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**Private Integrated Services Network (PISN);  
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Part 2: Abstract Test Suite (ATS) specification**

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## Foreword

This European Telecommunication Standard (ETS) has been produced by the standardizing Information and Communication Systems Association (ECMA) on behalf of its members and those of the European Telecommunications Standards Institute (ETSI).

This ETS comprises two parts with the generic title "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Generic Functional Protocol (GFP) for the support of supplementary services". The title of each part is listed below:

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

**Part 2: "Abstract Test Suite specification (ATS)".**

| Transposition dates   |                  |
|---|------------------|
| Date of adoption of this ETS:   | 23 January 1998  |
| Date of latest announcement of this ETS (doa):  | 31 May 1998      |
| Date of latest publication of new National Standard or endorsement of this ETS (dop/e): | 30 November 1998 |
| Date of withdrawal of any conflicting National Standard (dow):                          | 30 November 1998 |

## 1 Scope

This European Telecommunication Standard (ETS) contains the Abstract Test Suite (ATS) specification for the core part of the Generic Functional Protocol (GFP) for the support of supplementary services of the Inter-exchange signalling protocol, for Private Integrated Services Networks (PISN).

The core part of the GFP excludes the connectionless Application Packet Data Unit (APDU) transport mechanism, the Data Service Element (DSE) protocol, the Application Control Service Element (ACSE) protocol, procedures for carrying manufacturer specific information and requirements only relevant to Originating PINXs for calls and Call Independent Signalling Connections (CISCs) or source PINXs for APDUs and notifications.

The objective of this ETS is to provide conformance tests which give a high probability of inter-operability. This ETS covers the core part of the procedures described in ETS 300 239 [1].

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [5], ISO/IEC 9646-2 [6] and ISO/IEC 9646-3 [7] including Amendment 1 [8]) is used as basis for the test methodology.

This ETS is applicable to implementations which support either a Basic Rate (BR) or a Primary Rate Access (PRA) interface, or both, operating over a leased line. It is applicable to PINXs acting as both transit or end PINXs for calls and Call Related Signalling Connections (CRSC), however it does not include test cases applicable to end PINXs acting as source or originating PINXs.

Annex A provides the Partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma of this ETS.

Annex B provides the Protocol Conformance Test Report (PCTR) proforma of this ETS.

Annex C provides the Tree and Tabular Combined Notation (TTCN) part of this ETS.

## 2 Normative references

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

- [1] ETS 300 239 (1995): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Generic functional protocol for the support of supplementary services".
- [2] ETS 300 172 (1995): "Private Integrated Services Network (PISN); Inter-exchange Signalling protocol; Circuit Mode Basic Services".
- [3] ETS 300 806-1 (1996): "Private Integrated Services Networks (PISN); Inter-exchange signalling protocol; Generic Functional Protocol for the support of supplementary services; Test Suite Structure and Test Purposes (TSS&TP)".
- [4] ETS 300 805-2 (1996): "Private Integrated Services Networks (PISN); Inter-exchange signalling protocol; Circuit Mode Basic Services; Network Layer (NL); Abstract Test Suite Specification (ATS)".
- [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] ISO/IEC 9646-3 (1992): "Information Technology - Open Systems Interconnection - Conformance Testing Methodology and Framework - Part 3: The Tree and Tabular Combined Notation (TTCN)" including Amendment 1 to ISO/IEC 9646-3: 1992 TTCN extensions (1996).
- [8] ISO/IEC 9646-3 AM2 (1997): "Amendment 1 to ISO/IEC 9646-3: 1992 Further extensions".
- [9] ISO/IEC 9646-4 (1994): "Information Technology - Open Systems Interconnection - Conformance Testing Methodology and Framework - Part 4: Test Realization".
- [10] ISO/IEC 9646-5 (1994): "Information Technology - Open Systems Interconnection - Conformance Testing Methodology and Framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process".

### 3 Definitions and abbreviations

#### 3.1 Definitions

For the purposes of this ETS, the following definitions apply:

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

**application layer:** For the purposes of this ETS, this refers to the procedures described as such in ETS 300 239 [1], subclause 6.2.

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

**Lower Tester (LT):** See ISO/IEC 9646-1 [5].

**Network Layer:** For the purposes of this ETS, this refers to the procedures described as such in ETS 300 239 [1] subclause 6.2.

**originating PINX:** See ETS 300 239 [1].

**Point of Control and Observation (PCO):** See ISO/IEC 9646-1 [5].

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

**PICS proforma:** See ISO/IEC 9646-1 [5].

**Protocol Implementation Extra Information For Testing (PIXIT):** See ISO/IEC 9646-1 [5].

**PIXIT proforma:** See ISO/IEC 9646-1 [5].

**Signalling Carriage Mechanism (SCM):** See ETS 300 172 [2].

**super test purpose:** See ETS 300 806-1 [3].

**System Under Test (SUT):** See ISO/IEC 9646-1 [5].

**terminating PINX:** See ETS 300 239 [1].

**transit PINX:** See ETS 300 239 [1].

**Upper Tester (UT):** See ISO/IEC 9646-1 [5].

### 3.2 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

|       |   |
|-------|---|
| ACSE  | Application Control Service Element                   |
| APDU  | Application Packet Data Unit                          |
| ASP   | Abstract Service Primitive                            |
| ATM   | Abstract Test Method                                  |
| ATS   | Abstract Test Suite                                   |
| CF    | Co-ordination Function                                |
| CISC  | Call Independent Signalling Connection                |
| CM    | Co-ordination Message                                 |
| CP    | Co-ordination Point                                   |
| CTP   | Combined Test Purpose                                 |
| DSE   | Data Service Element                                  |
| ETS   | Executable Test Suite                                 |
| GFP   | Generic Functional Protocol                           |
| GFTC  | Generic Functional Transport Control                  |
| IUT   | Implementation Under Test                             |
| LT    | Lower Tester  |
| MTC   | Master Test Component                                 |
| PC    | Protocol Control                                      |
| PCO   | Point of Control and Observation                      |
| PDU   | Protocol Data Unit                                    |
| 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 No.1             |
| PTC   | Parallel Test Component                               |
| ROSE  | Remote Operation Service Element                      |
| RTM   | Response Test Method                                  |
| SS    | Switching System                                      |
| SUT   | System Under Test                                     |
| TC    | Test Case   |
| TP    | Test Purpose  |
| TTCN  | Tree and Tabular Combined Notation                    |

## 4 Abstract Test Method (ATM)

This clause describes the different ATMs used for testing the GFP. Two methods are applied; the Remote test method, and the Multi-Party test method.

### 4.1 Choice of the ATM

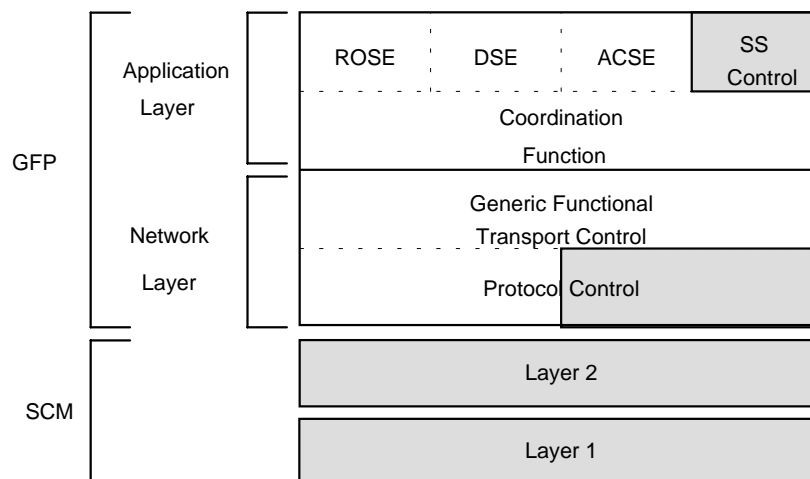
#### 4.1.1 Functional subsets

The GFP is divided into a number of entities as shown in figure 1. This ATS is principally concerned with the testing of the Protocol Control (PC) and Generic Functional Transport Control (GFTC) entities, however it also contains Test Cases (TCs) concerning some error handling functions of the Co-ordination and ROSE entities.

NOTE: Valid behaviour of the application layer is supplementary service specific and its testing is specified in test specifications for individual supplementary services (if any). DSE requirements are excluded from the scope of this ETS.

The testing of all these layers is performed using a PCO at the SCM/Network layer boundary.





NOTE: Grey shading indicates entities not part of the GFP.

**Figure 1: GFP functional subsets**

#### 4.1.2 PINX Role and Test Component Configuration considerations

A PINX may act either in the role of an End PINX or in the role of a Transit PINX in the context of each Basic Call or CISC. A particular PINX may be capable of acting in one or both roles. Whereas the Generic Functional Transport Control (GFTC) requirements generally depend on which role is involved, the Protocol Control (PC) requirements do not.

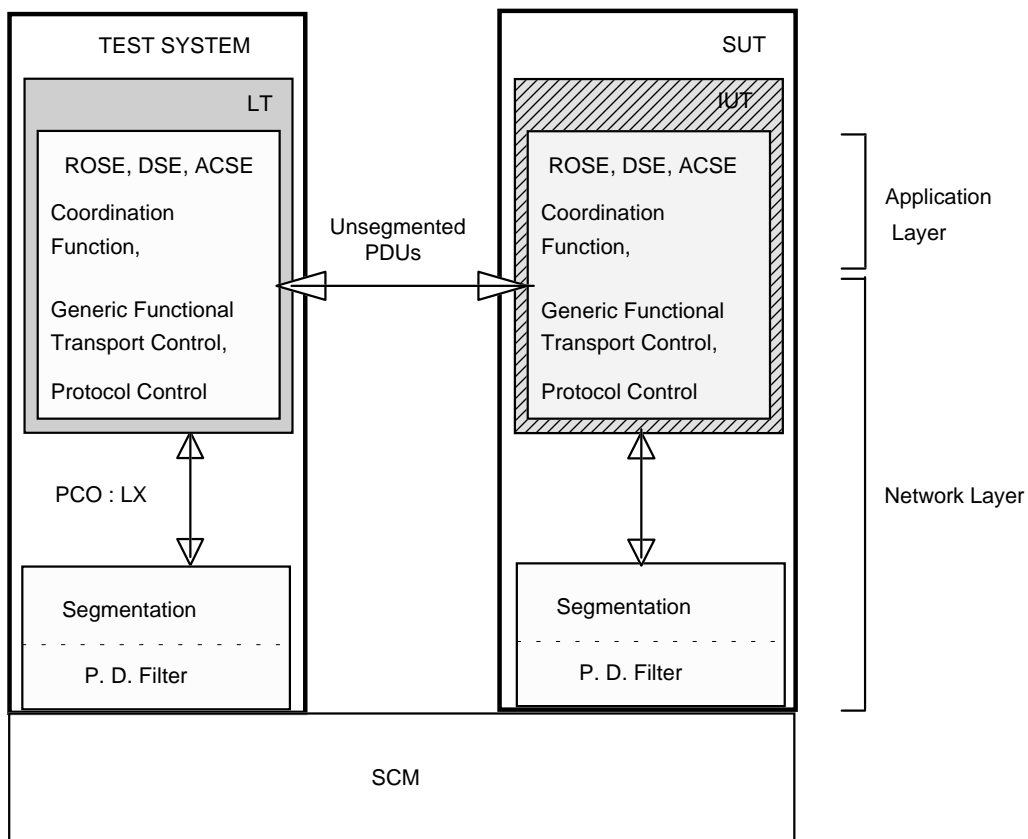
Depending on the role of the PINX, it may be necessary to use different procedures in the preambles to achieve the pre-condition in some TPs concerned with PC requirements. For these cases, which will require different test component configurations, there may be two separate Test Cases (TCs), one for each role, generated from each relevant TP.

#### 4.2 Single PCO testing

Single PCO testing applies to all aspects of the testing of the IUT as an End PINX. It is also used for those tests as a Transit PINX when events at the outgoing side are not required to be tested and when no activity is expected at the outgoing side, i.e. only one interface is reacting.

##### 4.2.1 Testing of End PINX and Transit PINX (single Transit interface active)

As shown in figure 2, the ROSE, Co-ordination Function (CF), GFTC and Protocol Control (PC) part, is considered to be the IUT, and an end-system. It is not possible to observe and control the upper service boundary of the IUT. Consequently, the test method chosen is the Remote Test Method, where the co-ordination procedures are expressed in an informal way. The test system will only contain one LT and no UT. The PCO, called LX, is located between the ROSE, Co-ordination Function, Generic Functional Transport Control and Protocol Control part, and the segmentation part. Only unsegmented Protocol Data Units (PDUs) are exchanged.



**Figure 2: Remote single layer test method for testing of end PINX and transit PINX (single transit interface active)**

### 4.3 Multiple PCO testing

Multiple PCO testing applies to the testing of the IUT as a transit PINX, except for tests where no events on the outgoing side are expected. The two interfaces are active.

#### 4.3.1 Testing of transit PINX (dual transit interfaces active)

As shown in figure 3, the ROSE, CF, GFTC and PC part is considered to be the IUT, and is an open-relay system. Consequently, the test method chosen is a multi-party test method with no UT. The test system will contain two LTs attached to the IUT via two PCOs, called LX and LY, located between the ROSE, CF and PCI part, and the segmentation part. The PDUs exchanged are only unsegmented PDUs.

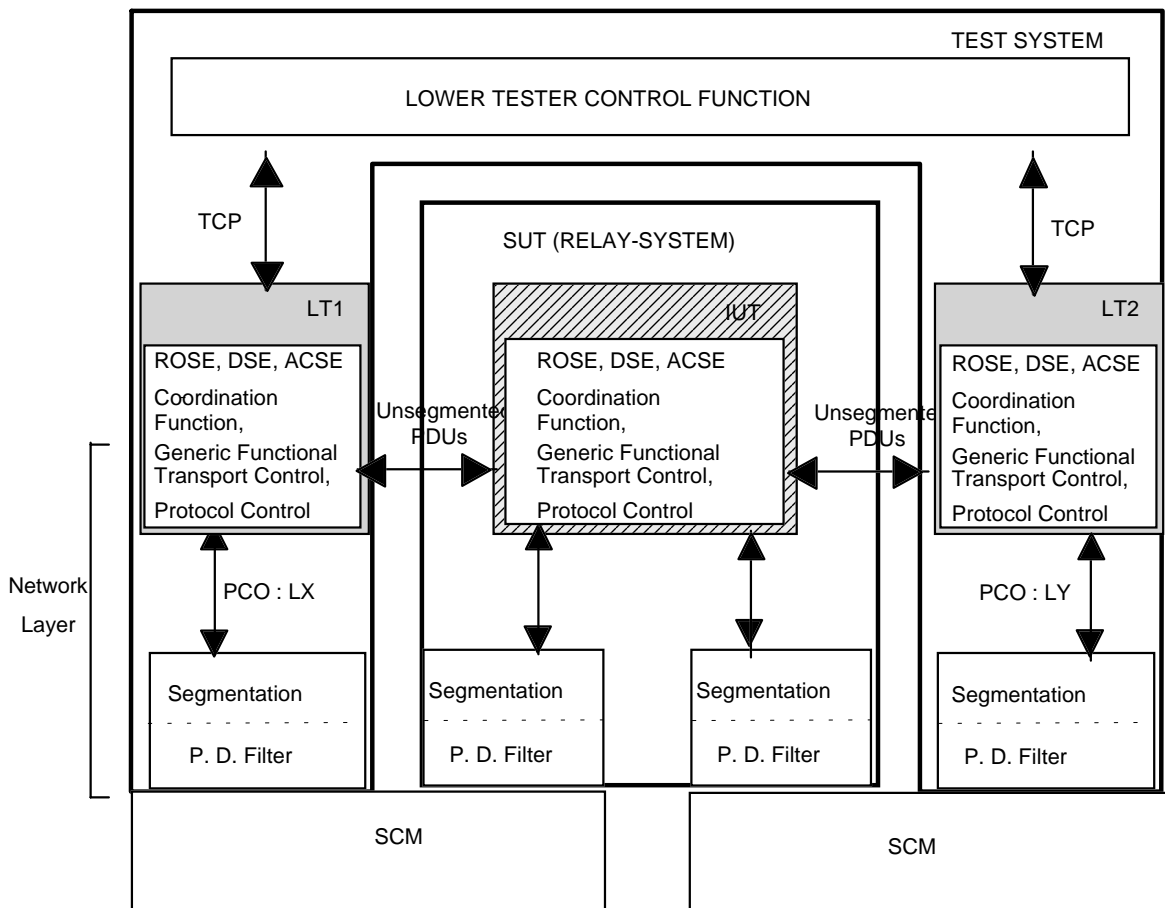


Figure 3: multi-party test method for testing of transit PINX (dual transit interfaces active)

#### 4.4 Test configurations and use of concurrent TTCN

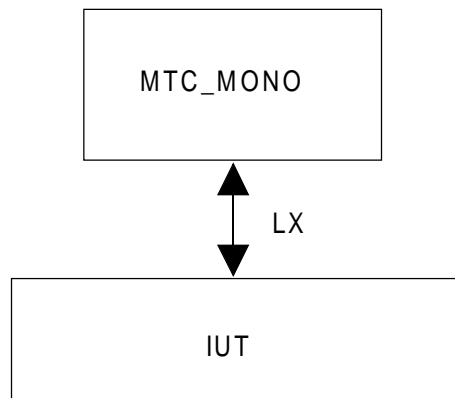
As this ATS covers both single-party testing using non-concurrent TTCN, and multi-party testing using concurrent TTCN, the notation chosen for the complete ATS is the concurrent TTCN syntax. Therefore, test components are defined to describe the two configurations: the "mono" configuration, and the "transit" configuration, as shown in figure 4 and 5.

The mono configuration is used in case of single-party testing, i.e. for the following:

- ROSE testing;
- CF testing;
- GFTC testing;
- PC testing,

for End PINX and Transit PINX (single Transit interface active).

Only one test component, which is the Master Test Component MTC\_MONO, connected to the IUT via the PCO LX, is needed in this case.



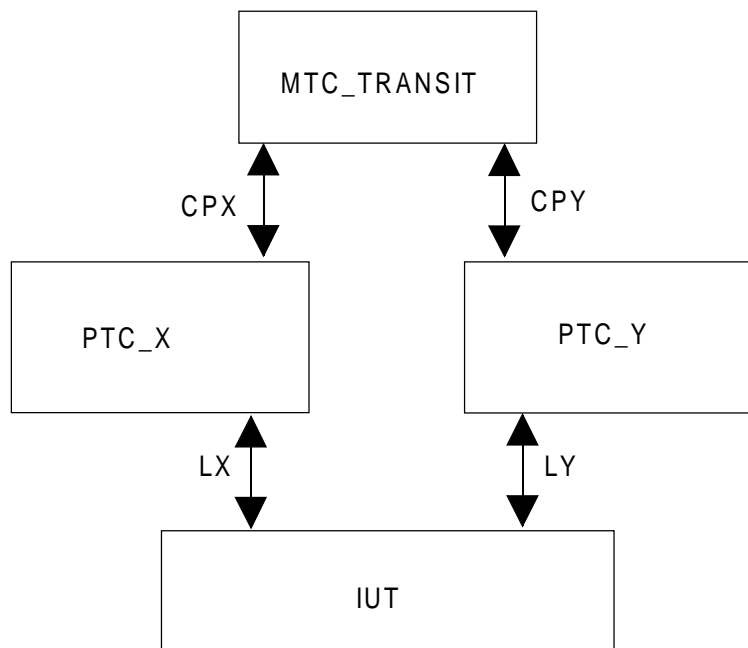
**Figure 4: Mono configuration**

The transit configuration is used in case of multi-party testing, i.e. for the following:

- ROSE testing;
- CF testing;
- GFTC testing;
- PC testing,

for transit PINX (dual transit interfaces active).

In this case, three test components are needed, these are the Master Test Component MTC\_TRANSIT, and the two Parallel Test Components PTC\_X and PTC\_Y, which are connected to the Master Test Component via the two Co-ordination Points CPX and CPY. PTC\_X and PTC\_Y are further connected to the IUT via the two PCOs LX and LY.



**Figure 5: Transit configuration**

## 5 Untestable Test Purposes

Due to the ATMs chosen in this ATS or other restrictions, the following test purposes have been identified as being untestable, and therefore have not been derived into test cases.

The following TPs are applicable to both Transit and End PINX roles and are untestable for both:

TP2042  
TP2073  
TP2139  
TP2140  
TP2210  
TP2213  
TP2217  
TP2218  
TP2249  
TP2251  
TP2254

The following TPs are applicable to both Transit and End PINX roles and are untestable for End PINX only:

TP2014  
TP2016  
TP2017  
TP2049  
TP2057  
TP2058  
TP2076  
TP2077  
TP2085  
TP2167  
TP2168  
TP2170  
TP2171  
TP2172  
TP2174  
TP2177  
TP2178  
TP2181  
TP2182  
TP2183  
TP2184  
TP2185  
TP2191  
TP2253

The following TPs are applicable to End PINX only and are untestable:

TP2164  
TP2195

## **6 Conformance clause**

This ETS is applicable to implementations which support either a BRA or a PRA interface, or both, operating over a leased line. A means of test may offer one or both access types.

The test realiser shall comply with the requirements of ISO/IEC 9646-4 [9]; in particular, these concern the realization of an ETS based on each ATS.

Test laboratories running conformance test services using this ATS shall comply with ISO/IEC 9646-5 [10].

A means of test conforming to this ATS shall implement at least a subset of test cases which is the complete subset of test cases selected according to the selection expressions for a particular consistent set of test suite parameters. Such a subset may include only test cases applicable to Transit PINX or End PINX testing.

## 7 ATS Conventions

This clause describes the conventions adopted in this ATS and gives the naming conventions chosen for the different ATS elements. In general if a name is used, both in this ETS and also in ETS 300 805-2 [4], the name will refer to the same thing, even though the definitions may not be identical. For example, additional IEs, corresponding to differences between ETS 300 239 [1] and ETS 300 172 [2], may be permitted in the definition in this ETS .

### 7.1 Short names and abbreviations

Throughout the ATS short names and abbreviations for PDUs and ASPs are used, also abbreviations for IEs are used. These are defined in tables 1 to 3.

**Table 1: Short names and abbreviations for PDUs**

| PDU name                 | Short name  | Abbreviation |
|--------------------------|---|--------------|
| ALERTING                 | ALERTING  | ALE          |
| CALL PROCEEDING          | CALL_PROC   | CPR          |
| CONNECT                  | CONNECT   | CON          |
| CONNECT ACKNOWLEDGE      | CONN_ACK  | COA          |
| DISCONNECT               | DISCON  | DIS          |
| FACILITY                 | FACILITY  | FAC          |
| INFORMATION              | INFO  | INF          |
| NOTIFY                   | NOTIFY  | NOT          |
| PROGRESS                 | PROGRESS  | PRO          |
| RELEASE                  | RELEASE   | REL          |
| RELEASE COMPLETE         | REL_COM   | RLC          |
| RESTART                  | RESTART   | RES          |
| RESTART ACKNOWLEDGE      | REST_ACK  | RSA          |
| SETUP                    | SETUP   | SET          |
| SETUP ACKNOWLEDGE        | SETUP_ACK   | SUA          |
| STATUS                   | STATUS  | STA          |
| STATUS ENQUIRY           | STAT_ENQ  | STQ          |
| Error PDU (note 1)       | ERROR_PDU   | ERR          |
| Q931 message (note 2)    | Q931MSG   | Q931         |
| Generic message (note 3) | GENERIC   | GEN          |
| NOTE 1:                  | ERROR_PDU is used for incorrectly coded messages sent by the tester which do not have the correct structure for any valid message type.         |              |
| NOTE 2:                  | Q931MSG is used to receive any message without examining its contents.  |              |
| NOTE 3:                  | GENERIC is used for messages received by the tester where the message type may vary but it is necessary to examine the contents of the message. |              |

**Table 2: Short names and abbreviations for ASPs**

| ASP name                | Short name | Abbreviation |
|-------------------------|------------|--------------|
| DL-DATA-REQUEST         | DL_DAT_REQ | DLRQ         |
| DL-DATA-INDICATION      | DL_DAT_IND | DLIN         |
| DL-ESTABLISH-REQUEST    | DL_EST_REQ | DERQ         |
| DL-ESTABLISH-INDICATION | DL_EST_IND | DEIN         |
| DL-ESTABLISH-CONFIRM    | DL_EST_CON | DECO         |
| DL-RELEASE-REQUEST      | DL_REL_REQ | DRRQ         |
| DL-RELEASE-CONFIRM      | DL_REL_CON | DRCO         |

Table 3: Abbreviations for IE

| Information Element name  | Abbreviation |
|---|--------------|
| Protocol discriminator  | PD           |
| Call Reference  | CR           |
| Message type  | MT           |
| Sending complete  | SC           |
| Locking shift (note 1)  | LS           |
| Bearer capability   | BCAP         |
| Cause   | CAU          |
| Called party number   | CDPN         |
| Called party subaddress   | CDPS         |
| Calling party number  | CGPN         |
| Calling party subaddress  | CGPS         |
| Channel identification  | CHI          |
| Connected number  | CNDN         |
| Connected subaddress  | CNDS         |
| Call state  | CST          |
| Facility  | FIE          |
| High layer compatibility  | HLC          |
| Low layer compatibility   | LLC          |
| Notification indicator  | NOT          |
| Party category  | PC           |
| Progress indicator  | PI           |
| Restart indicator   | RI           |
| Transit counter   | TC           |
| Unspecified IE (note 2)   | UNSP         |
| NOTE 1: LS4 and LS5 are used as the abbreviations for locking shift to codesets 4 and 5.      |              |
| NOTE 2: UNSP is used where an IE sent to the IUT does not have the structure of any valid IE. |              |

## 7.2 Test suite type, Abstract Service Primitive type (ASP), PDU and alias identifiers

### 7.2.1 ASP type identifiers

The identifier of an ASP is the short name of the ASP.

EXAMPLE: **DL\_DAT\_REQ** is the DL-DATA-REQUEST ASP.

### 7.2.2 PDU type identifiers

The identifier of a PDU type is the short name of the PDU.

EXAMPLE: **DISCON** is the DISCONNECT PDU.

### 7.2.3 Test Suite Type identifiers (IEs)

The identifier of a test suite type describing a single information element is the abbreviation for the IE with the suffix "\_TYP".

EXAMPLE 1: **FIE\_TYP** is the facility IE type.

The identifier for a set or sequence of IEs of the same type is the abbreviation for the IE with the suffix "s\_TYP".

EXAMPLE 2: **FIEs\_TYP** is a type for a set of one or more Facility IEs.

The identifier for a type describing an invalid variant of an IE is the abbreviation for the IE with the suffix "\_TYP\_BAD".

EXAMPLE 3: **FIE\_TYP\_BAD** is a type for an invalid Facility IE.

The element (field) names used within structured types which describing IEs consist of the abbreviation for the IE followed by an underscore, followed by, in abbreviated form, and in lower case, the name of the relevant field.

EXAMPLE 4: **FIE\_protprof** is the Protocol Profile field of the Facility IE.

#### 7.2.4 ASN.1 types

ASN.1 types corresponding to IEs, have identifiers according to subclause 7.2.3. Other ASN.1 types taken from ETS 300 239 [1] have, whenever possible, the same identifier names as the ASN.1 type names used in those standards. In some cases it is necessary to replace a hyphen character ("-") with an underscore character ("\_") to satisfy the TTCN syntax. Where an ASN.1 type is used to replace an ASN.1 macro, the identifier is the name of the macro with the first letter in upper case and the remainder of the name in lower case (the macro name is specified with all upper case characters).

In other cases the identifier consists of one or more words, with the first letter of each word in upper case, and the remaining letters in the word, in lower case.

EXAMPLE 1: **PrivateTypeOfNumber** is the ASN.1 PrivateTypeOfNumber type from ETS 300 239 [1].

EXAMPLE 2: **Operation** is the ASN.1 type replacing the OPERATION macro.

The identifier of an ASN.1 named type (i.e. the name of a field within a type defined in ASN.1), the identifier of an ASN.1 named number or the identifier of a value of an ASN.1 enumerated type is composed of a string of concatenated words, all but the first word (which begins with a lower case letter), beginning with an uppercase letter, with the remainder of the word in lower case. Where these named types, named numbers or values of enumerated types are taken from ETS 300 239 [1] the same identifiers have been used as in those standards, subject to the same restrictions as for type identifiers.

EXAMPLE 3: **sourceEntity** is the identifier of the ASN.1 named type sourceEntity in the ASN.1 NetworkFacilityExtension type from ETS 300 239 [1].

EXAMPLE 4: **discardAnyUnrecognizedInvokePdu** is the identifier of one named number of the ASN.1 InterpretationAPDU enumerated type from ETS 300 239 [1].

NOTE: Due to the TTCN static semantics, it has been necessary to define new intermediate ASN.1 types (e.g. RoseErrors), consisting of some named numbers from INTEGER types or values of ENUMERATED types, in order to avoid multiple definitions of items with the same name.

#### 7.2.5 Aliases

Aliases are used in the ATS to show which PDU is being sent or received within an ASP. The identifiers for aliases consist of the short name of the PDU, with the suffix "rq" used in aliases for DL\_DAT\_REQ (PDUs sent by the tester) and the suffix "in" used in the case of aliases for DL\_DAT\_IND (PDUs received by the tester).

EXAMPLE: **CONN\_ACKrq** is an alias for DL\_DAT\_REQ used for sending a CONNECT ACKNOWLEDGE message.

### 7.3 Identifiers concerning test configuration

#### 7.3.1 Test components

The name of an Master Test Component (MTC) is composed of the prefix "MTC\_", followed by a string in upper case identifying the function of the MTC.



EXAMPLE 1:           **MTC\_MONO** is the Master Test Component used in the mono configuration.

The name of a Parallel Test Component (PTC) is composed of the prefix "PTC\_", followed by an upper case letter indicating which interface the PTC controls.

EXAMPLE 2:           **PTC\_X** is the PTC representing the X interface of the IUT.

### 7.3.2       **Test component configurations**

The name of a configuration is composed of the prefix "Config\_", followed by a name indicating the function of the configuration. The first letter of this name is in upper case and the remainder in lower case.

EXAMPLE:            **Config\_Transit** is used for transit configuration.

The two figures in subclause 4.4 show a logical view of the configurations used.

### 7.3.3       **Points of Control and Observations (PCOs)**

The PCO identifiers are composed of "L" (for Lower tester) followed by an upper case letter indicating the interface that the PCO is connected to.

EXAMPLE:            **LX** is the PCO on interface X in the LT.

### 7.3.4       **Co-ordination Points (CPs)**

The CP identifiers are composed "CP" followed by an upper case letter indicating the PTC the CP communicates with. (All CPs used are between the MTC and one PTC)

EXAMPLE:            **CPX** is a Co-ordination Point between the MTC\_TRANSIT component and the PTC\_X component.

### 7.3.5       **Co-ordination Message types**

The identifier of a CM type is a string in upper case.

EXAMPLE:            **READY** is a CM used to request if, or to indicate that, a PTC is ready.

## 7.4       **Test Suite Parameter and Selection Expression identifiers**

### 7.4.1       **Test suite parameters**

Two categories of test suite parameters can be distinguished as follows:

- **PICS category:**                   those derived from the PICS proforma questions;
- **PIXIT category:**                 those derived from the PIXIT proforma questions.

and the latter can be further subdivided into the following parts;

- PIXIT values:                   parameters concerning the protocol itself;
- Configuration parameters:     parameters concerning the IUT configuration.
  
- Values:                         values used within test cases;
- Boolean:                        parameters indicating if the corresponding value is available.

All the PICS parameters and PIXIT parameters of the PIXIT values are boolean. The types of the Configuration Values depend on the type of information represented by the parameter.

The identifier of the test suite parameter depends on whether it is a PICS or PIXIT parameter. In each case it starts with a prefix identifying the category.

#### 7.4.2 PICS parameters

The identifiers of PICS parameters start with the prefix "PC\_" followed by "BC\_" or "GFP\_" to indicate whether the parameters is from the basic call PICS (ETS 300 172 [2], annex A) or the GFP PICS (ETS 300 239 [1], annex A). This is followed by the reference of the item in the relevant PICS.

EXAMPLE 1: PC\_GFP\_C1 relates to item C1 in the GFP PICS "Does the PINX support connection-oriented APDU transport?".

EXAMPLE 2: PC\_BC\_B3 relates to item B3 in the basic ball PICS "Is the implementation capable of functioning as a Transit PINX?".

NOTE: The corresponding PICS parameters for Basic Call in the basic call ATS (ETS 300 805-2 [4]) does not include the "BC\_" in the identifier.

#### 7.4.3 PIXIT parameters

The identifiers of PIXIT parameters in the PIXIT values and configuration values categories start with the prefix "PX\_" or "tsp\_" respectively. This is followed by a string of abbreviations, separated by underscores, describing the meaning of the parameter as described in subclause 7.4.5.

EXAMPLE 1: PX\_CISC\_T303 is a parameter meaning "Does the IUT support timer T303 for a CISC".

EXAMPLE 2: tsp\_OpValue is a parameter meaning "Operation value which the IUT can understand".

The identifiers of PIXIT parameters in the boolean configuration category are as the corresponding value with the prefix "CO\_" replacing "tsp\_".

EXAMPLE 3: CO\_OpValue is a parameter meaning "Is an operation value which the IUT can understand available".

The identifiers for PIXIT parameters do not depend on whether the parameter is derived from the GFP PIXIT (annex A of this ETS) or the Basic Call PIXIT (ETS 300 805-2 [4], annex A).

#### 7.4.4 Test Case Selection Expressions

The identifiers of Test Case Selection Expressions consist of a string of abbreviations, separated by underscores, describing the meaning of the parameter as described in subclause 7.4.5.

EXAMPLE: CISC\_TR\_S8\_T313 is a selection expression meaning when true "The IUT can enter state 8 for CISCs as a transit PINX and supports T313 in that situation.

#### 7.4.5 Abbreviations used in PIXIT parameters and Test Case Selection Expressions

The abbreviations used in the PIXIT parameters and Test Case Selection Expressions are defined in table 4. While it is possible to see from these abbreviations the approximate meaning of the parameter or expression it is necessary to refer to the appropriate table in the TTCN ATS or the referenced PIXIT question to determine the exact meaning.

**Table 4: Abbreviations used in PIXIT parameters and Test Case Selection Expressions**

| <b>Abbreviation</b> | <b>Meaning</b>  |
|---------------------|---|
| CISC                | Call Independent Signalling Connection  |
| TR                  | Transit PINX  |
| TE                  | Terminating PINX  |
| EN                  | End PINX  |
| TE_ONLY             | IUT can only act as a terminating PINX (not transit)  |
| EN_ONLY             | IUT can only act as an End PINX (not transit)   |
| S8, etc.            | State 8 etc. (If this is the last component it means that the IUT can enter and is stable in the specified state. If it is followed by a message it means that the IUT can send the message in the specified state) |
| T303 etc.           | Timer T303 etc. implemented   |
| REL etc.            | IUT can send RELEASE message etc. (Message abbreviations are as defined in table 1)   |
| iREL etc.           | Implicit send of RELEASE possible   |
| iCLEAR              | Implicit clearing possible  |
| STx                 | IUT sends STATUS or STATUS ENQUIRY message  |
| imp                 | Feature is implemented  |
| OpValue             | Operation Value which the IUT understands   |
| OpArgument          | Argument for use with OpValue   |
| onDLestCON          | IUT sends message on DL_ESTABLISH_CONFORM   |
| TC                  | IUT supports transit counter functions  |
| TCinclude           | IUT includes transit counter IE   |
| TClimit             | Limit for Transit Counter value   |
| Bcap                | Bearer Capability IE  |
| Echnum              | Valid channel number  |
| CISCnum             | Number for CISCs  |
| NFEnum              | PINX address (for use in NFE)   |
| INVnum              | Invalid number  |
| NRnum               | Insufficient number for routing   |
| Fnum                | Complete number (whether or not IUT can determine it to be complete)  |
| Cnum                | Number the IUT can determine to be complete   |

## 7.5 Miscellaneous identifiers

### 7.5.1 Test suite operations

The test suite operation identifiers are composed of string in lower case separated by underscore characters ('\_').

EXAMPLE: **choose\_bcap** is used for returning the appropriate Information Transfer Capability (ITC) field of the Bearer Capability IE.

### 7.5.2 Test suite constants

The test suite constant identifiers begin with the prefix "C\_", followed by a string identifying the function of the constant. Where the constant represents the value of the message type for a specific message the string consists of "MT" (the abbreviation for the Message Type IE) followed by the abbreviation for the specific message. In other cases the string starts with the abbreviation for the appropriate IE and there is no restriction in the characters in the remainder of the string.

EXAMPLE: **C\_MTCOA** is the **Message Type** IE value of a **CONNECT ACK** message.

### 7.5.3 Test suite variables

No test suite variables have been used in the ATS.

#### 7.5.4 Test case variables

The test case variable identifiers begin with the prefix "CV\_", followed by a string with no restriction on the type of characters.

EXAMPLE: **CV\_CRVALUE** is a Call Reference Value used by one call between the IUT and the tester.

#### 7.5.5 Timers

The identifier for a test suite timer derived from a protocol timer defined in ETS 300 239 [1] or ETS 300 172 [2] is the name of the timer from the base standard with the suffix "\_max" or "\_min" to indicate the minimum or maximum duration of the timer.

EXAMPLE 1: **T313\_max** is a test suite timer corresponding to the maximum duration of the protocol timer T313.

The identifiers for other timers (e.g. those used while waiting for a response from the IUT) consist of "T\_" followed by a name in upper case.

EXAMPLE 2: **T\_REST** is a timer for the response of the IUT to a RESTART message.

### 7.6 Constraints

#### 7.6.1 TTCN Test suite type constraints

Test suite type constraint identifiers consist of the abbreviation for the IE followed by two digits for a valid constraint or one upper case letter (X or Y) and one digit for an erroneous constraint.

EXAMPLE: **CAUX1** is a constraint of the cause test suite type containing an error (reserved value of location).

#### 7.6.2 ASN.1 type constraints

ASN.1 type constraints for complete IEs use the same conventions for identifiers as TTCN Test suite type constraints.

Other ASN.1 type constraints consist of the name of the type or an abbreviation for the type followed by two digits.

EXAMPLE 1: **ComponentPart02** is a constraint for the type ComponentPart (Reject APDU with unrecognizedOperation).

EXAMPLE 2: **Nfe01** is a constraint for the type NetworkFacilityExtension (Valid NFE for a CISC).

#### 7.6.3 ASP constraints

The identifier for an ASP constraint is the abbreviation for the ASP (there is never more than one constraint for each ASP).

EXAMPLE 1: **DLRQ**, is a generic constraint for the DL\_DAT\_REQ primitive, for sending any PDU to the IUT.

EXAMPLE 2: **DLIN**, is a generic constraint for the DL\_DAT\_IND primitive for receiving any PDU from the IUT.

#### 7.6.4 PDU constraints

PDU constraint identifiers consist of the abbreviation for the PDU followed by two digits for a valid constraint or one upper case letter (X or Y) and one digit for an erroneous constraint. The last digit is odd for constraints for messages sent by the tester and even for constraints for messages received by the tester.

EXAMPLE 1: **FACX3** is a constraint for a FACILITY message containing an error (Invalid protocol profile) which is to be sent to the IUT.

EXAMPLE 2: **FAC02** is a constraint for a valid FACILITY message which has been received from the IUT.

#### 7.6.5 CM constraints

The identifier of a CM constraint is an abbreviation of the CM type in upper case.

EXAMPLE: **RDY** is a constraint of the READY CM.

### 7.7 Dynamic part

#### 7.7.1 Test Case identifiers

The Test Case identifier is a 7 digit alphanumeric code, as described below:

- character 1-2: "TC";
- character 3-6: digits identifying the Test Purpose;
- character 7: letter identifying the role of the PINX (Transit or End PINX, or both). This is interpreted as follows:
  - "T": Transit role. Where another TC for the End role has also been generated from the same TP.
  - "E": End role. Where another TC for the Transit role has also been generated from the same TP.
  - "b": both roles. Where the same TC is applicable to both Transit and End roles.
  - "t": Transit role. Where no other TC for the End role has been generated from the same TP.
  - "e": End role. Where no other TC for the Transit role has been generated from the same TP.

NOTE: Uncombined TPs have numbers in the range 2001 to 2999, and CTPs have numbers in the range 3001 to 3999. Therefore it is possible to identify whether or not a TC corresponds to a CTP from character 3.

#### 7.7.2 Test Step identifier

The Test Step identifier is a string in lower case consisting of one or more components separated by underscore characters ("\_").

The following components may appear in test step identifiers in this order:

|                         |   |
|-------------------------|---|
| "pre"                   | Preamble  |
| "check_state"           | Check state   |
| "post"                  | Postamble   |
| "passive"               | Test step run on interface which is not the focus of a transit test case      |
| "mtc", "ptcx" or "ptcy" | Test component (for synchronization test steps)                               |
| "tr"                    | Transit test step (in some cases this is implied from the presence of x or y) |
| "cisc"                  | CISC test step (otherwise basic call or common)                               |
| "status_enq"            | Test step to cause IUT to send a STATUS ENQUIRY                               |
| "clear"                 | Test step to clear the call from one side of a transit PINX                   |
| "x" or "y"              | Interface the test step is run on (implies transit)                           |
| "s0", "s1" etc.         | End state of test step  |

"a" No synchronization at end of test step (transit only)

NOTE: There is no underscore separating "x" or "y", the state and "a".

"ic" Incoming call  
"oc" Outgoing call  
"sync" Synchronize (only)

EXAMPLE 1: **pre\_cisc\_xs10** indicates that this test step is a preamble used in the CISC transit test cases, to bring interface X to state 10.

EXAMPLE 2: **check\_state\_y** indicates that this test step is used to check that the interface Y of the IUT is in a particular state.

EXAMPLE 3: **ptcx\_sync** indicates that this test step is used to synchronize the parallel test component for the interface X, with the master test component.

### 7.7.3 Default identifier

The default identifiers begin with the prefix "def\_", followed by a string in lower case, representing the place where the default tree is used.

EXAMPLE 1: **def\_steps** is the general default tree for the test steps.

EXAMPLE 2: **def\_post** is the default tree for the postambles.

EXAMPLE 3: **def\_pre** is the default tree for the preambles.

EXAMPLE 4: **def\_pre\_x** is the default tree for the transit preambles occurring on interface X.

EXAMPLE 5: **def\_mtc** is the default tree for the transit test cases, describing the behaviour of the Master Test Component.

### 7.8 Notation

The ATS is written in TTCN according to ISO/IEC 9646-3 [7] including Amendment 1 with the following differences:

- 1) The metatype "PDU" is used as the type of arguments to Test Suite Operations.
- 2) OTHERWISE in a default can lead to Inconclusive as well as fail verdicts.
- 3) The procedural definition notation defined in Amendment 1 to ISO/IEC 9646-3 [8] is used in some Test Suite Operations. Where this is used comments are identified by "--" instead of "/\* ... \*/" so that the notation conforms to the syntax of ISO/IEC 9646-3 [7] without this amendment.

## 8 Test case and test purpose mapping

One TC has been derived from each TC in the final TP list from the TSS&TP document (ETS 300 806-1[3]), except for untestable TPs. The TC identifier is the same as the TP identifier except where the PINX can play a dual role (Transit or End). In these cases, the letter "T" or "E" has been added at the end of the corresponding TP identifier to signify the PINX role. In all other cases, the letter "t", or "e", or "b" has been added to the corresponding identifier. This rule allows recognition, from the TC identifier, firstly whether the TC is applicable to one role or to both, and secondly whether there exists another TC applicable to the alternative role.

## Annex A (normative): Partial PIXIT proforma

Notwithstanding the provisions of the copyright clause related to the text of this ETS, ETSI grants that users of this ETS may freely reproduce the PIXIT proforma in this annex so that it can be used for its intended purposes and may further publish the completed PIXIT.

The PIXIT Proforma is based on ISO/IEC 9646-5 [10]. Any additional information needed can be found in that international standard document.

### A.1 Identification summary

|                       |  |
|-----------------------|--|
| PIXIT Number:         |  |
| Test Laboratory Name: |  |
| Date of Issue:        |  |
| Issued to:            |  |

### A.2 ATS summary

| Protocol Specification:   | ETS 300 239 [1]                                      |
|---|--|
| Protocol to be tested:  | PSS1, GFP for the Support of Supplementary Services. |
| ATS Specification:  | ETS 300 806-2 [4]                                    |
| Abstract Test Method for Transit PINX (except part of Protocol Control):        | Multi-Party Test Method with no UT                   |
| Abstract Test Method End PINX and Transit PINX (Part of Protocol Control only): | Remote Test Method                                   |

### A.3 Test laboratory

|                                 |  |
|---------------------------------|--|
| Test Laboratory Identification: |  |
| Test Laboratory Manager:        |  |
| Means of Testing:               |  |

### A.4 Client identification

|                           |  |
|---------------------------|--|
| Client Identification:    |  |
| Client Test manager:      |  |
| Test Facilities required: |  |

### A.5 SUT

|                                  |                         |
|----------------------------------|-------------------------|
| Name:                            |                         |
| Version:                         |                         |
| SCS Number:                      |                         |
| Machine configuration:           |                         |
| Operating System Identification: |                         |
| IUT Identification:              |                         |
| PICS Reference for IUT:          | ETS 300 239 [1] annex A |
| Limitations of the SUT:          |                         |
| Environmental Conditions:        |                         |

## A.6 Protocol layer information

### A.6.1 Protocol identification

|                  |   |
|------------------|---|
| <b>Name:</b>     | <b>PSS1 Generic Functional Protocol for the Support of Supplementary Services</b> |
| Version:         |   |
| PICS References: | ETS 300 239 [1] annex A   |

### A.6.2 IUT information

#### A.6.2.1 Call Independent Signalling Connection (CISC)

Table A.1: CISC numbering

| Item   | Specify for a CISC  | Action Possible? /Item Supported? Y/N | Action taken/Value |
|--|---|---------------------------------------|--------------------|
| 1  | A number, including Numbering Plan Identifier and Type of Number, which can be routed from Interface X to Interface Y.  | note 1                                |                    |
| 2  | If possible, a number, including Numbering Plan Identifier and Type of Number, which is insufficient to allow routing to a further-InterPTNX link.                            | note 2                                |                    |
| 3  | If possible, a number, including Numbering Plan Identifier and Type of Number, which the IUT cannot use to route the connection.  |                                       |                    |
| 4  | A number which the IUT, if capable of acting as a Terminating PTNX, causes the CISC to be terminated at the IUT, but if the IUT is not so capable, relays the number onwards. | note 3                                |                    |
| NOTE 1: A Value for item 1 in this table <b>is</b> required if the answer to item 1 in table A.1 is Yes. |   |                                       |                    |
| NOTE 2: This item is <b>not</b> applicable unless the answer to item 1 in table A.1 is Yes.              |   |                                       |                    |
| NOTE 3: A value is <b>always</b> required for this item.   |   |                                       |                    |

Table A.2: IUT state support

| Item | Does the IUT, for a CISC   | Action Possible? /Item Supported? Y/N | Action taken/Value |
|------|--|---------------------------------------|--------------------|
| 1    | Support state 8?   |                                       | N/A                |
| 2    | As an END PTNX, remain stable in state 9 for at least 4 seconds? |                                       | N/A                |



**Table A.3: Implicit sending**

| Item | How, if possible, for a CISC   | Action Possible? /Item Supported? Y/N | Action taken/Value |
|------|--|---------------------------------------|--------------------|
| 1    | Can the IUT, in state 10 be caused to transmit a RELEASE message?        |                                       |                    |
| 2    | Can the IUT, in state 3 be caused to transmit a STATUS ENQUIRY message?  |                                       |                    |
| 3    | Can the IUT, in state 9 be caused to transmit a STATUS ENQUIRY message?  |                                       |                    |
| 4    | Can the IUT, in state 10 be caused to transmit a STATUS ENQUIRY message? |                                       |                    |

**Table A.4: Timer support**

| Item | For a CISC  | Action Possible? /Item Supported? Y/N | Action taken/Value |
|------|---|---------------------------------------|--------------------|
| 1    | Does the IUT support Timer T303?                    |                                       | N/A                |
| 2    | Does the IUT support Timer T309?                    |                                       | N/A                |
| 3    | Does the IUT as a Transit PTNX, support Timer T310? |                                       | N/A                |
| 4    | Specify the value for Timer T310.                   |                                       |                    |
| 5    | Does the IUT support Timer T313?                    |                                       | N/A                |

**Table A.5: Layer management**

| Item | How, if possible, for a CISC                         | Action Possible? /Item Supported? Y/N | Action taken/Value |
|------|--|---------------------------------------|--------------------|
| 1    | Can the IUT be caused to transmit a RESTART message? |                                       | N/A                |

**Table A.6: SETUP retransmission**

| Item | Does the IUT, for a CISC      | Action Possible? /Item Supported? Y/N | Action taken/Value |
|------|-------------------------------|---------------------------------------|--------------------|
| 1    | Retransmit the SETUP message? |                                       | N/A                |

Table A.7: Specification of values

| Item | Specify, for a CISC   | Action Possible?<br>/Item Supported?<br>Y/N | Action taken/Value |
|------|---|---|--------------------|
| 1    | <p>If possible, a complete Facility IE with the ASN1 parts already coded, i.e. as an hexadecimal string, containing:</p> <ul style="list-style-type: none"> <li>- "9F" for the Protocol Profile octet;</li> <li>- an "any-to-any" NFE with a Destination Address not matching the IUT's address;</li> <li>- no Network Protocol Profile;</li> <li>- no Interpretation APDU;</li> <li>- a ROSE Invoke APDU with an Invoke ID equal to 1, and an operation which the IUT can understand (i.e. the operation value and the argument if any);</li> </ul> <p>which will cause a ReturnResult or ReturnError APDU to be responded by the IUT, when sent in a FACILITY message while the IUT is in state 10.</p> |   |                    |
| 2    | <p>If possible, a complete Facility IE with the ASN1 parts already coded, i.e. as an hexadecimal string, containing:</p> <ul style="list-style-type: none"> <li>- "9F" for the Protocol Profile octet;</li> <li>- an "any-to-any" NFE with no Destination Address;</li> <li>- no Network Protocol Profile;</li> <li>- no Interpretation APDU;</li> <li>- a ROSE Invoke APDU with an Invoke ID equal to 1, and an operation which the IUT can understand (i.e. the operation value and the argument if any),</li> </ul> <p>which will cause a ReturnResult or ReturnError APDU to be responded by the IUT, when sent in a FACILITY message while the IUT is in state 10.</p>                               |   |                    |
| 3    | <p>If possible, a complete Facility IE with the ASN1 parts already coded, i.e. as an hexadecimal string, containing:</p> <ul style="list-style-type: none"> <li>- "9F" for the Protocol Profile octet;</li> <li>- an "any-to-any" NFE with no Destination Address;</li> <li>- no Network Protocol Profile;</li> <li>- no Interpretation APDU;</li> <li>- a ROSE Invoke APDU with an Invoke ID equal to 1, and an operation which the IUT can understand (i.e. the operation value and the argument if any);</li> </ul> <p>which will cause a ReturnResult or ReturnError APDU to be responded by the IUT, when sent in a SETUP message.</p>   |   |                    |

A.6.2.2 Call Related Signalling

Table A.8: Specification of values

| Item | Specify   | Action Possible?<br>/Item Supported?<br>Y/N | Action taken/Value |
|------|---|---|--------------------|
| 1    | The address of the IUT as it would be if included in the NFE.   |   |                    |
| 2    | If possible, a complete Facility IE with the ASN1 parts already coded, i.e. as an hexadecimal string, containing:<br>- "9F" for the Protocol Profile octet;<br>- an "any-to-any" NFE with a Destination;Address not matching the IUT's address;<br>- no Network Protocol Profile;<br>- no Interpretation APDU;<br>- a ROSE Invoke APDU with an Invoke ID equal to 1, and an operation which the IUT can understand (i.e. the operation value and the argument if any),<br>which will cause a ReturnResult or ReturnError APDU to be responded by the IUT, when sent in a FACILITY message while the IUT is in state 10. |   |                    |
| 3    | If possible, a complete Facility IE with the ASN1 parts already coded, i.e. as an hexadecimal string, containing:<br>- "9F" for the Protocol Profile octet;<br>- an "any-to-any" NFE with no Destination Address;<br>- no Network Protocol Profile;<br>- no Interpretation APDU;<br>- a ROSE Invoke APDU with an Invoke ID equal to 1, and an operation which the IUT can understand (i.e. the operation value and the argument if any);<br>which will cause a ReturnResult or ReturnError APDU to be responded by the IUT, when sent in a FACILITY message while the IUT is in state 10.                               |   |                    |

## Annex B (normative): Protocol Conformance Test Report (PCTR) Proforma for GFP

Notwithstanding the provisions of the copyright clause related to the text of this ETS, ETSI grants that users of this ETS may freely reproduce the PCTR proforma in this annex so that it can be used for its intended purposes and may further publish the completed PCTR.

The PCTR proforma is based on ISO/IEC 9646-5 [10]. Any additional information needed can be found in that document.

Text in italics is for guidance purposes only, and is not to be included in the actual PCTR.

### B.1 Identification summary

#### B.1.1 Protocol conformance test report

|                          |  |
|--------------------------|--|
| PCTR Number:             |  |
| PCTR Date:               |  |
| Test Laboratory:         |  |
| Accreditation status:    |  |
| Accreditation reference: |  |
| Technical Authority:     |  |
| Job Title:               |  |
| Signature:               |  |
| Test Laboratory Manager: |  |
| Signature:               |  |

#### B.1.2 IUT identification

|                         |  |
|-------------------------|--|
| Name:                   |  |
| Version:                |  |
| Protocol specification: | ETS 300 239 [1]  |
| PICSSs:                 | ETS 300 239 [1] annex A Ref. (Ref. to attached document).<br>ETS 300 172 [2] annex A Ref. (Ref. to attached document). |

#### B.1.3 Testing environment

|  |  |
|--|--|
| PIXIT:   | ETS 300 806-2 annex A ref. (Ref. to attached doc).<br>ETS 300 805-2 [4] annex A ref. (Ref. to attached doc). |
| ATS Specification:   | ETS 300 806-2  |
| Abstract Test Method for Transit PINX (except part of Protocol Control):       | Multi-Party Test Method with no UT   |
| Abstract Test Method for End PINX and Transit PINX (part of Protocol Control): | Remote Test Method   |
| Means of Testing identification:   |  |
| Period of testing:   |  |
| Conformance Log reference(s):  |  |
| Retention Date for Log reference(s):   |  |

**B.1.4 Limits and reservation**

*Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.*

.....  
.....  
.....  
.....  
.....

The order of test cases listed in clause B.6 of this PCTR corresponds to the ordering of test cases defined in the ATS referenced in subclause B.1.3. This does not indicate that the test cases were executed in this order.

The test results presented in this test report apply only to the particular IUT declared in subclause B 1.2 of this PCTR, for functionality described in the relevant PICSs attached to this PCTR, as presented for test in the period declared in subclause B.1.3 and configured as declared in the relevant PIXITs attached to this PCTR. This PCTR shall not be reproduced except in full together with its attached PICSs and PIXITs.

**B.1.5 Comments**

*Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.*

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**B.2 IUT Conformance status**

This IUT has or has not been shown by conformance assessment to be non conforming to the referenced base specification.

*Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements (as specified in clause B.3 in this report) and there are no "FAIL" verdicts to be recorded (in clause B.6) strike the words "has or", otherwise strike the words "or has not".*

**B.3 Static conformance summary**

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

*Strike the appropriate words in this sentence.*

**B.4 Dynamic conformance summary**

The test campaign did/did not reveal errors in the IUT.

*Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded (in clause B.6 of this report) strike the words "did /", otherwise strike the words "/ did not".*

### B.5 Static conformance review report

If clause B.3 indicates non-conformance, this subclause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

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### B.6 Test campaign report

| ATS Reference | Selected? | Run?   | Verdict | Observations<br>(Reference to any observations made in clause B7) |
|---------------|-----------|--------|---------|---|
| TC1068t       | Yes/No    | Yes/No |         |   |
| TC1069t       | Yes/No    | Yes/No |         |   |
| TC1070t       | Yes/No    | Yes/No |         |   |
| TC1071t       | Yes/No    | Yes/No |         |   |
| TC1075t       | Yes/No    | Yes/No |         |   |
| TC2008t       | Yes/No    | Yes/No |         |   |
| TC2009T       | Yes/No    | Yes/No |         |   |
| TC2009E       | Yes/No    | Yes/No |         |   |
| TC2010T       | Yes/No    | Yes/No |         |   |
| TC2010E       | Yes/No    | Yes/No |         |   |
| TC2013e       | Yes/No    | Yes/No |         |   |
| TC2021t       | Yes/No    | Yes/No |         |   |
| TC2022T       | Yes/No    | Yes/No |         |   |
| TC2022E       | Yes/No    | Yes/No |         |   |
| TC2023T       | Yes/No    | Yes/No |         |   |
| TC2023E       | Yes/No    | Yes/No |         |   |
| TC2030e       | Yes/No    | Yes/No |         |   |
| TC2031e       | Yes/No    | Yes/No |         |   |
| TC2041t       | Yes/No    | Yes/No |         |   |
| TC2043t       | Yes/No    | Yes/No |         |   |
| TC2045b       | Yes/No    | Yes/No |         |   |
| TC2046t       | Yes/No    | Yes/No |         |   |
| TC2047t       | Yes/No    | Yes/No |         |   |
| TC2048t       | Yes/No    | Yes/No |         |   |
| TC2050t       | Yes/No    | Yes/No |         |   |
| TC2051t       | Yes/No    | Yes/No |         |   |
| TC2052T       | Yes/No    | Yes/No |         |   |
| TC2052E       | Yes/No    | Yes/No |         |   |
| TC2053T       | Yes/No    | Yes/No |         |   |
| TC2053E       | Yes/No    | Yes/No |         |   |
| TC2055T       | Yes/No    | Yes/No |         |   |
| TC2055E       | Yes/No    | Yes/No |         |   |
| TC2059t       | Yes/No    | Yes/No |         |   |
| TC2060T       | Yes/No    | Yes/No |         |   |
| TC2060E       | Yes/No    | Yes/No |         |   |
| TC2061T       | Yes/No    | Yes/No |         |   |
| TC2061E       | Yes/No    | Yes/No |         |   |
| TC2062t       | Yes/No    | Yes/No |         |   |
| TC2063T       | Yes/No    | Yes/No |         |   |
| TC2063E       | Yes/No    | Yes/No |         |   |

| <b>ATS Reference</b> | <b>Selected?</b> | <b>Run?</b> | <b>Verdict</b> | <b>Observations<br/>(Reference to any observations made in clause B7)</b> |
|----------------------|------------------|-------------|----------------|---|
| TC2064T              | Yes/No           | Yes/No      |                |   |
| TC2064E              | Yes/No           | Yes/No      |                |   |
| TC2065T              | Yes/No           | Yes/No      |                |   |
| TC2065E              | Yes/No           | Yes/No      |                |   |
| TC2066T              | Yes/No           | Yes/No      |                |   |
| TC2066E              | Yes/No           | Yes/No      |                |   |
| TC2072t              | Yes/No           | Yes/No      |                |   |
| TC2075e              | Yes/No           | Yes/No      |                |   |
| TC2079b              | Yes/No           | Yes/No      |                |   |
| TC2080t              | Yes/No           | Yes/No      |                |   |
| TC2081T              | Yes/No           | Yes/No      |                |   |
| TC2081E              | Yes/No           | Yes/No      |                |   |
| TC2082t              | Yes/No           | Yes/No      |                |   |
| TC2083T              | Yes/No           | Yes/No      |                |   |
| TC2083E              | Yes/No           | Yes/No      |                |   |
| TC2084T              | Yes/No           | Yes/No      |                |   |
| TC2084E              | Yes/No           | Yes/No      |                |   |
| TC2085t              | Yes/No           | Yes/No      |                |   |
| TC2086b              | Yes/No           | Yes/No      |                |   |
| TC2087t              | Yes/No           | Yes/No      |                |   |
| TC2088t              | Yes/No           | Yes/No      |                |   |
| TC2089T              | Yes/No           | Yes/No      |                |   |
| TC2089E              | Yes/No           | Yes/No      |                |   |
| TC2090b              | Yes/No           | Yes/No      |                |   |
| TC2091T              | Yes/No           | Yes/No      |                |   |
| TC2091E              | Yes/No           | Yes/No      |                |   |
| TC2092t              | Yes/No           | Yes/No      |                |   |
| TC2093T              | Yes/No           | Yes/No      |                |   |
| TC2093E              | Yes/No           | Yes/No      |                |   |
| TC2094T              | Yes/No           | Yes/No      |                |   |
| TC2094E              | Yes/No           | Yes/No      |                |   |
| TC2095b              | Yes/No           | Yes/No      |                |   |
| TC2096t              | Yes/No           | Yes/No      |                |   |
| TC2097t              | Yes/No           | Yes/No      |                |   |
| TC2098t              | Yes/No           | Yes/No      |                |   |
| TC2099T              | Yes/No           | Yes/No      |                |   |
| TC2099E              | Yes/No           | Yes/No      |                |   |
| TC2100b              | Yes/No           | Yes/No      |                |   |
| TC2101t              | Yes/No           | Yes/No      |                |   |
| TC2102T              | Yes/No           | Yes/No      |                |   |
| TC2102E              | Yes/No           | Yes/No      |                |   |
| TC2103T              | Yes/No           | Yes/No      |                |   |
| TC2103E              | Yes/No           | Yes/No      |                |   |
| TC2104t              | Yes/No           | Yes/No      |                |   |
| TC2105T              | Yes/No           | Yes/No      |                |   |
| TC2105E              | Yes/No           | Yes/No      |                |   |
| TC2106t              | Yes/No           | Yes/No      |                |   |
| TC2107t              | Yes/No           | Yes/No      |                |   |
| TC2110T              | Yes/No           | Yes/No      |                |   |
| TC2110E              | Yes/No           | Yes/No      |                |   |
| TC2111t              | Yes/No           | Yes/No      |                |   |
| TC2112t              | Yes/No           | Yes/No      |                |   |
| TC2113T              | Yes/No           | Yes/No      |                |   |
| TC2113E              | Yes/No           | Yes/No      |                |   |
| TC2114T              | Yes/No           | Yes/No      |                |   |
| TC2114E              | Yes/No           | Yes/No      |                |   |
| TC2115T              | Yes/No           | Yes/No      |                |   |

| ATS Reference | Selected? | Run?   | Verdict | Observations<br>(Reference to any observations made in clause B7) |
|---------------|-----------|--------|---------|---|
| TC2115E       | Yes/No    | Yes/No |         |   |
| TC2116t       | Yes/No    | Yes/No |         |   |
| TC2117T       | Yes/No    | Yes/No |         |   |
| TC2117E       | Yes/No    | Yes/No |         |   |
| TC2118T       | Yes/No    | Yes/No |         |   |
| TC2118E       | Yes/No    | Yes/No |         |   |
| TC2119T       | Yes/No    | Yes/No |         |   |
| TC2119E       | Yes/No    | Yes/No |         |   |
| TC2120t       | Yes/No    | Yes/No |         |   |
| TC2121T       | Yes/No    | Yes/No |         |   |
| TC2121E       | Yes/No    | Yes/No |         |   |
| TC2122t       | Yes/No    | Yes/No |         |   |
| TC2123T       | Yes/No    | Yes/No |         |   |
| TC2123E       | Yes/No    | Yes/No |         |   |
| TC2124T       | Yes/No    | Yes/No |         |   |
| TC2124E       | Yes/No    | Yes/No |         |   |
| TC2125t       | Yes/No    | Yes/No |         |   |
| TC2126T       | Yes/No    | Yes/No |         |   |
| TC2126E       | Yes/No    | Yes/No |         |   |
| TC2127t       | Yes/No    | Yes/No |         |   |
| TC2128t       | Yes/No    | Yes/No |         |   |
| TC2129T       | Yes/No    | Yes/No |         |   |
| TC2129E       | Yes/No    | Yes/No |         |   |
| TC2130t       | Yes/No    | Yes/No |         |   |
| TC2131T       | Yes/No    | Yes/No |         |   |
| TC2131E       | Yes/No    | Yes/No |         |   |
| TC2132T       | Yes/No    | Yes/No |         |   |
| TC2132E       | Yes/No    | Yes/No |         |   |
| TC2133T       | Yes/No    | Yes/No |         |   |
| TC2133E       | Yes/No    | Yes/No |         |   |
| TC2134t       | Yes/No    | Yes/No |         |   |
| TC2135t       | Yes/No    | Yes/No |         |   |
| TC2136T       | Yes/No    | Yes/No |         |   |
| TC2136E       | Yes/No    | Yes/No |         |   |
| TC2137T       | Yes/No    | Yes/No |         |   |
| TC2137E       | Yes/No    | Yes/No |         |   |
| TC2142T       | Yes/No    | Yes/No |         |   |
| TC2142E       | Yes/No    | Yes/No |         |   |
| TC2143T       | Yes/No    | Yes/No |         |   |
| TC2143E       | Yes/No    | Yes/No |         |   |
| TC2147t       | Yes/No    | Yes/No |         |   |
| TC2148t       | Yes/No    | Yes/No |         |   |
| TC2149t       | Yes/No    | Yes/No |         |   |
| TC2150t       | Yes/No    | Yes/No |         |   |
| TC2151t       | Yes/No    | Yes/No |         |   |
| TC2154t       | Yes/No    | Yes/No |         |   |
| TC2155t       | Yes/No    | Yes/No |         |   |
| TC2158T       | Yes/No    | Yes/No |         |   |
| TC2158E       | Yes/No    | Yes/No |         |   |
| TC2161e       | Yes/No    | Yes/No |         |   |
| TC2163e       | Yes/No    | Yes/No |         |   |
| TC2176t       | Yes/No    | Yes/No |         |   |
| TC2177t       | Yes/No    | Yes/No |         |   |
| TC2178t       | Yes/No    | Yes/No |         |   |
| TC2186T       | Yes/No    | Yes/No |         |   |
| TC2186E       | Yes/No    | Yes/No |         |   |
| TC2187T       | Yes/No    | Yes/No |         |   |



| ATS Reference | Selected? | Run?   | Verdict | Observations<br>(Reference to any observations made in clause B7) |
|---------------|-----------|--------|---------|---|
| TC2187E       | Yes/No    | Yes/No |         |   |
| TC2188T       | Yes/No    | Yes/No |         |   |
| TC2188E       | Yes/No    | Yes/No |         |   |
| TC2189t       | Yes/No    | Yes/No |         |   |
| TC2190t       | Yes/No    | Yes/No |         |   |
| TC2191t       | Yes/No    | Yes/No |         |   |
| TC2192T       | Yes/No    | Yes/No |         |   |
| TC2192E       | Yes/No    | Yes/No |         |   |
| TC2200T       | Yes/No    | Yes/No |         |   |
| TC2200E       | Yes/No    | Yes/No |         |   |
| TC2201T       | Yes/No    | Yes/No |         |   |
| TC2201E       | Yes/No    | Yes/No |         |   |
| TC2211T       | Yes/No    | Yes/No |         |   |
| TC2211E       | Yes/No    | Yes/No |         |   |
| TC2212T       | Yes/No    | Yes/No |         |   |
| TC2212E       | Yes/No    | Yes/No |         |   |
| TC2214t       | Yes/No    | Yes/No |         |   |
| TC2215E       | Yes/No    | Yes/No |         |   |
| TC2215T       | Yes/No    | Yes/No |         |   |
| TC2219E       | Yes/No    | Yes/No |         |   |
| TC2219T       | Yes/No    | Yes/No |         |   |
| TC2220E       | Yes/No    | Yes/No |         |   |
| TC2220T       | Yes/No    | Yes/No |         |   |
| TC2221E       | Yes/No    | Yes/No |         |   |
| TC2221T       | Yes/No    | Yes/No |         |   |
| TC2237e       | Yes/No    | Yes/No |         |   |
| TC2238e       | Yes/No    | Yes/No |         |   |
| TC2250T       | Yes/No    | Yes/No |         |   |
| TC2250E       | Yes/No    | Yes/No |         |   |
| TC2252T       | Yes/No    | Yes/No |         |   |
| TC2252E       | Yes/No    | Yes/No |         |   |
| TC2253t       | Yes/No    | Yes/No |         |   |
| TC3001t       | Yes/No    | Yes/No |         |   |
| TC3002t       | Yes/No    | Yes/No |         |   |
| TC3003t       | Yes/No    | Yes/No |         |   |
| TC3004t       | Yes/No    | Yes/No |         |   |
| TC3005t       | Yes/No    | Yes/No |         |   |
| TC3006t       | Yes/No    | Yes/No |         |   |
| TC3007e       | Yes/No    | Yes/No |         |   |
| TC3008e       | Yes/No    | Yes/No |         |   |
| TC3009e       | Yes/No    | Yes/No |         |   |
| TC3010e       | Yes/No    | Yes/No |         |   |
| TC3011e       | Yes/No    | Yes/No |         |   |
| TC3012e       | Yes/No    | Yes/No |         |   |
| TC3013t       | Yes/No    | Yes/No |         |   |
| TC3016t       | Yes/No    | Yes/No |         |   |
| TC3017t       | Yes/No    | Yes/No |         |   |
| TC3019T       | Yes/No    | Yes/No |         |   |
| TC3019E       | Yes/No    | Yes/No |         |   |
| TC3020T       | Yes/No    | Yes/No |         |   |
| TC3020E       | Yes/No    | Yes/No |         |   |
| TC3022t       | Yes/No    | Yes/No |         |   |
| TC3023t       | Yes/No    | Yes/No |         |   |
| TC3024t       | Yes/No    | Yes/No |         |   |
| TC3025t       | Yes/No    | Yes/No |         |   |
| TC3026t       | Yes/No    | Yes/No |         |   |
| TC3027t       | Yes/No    | Yes/No |         |   |



## **Annex C (normative): Abstract Test Suite (ATS) for GFP**

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [7].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the table of contents. The ATS itself contains a test suite overview part which provides additional information and references.

### **C.1 The TTCN Graphical form (TTCN.GR)**

The TTCN.GR representation of this ATS is contained in a PDF file (GFP.PDF, see note 1) which accompanies this ETS.

### **C.2 The TTCN Machine Processable form (TTCN.MP)**

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (GFP.MP, see note 1) which accompanies this ETS.

NOTE 1: This file is located in an archive file name 8062\_E1.LZH.

NOTE 2: According to ISO/IEC 9646-3 [7], in case of a conflict in interpretation of the operational semantics of TTCN.GR and TTCN.MP, the operational semantics of the TTCN.GR representation takes precedence.

## History

| Document history |                |         |                          |
|------------------|----------------|---------|--------------------------|
| July 1996        | Public Enquiry | PE 110: | 1996-07-22 to 1996-11-15 |
| November 1997    | Vote           | V 9803: | 1997-11-18 to 1998-01-16 |
| February 1998    | First Edition  |         |                          |
|                  |                |         |                          |
|                  |                |         |                          |