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European Standard (Telecommunications series)

**Private Integrated Services Network (PISN);
Inter-exchange signalling protocol;
Cordless Terminal Incoming Call additional network feature
(ECMA-QSIG-CTMI);
Part 1: Test Suite Structure and Test Purposes (TSS&TP)
specification**



Reference

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ETSI

Postal address

F-06921 Sophia Antipolis Cedex - FRANCE

Office address

650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16
Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Internet

secretariat@etsi.fr
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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 1 of a multi-part EN covering the Private Integrated Services Network (PISN), Inter-exchange signalling protocol, Cordless Terminal Incoming Call additional network feature, ECMA-QSIG-CTMI, 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
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1 Scope

The present document specifies the Test Suite Structure and Test Purposes (TSS&TP) for the Cordless Terminal Incoming Call Additional Network Feature (ANF-CTMI) of the Interexchange signalling protocol for Private Integrated Services Networks (PISN).

The objective of this TSS&TP specification is to provide conformance tests which give a greater probability of inter-operability. The TSS&TP specification covers the procedures described in ETS 300 696 [5].

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [7], ISO/IEC 9646-2 [8] and ISO/IEC 9646-3 [9]) is used as basis for the test methodology.

The Test Suite Structure and Test Purposes specified in the present document 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 [15] and ETR 172 [16].

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 300 171: "Private Integrated Services Network (PISN); Specification, functional models and information flows; Control aspects of circuit-mode basic services [ISO/IEC 11574 (1994) modified]".
- [2] EN 300 172: "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Circuit-mode basic services [ISO/IEC 11572 (1996) modified]".
- [3] ETS 300 239: "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Generic functional protocol for the support of supplementary services [ISO/IEC 11582 (1995), modified]".
- [4] ETS 300 415: "Private Integrated Services Network (PISN); Terms and definitions".
- [5] ETS 300 696 (1996): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Cordless Terminal Incoming Call additional network feature; ECMA-QSIG-CTMI".
- [6] ETS 300 695: "Private Integrated Services Network (PISN); Cordless Terminal Mobility (CTM); Call handling additional network features; Functional capabilities and information flows".
- [7] ISO/IEC 9646-1: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 1: General concepts".
- [8] ISO/IEC 9646-2: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 2: Abstract test suite specification".
- [9] ISO/IEC 9646-3: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 3: The Tree and Tabular Combined Notation (TTCN)".

- [10] ISO/IEC 11571: "Information Technology - Telecommunications and information exchange between systems - Numbering and sub-addressing in private integrated services network".
- [11] ISO/IEC 11579-1: "Information Technology - Telecommunications and information exchange between systems - Private integrated services network - Part 1: Reference configuration for PISN Exchanges (PINX)".
- [12] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".
- [13] ITU-T Recommendation I.210 (1993): "Principles of the telecommunication services supported by an ISDN and the means to describe them".
- [14] ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- [15] 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".
- [16] ETR 172: "Business TeleCommunications (BTC); Virtual Private Networking (VPN); Services and Networking aspects; Standardization requirements and work items".

3 Definitions and abbreviations

3.1 Definitions

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

3.1.1 Definitions related to conformance testing

abstract test case: refer to ISO/IEC 9646-1 [7]

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

active test: test case where the IUT is required to send a particular message, but not in reaction to a received message. This would usually involve the use of PIXIT information to see how this message can be generated and quite often is specified in an ATS using an implicit send event

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

implicit send event: refer to ISO/IEC 9646-3 [9]

lower tester: refer to ISO/IEC 9646-1 [7]

passive test: test case where the IUT is required to respond to a protocol event (e.g. received message) with another protocol event (e.g. send message) which normally does not require any special operator intervention as associated with the implicit send event

point of control and observation: refer to ISO/IEC 9646-1 [7]

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

PICS proforma: refer to ISO/IEC 9646-1 [7]

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

PIXIT proforma: refer to ISO/IEC 9646-1 [7]

system under test: refer to ISO/IEC 9646-1 [7]

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

3.1.2 Definitions related to ETS 300 696

Application Protocol Data Unit (APDU): see ETS 300 239 [3]

basic call: instance of the use of a basic service

basic service: see ITU-T Recommendation I.210 [13]

call independent signalling connection: see ETS 300 239 [3]

call related: see ETS 300 239 [3]

complete Number: see ISO/IEC 11571 [10]

co-ordination Function: see ETS 300 239 [3]

CTM user: see ETS 300 695 [6]

CTMI-detect PINX: PINX which detects that an incoming call is to a CTM user

end PINX: see ETS 300 239 [3]

gateway PINX: see EN 300 172 [2]

home data base (HDB): see ETS 300 415 [4]

home PINX: see ETS 300 695 [6]

incoming call: see EN 300 172 [2]

incoming gateway PINX: see EN 300 172 [2]

Integrated Services Digital Network (ISDN): see ITU-T Recommendation I.112 [12]

invoke component: see ETS 300 239 [3].

originating PINX: see EN 300 172 [2]

Private Integrated Services Network (PISN): see ISO/IEC 11579-1 [11]

Private Integrated Services Network Exchange (PINX): see ISO/IEC 11579-1 [11]

PISN number: see ISO/IEC 11571 [10]

rerouting PINX: PINX which executes the rerouting of the CTMI call to the current Visitor PINX

signalling: see ITU-T Recommendation I.112 [12]

supplementary service: see ITU-T Recommendation I.210 [13]

supplementary services control entity: see ETS 300 239 [3]

terminating PINX: see EN 300 172 [2]

transit PINX: see EN 300 172 [2]

user: see ETS 300 171 [1]

visitor area: see ETS 300 415 [4]

visitor data base (VDB): see ETS 300 415 [4]

visitor PINX: see ETS 300 695 [6]

Virtual Private Network (VPN): refer to EN 301 060-1 [15] and ETR 172 [16]

3.2 Abbreviations

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

ANF	Additional Network Feature
ANF-CTMI	Cordless Terminal Incoming Call Additional Network Feature
APDU	Application Protocol Data Unit
ATS	Abstract Test Suite
BC	Basic Call
CTM	Cordless Terminal Mobility
HDB	Home Data Base
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
sc	call independent signalling connection
SS-CFU	Call Forwarding Unconditional supplementary service
SS-CI	Call Intrusion supplementary service
SS-CO	Call Offer supplementary service
T1	Timer T1
T2	Timer T2
TP	Test Purpose
TSS	Test Suite Structure
VDB	Visitor Data Base
VPN	Virtual Private Network

4 Test Suite Structure (TSS)

Signalling procedures at the VPN "b" service entry Point	Group
Actions at the Rerouting PINX	Reroute01
Actions at the CTMI-detect PINX	
Normal procedures	Detect01
Exceptional procedures	Detect02
Rerouting procedures	Detect03
Home procedures	Detect04
Actions at the Home PINX	Home01
Actions at the Visitor PINX	Visitor01
Procedures for interactions between ANF-CTMI and other supplementary services and ANFs	SS01

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:	"CTMI"
<group>	=	group	up to 8 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 ETS 300 696 [5].

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. Table 2 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 ANF-CTMI

TP part	Text	Example
Header	<Identifier> tab <paragraph number in base EN> tab	see table 1 subclause 0.0.0
Stimulus	Ensure that the IUT in the <basic call state> or <CTMI state> <trigger> see below for message structure <i>or</i> <goal>	state 3 or CTMI-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 <i>or</i> 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 <i>or</i> 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 ETS 300 696 [5] 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 [14]).

5.2 TPs for ANF-CTMI

All PICS items referred to in subclause 5.2 are as specified in ETS 300 696 [5] unless indicated otherwise by another numbered reference.

Unless specified:

- 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.

5.2.1 ANF-CTMI signalling procedures

5.2.1.1 Actions at the Rerouting PINX

Groupselection: IUT supports behaviour as Rerouting PINX for ANF-CTMI. PICS: A7 AND notA1.

CTMI_Reroute01_001 subclause 6.5.1.1

Ensure that the IUT in state Outgoing Call Proceeding (ExecIdle), receiving a FACILITY message containing a ctmiDivert invoke APDU and it can proceed with ANF-CTMI,

- sends a DISCONNECT message containing a ctmiDivert return result APDU to the CTMI-detect PINX, sends a SETUP message containing the data element Called party number, containing the number received in the visitPINX data element within the ctmiDivert invoke APDU; Called party subaddress, containing the subaddress received in the ctmUserSub data element within the ctmiDivert invoke APDU (optional); Calling party number, containing the number received in the callingNumber data element within the ctmiDivert invoke APDU; Calling party subaddress, containing the subaddress received in the callingUserSub data element within the ctmiDivert invoke APDU (optional); ctmiDivert invoke APDU; Bearer capability information element as received in embedded form within the ctmiDivert invoke APDU, and any of the following information elements which were also received in embedded form in this APDU: High layer compatibility, Low layer compatibility, Progress indicator and Party category information elements; Transit counter, with value zero (optional); a ctmiInform invoke APDU with the data element pismNumber with the same contents as the corresponding data element in the argument of the received ctmiDivert invoke APDU to the Visitor PINX and enters state ExecIdle.

CTMI_Reroute01_002 subclause 6.5.1.1

Ensure that the IUT in state Outgoing Call Proceeding (ExecIdle), receiving a FACILITY message containing a ctmiDivert invoke APDU with the element callingUserName and it can proceed with ANF-CTMI,

- sends a DISCONNECT message containing a ctmiDivert return result APDU to the CTMI-detect PINX, sends a SETUP message containing the data element Called party number, containing the number received in the visitPINX data element within the ctmiDivert invoke APDU; Called party subaddress, containing the subaddress received in the ctmUserSub data element within the ctmiDivert invoke APDU (optional); Calling party number, containing the number received in the callingNumber data element within the ctmiDivert invoke APDU; Calling party subaddress, containing the subaddress received in the callingUserSub data element within the ctmiDivert invoke APDU (optional); ctmiDivert invoke APDU; Bearer capability information element as received in embedded form within the ctmiDivert invoke APDU, and any of the following information elements which were also received in embedded form in this APDU: High layer compatibility, Low layer compatibility, Progress indicator and Party category information elements; Transit counter, with value zero (optional); a callingName invoke APDU and a ctmiInform invoke APDU with the data element pismNumber with the same contents as the corresponding data element in the argument of the received ctmiDivert invoke APDU to the Visitor PINX and enters state ExecIdle.

CTMI_Reroute01_003 **subclause 6.5.1.2**

Ensure that the IUT in state Outgoing Call Proceeding (ExecIdle), receiving a FACILITY message containing a ctmiDivert invoke APDU but it can not proceed with ANF-CTMI,

- sends a FACILITY message to the CTMI-detect PINX containing a ctmiDivert return error APDU with the error notAvailable and enters state ExecIdle.

5.2.1.2 **Actions at the CTMI-detect PINX**

Groupselection: IUT supports behaviour as CTMI-detect PINX for ANF-CTMI. PICS: A1.

5.2.1.2.1 **Normal procedures**

Selection: IUT do not provide Home PINX functionality. PICS: notA2.

CTMI_Detect01_001 **subclause 6.5.2.1**

Ensure that the IUT in state CTMI-Idle, on determining that ANF-CTMI is to be invoked following the arrival SETUP message,

- sends a SETUP (sc) message containing a ctmiEnquiry invoke APDU with the data elements pismNumber as received in the incoming SETUP message in the Called party number information element; qSIGInfoElement containing an embedded Bearer capability information element, as received in the incoming SETUP message, and any of the following information elements which were received in the incoming SETUP message: High layer compatibility and Low layer compatibility. to the Home PINX, starts timer T1 and enters state CTMI-Detected.

Selection: IUT do not provide Home PINX functionality. PICS: notA2.

CTMI_Detect01_002 **subclause 6.5.2.1**

Ensure that the IUT in state CTMI-Detected, receiving a CONNECT (sc) message containing a ctmiEnquiry return result APDU with choice currLocation,

- sends a FACILITY message containing a ctmiDivert invoke APDU using the call reference of the incoming call and with the data elements visitPINX as received in the ctmiEnquiry return result APDU; callingNumber as received in the incoming SETUP message in the Calling party number information element; pismNumber as received in the ctmiEnquiry return result APDU; qSIGInfoElement containing an embedded Bearer capability information element, as received in the incoming SETUP message, and any of the following information elements which were received in the incoming SETUP message: High layer compatibility, Low layer compatibility, Progress indicator and Party category; callingUserSub, if a Calling party subaddress information element was received in the incoming SETUP message; callingUserName, if a callingName invoke APDU was received in the incoming SETUP message; ctmUserSub, if a Called party subaddress information element was received in the incoming SETUP message to the Rerouting PINX, starts timer T2 and enters state CTMI-Divert.

Selection: IUT do not provide Rerouting PINX functionality. PICS: notA7.

CTMI_Detect01_003 **subclause 6.5.2.1**

Ensure that the IUT in state CTMI-Divert, receiving a DISCONNECT message containing a ctmiDivert return result APDU,

- sends a RELEASE message to the Rerouting PINX and enters state CTMI-Idle.

5.2.1.2.2 **Exceptional procedures**

Selection: IUT do not provide Home PINX functionality. PICS: notA2.

CTMI_Detect02_001 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Detected, receiving a CONNECT (sc) message containing a ctmiEnquiry return error APDU indicating 'invalidServedUserNr',

- sends a DISCONNECT message with cause value #1 'Unallocated (unassigned) number' for release of the basic call and enters state CTMI-Idle.

Selection: IUT do not provide Home PINX functionality. PICS: notA2.

CTMI_Detect02_002 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Detected, receiving a CONNECT (sc) message containing a ctmiEnquiry return error APDU indicating 'locationNotKnown',

- sends a DISCONNECT message with cause value #3 'No route to destination' for release of the basic call and enters state CTMI-Idle.

Selection: IUT do not provide Home PINX functionality. PICS: notA2.

CTMI_Detect02_003 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Detected, receiving a CONNECT (sc) message containing a ctmiEnquiry return error APDU indicating 'notAvailable',

- sends a DISCONNECT message with cause value #20 'Subscriber absent' for release of the basic call and enters state CTMI-Idle.

Selection: IUT do not provide Home PINX functionality. PICS: notA2.

CTMI_Detect02_004 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Detected, receiving a CONNECT (sc) message containing a ctmiEnquiry return error APDU indicating 'basicServiceNotProvided',

- sends a DISCONNECT message with cause value #88 'Incompatible destination' for release of the basic call and enters state CTMI-Idle.

Selection: IUT do not provide Home PINX functionality. PICS: notA2.

CTMI_Detect02_005 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Detected, receiving a CONNECT (sc) message containing a ctmiEnquiry reject APDU,

- sends a DISCONNECT message with cause value #38 'Network out of order' for release of the basic call and enters state CTMI-Idle.

Selection: IUT do not provide Home PINX functionality. PICS: notA2.

CTMI_Detect02_006 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Detected, on expiry of T1,

- sends a DISCONNECT message with cause value #41 'Temporary failure' for release of the basic call and enters state CTMI-Idle.

Selection: IUT do not provide Home PINX functionality. PICS: notA2.

CTMI_Detect02_007 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Detected, on receiving a DISCONNECT message for call clearing,

- sends a RELEASE message to the Rerouting PINX and enters state CTMI-Idle.

Selection: IUT do not provide Rerouting PINX functionality. PICS: notA7.

CTMI_Detect02_008 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Divert, receiving a FACILITY message containing a ctmiDivert return error or reject APDU,

- sends a DISCONNECT message for release of the basic call and enters state CTMI-Idle.

Selection: IUT do not provide Rerouting PINX functionality. PICS: notA7.

CTMI_Detect02_009 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Divert, on expiry of T2,

- sends a DISCONNECT message for release of the basic call and enters state CTMI-Idle.

Selection: IUT do not provide Rerouting PINX functionality. PICS: notA7.

CTMI_Detect02_010 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Divert, receiving a DISCONNECT message for call clearing,

- sends a RELEASE message to the Rerouting PINX and enters state CTMI-Idle.

5.2.1.2.3 Rerouting procedures

GroupSelection: IUT provides Rerouting PINX functionality. PICS: A7 AND notA2.

CTMI_Detect03_001 **subclause 6.5.2.2** Ensure that the IUT in state CTMI-Divert, receiving a FACILITY message containing a ctmiDivert return error or reject APDU,

- sends a SETUP message containing a ctmiInform invoke APDU with the data element pisinNumber to the Visitor PINX and enters state CTMI-Idle.

CTMI_Detect03_002 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Divert, on expiry of T2,

- sends a SETUP message containing a ctmiInform invoke APDU with the data element pisinNumber to the Visitor PINX and enters state CTMI-Idle.

5.2.1.2.4 Home procedures

GroupSelection: IUT provides Home PINX functionality. PICS: A2 AND notA7.

CTMI_Detect04_001 **subclause 6.5.3**

Ensure that the IUT in state CTMI-Idle, on determining that ANF-CTMI is to be invoked following the arrival of an incoming call and the CTM user is defined in the HDB, the basic service is provided to the CTM user and the current location of the CTM user is known for the basic service concerned,

- sends a FACILITY message containing a ctmiDivert invoke APDU using the call reference of the incoming call, starts timer T2 and enters state CTMI-Divert.

CTMI_Detect04_002 **subclause 6.5.3**

Ensure that the IUT in state CTMI-Idle, on determining that ANF-CTMI is to be invoked following the arrival of an incoming call and the CTM user is not found in the HDB,

- sends a DISCONNECT message with cause value #1 'Unallocated (unassigned) number' for release of the basic call and enters state CTMI-Idle.

CTMI_Detect04_003 **subclause 6.5.3**

Ensure that the IUT in state CTMI-Idle, on determining that ANF-CTMI is to be invoked following the arrival of an incoming call and the CTM user has deregistered,

- sends a DISCONNECT message with cause value #20 'Subscriber absent' for release of the basic call and enters state CTMI-Idle.

CTMI_Detect04_004 **subclause 6.5.3**

Ensure that the IUT in state CTMI-Idle, on determining that ANF-CTMI is to be invoked following the arrival of an incoming call and the current location of the CTM user is unknown,

- sends a DISCONNECT message with cause value #3 'No route to destination' for release of the basic call and enters state CTMI-Idle.

CTMI_Detect04_005 **subclause 6.5.3**

Ensure that the IUT in state CTMI-Idle, on determining that ANF-CTMI is to be invoked following the arrival of an incoming call and the requested basic service is not provided,

- sends a DISCONNECT message with cause value #88 'Incompatible destination' for release of the basic call and enters state CTMI-Idle.

CTMI_Detect04_006 **subclause 6.5.2.2**

Ensure that the IUT in state CTMI-Idle, on determining that ANF-CTMI is to be invoked following the arrival of an incoming call and on receiving a DISCONNECT message for call clearing,

- sends a RELEASE message to the Rerouting PINX and enters state CTMI-Idle.

Selection: IUT supports Call Forwarding Unconditional. PICS: B10 AND E1.

CTMI_Detect04_007 **subclause 6.5.3**

Ensure that the IUT in state CTMI-Idle, on determining that ANF-CTMI is to be invoked following the arrival of an incoming call and the CTM user is defined in the HDB and SS-CFU is active,

- sends a FACILITY message containing a callRerouting invoke APDU, starts timer T2 and enters state CFS-Requested.

5.2.1.3 Actions at the Home PINX

GroupSelection: IUT supports behaviour as Home PINX for ANF-CTMI. PICS: A2 AND notA1.

CTMI_Home01_001 subclause 6.5.3.1

Ensure that the IUT in state HomeIdle, receiving a SETUP (sc) containing a ctmiEnquiry invoke APDU and the CTM user is defined in the HDB, the basic service is provided to the CTM user and the current location of the CTM user is known for the basic service concerned,

- sends a CONNECT (sc) message containing a ctmiEnquiry return result APDU with choice currLocation; element visitPINX with the PISN number of the Visitor PINX; and element pisinNumber with the PISN number of the CTM user, and enters state HomeIdle.

CTMI_Home01_002 subclause 6.5.3.2

Ensure that the IUT in state HomeIdle, receiving a SETUP (sc) containing a ctmiEnquiry invoke APDU and the CTM user is not found in the HDB,

- sends a CONNECT (sc) message containing a ctmiEnquiry return error APDU with the error invalidServedUserNr and enters state HomeIdle.

CTMI_Home01_003 subclause 6.5.3.2

Ensure that the IUT in state HomeIdle, receiving a SETUP (sc) containing a ctmiEnquiry invoke APDU and the CTM user has deregistered,

- sends a CONNECT (sc) message containing a ctmiEnquiry return error APDU with the error notAvailable and enters state HomeIdle.

CTMI_Home01_004 subclause 6.5.3.2

Ensure that the IUT in state HomeIdle, receiving a SETUP (sc) containing a ctmiEnquiry invoke APDU and the current location of the CTM user is unknown,

- sends a CONNECT (sc) message containing a ctmiEnquiry return error APDU with the error locationNotKnown and enters state HomeIdle.

CTMI_Home01_005 subclause 6.5.3.2

Ensure that the IUT in state HomeIdle, receiving a SETUP (sc) containing a ctmiEnquiry invoke APDU and the requested basic service is not provided,

- sends a CONNECT (sc) message containing a ctmiEnquiry return error APDU with the error basicServiceNotProvided and enters state HomeIdle.

Selection: IUT supports additional procedures at a Home PINX for Call Forwarding Unconditional. PICS: B10.

CTMI_Home01_006 subclause 6.5.3.3

Ensure that the IUT in state HomeIdle, receiving a SETUP (sc) containing a ctmiEnquiry invoke APDU and the CTM user is defined in the HDB and SS-CFU is active,

- sends a CONNECT (sc) message containing a ctmiEnquiry return result APDU with choice cfuActivated and enters state HomeIdle.

5.2.1.4 Actions at the Visitor PINX

GroupSelection: IUT supports behaviour as Visitor PINX for ANF-CTMI. PICS: A3.

CTMI_Visitor01_001 subclause 6.5.4.1

Ensure that the IUT in state VisitIdle, receiving a SETUP message containing a ctmiInform invoke APDU and there is an entry in the VDB for the CTM user and the basic service indicated by basic call information elements and the CTM user is accessible,

- establishes a call to the PISN access indicated by the VDB entry and enters state VisitIdle.

CTMI_Visitor01_002 subclause 6.5.4.2

Ensure that the IUT in state VisitIdle, receiving a SETUP message containing a ctmiInform invoke APDU and the CTM user is not found in VDB,

- sends a DISCONNECT message with cause value #41 'Temporary failure' for release of the basic call and enters state VisitIdle.

CTMI_Visitor01_003 **subclause 6.5.4.2**

Ensure that the IUT in state VisitIdle, receiving a SETUP message containing a ctmiInform invoke APDU and the CTM user is not accessible,

- sends a DISCONNECT message with cause value #18 'No user responding' for release of the basic call and enters state VisitIdle.

5.2.2 Protocol interaction between ANF-CTMI and other supplementary services and ANFs

Selection: IUT supports Call Forwarding Unconditional supplementary service (SS-CFU) and behaviour as CTMI-Detect PINX for ANF-CTMI AND do not provide Home PINX functionality. PICS: A1 AND E1 AND notA2.

CTMI_SS01_001 **subclause 6.8.3.1**

Ensure that the IUT in state CTMI-Detected, receiving a CONNECT (sc) message from the Home PINX containing a ctmiEnquiry return result APDU with choice cfuActivated,

- sends a FACILITY message containing a callRerouting invoke APDU, starts timer T2 and enters state CFS-Requested.

Selection: IUT supports Call Offer supplementary service (SS-CO) and behaviour as Rerouting PINX for ANF-CTMI AND do not provide CTMI-Detect PINX functionality. PICS: A7 AND F1 AND notA1.

CTMI_SS01_002 **subclause 6.8.10.1**

Ensure that the IUT in state Outgoing Call Proceeding (ExecIdle), receiving a FACILITY message containing a ctmiDivert invoke APDU and before it a SETUP message containing a callOfferRequest invoke ADPU and it can proceed with ANF-CTMI,

- sends a DISCONNECT message containing a ctmiDivert return result APDU to the CTMI-Detect PINX, sends a SETUP message containing a callOfferRequest invoke APDU and a ctmiInform invoke APDU with the data element pismNumber with the same contents as the corresponding data element in the argument of the received ctmiDivert invoke APDU to the Visitor PINX and enters state ExecIdle.

Selection: IUT supports Call Offer supplementary service (SS-CO) and behaviour as Rerouting PINX for ANF-CTMI AND do not provide CTMI-Detect PINX functionality. PICS: A7 AND F1 AND notA1.

CTMI_SS01_003 **subclause 6.8.10.1**

Ensure that the IUT in state Outgoing Call Proceeding (ExecIdle), receiving a FACILITY message containing a ctmiDivert invoke APDU and before it a SETUP message containing a pathRetain invoke ADPU with callOffer bit set to ONE and it can proceed with ANF-CTMI,

- sends a DISCONNECT message containing a ctmiDivert return result APDU to the CTMI-Detect PINX, sends a SETUP message containing a pathRetain invoke APDU with callOffer bit set to ONE and a ctmiInform invoke APDU with the data element pismNumber with the same contents as the corresponding data element in the argument of the received ctmiDivert invoke APDU and enters state ExecIdle.

Selection: IUT supports Do Not Disturb Override supplementary service (SS-CO) and behaviour as Rerouting PINX for ANF-CTMI AND do not provide CTMI-Detect PINX functionality. PICS: A7 AND G1 AND notA1.

CTMI_SS01_004 **subclause 6.8.12.1**

Ensure that the IUT in state Outgoing Call Proceeding (ExecIdle), receiving a FACILITY message containing a ctmiDivert invoke APDU and before it a SETUP message containing a doNotDisturbOverrideQ invoke ADPU and it can proceed with ANF-CTMI,

- sends a DISCONNECT message containing a ctmiDivert return result APDU, sends a SETUP message containing a doNotDisturbOverrideQ invoke APDU and a ctmiInform invoke APDU with the data element pismNumber with the same contents as the corresponding data element in the argument of the received ctmiDivert invoke APDU and enters state ExecIdle.

Selection: IUT supports Do Not Disturb Override supplementary service (SS-CO) and behaviour as Rerouting PINX for ANF-CTMI AND do not provide CTMI-Detect PINX functionality. PICS: A7 AND G1 AND notA1.

CTMI_SS01_005 **subclause 6.8.12.1**

Ensure that the IUT in state Outgoing Call Proceeding (ExecIdle), receiving a FACILITY message containing a ctmiDivert invoke APDU and before it a SETUP message containing a pathRetain invoke ADPU with bit dndo-low, dndo-medium or dndo-high set to ONE and it can proceed with ANF-CTMI,

- sends a DISCONNECT message containing a ctmiDivert return result APDU, sends a SETUP message containing a pathRetain invoke APDU with bit dndo-low, dndo-medium or dndo-high set to ONE and a ctmiInform invoke APDU with the data element pismNumber with the same contents as the corresponding data element in the argument of the received ctmiDivert invoke APDU and enters state ExecIdle.

Selection: IUT supports Call Intrusion supplementary service (SS-CI) and behaviour as Rerouting PINX for ANF-CTMI. PICS AND do not provide CTMI-Detect PINX functionality: A7 AND H1 AND notA1.

CTMI_SS01_006 **subclause 6.8.13.1**

Ensure that the IUT in state Outgoing Call Proceeding (ExecIdle), receiving a FACILITY message containing a ctmiDivert invoke APDU and before it a SETUP message containing a callIntrusionRequest invoke ADPU and it can proceed with ANF-CTMI,

- sends a DISCONNECT message containing a ctmiDivert return result APDU, sends a SETUP message containing a callIntrusionRequest invoke APDU and a ctmiInform invoke APDU with the data element pismNumber with the same contents as the corresponding data element in the argument of the received ctmiDivert invoke APDU and enters state ExecIdle.

Selection: IUT supports Call Intrusion supplementary service (SS-CI) and behaviour as Rerouting PINX for ANF-CTMI. PICS AND do not provide CTMI-Detect PINX functionality: A7 AND H1 AND notA1.

CTMI_SS01_007 **subclause 6.8.13.1**

Ensure that the IUT in state Outgoing Call Proceeding (ExecIdle), receiving a FACILITY message containing a ctmiDivert invoke APDU and before it a SETUP message containing a pathRetain invoke ADPU with bit ci-low, ci-medium or ci-high set to ONE and it can proceed with ANF-CTMI,

- sends a DISCONNECT message containing a ctmiDivert return result APDU, sends a SETUP message containing a pathRetain invoke APDU with bit ci-low, ci-medium or ci-high set to ONE and a ctmiInform invoke APDU with the data element pismNumber with the same contents as the corresponding data element in the argument of the received ctmiDivert invoke APDU and enters state ExecIdle.

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 [8].

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 [8], shall be used by any organization claiming to provide a comprehensive testing service for equipment claiming conformance to ETS 300 696 [5].

Bibliography

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

EN 301 061-1 (1.2): "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Generic functional protocol for the support of supplementary services at the "b" service entry point for Virtual Private Network (VPN) applications; Part 1: Protocol specification".

History

Document history			
V1.1.3	September 1999	Public Enquiry	PE 9959: 1999-09-15 to 2000-01-14