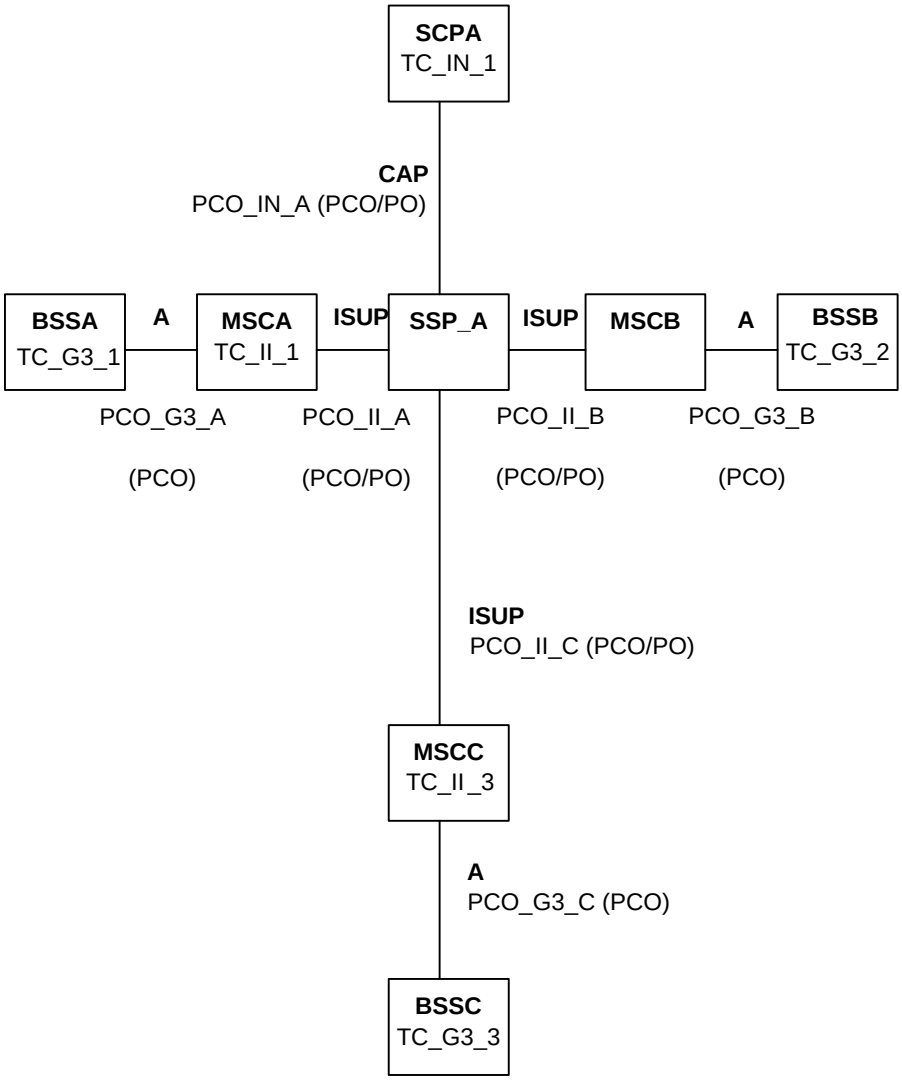


Configuration 2 (GSM_II_IN__IN_II_GSM):



NOTE 1: The configuration is used in test case GG_SPN_04.
NOTE 2: The inter-SSP link is regarded as internal.
NOTE 3: The PCO_IN_A and PCO_IN_B have to be configured identically (both used as PCO or both used as PO).

Configuration 3 (GSM_II_IN_II_GSM_II_GSM):



NOTE 1: The configuration is used for test cases GG___SPN_06, GGG__SPNS_CFU_01, GGG__SPNS_CFNRY_02, GGG_SPNS_CFNRC_03 and GGGG_SPNS_CFB_01.

NOTE 2: PCO_II_B is only used for test case GG___SPN_06. For all CFxx test cases PCO_G3_B is used as an auxiliary test interface to activate and deactivate call forwarding supplementary services and to trigger the service itself.

NOTE 3: Depending on the value of Test Suite Parameter P_IN_PCO_Definition the test configuration can be modified in such a way that the test interfaces become PCO"s or PO"s respectively. The following tables summarises the possible configurations:

PCO/PO configuration for Test Suite Configuration Declaration GSM_II_IN_II_GSM:

Value of P_IN_PCO_Definiton PCO's	C_IN_G3_G3	C_IN_II_G3	C_IN_G3_II	C_IN_II_II	C_IN_G3_SCP_G3	C_IN_II_SCP_G3	C_IN_G3_SCP_II	C_IN_II_SCP_II	C_IN_SSP
PCO_G3_A	PCO	-	PCO	-	PCO	-	PCO	-	-
PCO_II_A	PO	PCO	PO	PCO	PO	PCO	PO	PCO	-
PCO_IN_A	PCO	PCO	PCO	PCO	PO	PO	PO	PO	PCO
PCO_II_B	PO	PO	PCO	PCO	PO	PO	PCO	PCO	-
PCO_G3_B	PCO	PCO	-	-	PCO	PCO	-	-	-

PCO/PO configuration for Test Suite Configuration Declaration GSM_II_IN_II_GSM_2:

Value of P_IN_PCO_Definiton PCO's	C_IN_G3_G3	C_IN_II_G3	C_IN_G3_II	C_IN_II_II	C_IN_G3_SCP_G3	C_IN_II_SCP_G3	C_IN_G3_SCP_II	C_IN_II_SCP_II	C_IN_SSP
PCO_G3_A	PCO	-	PCO	-	PCO	-	PCO	-	-
PCO_II_A	PO	PCO	PO	PCO	PO	PCO	PO	PCO	-
PCO_IN_A	PCO	PCO	PCO	PCO	PO	PO	PO	PO	PCO
PCO_IN_B	PCO	PCO	PCO	PCO	PO	PO	PO	PO	-
PCO_G3_B	PCO	PCO	PCO	PCO	PCO	PCO	PCO	PCO	-
PCO_II_C	PO	PO	PCO	PCO	PO	PO	PCO	PCO	-
PCO_G3_C	PCO	PCO	-	-	PCO	PCO	-	-	-

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, 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.

A 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. 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

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, may provide information about the implementation in a standardised manner.

The proforma is subdivided into clauses 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 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 1: 2 ,4 ,6 ,8, 9.

EXAMPLE 2: '1101'B, '1011'B, '1111'B.

EXAMPLE 3: '0A'H, '34'H, 2F'H.

- 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 clause 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 clauses 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:

- ETSI TS 124 008 (V3.2.1);
- ETSI TS 129 078 (V4.0.0);
- ETSI EN 301 931-2 (V1.1.2);
- ITU-T Recommendation Q.1601;
- ETSI EN 300 403-1.

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

A.4 IN Services

Table A.1: IN

Item	IN Services	Reference	Status	Support
1	Number Translation and successfull TCs without event triggering, tariffing and tariffing	TS 129 078 EN 301 931-2 Q.1601	o.1	
2	Number Translation and successfull TCs with event triggering	TS 129 078 EN 301 931-2 Q.1601	o.1	
3	Number Translation and successfull TCs with Tariffing	TS 129 078 EN 301 931-2 Q.1601	o.1	
4	Number Translation and unsuccessfull	TS 129 078 EN 301 931-2 Q.1601	o.1	
5	Selection of all User Interactive Dialogue and successfull TCs without assist method	TS 129 078 EN 301 931-2 Q.1601	o.1	
6	Selection of all User Interactive Dialogue and successfull TCs with assist Method	TS 129 078 EN 301 931-2 Q.1601	o.1	
o.1:	It is mandatory to support at least one of these options.			

Table A.2: IN Services with Supplemtary Services Interaction

Item	IN Services with Supplemtary Services Interaction	Reference	Status	Support
1	Number Translation and COLP	TS 129 078 EN 301 931-2 Q.1601	o.2	
2	Number Translation and CFU	TS 129 078 EN 301 931-2 Q.1601	o.2	
3	Number Translation and CFNRY	TS 129 078 EN 301 931-2 Q.1601	o.2	
4	Number Translation and CFNRC	TS 129 078 EN 301 931-2 Q.1601	o.2	
5	Number Translation and CFB	TS 129 078 EN 301 931-2 Q.1601	o.2	
o.2:	It is mandatory to support at least one of these options.			

Annex B (normative): Partial End-to-end IXIT proforma

B.1 Instructions for completing the IXIT proforma

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

This clause contains a questionnaire, which shall be completed before performing the national or international 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: ETSI TS 124 008 (V3.2.1);

ETSI TS 129 078 (V4.0.0);

ETSI EN 301 931-2;

ITU-T Recommendation Q.1601;

ETSI EN 300 403-1.

ATS specification: -

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

Table B.1: Number related IXIT

Item	Parameter	Value
1	P_G3_IMSI_A IMSI of GSM Subscriber A	
2	P_G3_IMSI_B IMSI of GSM Subscriber B	
3	P_G3_IMSI_C IMSI of GSM Subscriber C	
4	P_G3_NUM_B Number of GSM subscriber B in VPLMN	
5	P_G3_NUM_B2 Number of GSM subscriber B in VPLMN; (Rerouted number,Type of Number: unknown)	
6	P_G3_NUM_BARRED GSM called party number (barred number)	
7	P_G3_NUM_C Number of GSM subscriber C in HPLMN	

Table B.2: IN SCCP Parameters

1	P_IN_sccp_scp_pr_class Sccp param Protocol Class between SCP and SSP		
2	P_IN_sccp_scp_aind Sccp param Address indicator in CdpA/CgpA for addressing the SCP		
3	P_IN_sccp_scp_spc Sccp param SPC in CdpA/CgpA for addressing the SCP		
4	P_IN_sccp_scp_ssn Sccp params SSN in CdpA/CgpA for addressing the SCP		
5	P_IN_sccp_scp_trty Sccp param Translation Type in CdpA/CgpA for addressing the SCP		
6	P_IN_sccp_scp_numpl Sccp paramNumbering Plan in CdpA/CgpA for addressing the SCP		
7	P_IN_sccp_scp_enco Sccp params Encoding Scheme in CdpA/CgpA		
8	P_IN_sccp_scp_nataddr Sccp param Nature of Address Indicator in CdpA/CgpA		
9	P_IN_sccp_scp_address Sccp param Address Signals in CdpA/CgpA for addressing the SCP		
10	P_IN_sccp_ssp_aind Sccp param Adress Indicator in CdpA/CgpA for addressing the SSP		
11	P_IN_sccp_ssp_spc Sccp param SPC in CdpA/CgpA for addressing the SCP		
12	P_IN_sccp_ssp_ssn Sccp param SSN in CdpA/CgpA for addressing the SCP		
13	P_IN_sccp_ssp_trty Sccp param Translation Type in CdpA/CgpA		
14	P_IN_sccp_ssp_numpl Sccp param Numbering Plan in CdpA/CgpA for addressing the SSP		
15	P_IN_sccp_ssp_enco Sccp param Encoding Scheme in CdpA/CgpA for addressing the SSP		

16	P_IN_sccp_ssp_nataddr Sccp param Natur of Address Indicator in CdpA/CgpA for addressing the SSP		
17	P_IN_sccp_ssp_address Sccp param Address Signals in CdpA/CgpA for addressing the SSP		
18	P_IN_sccp_scp2_pr_class Sccp param protocol class between SCP2 and SSP2		
19	P_IN_sccp_scp2_aind Sccp param Address Indicator in CdpA/CgpA for addressing the SCP2		
20	P_IN_sccp_scp2_spc Sccp param SPC in CdpA/CgpA for addressing the SCP2		
21	P_IN_sccp_scp2_ssn Sccp param SSN in CdpA/CgpA for addressing the SCP2		
22	P_IN_sccp_scp2_trty Sccp param Translation Type in CdpA/CgpA for addressing the SCP2		
23	P_IN_sccp_scp2_numpl Sccp param Numbering Plan in CdpA/CgpA for addressing the SCP2		
24	P_IN_sccp_scp2_enco Sccp param Encoding Scheme in CdpA/CgpA for addressing the SCP2		
25	P_IN_sccp_scp2_nataddr Sccp param Nature of Address Indicator in CdpA/CgpA for addressing the SCP2		
26	P_IN_sccp_scp2_address Sccp param Address Signals in CdpA/CgpA for addressing the SCP2		
27	P_IN_sccp_ssp2_aind Sccp param Address Indicator in CdpA/CgpA for addressing the SSP2		
28	P_IN_sccp_ssp2_spc Sccp param SPC in CdpA/CgpA for addressing the SSP2		
29	P_IN_sccp_ssp2_ssn Sccp param SSN in CdpA/CgpA for addressing the SSP2		
30	P_IN_sccp_ssp2_trty Sccp param Translation Type in CdpA/CgpA for addressing the SSP2		
31	P_IN_sccp_ssp2_numpl Sccp param Numbering Plan in CdpA/CgpA for addressing the SSP2		

32	P_IN_sccp_ssp2_enco Sccp param Encoding Scheme in CdpA/CgpA for addressing the SSP2		
33	P_IN_sccp_ssp2_nataddr Sccp param Nature of Address Indicator in CdpA/CgpA for addressing the SSP2		
34	P_IN_sccp_ssp2_address Sccp paramAddress Signlas in CdpA/CgpA for addressing the SSP2		

Table B.3: IN Test parameters

1	P_IN_noTS ACR mandatory parameter, Time if noTariff switch TC: GG___SPN_10		
2	P_IN_TSI ACR mandatory parameter, Tariff switch Interval TC: GG___SPN_10		
3	P_IN_time_sTS+ ACR mandatory parameter, time since Tariff switch TC: GG___SPN_10		
4	P_IN_noTS_1 ACR mandatory parameter, Time if noTariff switch TC: GG___SPN_08, GG___SPN_09		
5	P_IN_noTS_2 ACR mandatory parameter, Time if noTariff switch TC: GG___SPN_08, GG___SPN_09		
6	P_IN_noTS_3 ACR mandatory parameter, Time if noTariff switch TC: GG___SPN_08		
7	P_IN_noTS_4 ACR mandatory parameter, Time if noTariff switch TC: GG___SPN_08		
8	P_IN_TSI_1 ACR mandatory parameter, Tariff switch Interval TC: GG___SPN_08, GG___SPN_09		
9	P_IN_TSI_2 ACR mandatory parameter, Tariff switch Interval TC: GG___SPN_08, GG___SPN_09		
10	P_IN_TSI_3 ACR mandatory parameter, Tariff switch Interval TC: GG___SPN_08		
11	P_IN_TSI_4 ACR mandatory parameter, Tariff switch Interval TC: GG___SPN_08		

12	P_IN_time_sTS_1 ACR mandatory parameter, time since Tariff switch TC: GG___SPN_08, GG___SPN_09		
13	P_IN_time_sTS_2 ACR mandatory parameter, time since Tariff switch TC: GG___SPN_08, GG___SPN_09		
14	P_IN_time_sTS_3 ACR mandatory parameter, time since Tariff switch TC: GG___SPN_08		
15	P_IN_time_sTS_4 ACR mandatory parameter, time since Tariff switch TC: GG___SPN_08		
16	P_IN_IPSSPCap ARI mandatory: Indicates the SRF resources available at the SSP		
17	P_IN_serviceKey IDP mandatory: Service Key		
18	P_IN_callAtElapsedTime CIRP : call at elapsed Time . TC: GG___SPN_08, GG___SPN_09		
19	P_IN_callStopTime CIRP : call stop time. TC: GG___SPN_08, GG___SPN_09		
20	P_IN_callConElapsedTime CIRP : call connected elapsed time. TC: GG___SPN_08, GG___SPN_09		
21	P_IN_relCauseCIRP CIRP ,RC: call release cause. TC: GG___SPN_08, GG___SPN_09		
22	P_IN_ip_avail ARI: Indicates that the resource is available TC: GG___SPI_03, GG___SPI_04		
23	P_IN_ip_route_ctr CTR:Indicates the additional Calling Party Number TC: GG___SPI_01,GG___SPI_03, GG___SPI_04		
24	P_IN_ip_route_etc ETC:Indicates the destination address of the SRF for the assist procedure TC: GG___SPI_03, GG___SPI_04		

25	P_IN_PCO_Definition Used to choose the configuration of the IPLMN_PLMN_IN TC. Values: 1: G3_G3 2: II_G3 3: G3_II 4: II_II 5: G3_SCP_G3 6: II_SCP_G3 7: G3_SCP_II 8: II_SCP_II 9: SSP		
26	P_II_event_spec ERB: busy cause for the call related information specific to the oCalledPartyBusy Event TC: GG___SPN_06		
27	P_IN_fcInfo FCI; free format data TC: GG___SPN_06		
28	P_IN_minNbDig PC: collected min Number of Digits		
29	P_IN_maxNbDig PC:collected max Number of Digits		
30	P_IN_endReplDig PC: collected digits: end of Replay Digit: encoded as BCD, one Digit per OCTET only, contained in the four least significat bits of each OCTET		
31	P_IN_cancelDig PC: collected digits: cancel Digit: encoded as BCD, one Digit per OCTET only, contained in the four least significat bits of each OCTET		
32	P_IN_startDig PC:collected Digits : start Digit: encoded as BCD, one Digit per OCTET only, contained in the four least significat bits of each OCTET		
33	P_IN_fDTO PC: collected Digits : first digit timeout in seconds		
34	P_IN_iDTO PC: collected Digits : intermediate digit timeout in seconds		
35	P_IN_intAnnInd PC: Is Announcement interuptable?		
36	P_IN_voiInf PC: voiceinformation used?		
37	P_IN_voiBa PC: voiceBack used ?		

38	P_IN_duration CTR:Parameter for InformationToSend, inband: total amount of time in seconds, including repetions and intervals. The end of announcement is either the end of duration or numberOfRepetitions, whatever comes first.		
39	P_IN_nr_rep CTR:Parameter for InformationToSend, inband: Number of Repetitions of the inband Information. The end of announcement is either the end of duration or numberOfRepetitions, whatever comes first.		
40	P_IN_messID CTR:Parameter for InformationToSend, inband: elementary messageId of the inband information		
41	P_IN_interval CTR:Parameter for InformationToSend, inband: time in seconds between each repeated announcement		
42	P_IN_e1_before SCI aOCInitial: CAI elmenet 1 as defined in 3GPP TS 22.024		
43	P_IN_e2_before SCI aOCInitial: CAI elmenet 2 as defined in 3GPP TS 22.024		
44	P_IN_e3_before SCI aOCInitial: CAI elmenet 3 as defined in 3GPP TS 22.024		
45	P_IN_e4_before SCI aOCInitial: CAI elmenet 4 as defined in 3GPP TS 22.024		
46	P_IN_e5_before SCI aOCInitial: CAI elmenet 5 as defined in 3GPP TS 22.024		
47	P_IN_e6_before SCI aOCInitial: CAI elmenet 6 as defined in 3GPP TS 22.024		
48	P_IN_e7_before SCI aOCInitial: CAI elmenet 7 as defined in 3GPP TS 22.024		
49	P_IN_e1_before_sub SCI aOCSubsquent: CAI elmenet 1 as defined in 3GPP TS 22.024		
50	P_IN_e2_before_sub SCI aOCSubsquent: CAI elmenet 2 as defined in 3GPP TS 22.024		
51	P_IN_e3_before_sub SCI aOCSubsquent: CAI elmenet 3 as defined in 3GPP TS 22.024		

52	P_IN_e4_before_sub SCI aOCSubsquent: CAI elmenet 4 as defined in 3GPP TS 22.024		
53	P_IN_e5_before_sub SCI aOCSubsquent: CAI elmenet 5 as defined in 3GPP TS 22.024		
54	P_IN_e6_before_sub SCI aOCSubsquent: CAI elmenet 6 as defined in 3GPP TS 22.024		
55	P_IN_e7_before_sub SCI aOCSubsquent: CAI elmenet 7 as defined in 3GPP TS 22.024		
60	P_IN_e1_after SCI subsequent: CAI elmenet 1 as defined in 3GPP TS 22.024		
70	P_IN_e2_after SCI subsequent: CAI elmenet 2 as defined in 3GPP TS 22.024		
71	P_IN_e3_after SCI subsequent: CAI elmenet 3 as defined in 3GPP TS 22.024		
72	P_IN_e4_after SCI subsequent: CAI elmenet 4 as defined in 3GPP TS 22.024		
73	P_IN_e5_after SCI subsequent: CAI elmenet 5 as defined in 3GPP TS 22.024		
74	P_IN_e6_after SCI subsequent: CAI elmenet 6 as defined in 3GPP TS 22.024		
75	P_IN_e7_after SCI subsequent: CAI elmenet 7 as defined in 3GPP TS 22.024		
76	P_IN_switch_int_before SCI tariff switch interval before Answer in 1 second units		
77	P_IN_switch_int_after SCI tariff switch interval after answer in 1 second units		
78	P_II_SPC_MSCA Signalling Point Code MSC A		
79	P_II_SPC_SSPA Signalling Point Code SSP A		
80	P_II_A_NI Network Indicator A-side		
81	P_II_A_SIGLINK Signalling Link A-side		
82	P_II_A_CIC used CIC at A-side		

83	P_II_A_CICRANGE1_RANGE Range of first CICrange for Mainenance Group procedures at A-side. Value 'FF'O means first CICrange is not used		
84	P_II_A_CICRANGE1_CIC First CIC of first CIC range for Mainenance Group procedures at A-side.		
85	P_II_A_CICRANGE2_RANGE Range of second CICrange for Mainenance Group procedures at A-side. Value 'FF'O means second CICrange is not used		
86	P_II_A_CICRANGE2_CIC First CIC of second CIC range for Mainenance Group procedures at A-side.		
87	P_II_A_CgPC Calling Partys Category at A-side		
88	P_II_A_addCgPN Additional Calling Party Number at A-side(NatAddr=unknown)		
89	P_II_A_locNumber location Number at A-side (NatAddr=unknown)		
90	P_II_Num_A number of subscriber A coded acc. Q.763 (NatAddr=unknown)		
91	P_II_Num_B number of subscriber B coded acc. Q.763 (atAddr=unknown)		
92	P_II_Num_B2 number of subscriber B after number translation coded acc. Q.763 (NatAddr=unknown)		
93	P_II_Num_C2 number of subscriber C after number translation coded acc. Q.763 (NatAddr=unknown)		
94	P_II_Num_B_barred barred number coded acc. Q.763 (NatAddr=unknown)		
95	P_II_Gennum generic number generated by SCP coded acc. Q.763 (NatAddr=unknown)		
96	P_II_SPC_SSPB Signalling Point Code SSP B		
97	P_II_SPC_MSCB Signalling Point Code MSC B		

98	P_II_B_NI Network Indicator B-side		
99	P_II_B_SIGLINK Signalling Link B-side		
100	P_II_B_CIC used CIC at B-side		
101	P_II_B_CICRANGE1_RANGE Range of first CICrange for Mainenance Group procedures at B-side. Value 'FF'O means first CICrange is not used		
102	P_II_B_CICRANGE1_CIC First CIC of first CIC range for Mainenance Group procedures at B-side.		
103	P_II_B_CICRANGE2_RANGE Range of second CICrange for Mainenance Group procedures at B-side. Value 'FF'O means second CICrange is not used		
104	P_II_B_CICRANGE2_CIC First CIC of second CIC range for Mainenance Group procedures at B-side.		
105	P_II_C_NI Network Indicator C-side		
106	P_II_Num_C number of subscriber C coded acc. Q.763 (NatAddr=unknown)		
107	P_II_SPC_MSCC Signalling Point Code MSC C		
108	P_II_C_SIGLINK Signalling Link C-side		
109	P_II_C_CIC used CIC at C-side		
110	P_II_C_CICRANGE1_RANGE Range of first CICrange for Mainenance Group procedures at C-side. Value 'FF'O means first CICrange is not used		
111	P_II_C_CICRANGE1_CIC First CIC of first CIC range for Mainenance Group procedures at C-side.		
112	P_II_C_CICRANGE2_RANGE Range of second CICrange for Mainenance Group procedures at C-side. Value 'FF'O means second CICrange is not used		

113	P_II_C_CICRANGE2_CIC First CIC of second CIC range for Mainenance Group procedures at C-side.		
114	P_II_rel_cause release cause in RC Invoke defined by SCP. TC: GG___SPN_05, GG___SPN_08, GG___SPN_09, GG___SPNU_01, GG___SPI_04		
115	P_II_rel_cause release cause in RC Invoke defined by SCP. TC: GG___SPN_05, GG___SPN_08, GG___SPN_09, GG___SPNU_01, GG___SPI_04		
116	P_T_STOP_RINGING Time (ms) after which ringing at (analog) B side has to terminate when A clears before answer		
117	P_T_WAIT Time (min) for waiting activity on called side. (e.g. 4 min) if P_T_BCHECK is 0 or if there is no traffic channel check is to be done		
118	P_T_WAIT_MTC Time (min) for the MTC to wait for all the PTCs' verdicts MUST be longer than P_T_WAIT (e.g. 6 min)		
119	P_IN_leg_id_s leg ID Value at sending side Value: 1: Calling Party; 2: Called Party		
120	P_IN_leg_id_r leg ID Value at receiving side Value: 1: Calling Party; 2: Called Party		
121	P_IN_ptch leg ID Value party to charge Value: 1: Calling Party; 2: Called Party		
122	P_IN_SEL_GG Selection of GSM to GSM TCs		
123	P_IN_SEL_SPEECH Selection of SPEECH TCs		
124	P_IN_SEL_SUCC Selection of successful TCs		
125	P_IN_SEL_UNSUCC Selection of unsuccessful TCs		
126	P_IN_SEL_COLP Selection of COLP TCs		
127	P_IN_SEL_CFU Selection of CFU TCs		

128	P_IN_SEL_CFNRY Selection of CFNRY TCs		
129	P_IN_SEL_CFNRC Selection of CFNRC TCs		
130	P_IN_SEL_CFB Selection of CFB TCs		
131	P_IN_SEL_Numb_Trans Selection of Number Translation Services TCs		
132	P_IN_SEL_EVTRIG Selection of Event Triggering TCs		
133	P_IN_SEL_TARIF Selection of Tariffing TCs		
134	P_IN_SEL_UID Selection of UID services TCs		
135	P_IN_SEL_ASSIST Selection of UID services with assist method TCs		
136	P_G3_TI_V_1 First GSM TI Value		
137	P_G3_TI_V_2 Second GSM TI Value for multiple originating calls		
138	P_G3_TINIT Originating PTC start delay timer		
139	P_G3_TMPTY Timeout value for all multiparty related durations		

B.4 Test campaign report

Table B.4

ATS Reference	Selected ? (Y/N)	Run ? (Y/N)	Verdict	Observations
GG___SPN__01				
GG___SPN__02				
GG___SPN__03				
GG___SPN__04				
GG___SPN__05				
GG___SPN__06				
GG___SPN__07				
GG___SPN__08				
GG___SPNU_01				
GG___SPNU_02				
GG___SPNS_COLP_01				
GG___SPNS_CFxx_01CFU				
GG___SPNS_CFxx_01CFNRY				
GG___SPNS_CFxx_01CFNRC				
GG___SPNS_CFB_01				
GG___SPI__01				
GG___SPI__02				
GG___SPI__03				
GG___SPI__04				

Annex C (normative): Machine Processable (MP) format of end-to-end ATS

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

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (ATS_P1016_32_XB1_IN.PDF contained in archive ts_10211202v010101p0.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 (ATS_P1016_32_XB1_IN.MP contained in archive ts_10211202v010101p0.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): Bibliography

ETSI 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".

ETSI 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".

ETSI EN 300 267-1: "Integrated Services Digital Network (ISDN); Telephony 7 kHz, videotelephony, audiographic conference and videoconference teleservices; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

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

ETSI 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".

ETSI EN 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".

ETSI EN 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".

ETSI EN 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".

ETSI EN 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".

ETSI EN 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".

ETSI EN 300 061-1: "Integrated Services Digital Network (ISDN); Subaddressing (SUB) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

ETSI EN 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".

ETSI EN 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".

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 EN 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".

ETSI EN 300 207-1: "Integrated Services Digital Network (ISDN); Diversion supplementary services; Digital Subscriber Signalling System No. One (DSS1); Part 1: Protocol specification".

ETSI EN 300 210-1: "Integrated Services Digital Network (ISDN); Freephone (FPH) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

ETSI EN 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".

ETSI EN 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".

ETSI EN 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".

ETSI EN 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".

ETSI EN 300 356-1: "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1999) modified]".

ETSI 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".

ETSI EN 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".

ETSI EN 300 195-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Supplementary service interactions; Part 1: Protocol specification".

ETSI EN 300 196-1: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

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

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

ETSI 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).

ITU-T Recommendation G.822: "Controlled slip rate objectives of an international digital connection".

ITU-T Recommendation O.152: "Error performance measuring equipment for bit rates of 64 kbit/s and N x 64 kbit/s".

ITU-T Recommendation I.112: "Vocabulary and terms for ISDNs".

ITU-T Recommendation I.210: "Principles of the telecommunication services supported by an ISDN and the means to describe them".

ITU-T Recommendation I.411: "ISDN user-network interfaces - Reference configurations".

ITU-T Recommendation E.164:"Numbering plan for the ISDN era".

ETSI ETR 350 (GSM 01.04): "Digital cellular telecommunications system (Phase 2+) (GSM); Abbreviations and acronyms".

ETSI TS 100 500 (GSM 02.01): "Digital cellular telecommunications system (Phase 2+); Principles of telecommunication services supported by a GSM Public Land Mobile Network (PLMN)".

ETSI EN 300 904 (GSM 02.02): "Digital cellular telecommunications system (Phase 2+) (GSM); Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN) ".

ETSI TS 100 905 (GSM 02.03): "Digital cellular telecommunications system (Phase 2+) (GSM); Teleservices supported by a GSM Public Land Mobile Network (PLMN) ".

ETSI EN 300 918 (GSM 02.04): "Digital cellular telecommunications system (Phase 2+) (GSM); General on supplementary services".

ETSI TS 100 907 (GSM 02.30): "Digital cellular telecommunications system (Phase 2+); Man-machine Interface (MMI) of the Mobile Station (MS)".

ETSI TS 100 514 (GSM 02.81): "Digital cellular telecommunications system (Phase 2+) (GSM); Line identification Supplementary Services - Stage 1".

ETSI TS 100 515 (GSM 02.82): "Digital cellular telecommunications system (Phase 2+) (GSM); Call Forwarding (CF) Supplementary Services - Stage 1".

ETSI TS 100 516 (GSM 02.83): "Digital cellular telecommunications system (Phase 2+) (GSM); Call Waiting (CW) and Call Holding (HOLD); Supplementary Services - Stage 1".

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ETSI TS 123 083: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Call Waiting (CW) and Call Hold (HOLD); Supplementary Service; Stage 2 (3GPP TS 23.083 version 3.1.0 Release 1999)".

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ETSI TS 123 088: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Call Barring (CB) Supplementary Service; Stage 2 (3GPP TS 23.088 version 3.0.0 Release 1999)".

ETSI TS 123 091: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Explicit Call Transfer (ECT) Supplementary Service; Stage 2 (3GPP TS 23.091 version 3.1.0 Release 1999)".

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ETSI TS 124 083: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Call Waiting (CW) and Call Hold (HOLD) Supplementary Service; Stage 3 (3GPP TS 24.083 version 3.0.0 Release 1999)".

ETSI TS 124 084: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); MultiParty (MPTY) Supplementary Service; Stage 3 (3GPP TS 24.084 version 3.0.0 Release 1999)".

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ETSI TS 124 087: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); User-to-User Signalling (UUS); Stage 3 (3GPP TS 24.087 version 3.0.0 Release 1999)".

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History

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