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**Integrated Services Digital Network (ISDN);
Closed User Group (CUG) 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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Contents

Foreword	5
1 Scope	7
2 Normative references	7
3 Definitions	8
3.1 Definitions related to conformance testing	8
3.2 Definitions related to ETS 300 138-1	8
4 Abbreviations	9
5 Test Suite Structure (TSS)	9
6 Test Purposes (TP)	9
6.1 Introduction	9
6.1.1 TP naming convention	9
6.1.2 Source of TP definition	10
6.1.3 TP structure	10
6.1.4 Test strategy	11
6.2 User TPs for CUG	11
6.2.1 Call originating from a user with the CUG supplementary service (explicit request)	11
6.2.2 Call terminating at a user with the CUG supplementary service	12
7 Compliance	12
8 Requirements for a comprehensive testing service	12
History	13

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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) Closed User Group (CUG) 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 300 138 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 Closed User Group (CUG) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, ETS 300 138-1 [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 300 138-1 [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 300 138-1 (1992): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [2] ETS 300 138-2 (1995): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) 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] 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 300 138-1

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

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

supplementary service: See ITU-T Recommendation I.210 [9], subclause 2.4.

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.

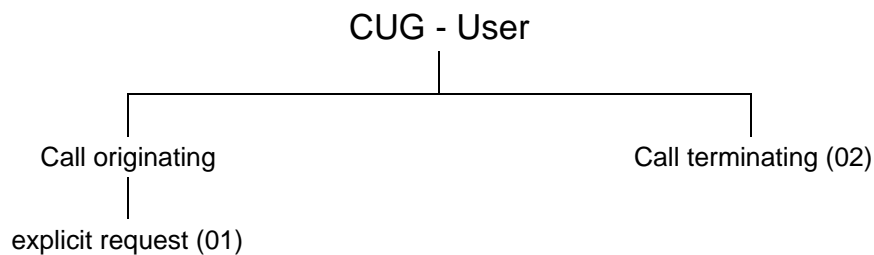
user (T): The DSS1 protocol entity at the User side of the user-network interface where a T reference point applies (User is the Private ISDN).

4 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
CUG	Closed User Group
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
TP	Test Purpose
TSS	Test Suite Structure
U00	Null call state
U01	Call Initiated call state
U02	Overlap Sending call state
U03	Outgoing Call Proceeding 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

Ts 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. "CUG"	
<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 300 138-1 [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> <condition> <i>CR</i>	see table 1 subclause 0.0.0 mandatory, optional, conditional
Stimulus	Ensure that the IUT in the <basic call state> <trigger> <i>see below for message structure</i> <i>or</i> <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>, <i>etc.</i> 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 300 138-1 [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 300 138-2 [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 CUG

All PICS items referred to in this subclause are as specified in ETS 300 138-2 [2] unless indicated otherwise by another numbered reference.

6.2.1 Call originating from a user with the CUG supplementary service (explicit request)

Selection: IUT supports the explicit request of CUG, PICS: MC1.

CUG_U01_001 **subclause 9.2.1.1** **mandatory**
Ensure that the IUT in the Null call state U00, to establish a call requesting explicitly the CUG supplementary service,
sends a SETUP message containing a Facility information element with a correctly encoded cUGCall invoke component.

CUG_U01_002 **subclause 9.2.1.1, table 5** **mandatory**
Ensure that the IUT in the Null call state U00, to establish a call requesting the CUG supplementary service indicating "Outgoing access not requested, CUG index",
sends a SETUP message containing a Facility information element with a cUGCall invoke component encoded as "Outgoing access not requested, CUG index".

CUG_U01_003 **subclause 9.2.1.1, table 5** **mandatory**
Ensure that the IUT in the Null call state U00, to establish a call requesting the CUG supplementary service indicating "Outgoing access requested, CUG index",
sends a SETUP message containing a Facility information element with a cUGCall invoke component encoded as "Outgoing access requested, CUG index".

CUG_U01_004 **subclause 9.2.1.1, table 5** **mandatory**
Ensure that the IUT in the Null call state U00, to establish a call requesting the CUG supplementary service indicating "Outgoing access not requested, no CUG index",
sends a SETUP message containing a Facility information element with a cUGCall invoke component encoded as "Outgoing access not requested, no CUG index".

CUG_U01_005 **subclause 9.2.1.1, table 5** **mandatory**
Ensure that the IUT in the Null call state U00, to establish a call requesting the CUG supplementary service indicating "Outgoing access requested, no CUG index",
sends a SETUP message containing a Facility information element with a cUGCall invoke component encoded as "Outgoing access requested, no CUG index".

CUG_U01_006 **subclause 9.2.1.2** **mandatory**
Ensure that the IUT in the Call Initiated call state U01, receiving a RELEASE COMPLETE message and a Cause information element with Cause value #29 (Facility rejected) including a Facility information element containing a cUGCall return error component,
does not respond and enters the Null call state U00.

CUG_U01_007 **subclause 9.2.1.2** **mandatory**
Ensure that the IUT in the Overlap Sending call state U02, receiving a DISCONNECT message and a Cause information element with Cause value #29 (Facility rejected) including a Facility information element containing a cUGCall return error component,
accepts the component, sends a RELEASE message and enters the Release Request call state U19.

CUG_U01_008 **subclause 9.2.1.2** **mandatory**

Ensure that the IUT in the Outgoing Call Proceeding call state U03, receiving a DISCONNECT message and a Cause information element with Cause value #29 (Facility rejected) including a Facility information element containing a cUGCall return error component,
accepts the component, sends a RELEASE message and enters the Release Request call state U19.

6.2.2 **Call terminating at a user with the CUG supplementary service****CUG_U02_001** **subclause 9.2.4.1** **mandatory**

Ensure that the IUT in the Null call state U00, receiving a SETUP message including a Facility information element containing a cUGCall invoke component indicating "Outgoing access with default value, CUG index", to accept the call,
sends an ALERTING message and enters the Call received call state U07;
or
sends a CONNECT message and enters the Connect request call state U08.

CUG_U02_002 **subclause 9.2.4.1** **mandatory**

Ensure that the IUT in the Null call state U00, receiving a SETUP message including a Facility information element containing a cUGCall invoke component indicating "Outgoing access with default value, CUG index", to clear the call,
sends a DISCONNECT message and enters the Disconnect request call state U11;
or
sends a RELEASE COMPLETE message and enters the Null call state U00.

CUG_U02_003 **subclause 9.2.4.1** **mandatory**

Ensure that the IUT in the Null call state U00, receiving a SETUP message including a Facility information element containing a cUGCall invoke component indicating "Outgoing access with default value, CUG index", to clear the call,
sends a DISCONNECT message containing a Facility information element with a cUGCall return error component and enters the Disconnect request call state U11;
or
sends a RELEASE COMPLETE message containing a Facility information element with a cUGCall return error component and enters the Null call state U00.
Selection: IUT supports the cUGCall return error, PICS: P2.2.

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 300 138-1 [1].

History

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