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*European Standard (Telecommunications series)*

**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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*European Telecommunications Standards Institute*

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Keywords

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## Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocols and Switching (SPS), and is now submitted for the ETSI standards One-step Approval Procedure.

The present document 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: "Test Suite Structure and Test Purposes (TSS&TP) specification for the network";
- Part 6: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network".

The present version updates the references to the basic call specifications.

<b>Proposed national transposition dates</b>	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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# 1 Scope

This third part of EN 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, EN 300 138-1 [1].

A further part of this EN specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma based on the present document. 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 EN 300 138-1 [1].

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# 2 Normative references

References may be made to:

- a) specific versions of publications (identified by date of publication, edition number, version number, etc.), in which case, subsequent revisions to the referenced document do not apply; or
- b) all versions up to and including the identified version (identified by "up to and including" before the version identity); or
- c) all versions subsequent to and including the identified version (identified by "onwards" following the version identity); or
- d) publications without mention of a specific version, in which case the latest version applies.

A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [1] EN 300 138-1 (V1.3): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [2] EN 300 138-2 (V1.3): "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] EN 300 403-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".
- [8] ITU-T Recommendation I.112: "Vocabulary and terms for ISDNs".
- [9] ITU-T Recommendation I.210: "Principles of the telecommunication services supported by an ISDN and the means to describe them".

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## 3 Definitions

For the purposes of the present document, 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 EN 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).

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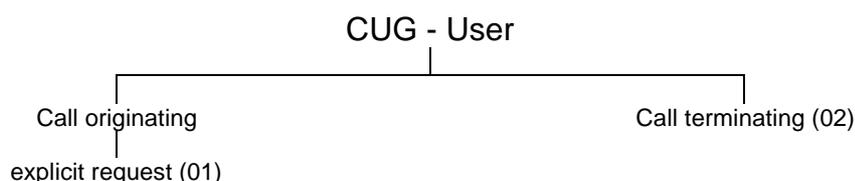
## 4 Abbreviations

For the purposes of the present document, 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

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. "CUG"	
<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 EN 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 EN 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 EN 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 EN 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.

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## 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.

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## 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 EN 300 138-1 [1].

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## Annex A (informative): Changes with respect to the previous ETS 300 138-3

The following changes have been done:

- conversion to EN layout;
- substitution of non-specific references to basic standards where the intention is to refer to the latest version.

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## History

<b>Document history</b>		
Edition 1	September 1996	Publication as ETS 300 138-3
V1.3.3	February 1998	One-step Approval Procedure      OAP 9824: 1998-02-13 to 1998-06-12