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SERIES Q: SWITCHING AND SIGNALLING

Intelligent Network

**Signalling System No. 7 – Interaction between
ISDN User Part ISUP'97 and INAP CS-1: Test
Suite Structure and Test Purposes (TSS & TP)**

ITU-T Recommendation Q.1600 *bis*

(Formerly CCITT Recommendation)

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**Signalling System No. 7 – Interaction between ISDN User Part ISUP'97
and INAP CS-1: Test Suite Structure and Test Purposes (TSS & TP)**

Summary

This ITU-T Recommendation contains the conformance test specification for ISUP'97 and INAP CS-1 interaction. The main body of this ITU-T Recommendation presents the requirements regarding the chosen test method, test suite structure and test purposes. Annex A presents the protocol implementation conformance statements (PICS).

This Recommendation includes an electronic attachment containing Annex D ATS for ISUP'97/INAP CS1 interactions.

Source

ITU-T Recommendation Q.1600 *bis* was prepared by ITU-T Study Group 11 (1997-2000) and approved under the WTSC Resolution 1 procedure on 3 December 1999.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

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NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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ITU-T Recommendation Q.1600 *bis*

Signalling System No. 7 – Interaction between ISDN User Part ISUP'97 and INAP CS-1: Test Suite Structure and Test Purposes (TSS & TP)

1 Scope

This ITU-T Recommendation contains the validation (conformance) test specification for the interaction between ISUP'97 and INAP CS-1 defined in [1]. This ITU-T Recommendation applies only to exchanges having implemented the ISUP'97 protocol specification in the call control function (CCF) and the INAP CS-1 in the service switching function (SSF) of the exchange. It is applicable for validation testing of all types of exchanges as defined in the ISUP'97 protocol specification. This ITU-T Recommendation does not deal with compatibility testing.

The main text part of this ITU-T Recommendation presents the requirements regarding the chosen test method, conventions used within the ATS, the Test Suite Structure and Test Purposes (TSS & TP) for the interaction between ISUP'97 and INAP CS-1.

Annexes A, B, C and D present the protocol implementation conformance statements (PICS), the protocol implementation extra information for testing (PIXIT), protocol conformance test report (PCTR) and the ATS for the interaction between ISUP'97 and INAP CS-1, the latter being available on electronic media.

Annex A provides the Protocol Implementation Conformance Statement (PICS) proforma for the interaction between ISUP'97 and INAP CS-1 defined in compliance with the relevant requirements and in accordance with the guidance given in ISO/IEC 9646-7 [8]. This statement indicates which capabilities and options of a telecommunication specification have been implemented. It is necessary for evaluating the conformance of a particular implementation.

The supplier of an implementation that is claimed to comply with the reference specification for the interaction between ISUP'97 and INAP CS-1 [1] is required to complete a copy of the PICS proforma provided in Annex A.

Annex B provides the protocol implementation extra information for test (PIXIT) proforma, indicating parameter values needed for test preparation.

Annex C provides the protocol conformance test report (PCTR) proforma, used for evaluating the results of the testing campaign.

Annex D explains how to get hold of the actual ATS, which is delivered in electronic form only.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- [1] ITU-T Recommendation Q.1600 (1997), *Signalling System No. 7 – Interaction between ISUP and INAP*.
- [2] ITU-T Recommendation Q.763 (1997), *Signalling System No. 7 – ISDN User Parts formats and codes*.

- [3] ITU-T Recommendation Q.764 (1997), *Signalling System No. 7 – ISDN User Part signalling procedures*.
- [4] ISO/IEC 9646-1:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts*.
- [5] ISO/IEC 9646-2:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 2: Abstract Test Suite specification*.
- [6] ISO/IEC 9646-3:1998, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 3: The Tree and Tabular Combined Notation (TTCN)*.
- [7] ISO/IEC 9646-5:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 5: Requirements on test laboratories and clients for the conformance assessment process*.
- [8] ISO/IEC 9646-7:1995, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements*.
- [9] ITU-T Recommendation Q.1214 (1995), *Distributed functional plane for intelligent network CS-1*.
- [10] ITU-T Recommendation Q.1218 (1995), *Interface Recommendation for intelligent network CS-1*.
- [11] ITU-T Recommendation Q.784.1 (1996), *Validation and compatibility for ISUP'92 and Q.767 protocols*.
- [12] CCITT Recommendation E.164 (1988), *Numbering plan for the ISDN era*.

This ATS specification incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ATS and partial PIXIT proforma specification only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

3 Definitions

For the purposes of this ATS specification, the following definitions apply:

- terms defined in ISDN User Part (ISUP) reference specification [1] to [3];
- terms defined in ISO/IEC 9646-1 [4], ISO/IEC 9646-3 [6] and in ISO/IEC 9646-7 [8].

In particular, the following terms apply:

3.1 abstract test case (ATC): A complete and independent specification of the actions required to achieve a specific test purpose, defined at the level of abstraction of a particular Abstract Test Method, starting in a stable testing state and ending in a stable testing state (see 3.3.3 of [4]).

3.2 abstract test method (ATM): The description of how an IUT is to be tested, given at an appropriate level of abstraction to make the description independent of any particular realization of a Means of Testing, but with enough detail to enable abstract test cases to be specified for this method (see 3.3.5 of [4]).

3.3 abstract test suite (ATS): A test suite composed of abstract test cases (see 3.3.6 of [4]).

3.4 implementation under test (IUT): An implementation of one or more OSI protocols in an adjacent user/provider relationship, being part of a real open system which is to be studied by testing (see 3.3.43 of [4]).

3.5 ISDN number: A number conforming to the numbering and structure specified in CCITT Recommendation E.164 [12].

3.6 means of testing (MOT): The combination of equipment and procedures that can perform the derivation, selection, parameterization and execution of test cases, in conformance with a reference standardized ATS, and can produce a conformance log (see 3.3.54 of [4]).

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

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

3.9 point of control and observation: A point within a testing environment where the occurrence of test events is to be controlled and observed, as defined in an Abstract Test Method (see 3.3.64 of [4]).

3.10 pre-test condition: A setting or state in the IUT which cannot be achieved by providing stimulus from the test environment.

3.11 protocol implementation conformance statement (PICS): A statement made by the supplier of a protocol claimed to conform to a given specification, stating which capabilities have been implemented (see 3.3.39 and 3.3.80 of [4]).

3.12 protocol implementation extra information for testing (PIXIT): A statement made by a supplier or implementor of an IUT (protocol) which contains or references all of the information related to the IUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the IUT (see 3.3.41 and 3.3.81 of [4]).

3.13 system under test (SUT): The real open system in which the IUT resides (see 3.3.103 of [4]).

4 Abbreviations

This ITU-T Recommendation uses the following abbreviations:

ASE	Application Service Entity
ASP	Abstract Service Primitive
A-SSP	Assisting Signalling Switching Point
ATC	Abstract Test Case
ATM	Abstract Test Method
ATS	Abstract Test Suite
CCBS	Completion of Calls to Busy Subscriber
CCF	Call Control Function
CD	Call Deflection
CDIV	Call DIVersion
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction

COLP	Connected Line Identification Presentation
COLR	Connected Line Identification Restriction
CS-1	Capability Set 1
DLE	Destination Local Exchange
DP	Detection point
ECT	Explicit Call Transfer
ICS	Implementation Conformance Statement
IN	Intelligent Network
INAP	Intelligent Network Application Protocol
ISDN	Integrated Services Digital Network
I-SSP	Initiating Signalling Switching Point
ISUP	ISDN User Part
IUT	Implementation Under Test
LT	Lower Tester
MCID	Malicious Call Identification
MOT	Means of Testing
MTC	Main Test Component
MTP	Message Transfer Part
OLE	Originating Local Exchange
P&C	Prompt and CollectUserInformation Operation
PCO	Point of Control and Observation
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PTC	Parallel Test Component
SCCP	Signalling Connection Control Part
SP	Signalling Point
SSF	Service Switching Function
SUT	System Under Test
TCP	Test Coordination Procedures
TP	Test Purpose (context dependent)
TSS	Test Suite Structure
TSS and TP	Test Suite Structure and Test Purposes
TTCN	Tree and Tabular Combined Notation

The ISUP message acronyms can be found in Table 2/Q.762.

The following abbreviations apply for ISUP parameters and parameter values.

AdSg	Address Signals
CgPN	Calling Party Number

GenNot	Generic Notification
TMR	Transmission Medium Requirement
USI	User Service Indicator

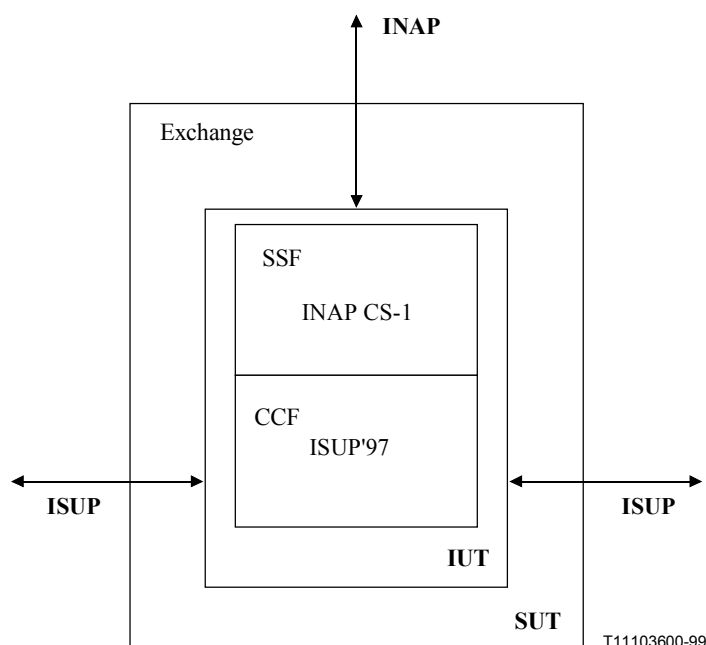
5 Implementation under test and test methods

5.1 Identification of the system and implementation under test

The system under test (SUT) is an exchange. The implementation under test (IUT) is the ISUP'97 implementation in this exchange, mainly the part responsible for the interaction between ISUP'97 and INAP CS-1 which takes place in the CCF and SSF, as shown in Figure 1.

The following main subjects have to be considered in this area:

- a) detection point processing in the CCF;
- b) receipt of INAP CS-1 operations in the SSF.



T11103600-99

INAP Intelligent Network Application Protocol
 CS-1 Capability Set 1
 ISUP ISDN User Part
 IUT Implementation Under Test
 SUT System Under Test
 SSF Service Switching Function
 CCF Call Control Function

Figure 1/Q.1600 bis

The ISUP signalling protocol and the INAP can be observed on the SS No. 7 link on the network nodal interface (NNI). On the signalling links pointing to the Call Control Function (CCF) the ISDN User Part procedures can be observed. The signalling link emerging from the SSF the INAP procedures can be observed.

5.2 ATM and testing configuration for ISUP'97

The Abstract Test Method (ATM) chosen for the Interaction between ISUP'97 and INAP testing specification is the distributed multi-party 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 ATS is written in concurrent TTCN.

5.3 IN exchange

The configuration proposed for testing exchanges having an SSF (IN exchanges) is shown in Figure 2. In order to test the protocol and functionality of these exchanges, one needs to consider the incoming and outgoing ISUP circuits and the signalling link to the SCP.

The IUT is observed and controlled from two ISUP links with associated circuits. The points of control and observation (PCO) are labelled LAC and CAC on one side, and LAD and CAD on the other.

The naming convention for the signalling link PCO is "L" followed by two letters indicating the interface. Similarly for the circuit PCO, the name is "C" followed by the same two letters designating the interface.

The LAB PCO is used by the lower tester (LT) to control and observe the INAP on the signalling to the SCP.

The LAC and LAD PCOs are used by the lower testers (LT) for controlling the ISUP signalling link, whereas the CAC and CAD PCOs are used by the lower testers for observing circuit-related events, such as connectivity, DTMF tones, announcements, etc.

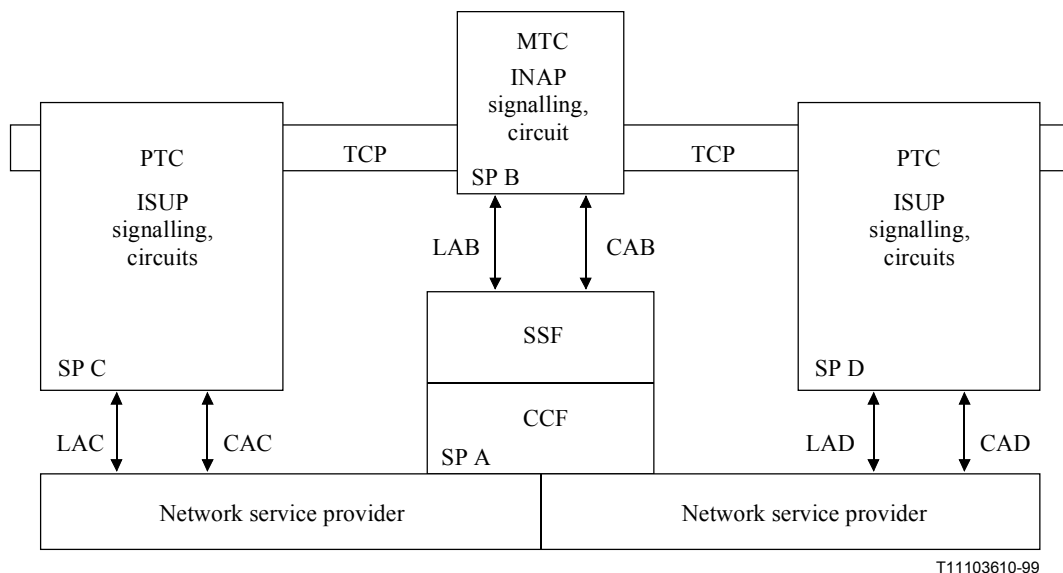
The ISUP PDUs to be sent and observed on the LAC and LAD PCOs side allow for PDU constraints to be specified and coded down to the bit-level. The same applies for the INAP PDUs on the LAB PCO.

The underlying network service provider is the Message Transfer Part (MTP) protocol as specified in ITU-T Recommendations Q.701-Q.707.

Figure 2 shows the actual used configuration for IN exchanges, with a main testing component (MTC), responsible for the AB interface and two slave parallel testing components (PTCs), responsible for the AC and AD interfaces.

The test coordination procedures (TCP) allow for communication between the testers. The test components are mostly implicitly coordinated (asynchronously); the TCPs are only used when it is necessary to obtain the verdict from the parallel test component.

The left and right side parallel test components may be of any kind: they may be international or national ISUP.



IUT Implementation Under Test
 MTC Main Test Component
 PCO PCO - Point of Control and Observation
 PTC Parallel Test Component
 SP Signalling Point
 SSF Service Switching Function
 CCF Call Control Function

LAB PCO for signalling link AB
 CAB Circuit PCO on AB interface
 LAC PCO for signalling link AC
 CAC Circuit PCO on AC interface
 LAD PCO for signalling link AD
 CAD Circuit PCO on AD interface
 TCP Test Coordination Procedures

Figure 2/Q.1600 bis – ISUP mixed test configuration for local exchanges

6 Test Suite Structure (TSS)

See Figure 3.

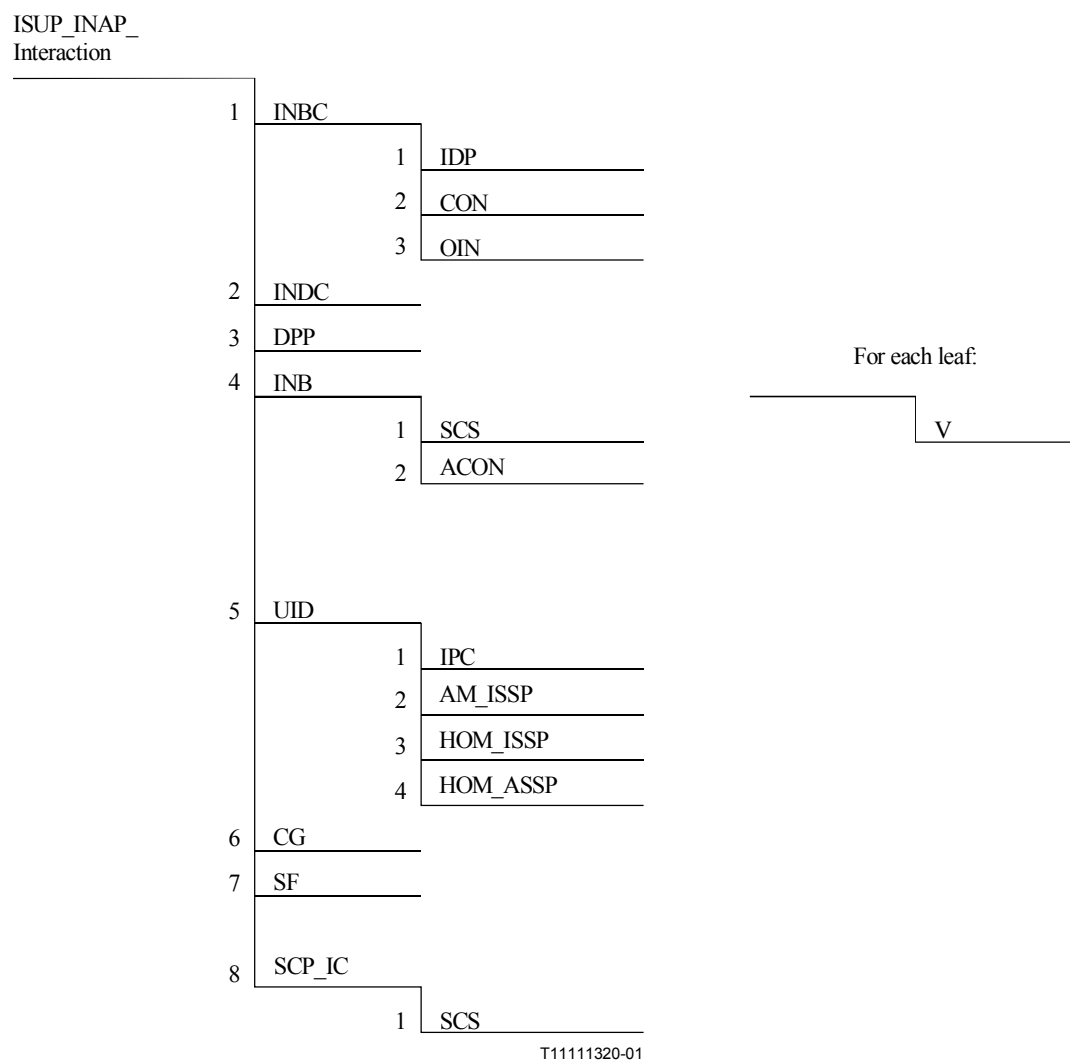


Figure 3/Q.1600 bis – Test suite structure

Test Suite Structure (TSS) naming conventions are:

ACON	A bnormal C ONditions
AM_ISSP	A ssist M ethod – procedure in the I nitiating S SP
CG	C all G apping
CON	C ONnect operation
DPP	D etection P oint P rocessing
HOM_ASSP	H and- O ff M ethod – procedure in the A ssisting S SP
HOM_ISSP	H and- O ff M ethod – procedure in the I nitiating S SP
IDP	I nitial D etection P oint operation
INB	S etup of an I N call to destination B

INBC	INAP Basic Call
INCD	IN call with SCP request to Collect further Digits
IPC	SSP supports requested IP Capabilities
ISS	Impact on Supplementary Services
OIN	Other IN basic call-related issues
SCP_IC	SCP Initiated Call
SCS	Successful Call Setup
SF	Service Filtering
UID	User Interactive Dialogue (in-band)
V	Valid behaviour stimulus

7 Test Purposes (TP)

7.1 Introduction

For each test requirement a Test Purpose (TP) is defined.

7.2 Test purpose (TP) naming convention

Test Purposes are numbered ascending within each group. Groups are organized according to the TSS down to the last but one level. The classification in the V/I groups is done by the inclusion of V or I in the test case name. Additional qualifiers, in form of lower case letters, are added to identify variants within one generic test case, see Table 1 below.

Table 1/Q.1600 bis – TP Identifier naming convention scheme

Identifier:	ISN_<group>_<N>_<n>_{<n>}_{<a>}
ISN	= ISUP INAP Interaction
<group>	= One character representing the test group: V: Valid stimulus I: Inopportune stimulus
<N>	= Sequence number in the test suite structure
<n>y	= Sequence number used within the group
{<n>}	= Optional additional number used
{<a>}	= Optional lower-case character distinguishing tests with same reference number

7.2.1 Source of test purpose definition

The test purposes cover validation testing aspects and were developed within ETSI.

7.2.2 Test purpose structure

The test purpose structure overlaps with the Test Suite Structure (TSS).

Test purposes that test normal behaviour have been grouped in the **V** – valid behaviour group.

Test purposes that test the IUT behaviour in situations that are not normal operation have been grouped in the **I** – Inopportune stimulus group.

7.3 Test purposes for the ISUP – INAP interaction

All of the following test purposes belong to the main group ISUP_INAP_Interaction. Each test purpose is presented in a separate table. The first row of the table contains the following items:

TSS	Identifier in the test suite structure (test group/subgroup identifier).
TP	Identifier of the test purpose.
Q.1600 reference	The reference to the requirement in the ISUP INAP interaction standard [], which led to the test purpose.
Selection expression	Selection criterion for the test purpose taking into account the exchange's role and the answers to the specified PICS questions (see Annex A/Q.1600 <i>bis</i>). If there is no selection expression specified, the TP is valid for all roles of exchanges.
Configuration	This is a reference to the test configuration used.

The next row defines the test purpose itself, each having a *title* in *italics* and a text body.

The ISUP **messages**, **parameters**, the INAP **operations** and **information elements** are highlighted **bold** to ease the readability.

In order to check the specified behaviour for some test purposes, a special prerequisite test condition has to be fulfilled. If such a condition is needed, it is presented after the test purpose under the heading "Pre-test conditions".

For each test purpose the essential part of the message sequence chart is presented. If there are several scenarios of message sequence charts implied by the test purpose, the variants are presented distinguishing the different cases.

7.3.1 INAP basic call

7.3.1.1 Initial Detection Point

TSS /INBC/IDP	TP ISN_V_1_1_1	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
Test purpose <i>Mapping of the called party number</i> To verify that the IUT can successfully map the called party number from the IAM to the calledPartyNumber of the InitialDP operation. Pre-test conditions: Arm DP3 (Analyzed_Information)				

TSS /INBC/IDP	TP ISN_V_1_1_2	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
Test purpose <i>Mapping of the calling party number</i> To verify that the IUT can successfully map the calling party number from the IAM to the callingPartyNumber of the InitialDP operation. Pre-test conditions: None				

TSS /INBC/IDP	TP ISN_V_1_1_3	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the calling party sub-address</i></p> <p>To verify that the IUT can successfully map the calling party number and the calling party sub-address contained in the access transport parameter from the IAM to the callingPartyNumber and callingPartySubaddress of the InitialDP operation.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_4	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the additional calling party number in the generic number</i></p> <p>To verify that the IUT can successfully map the additional calling party number in the generic number from the IAM to the additionalCallingPartyNumber of the InitialDP operation.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_5	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the calling party's category</i></p> <p>To verify that the IUT can successfully map the calling party's category from the IAM to the callingPartysCategory of the InitialDP operation.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_6	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the forward call indicators</i></p> <p>To verify that the IUT can successfully map the forward call indicators from the IAM to the forwardCallIndicators of the InitialDP operation.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_7	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the location number</i></p> <p>To verify that the IUT can successfully map the location number from the IAM to the locationNumber of the InitialDP operation.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_8	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the original called number</i></p> <p>To verify that the IUT can successfully map the original called number from the IAM to the originalCalledPartyId of the InitialDP operation.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_9	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the redirecting number</i></p> <p>To verify that the IUT can successfully map the redirecting number from the IAM to the redirectingPartyId of the InitialDP operation.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_10	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the redirection information</i></p> <p>To verify that the IUT can successfully map the redirection information from the IAM to the redirectionInformation of the InitialDP operation.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_11	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the user teleservice information</i></p> <p>To verify that the IUT can successfully map the user teleservice information from the IAM to the highLayerCompatibility of the InitialDP operation. The user teleservice information contains the first priority high layer compatibility information element.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_12	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the preferred high layer compatibility from the access transport parameter</i></p> <p>To verify that the IUT can successfully map the high layer compatibility information elements contained in the access transport parameter from the IAM to the highLayerCompatibility of the InitialDP operation. The user teleservice information parameter is not contained in the IAM.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_13	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the user service information prime</i></p> <p>To verify that the IUT can successfully map the user service information prime from the IAM to the bearerCapability of the InitialDP operation. This is the first priority bearer capability, the second one being contained in the user service information of the IAM.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/IDP	TP ISN_V_1_1_14	Q.1600 reference 9.1.1.1; Table 4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the user service information</i></p> <p>To verify that the IUT can successfully map the user service information from the IAM to the bearerCapability of the InitialDP operation. The user service information prime parameter is not contained in the IAM.</p> <p>Pre-test conditions: None</p>				

7.3.1.2 Connect Operation

TSS /INBC/CON	TP ISN_V_1_2_1	Q.1600 reference 9.1.1.1.1; Table 5/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the destinationRoutingAddress</i></p> <p>To verify that the IUT can successfully map the destinationRoutingAddress of the Connect operation to the called party number of the IAM.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_2	Q.1600 reference 9.1.1.1.1; Note 2 Table 5/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of one destinationRoutingAddress out of three</i></p> <p>To verify that the IUT can successfully map one of three destinationRoutingAddress information elements of the Connect operation to the called party number of the IAM.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_3	Q.1600 reference 9.1.1.1.1; Note 3 Table 5/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the destinationRoutingAddress with cutAndPaste</i></p> <p>To verify that the IUT can successfully map the destinationRoutingAddress with the cutAndPaste information element of the Connect operation to the called party number of the IAM conform to 3.3.16/Q.1218.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_4	Q.1600 reference 9.1.1.1.1; Note 3 Table 5/Q.1600	Selection expression NOT PICS A.4/7	Configuration 1
Test purpose				
Mapping of the destinationRoutingAddress without cutAndPaste				
To verify that, if there is no cutAndPaste information element in the Connect operation, the IUT sends an ACM message in the backward direction with the backward call indicators coded as follows:				
called party's status indicator		00 (no indication)		
called party's category		00 (no indication)		
end-to-end method indicator		00 (no end-to-end method available)		
interworking indicator		0 (no interworking encountered)		
end-to-end information indicator		0 (no end-to-end information available)		
ISDN User Part indicator		1 (ISDN User Part used all the way)		
ISDN access indicator		1 (terminating access ISDN)		
SCCP method indicator		00 (no indication)		
Pre-test conditions: None				

TSS /INBC/IDP	TP ISN_V_1_2_5	Q.1600 reference 9.1.1.1.1; Table 5/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the callingPartysCategory</i></p> <p>To verify that the IUT can successfully map the callingPartysCategory of the Connect operation to the calling party's category in the outgoing IAM.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_6	Q.1600 reference 9.1.1.1.3; Table 6/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – Call to be diverted indicator (allowed)</i></p> <p>To verify that the IUT does not map the serviceInteractionIndicators with the call to be diverted indicator set to 'call diversion allowed' of the Connect operation to the call diversion treatment indicators parameter of the IAM, because the coding in this case is 'no indication'.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_7	Q.1600 reference 9.1.1.1.3; Table 6/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – Call to be diverted indicator (not allowed)</i></p> <p>To verify that the IUT can successfully map the serviceInteractionIndicators with the call to be diverted indicator set to 'call diversion not allowed' of the Connect operation to the call diversion treatment indicators parameter of the IAM with the call to be diverted indicator set to 'call diversion not allowed'.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_8	Q.1600 reference 9.1.1.1.3; Table 6/Q.1600	Selection expression	Configuration 1 (double)
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – Call to be offered indicator (not allowed)</i></p> <p>To verify that the IUT does not map the serviceInteractionIndicators with the call to be offered indicator set to 'call offering not allowed (default)' of the Connect operation to the call offering treatment indicators parameter of the IAM, because the coding in this case is 'no indication'.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_9	Q.1600 reference 9.1.1.1.3; Table 6/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – Call to be offered indicator (allowed)</i></p> <p>To verify that the IUT can successfully map the serviceInteractionIndicators with the call to be offered indicator set to 'call offering allowed' of the Connect operation to the call offering treatment indicators parameter of the IAM with the call to be offered indicator set to 'call offering allowed'.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_10	Q.1600 reference 9.1.1.1.3; Table 6/Q.1600	Selection expression	Configuration 1 (double)
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – Conference at DLE acceptance indicator (accept)</i></p> <p>To verify that the IUT does not map the serviceInteractionIndicators with the Conference at DLE acceptance indicator set to 'accept conference request (default)' of the Connect operation to the conference treatment indicators parameter of the IAM, because the coding in this case is 'no indication'.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_11	Q.1600 reference 9.1.1.1.3; Table 6/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – Conference at DLE acceptance indicator (reject)</i></p> <p>To verify that the IUT can successfully map the serviceInteractionIndicators with the Conference at DLE acceptance indicator set to 'reject conference request' of the Connect operation to the conference treatment indicators parameter of the IAM in the forward direction with the conference acceptance indicator set to 'reject conference request'.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_12	Q.1600 reference 9.1.1.1.3; 9.1.1.3 Table 6/Q.1600	Selection expression PICS A.4/7	Configuration 1 (double)
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – Conference at OLE acceptance indicator (accept)</i></p> <p>To verify that the IUT can successfully map the serviceInteractionIndicators with the Conference at OLE acceptance indicator set to 'accept conference request (default)' of the Connect operation to the conference treatment indicators parameter of the ACM/CON, because the coding in this case is 'no indication'. The sending of the ACM/CON in the backward direction is postponed until the ACM or CON is received.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_13	Q.1600 reference 9.1.1.1.3; 9.1.1.3 Table 6/Q.1600	Selection expression NOT PICS A.4/7	Configuration 1 (double)
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – Conference at OLE acceptance indicator (accept)</i></p> <p>To verify that the IUT does not map the serviceInteractionIndicators with the Conference at OLE acceptance indicator set to 'accept conference request (default)' of the Connect operation to the conference treatment indicators parameter of the CPG/ANM, because the coding in this case is 'no indication'. An ACM has already been sent in the backward direction, so the received ACM or CON is mapped to CPG or ANM respectively.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_14	Q.1600 reference 9.1.1.1.3; 9.1.1.3 Table 6/Q.1600	Selection expression PICS A.4/7	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – Conference at OLE acceptance indicator (reject)</i></p> <p>To verify that the IUT can successfully map the serviceInteractionIndicators with the Conference at OLE acceptance indicator set to 'reject conference request' of the Connect operation to the conference treatment indicators parameter of the ACM/CON in the backward direction with the conference acceptance indicator set to 'reject conference request'. The sending of the ACM/CON in the backward direction is postponed until the ACM or CON is received.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_15	Q.1600 reference 9.1.1.1.3; 9.1.1.3 Table 6/Q.1600	Selection expression NOT PICS A.4/7	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – Conference at OLE acceptance indicator (reject)</i></p> <p>To verify that the IUT can successfully map the serviceInteractionIndicators with the Conference at OLE acceptance indicator set to 'reject conference request' of the Connect operation to the conference treatment indicators parameter of the CPG/ANM in the backward direction with the conference acceptance indicator set to 'reject conference request'. An ACM has already been sent in the backward direction, so the received ACM or CON is mapped to CPG or ANM respectively.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_16	Q.1600 reference 9.1.1.1.1; Table 5/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the originalCalledNumber</i></p> <p>To verify that the IUT can successfully map the originalCalledPartyId of the Connect operation to the original called number in the IAM message.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_17	Q.1600 reference 9.1.1.1.1; Table 5/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the redirectingPartyID</i></p> <p>To verify that the IUT can successfully map the redirectingPartyId of the Connect operation to the redirecting number in the IAM message.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_18	Q.1600 reference 9.1.1.1.1; Table 5/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the redirectionInformation</i></p> <p>To verify that the IUT can successfully map the redirectionInformation of the Connect operation to the redirection information in the IAM message.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/CON	TP ISN_V_1_2_19	Q.1600 reference 9.1.1.1.1; Note 5 Table 5/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>No mapping of the isdnAccessRelatedInformation</i></p> <p>To verify that the IUT does not map the isdnAccessRelatedInformation of the Connect operation, so that the received information in the access transport parameter of the IAM (called party sub-address, low layer compatibility and high layer compatibility) is passed on unchanged in the forward direction in the outgoing IAM message.</p> <p>Pre-test conditions: None</p>				

7.3.1.3 Other INAP basic call-related issues

TSS /INBC/OIN	TP ISN_V_1_3_1	Q.1600 reference 9.1.1.6/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Continuity check</i></p> <p>To verify that the IUT does not start INAP operations until the COT message indicating a successful continuity check is received. The IAM contains the indication 'continuity check performed on a previous circuit' in the nature of connection indicators.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/OIN	TP ISN_V_1_3_2	Q.1600 reference 9.1.1.7/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Segmentation</i></p> <p>To verify that the IUT does not start INAP operations until the SGM is received. The IAM contains a simple segmentation indicator set to 'additional information will be sent in a segmentation message' in the optional forward call indicators.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/OIN	TP ISN_V_1_3_3	Q.1600 reference 9.1.4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>ReleaseCall operation with releaseCallArg</i></p> <p>To verify that the IUT releases the call in both directions upon receipt of a ReleaseCall operation from the SCP with the cause value in the cause indicators set to the received releaseCallArg value.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/OIN	TP ISN_V_1_3_4	Q.1600 reference 9.1.4/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>ReleaseCall operation without releaseCallArg</i></p> <p>To verify that the IUT releases the call in both directions upon receipt of a ReleaseCall operation without releaseCallArg from the SCP with the cause value in the cause indicators set to '#31 – normal unspecified'.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/OIN	TP ISN_V_1_3_5	Q.1600 reference 9.1.5/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Transfer of called IN number</i></p> <p>To verify that the IUT sends the called party number from the received IAM in the called IN number of the outgoing IAM. The address presentation restricted indicator of the called IN number will be set according to the called IN number presentation restricted indicator in the serviceInteractionIndicators of the received Connect operation.</p> <p>Pre-test conditions: None</p>				

TSS /INBC/OIN	TP ISN_V_1_3_6	Q.1600 reference 9.1.5/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Transfer of called IN number</i></p> <p>To verify that the IUT overwrites in the outgoing IAM the called IN number from the received IAM with the called party number of the received IAM. The address presentation restricted indicator of the called IN number will be set according to the called IN number presentation restricted indicator in the serviceInteractionIndicators of the received Connect operation.</p> <p>Pre-test conditions: None</p>				

7.3.2 IN call with SCP request to collect further digits

TSS /INCD	TP ISN_V_2_1	Q.1600 reference 9.2/Q.1600	Selection expression PICS A.1/5	Configuration 1
<p>Test purpose</p> <p><i>EventReportBCSM operation</i></p> <p>To verify that the IUT can reply to a RequestReportBCSMEvent operation to arm DP2 and a CollectInformation operation from the SCP with an EventReportBCSM operation. The called IN number of the outgoing IAM shall contain the address signal digits received in the IAM and in the subsequent number of the SAM message.</p> <p>Pre-test conditions:</p>				

TSS /INCD	TP ISN_V_2_2	Q.1600 reference 9.2/Q.1600	Selection expression PICS A.1/6	Configuration 1
<p>Test purpose</p> <p><i>CollectedInformation operation</i></p> <p>To verify that the IUT can reply to a RequestReportBCSMEvent operation to arm DP2 and a CollectInformation operation with an CollectedInformation operation. The called IN number of the outgoing IAM shall contain the address signal digits received in the called party number of the IAM and in the subsequent number of the SAM message.</p> <p>Pre-test conditions: None</p>				

7.3.3 Detection Point Processing

TSS /DPP	TP ISN_V_3_1	Q.1600 reference 9.3.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Expiry of timer $T_{NoReply}$</i></p> <p>To verify that the IUT can inform the SCP of the expiry of the timer $T_{NoReply}$ with a EventReportBCSM operation if the SCP has requested within a RequestReportBCSMEvent operation the arming of DP6 or DP14 specifying notifyAndContinue.</p> <p>Pre-test conditions:</p>				

TSS /DPP	TP ISN_V_3_2	Q.1600 reference 9.3.2.2/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Fallback</i></p> <p>To verify that the IUT can perform fallback if an IAM with a transmission medium requirement set to '64 kbit/s unrestricted preferred' is received.</p> <p>Pre-test conditions: None</p>				

TSS /DPP	TP ISN_V_3_3	Q.1600 reference 9.3.2.3.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>User-to-user signalling, service 1 implicit</i></p> <p>To verify that the IUT discards the user-to-user information received in the IAM and signals in the user-to-user indicators of the ACM 'user-to-user information discarded by the network'. The outgoing IAM will not contain a user-to-user information parameter.</p> <p>Pre-test conditions: None</p>				

TSS /DPP	TP ISN_V_3_4	Q.1600 reference 9.3.2.3.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>User-to-user signalling, service 1 explicit non-essential</i></p> <p>To verify that the IUT discards from the received IAM having the user-to-user indicators with the Service 1 field set to 'request, non-essential' and signals in the Service 1 field of the user-to-user indicators of the ACM 'not provided'. The outgoing IAM will not contain a user-to-user indicator/user-to-user information parameter.</p> <p>Pre-test conditions: None</p>				

TSS /DPP	TP ISN_V_3_5	Q.1600 reference 9.3.2.3.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>User-to-user signalling, service 1 explicit essential</i></p> <p>To verify that the IUT discards from the received IAM having the user-to-user indicators with the Service 1 field set to 'request, essential' and releases the call with the cause value #29 and diagnostics (the user-to-user indicators name).</p> <p>Pre-test conditions: None</p>				

TSS /DPP	TP ISN_V_3_6	Q.1600 reference 9.3.2.3.1.2/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>User-to-user signalling, service 2 explicit non-essential</i></p> <p>To verify that the IUT discards from the received IAM having the user-to-user indicator/user-to-user information with the Service 2 field set to 'request, non-essential' and signals in the Service 2 of the user-to-user indicators of the ACM 'not provided'.</p> <p>Pre-test conditions: None</p>				

TSS /DPP	TP ISN_V_3_7	Q.1600 reference 9.3.2.3.1.2/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>User-to-user signalling, service 2 explicit essential</i></p> <p>To verify that the IUT discards from the received IAM having the user-to-user indicators with the Service 2 field set to 'request, essential' and releases the call with the cause value #29 and diagnostics (the user-to-user indicators name).</p> <p>Pre-test conditions: None</p>				

TSS /DPP	TP ISN_V_3_8	Q.1600 reference 9.3.2.3.1.3 a)/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>User-to-user signalling, service 3 explicit non-essential during call setup</i></p> <p>To verify that the IUT discards from the received IAM having the user-to-user indicators with the Service 3 field set to 'request, non-essential' and signals in the Service 3 of the user-to-user indicators of the ACM 'not provided'.</p> <p>Pre-test conditions: None</p>				

TSS /DPP	TP ISN_V_3_9	Q.1600 reference 9.3.2.3.1.3 a)/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>User-to-user signalling, service 3 explicit essential during call setup</i></p> <p>To verify that the IUT discards from the received IAM having the user-to-user indicators with the Service 3 field set to 'request, essential' and releases the call with the cause value #29 and diagnostics (the user-to-user indicators name).</p> <p>Pre-test conditions: None</p>				

TSS /DPP	TP ISN_V_3_10	Q.1600 reference 9.3.2.3.1.3 b)/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>User-to-user signalling, service 3 after call setup</i></p> <p>To verify that the IUT answers the received FAR having the user-to-user indicators with the Service 3 field set to 'request, non-essential' with a FRJ having in the Service 3 of the user-to-user indicators the coding 'not provided'.</p> <p>Pre-test conditions: None</p>				

7.3.4 Setup of an IN call to destination B

Note that for all test purposes in this subclause a call has been set up, this means that a user interactive dialogue has been performed or after the SSF has reported an EDP-R in the EventReportBCSM operation or a DP specific operation, respectively to the SCF.

7.3.4.1 Successful Call Setup

TSS /INB/SCS	TP ISN_V_4_1_1	Q.1600 reference 9.4.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Connect operation – sending no address complete message to the OLE</i></p> <p>To verify that the IUT sends no ACM message towards the OLE.</p> <p>Pre-test conditions:</p> <p>Arrange the data in the IUT that a forwarding to an alternative subscriber is activated.</p>				

TSS /INB/SCS	TP ISN_V_4_1_2	Q.1600 reference 9.4.1.2/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – relevant for the backward direction</i></p> <p>To verify that the IUT can successfully map the serviceInteractionIndicators with the conference at OLE accept. indicator set to 'reject conference request' of the Connect operation to the conference treatment indicators parameter of the ACM/CPG/ANM/CON message with the conference acceptance indicator set to reject conference request. Note that the previous serviceInteractionIndicators with the conference at OLE accept. indicator was set to 'accept conference request' of the previous Connect.</p> <p>Pre-test conditions: None</p>				

TSS /INB/SCS	TP ISN_V_4_1_3	Q.1600 reference 9.4.1.2/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Mapping of the serviceInteractionIndicators – relevant for the backward direction</i></p> <p>To verify that the IUT, does not map the received value of the serviceInteractionIndicators parameter, with the conference at OLE accept. indicator set to 'reject conference request' in the Connect operation and which is equal to the one that is stored in the SSP, to the ACM/CPG/ANM/CON, because the coding in this case is 'no indication'. Note that the previous serviceInteractionIndicator with the call to be diverted indicator was set to 'reject conference request' of the previous Connect.</p> <p>Pre-test conditions: None</p>				

TSS /INB/SCS	TP ISN_V_4_1_4	Q.1600 reference 9.4.1.3; Table 8/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Sending of backward messages – mapping of ACM/ANM to CPG on the originating side</i></p> <p>To verify that the IUT, maps the ACM of the terminating side successfully to a CPG on the originating side, if an ANM/CON was sent for the previous connection, but an ANM/CON was not received for the actual connection. The serviceInteractionIndicators in the Connect operation shall be mapped in the corresponding parameter of the CPG message. Note that if there is no generic notification parameter in the CPG message, the originating local exchange will discard the message.</p> <p>Pre-test conditions: None</p>				

TSS /INB/SCS	TP ISN_V_4_1_5	Q.1600 reference 9.4.1.3; Table 8/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Sending of backward messages – mapping of CON to CPG on the originating side</i></p> <p>To verify that the IUT, maps the CON message of the terminating side successfully to a CPG message on the originating side, if an ANM/CON message was sent for the previous connection, but an ANM/CON was not received for the actual connection. The serviceInteractionIndicators in the Connect operation shall be mapped in the corresponding parameter of the CPG message. Note that if there is no generic notification parameter in the CPG message, the originating local exchange will discard the message.</p> <p>Pre-test conditions: None</p>				

7.3.4.3 Abnormal conditions

TSS /INB/ACON	TP ISN_V_4_2_1	Q.1600 reference 9.4.3.1a i)/Q.1600	Selection expression NOT PICS A.1/7	Configuration 1
<p>Test purpose</p> <p><i>Handling of unexpected messages – CPG received in forward direction</i></p> <p>To verify that the IUT, discards a CPG (e.g. 'hold') received in the forward direction, if an ACM message has already been sent for the originating side of the call, but an ACM message has not been received for the destination side of the call.</p> <p>Pre-test conditions: None</p>				

TSS /INB/ACON	TP ISN_V_4_2_2	Q.1600 reference 9.4.3.1a ii)/Q.1600	Selection expression PICS A.1/7	Configuration 1
<p>Test purpose</p> <p><i>Handling of unexpected messages – unrecognized message received in forward direction (ACM)</i></p> <p>To verify that the IUT (type A), shall not pass on an unrecognized message received in forward direction, if an ACM message has already been sent for the originating side of the call, but an ACM message has not been received for the destination side of the call.</p> <p>(Q.764, 2.9.5.2 item xi) At a type A exchange where "pass on" has been specified for a message or parameter and "pass on" is not possible, then the "pass on not possible indicator" and "send notification indicator" are checked.)</p> <p>Pre-test conditions: None</p>				

TSS /INB/ACON	TP ISN_V_4_2_3	Q.1600 reference 9.4.3.1 b)/Q.1600	Selection expression PICS A.1/8	Configuration 1
<p>Test purpose</p> <p><i>Handling of unexpected messages – unrecognized message received in forward direction (ANM)</i></p> <p>To verify that the IUT, discards an received SUS, RES, FAR or FOT message which was sent in forward direction, if an ANM message has already been sent for the originating side of the call, but an ANM message has not been received for the destination side of the call.</p> <p>Pre-test conditions: None</p>				

7.3.5 User interactive dialogue (in-band)

Note that for all test purposes in this subclause the availability of an SRF or an intelligent peripheral (IP) respectively, which is normal located in the IUT, is mandatory. This means, that if in response to the InitialDP operation, the EventReportBCSM operation or a DP specific operation, a ConnectToResource operation is received from the SCP, then the incoming call shall be connected to a physical entity containing the SRF.

7.3.5.1 SSP supports requested IP Capabilities

TSS /UID/IPC	TP ISN_V_5_1_1	Q.1600 reference 9.5.1.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/ConnectToResource operation</i></p> <p>To verify that the IUT is able to connect the IP to the incoming call, with receiving the ConnectToResource operation, in case of receiving an IAM message with TMR set to "Speech" from the originating exchange.</p> <p>Pre-test conditions: None</p>				

TSS /UID/IPC	TP ISN_V_5_1_2	Q.1600 reference 9.5.1.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/ConnectToResource operation</i></p> <p>To verify that the IUT releases the call in case of receiving an IAM message with TMR set to other value than speech, 3.1 kHz audio or 64 kbit/s preferred from the originating side. The REL message shall contain the cause value #65. There shall be no ConnectToResource operation sent from the SCF to the SSF (Q.1214).</p> <p>Pre-test conditions: None</p>				

TSS /UID/IPC	TP ISN_V_5_1_3	Q.1600 reference 9.5.1.1.2/Q.1600	Selection expression PICS A.1/4	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/Address Complete Message</i></p> <p>To verify that the IUT sends an ACM message including an UID action indicators parameter coded with through-connect in both directions. This shall be the case if the "bothway through-connect" indicator in the serviceInteractionIndicators parameter of the ConnectToResource operation was set to "required" and if an UID capability indicators parameter was sent with bit A coded 1 (through-connect modification possible) in the IAM from the OLE.</p> <p>If a backward ACM message has already been sent to the OLE, then instead of the ACM message a CPG message is sent. The CPG message shall contain the UID action indicator parameter as described above for the ACM message.</p> <p>Pre-test conditions: None</p>				

TSS /UID/IPC	TP ISN_V_5_1_4	Q.1600 reference 9.5.1.1.2/Q.1600	Selection expression PICS A.1/4	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/Address Complete Message</i></p> <p>To verify that the IUT sends an ACM message including an UID action indicators parameter with bit B coded 1 (stop or do not start T9). This shall be the case if the User interactive dialogue duration indicator in the serviceInteractionIndicators parameter of the ConnectToResource operation was set to "long duration" and if an UID capability indicators parameter was sent with bit B coded 1 (stopping of timer possible) in the IAM message from the OLE.</p> <p>If a backward ACM message has already been sent to the OLE, then instead of the ACM message a CPG message is sent. The CPG message shall contain the UID action indicator parameter as described above for the ACM message.</p> <p>Pre-test conditions: None</p>				

TSS /UID/IPC	TP ISN_V_5_1_5	Q.1600 reference 9.5.1.1.3 a)/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/Answer Message</i></p> <p>To verify that the IUT sends an ANM message if the bothway through-connect indicator in the serviceInteractionIndicators parameter of the ConnectToResource operation was set to "required" and if no through-connection capability indicator set to "through-connection modification possible" was sent in the IAM to the IUT.</p> <p>Pre-test conditions: None</p>				

TSS /UID/IPC	TP ISN_V_5_1_6	Q.1600 reference 9.5.1.1.3 b)/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/Answer Message</i></p> <p>To verify that the IUT sends an ANM message if the User interactive dialogue duration indicator in the serviceInteractionIndicators parameter of the ConnectToResource operation was set to "long duration" and if no T9 timer indicator set to "stopping of timer possible" was sent in the IAM to the IUT.</p> <p>Pre-test conditions: None</p>				

TSS /UID/IPC	TP ISN_V_5_1_7	Q.1600 reference 9.5.1.3 a)/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Connection type allowing fallback</i></p> <p>To verify that the IUT is allowing fallback for connection type, if the TMR value received in the IAM message is set to "64 kbit/s unrestricted preferred", then on receipt of the ConnectToResource operation with the serviceInteractionIndicators parameter bothway throughconnect indicator set to "required" the fallback is performed, if no fallback has already been performed and ANM message is sent to the OLE</p> <p>Pre-test conditions: None</p>				

TSS /UID/IPC	TP ISN_V_5_1_8	Q.1600 reference 9.5.1.5.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/COLP</i></p> <p>To verify that the IUT is sending an ANM message containing the appropriate data (connected number parameter) to the OLE, if the connected number is available for the IP and the serviceInteractionIndicators (connected number treatment indicator) set to "no impact" in the ConnectToResource operation was received from the SCP.</p> <p>Pre-test conditions: Arrange so that connected number is available for the IP</p>				

TSS /UID/IPC	TP ISN_V_5_1_9	Q.1600 reference 9.5.1.5.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/COLP</i></p> <p>To verify that the IUT is sending an ANM message containing an connected number parameter with the following contents:</p> <p>nature of address indicator: 0000000</p> <p>numbering plan indicator: 000</p> <p>address presentation restricted indicator: 10 (address not available)</p> <p>no address signals to the OLE, if the connected number is not available for the IP and the serviceInteractionIndicators (connected number treatment indicator) set to "no impact" in the ConnectToResource operation was received from the SCP.</p> <p>Pre-test conditions: Arrange so that connected number is not available for the IP</p>				

TSS /UID/IPC	TP ISN_V_5_1_10	Q.1600 reference 9.5.1.5.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/COLP</i></p> <p>To verify that the IUT is sending an ANM message containing the appropriate data to the OLE, if the connected number is available for the IP and the serviceInteractionIndicators (connected number treatment indicator) set to "presentation restricted" in the ConnectToResource operation received from the SCP.</p> <p>Pre-test conditions: Arrange so that connected number is available for the IP</p>				

TSS /UID/IPC	TP ISN_V_5_1_11	Q.1600 reference 9.5.1.5.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/COLP</i></p> <p>To verify that the IUT is sending an ANM message containing a connected number parameter with the following contents:</p> <p>nature of address indicator: 0000000</p> <p>numbering plan indicator: 000</p> <p>address presentation restricted indicator: 10 (address not available)</p> <p>no address signals to the OLE, if the connected number is not available for the IP and the serviceInteractionIndicators (connected number treatment indicator) set to "presentation restricted" in the ConnectToResource operation was received from the SCP.</p> <p>Pre-test conditions: Arrange so that connected number is not available for the IP</p>				

TSS /UID/IPC	TP ISN_V_5_1_12	Q.1600 reference 9.5.1.5.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/COLP</i></p> <p>To verify that the IUT is sending an ANM message which contains an connected number parameter with the following contents:</p> <p>nature of address indicator and numbering plan indicator: encoded as received in the CdPN in the IAM</p> <p>address presentation restricted indicator: 00 (presentation allowed)</p> <p>address signals: as received in the CdPN/SubsequentNumber parameters, until ACM message was sent to the OLE. The connected number is generated by the IUT as described above, if the serviceInteractionIndicators (connected number treatment indicator) was set to "present called IN number" in the received ConnectToResource operation from the SCP.</p> <p>The ANM does not contain a generic number parameter with the value "additional connected number".</p> <p>Pre-test conditions: None</p>				

TSS /UID/IPC	TP ISN_V_5_1_13	Q.1600 reference 9.5.1.5.2.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/UUS1implicit requested</i></p> <p>To verify that the IUT discards the user-to-user information parameter in the IAM message sent by the OLE, if the UUS1 is implicitly requested. The ACM message sent by the IUT shall contain the user-to-user indicators parameter indicating "user-to-user information discarded by the network".</p> <p>Pre-test conditions:</p>				

TSS /UID/IPC	TP ISN_V_5_1_14	Q.1600 reference 9.5.1.5.2.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/UUS1 explicitly requested</i></p> <p>To verify that the IUT discards the user-to-user information parameter in the IAM message sent by the OLE, if the UUS1 service is explicitly requested as "not essential". The ACM message sent by the IUT shall contain the user-to-user indicators parameter indicating "not provided".</p> <p>Pre-test conditions:</p>				

TSS /UID/IPC	TP ISN_V_5_1_15	Q.1600 reference 9.5.1.5.2.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/UUS1 explicitly requested</i></p> <p>To verify that the IUT clears the call in case of receipt of a IAM message which requests the UUS1 service as "essential". The IUT sends an REL with cause value #29 and the corresponding diagnostics parameter.</p> <p>Pre-test conditions:</p>				

TSS /UID/IPC	TP ISN_V_5_1_16	Q.1600 reference 9.5.1.5.2.2/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/UUS2 explicitly requested</i></p> <p>To verify that the IUT discards the user-to-user indicators parameter received in the IAM message sent by the OLE if the UUS2 service is explicitly requested as "not essential". The ACM message sent by the IUT shall contain the user-to-user indicators parameter indicating "not provided".</p> <p>Pre-test conditions:</p>				

TSS /UID/IPC	TP ISN_V_5_1_17	Q.1600 reference 9.5.1.5.2.2/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/UUS2 explicitly requested</i></p> <p>To verify that the IUT clears the call in case of receipt of a IAM message which requests the UUS2 service as "essential". The IUT sends a REL with cause value #29 and the corresponding diagnostics parameter.</p> <p>Pre-test conditions:</p>				

TSS /UID/IPC	TP ISN_V_5_1_18	Q.1600 reference 9.5.1.5.2.3 a)/ Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/UUS3 Service req. during call setup</i></p> <p>To verify that the IUT discards the user-to-user indicators parameter received in the IAM message sent by the OLE, if the UUS3 service is explicitly requested as "no essential". The ACM message sent by the IUT shall contain the user-to-user indicators parameter indicating "not provided".</p> <p>Pre-test conditions:</p>				

TSS /UID/IPC	TP ISN_V_5_1_19	Q.1600 reference 9.5.1.5.2.3 a)/ Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/UUS3 Service req. during call setup</i></p> <p>To verify that the IUT clears the call in case of receipt of a IAM message which requests the UUS3 service as "essential". The IUT sends a REL with cause value #29 and the corresponding diagnostics parameter.</p> <p>Pre-test conditions: None</p>				

TSS /UID/IPC	TP ISN_V_5_1_20	Q.1600 reference 9.5.1.5.2.3 b)/ Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Impact on suppl.services/UUS3 Service req. after call setup</i></p> <p>To verify that the IUT answers the received FAR message having the facility indicators set to "user-to-user service" and the user-to-user indicators with the Service 3 field set to 'request, non-essential' with a FRJ having in the Service 3 of the user-to-user indicators the coding 'not provided'.</p> <p>Pre-test conditions: None</p>				

7.3.5.2 Assist method – procedure in the initiating SSP

Note that for all the test purposes in this subclause the availability of an SRF or an intelligent peripheral (IP) respectively is mandatory. The SRF or IP should be located in an assistant SSF which shall be involved in the call scenario. Therefore a **EstablishTemporaryConnection** operation is used to create a connection between an Initiating SSF (I-SSF) and an Assisting SSF (A-SSF) as part of a service assist procedure. It is also possible that it can be used to create a connection between an SSF and an SRF, for the case where the SRF exists in a separately addressable physical entity.

TSS /UID/AM_ISSP	TP ISN_V_5_2_1	Q.1600 reference 9.5.2.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/TMR Speech</i></p> <p>To verify that the IUT is able to connect an external IP to the incoming call, with receiving the EstablishTemporaryConnection operation, in case of receiving an IAM with TMR set to "Speech" from the originating exchange.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_2	Q.1600 reference 9.5.2.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/TMR 3.1 kHz</i></p> <p>To verify that the IUT is able to connect an external IP to the incoming call, with receiving the EstablishTemporaryConnection operation, in case of receiving an IAM with TMR set to "3.1 kHz" from the originating exchange.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_3	Q.1600 reference 9.5.2.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/TMR 64 kbit/s preferred</i></p> <p>To verify that the IUT is able to connect an external IP to the incoming call, when receiving the EstablishTemporaryConnection operation, in case of receiving an IAM with TMR set to "64 kbit/s unrestricted preferred" from the originating exchange and fallback is performed as described in 2.5.1.2.2 and 2.5.2.2.2/Q.764.</p> <p>NOTE – The IAM contains a TMR prime set to "3.1 kHz Audio" and USI and USI prime parameters.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_4	Q.1600 reference 9.5.2.1.1.1/Q.1600	Selection expression PICS A.1/9	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/other TMR</i></p> <p>To verify that the IUT will not connect an external IP to the incoming call, i.e. a EstablishTemporaryConnection operation will not be sent, in case of receiving an IAM with TMR set to other value than speech, 3.1 kHz audio or 64 kbit/s preferred from the originating exchange and the call will be released. The REL shall contain the cause value #65.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_5	Q.1600 reference 9.5.2.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/Call diversion treatment indicator</i></p> <p>To verify that the IUT maps the serviceInteractionIndicators parameter including the "Call to be diverted indicator" set to "call diversion allowed" of the EstablishTemporaryConnection operation received from the SCP into the Call diversion treatment indicator parameter with "call diversion allowed" in the IAM which is sent from the I-SSP (IUT) to the assisting SSP, where the IP resides.</p> <p>NOTE – The above mentioned scenario is also valid for the mapping of the Call to be offered indicator and the Conference at DLE accept. Ind.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_6	Q.1600 reference 9.5.2.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/mapping Correlation id</i></p> <p>To verify that the IUT maps the correlationID parameter of the EstablishTemporaryConnection operation received from the SCP into the Correlation id of the IAM which is sent from the I-SSP (IUT) to the assisting SSP where the IP resides.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_7	Q.1600 reference 9.5.2.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/mapping SCF id</i></p> <p>To verify that the IUT maps the scfID parameter of the EstablishTemporaryConnection operation received from the SCP into the SCF id of the IAM which is sent from the I-SSP (IUT) to the assisting SSP where the IP resides.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_8	Q.1600 reference 9.5.2.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/mapping mandatory parameters</i></p> <p>To verify that the IUT generates the correct IAM message after the EstablishTemporaryConnection operation has been received from the SCP. Except the called party number parameter (given from the assistingSSPIPRoutingAddress parameter), the remaining mandatory parameters of the IAM message shall be set as follows:</p> <p>Nature of connection indicators:</p> <p>Satellite indicator: set as in an OLE</p> <p>Continuity check indicator: set as in an OLE</p> <p>Echo control device indicator: set as in an OLE</p> <p>Forward call indicators:</p> <p>National/international call indicator: set as in an OLE</p> <p>End-to-end method indicator: 00 (no end-to-end method available)</p> <p>Interworking indicator: 0 (no interworking encountered)</p> <p>End-to-end information indicator: 0 (no end-to-end information available)</p> <p>ISDN user part indicator: 1 (ISDN user part used all the way)</p> <p>ISDN user part preference indicator: 10 (ISDN user part required all the way)</p> <p>ISDN access indicator: 0 (originating access non-ISDN)</p> <p>Callings party's category:</p> <p>00001010 (ordinary subscriber)</p> <p>Transmission medium requirement:</p> <p>00000011 (3.1 kHz audio)</p> <p>If the following optional parameter is included in the IAM message, it shall be coded as follows:</p> <p>propagation delay counter:</p> <p>(set as in an OLE)</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_9	Q.1600 reference 9.5.2.1.1.2/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Unsuccessful call setup – Forward address signalling/IW with ISUP not supporting Correlation&SCF id parameters</i></p> <p>To verify that the IUT releases the call with cause code #31, if an exchange related in the call cannot transfer the Correlation id and SCF id parameter in the IAM message to the assisting SSP.</p> <p>NOTE – The exchange which cannot pass on the ISUP V3 parameter/messages is simulated by the test system.</p> <p>Pre-test conditions:</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_10	Q.1600 reference 9.5.2.3/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/DisconnectForwardConnection operation</i></p> <p>To verify that the IUT applies the normal release procedures for the outgoing circuits if a DisconnectForwardConnection operation is received from the SCP. The REL message is sent in forward direction to the A-SSP and it contains the cause parameter with value #31.</p> <p>NOTE – The A-SSP is simulated by the test system.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_11	Q.1600 reference 9.5.2.4.1/Q.1600; 9.4.3.1a i)/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/Abnormal conditions (CPG received in forward direction)</i></p> <p>To verify that the IUT, discards a CPG received in the forward direction, if an ACM message has already been sent for the originating side of the call, but an ACM has not been received for the destination site of the call.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_12	Q.1600 reference 9.5.2.4.1/Q.1600; 9.4.3.1a ii)/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/Abnormal conditions – unrecognized message received in forward direction (ACM)</i></p> <p>To verify that the IUT (type A), shall not pass on an unrecognised message received in forward direction, if an ACM message has already been sent for the originating side of the call, but an ACM has not been received for the destination site of the call.</p> <p>(Q.764, 2.9.5.2 item ix) At a type A exchange where "pass on" has been specified for a message or parameter and "pass on" is not possible, then the "pass on not possible indicator" and "send notification indicator" are checked.)</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_13	Q.1600 reference 9.5.2.4.1/Q.1600; 9.4.3.1b/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/Abnormal conditions – unrecognized message received in forward direction (ANM)</i></p> <p>To verify that the IUT, discards an received SUS, RES, FAR or FOT message which was sent in forward direction, if an ANM message has already been sent for the originating side of the call, but an ANM has not been received for the terminating side of the call.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_14	Q.1600 reference 9.5.2.5/Q.1600; 9.4.4.2/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/Abnormal conditions – Impact on supplementary services (Malicious call identification)</i></p> <p>To verify that the IUT is not passing on the IDR message to the origination exchange, if an IDR or an ANM was already sent. The IUT shall immediately respond with an IRS message to the terminating exchange.</p> <p>Pre-test conditions: None</p>				

TSS /UID/AM_ISSP	TP ISN_V_5_2_15	Q.1600 reference 9.5.2.1.1.1/Q.1600; 9.4.4.2/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/Abnormal conditions – Impact on supplementary services (Malicious call identification)</i></p> <p>To verify that the IUT is passing on the IDR message transparently towards the origination exchange, if an IDR was not sent.</p> <p>Pre-test conditions: None</p>				

7.3.5.3 Hand-off method – procedure in the initiating SSP

With the Hand-off method it is possible to change over the IN-call, initiated at the I-SSP to an appropriated Assisting SSP (A-SSP) which is including an IP. The I-SSP functionality is "reduced" to an intermediate exchange after the circuits of the related call are through connected. This means that the initiated IN-call is managed from that time by the A-SSP.

Note that for all test purposes in this subclause neither an SRF nor an intelligent peripheral (IP) respectively, which is normally located in the IUT, is available. These functions should be instantiated in another related SSP.

7.3.5.3.1 Basic Call scenarios

TSS /UID/HOM_ISSP	TP ISN_V_5_3_1	Q.1600 reference 9.5.3/Q.1600	Selection expression PICS A.1/10	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling</i></p> <p>To verify that the IUT (I-SSP) can successfully map the correlationID and scfID parameters of the Connect operation to the correlation id and scf id parameter of the IAM.</p> <p>NOTE – If the correlationID and scfID are not specified separately, the parameters are included in the destinationRoutingAddress parameter of the Connect operation.</p> <p>Pre-test conditions: None</p>				

TSS /UID/HOM_ISSP	TP ISN_V_5_3_2	Q.1600 reference 9.5.3/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling</i></p> <p>To verify that the IUT (I-SSP) does not send a REL message to the A-SSP after receiving the ANM from the A-SSP. In case of the hand-off method, the behaviour of the I-SSP after sending the IAM with the appropriated parameter (Scf ID and Correlation ID), is equal as in a Transit or Local exchange.</p> <p>Pre-test conditions: None</p>				

7.3.5.4 Assist/Hand-off method – procedure in the assisting SSP

7.3.5.4.1 Basic Call scenarios

Note that for all test purposes in this subclause the availability of an SRF or an intelligent peripheral (IP) respectively, which is normal located in the IUT, is mandatory. This means, that if in response to the **AssistRequestInstruction** operation, a **ConnectToResource** or **PromptAndCollectUserInformation** operation is received from the SCP, then the incoming call shall be connected to a physical entity containing the SRF.

TSS /UID/HOM_ASSP	TP ISN_V_5_4_1	Q.1600 reference 9.5.4.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling</i></p> <p>To verify that the IUT can successfully map a received IAM including the Scf ID and Correlation ID to an AssistRequestInstruction with the appropriated correlationID parameter.</p> <p>Pre-test conditions: None</p>				

TSS /UID/HOM_ASSP	TP ISN_V_5_4_2	Q.1600 reference 9.5.4.1.1/Q.1600; 9.5.1.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/ConnectToResource operation</i></p> <p>To verify that the IUT is able to connect the IP to the incoming call, with receiving the ConnectToResource operation, in case of receiving an IAM with Scf ID, Correlation ID and TMR set to "Speech" from the originating exchange.</p> <p>Pre-test conditions: None</p>				

TSS /UID/HOM_ASSP	TP ISN_V_5_4_3	Q.1600 reference 9.5.4.1.1/Q.1600; 9.5.1.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Successful call setup – Forward address signalling/ConnectToResource operation</i></p> <p>To verify that the IUT releases the call in case of receiving an IAM with Scf ID, Correlation ID and TMR set to other value than speech, 3.1 kHz audio 64 kbit/s unrestricted or 64 kbit/s preferred from the originating side. The REL shall contain the cause value #65. There shall be no ConnectToResource operation sent from the SCF to the SSF (Q.1214).</p> <p>Pre-test conditions: None</p>				

7.3.6 Call gapping

With this feature it is possible to reduce the service requests which are sent from the SSF to the SCF. To achieve that reduction of the specific service requests it is possible to select the criteria in the so-called "gapCriteria" of the CallGap operation. The individual criteria which is necessary for the execution of the test is noted in the "subtitle" of the test purpose and it should be supported by the IUT. Note that the CallGap operation is sent by the test system.

TSS /CG	TP ISN_V_6_1	Q.1600 reference 9.6/Q.1600; 3.3.10.1.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Call gapping – mapping ACM and REL/gapTreatment 'informationToSend' and gap criteria 'calledAddressValue'</i></p> <p>To verify that the IUT performs the 'Call gapping' procedure, a CallGap operation with the gapCriteria parameter 'calledAddressValue', the gapTreatment parameter 'informationToSend' indicating announcement or tone and the releaseCause parameter indicating cause # 31 is sent by the test system to the IUT. After receiving an IAM message with the proper Called Party Number parameter from the OLE (test system) an ACM message containing an optional backward call indicator parameter indicating 'in-band information or an appropriate pattern is now available' shall be sent from the IUT.</p> <p>After the calling user has received the 'informationToSend' the call is released and the cause indicators parameter in the REL message contains the releaseCause parameter of the CallGap operation.</p> <p>Pre-test conditions:</p>				

TSS /CG	TP ISN_V_6_2	Q.1600 reference 9.6 a)/Q.1600; 3.3.10.1.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Call gapping – mapping ACM and REL/gapTreatment 'informationToSend' and gap criteria 'gapOnService'</i></p> <p>To verify that the IUT performs the 'Call gapping' procedure, a CallGap operation with the gapCriteria parameter 'gapOnService', the gapTreatment parameter 'informationToSend' indicating announcement or tone and the releaseCause parameter indicating cause #31 is sent by the test system to the IUT. After receiving an IAM message with the proper service key parameter from the OLE, an ACM message containing an optional backward call indicator parameter indicating 'in-band information or an appropriate pattern is now available' shall be sent from the IUT.</p> <p>After the calling user has received the 'informationToSend' the call is released and the cause indicators parameter in the REL message contains the releaseCause parameter of the CallGap operation.</p> <p>Pre-test conditions: None</p>				

TSS /CG	TP ISN_V_6_3	Q.1600 reference 9.6 a)/Q.1600; 3.3.10.1.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Call gapping – mapping ACM and REL with cause value #31/gapTreatment 'informationToSend' and gap criteria 'calledAddressAndService'</i></p> <p>To verify that the IUT performs the 'Call gapping' procedure, a CallGap operation with the gapCriteria parameter 'calledAddressAndService', the gapTreatment parameter 'informationToSend' indicating announcement or tone and the no releaseCause parameter is sent by the test system to the IUT. After receiving an IAM message with the proper service key and the leading digits of the dialled called party number parameter from the OLE, an ACM message containing an optional backward call indicator parameter indicating 'in-band information or an appropriate pattern is now available' shall be sent from the IUT.</p> <p>After the calling user has received the 'informationToSend' the call is released and the cause indicators parameter in the REL message contains cause value #31.</p> <p>Pre-test conditions: None</p>				

TSS /CG	TP ISN_V_6_4	Q.1600 reference 9.6 b)/Q.1600; 3.3.10.1.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Call gapping – mapping REL/gapTreatment 'displayinformation' and gap criteria 'calledAddressValue'</i></p> <p>To verify that the IUT performs the 'Call gapping' procedure, a CallGap operation with the gapCriteria parameter 'calledAddressValue', the gapTreatment parameter 'informationToSend' indicating display information and the releaseCause parameter indicating cause #31 is sent by the test system to the IUT. After receiving an IAM message with the proper Called Party Number parameter from the OLE a REL message containing a display information parameter shall be sent from the IUT.</p> <p>The cause indicators parameter in the REL message contains the releaseCause parameter of the CallGap operation.</p> <p>Pre-test conditions: None</p>				

TSS /CG	TP ISN_V_6_5	Q.1600 reference 9.6 b)/Q.1600; 3.3.10.1.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Call gapping – mapping REL with cause value #31/gapTreatment 'displayinformation' and gap criteria 'gapOnService'</i></p> <p>To verify that the IUT performs the 'Call gapping' procedure, a CallGap operation with the gapCriteria parameter 'gapOnService', the gapTreatment parameter 'informationToSend' indicating display information and no releaseCause parameter is sent by the test system to the IUT. After receiving an IAM message with the proper Service key parameter from the OLE a REL message containing an display information parameter shall be sent from the IUT.</p> <p>The cause indicators parameter in the REL message contains cause value #31.</p> <p>Pre-test conditions: None</p>				

TSS /CG	TP ISN_V_6_6	Q.1600 reference 9.6/Q.1600; 3.3.10.1.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Call gapping – without a gapTreatment parameter/gap criteria 'callingAddressAndService'</i></p> <p>To verify that the IUT performs the 'Call gapping' procedure, a CallGap operation with the gapCriteria parameter 'callingAddressAndService', without a gapTreatment parameter and the no releaseCause parameter is sent by the test system to the IUT. After receiving an IAM message with the proper service key and the leading digits of the calling party number parameter from the OLE the call shall be released with a REL message including a cause value #42.</p> <p>Pre-test conditions: None</p>				

TSS /CG	TP ISN_V_6_7	Q.1600 reference 9.6/Q.1600; 3.3.10.1.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Call gapping – without a gapTreatment parameter/gap criteria 'calledAddressAndService'</i></p> <p>To verify that the IUT performs the 'Call gapping' procedure, a CallGap operation with the gapCriteria parameter 'calledAddressAndService', without a gapTreatment parameter and the releaseCause parameter indicates the cause value #97 is sent by the test system to the IUT. After receiving an IAM message with the proper service key and the leading digits of the dialled called party number parameter from the OLE the call shall be released with a REL message including a cause value #42.</p> <p>Pre-test conditions: None</p>				

7.3.7 Service filtering

To activate the service filtering procedure it is necessary that the SCP sends an ActivateServiceFiltering operation to the SSF or IUT, respectively. In this case, it is necessary that the operation contains the appropriate parameter which depends on the service to be filtered. For the test purposes below there are only two filtering criteria set: "serviceKey" and "calledAddressValue". The other criteria specified in 3.3.1.1.1 d)/Q.1218 are not in the scope of this subclause. The "filterCriteria" is mentioned in subtitle of the test purpose. Note that the SCP is simulated by the test system.

TSS /SF	TP ISN_V_7_1	Q.1600 reference 9.7 a)/Q.1600; 3.3.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Service filtering – sending ACM and no ANM/filter criteria 'calledAddressValue'</i></p> <p>To verify that the IUT performs the 'Service filtering' procedure, an ActivateServiceFiltering operation with the filteringCriteria parameter set to 'calledAddressValue', the informationToSend parameter indicates announcement or tone and the releaseCause parameter set to cause value #97 is sent from the SCP to the IUT. After an IAM message concerning the service filtering criteria is received by the IUT, an ACM message is sent to the OLE with an optional backward call indicator parameter indicating 'in-band information or an appropriate pattern is now available'. After the calling user has received the 'informationToSend' the call is released and the cause indicators parameter contains the releaseCause parameter of the ServiceFiltering operation.</p> <p>Pre-test conditions:</p> <p>Arrange the data in the IUT that the in-band information is not chargeable.</p>				

TSS /SF	TP ISN_V_7_2	Q.1600 reference 9.7 a)/Q.1600; 3.3.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Service filtering – sending ACM and ANM/filter criteria 'calledAddressValue'</i></p> <p>To verify that the IUT performs the 'Service filtering' procedure, an ActivateServiceFiltering operation with the filteringCriteria parameter set to 'calledAddressValue', the informationToSend parameter indicates announcement or tone and the releaseCause parameter set to cause value #97 is sent from the SCP to the IUT. After an IAM message concerning the service filtering criteria is received by the IUT, an ACM message is sent to the OLE with an optional backward call indicator parameter indicating 'in-band information or an appropriate pattern is now available'. Also an ANM message is sent in addition. After the calling user has received the 'informationToSend' the call is released and the cause indicators parameter contains the releaseCause parameter of the ServiceFiltering operation.</p> <p>Pre-test conditions:</p> <p>Arrange the data in the IUT that the in-band information is chargeable.</p>				

TSS /SF	TP ISN_V_7_3	Q.1600 reference 9.7 a)/Q.1600; 3.3.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Service filtering – sending ACM and ANM/filter criteria 'serviceKey', no releaseCause parameter</i></p> <p>To verify that the IUT performs the 'Service filtering' procedure, an ActivateServiceFiltering operation with the filteringCriteria parameter set to 'serviceKey', the informationToSend parameter indicates announcement or tone and no releaseCause parameter is sent from the SCP to the IUT. After a IAM message concerning the service filtering criteria is received by the IUT, an ACM message is sent to the OLE with an optional backward call indicator parameter indicating 'in-band information or an appropriate pattern is now available'. Also an ANM message is sent in addition. After the calling user has received the 'informationToSend' the call is released and the cause indicators parameter contains the cause value #31.</p> <p>Pre-test conditions:</p> <p>Arrange the data in the IUT that the in-band information is chargeable.</p>				

TSS /SF	TP ISN_V_7_4	Q.1600 reference 9.7 b)/Q.1600; 3.3.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Service filtering – sending REL/filter criteria 'calledAddressValue'</i></p> <p>To verify that the IUT performs the 'Service filtering' procedure, an ActivateServiceFiltering operation with the filteringCriteria parameter set to 'calledAddressValue', the informationToSend parameter indicates display information and the releaseCause parameter set to cause value #97 is sent from the SCP to the IUT. After an IAM message concerning the service filtering criteria is received by the IUT, the call is released and a display information parameter is included in the REL message. The cause indicators parameter contains the releaseCause parameter of the ServiceFiltering operation.</p> <p>Pre-test conditions:</p> <p>Arrange the data in the IUT that the 'informationToSend' is free of charge.</p>				

TSS /SF	TP ISN_V_7_5	Q.1600 reference 9.7 b)/Q.1600; 3.3.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Service filtering – sending ANM/filter criteria 'calledAddressValue'</i></p> <p>To verify that the IUT performs the 'Service filtering' procedure, an ActivateServiceFiltering operation with the filteringCriteria parameter set to 'calledAddressValue', the informationToSend parameter indicates display information and the releaseCause parameter set to cause value #97 is sent from the SCP to the IUT. After a IAM message concerning the service filtering criteria is received by the IUT, an ANM message is sent to the OLE containing the display information parameter. After the calling user has received the 'informationToSend' the call is released and the cause indicators parameter contains the releaseCause parameter of the ServiceFiltering operation.</p> <p>Pre-test conditions:</p> <p>Arrange the data in the IUT that the 'informationToSend' is not free of charge.</p>				

TSS /SF	TP ISN_V_7_6	Q.1600 reference 9.7 b)/Q.1600; 3.3.1/Q.1218	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>Service filtering – sending ANM/filter criteria 'serviceKey', no releaseCause parameter</i></p> <p>To verify that the IUT performs the 'Service filtering' procedure, an ActivateServiceFiltering operation with the filteringCriteria parameter set to 'serviceKey', the informationToSend parameter indicates display information and no releaseCause parameter is sent from the SCP to the IUT. After an IAM message concerning the service filtering criteria is received by the IUT, an ANM message is sent to the OLE containing the display information parameter. After the calling user has received the 'informationToSend' the call is released and the cause indicators parameter contains the cause value #31.</p> <p>Pre-test conditions:</p> <p>Arrange the data in the IUT that the 'informationToSend' is not free of charge.</p>				

7.3.8 SCP initiated call

For a SCP initiated call the SSP/IUT behaves like an originating local exchange with the exception that no information is received/sent from/to the access protocol. The call setup information needed for the generation of the IAM message is partly provided with the InitiateCallAttempt operation which is sent by the SCP or test system, respectively.

This operation is used to request the SSF to create a new call to one call party using the address information provided by the SCF (e.g. wake-up call).

7.3.8.1 Successful call setup

Note that optional parameters may be absent, i.e. they are only mapped, if received.

TSS /SCP_IC/SCS	TP ISN_V_8_1_1	Q.1600 reference 9.8.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>SCP initiated call – continue operation/mapping of CgPN and CdPN parameters</i></p> <p>To verify that the IUT can successfully map the destinationRoutingAddress and callingPartyNumber of the InitiateCallAttempt operation to the Called party number and Calling party number in the IAM message.</p> <p>Pre-test conditions: None</p>				

TSS /SCP_IC/SCS	TP ISN_V_8_1_2	Q.1600 reference 9.8.1.1.1/Q.1600	Selection expression	Configuration 1
<p>Test purpose</p> <p><i>SCP initiated call – continue operation/mapping of serviceInteractionIndicators parameters</i></p> <p>To verify that the IUT can successfully map the serviceInteractionIndicators with the call to be diverted indicator set to 'call diversion allowed' of the InitiateCallAttempt operation to the call diversion treatment indicators parameter of the IAM message with the call to be diverted indicator set to 'call diversion allowed'.</p> <p>Note that the other mappings of the serviceInteractionIndicators are not tested.</p> <p>Pre-test conditions: None</p>				

8 Test coverage

The test purposes defined in this test specification cover most main capabilities of the Interaction between ISUP'97 and INAP specification. A list containing the number of test purposes for the related requirements of the standard/Q.1600 is provided in Table 2.

Whenever it was possible, the test purposes have been described such that they bundle-related requirements of the standard. Due to this fact a test purpose may lead to implementing several test cases for the ATS.

The test purposes concentrate on valid behaviour. This means that there are no invalid behaviour test purposes specified. An expansion of the invalid behaviour test purposes is left for further study.

Table 2/Q.1600 bis – Number of tests for the Interaction between ISUP'97 and INAP CS-1

Item	IN/ISUP procedures	Group	Number of test purposes
1	INAP basic call	INBC	43
2	IN call with SCP request to collect further digits	INCD	2
3	Detection point processing	DPP	11
4	Setup of an IN call to destination B	INB	15
5	User interactive dialogue (in-band)	UID	45
6	Call gapping	CG	7
7	Service filtering	SF	6
8	SCP initiated call	SCP_IC	2
Grand total			131

9 Conformance to the PICS proforma specification

A PICS proforma that conforms to this PICS proforma specification shall be technically equivalent to Annex A, and shall preserve the numbering and ordering of the items in Annex A.

A PICS that conforms to this PICS proforma specification shall:

- describe an implementation which is claimed to conform to ISDN User part (ISUP) '97 reference specification [1] to [3];
- be a conforming PICS proforma which has been completed in accordance with the instructions for completion given in A.1;
- include the information necessary to uniquely identify both the supplier and the implementation.

**PICS proforma for ISDN User Part (ISUP) '97 –
Interaction between ISUP '97 and INAP CS-1**

A.1 Instructions for completing the PICS proforma

The supplier of the implementation shall complete the PICS proforma in each of the spaces provided. If necessary, the supplier may provide additional comments separately.

More detailed instructions are given at the beginning of the different subclauses of the PICS proforma.

A.1.1 Purposes and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in ISDN User Part (ISUP) '97 reference specification [1] to [3] may provide information about the implementation in a standardized manner.

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

- instructions for completing the PICS proforma;
- identification of the implementation;
- identification of the reference protocol specification;
- PICS proforma tables (containing the global statement of conformance).

A.1.2 Abbreviations and conventions

The PICS proforma contained in this annex is composed of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [8].

Item column

It contains a number that identifies the item in the table.

Item description column

It describes each respective item (e.g. parameters, timers, etc.).

Reference column

It gives reference to the ISUP'97 specification for the supplementary services [1] to [3], except where explicitly stated otherwise.

Status column

The following notations, defined in ISO/IEC 9646-7 [8], are used for the status column:

- m mandatory – the capability is required to be supported.
- n/a not applicable – in the given context, it is impossible to use the capability. No answer in the support column is required.
- o optional – the capability may be supported or not.

¹ **Copyright release for PICS proforma**

Users of this Recommendation may freely reproduce the PICS proforma in this annex so that it can be used for its intended purpose, and may further publish the completed PICS.

- o.i qualified optional – for mutually exclusive or selectable options from a set. "i" is an integer which identifies a 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" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression that is defined immediately following the table. For nested conditional expressions, the syntax "IF ... THEN (IF ... THEN ... ELSE...) ELSE ..." shall be used to avoid ambiguities. If an ELSE clause is omitted, "ELSE n/a" shall be implied.

NOTE – Support of a capability means that the capability is implemented in conformance to the ISUP'97 specification [1] to [3].

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 [8], are used for the support column:

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

Values allowed column

This column contains the values or the ranges of values allowed.

Values supported column

The support 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.

References to items

For each possible item answer (answer in the support column) within the PICS proforma a unique reference exists. It is defined as the table identifier, followed by a slash character "/", followed by the item number in the table. If there is more than one support column in a table, the columns shall be discriminated by letters (a, b, etc.) respectively.

Example 1: A.5/4 is the reference to the answer of item 4 in Table A.5 of Annex A.

Example 2: A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in Table A.6 of Annex A.

A.2 Identification of the implementation

Identification of the Implementation Under Test (IUT) and the system in which it resides – the System Under Test (SUT) 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 should be named as the contact person.

A.2.1 Date of the statement

Date of the statement:	
------------------------	--

A.2.2 Implementation under test (IUT) identification

IUT name:	
IUT version:	

A.2.3 System under test (SUT) identification

SUT name:	
Hardware configuration:	
Operating system:	

A.2.4 Product supplier

Name:	
Address:	
Telephone number:	
Facsimile number:	
Additional information:	

A.2.5 Client

Name:	
Address:	
Telephone number:	
Facsimile number:	
Additional information:	

A.2.6 ICS contact person

Name:	
Telephone number:	
Facsimile number:	
Additional information:	

A.3 Identification of the reference specification

This PICS proforma applies to the following standard: ITU-T Recommendations Q.73x (1997).

Note that as prerequisite it is necessary to support the basic services described in [11]. A separate PICS proforma has been specified for ISUP'92 basic services [11].

A.4 PICS proforma tables

A.4.1 Global statement of conformance

	(Yes/No)
Are all mandatory capabilities implemented?	
NOTE – Answering "No" to this question indicates non-conformance to the reference protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming.	

A.4.2 Capabilities

See Tables A.1 and A.2.

Table A.1/Q.1600 bis – INAP Operation Capabilities

Item	Is the exchange able to ...	Reference	Status	Support
1	Support the assist method in an I-SSP.			
2	Support the assist method in an A-SSP.			
3	Through-connect the transmission path in both directions in case of forward address signalling.	9.9.1.1.1/ Q.1600		
4	Include the "Through-connection instruction" in the ACM.	9.5.1.1.2/ Q.1600		
5	Send an EventReportBCSM operation to the SCP after the specified number of digits were collected by the exchange, if a RequestReportBCSMEvent operation accompanied by a CollectInformation operation to arm DP2 was sent by the SCP.	9.2/Q.1600	o.1	
6	Send an CollectedInformation operation to the SCP after the specified number of digits were collected by the exchange, if a RequestReportBCSMEvent operation accompanied by a CollectInformation operation to arm DP2 was sent by the SCP.	9.2/Q.1600	o.1	

Table A.1/Q.1600 bis – INAP Operation Capabilities (concluded)

Item	Is the exchange able to ...	Reference	Status	Support
7	Send an early ACM.	9.1.1.1.1/ Q.1600		
8	Send an early ANM.	9.4.3.1 b)/ Q.1600		
9	FALLBACK (see ISUP Basic Call PICS A.13/10)			
10	Send the correlationID and scfID parameters in the IAM on the used signalling system? (the network operator has to decide about the actual mapping)	9.5.3/ Q.1600		
11	Extracted the value of the correlationID in the AssistRequestInstructions procedure from the digits received from the initiating SSF or be all the digits?	3.3.8.1.1/ Q.1218	@	
o.1: It is mandatory to support at least one of these items.				
@: national option.				

Table A.2/Q.1600 bis – INAP timers

Item	Use of ...	Reference	Status	Support	Values in seconds	
					Allowed	Supported
1	T _{SUS}	Table 13/Q.1600	m			
2	T _{NoReply}	Table 13/Q.1600	m			
3	T _{UID}	Table 13/Q.1600	m		1800	

ANNEX B**PIXIT proforma for ISDN User Part (ISUP) '97 and INAP CS-1**

For further study.

ANNEX C**Protocol Conformance Test Report (PCTR) Proforma for ISDN User Part (ISUP) '97**

For further study.

ANNEX D**ATS for ISDN User Part (ISUP) '97/INAP CS-1 Interaction**

This annex is available as an electronic attachment.

SERIES OF ITU-T RECOMMENDATIONS

Series A	Organization of the work of ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communications
Series Y	Global information infrastructure and Internet protocol aspects
Series Z	Languages and general software aspects for telecommunication systems