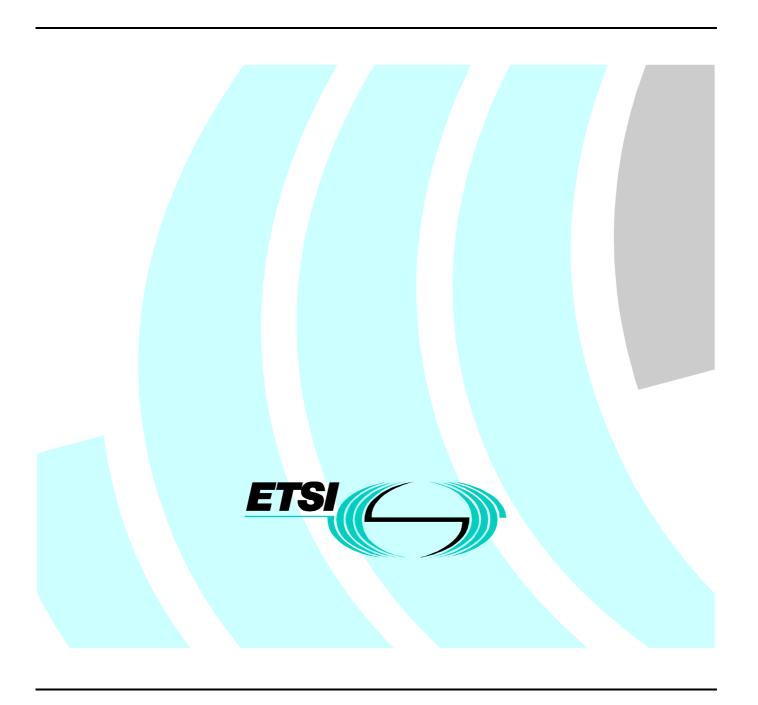# Draft ETSI EN 301 492-1 V1.1.1 (2000-01)

European Standard (Telecommunications series)

Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Cordless terminal authentication supplementary services; Part 1: Test Suite Structure and Test Purposes (TSS&TP) for the VPN "b" service entry point

ETSI

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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 Completion 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 Services Network (PISN); Inter-exchange signalling protocol; Cordless terminal authentication supplementary services, as identified below:

  Part 1:   "Test Suite Structure and Test Purposes (TSS&TP) specification for the VPN "b" service entry point";

  Part 2:   "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the VPN "b" service entry point".

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 Cordless Terminal Authentication supplementary services of the Inter-exchange 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 300 366 [13].

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [3], ISO/IEC 9646-2 [4] and ISO/IEC 9646-3 [14]) 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 [7] and ETR 172 [8].

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

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]   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]".

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

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

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

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

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

[7]   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".

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

[9]   ETS 300 692: "Private Integrated Services Network (PISN); Cordless Terminal Mobility (CTM); Location handling services; Functional capabilities and information flows".

[10]   ETS 300 171: "Private Telecommunication Network (PTN); Specification, functional models and information flows; Control aspects of circuit mode basic services".

[11]   I-ETS 300 809: "Private Integrated Services Network (PISN); Cordless Terminal Mobility (CTM); Inter-exchange signalling protocol; Cordless terminal authentication supplementary services".

[12]   I-ETS 300 808: "Private Integrated Services Network (PISN); Cordless Terminal Mobility (CTM); Inter-exchange signalling protocol; Cordless terminal outgoing call additional network feature".

[13]   EN 300 366: "Universal Personal Telecommunication (UPT); UPT phase 2; Functional specification of the interface of a UPT Integrated Circuit Card (ICC) and Card Accepting Devices (CADs); UPT card accepting Dual Tone Multiple Frequency (DTMF) device; Conformance test specification".

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

[15]   ISO/IEC 11571: "Information technology - Telecommunications and information exchange between systems - Private Integrated Services Networks - Addressing".

[16]   ISO/IEC 11579-1: "Information technology - Telecommunications and information exchange between systems - Private integrated services network - Part 1: Reference configuration for PISN Exchanges (PINX)".

[17]   EN 300 415: Do not exist as an EN but as an ETS "Private Integrated Services Network (PISN); Terms and definitions".

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 [3]

Implementation Under Test (IUT): refer to ISO/IEC 9646-1 [3]

Protocol Implementation Conformance Statement (PICS): refer to ISO/IEC 9646-1 [3]

PICS proforma: refer to ISO/IEC 9646-1 [3]

Test Purpose (TP): refer to ISO/IEC 9646-1 [3]

Virtual Private Network (VPN): refer to EN 301 060-1 [7]

Application Protocol Data Unit (APDU): see ETS 300 239 [1]

Basic Service: see CCITT Rec. I.210 [6]

Complete Number: see ISO/IEC 11571 [15]

CTM user: see ETS 300 692 [9]

Home PINX: see ETS 300 692 [9]

Private Integrated Services Network Exchange (PINX): see ISO/IEC 11579-1 [16]

PISN Number: see ISO/IEC 11571 [15]

Signalling: see CCITT Rec. I.112 [5]

Supplementary Service: see CCITT Rec. I.210 [6]

User: see ETS 300 171 [10]

Visitor area: see EN 300 415 [17]

Visitor PINX: see ETS 300 692 [9]

3.2 Abbreviations

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

APDU	Application Protocol Data Unit
ASN.1	Abstract Syntax Notation number 1
ATS	Abstract Test Suite
BC	Basic Call
CR	Call Reference
CTM	Cordless Terminal Mobility
IE	Information Element
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
sc	call independent signalling connection
SS-CTAN	Supplementary service - Authentication of a PISN
SS-CTAT	Supplementary service - Authentication of a CTM user
T1	Timer T1
T2	Timer T2
T3	Timer T3
T4	Timer T4
T5	Timer T5
TP	Test Purpose
TSS	Test Suite Structure
VPN	Virtual Private Network

4 Test Suite Structure (TSS)

Signalling protocol for the support of SS-CTAT	**Group**
SS-CTAT signalling procedures	
Actions at the Home PINX for initiation of SS-CTAT	Home01
Actions at the Home PINX for requesting authentication parameters	Home02
Actions at the Home PINX when fetching authentication parameters	Home03
Actions at the Visitor PINX for execution of SS-CTAT	Visit01
Actions at the Visitor PINX for requesting authentication parameters	Visit02
Actions at the Authentication Server PINX	Auth
Protocol interaction between SS-CTAT and Cordless Terminal Location Registration (SS-CTLR)	
Actions at the Previous Visitor PINX	PrevVisit

Signalling protocol for the support of SS-CTAN	**Group**
SS-CTAN signalling procedures	
Actions at the Visitor PINX	Visit
Actions at the Home PINX	Home
Actions at the Authentication Server PINX	Auth

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:	"CTAT" or "CTAN"
<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 I-ETS 300 809 [11].

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 <CTAT/CTAN state> <trigger> *see below for message structure* *or* <goal>	state 3 or CTAT/CTAN-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 I-ETS 300 809 [11] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification I-ETS 300 809 [11].

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 [2]).

5.2   TPs for SS-CTAT and SS-CTAN

All PICS items referred to in this subclause are as specified in I-ETS 300 809 [11] 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.

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

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-CTAT signalling procedures

5.2.1.1 Actions at the Home PINX for initiation of SS-CTAT

Groupselection: Behaviour as Home PINX or combined Home PINX and Authentication Server PINX for SS-CTAT. PICS: A2 OR A3.

Selection: Signalling procedures for initiation of SS-CTAT without challenge and expected response. PICS: B9.

CTAT_Home01_001   subclause 6.5.1.1
Ensure that the IUT, in state U00 and in the CtatHomeInitIdle state, on determining that the SS-CTAT is to be invoked without providing challenge and response values to the Visitor PINX,
> sends a SETUP (sc) message to the Visitor PINX using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser invoke APDU where element calcCtatInfo is omitted,
> enters state CtatHomeInitiating.

CTAT_Home01_002   subclause 6.5.1.1
Ensure that the IUT, in state U00 and in the CtatHomeInitIdle state, on determining that the SS-CTAT is to be invoked with providing challenge and response values to the Visitor PINX,
> sends a SETUP (sc) message to the Visitor PINX using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser invoke APDU with element calcCtatInfo,

> enters state CtatHomeInitiating.

CTAT_Home01_003   subclause 6.5.1.1
Ensure that the IUT in state CtatHomeInitiating, on receipt of a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser return result APDU from the Visitor PINX,
> sends CONNECT ACKNOWLEDGEMENT message,

> enters CtatHomeInitIdle state.

CTAT_Home01_004   subclause 6.5.1.2
Ensure that the IUT in state CtatHomeInitiating, on receipt of a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser return error or reject APDU from the Visitor PINX,
> sends CONNECT ACKNOWLEDGEMENT message,

> enters CtatHomeInitIdle state.

CTAT_Home01_005   subclause 6.5.1.2
Ensure that the IUT in state CtatHomeInitiating, on expire of T1
> clears the call independent signalling connection or does not take any action.

5.2.1.2   Actions at the Home PINX for requesting authentication parameters

Groupselection: Behaviour as Home PINX or combined Home PINX and Authentication Server PINX for SS-CTAT.
PICS: A2 OR A3.

CTAT_ Home02 _001 subclause 6.5.2.1
Ensure that the IUT, in state U00 and in state CtatHomeRequestIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam invoke APDU, the CTM user's PISN number (valid and the CTM user is authorized for SS-CTAT) included in the pisnNumber argument,
>   sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam return result APDU.

Selection: Behaviour as Home PINX for SS-CTAT (separate from an Authentication Server PINX). PICS: A2

CTAT_ Home02 _002 subclause 6.5.2.1
Ensure that the IUT, in state U00 and in state CtatHomeRequestIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam invoke APDU, the CTM user's PISN number (valid and the CTM user is authorized for SS-CTAT) included in the pisnNumber argument,
>   sends a SETUP (sc) message to the Authentication Server PINX using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq invoke APDU,

>   enters CtatHomeRequesting state.

Selection: Behaviour as Home PINX for SS-CTAT (separate from an Authentication Server PINX). PICS: A2

CTAT_ Home02 _003 subclause 6.5.2.1
Ensure that the IUT, in state CtatHomeRequesting, on receipt of a CONNECT (sc) message from the Authentication Server PINX using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq return result APDU,
>   sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam return result APDU containing the authentication parameters receiving from the Authentication Server PINX,

>   enters CtatHomeRequestIdle state.

CTAT_Home02_004   subclause 6.5.2.2
Ensure that the IUT, in state U00 and in state CtatHomeRequestIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam invoke APDU, invalid PISN number included in the pisnNumber argument,
>   sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam return error APDU containing the error invalidServedUserNr,

>   remain CtatHomeRequestIdle state.

CTAT_Home02_005   subclause 6.5.2.2
Ensure that the IUT, in state U00 and in state CtatHomeRequestIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam invoke APDU, the CTM user is not authorized for SS-CTAT,
>   sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam return error APDU containing the error notAuthorized,

>   remain CtatHomeRequestIdle state.

Selection: Behaviour as Home PINX for SS-CTAT (separate from an Authentication Server PINX). PICS: A2

CTAT_Home02_006   subclause 6.5.2.2
Ensure that the IUT, in state CtatHomeRequesting, if authentication parameters are not received because of time out error from the Authentication Server PINX,

>   sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam return error APDU containing the error value temporarilyUnavailable,

>   enters CtatHomeRequestIdle state.

Selection: Behaviour as Home PINX for SS-CTAT (separate from an Authentication Server PINX). PICS: A2.

CTAT_ Home02 _007   subclause 6.5.2.2
Ensure that the IUT, in state CtatHomeRequesting, if authentication parameters are not received because of not time out error from the Authentication Server PINX,

>   sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam return error APDU containing the error value ParameterNotAvailable,

>   enters CtatHomeRequestIdle state.

5.2.1.3   Actions at the Home PINX when fetching authentication parameters

Groupselection: Behaviour as Home PINX for SS-CTAT (separate from an Authentication Server PINX). PICS: A2.

CTAT_Home03_001   subclause 6.5.3.1
Ensure that the IUT, in state U00 and in state CtatHomeFetchIdle, on receipt of a SETUP (sc) message from the Visitor PINX using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam invoke APDU, element canCompute shell be omitted,

>   sends a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq invoke APDU, element can Compute shall be omitted,

>   enters CtatHomeFetching state.

CTAT_Home03_002   subclause 6.5.3.1
Ensure that the IUT, in state U00 and in state CtatHomeFetchIdle, on receipt of a SETUP (sc) message from the Visitor PINX using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam invoke APDU, element canCompute shell be included,

>   sends a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq invoke APDU, element can Compute shall be included,

>   enters CtatHomeFetching state.

CTAT_Home03_003   subclause 6.5.3.2
Ensure that the IUT in state CtatHomeFetching, on receipt of a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq return result APDU,

>   sends CONNECT ACKNOWLEDGEMENT message,

>   enters CtatHomeFetchIdle state.

CTAT_Home03_004   subclause 6.5.3.2
Ensure that the IUT in state CtatHomeFetching, on receipt of a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq return error or reject APDU,

>   sends CONNECT ACKNOWLEDGEMENT message,

>   enters CtatHomeFetchIdle state.

CTAT_Home03_005   subclause 6.5.3.2
Ensure that the IUT in state CtatHomeFetching, on expire of T2,

>   clear the call independent signalling connection or does not take any action,

>   enters CtatHomeFetchIdle state.

5.2.1.4   Actions at the Visitor PINX for execution of SS-CTAT

Groupselection: Behaviour as Visitor PINX for SS-CTAT. PICS: A1.

CTAT_Visit01_001   subclause 6.5.5.1
Ensure that the IUT, in state U00 and in state CtatVisitExecIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser invoke APDU either element calcCtatInfo is included or authentication parameters for this CTM user are already available,
    sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser return result APDU containing the parameter auth_res_correct,

        enters CtatVisitExecuting state.

Selection: Signalling procedures at a Visitor PINX for receiving request from Home PINX for SS-CTAT without challenge and expected response. PICS: B5.

CTAT_Visit01_002   subclause 6.5.5.1
Ensure that the IUT, in state U00 and in state CtatVisitExecIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser invoke APDU and the element calcCtatInfo is not included and the authentication parameters for this CTM user are not available,
        sends a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam invoke APDU, element can Compute shall be included,

        enters CtatVisitExecuting state.

CTAT_Visit01_003   subclause 6.5.5.1
Ensure that the IUT, in state CtatVisitExecuting, on receipt of the correct Authentication result from the CTM user,
        sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser return result APDU containing the parameter auth_res_correct,

        enters CtatVisitExecIdle state.

CTAT_Visit01_004   subclause 6.5.5.1
Ensure that the IUT, in state CtatVisitExecuting, on receipt of the incorrect Authentication result from the CTM user,
        sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser return result APDU containing the parameter auth_res_incorrect,

        enters CtatVisitExecIdle state.

CTAT_Visit01_005   subclause 6.5.5.2
Ensure that the IUT in state CtatVisitExecuting, on expire of T3 (authentication parameters are not received for any reason),
        sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser return error APDU,

        enters CtatVisitExecIdle state.

CTAT_Visit01_006   subclause 6.5.5.2
Ensure that the IUT in state CtatVisitExecuting, if the authentication request is not answered by the CTM user because of time out error,
        sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser return error APDU containing the error temporarilyUnavailable,

        enters CtatVisitExecIdle state.

CTAT_Visit01_007   subclause 6.5.5.2
Ensure that the IUT in state CtatVisitExecuting, if the authentication request is not answered by the CTM user because of not time out error,

sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a authCtmUser return error APDU containing the error ParameterNotAvailable,

enters CtatVisitExecIdle state.

5.2.1.5   Actions at the Visitor PINX for requesting authentication parameters

Groupselection: Signalling procedures at a Visitor PINX for requesting authentication parameters from Home PINX. PICS: B7.

CTAT_Visit02_001   subclause 6.5.6.1
Ensure that the IUT, in state U00 and in state CtatVisitRequestIdle, in order to make an enquiry to request the authentication parameters for CTM user,

sends a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam invoke APDU, element canCompute shall be omitted,

enters CtatVisitRequesting state.

Selection: Support of procedures for calculation of challenge/response at the Visitor PINX. PICS: B8.

CTAT_Visit02_002   subclause 6.5.6.1
Ensure that the IUT, in state U00 and in state CtatVisitRequestIdle, in order to make an enquiry to request the authentication parameters for CTM user,

sends a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam invoke APDU, element canCompute shall be included,

enters CtatVisitRequesting state.

CTAT_Visit02_003   subclause 6.5.6.1
Ensure that the IUT in state CtatVisitRequesting, on receipt of a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam return result APDU with challenge and response value,

sends CONNECT ACKNOWLEDGEMENT message,

enters CtatVisitRequestIdle state.

Selection: Support of procedures for calculation of challenge/response at the Visitor PINX. PICS: B8.

CTAT_Visit02_004   subclause 6.5.6.1
Ensure that the IUT in state CtatVisitRequesting, on receipt of a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam return result APDU, element ctatParamInfo contains parameter authSessionKeyInfo,

sends CONNECT ACKNOWLEDGEMENT message,

enters CtatVisitRequestIdle state.

CTAT_Visit02_005   subclause 6.5.6.2
Ensure that the IUT in state CtatVisitRequesting, on receipt of a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtatParam return error or reject APDU,

sends CONNECT ACKNOWLEDGEMENT message,

enters CtatVisitRequestIdle state.

CTAT_Visit02_006   subclause 6.5.6.2
Ensure that the IUT in state CtatVisitRequesting, on expire of T3,

clear the call independent signalling connection or does not take any action,

enters CtatVisitRequestIdle state.

5.2.1.6   Actions at the Authentication Server PINX

Groupselection: Behaviour as Authentication Server PINX for SS-CTAT (separate from a Home PINX). PICS: A4.

CTAT_Auth_001   subclause 6.5.7.1
Ensure that the IUT, in state U00 and in state CtatAuthenticationIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq invoke APDU, the PISN number of the CTM user (which is valid and authentication parameters are available for this CTM user) included in the pisnNumber argument, element canCompute is not included,

> sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq return result APDU, element ctatParamInfo contains the calculated authentication information (choice calcCtatInfo),

> remains CtatAuthenticationIdle state.

CTAT_Auth_002   subclause 6.5.7.1
Ensure that the IUT, in state U00 and in state CtatAuthenticationIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq invoke APDU, the PISN number of the CTM user (which is valid and authentication parameters are available for this CTM user) included in the pisnNumber argument, element canCompute is included,

> sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq return result APDU, element ctatParamInfo contains the authentication session key (choice authSessionKeyInfo),

> remains CtatAuthenticationIdle state.

CTAT_Auth_003   subclause 6.5.7.2
Ensure that the IUT, in state U00 and in state CtatAuthenticationIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq invoke APDU, an invalid PISN number included in the pisnNumber argument,

> sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq return error APDU containing the error invalidServedUserNr,

> remains CtatAuthenticationIdle state.

CTAT_Auth_004   subclause 6.5.7.2
Ensure that the IUT, in state U00 and in state CtatAuthenticationIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq invoke APDU, and the authentication parameters are not available,

> sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctatParamEnq return error APDU containing the error paramNotAvailable,

> remains CtatAuthenticationIdle state.

5.2.2 Protocol interaction between SS-CTAT and Cordless Terminal Location Registration (SS-CTLR)

5.2.2.1 Actions at the Previous Visitor PINX

Groupselection: Interactions at Previous Visitor PINX. PICS: E2.

CTAT_PrevVisit_001 subclause 6.8.1.1
Ensure that the IUT, in state U00 and in state VisitIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a pisnEnquiry invoke APDU during CTLR and when either the authentication parameters or generated challenge(s) and the expected response value(s) for this PISN number are available,

> sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a pisnEnquiry return result APDU and transferAuthParam invoke APDU, ctatParamInfo may be included,

> remains CtatAuthenticationIdle state.

5.2.3 SS-CTAN signalling procedures

5.2.3.1 Actions at the Visitor PINX

Groupselection: Behaviour as Visitor PINX for SS-CTAN. PICS: A1.

CTAN_Visit_001   subclause 7.5.1.1
Ensure that the IUT, in state U00 and in the CtanVisitRequestIdle state, on receipt of a valid authentication request from the CTM user and in order to make a request to the Home PINX to get the authentication parameters for this CTM user,

> sends a SETUP (sc) message to the Home PINX using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam invoke APDU to the Home PINX containing the challenge and Authentication algorithm which was received from the CTM user,

> enters state CtanVisitRequesting.

Selection: Support of procedures for calculation of response value at the Visitor PINX. PICS: B5.

CTAN_Visit_002   subclause 7.5.1.1
Ensure that the IUT, in state U00 and in the CtanVisitRequestIdle state, on receipt of a valid authentication request from the CTM user and in order to make a request to the Home PINX to get the authentication parameters for this CTM user,

> sends a SETUP (sc) message to the Home PINX using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam invoke APDU to the Home PINX containing the element canCompute if the Visitor PINX is able to compute a response value,

> enters state CtanVisitRequesting.

Selection: Support of procedures for calculation of response value at the Visitor PINX. PICS: B5.

CTAN_Visit_003   subclause 7.5.1.1
Ensure that the IUT in state CtanVisitRequesting, on receipt of a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam return result APDU, the element ctanParamInfo contains the authentication session key,

> sends CONNECT ACKNOWLEDGEMENT message,

> enters CtanVisitRequestIdle state.

CTAN_Visit_004   subclause 7.5.1.1

Ensure that the IUT in state CtanVisitRequesting, on receipt of a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam return result APDU contains the calculated response value,

>   sends CONNECT ACKNOWLEDGEMENT message,

>   enters CtanVisitRequestIdle state.

CTAN_Visit_005   subclause 7.5.1.2

Ensure that the IUT in state CtanVisitRequesting, on receipt of a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam return error or reject APDU from the Home PINX,

>   sends CONNECT ACKNOWLEDGEMENT message,

>   enters CtanVisitRequestIdle state.

CTAN_Visit_006   subclause 7.5.1.2

Ensure that the IUT in state CtanVisitRequesting, on expire of T4,

>   clear the call independent signalling connection or does not take any action,

>   enters CtanVisitRequestIdle state.

5.2.3.2   Actions at the Home PINX

Groupselection: Behaviour as Home PINX or combined Home PINX and Authentication Server PINX for SS-CTAN. PICS: A2 OR A3.

Selection: Behaviour as Home PINX for SS-CTAN (separate from an Authentication Server PINX). PICS: A2.**CTAN_Home_001 subclause 7.5.2.1**

Ensure that the IUT, in state U00 and in state CtanHomeRequestIdle, on receipt of a SETUP (sc) message from the Visitor PINX using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam invoke APDU, the PISN number of the CTM user (which is valid and the CTM user is authorized for the SS-CTAN) included in the pisnNumber argument,

>   sends a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq invoke APDU to the Authentication Server PINX, containing the received challenge,

>   enters CtanHomeFetching state.

Selection: Behaviour as Home PINX for SS-CTAN (separate from an Authentication Server PINX). PICS: A2.

CTAN_Home_002 subclause 7.5.2.1

Ensure that the IUT, in state CtanHomeFetching, on receipt of a CONNECT (sc) message from the Authentication Server PINX using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq return result APDU,

>   sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam return result APDU containing the information received from the Authentication Server PINX,

>   enters CtanHomeRequestIdle state.

CTAN_Home_003 subclause 7.5.2.2

Ensure that the IUT, in state U00 and in state CtanHomeRequestIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam invoke APDU, invalid PISN number included in the pisnNumber argument,

>   sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam return error APDU containing the error invalidServedUserNr,

>   remain CtanHomeRequestIdle state.

CTAN_Home_004 subclause 7.5.2.2
Ensure that the IUT, in state U00 and in state CtanHomeRequestIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam invoke APDU, the CTM user is not authorized for SS-CTAN,
> sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam return error APDU containing the error notAuthorized,

> remain CtanHomeRequestIdle state.

Selection: Behaviour as Home PINX for SS-CTAN (separate from an Authentication Server PINX). PICS: A2.

CTAN_Home_005 subclause 7.5.2.2
Ensure that the IUT, in state CtanHomeFetching, on receipt of a CONNECT (sc) message from the Authentication Server PINX using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq return error APDU,
> sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam return error APDU containing the received error value from the Authentication Server PINX,

> enters CtanHomeRequestIdle state.

Selection: Behaviour as Home PINX for SS-CTAN (separate from an Authentication Server PINX). PICS: A2.

CTAN_Home_006 subclause 7.5.2.2
Ensure that the IUT, in state CtanHomeFetching, on receipt of a CONNECT (sc) message from the Authentication Server PINX using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq return reject APDU,
> sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam return error APDU containing the error paramNotAvailable,

> enters CtanHomeRequestIdle state.

Selection: Behaviour as Home PINX for SS-CTAN (separate from an Authentication Server PINX). PICS: A2.

CTAN_Home_007 subclause 7.5.2.2
Ensure that the IUT in state CtanHomeFetching, on expire of T5,
> sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a getCtanParam return error APDU containing the error temporarilyUnavailable,

> enters CtanHomeRequestIdle state.

5.2.3.3   Actions at the Authentication Server PINX

Groupselection: Behaviour as Authentication Server PINX for SS-CTAN. PICS: A4.

CTAN_Auth_001   subclause 7.5.3.1
Ensure that the IUT, in state U00 and in state CtanAuthenticationIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq invoke APDU, the PISN number of the CTM user (which is valid and authentication parameters are available for this CTM user) included in the pisnNumber argument, element canCompute is not included,
> sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq return result APDU, element ctanParamInfo contains the calculated response value (choice calcCtanInfo),

> remains CtanAuthenticationIdle state.

CTAN_Auth_002   subclause 7.5.3.1

Ensure that the IUT, in state U00 and in state CtanAuthenticationIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq invoke APDU, the PISN number of the CTM user (which is valid and authentication parameters are available for this CTM user) included in the pisnNumber argument, element canCompute is included,

    sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq return result APDU, element ctanParamInfo contains the authentication session key (choice authSessionKeyInfo),

    remains CtanAuthenticationIdle state.

CTAN_Auth_003   subclause 7.5.3.2

Ensure that the IUT, in state U00 and in state CtanAuthenticationIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq invoke APDU, an invalid PISN number included in the pisnNumber argument,

    sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq return error APDU containing the error invalidServedUserNr,

    remains CtanAuthenticationIdle state.

CTAN_Auth_004   subclause 7.5.3.2

Ensure that the IUT, in state U00 and in state CtanAuthenticationIdle, on receipt of a SETUP (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq invoke APDU, and the authentication parameters are not available,

    sends a CONNECT (sc) message using the call reference of a call independent signalling connection containing in the Facility IE a ctanParamEnq return error APDU containing the error paramNotAvailable,

    remains CtanAuthenticationIdle state.

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 [4].

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 [4], shall be used by any organization claiming to provide a comprehensive testing service for network equipment claiming conformance to I-ETS 300 808 [12].

Bibliography

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

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

History

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