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**Integrated Services Digital Network (ISDN);
Subaddressing (SUB) supplementary service;
Digital Subscriber Signalling System No. one (DSS1) protocol;
Part 3: Test Suite Structure and Test Purposes (TSS&TP)
specification for the user**

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS is part 3 of a multi-part standard covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) Subaddressing (SUB) supplementary service, as described below:

Part 1: "Protocol specification";

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

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

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

Part 5: "TSS&TP specification for the network";

Part 6: "ATS and partial PIXIT proforma specification for the network".

Transposition dates	
Date of adoption of this ETS:	30 August 1996
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Date of withdrawal of any conflicting National Standard (dow):	30 June 1997

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1 Scope

This third part of ETS 300 061 specifies the Test Suite Structure and Test Purposes (TSS&TP) for the User side of the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [6]) of implementations conforming to the stage three standard for the Subaddressing (SUB) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, ETS 300 061-1 [1].

A further part of this ETS specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma based on this ETS. Other parts specify the TSS&TP and the ATS and partial PIXIT proforma for the Network side of the T reference point or coincident S and T reference point of implementations conforming to ETS 300 061-1 [1].

2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of 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 300 061-1 (1991): "Integrated Services Digital Network (ISDN); Subaddressing (SUB) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [2] ETS 300 061-2 (1995): "Integrated Services Digital Network (ISDN); Subaddressing (SUB) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".
- [3] ISO/IEC 9646-1: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 1: General Concepts".
- [4] ISO/IEC 9646-2: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 2: Abstract Test Suite specification".
- [5] ISO/IEC 9646-3: "Information Technology - OSI Conformance Testing Methodology and Framework; Part 3: The Tree and Tabular Combined Notation".
- [6] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".
- [7] ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control".
- [8] ITU-T Recommendation I.112 (1993): "Vocabulary and terms for ISDNs".
- [9] CCITT Recommendation E.164 (1991): "Numbering plan for the ISDN era".
- [10] ITU-T Recommendation I.210 (1993): "Principles of the telecommunication services supported by an ISDN and the means to describe them".

3 Definitions

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

3.1 Definitions related to conformance testing

abstract test case: Refer to ISO/IEC 9646-1 [3].

Abstract Test Suite (ATS): Refer to ISO/IEC 9646-1 [3].

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

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

implicit send event: Refer to ISO/IEC 9646-3 [5].

lower tester: Refer to ISO/IEC 9646-1 [3].

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

point of control and observation: 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].

Protocol Implementation eXtra Information for Testing (PIXIT): Refer to ISO/IEC 9646-1 [3].

PIXIT proforma: Refer to ISO/IEC 9646-1 [3].

system under test: Refer to ISO/IEC 9646-1 [3].

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

3.2 Definitions related to ETS 300 061-1

Integrated Services Digital Network (ISDN): See ITU-T Recommendation I.112 [8], definition 308.

ISDN number: A number conforming to the numbering plan and structure specified in CCITT Recommendation E.164 [9].

served user: The user of a particular ISDN number who has subscribed to the subaddressing information in association with incoming calls. The served user is also known as the called user.

service; telecommunication service: See ITU-T Recommendation I.112 [8], definition 201.

supplementary service: See ITU-T Recommendation I.210 [10], subclause 2.4.

user: The DSS1 protocol entity at the User side of the user-network interface where a T reference point or coincident S and T reference point applies.

user (S/T): The DSS1 protocol entity at the User side of the user-network interface where a coincident S and T reference point applies.

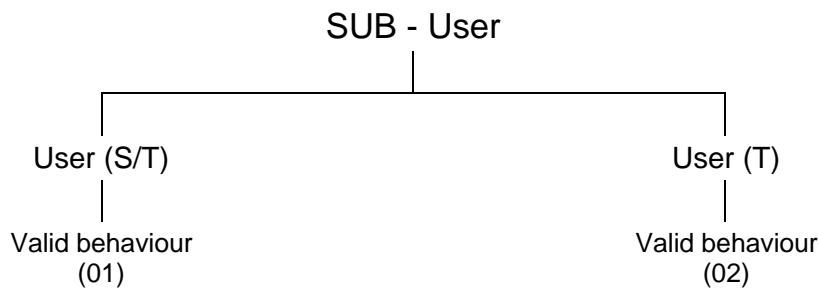
user (T): The DSS1 protocol entity at the User side of the user-network interface where a T reference point applies (User is the Private ISDN).

4 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
BC	Bearer Capability
DSS1	Digital Subscriber Signalling System No. one
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
SUB	Subaddressing
TP	Test Purpose
TSS	Test Suite Structure
U00	Null call state

5 Test Suite Structure (TSS)



NOTE 1: Numbers in brackets represent group numbers and are used in TP identifiers.
 NOTE 2: This TSS reflects only the normative part of the document.

Figure 1: Test suite structure

6 Test Purposes (TP)

6.1 Introduction

For each test requirement a TP is defined.

6.1.1 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>_<iut><group>_<nnn>		
<ss>	=	supplementary service: e.g. "SUB"	
<iut>	=	type of IUT:	U User N Network
<group>	=	group	2 digit field representing group reference according to TSS
<nnn>	=	sequential number	(001-999)

6.1.2 Source of TP definition

The TPs are based on ETS 300 061-1 [1].

6.1.3 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

TP part	Text	Example
Header	<Identifier> <i>tab</i> <paragraph number in base ETS> <i>tab</i> <PICS reference> <i>tab</i> <condition> <i>CR</i>	see table 1 subclause 0.0.0 XY 0.0 mandatory, optional, conditional
Stimulus	Ensure that the IUT in the <basic call state> <trigger> <i>see below for message structure</i> or <goal>	U00, U10, etc. receiving a XXXX message to request a
Reaction	<action> <conditions> <i>if the action is sending</i> <i>see below for message structure</i> <next action>, etc. and enters <supplementary service state> <i>and/or</i> and remains in the same state(s)	sends, saves, does, etc. using en bloc sending, ...
Message structure	<message type> message containing a <i>a)</i> <info element> information element with <i>b)</i> a <field name> encoded as <i>or</i> including <coding of the field> and <i>back to a or b</i> ,	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.	

6.1.4 Test strategy

As the base standard ETS 300 061-1 [1] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification ETS 300 061-2 [2]. The criteria applied include the following:

- only the requirements from the point of view of the T or coincident S and T reference point are considered;
- whether or not a test case can be built from the TP is not considered.

6.2 User TPs for SUB

All PICS items referred to in this subclause are as specified in ETS 300 061-2 [2] unless indicated otherwise by another numbered reference.

6.2.1 User (S/T)

6.2.1.1 Valid behaviour

Selection: IUT supports coincident S and T reference point procedures.

SUB_U01_001 **subclause 9.2.1** **MC 1.1** **mandatory**
Ensure that the IUT in the Null call state U00, receiving a valid and compatible SETUP message containing a Called party subaddress information element with matching digits, handles the call following the basic call procedures.

SUB_U01_002 **subclause 9.2.1** **MC 1.1** **mandatory**
Ensure that the IUT in the Null call state U00, receiving a valid and compatible SETUP message containing a Called party subaddress information element with mismatching digits, does not accept the call and remains in the same state.

SUB_U01_003 **subclause 9.2.1** **MC 1.1** **mandatory**
Ensure that the IUT in the Null call state U00, receiving a valid and compatible SETUP message without the Called party subaddress information element, handles the call following the basic call procedures.

6.2.2 User (T)

6.2.2.1 Valid behaviour

Selection: IUT supports T reference point procedures.

SUB_U02_001 **subclause 9.2.1** **MC 1.1** **mandatory**
Ensure that the IUT in the Null call state U00, receiving a valid and compatible SETUP message containing a Called party subaddress information element with the type of subaddress encoded as "NSAP", handles the call following the basic call procedures.

SUB_U02_002 **subclause 9.2.1** **MC 1.1** **mandatory**
Ensure that the IUT in the Null call state U00, receiving a valid and compatible SETUP message containing a Called party subaddress information element with the type of subaddress encoded as "User specified", handles the call following the basic call procedures.

SUB_U02_003 **subclause 9.2.1** **MC 1.1** **mandatory**
Ensure that the IUT in the Null call state U00, receiving a valid and compatible SETUP message containing a Called party subaddress information element with the type of subaddress encoded as a reserved value, handles the call following the basic call procedures (and ignores the remaining information in the received Called party subaddress) and optionally sends a STATUS message containing a Cause information element with cause value #100 "invalid information element contents".

SUB_U02_004 **subclause 9.2.1** **MC 1.1** **mandatory**
Ensure that the IUT in the Null call state U00, receiving a valid and compatible SETUP message containing a Called party subaddress information element with the odd/even indicator encoded as "even", handles the call following the basic call procedures.

SUB_U02_005 **subclause 9.2.1** **MC 1.1** **mandatory**
Ensure that the IUT in the Null call state U00, receiving a valid and compatible SETUP message containing a Called party subaddress information element with the odd/even indicator encoded as "odd", handles the call following the basic call procedures.

7 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 6;
- b) use a TSS which is an appropriate subset of the whole of the TSS specified in clause 5;
- c) use the same naming conventions for the test groups and test cases;
- d) maintain the relationship specified in clause 6 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 6 shall be included in a compliant ATS.

8 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 user equipment claiming conformance to ETS 300 061-1 [1].

Annex A (informative): Additional test purposes for the calling user (S/T or T)

ETS 300 061-1 [1] places no requirements on the calling user on how it should code a transmitted Called party subaddress information element.

While, for conformance, only the tests in the main body of this ETS need to be performed, the test purposes below may prove useful in ascertaining behaviour over and above the requirements of ETS 300 061-1 [1].

SUB_U03_001

Ensure that the IUT in the Null call state U00, in order to establish a call using the SUB supplementary service,

sends a SETUP message containing a Called party subaddress information element with a correctly coded type of subaddress.

History

Document history			
October 1995	Public Enquiry	PE 94:	1995-10-23 to 1996-02-16
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