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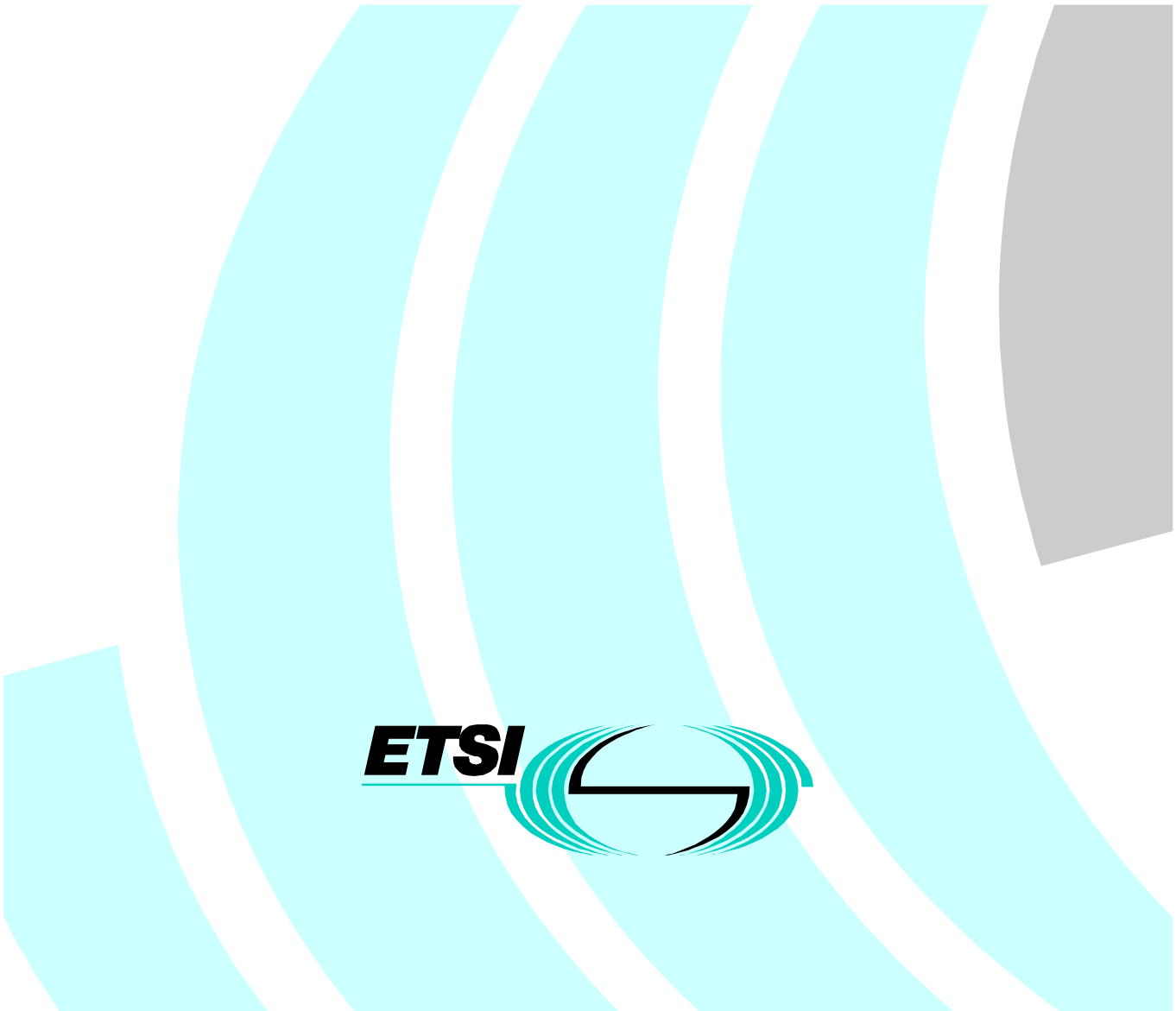
European Standard (Telecommunications series)

Integrated Services Digital Network (ISDN); Signalling System No.7; Digital cellular telecommunications system (Phase 2+); Application of ISDN User Part (ISUP) version 3 for the ISDN-Public Land Mobile Network (PLMN) signalling interface; Part 3: Test Suite Structure and Test Purposes (TSS&TP)



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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN), and is now submitted for the Public Enquiry phase of the ETSI standards Two-step Approval Procedure.

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

Part 1: "Protocol specification";

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

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

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

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1 Scope

The present document contains the validation (conformance) test specification for the "Application of ISDN User Part (ISUP) version 3 for the ISDN - Public Land Mobile Network (PLMN) signalling interface" defined in EN 300 646-1 [1]. The present document applies only to exchanges having implemented the ISUP v3 protocol specification.

The present document presents the Test Suite Structure and Test Purposes (TSS&TP) for the ISDN-Public Land Mobile Network (PLMN) signalling interface defined in compliance with the relevant requirements and in accordance with the guidance given in ISO/IEC 9646-7 [19].

2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] EN 300 646-1: Integrated Services Digital Network (ISDN); Signalling System No.7; Digital cellular telecommunications system (Phase2); Application of ISDN User part (ISUP) version 3 for the ISDN-Public Land Mobile Network (PLMN) signalling interface; Part 1: Protocol specification (GSM 09.14)".

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

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

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

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

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

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

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

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

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

[11] EN 300 356-14: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 14: Explicit Call Transfer (ECT) supplementary service [ITU-T Recommendation Q.732, clause 7 (1997), modified]".

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

[13] EN 300 356-18: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 2 for the international interface; Part 18: Completion of Calls to Busy Subscriber (CCBS) supplementary service [ITU-T Recommendation Q.733, clause 3 (1997), modified]".

[14] EN 300 356-19: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 19: Three party (3PTY) supplementary service [ITU-T Recommendation Q.734, clause 2 (1997), modified]".

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

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

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

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

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

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

3 Definitions and abbreviations

3.1 Definitions

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

- terms defined in ISDN User Part (ISUP) reference specification (EN 300 356-1 [2] to EN 300 356-19 [14]);
- terms defined in ISO/IEC 9646-1 [17], ISO/IEC 9646-3 [18] and in ISO/IEC 9646-7 [19].

In particular, the following terms apply:

Abstract Test Case (ATC): complete and independent specification of the actions required to achieve a specific test purpose, defined at the level of abstraction of a particular Abstract Test Method, starting in a stable testing state and ending in a stable testing state (see ISO/IEC 9646-1 [17] § 3.3.3).

Abstract Test Method (ATM): description of how an IUT is to be tested, given at an appropriate level of abstraction to make the description independent of any particular realization of a Means of Testing, but with enough detail to enable abstract test cases to be specified for this method (see ISO/IEC 9646-1 [17], § 3.3.5).

Abstract Test Suite (ATS): test suite composed of abstract test cases (see ISO/IEC 9646-1 [17], § 3.3.6).

Implementation Under Test (IUT): implementation of one or more OSI protocols in an adjacent user/provider relationship, being part of a real open system which is to be studied by testing (see ISO/IEC 9646-1 [17], § 3.3.43).

Means of Testing (MOT): combination of equipment and procedures that can perform the derivation, selection, parameterization and execution of test cases, in conformance with a reference standardized ATS, and can produce a conformance log (see ISO/IEC 9646-1 [17], § 3.3.54).

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

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

Point of Control and Observation: point within a testing environment where the occurrence of test events is to be controlled and observed, as defined in an Abstract Test Method (see ISO/IEC 9646-1 [17], § 3.3.64).

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

Protocol Implementation Conformance Statement (PICS): statement made by the supplier of a protocol claimed to conform to a given specification, stating which capabilities have been implemented (see ISO/IEC 9646-1 [17], § 3.3.39 and § 3.3.80).

Protocol Implementation eXtra Information for Testing (PIXIT): statement made by a supplier or implementor of an IUT (protocol) which contains or references all of the information related to the IUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the IUT (see ISO/IEC 9646-1 [17], § 3.3.41 and § 3.3.81).

System Under Test (SUT): real open system in which the IUT resides (see ISO/IEC 9646-1 [17], § 3.3.103).

3.2 Abbreviations

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

3PTY	Three-Party
ACM	Address Complete Message
ATC	Abstract Test Case
ATM	Abstract Test Method
ATP	Access Transport Parameter
ATS	Abstract Test Suite

CCBS	Completion of Calls to Busy Subscriber
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFNRc	Call Forwarding on Mobile Subscriber Not Reachable
CFU	Call Forwarding Unconditional
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COLP	Connected Line Identification Presentation
COLR	Connected Line Identification Restriction
CONF	Conference calling
CPG	Call Progress message
ECT	Explicit Call Transfer
GMSC	Gateway MSC
GSM	Global System for Mobile communications
HLC	High Layer Compatibility
HLR	Home Location Register
IAM	Initial Address Message
INN	Internal network number
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
IUT	Implementation Under Test
LAB	PCO for signalling link AB
LAC	PCO for signalling link AC
LT	Lower Tester
MAP	Mobile Application Part
MCID	Malicious Call Identification
MNT	Maintenance PCO
MOT	Means Of Testing
MPTY	MultiParty
MSC	Mobile-service Switching Centre
MSISDN	Mobile Station ISDN number
MSRN	Mobile Station Roaming Number
MTP	Message Transfer Part
PCO	Point of Control and Observation
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PLMN	Public Land Mobile Network
SP	Signalling Point
SUT	System Under Test
TCP	Test Coordination Procedures
TMR	Transmission medium requirement
TP	Test Purpose (context dependent)
TSS	Test Suite Structure
TTCN	Tree and Tabular Combined Notation
USI	User Service Information
UT	Upper Tester
UUInf	User-to-User Information
UUS	User-to-User Signalling
UUS1	User-to-User Signalling service 1

The ISUP message acronyms can be found in table 2/Q.763 [20].

4 Implementation under test and test methods

4.1 Identification of the system and implementation under test

The system under test (SUT) is an exchange. The implementation under test (IUT) is the ISUP v3 implementation in this exchange, mainly the part responsible for the ISDN User part functionality in GMSC or Fixed Gateway exchange, as shown in figure 1.

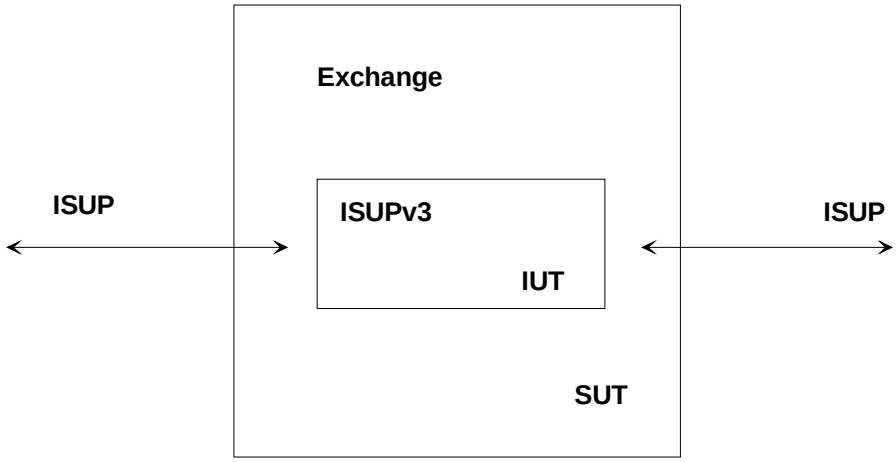


Figure 1: Implementation under test

4.2 ATM and testing configuration for ISUP v3

The Abstract Test Method (ATM) chosen for the ISDN - PLMN signalling interface 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 testing architectures are described in the following subclauses.

The ATS is written in concurrent TTCN.

4.3 PLMN-ISUP interface testing configuration

The configuration proposed for testing gateway exchanges is shown in figure 2. In order to test the protocol and functionality of gateway exchanges, one needs to consider the incoming and outgoing side of the SUT.

The IUT can be different configurations depending of test purposes. Alternatives for roles of IUT in network are Fixed gateway exchange with HLR connection, Gateway MSC exchange, or national/international Gateway exchange.

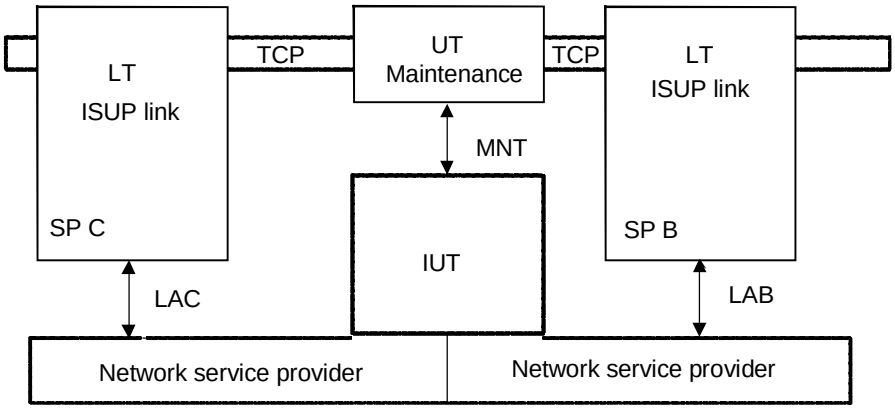


Figure 2: Testing configuration

The IUT is observed and controlled from two ISUP links with associated circuits. The points of Control and Observation (PCO) are labelled LAB on the one side, LAC on the other.

The LAB and LAC PCO's are used by the Lower Testers (LT) for controlling the ISUP signalling link.

The MNT PCO is used by the upper tester (UT) to control and observe the maintenance functions of the test suite and exchange.

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

The ISUP PDU's to be sent and observed on the LAB/LAC PCO's side allow for PDU constraints to be specified and coded down to the bit level.

The underlying network service provider is the Message Transfer Part (MTP) protocol as specified in reference ETS 300 008 [16].

4.4 Master-slave aspects in the test configuration

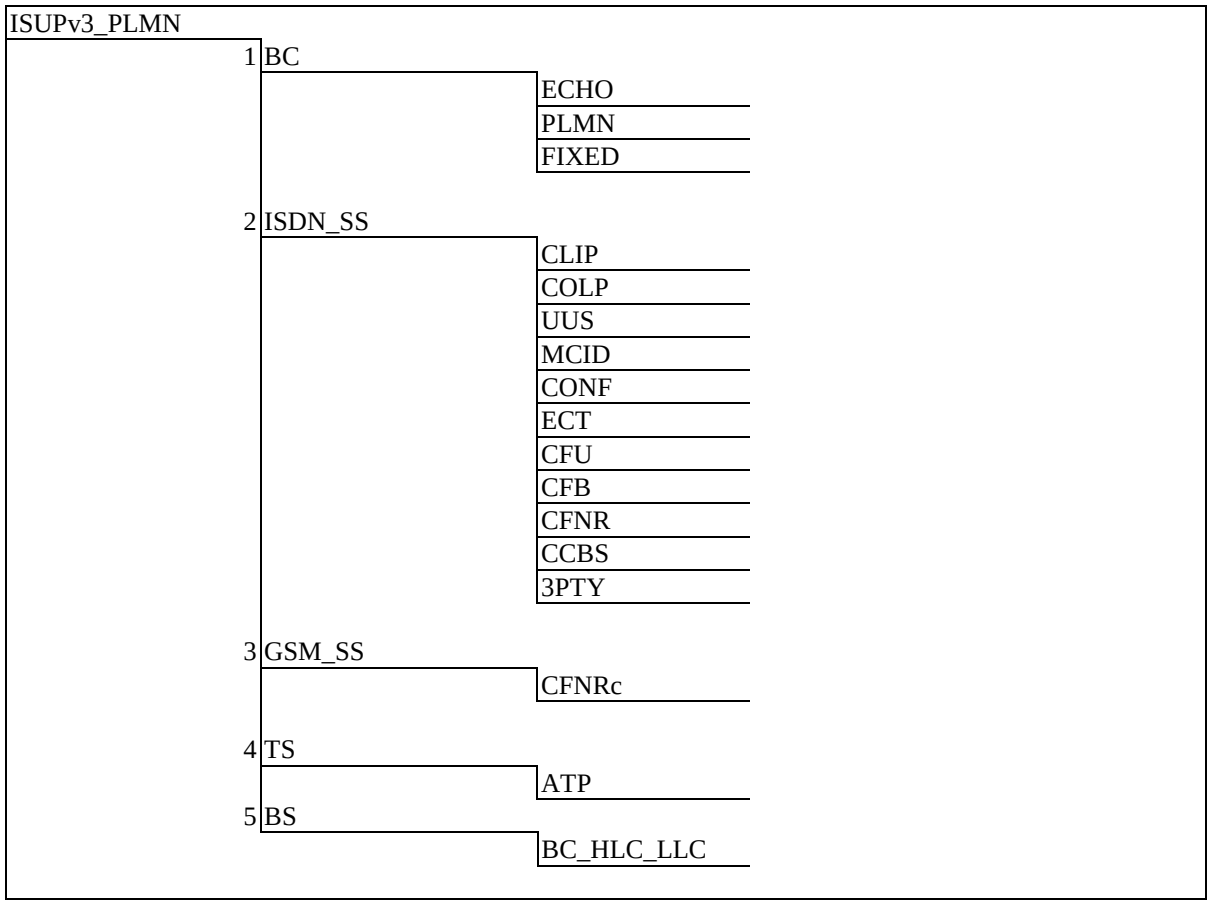
The figure 1 and figure 2 shows the logical test components of the adopted test configuration. The main test component is located between two low tester components, which contains the ISUP parts.

As mentioned above, these test specification include tests for both - the IUT given as gateway. At test execution exactly one of these configurations will be chosen - based on the information provided in the PICS and PIXIT.

The message flow in the test cases is designed in such a way that the verdict is assigned based on observing the behaviour on the right side and left side, respectively. Both sides will in this case mainly act as a slave stimulus/acceptor.

5 Test Suite Structure (TSS)

Table 1: Diagram of test suite structure



Test suite structure (TSS) naming conventions are:

3PTY	Three Party service
APRI	Address presentation restriction indicator
ATP	Access Transport
BC	Basic Call functions
BC_HLC_LLC	Bearer Capability, High Layer Compatibility, Low Layer Compatibility
BS	Bearer Services
CCBS	Completion of Calls to Busy Subscriber
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFNRc	Call Forwarding on Mobile Subscriber Not Reachable
CFU	Call Forwarding Unconditional
CLIP	Calling Line Identification Presentation
CONF	Conference Call, add-on
COLP	Connected Line Identification Presentation
ECHO	Simply Echo Control procedures
ECT	Explicit Call Transfer
FIXED	Call from fixed network to PLMN
GSM_SS	GSM supplementary services
ISDN_SS	ISDN (ISUP v3) supplementary services
MCID	Malicious Call Identification
PLMN	Call from PLMN to fixed network
TS	Teleservices
UUS	User-to-User Signalling

6 Test Purposes

6.1 Introduction

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

6.1.1 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. Additional qualifiers, in form of lower case letters, are added to identify variants within one generic test case, see table 2 below.

Table 2: Naming of test purposes

Identifier:	PI_<group>_<N>_<n>	
PI	=	ISUP v3 for the ISDN - PLMN signalling interface.
<group>	=	Name of test purpose group. For example BC from table 1.
<N>	=	Sequence number for test purposes according to the test suite structure.
<n>	=	Sequence number used within the group distinguishing tests with same reference number.

6.1.2 Source of test purpose definition

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

6.1.3 Test purpose structure

All of the following test purposes belong to the main group PLMN_ISUPv3. The main group is divided to three subgroup. 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;
EN 300 646-1 [1] ref.	The reference to the requirement 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;
Configuration	The configuration identification of IUT (GMSC, national/international gateway MSC or Gateway fixed with HLR). If there is no configuration specified, the TP is valid for all roles of exchanges.

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

The ISUP **messages** and **parameter** names 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. These message sequence charts are presented using a non-proportional font for the proper alignment of the arrows in the diagram. Inside the message sequence charts comments are included for clarification purposes.

Additional information of interest while executing/implementing the test cases is presented below a continuous line after the message sequence charts. The signalling points are normally allocated for following use: SPC is for MSC; SPA is for IUT, which is normally GMSC: SPB is for gateway fixed exchange. SPC and SPB is used for generate proper actions in IUT. The stimulus of SPB and SPC is generated by test equipment supporting TTCN.

6.2 Test purposes for ISUP version 3 of PLMN and ISDN interface

All of the following test purposes belong to the main group ISUPv3_PLMN.

6.2.1 Basic call Signalling procedures

6.2.1.1 Echo Control

TSS **BC/ECHO**	**TP** **PI_BC_1_1**	**EN 300 646-1 [1]** **5.2.2 and annex E E.1**	**Selection expression**	**Configuration** **GMSC**
Test purpose *Echo Control procedure, Outgoing half echo control device included*. To verify that outgoing half echo control device is included to the incoming circuit by GMSC and **IAM** message with **nature of connection indicators** parameter (bit E**)** is set outgoing echo control device included. Value of **TMR** is set 3.1 kHz or speech in **IAM** message. Pre-test conditions: Arrange so that GMSC supports echo control device, but MSC not. SPC SPA SPB -----IAM----> -----IAM-----> 1. <----ACM----- <----ACM----- <----ANM----- <----ANM-----				
1. Call to the subscriber in ISDN.				

TSS **BC/ECHO**	**TP** **PI_BC_1_2**	**EN 300 646-1 [1]** **reference** **5.2.2 and annex E E.1**	**Selection expression**	**Configuration** **GMSC**
Test purpose *Echo Control procedure, Outgoing half echo control device not included*, TMR 64 kbit/s unrestricted. To verify that outgoing half echo control device is not included to the incoming circuit by GMSC and the **nature of connection indicators** parameter (bit E) is outgoing echo device not included, when received **IAM** message with **nature of connection indicators** is set outgoing echo control device not included and value of TMR is set 64 kbit/s unrestricted. Pre-test conditions: Arrange so that GMSC supports echo control device, but MSC not. SPC SPA SPB -----IAM----> -----IAM-----> 1. <----ACM----- <----ACM----- <----ANM----- <----ANM-----				
1. Call to the subscriber in ISDN.				

TSS BC/ECHO	TP PI_BC_1_3	EN 300 646-1 [1] reference 5.5.2 and annex E E.2	Selection expression	Configuration GMSC

Test purpose
Echo Control procedure, Incoming call, Outgoing half echo control device included in preceding exchange.
To verify that outgoing half echo control device is disabled for the incoming circuit by GMSC when **IAM** message with **nature of connection indicators** parameter (bit E) is set outgoing echo control device included received by preceding exchange. Outgoing echo control information in **nature of connection indicators** parameter is pass through unchanged. Verify also that incoming half echo control device is disabled for outgoing circuit if received **ACM** message with incoming half echo device included information.
Pre-test conditions: Arrange so that GMSC supports echo control device.

```
SPC            SPA             SPB
 -----IAM---->  -----IAM-----> 1.
 <----ACM-----  <----ACM-----   2.
 <----ANM-----  <----ANM-----
    ... communication ...
```

1. Outgoing half echo control device included inf. pass through.
2. Incoming half echo control device included inf. pass through.

TSS BC/ECHO	TP PI_BC_1_4	EN 300 646-1 [1] reference 5.5.2 and annex E E.2	Selection expression	Configuration GMSC

Test purpose
Echo Control procedure, Incoming call, Outgoing half echo control device not included in preceding exchange.
To verify that outgoing half echo control device is enabled for incoming circuit by GMSC when **IAM** message with **nature of connection indicators** parameter (bit E) is set outgoing echo control device not included received by preceding exchange. Verify that incoming half echo device is disabled for outgoing circuit when received **ACM** message with **backward call indicator** incoming control device included.
Pre-test conditions: Arrange so that GMSC supports echo control device.

```
SPC            SPA             SPB
 -----IAM---->  -----IAM-----> 1.
 <----ACM-----  <----ACM-----   2.
 <----ANM-----  <----ANM-----
    .. communication ..
```

1. Outgoing half echo control device included inf. set by GMSC.
2. Incoming half echo control device included inf. pass through.

TSS BC/ECHO	TP PI_BC_1_5	EN 300 646-1 [1] reference 5.5.2 and annex E E.2	Selection expression	Configuration GMSC

Test purpose
Echo Control procedure, Incoming call, Outgoing half echo control device not included in preceding exchange.
To verify that outgoing half echo control device is enabled for incoming circuit by GMSC when **IAM** message with **nature of connection indicators** parameter (bit E) is set outgoing echo control device not included received by preceding exchange. Verify that incoming echo device is enabled for outgoing circuit when received **ACM** message with **backward call indicator** incoming control device not included.
Pre-test conditions: Arrange so that GMSC supports echo control device.

```
SPC            SPA             SPB
 -----IAM---->  -----IAM-----> 1.
 <----ACM-----  <----ACM-----   2.
 <----ANM-----  <----ANM-----
    .. communication ..
```

1. Outgoing half echo control device included inf. set by GMSC.
2. Incoming half echo control device included inf. set by GMSC.

TSS BC/ECHO	TP PI_BC_1_6	EN 300 646-1 [1] reference 5.5.2 and annex E E.2	Selection expression	Configuration GMSC

Test purpose
Echo Control procedure, Incoming call, Outgoing half echo control device not included in preceding exchange.
To verify that outgoing half echo control device is disabled for incoming circuit by GMSC when **IAM** message with **nature of connection indicators** parameter (bit E) is set outgoing echo control device not included received by preceding Gateway exchange and when GMSC knows that outgoing half echo control device is not needed. Verify that incoming echo device is disabled for outgoing circuit.
Pre-test conditions: Arrange so that GMSC supports echo control device.

```
SPC            SPA             SPB
 -----IAM---->  -----IAM----->   1.
 <----ACM-----  <----ACM-----    2.
 <----ANM-----  <----ANM-----
    .. communication ..
```

1. Outgoing half echo control device not included inf. pass through.
2. Incoming half echo control device not included inf. pass through.

TSS BC/ECHO	TP PI_BC_1_7	EN 300 646-1 [1] reference 5.2.2 and annex E E.2	Selection expression	Configuration GMSC

Test purpose
Echo Control procedure, Incoming call, Incoming half echo control device included.
To verify that outgoing half echo control device is disabled for the incoming circuit by GMSC when **IAM** message with **nature of connection indicators parameter** (bit E) is set outgoing echo control device included received by preceding exchange. Outgoing echo control information in **nature of connection indicators** parameter is pass through unchanged. Verify that incoming half echo control device is enabled for outgoing circuit if received **ACM** message with incoming half echo device not included information.
Pre-test conditions: Arrange so that GMSC supports echo control device.

```
SPC            SPA             SPB
 -----IAM---->  -----IAM----->  1.
 <----ACM-----  <----ACM-----   2.
 <----ANM-----  <----ANM-----
    .. communication ..
```

1. Outgoing half echo control device included inf. pass through.
2. Incoming half echo control device included information set by GMSC.

6.2.1.2 Calls from the PLMN to the Fixed network

TSS BC/PLMN	TP PI_BC_1_8	EN 300 646-1 [1] reference 5.2.3.1.1	Selection expression INN	Configuration GMSC

Test purpose
Gateway in the PLMN, IAM called party number.
To verify that GMSC set INN indicator as 0 when called number parameter contains MSRN number.
Pre-test conditions:

```
SPC              SPA              SPB
 ------IAM----->  -------IAM---->  1.
```

1. Set up the call from MSC via GMSC to the ISDN network.

TSS BC/PLMN	TP PI_BC_1_9	EN 300 646-1 [1] reference 5.2.3.1.1	Selection expression INN	Configuration GMSC
Test purpose *Gateway in the PLMN, IAM called party number.* To verify that GMSC set INN indicator as 1 when called number parameter contains ISDN number. Pre-test conditions: SPC SPA SPB ------IAM-----> -------IAM------>				
1. Set up the call from MSC via GMSC to the ISDN network.				

TSS BC/PLMN	TP PI_BC_1_10	EN 300 646-1 [1] reference 5.2.3.1.1	Selection expression	Configuration GMSC
Test purpose *Gateway in the PLMN, IAM with User service information parameter.* To verify that GMSC will add the **USI** parameter to the **IAM** message when ISDN access indicator (bit M in **Forward call indicators** parameter) is set as ISDN access. Pre-test conditions: SPC SPA SPB ------IAM-----> -------IAM----> 1.				
1. Set up the call from MSC via GMSC to the ISDN network.				

TSS BC/PLMN	TP PI_BC_1_11	EN 300 646-1 [1] reference 5.2.3.1.1	Selection expression INN	Configuration GMSC
Test purpose *Gateway in the PLMN, IAM not included redirection information.* To verify that redirection information is not included by GMSC when interrogate the HLR for routing information. Pre-test conditions: SPC SPA SPB ------IAM-----> ------IAM------> 1.				
1. Set up the call from MSC via GMSC to the ISDN network.				

6.2.1.3 Calls from the fixed network to the PLMN

TSS BC/FIXED	TP PI_BC_1_12	EN 300 646-1 [1] reference 5.2.4.1.1.	Selection expression INN	Configuration Gateway Fixed with HLR
Test purpose *Gateway in the fixed network, IAM with called party number.* To verify that Gateway exchange set INN indicator as 0 when called number parameter contains MSRN number. Pre-test conditions: SPC SPA SPB <-----IAM----- <-----IAM------ 1.				
1. Set up the call from ISDN to GMSC.				

TSS BC/FIXED	TP PI_BC_1_13	EN 300 646-1 [1] reference 5.2.4.2.1	Selection expression INN	Configuration Gateway Fixed
Test purpose *Gateway in the PLMN, IAM with called party number.* To verify that Gateway exchange set INN indicator as 1 when called number parameter contains MSISDN number. Pre-test conditions: SPC SPA SPB <-----IAM----- <-----IAM------ 1.				
1. Set up the call from ISDN to GMSC.				

TSS BC/FIXED	TP PI_BC_1_14	EN 300 646-1 [1] reference 5.2.4.1.1.	Selection expression	Configuration GMSC
Test purpose *Gateway in the PLMN network, IAM with forward call indicators.* To verify that GMSC exchange pass through **Forward call indicators** with national/international indicator setting call to be treated as international call. Pre-test conditions: Exchange should be national Gateway MSC.				

TSS BC/FIXED	TP PI_BC_1_15	EN 300 646-1 [1] reference 5.2.4.1.1.	Selection expression	Configuration GMSC
Test purpose *Gateway in the PLMN network, REL with cause 20.* To verify that GMSC exchange pass through cause value 20 and location indication is not changed to international network value. Pre-test conditions: SPC SPA SPB <-----IAM----- <----IAM------- 1. ------REL-----> -----REL------> 2. <-----RLC----- <----RLC-------				
1. Set up the call from the ISDN network via GMSC to PLMN. 2. Release from MSC.				

TSS BC/FIXED	TP PI_BC_1_16	EN 300 646-1 [1] reference 5.2.4.1	Selection expression	Configuration GMSC
Test purpose *Gateway in the PLMN, ACM.* To verify that **ACM** message is sent by GMSC when timer T7 expired. Verify that **ACM** message with **backward call indicators** is coded following way: Charge indicator (Bits AB) with one of following alternatives no indication, no charge or charge, ISDN access (Bit M) set as ISDN, ISDN user part indicator (Bit K) set as ISDN user part used all the way and other indicator in **backward call indicators** parameter is set to 0. Pre-test conditions: SPC SPA SPB <-----IAM----- <----IAM------- 1. -----ACM------> 2.				
1. Set up the call from the ISDN network via GMSC to PLMN. 2. Timer T7 expired in GMSC.				

6.2.2 Considerations on ISDN supplementary services

6.2.2.1 CLIP/CLIR

TSS CLIP/	TP PI_ISDN_SS_2_1	EN 300 646-1 [1] reference 6.1.1.1	Selection expression	Configuration Nat/Int GMSC
Test purpose *CLIP, Nature of address in Calling Party Number parameter.* To verify that GMSC modify nature of address indicator in **Calling Party Number** parameter from national to international and add the country code to the address digit field when the GMSC and Gateway exchange of fixed network are not in same country. Same modifications are done if **Generic number** with additional calling party number is included in **IAM** message. Pre-test conditions: Gateway MSC and Gateway fixed exchange are not in same country. SPC SPA SPB ------IAM-----> ------IAM------> 1.				
1. Set up the call from MSC via GMSC to the ISDN network.				

TSS CLIP/	TP PI_ISDN_SS_2_2	EN 300 646-1 [1] reference 6.1.1.1	Selection expression	Configuration GMSC
Test purpose *CLIP, not transfer of calling party number and generic number.* To verify that GMSC not transfer either the **calling party number** nor the **generic number (**with number qualified additional calling party number) parameter if received **IAM** message with **calling party number** parameter and address presentation restriction indicator is set address not available. Pre-test conditions: SPC SPA SPB <-----IAM----- <----IAM------- 1.				
1. Set up the call from the ISDN network via GMSC to PLMN. APRI is set address not available in calling party number.				

TSS CLIP/	TP PI_ISDN_SS_2_3	EN 300 646-1 [1] reference 6.1.1.1	Selection expression	Configuration GMSC
Test purpose *CLIP, not transfer of generic number* To verify that GMSC not transfer **generic number** parameter if received **IAM** message with **generic number** (with number qualified additional calling party number) parameter and screening indicator is set user provided, verified and failed. Pre-test conditions: SPC SPA SPB <-----IAM----- <----IAM------- 1.				
1. Set up the call from the ISDN network via GMSC to PLMN.				

TSS CLIP/	TP PI_ISDN_SS_2_4	EN 300 646-1 [1] reference 6.1.1.1	Selection expression	Configuration GMSC
Test purpose *CLIP, transfer of generic number.* To verify that GMSC transfer **generic number** parameter if received IAM message with generic number (with number qualified additional calling party number) parameter and number plan indicator is set ISDN (telephony) numbering plan. Pre-test conditions: SPC SPA SPB <-----IAM----- <----IAM------- 1.				
1. Set up the call from the ISDN network via GMSC to PLMN.				

6.2.2.2 COLP/COLR

TSS COLP/	TP PI_ISDN_SS_2_5	EN 300 646-1 [1] reference 6.1.1.2	Selection expression	Configuration Nat/Int GMSC
Test purpose *COLP, Nature of address in Connected number parameter.* To verify that GMSC modify nature of address indicator in **Connected Number** parameter from national to international and add the country code to the address digit field when the GMSC and Gateway exchange of fixed network are not in same country. Same modifications are done if **Generic number** with additional connected number is included in **ANM** of **CON** message. Pre-test conditions: Gateway MSC and Gateway fixed exchange are not in same country. SPC SPA SPB <-----IAM----- <----IAM------- ------ACM----> -----ACM------> 1. ------ANM----> -----ANM------> 2.				
1. Set up the call from the ISDN network via GMSC to PLMN. 2. Instead of **ACM** and **ANM** messages the **CON** message is possible.				

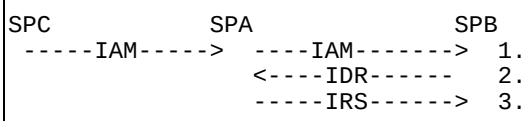
6.2.2.3 UUS

TSS UUS/	TP PI_ISDN_SS_2_6	EN 300 646-1 [1] reference 6.1.1.4	Selection expression UUS	Configuration Nat/Int GMSC
Test purpose *User-to-User parameter with over 35 octet long information element.* To verify that PLMN discards without indication over 35 octet long **user-to-user information** parameter **IAM** message. Used UUS service are UUS1 implicit, UUS1 explicit non essential and UUS1 explicit essential. Pre-test conditions: SPC SPA SPB <-----IAM----- <----IAM------- 1. ------ACM----> -----ACM------> 2. ------ANM----> -----ANM------>				
1. Set up the call from the ISDN network via GMSC to PLMN with UUInf over 35 octets. 2. No any indication received from PLMN.				

6.2.2.4 MCID

TSS MCID/	TP PI_ISDN_SS_2_7	EN 300 646-1 [1] reference 6.1.1.7	Selection expression	Configuration Nat/Int GMSC

Test purpose
MCID, nature of address in Calling Party Number of IRS message.
To verify that GMSC modify nature of address indicator in **Calling Party Number** parameter from national to international and add the country code to the address digit when the GMSC and Gateway exchange of fixed network are not in same country. Same modifications are done if **Generic number** with additional calling party number is included in IRS message.
Pre-test conditions:

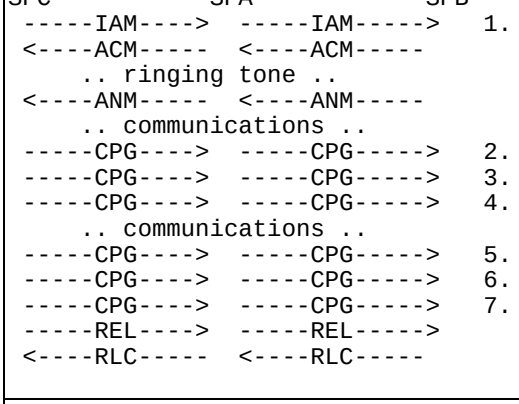


1. Set up the call from the PLMN via GMSC to ISDN without **Calling party number** parameter.
2. MCID requested.
3. MCID included with Calling Party Number.

6.2.2.5 CONF

TSS CONF/	TP PI_ISDN_SS_2_8	EN 300 646-1 [1] reference 6.1.1.8	Selection expression	Configuration GMSC

Test purpose
Notification messages with CONF service.
To verify that GMSC transfer notification indications parameter concerning the CONF service in **Generic notification** to the ISDN network.
Pre-test conditions:



NOTE: The CONF conference calling service is not provided from the PLMN access. The signalling flow used for CONF can not be generated from the PLMN side.

1. Set up the call from the PLMN via GMSC to ISDN.
2. Call on hold.
3. Conference establsh.
4. Other party added.
5. Isolated.
6. Reattached.
7. Other party disconnected.

6.2.2.6 ECT

TSS ECT/	TP PI_ISDN_SS_2_9	EN 300 646-1 [1] reference 6.1.1.9	Selection expression ECT	Configuration Nat/Int GMSC

Test purpose
ECT, Nature of address in Call Transfer Number parameter in FAC message.
To verify that nature of address indicator in **Call Transfer Number** parameter is modified by GMSC from national to international and the country code is added to the address digit when the GMSC and Gateway exchange of fixed network are not in same country. Call transfer is initiated from PLMN network.
Pre-test conditions: Arrange so that ECT supplementary service is supported from PLMN side to ISDN side.

```
SPC            SPA             SPB
 <----IAM-----  <----IAM-----   1.
 -----ACM---->  -----ACM---->
 -----ANM---->  -----ANM---->
   . .  communication . .

 -----IAM---->  -----IAM---->   2.
 <----ACM-----  <----ACM-----
 <----ANM-----  <----ANM-----
 -----FAC---->  -----FAC---->   3.
```

1. Set up the call from the ISDN via GMSC to MS.
2. MS initiate call transfer to ISDN subscriber.
3. **Call transfer number**, **Service activation**, and **Generic notification** parameters.

TSS ECT/	TP PI_ISDN_SS_2_10	EN 300 646-1 [1] reference 6.1.1.9	Selection expression ECT	Configuration Nat/Int GMSC

Test purpose
ECT, Nature of address in Call Transfer Number parameter in CPG message.
To verify that the nature of address indicator in **Calling Transfer Number** parameter is modified by GMSC from national to international and the country code is added to the address digit when the GMSC and Gateway exchange of fixed network are not in same country. Call transfer is initiated from PLMN network.
Pre-test conditions: Arrange so that ECT supplementary service is supported from PLMN side to ISDN side.

```
SPC            SPA             SPB
 <----IAM-----  <----IAM-----  1.
 -----ACM---->  -----ACM---->
 -----ANM---->  -----ANM---->
   . .  communication . .

 -----IAM---->  -----IAM---->   2.
 <----ACM-----  <----ACM-----
 -----CPG---->  -----GPG---->   3.

 <----ANM-----  <----ANM-----
    . .  communication . .
```

1. Set up the call from the ISDN via GMSC to MS.
2. MS initiate call transfer to ISDN subscriber.
3. **Call transfer number, Service activation**, and **Generic notification** parameters.

6.2.2.7 CFU

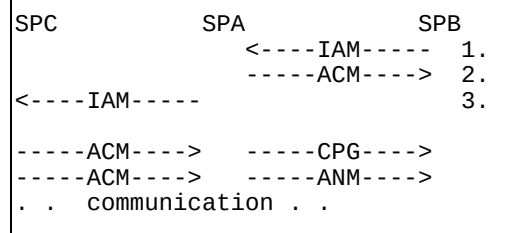
TSS CFU/	TP PI_ISDN_SS_2_11	EN 300 646-1 [1] reference 6.1.1.10	Selection expression	Configuration Nat/Int GMSC

Test purpose

CFU, Nature of address in Original Called Number and Redirecting Number parameters as international format, Nature of address in Redirection Number parameter as national format.

To verify that the nature of address indicator in **Original Called Number** and **Redirecting Number** parameters are modified by GMSC from national to international and the country code is added to the address digit when the GMSC and Gateway exchange of fixed network are not in same country. Call forwarding is initiated from PLMN network.

Pre-test conditions: Gateway exchange in originating side (SPB) and GMSC are in same country, but GMSC and Gateway exchange (SPC) in terminating side are in different country.



1. Set up the call from the ISDN via GMSC to MS (CFU activated and call forwarded to ISDN).
2. Redirection Number as national format.
3. Original Called Number and Redirecting Number as international format.

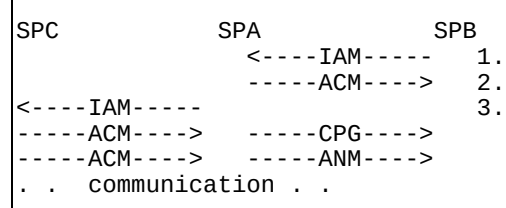
TSS CFU/	TP PI_ISDN_SS_2_12	EN 300 646-1 [1] reference 6.1.1.10	Selection expression	Configuration Nat/Int GMSC

Test purpose

CFU, Nature of address in Original Called Number and Redirecting Number parameter as national format, Nature of address in Redirection Number parameter as international.

To verify that the nature of address indicator in **Redirection Number** parameter is modified by GMSC from national to international and the country code is added to the address digit when the GMSC and Gateway exchange of fixed network are not in same country. Call forwarding is initiated from PLMN network.

Pre-test conditions: Gateway exchange in originating side (SPB) and GMSC are in different country, but GMSC and Gateway exchange (SPC) in terminating side are in same country.



1. Set up the call from the ISDN via GMSC to MS (CFU activated and call forwarded to ISDN).
2. Redirection Number as international format.
3. Original Called Number and Redirecting Number as national format.

6.2.2.8 CFB

TSS CFB/	TP PI_ISDN_SS_2_13	EN 300 646-1 [1] reference 6.1.1.10	Selection expression	Configuration Nat/Int GMSC

Test purpose
CFB, Nature of address in Original Called Number and Redirecting Number parameters as international format, Nature of address in Redirection Number parameter as national format.
To verify that the nature of address indicator in **Original Called Number** and **Redirecting Number** parameters are modified by GMSC from national to international and the country code is added to the address digit when the GMSC and Gateway exchange of fixed network are not in same country. Call forwarding is initiated from PLMN network.
Pre-test conditions: Gateway exchange in originating (SPB) side and GMSC are in same country, but GMSC and Gateway exchange (SPC) in terminating side are in different country.

```
SPC            SPA             SPB
                 <----IAM-----   1.
                 -----ACM---->   2.
<----IAM-----                    3.
                 -----CPG---->   4.
-----ACM---->    -----CPG---->
-----ACM---->    -----ANM---->
. .  communication . .
```

1. Set up the call from the ISDN via GMSC to MS (CFB activated and call forwarded to ISDN).
2. Call diversion may occur.
3. Original Called Number and Redirecting Number as international format.
4. Redirection Number as national format, call is diverting.

TSS CFB/	TP PI_ISDN_SS_2_14	EN 300 646-1 [1] reference 6.1.1.10	Selection expression	Configuration Nat/Int GMSC

Test purpose
CFB, Nature of address in Original Called Number and Redirecting Number parameter as national format, Nature of address in Redirection Number parameter as international.
To verify that the nature of address indicator in **Redirection Number** parameter is modified by GMSC from national to international and the country code is added to the address digit when the GMSC and Gateway exchange of fixed network are not in same country. Call forwarding is initiated from PLMN network.
Pre-test conditions: Gateway exchange in originating side (SPB) and GMSC are in different country, but GMSC and Gateway exchange (SPC) in terminating side are in same country.

```
SPC            SPA             SPB
                 <----IAM-----   1.
                 -----ACM---->   2.
<----IAM-----                    3.
                 -----CPG---->   4.
-----ACM---->    -----CPG---->
-----ACM---->    -----ANM---->
. .  communication . .
```

1. Set up the call from the ISDN via GMSC to MS (CFB activated and call forwarded to ISDN).
2. Call diversion may occur.
3. Original Called Number and Redirecting Number as international format.
4. Redirection Number as international format, call is diverting.

6.2.2.9 CFNR

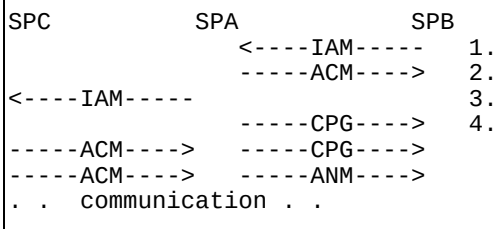
TSS CFNR/	TP PI_ISDN_SS_2_15	EN 300 646-1 [1] reference 6.1.1.10	Selection expression	Configuration Nat/Int GMSC

Test purpose

CFNR, Nature of address in Original Called Number and Redirecting Number parameters as international format, Nature of address in Redirection Number parameter as national format.

To verify that the nature of address indicator in **Original Called Number** and **Redirecting Number** parameters are modified by GMSC from national to international and the country code is added to the address digit when the GMSC and Gateway exchange of fixed network are not in same country. Call forwarding is initiated from PLMN network.

Pre-test conditions: Gateway exchange in originating (SPB) side and GMSC are in same country, but GMSC and Gateway exchange (SPC) in terminating side are in different country.



1. Set up the call from the ISDN via GMSC to MS (CFNR activated and call forwarded to ISDN number).
2. Call diversion may occur, subscriber free.
3. Original Called Number and Redirecting Number as international format.
4. Redirection Number as national format, call is diverting.

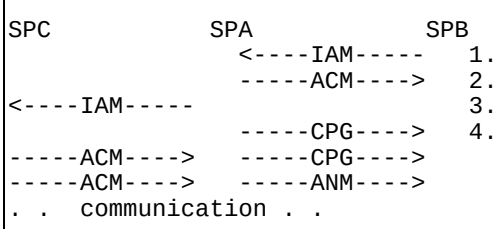
TSS CFNR/	TP PI_ISDN_SS_2_16	EN 300 646-1 [1] reference 6.1.1.10	Selection expression	Configuration Nat/Int GMSC

Test purpose

CFNR, Nature of address in Original Called Number and Redirecting Number parameter as national format, Nature of address in Redirection Number parameter as international.

To verify that the nature of address indicator in **Redirection Number** parameter is modified by GMSC from national to international and the country code is added to the address digit when the GMSC and Gateway exchange of fixed network are not in same country. Call forwarding is initiated from PLMN network.

Pre-test conditions: Gateway exchange (SPB) in originating side and GMSC are in different country, but GMSC and Gateway exchange (SPC) in terminating side are in same country.



1. Set up the call from the ISDN via GMSC to MS (CFNR activated and call forwarded to ISDN).
2. Call diversion may occur, subscriber free.
3. Original Called Number and Redirecting Number as international format.
4. Redirection Number as international format, call is diverting.

6.2.2.10 CCBS

TSS CCBS/	TP PI_ISDN_SS_2_17	EN 300 646-1 [1] reference 6.1.1.13	Selection expression CCBS	Configuration GMSC

Test purpose
CCBS not possible indication from Gateway MSC.
To verify that **REL** message with diagnostics CCBS not possible indication is sent by GMSC when CCBS service is not supported in PLMN.
Pre-test conditions: Arrange so that GMSC knows that CCBS service is not supported in PLMN.

```
SPC             SPA             SPB

 <----IAM-----  <----IAM-----   1-2.
 -----REL---->  -----REL----->  3.
 <----RLC-----  <----RLC-----   4.
```

1. Set up the call from the ISDN to PLMN.
2. Call to the busy MS with CCBS request.
3. #17 or #34 with diagnostic "CCBS not possible".
4. Release the orginal call by MS.

6.2.3 Considerations on GSM unique supplementary services

6.2.3.1 CFNRc

TSS CFNRc/	TP PI_GSM_SS_3_1	EN 300 646-1 [1] reference 6.2.1	Selection expression	Configuration GMSC

Test purpose
CFNRc, Redirecting reason with value Mobile Subscriber Not Reachable.
To verify that Redirecting reason indicator is set to Mobile Subscriber Not Reachable in **ACM** or **CPG** message when call is redirected from PLMN to ISDN, because of mobile subscriber is not reachable.
Pre-test conditions: Arrange so that MS is not reachable and call is forwarded to ISDN subscriber.

```
SPC             SPA             SPB
                  <----IAM-----  1.
                  -----ACM---->  2.
<----IAM-----                    3.
-----ACM---->   -----CPG---->  4.
-----ACM---->   -----ANM---->
. .  communication . .
```

1. Set up the call from the ISDN via GMSC MS (CFNRc activated to ISDN).
2. Redirection number as national format, Redirecting reason set to Mobile Subscriber Not Reachable in call diversion information parameter.
3. Original Called Number and Redirecting Number as international format. Redirecting reason set to Mobile Subsciber.
4. Not Reachable in redirection infomation parameter.

TSS CFNRc/	TP PI_GSM_SS_3_2	EN 300 646-1 [1] reference 6.2.1	Selection expression	Configuration Nat/Int GMSC

Test purpose
CFNRc, Nature of address in Original Called Number and Redirecting Number parameters as international format, Nature of address in Redirection Number parameter as national format.
To verify that the nature of address indicator in **Original Called Number** and **Redirecting Number** parameters are modified by GMSC from national to international and the country code is added to the address digit when the GMSC and Gateway exchange of fixed network are not in same country. Call forwarding is initiated from PLMN network.
Pre-test conditions: Gateway exchange in originating (SPB) side and GMSC are in same country, but GMSC and Gateway exchange (SPC) in terminating side are in different country.

```
SPC            SPA             SPB
                 <----IAM-----   1.
                 -----ACM---->   2.
<----IAM-----                    3.
                 -----CPG---->   4.
-----ACM---->    -----CPG---->
-----ACM---->    -----ANM---->
. .  communication . .
```

1. Set up the call from the ISDN via GMSC to MS (CFNRc activated and call forwarded to ISDN number).
2. Call diversion may occur, subscriber free.
3. Original Called Number and Redirecting Number as international format.
4. Redirection Number as national format, call is diverting.

6.2.4 Considerations on teleservices

TSS Teleservices/	TP PI_TS_4_1	EN 300 646-1 [1] reference annex A A.1	Selection expression	Configuration GMSC

Test purpose
Handling of User Teleservice Information and Access Transport parameters.
To verify that High Layer Compatibility (HLC) information elements are passed transparently in **Access Transport** parameter (ATP) parameter in **IAM** message from ISDN to PLMN side.
Pre-test conditions:

```
SPC            SPA             SPB
 <-----IAM-----   <----IAM-------  1.
```

1. Set up the call from the ISDN network to PLMN.

7 Test coverage

The test purposes defined in test document covers ISUP v3 for ISDN - PLMN signalling interface as defined in document EN 300 646-1 [1]. Test purposes covers only exceptions to the ISUP v3 basic and supplementary services in ISDN-PLMN signalling interface.

The test purposes concentrate on valid behaviour. This means that there is no invalid behaviour test purposes specified.

Some test purposes have been described such way that they covers group of requirements. Because of that a test purpose may lead to implementing several test cases for the ATS.

The list of contains the number of test purposes for the related document EN 300 646-1 [1] is provided in table 3.

Table 3: Numbers of test purposes

	ISDN-PLMN interface test purposes	Subgroup	Number of test purposes
1	Considerations on the basic call procedures	BC	16
2	Considerations on ISDN supplementary services	ISDN_SS	18
3	Considerations on GSM unique supplementary services	GSM_SS	2
4	Consideration on teleservices	TS	1
5	Consideration on bearer services	BS	1
	Total number of test purposes		38

Bibliography

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

- ETS 300 121: "Integrated Services Digital Network (ISDN); Application of the ISDN User Part (ISUP) of CCITT Signalling System No.7 for international ISDN interconnections (ISUP version 1)".
- ETS 300 540: "European digital cellular telecommunications system (Phase 2); Transmission planning aspects of the speech service in the GSM Public Land Mobile Network (PLMN) system (GSM 03.50)"
- ETS 300 542: "Digital cellular telecommunications system (Phase 2); Line identification supplementary services; Stage 2 (GSM 03.81)".
- ETS 300 543: "Digital cellular telecommunications system (Phase 2); Call Forwarding (CF) supplementary services; Stage 2 (GSM 03.82)".
- ETS 300 545: "European digital cellular telecommunications system (Phase 2); MultiParty (MPTY) supplementary services; Stage 2 (GSM 03.84)".
- TS 101 283: "Digital cellular telecommunications system (Phase 2+); Completion of Calls to Busy Subscriber (CCBS); Stage 2 (GSM 03.93)".
- ETS 300 603: "European digital cellular telecommunications system (Phase 2); Interworking between the Public Land Mobile Network (PLMN) and the Packet Switched Public Data Network/Integrated Services Digital Network (PSPDN/ISDN) for the support of packet switched data transmission services (GSM 09.06)".
- ETS 300 599: "European digital cellular telecommunications system (Phase 2); Mobile Application Part (MAP) specification (GSM 09.02)".
- ISO/IEC 9646-2 (1994): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 2: Abstract Test Suite specification".
- 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".

History

Document history			
V7.1.1	November 1999	Public Enquiry	PE 200009: 1999-11-03 to 2000-03-03