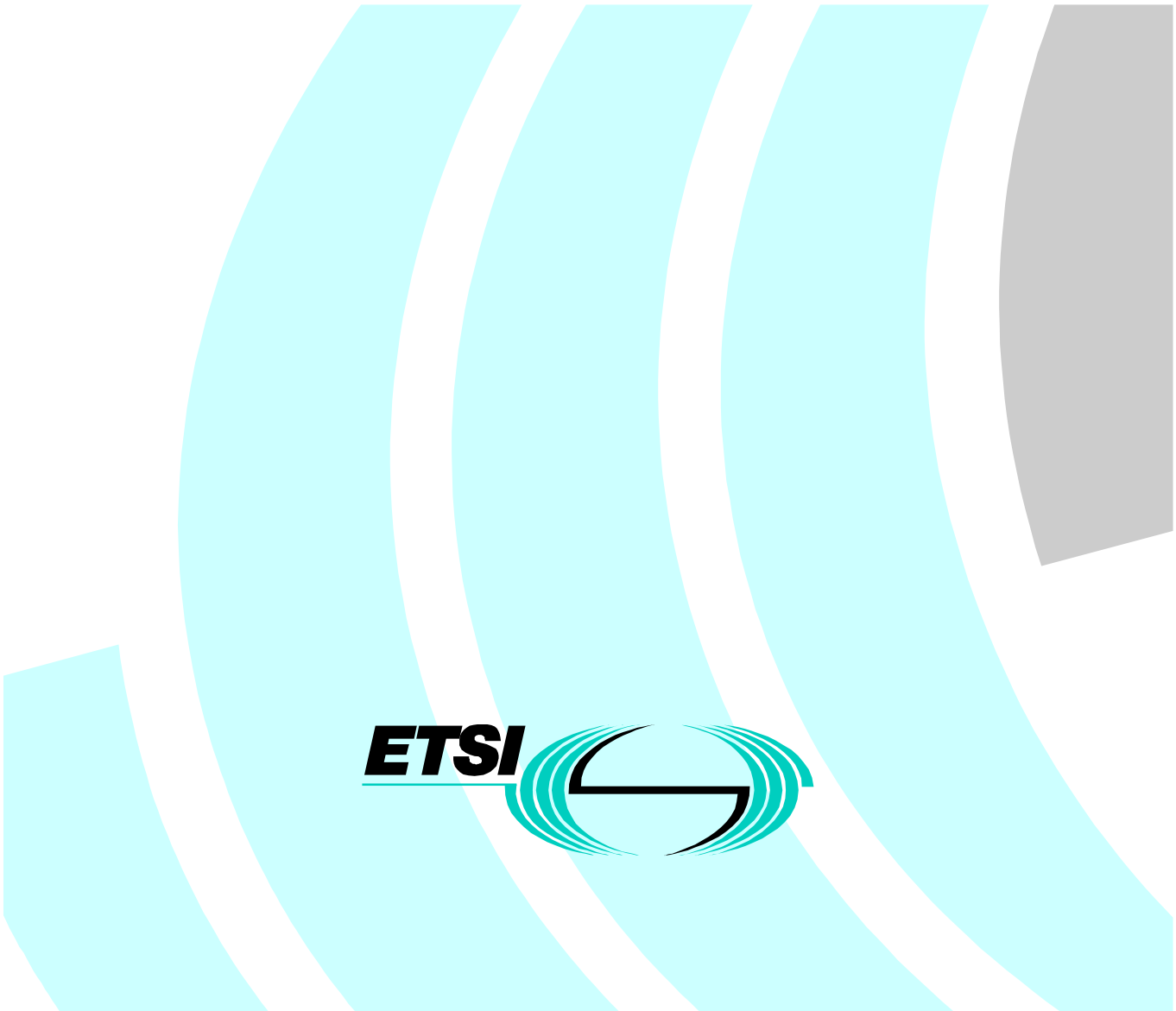
Draft ETSI EN 301 491-1 V1.1.1 (2000-01)

European Standard (Telecommunications series)

Private Integrated Service Network (PISN); Inter-exchange signalling protocol; Call offer supplementary service; Part 1: Test Suite Structure and Test Purposes (TSS&TP) specification



Reference
DEN/SPAN-05191-2

Keywords
PISN, supplementary service, testing, TSS&TP, QSIG

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Contents

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Foreword

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

The present document covers the Private Integrated Service Network (PISN) Inter-exchange signalling protocol - Call Offer supplementary service - Test Suite Structure and Test Purposes (TSS&TP) specification.

The present document is part 1 of a multi-part EN covering the Private Integrated Service Network (PISN); Inter-exchange signalling protocol; Call offer supplementary service, as identified below:

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

Part 2: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma".

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

1 Scope

The present document specifies the Test Suite Structure and Test Purposes (TSS&TP) for the Call Offer supplementary services of the Interexchange signalling protocol for Private Integrated Services Networks (PISN).

The objective of this TSS and TPs specification is to provide conformance tests which give a greater probability of inter-operability. The TSS and TPs specification covers the procedures described in EN 300 362 [3].

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [5], ISO/IEC 9646-2 [6] and ISO/IEC 9646-3 [11]) is used as basis for the test methodology.

The Test Suite Structure and Test Purposes specified in this standard are only intended for VPN scenarios at the "b" service entry point.

The VPN "b" service entry point is defined in EN 301 060-1 [9] and ETR 172 [10].

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 300 172 (V1.4): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Circuit-mode basic services [ISO/IEC 11572 (1996) modified]".

[2] ETS 300 239 (1995): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Generic functional protocol for the support of supplementary services [ISO/IEC 11582 (1995), modified]".

[3] EN 300 362: "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Call offer supplementary service [ISO/IEC 14843 (1996), modified]".

[4] ETS 300 406 (1995): "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

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

[6] ISO/IEC 9646-2 (1994): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 2: Abstract test suite specification".

[7] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".

[8] ITU-T Recommendation I.210 (1993): "Principles of the telecommunication services supported by an ISDN and the means to describe them".

[9] EN 301 060-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Basic call control; Enhancement at the "b" service entry point for Virtual Private Network (VPN) applications; Part 1: Protocol specification".

[10] ETR 172: "Business TeleCommunications (BTC); Virtual Private Networking (VPN); Services and networking aspects; Standardization requirements and work items".

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

3 Definitions and abbreviations

3.1 Definitions

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

Abstract Test Suite (ATS): refer to ISO/IEC 9646-1 [5].

Implementation Under Test (IUT): refer to ISO/IEC 9646-1 [5].

Protocol Implementation Conformance Statement (PICS): refer to ISO/IEC 9646-1 [5].

PICS proforma: refer to ISO/IEC 9646-1 [5].

Test Purpose (TP): refer to ISO/IEC 9646-1 [5].

call independent signalling connection: see ETS 300 239 [2], definition 4.7.

call related: see ETS 300 239 [2], definition 4.9.

incoming call: see EN 300 172 [1], subclause 4.4.

Information Elements (IEs) with invalid contents: see EN 300 172 [1], subclause 4.14.

Integrated Services Digital Network (ISDN): see ITU-T Recommendation I.112 [7], definition 308.

invoke APDU: see ETS 300 239 [2], subclause 11.3.3.4.

originating PINX: see EN 300 172 [1], subclause 4.5.

outgoing call: see EN 300 172 [1], subclause 4.4.

reject APDU: see ETS 300 239 [2], subclause 11.3.3.4.

return error APDU: see ETS 300 239 [2], subclause 11.3.3.4.

return result APDU: see ETS 300 239 [2], subclause 11.3.3.4.

service; telecommunication service: see ITU-T Recommendation I.112 [7], definition 201.

supplementary service: see ITU-T Recommendation I.210 [8], subclause 2.4.

terminating PINX: see EN 300 172 [1], subclause 4.5.

transit PINX: see EN 300 172 [1], subclause 4.5.

Virtual Private Network (VPN): refer to EN 301 060-1 [9] and ETR 172 [10].

3.2 Abbreviations

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

APDU	Application Protocol Data Unit
ATS	Abstract Test Suite
BC	Basic Call
CFB	Call Forwarding Busy
CFU	Call Forwarding Unconditional
CI	Call Intrusion
CO	Call Offer

CR1	Call Reference #1
CR2	Call Reference #2
CT	Call Transfer
DNDO	Do Not Disturb Override
IE	Information Element
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
PICS	Protocol Implementation Conformance Statement
PINX	Private Integrated Services Network eXchange
PISN	Private Integrated Services Network
PIXIT	Protocol Implementation eXtra Information for Testing
PSS1	Private Integrated Signalling System Number 1
SCM	Signalling Carriage Mechanism
T1	Timer T1
PRT1	Timer PRT1
TP	Test Purpose
TSS	Test Suite Structure
VPN	Virtual Private Network

4 Test Suite Structure (TSS)

Signalling procedures at the VPN "b" service entry point	**Group**
Procedures at the Originating PINX	
for Sending SS-CO Request without Path Retention	Orig01
for Sending SS-CO Request with Path Retention	Orig02
Procedures at the Terminating PINX	
for Receipt SS-CO Request without Path Retention	Term01
for Receipt SS-CO Request with Path Retention	Term02
Procedures for Protocol Interactions between Call Offer and Call Transfer	
at the CO-Originating PINX	CT_Orig
at the CO-Terminating PINX	CT_Term
Procedures for Protocol Interactions between Call Offer and Call Forwarding Unconditional	
at the CO-Originating PINX	CFU_Orig
at the CO-Terminating PINX	CFU_Term
Procedures for Protocol Interactions between Call Offer and Call Forwarding Busy	
at the CO-Originating PINX	CFB_Orig
at the CO-Terminating PINX	CFB_Term
Procedures for Protocol Interactions between Call Offer and Do Not Disturb Override	
at the CO-Terminating PINX	DNDO_Term
Procedures for Protocol Interactions between Call Offer and Call Intrusion	
at the CO-Originating PINX	CI_Orig
at the CO-Terminating PINX	CI_Term

5 Test Purposes (TP)

5.1 Introduction

For each test requirement a TP is defined.

5.1.1 TP naming convention

TPs are numbered, starting at 001, within each group. Groups are organized according to the TSS. Additional references are added to identify the actual test suite and whether it applies to the network or the user (see table 1).

Table 1: TP identifier naming convention scheme

Identifier: **<ss>_<group>_<nnn>**			
<ss>	=	supplementary service:	"CO"
<group>	=	group	up to 10 digit field representing group reference according to TSS
<nnn>	=	sequential number	(001-999)

5.1.2 Source of TP definition

The TPs are based on EN 300 362 [3].

5.1.3 TP structure

Each TP has been written in a manner which is consistent with all other TPs. The intention of this is to make the TPs more readable and checkable. A particular structure has been used and this is illustrated in table 2. This table should be read in conjunction with any TP, i.e. use a TP as an example to fully understand the table.

Table 2: Structure of a single TP for CCNR

TP part	Text	Example
Header	**<Identifier>** *tab* **<paragraph number in base ETS>** *tab*	see table 1 **subclause 0.0.0**
Stimulus	Ensure that the IUT in the <basic call state> or <CO state> <trigger> *see below for message structure* *or* <goal>	 state 3 or CO-Idle, etc. receiving a XXXX message to request a...
Reaction	<action> <conditions> *if the action is sending* *see below for message structure* <next action>, *etc.* and remains in the same state *or* and enters state <state>	sends, saves, does, etc. using en bloc sending...
Message structure	<message type> message containing a *a)* <info element> information element with *b)* a <field name> encoded as *or* including <coding of the field> and *back to a or b,*	SETUP, FACILITY, CONNECT... Bearer capability, Facility...
NOTE: Text in italics will not appear in TPs and text between <> is filled in for each TP and may differ from one TP to the next.		

5.1.4 Test strategy

As the base standard EN 300 362 [3] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the corresponding PICS proforma.

The TPs are only based on conformance requirements related to the externally observable behaviour of the IUT, and are limited to conceivable situations to which a real implementation is likely to be faced (ETS 300 406 [4]).

5.2 TPs for CO

All PICS items referred to in this subclause are as specified in EN 300 362 [3] unless indicated otherwise by another numbered reference.

Unless specified:

- only the requirements from the point of view of the VPN "b" service entry point are considered. This implies that the interactions with other networks are out of scope of this specification and causes that the corresponding Test Purposes are not included in this specification;
- the messages indicated are valid and contain at least the mandatory information elements and possibly optional information elements;
- the information elements indicated are valid and contain at least the mandatory parameters and possibly optional parameters.

The following wording convention was defined to make the test purposes more readable:

- when a message is to be sent or received on a call independent signalling connection, the message name shall be followed by a '(sc)', e.g. CONNECT (sc) means that the CONNECT message is conveyed on a call independent signalling connection.

All the test purposes are valid for both user and network side of the VPN b interface. In order to simplify the text and to make the test purposes more readable, only the User side Call states (Ux) are indicated in the test purposes. For the network side of the VPNb interface, the mapping table below indicates which network call state (Ny) corresponds to the user call state used in the test purpose. Equivalent call state means there that the same message flow applies from the IUT point of view (e.g.: IUT sends a SETUP message gives the call state U1 or N6).

User side call state	equivalent network side call state
U00	N00
U03	N09
U04	N07
U07	N04
U09	N03
U10	N10
U11	N12
U19	N19

EXAMPLE:

Ensure that the IUT in the call state U1 …

is equivalent to the following network side test purpose:

Ensure that the IUT in the call state N6 …

5.2.1 SS-CO signalling procedures

5.2.1.1 Actions at the Originating PINX

5.2.1.1.1 Sending CO Request without Path Retention

CO_Orig01_001 subclause 6.6.1.1
Ensure that the IUT in state U00 and in the CO-Idle state, in order to initiate a CO Request,
sends a SETUP message containing in the Facility IE a callOfferRequest invoke APDU and enters state CO-Wait-Ack.

CO_Orig01_002 subclause 6.6.1.1
Ensure that the IUT in state CO-Wait-Ack receiving a FACILITY message containing in the Facility IE a callOfferRequest return result APDU,
sends no messages, remains in state U03 and enters state CO-Idle.

CO_Orig01_003 subclause 6.6.1.1
Ensure that the IUT in state CO-Wait-Ack receiving a PROGRESS message containing in the Facility IE a callOfferRequest return result APDU,
sends no messages, remains in state U03 and enters state CO-Idle.

CO_Orig01_004 subclause 6.6.1.1
Ensure that the IUT in state CO-Wait-Ack receiving a ALERTING message containing in the Facility IE a callOfferRequest return result APDU,
sends no messages, enters state U04 and state CO-Idle.

CO_Orig01_005 subclause 6.6.1.2
Ensure that the IUT in state CO-Wait-Ack receiving a ALERTING message without any Facility IE,
sends no messages, enters state U04 and state CO-Idle.

CO_Orig01_006 subclause 6.6.1.2
Ensure that the IUT in state CO-Wait-Ack receiving a CONNECT message containing in the Facility IE a callOfferRequest return error APDU,
sends a CONNECT ACKNOWLEDGE message, enters state U10 and state CO-Idle.

CO_Orig01_007 subclause 6.6.1.2
Ensure that the IUT in state CO-Wait-Ack receiving a DISCONNECT message containing in the Facility IE a callOfferRequest reject APDU,
sends a RELEASE message, enters state U19 and state CO-Idle.

CO_Orig01_008 subclause 6.6.1.2
Ensure that the IUT in state CO-Wait-Ack on expiry of timer T1,
sends no message, remains in the same protocol control state as it was and enters state CO-Idle.

5.2.1.1.2 Sending CO Request with Path Retention

CO_Orig02_001 subclause A.5.1
Ensure that the IUT in state U00 and in the PRTO-Idle state, in order to request path retention for CO Request invocation,
sends a SETUP message containing in the Facility IE a pathRetain invoke APDU with the bit for callOffer in the element ServiceList set to ONE and enters state PRTO-Requested.

Selection: PIXIT: path retention applies, PICS: B3

CO_Orig02_002 subclause A.5.1
Ensure that the IUT in state PRTO-Requested, receiving a FACILITY message containing in the Facility IE a serviceAvailable invoke APDU with the bit for callOffer in the element ServiceList set to ONE,
sends no messages, remains in the state U03 and enters state PRTO-Retained.

Selection: PIXIT: path retention applies, PICS: B3

CO_Orig02_003 subclause A.5.1
Ensure that the IUT in state PRTO-Requested, receiving a PROGRESS message containing in the Facility IE a serviceAvailable invoke APDU with the bit for callOffer in the element ServiceList set to ONE,
sends no messages, remains in the state U03 and enters state PRTO-Retained.

Selection: PIXIT: path retention applies, PICS: B3

CO_Orig02_004 subclauses A.5.1 and 6.6.1.1
Ensure that the IUT in state PRTO-Retained in order to request Call Offer,
sends a FACILITY message containing in the Facility IE a callOfferRequest invoke APDU and enters state PRTO-Invoking and state CO-Wait-Ack.

Selection: PIXIT: path retention applies, PICS: B3

CO_Orig02_005 subclauses A.5.1 and 6.6.1.1
Ensure that the IUT in states PRTO-Invoking and CO-Wait-Ack, receiving a FACILITY message containing in the Facility IE a callOfferRequest return result APDU,
sends no messages and enters state PRTO-Idle and state CO-Idle.

Selection: PIXIT: path retention applies, PICS: B3

O_Orig02_006 subclauses A.5.1 and 6.6.1.1
Ensure that the IUT in states PRTO-Invoking and CO-Wait-Ack, receiving a CONNECT message,
sends no messages, enters state U10 and states PRTO-Idle and state CO-Idle.

Selection: PIXIT: path retention applies, PICS: B3

5.2.1.2 Actions at the Terminating PINX

5.2.1.2.1 Receipt CO request without Path Retention

CO_Term01_001 subclause 6.6.2.1
Ensure that the IUT in state CO-Idle, receiving a SETUP message containing in the Facility IE a callOfferRequest invoke APDU and the called user is found to be busy,
sends either a FACILITY message or a PROGRESS message with CCITT progress description no.8, both containing in the Facility IE a callOfferRequest return result APDU, remains in the state U09 enters state CO-Dest-Invoked,

or sends a ALERTING message containing in the Facility IE a callOfferRequest return result APDU, enters state U07and state CO-Dest-Invoked.

CO_Term01_002 subclause 6.6.2.1
Ensure that the IUT in state U09 and in state CO-Dest-Invoked and the called user becomes free,
sends a ALERTING message and enters state U07.

CO_Term01_003 subclause 6.6.2.1
Ensure that the IUT in state U07 and in state CO-Dest-Invoked and the called user becomes free,
sends a NOTIFY message containing in the notification indicator "remoteUserAlerting" notification and remains in the state U07.

CO_Term01_004 subclause 6.6.2.1
Ensure that the IUT in state U09 and in state CO-Dest-Invoked and the called user accepts the call,
sends a CONNECT message, enters state U10 and state CO-Idle.

CO_Term01_005 subclause 6.6.2.1
Ensure that the IUT in state U09 and in state CO-Dest-Invoked and the called user rejects the waiting call,
sends a DISCONNECT message and enters state CO-Idle.

CO_Term01_006 subclause 6.6.2.2
Ensure that the IUT in state CO-Idle, receiving a SETUP message containing in the Facility IE a callOfferRequest invoke APDU and the called user is not busy,
sends either a ALERTING message or a CONNECT message containing in the Facility IE a callOfferRequest return error APDU with error notBusy, enters the corresponding protocol control state and remains in state CO-Idle.

CO_Term01_007 subclause 6.6.2.2
Ensure that the IUT in state CO-Idle, receiving a SETUP message containing in the Facility IE a callOfferRequest invoke APDU and the called user is found to be busy but invocation of Call Offer is not possible,
sends DISCONNECT message containing in the Facility IE a callOfferRequest return error APDU with an error other than notBusy, enters the protocol control state U11 and remains in state CO-Idle.

5.2.1.2.2 Receipt CO request with Path Retention

CO_Term02_001 subclause A.5.2
Ensure that the IUT in states PRTT-Idle and CO-Idle, receiving a SETUP message containing in the Facility IE a pathRetain invoke APDU with the bit for callOffer in the element ServiceList set to ONE,
sends either a FACILITY message or a PROGRESS message with CCITT progress description no.8, both containing in the Facility IE a serviceAvailable return result APDU, remains in the state U09 enters state PRTT-Retained.

CO_Term02_002 subclauses 6.6.2.1 and A.5.2
Ensure that the IUT in state PRTT-Retained and state CO-Idle, receiving a FACILITY message containing in the Facility IE a callOfferRequest invoke APDU and the called user is found to be busy,
sends either a FACILITY message containing in the Facility IE a callOfferRequest return result APDU, remains in the state U09 enters states PRTT-Idle and CO-Dest-Invoked,

or sends a ALERTING message containing in the Facility IE a callOfferRequest return result APDU, enters state U07and states PRTT-Idle and CO-Dest-Invoked.

CO_Term02_003 subclause A.5.2
Ensure that the IUT in state PRTT-Retained on expiry of Timer PRT1,
clears the retained call and enters state PRTT-Idle

5.2.2 Impact of Interworking with Public ISDNs

This is out of the scope of the "b" service entry point as defined in EN 301 060-1 [9].

5.2.3 Protocol Interaction between SS-CO and other Supplementary Services and ANFs

5.2.3.1 Interaction with Call Transfer

5.2.3.1.1 Actions at the CO-Originating PINX

NOTE: The TPs in this subclause apply when the CO-Originating PINX functionality and the CT-Transferring PINX functionality are in the same PINX.

CO_CT_Orig_001 subclause 6.9.5.1.1
Ensure that the IUT in state U04 after a Call Offer Request was successfully invoked and the calling user invokes Call Transfer,
sends a FACILITY message containing in the Facility IE a callTransferComplete invoke APDU, remains in the state U04 and enters state CT-Await-Answer-From-User-C.

Selection: PIXIT: CT by join, PICS: E3

CO_CT_Orig_002 subclause 6.9.5.1.1
Ensure that the IUT in state U04 after a Call Offer Request was successfully invoked and the calling user invokes Call Transfer,

sends a FACILITY message containing in the Facility IE a callTransferIdentify invoke APDU, remains in the state U04 and enters state CT-Await-Identify-Response.

Selection: PIXIT: CT by rerouting, PICS: E3

5.2.3.1.2 Actions at the CO-Terminating PINX

NOTE: The TPs in this subclause apply when the CO-Terminating PINX functionality and the CT-Secondary PINX functionality are in the same PINX.

CO_CT_Term_001 subclause 6.9.5.1.2
Ensure that the IUT in state CO-Dest-Invoked on receipt of a FACILITY message containing in the Facility IE a callTransferComplete invoke APDU,

sends either no message or sends a FACILITY message containing in the Facility IE either a subaddressTransfer invoke APDU or a callTransferUpdate invoke APDU and remains in the state CO-Dest-Invoked.

Selection: PIXIT: CT by join, PICS: E4

CO_CT_Term_002 subclause 6.9.5.2.1
Ensure that the IUT in state CO-Dest-Invoked on receipt of a FACILITY message containing in the Facility IE a callTransferComplete invoke APDU,

sends a NOTIFY message containing in the Notification IE a "call is a waiting call" indication.

Selection: PIXIT: CT by join and optionally sending of a NOTIFY message with "call is a waiting call".

CO_CT_Term_003 subclause 6.9.5.2.1
Ensure that the IUT in state CO-Dest-Invoked on receipt of a FACILITY message containing in the Facility IE a callTransferComplete invoke APDU and the called user becomes free but before that no NOTIFY message was sent with a "call is a waiting call" notification,

remains in the same state and sends no NOTIFY message containing a remoteUserAlerting notification.

Selection: PIXIT: optionally NO sending of a NOTIFY message with "call is a waiting call" and PICS E5.

CO_CT_Term_004 subclause 6.9.5.1.2
Ensure that the IUT in state CO-Dest-Invoked on receipt of a FACILITY message containing in the Facility IE a callTransferIdentify invoke APDU,

sends a FACILITY message containing in the Facility IE a callTransferIdentify return result APDU and remains in the state CO-Dest-Invoked and enters state CT-Await-Setup.

Selection: PIXIT: CT by rerouting, PICS: E4

CO_CT_Term_005 subclause 6.9.5.2.2
Ensure that the IUT in states CO-Dest-Invoked and CT-Await-Setup on receipt of a SETUP message on CR2 from the CT-Primary PINX containing in the Facility IE a callTransferSetup invoke APDU,

sends a ALERTING message to the CT-Primary PINX containing in the Facility IE a callTransferSetup return result APDU (and optionally a callTransferUpdate APDU) and in the Notification IE a "call is a waiting call" notification and enter state U07 for CR2.

Selection: PIXIT: CT by rerouting, and optionally sending of a Notification IE with "call is a waiting call" notification

CO_CT_Term_006 subclause 6.9.5.2.2
Ensure that the IUT in state U07 for CR2 and in state CO-Dest-Invoked for CR1 and the called user becomes free after a "call is a waiting call" notification was sent in a ALERTING message to the CT-Primary PINX,

sends a NOTIFY message to the CT-Primary PINX containing in the Notification IE a "remoteUserAlerting" indication.

Selection: PIXIT: optionally sending of a Notification IE message with "call is a waiting call", PICS E6

5.2.3.2 Interaction with Call Forwarding Unconditional

5.2.3.2.1 Actions at the CO-Originating PINX

CO_CFU_Orig_001 subclause 6.9.6.1
Ensure that the IUT in state CO-Wait-Ack on receipt of a FACILITY message containing in the Facility IE a callRerouting invoke APDU indicating CFU,

sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a callOfferRequest invoke APDU (besides a divertingLegInformation2 invoke APDU) and enters state CO-Wait-Ack.

Selection: PIXIT: CFU by rerouting, PICS: F3

NOTE 1: This TP applies when the CO-Originating PINX functionality and the CFU-Rerouting PINX functionality are in the same PINX.

CO_CFU_Orig_002 subclause 6.9.6.1
Ensure that the IUT after Call Offer Request was successfully invoked following path retention, on receipt of a FACILITY message containing in the Facility IE a callRerouting invoke APDU indicating CFU,

sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a callOfferRequest invoke APDU (besides a divertingLegInformation2 invoke APDU) and enters state CO-Wait-Ack.

Selection: PIXIT: CFU by rerouting, PICS: F3

NOTE 2: This TP applies when the CO-Originating PINX functionality and the CFU-Rerouting PINX functionality are in the same PINX.

CO_CFU_Orig_003 subclause 6.9.6.1
Ensure that the IUT in state CO-Wait-Ack following path retention, on receipt of a FACILITY message containing in the Facility IE a callRerouting invoke APDU indicating CFU,

sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a pathRetain invoke APDU with callOffer bit set to ONE (besides a divertingLegInformation2 invoke APDU) and enters state PRTO-Requested.

Selection: PIXIT: CFU by rerouting, PICS: F3

NOTE 3: This TP applies when the CO-Originating PINX functionality and the CFU-Rerouting PINX functionality are in the same PINX.

CO_CFU_Orig_004 subclause 6.9.6.2
Ensure that the IUT on receipt of an indication that the CFU diverted-to user is busy, in order to invoke Call Offer request to that diverted-to user

sends a new SETUP message to the CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a callOfferRequest invoke APDU and a divertingLegInformation2 invoke APDU and enters state CO-Wait-Ack.

Selection: PIXIT: CFU by rerouting, PICS: F4

5.2.3.2.2 Actions at the CO-Terminating PINX

CO_CFU_Term_001 subclause 6.9.6.1
Ensure that the IUT on receipt of a SETUP message containing in the Facility IE a callOfferRequest invoke APDU and the called user has activated CFU (by forward switching),

sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a callOfferRequest invoke APDU (besides a divertingLegInformation2 invoke APDU) and enters state CO-Wait-Ack.

Selection: PIXIT: CFU by forward switching, PICS: F3

NOTE 1: This TP applies when the CO-Terminating PINX functionality and the CFU-Rerouting PINX functionality are in the same PINX.

CO_CFU_Term_002 subclause 6.9.6.1
Ensure that the IUT after CO was successfully invoked after path retention and the called user has activated CFU (by forward switching),

sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a callOfferRequest invoke APDU (besides a divertingLegInformation2 invoke APDU) and enters state CO-Wait-Ack.

Selection: PIXIT: CFU by forward switching, PICS: F3

NOTE 2: This TP applies when the CO-Terminating PINX functionality and the CFU-Rerouting PINX functionality are in the same PINX.

CO_CFU_Term_003 subclause 6.9.6.1
Ensure that the IUT on receipt of a CO-Request invoke APDU after path retention and the called user has activated CFU (by forward switching),

sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a pathRetain invoke APDU with callOffer bit set to ONE (besides a divertingLegInformation2 invoke APDU) and enters state PRTO-Requested.

Selection: PIXIT: CFU by forward switching, PICS: F3

NOTE 3: This TP applies when the CO-Terminating PINX functionality and the CFU-Rerouting PINX functionality are in the same PINX.

5.2.3.3 Interaction with Call Forwarding Busy

5.2.3.3.1 Actions at the CO-Originating PINX

CO_CFB_Orig_001 subclause 6.9.7.1
Ensure that the IUT in state CO-Wait-Ack on receipt of a FACILITY message containing in the Facility IE a callRerouting invoke APDU indicating CFB,

sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a callOfferRequest invoke APDU (besides a divertingLegInformation2 invoke APDU) and enters state CO-Wait-Ack.

Selection: PIXIT: CFB by rerouting, PICS: G4

NOTE 1: This TP applies when the CO-Originating PINX functionality and the CFB-Rerouting PINX functionality are in the same PINX.

CO_CFB_Orig_002 subclause 6.9.7.1
Ensure that the IUT after Call Offer Request was successfully invoked following path retention, on receipt of a FACILITY message containing in the Facility IE a callRerouting invoke APDU indicating CFB,

sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a callOfferRequest invoke APDU (besides a divertingLegInformation2 invoke APDU) and enters state CO-Wait-Ack.

Selection: PIXIT: CFB by rerouting, PICS: G4

NOTE 2: This TP applies when the CO-Originating PINX functionality and the CFB-Rerouting PINX functionality are in the same PINX.

CO_CFB_Orig_003 subclause 6.9.7.1
Ensure that the IUT in state CO-Wait-Ack following path retention, on receipt of a FACILITY message containing in the Facility IE a callRerouting invoke APDU indicating CFB,

sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a pathRetain invoke APDU with callOffer bit set to ONE (besides a divertingLegInformation2 invoke APDU) and enters state PRTO-Requested.

Selection: PIXIT: CFB by rerouting, PICS: G4

NOTE 3: This TP applies when the CO-Originating PINX functionality and the CFB-Rerouting PINX functionality are in the same PINX.

CO_CFB_Orig_004 subclause 6.9.7.2
Ensure that the IUT in order to request CO to the last CFB diverted-to user, after a call has encountered two or more busy users that have been reached as a result of one or more SS-CFB,
sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a callOfferRequest invoke APDU (besides a divertingLegInformation2 invoke APDU) and enters state CO-Wait-Ack.

Selection: PIXIT: CFB by rerouting, PICS: G5

CO_CFB_Orig_005 subclause 6.9.7.2
Ensure that the IUT in order to request CO to the first called user, after a call has encountered two or more busy users that have been reached as a result of one or more SS-CFB,
sends a SETUP message to the first CO-Terminating PINX (i.e., the Served User PINX) containing in the Facility IE a callOfferRequest invoke APDU and a cfbOverride invoke APDU and enters state CO-Wait-Ack.

Selection: PIXIT: CO invocation without path retention, CFB by rerouting or CFB by forward switching, PICS: G5

CO_CFB_Orig_006 subclause 6.9.7.2
Ensure that the IUT in order to request CO with path retention to the first called user, after a call has encountered two or more busy users that have been reached as a result of one or more SS-CFB,
sends a SETUP message to the first CO-Terminating PINX (i.e., the Served User PINX) containing in the Facility IE a pathRetain invoke APDU with callOffer bit set to ONE and a cfbOverride invoke APDU and enters state PRTO-Requested.

Selection: PIXIT: CO invocation with path retention, CFB by rerouting or CFB by forward switching, PICS: G5

5.2.3.3.2 Actions at the CO-Terminating PINX

CO_CFB_Term_001 subclause 6.9.7.1
Ensure that the IUT on receipt of a SETUP message containing in the Facility IE a callOfferRequest invoke APDU and the called user has activated CFB (by forward switching),
sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a callOfferRequest invoke APDU (besides a divertingLegInformation2 invoke APDU) and enters state CO-Wait-Ack.

Selection: PIXIT: CFB by forward switching, PICS: G4

NOTE 1: This TP applies when the CO-Terminating PINX functionality and the CFB-Rerouting PINX functionality are in the same PINX.

CO_CFB_Term_002 subclause 6.9.7.1
Ensure that the IUT on receipt of a callOfferRequest invoke APDU after path retention and the called user has activated CFB (by forward switching),
sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a callOfferRequest invoke APDU (besides a divertingLegInformation2 invoke APDU) and enters state CO-Wait-Ack.

Selection: PIXIT: CFB by forward switching, PICS: G4

NOTE 2: This TP applies when the CO-Terminating PINX functionality and the CFB-Rerouting PINX functionality are in the same PINX.

CO_CFB_Term_003 subclause 6.9.7.1
Ensure that the IUT on receipt of a callOfferRequest invoke APDU after path retention and the called user has activated CFB (by forward switching),
sends a SETUP message to the new CO-Terminating PINX (i.e., the Diverted-to PINX) containing in the Facility IE a pathRetain invoke APDU with callOffer bit set to ONE (besides a divertingLegInformation2 invoke APDU) and enters state PRTO-Requested.

Selection: PIXIT: CFB by forward switching, PICS: G4

NOTE 3: This TP applies when the CO-Terminating PINX functionality and the CFB-Rerouting PINX functionality are in the same PINX.

CO_CFB_Term_004 subclause 6.9.7.3
Ensure that the IUT on receipt of a callOfferRequest invoke APDU together with a cfbOverride invoke APDU,
sends either a FACILITY message or a PROGRESS message with CCITT progress description no.8, both containing in the Facility IE a callOfferRequest return result APDU, remains in the state U09 enters state CO-Dest-Invoked,

or sends a ALERTING message containing in the Facility IE a callOfferRequest return result APDU, enters state U07and state CO-Dest-Invoked.

Selection: PICS: G6

NOTE 4: This TP applies when the CO-Terminating PINX functionality and the CFB-Served-User PINX functionality are in the same PINX.

CO_CFB_Term_005 subclause 6.9.7.3
Ensure that the IUT on receipt of a pathRetain invoke APDU together with a cfbOverride invoke APDU,
sends either a FACILITY message or a PROGRESS message with CCITT progress description no.8, both containing in the Facility IE a serviceAvailable return result APDU, remains in the state U09 enters state PRTT-Retained.

Selection: PICS: G6

NOTE 5: This TP applies when the CO-Terminating PINX functionality and the CFB-Served-User PINX functionality are in the same PINX.

5.2.3.4 Interaction with Do Not Disturb Override

5.2.3.4.1 Actions at the CO-Terminating PINX

NOTE: The TPs in this subclause apply when the CO-Terminating PINX functionality and the DNDO-Terminating PINX functionality are in the same PINX.

CO_DNDO_Term_001 subclause 6.9.11.1
Ensure that the IUT when SS-DND is active for the called user, on receipt of a SETUP message containing in Facility IE a callOfferRequest invoke APDU and a doNotDisturbOverrideQ invoke APDU and the called user is busy,
sends a DISCONNECT message containing in the Facility IE a callOfferRequest return error APDU with the value supplementaryServiceInteractionNotAllowed.

Selection: PICS: H2

CO_DNDO_Term_002 subclause 6.9.11.1
Ensure that the IUT when SS-DND is not active for the called user, on receipt of a SETUP message containing in Facility IE a callOfferRequest invoke APDU and a doNotDisturbOverrideQ invoke APDU and the called user is busy,
sends either a FACILITY message or a PROGRESS message with CCITT progress description no.8, both containing in the Facility IE a callOfferRequest return result APDU, remains in the state U09 enters state CO-Dest-Invoked,

or sends a ALERTING message containing in the Facility IE a callOfferRequest return result APDU, enters state U07and state CO-Dest-Invoked.

Selection: PICS: H2

5.2.3.5 Interaction with Call Intrusion

5.2.3.5.1 Actions at the CO-Originating PINX

NOTE: The TPs in this subclause apply when the CO-Originating PINX functionality and the CI-Originating PINX functionality are in the same PINX.

CO_CI_Orig_001 subclause 6.9.12.1
Ensure that the IUT when SS-CO is active in order to request SS-CI for this call,
sends a FACILITY message containing in the Facility IE a callIntrusionRequest invoke APDU and enters state CI-Wait-Ack.

Selection: PICS: I3

5.2.3.5.2 Actions at the CO-Terminating PINX

NOTE: The TPs in this subclause apply when the CO-Originating PINX functionality and the CI-Originating PINX functionality are in the same PINX.

CO_CI_Term_001 subclause 6.9.12.2
Ensure that the IUT in state CO-Dest-Invoked on receipt of a FACILITY message containing in the Facility IE a callIntrusionRequest invoke APDU,
sends a NOTIFY message containing a intrusionIsImpending notification.

Selection: PICS: I4

6 Compliance

An ATS which complies with this TSS&TP specification shall:

a) consist of a set of test cases corresponding to the set or to a subset of the TPs specified in clause 5;

b) use a TSS which is an appropriate subset of the whole of the TSS specified in clause 4;

c) use the same naming conventions for the test groups and test cases;

d) maintain the relationship specified in clause 5 between the test groups and TPs and the entries in the PICS proforma to be used for test case deselection;

e) comply with ISO/IEC 9646-2 [6].

In the case of a) or b) above, a subset shall be used only where a particular Abstract Test Method (ATM) makes some TPs untestable. All testable TPs from clause 5 shall be included in a compliant ATS.

7 Requirements for a comprehensive testing service

As a minimum the Remote test method, as specified in ISO/IEC 9646-2 [6], shall be used by any organization claiming to provide a comprehensive testing service for equipment claiming conformance to EN 300 362 [3].

History

Document history			
V1.1.1	January 2000	Public Enquiry	PE 200018: 2000-01-05 to 2000-05-05