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Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network

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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 5 of a multi-part standard covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) Malicious Call Identification (MCID) 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:	4 October 1996
Date of latest announcement of this ETS (doa):	31 January 1997
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 July 1997
Date of withdrawal of any conflicting National Standard (dow):	31 July 1997

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1 Scope

This fifth part of ETS 300 130 specifies the Test Suite Structure and Test Purposes (TSS&TP) for the Network side of the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [7]) of implementations conforming to the stage three standard for the Malicious Call Identification (MCID) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, ETS 300 130-1 [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 User side of the T reference point or coincident S and T reference point of implementations conforming to ETS 300 130-1 [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 300 130-1 (1992): "Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[2] ETS 300 130-2 (1995): "Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) 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] ETS 300 196-1 (1993): "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[7] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".

[8] ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control".

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

[10] CCITT Recommendation E.164 (1991): "Numbering plan for the ISDN era".

[11] 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].

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].

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 300 130-1

component: See ETS 300 196-1 [6], subclause 11.2.2.1.

Integrated Services Digital Network (ISDN): See ITU-T Recommendation I.112 [9], definition 308.

ISDN number: A number conforming to the numbering and structure specified in CCITT Recommendation E.164 [10].

invoke component: See ETS 300 196-1 [6], subclause 11.2.2.1.

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

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

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

return error component: See ETS 300 196-1 [6], subclause 11.2.2.1.

return result component: See ETS 300 196-1 [6], subclause 11.2.2.1.

served user: The served user is the user who invokes the MCID supplementary service.

service; telecommunication service: See ITU-T Recommendation I.112 [9], definition 201.

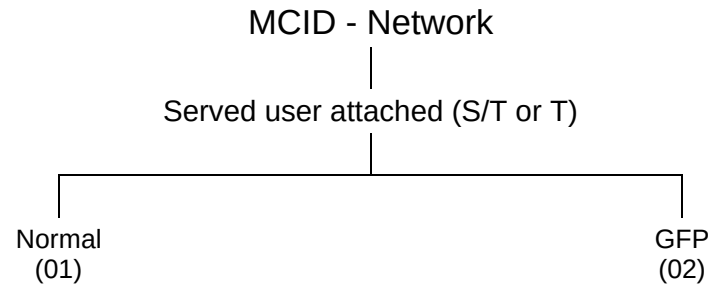
supplementary service: See CCITT Recommendation I.210 [11], subclause 2.4.

4 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
DSS1	Digital Subscriber Signalling System No. one
GFP	Generic Functional Protocol
IUT	Implementation Under Test
ISDN	Integrated Services Digital Network
MCID	Malicious Call Identification
N02	Overlap Sending call state
N03	Outgoing Call Proceeding call state
N04	Call Delivered call state
N06	Call Present call state
N07	Call Received call state
N08	Connect Request call state
N09	Incoming Call Proceeding call state
N10	Active call state
N12	Disconnect Indication call state
N19	Release Request call state
N25	Overlap Receiving call state
TP	Test Purpose
TSS	Test Suite Structure

5 Test Suite Structure (TSS)



NOTE: Numbers in brackets represent group numbers and are used in TP identifiers.

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. "MCID"	
<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 300 130-1 [1], clauses 9, 10 and 14.

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>** *tab* **<paragraph number in base ETS>** *tab* **<type of test>** *tab* **<condition>** *CR.*	see table 1 **subclause 0.0.0** **valid, invalid, inopportune** **mandatory, optional, conditional**
Stimulus	Ensure that the IUT in the <basic call state> <trigger> *see below for message structure* *or* <goal>	 N00, N10, 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.	

6.1.4 Test strategy

As the base standard ETS 300 130-1 [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 300 130-2 [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 Network TPs for MCID

6.2.1 Served user attached (S/T or T)

6.2.1.1 Normal

MCID_N01_001 subclause 9.2.1, 2nd paragraph valid mandatory
Ensure that the IUT in the Active call state N10, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return result component.

MCID_N01_002 subclause 9.2.1, 2nd paragraph valid mandatory
Ensure that the IUT in the Disconnect Indication call state N12, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return result component.

MCID_N01_003 subclause 9.2.2, 1st paragraph inopportune mandatory
Ensure that the IUT in the Overlap Sending call state N02, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "invalidCallState".

MCID_N01_004 subclause 9.2.2, 1st paragraph inopportune mandatory
Ensure that the IUT in the Outgoing Call Proceeding call state N03, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "invalidCallState".

MCID_N01_005 subclause 9.2.2, 1st paragraph inopportune mandatory
Ensure that the IUT in the Call Delivered call state N04, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "invalidCallState".

MCID_N01_006 subclause 9.2.2, 1st paragraph inopportune mandatory
Ensure that the IUT in the Call Present call state N06, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "invalidCallState".

MCID_N01_007 subclause 9.2.2, 1st paragraph inopportune mandatory
Ensure that the IUT in the Call Received call state N07, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "invalidCallState".

MCID_N01_008 subclause 9.2.2, 1st paragraph inopportune mandatory
Ensure that the IUT in the Incoming Call Proceeding call state N09, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "invalidCallState".

MCID_N01_009 subclause 9.2.2, 1st paragraph inopportune mandatory
Ensure that the IUT in the Release Request call state N19, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "invalidCallState".

MCID_N01_010 subclause 9.2.2, 1st paragraph inopportune mandatory
Ensure that the IUT in the Overlap Receiving call state N25, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "invalidCallState".

MCID_N01_011 subclause 9.2.2, 2nd paragraph inopportune mandatory
Ensure that the IUT in the Active call state N10, and if the supplementary service MCID is not subscribed to, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "notSubscribed".

MCID_N01_012 subclause 9.2.2, 2nd paragraph inopportune mandatory
Ensure that the IUT in the Disconnect Indication call state N12, and if the supplementary service MCID is not subscribed to, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "notSubscribed".

MCID_N01_013 subclause 9.2.2, 3rd paragraph inopportune mandatory
Ensure that the IUT in the Active call state N10, and if the supplementary service MCID is invoked for an outgoing call, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "notIncomingCall".

MCID_N01_014 subclause 9.2.2, 3rd paragraph inopportune mandatory
Ensure that the IUT in the Disconnect Indication call state N12, and if the supplementary service MCID is invoked for an outgoing call, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "notIncomingCall".

MCID_N01_015 subclause 9.2.2, 5th paragraph inopportune mandatory
Ensure that the IUT in the Active call state N10, and if it is not possible to register any call information, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "notAvailable".

MCID_N01_016 subclause 9.2.2, 5th paragraph inopportune mandatory
Ensure that the IUT in the Disconnect Indication call state N12, and if it is not possible to register any call information, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,
responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "notAvailable".

MCID_N01_017 subclause 9.2.2, 6th paragraph inopportune optional
Ensure that the IUT in the Active call state N10, and another supplementary service has already been invoked when interaction between these two services is not allowed, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,

responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "supplementaryServiceInteractionNotAllowed".

Selection: Another supplementary service which is not allowed to work along with MCID is supported.

MCID_N01_018 subclause 9.2.2, 6th paragraph inopportune optional
Ensure that the IUT in the Disconnect Indication call state N12, and another supplementary service has already been invoked when interaction between these two services is not allowed, on receipt of a FACILITY message with a Facility information element containing a mCIDRequest invoke component,

responds with a FACILITY message with a Facility information element containing a mCIDRequest return error component indicating "supplementaryServiceInteractionNotAllowed".

Selection: Another supplementary service which is not allowed to work along with MCID is supported.

6.2.1.2 GFP

MCID_N02_001 [6] subclause 8.3.1.1.2 invalid mandatory
Ensure that the IUT in the Active call state N10, on receipt of a FACILITY message containing no Facility information element,

ignores the message contents, remains in the same state and transmits a STATUS message containing a Cause information element with value #96 "mandatory information element is missing".

MCID_N02_002 [6] 8.3.1.1.2 invalid mandatory
Ensure that the IUT in the Active call state N10, on receipt of a FACILITY message with a Facility information element containing an invalid protocol profile,

ignores the message contents, remains in the same state and transmits a STATUS message containing a Cause information element with value #100 "invalid information element contents".

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 network equipment claiming conformance to ETS 300 130-1 [1].

History

Document history			
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