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**Integrated Services Digital Network (ISDN);  
Telephony 7 kHz and videotelephony teleservices;  
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 .....	7
Introduction .....	7
1 Scope .....	9
2 Normative references .....	9
3 Definitions and abbreviations .....	10
3.1 Definitions .....	10
3.2 Abbreviations .....	12
4 Test Suite Structure (TSS) .....	12
4.1 First test group level .....	12
4.2 Second test group level .....	12
4.3 Third test group level .....	12
4.4 Fourth test group level .....	12
4.5 Fifth test group level .....	13
4.6 Sixth test group level .....	14
5 Test purposes for generic requirements, telephony 7 kHz and videotelephony teleservices .....	14
5.1 Test purpose format .....	14
5.2 Calling user interface .....	15
5.2.1 Valid behaviour .....	15
5.2.1.1 Generic requirements .....	15
5.2.1.1.1 Fallback allowed .....	15
5.2.1.1.1.1 User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	15
5.2.1.1.1.2 User requirements at the coincident S and T reference point .....	16
5.2.1.1.2 Fallback not allowed .....	18
5.2.1.1.2.1 User requirements at the coincident S and T reference point .....	18
5.2.1.1.2.2 User requirements for interworking with private ISDNs .....	20
5.2.1.1.3 Connection management .....	20
5.2.1.1.3.1 User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	20
5.2.1.1.3.2 User requirements at the coincident S and T reference point .....	21
5.2.1.2 Telephony 7 kHz teleservice .....	21
5.2.1.2.1 Fallback allowed .....	21
5.2.1.2.1.1 User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	21
5.2.1.2.1.2 User requirements at the coincident S and T reference point .....	23
5.2.1.2.2 Fallback not allowed .....	26
5.2.1.2.2.1 User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	26
5.2.1.2.2.2 User requirements at the coincident S and T reference point .....	26

	5.2.1.2.3	Connection management.....	27
	5.2.1.2.3.1	User requirements at the coincident S and T reference point .....	27
5.2.1.3	Videotelephony teleservice .....		28
	5.2.1.3.1	Fallback allowed.....	28
	5.2.1.3.1.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	28
	5.2.1.3.1.2	User requirements at the coincident S and T reference point .....	30
	5.2.1.3.2	Fallback not allowed.....	34
	5.2.1.3.2.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	34
	5.2.1.3.2.2	User requirements at the coincident S and T reference point .....	34
	5.2.1.3.3	Connection management.....	35
	5.2.1.3.3.1	User requirements at the coincident S and T reference point .....	35
	5.2.1.3.3.2	User requirements for interworking with private ISDNs.....	37
5.2.2	Invalid behaviour.....		37
	5.2.2.1	Generic requirements .....	37
	5.2.2.1.1	Fallback allowed.....	37
	5.2.2.1.1.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	37
	5.2.2.1.1.2	User requirements at the coincident S and T reference point .....	38
5.2.2.2	Telephony 7 kHz teleservice .....		40
	5.2.2.2.1	Fallback allowed.....	40
	5.2.2.2.1.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	40
	5.2.2.2.1.2	User requirements at the coincident S and T reference point .....	40
5.2.2.3	Videotelephony teleservice .....		42
	5.2.2.3.1	Fallback allowed.....	42
	5.2.2.3.1.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	42
	5.2.2.3.1.2	User requirements at the coincident S and T reference point .....	43
5.3	Called user interface .....		45
	5.3.1	Valid behaviour .....	45
	5.3.1.1	Generic requirements .....	45
	5.3.1.1.1	Fallback allowed.....	45
	5.3.1.1.1.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	45
	5.3.1.1.1.2	User requirements at the coincident S and T reference point .....	47
	5.3.1.1.1.3	User requirements for interworking with private ISDNs.....	47
	5.3.1.1.2	Fallback not allowed.....	48
	5.3.1.1.2.1	User requirements at the coincident S and T reference point .....	48
	5.3.1.1.2.2	User requirements for interworking with private ISDNs.....	48

iTeh STANDARD PREVIEW  
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<https://standards.iteh.ai/catalog/standards/sist/2708a01c-0941-4146-b267-579c8da4cb56/sist-ets-300-267-3-1998>

5.3.1.2	Telephony 7 kHz teleservice.....	48
5.3.1.2.1	Fallback allowed .....	48
5.3.1.2.1.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	48
5.3.1.2.1.2	User requirements at the coincident S and T reference point.....	49
5.3.1.2.1.3	User requirements for interworking with private ISDNs .....	50
5.3.1.2.2	Fallback not allowed .....	50
5.3.1.2.2.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	50
5.3.1.2.2.2	User requirements at the coincident S and T reference point.....	50
5.3.1.2.3	Connection management.....	51
5.3.1.2.3.1	User requirements at the coincident S and T reference point.....	51
5.3.1.3	Videotelephony teleservice.....	51
5.3.1.3.1	Fallback allowed .....	51
5.3.1.3.1.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	51
5.3.1.3.1.2	User requirements at the coincident S and T reference point.....	52
5.3.1.3.1.3	User requirements for interworking with private ISDNs .....	53
5.3.1.3.2	Fallback not allowed .....	54
5.3.1.3.2.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	54
5.3.1.3.2.2	User requirements at the coincident S and T reference point.....	54
5.3.1.3.3	Connection management.....	55
5.3.1.3.3.1	User requirements at the coincident S and T reference point.....	55
5.3.2	Invalid behaviour .....	56
5.3.2.1	Generic requirements .....	56
5.3.2.1.1	Fallback allowed .....	56
5.3.2.1.1.1	User requirements at the coincident S and T reference point.....	56
5.3.3	Inopportune behaviour .....	57
5.3.3.1	Generic requirements.....	57
5.3.3.1.1	Connection management.....	57
5.3.3.1.1.1	User requirements at the coincident S and T reference point or for interworking with private ISDNs .....	57
6	Combined test purposes for telephony 7 kHz and videotelephony teleservices .....	58
6.1	Combined test purpose format .....	58
6.2	Calling user interface .....	59
6.2.1	Valid behaviour.....	59
6.2.1.1	Telephony 7 kHz teleservice.....	59
6.2.1.1.1	Fallback allowed .....	59
6.2.1.1.2	Fallback not allowed .....	62
6.2.1.1.3	Connection management.....	63
6.2.1.2	Videotelephony teleservice.....	63
6.2.1.2.1	Fallback allowed .....	63
6.2.1.2.2	Fallback not allowed .....	67
6.2.1.2.3	Connection management.....	68
6.2.2	Invalid behaviour .....	71
6.2.2.1	Telephony 7 kHz teleservice.....	71
6.2.2.1.1	Fallback allowed .....	71

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SIST ETS 300 267-3:1998

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	6.2.2.2	Videotelephony teleservice .....	72
	6.2.2.2.1	Fallback allowed.....	72
6.3	Called user interface .....		74
6.3.1	Valid behaviour .....		74
	6.3.1.1	Telephony 7 kHz teleservice .....	74
	6.3.1.1.1	Fallback allowed.....	74
	6.3.1.1.2	Fallback not allowed.....	75
	6.3.1.2	Videotelephony teleservice .....	76
	6.3.1.2.1	Fallback allowed.....	76
	6.3.1.2.2	Fallback not allowed.....	79
	6.3.1.2.3	Connection management.....	79
7	Compliance.....		79
Annex A (informative):	Cross reference: Generic, telephony 7 kHz and videotelephony teleservices test purposes .....		81
A.1	Generic test purposes to telephony 7 kHz and videotelephony teleservices test purposes .....		81
A.2	Telephony 7 kHz to videotelephony teleservices test purposes .....		83
History .....			85

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SIST ETS 300 267-3:1998

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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) telephony 7 kHz and videotelephony teleservices, 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:	23 May 1997
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Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	28 February 1998
Date of withdrawal of any conflicting National Standard (dow):	28 February 1998

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## Introduction

This ETS is divided into seven clauses. Clauses 1 to 3 form the scope, references and abbreviations. Clause 4 contains the test suite structure. Clause 5 contains the complete list of test purposes. Clause 6 contains the list of combined test purposes, i.e. test purposes which can be tested together in one test case. Clause 7 contains the requirements for a generic or abstract test suite to comply with this ETS.

It is been assumed that the Implementation Under Test (IUT) already complies with the conformance requirements associated with the ISDN basic call as defined in ETS 300 102-1. This is specified as a requirement in ETS 300 267-2, clause 5. ETS 300 267-1, subclause 5.1, states that the additional generic requirements of clause 5 are defined to be compatible with the existing requirements of ETS 300 102-1.

The following approach is adopted with regard to specifying test purposes:

- resultant states of the IUT are not checked following receipt of messages which comply with ETS 300 102-1. Resultant states of the IUT are checked following receipt of messages which do not comply with ETS 300 102-1, e.g. a CONNECT message which contains a Bearer capability information element;
- for ETS 300 267-1, clause 5, the use of the word "assumes", in the case of an IUT at the originating interface, is interpreted as meaning that the IUT checks in-band: such test purposes are applicable, therefore, only to IUTs which contain in-band entities.

In cases where ETS 300 267-1 specifies that requirements in ETS 300 102-1 shall apply, it is assumed that, because the IUT already complies with ETS 300 102-1, it also complies with these requirements. However, when specifying the abstract test cases, including test case selection, the requirements in ETS 300 102-1 need to be taken into account.

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## 1 Scope

This third part of ETS 300 267 is applicable to the stage three of the telephony 7 kHz and videotelephony teleservices for the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators at the T reference point or coincident S and T reference point (as specified in ITU-T Recommendation I.411 [11] by means of the Digital Subscriber Signalling System No. one (DSS1) protocol. ETS 300 267-1 [5] provides the protocol specification and ETS 300 267-2 [6] the Protocol Implementation Conformance Statement (PICS) proforma specification. Stage three identifies the protocol procedures and switching functions needed to support a telecommunications service (see CCITT Recommendation I.130 [10]).

This ETS provides the Test Suite Structure and Test Purposes (TSS&TP) for the user side. It covers the protocol requirements as defined in ETS 300 267-1 [5] and provides test purposes for the additional generic requirements for basic telecommunication services not defined in ETS 300 102-1 [2] (ETS 300 267-1 [5], clause 5), for the telephony 7 kHz teleservice (ETS 300 267-1 [5], clause 6) and for the videotelephony teleservice (ETS 300 267-1 [5], clause 7).

Two types of implementations are covered:

- an implementation which supports user requirements at the coincident S and T reference point;
- an implementation which supports user requirements for interworking with private ISDNs at the T reference point.

## 2 Normative references

This ETS incorporates by dated or undated references, 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 300 082 (1992): "Integrated Services Digital Network (ISDN); 3,1 kHz telephony teleservice; End-to-end compatibility requirements for telephony terminals".
- [2] ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control".
- [3] ETS 300 144: "Integrated Services Digital Network (ISDN); Audiovisual services; Frame structure for a 64 kbit/s to 1 920 kbit/s channel and associated syntax for inband signalling" (equivalent to ITU-T Recommendation H.221).
- [4] ETS 300 145: "Integrated Services Digital Network (ISDN); Audiovisual services; Videotelephone systems and terminal equipment operating on one or two 64 kbit/s channels".
- [5] ETS 300 267-1 (1994) including A1 (1996): "Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [6] ETS 300 267-2 (1996): "Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".
- [7] I-ETS 300 281: "Integrated Services Digital Network (ISDN); Telephony 7 kHz teleservice; Terminal requirements necessary for end-to-end compatibility".

- [8] I-ETS 300 314: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1); Protocol Implementation Conformance Statement (PICS) proforma specification for signalling network layer protocol for circuit-mode basic call control (basic access, user)".
- [9] CCITT Recommendation G.711 (1988): "Pulse code modulation (PCM) of voice frequencies".
- [10] CCITT Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [11] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".
- [12] ISO/IEC 9646-2: "Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification".
- [13] ISO/IEC 9646-3: "Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation".

### 3 Definitions and abbreviations

#### 3.1 Definitions

For the purposes of this ETS, the definitions in ETS 300 267-1 [5] apply in addition to the following definitions:

**BC1:** The first (lower priority) Bearer capability information element included in a SETUP message allowing bearer capability selection.

**BC2:** The second (higher priority) Bearer capability information element included in a SETUP message allowing bearer capability selection.

**BC=speech:** A Bearer capability information element with its information transfer capability field set to "speech" and its user information layer one protocol field set to "G.711 A-law".

**BC=UDI/TA:** A Bearer capability information element with its information transfer capability field set to "UDI/TA" and its user information layer one protocol field set to "Recommendations H.221 and H.242".

**BC=UDI:** A Bearer capability information element with its information transfer capability field set to "UDI" and its user information layer one protocol field set to "Recommendations H.221 and H.242".

**bit-rate allocation signal:** Bit position within the frame structure to transmit commands, control and indication signals, capabilities.

**HLC1:** The first (lower priority) High layer compatibility information element in a SETUP message allowing high layer compatibility selection.

**HLC2:** The second (higher priority) High layer compatibility information element in a SETUP message allowing high layer compatibility selection.

**HLC=telephony:** A High layer compatibility information element with its high layer characteristics identification field set to "telephony".

**HLC=videotelephony\_ic:** A High layer compatibility information element with its high layer characteristics identification field set to "110 0000 - videotelephony (Recommendation F.721)" and its extended audiovisual characteristics identification field set to "000 0001 - capability set of initial channel of Recommendation H.221".

**HLC=videotelephony\_nex:** A High layer compatibility information element with its high layer characteristics identification field set to "110 0000 - videotelephony (Recommendation F.721)" but not containing an extended audiovisual characteristics identification field.

**HLC=videotelephony\_sc:** A High layer compatibility information element with its high layer characteristics identification field set to "110 0000 - videotelephony (Recommendation F.721)" and its extended audiovisual characteristics identification field set to "000 0010 - capability set of subsequent channel of Recommendation H.221".

**Implementation Under Test (IUT):** The component of the system under test (user terminal or private ISDN) providing the protocol specified in ETS 300 267-1 [5] at the S/T or T reference point.

**in-band signalling:** Signalling via the bit-rate allocation signal of the frame structure, as defined in ETS 300 144 [3].

**mode 0F:** Transmission mode in which the initial channel contains framing, and 7-bit G.711 audio signal is being transmitted.

**mode 0U:** Transmission mode in which the initial channel does not contain framing, and 8-bit G.711 audio signal is being transmitted.

**PI=#1:** A Progress indicator information element, with its progress description field set to #1 "Call is not end-to-end ISDN".

**PI=#2:** A Progress indicator information element, with its progress description field set to #2 "Destination address is non-ISDN".

**PI=#3:** A Progress indicator information element, with its progress description field set to #3 "Origination address is non-ISDN".

**PI=#4:** A Progress indicator information element, with its progress description field set to #4 "Call has returned to the ISDN".

**PI=#5:** A Progress indicator information element, with its progress description field set to #5 "interworking has occurred and has resulted in a telecommunications service change".

**PI=#8:** A Progress indicator information element, with its progress description field set to #8 "In-band information or appropriate pattern now available".

**telephony 7 kHz fallback allowed SETUP message:** A SETUP message containing two BCs, with the first BC=speech and the second BC=UDI/TA, a HLC=telephony, and not containing a LLC.

**telephony 7 kHz fallback not allowed SETUP message:** A SETUP message containing a single BC=UDI/TA and a single HLC=telephony, and not containing a LLC.

**videotelephony fallback allowed SETUP message:** A SETUP message containing two BCs, with the first BC=speech and the second BC=UDI/TA, and two HLCs, with the first HLC=telephony and the second HLC=videotelephony\_ic, and not containing a LLC.

**videotelephony fallback not allowed SETUP message:** A SETUP message containing a single BC=UDI/TA and a single HLC=videotelephony\_ic, and not containing a LLC.

**videotelephony SETUP message for CR2 :** A SETUP message containing a single BC=UDI and a single HLC=videotelephony\_sc. The SETUP message is used to establish the second connection in a videotelephony call requiring two connections.

### 3.2 Abbreviations

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

ATS	Abstract Test Suite
BC	Bearer Capability information element
CR1	Call Reference for the first call
CR2	Call Reference for the second call
CR3	Call Reference for the third call
HLC	High Layer Compatibility information element
IUT	Implementation Under Test
LLC	Low Layer Compatibility information element
PI	Progress Indicator information element
TP	Test Purpose
TSS	Test Suite Structure
UDI	Unrestricted Digital Information
UDI/TA	Unrestricted Digital Information with Tones/Announcements

For TSS specific abbreviations, see clause 4.

## 4 Test Suite Structure (TSS)

The test suite is structured as a tree. Six test group levels are defined. The TSS is depicted in figure 1.

### 4.1 First test group level

The first test group level contains the name of the test suite:

UT7V	User side telephony 7 kHz, videotelephony teleservices and generic protocol.
------	--

### 4.2 Second test group level

The second test group level indicates whether the IUT is the calling or the called terminal:

ORIG	Calling User Interface;
DEST	Called User Interface.

### 4.3 Third test group level

The third test group level indicates whether the test purpose covers a requirement applicable to valid behaviour, to invalid behaviour or to inopportune behaviour:

BV	Valid behaviour test purpose;
BI	Invalid Behaviour test purpose;
BO	inOpportune Behaviour test purpose.

### 4.4 Fourth test group level

The fourth test group level indicates whether the test purpose covers a requirement applicable to the generic protocol, the telephony 7 kHz protocol, or the videotelephony teleservice protocol:

GEN	Generic requirements. The test purpose covers a requirement applicable for the generic part of ETS 300 267-1 [5] (clause 5);
TL7	Telephony 7 kHz teleservice. The test purpose covers a requirement applicable for the telephony 7 kHz part of ETS 300 267-1 [5] (clause 6);
VTL	Videotelephony teleservice. The test purpose covers a requirement applicable for the videotelephony part of ETS 300 267-1 [5] (clause 7).

The group for generic requirements does not appear in the TSS of the combined test purposes. None of the generic test purposes can be considered as testable.

#### 4.5 Fifth test group level

The fifth test group level indicates which kind of functionality is tested and, more precisely, whether the test purposes cover requirements applicable to fallback allowed, fallback not allowed or connection management. Three groups are defined:

- FBA**      FallBack Allowed: this group covers all tests where a fallback allowed SETUP message is sent to the IUT;
- FBN**      FallBack Not allowed: this group covers all tests where a fallback not allowed SETUP message is sent to the IUT;
- CMN**      Connection MaNagement: this group includes all other cases which do not test the response to or the sending of a fallback allowed or a fallback not allowed SETUP message. As a consequence, the clearing of a call and the establishment of a second connection for videotelephony is tested here.

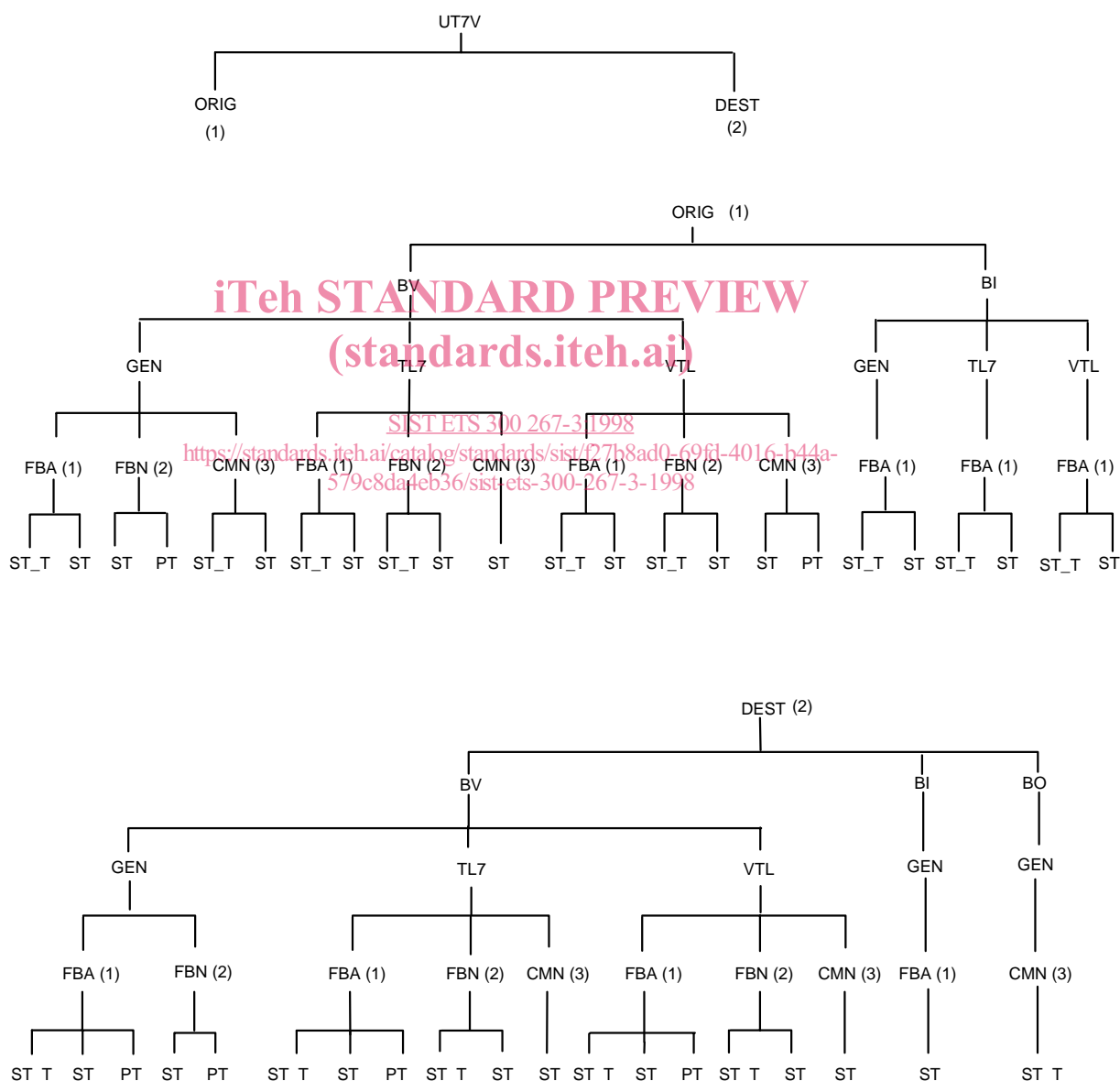


Figure 1: Test suite structure