



# SLOVENSKI STANDARD

## SIST I-ETS 300 491-2 E1:2003

01-december-2003

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**Terminalska oprema (TE) – Preskušanje skladnosti prenosa datotek prek digitalnega omrežja z integriranimi storitvami (ISDN) – 2. del: ETS 300 075 Zgradba preskušalnega niza in nameni preskušanja (TSS&TP)**

Terminal Equipment (TE); Conformance testing for file transfer over the Integrated Services Digital Network (ISDN); Part 2: ETS 300 075 Test Suite Structure and Test Purposes (TSS&TP)

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**ICS:**

33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)
35.180	Terminalska in druga periferna oprema IT	IT Terminal and other peripheral equipment

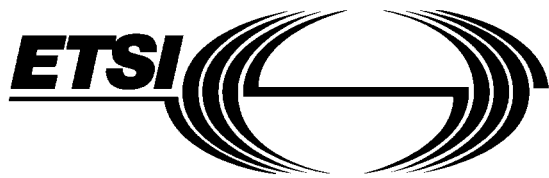
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**Terminal Equipment (TE);  
Conformance testing for file transfer over  
the Integrated Services Digital Network (ISDN);  
Part 2: ETS 300.075 Test Suite Structure  
and Test Purposes (TSS&TP)**

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## Contents

Foreword .....	7
1 Scope .....	9
2 Normative references .....	9
3 Definitions and abbreviations .....	9
3.1 Definitions .....	9
3.2 Abbreviations .....	10
4 Test suite overview .....	10
4.1 Test Suite Structure (TSS) .....	10
4.2 Test groups .....	12
4.2.1 Major roles .....	12
4.2.2 Main test groups .....	12
4.2.2.1 Basic Interconnection Test (IT) .....	12
4.2.2.2 Capability Tests (CA) .....	13
4.2.2.3 Valid Behaviour Tests (BV) .....	13
4.2.2.4 Invalid Behaviour Tests (BI) .....	13
4.2.2.5 Inopportune Behaviour Tests (BO) .....	13
4.2.3 Functional units test groups .....	13
4.3 Test step structure .....	13
4.3.1 State definitions .....	13
4.3.2 Preambles .....	14
4.3.3 Postambles .....	14
5 Test Purposes presentation .....	14
5.1 Introduction .....	14
5.2 Test Purpose naming convention .....	14
5.3 Test Purpose writing rules .....	15
5.3.1 Initiator .....	15
5.3.2 Acceptor .....	15
6 Test Purposes .....	15
6.1 IUT as a master .....	15
6.1.1 M/Basic Interconnection Tests (IT) .....	16
6.1.2 M/Capability Tests (CA) .....	16
6.1.2.1 M/CA/Association .....	16
6.1.2.2 M/CA/Access .....	16
6.1.2.3 M/CA/Directory .....	17
6.1.2.4 M/CA/Save .....	17
6.1.2.5 M/CA/Load .....	17
6.1.2.6 M/CA/Rename .....	17
6.1.2.7 M/CA/Delete .....	17
6.1.2.8 M/CA/File Transfer .....	18
6.1.2.9 M/CA/Typed Data .....	18
6.1.3 M/Valid Behaviour Tests (BV) .....	18
6.1.3.1 M/BV/Protocol Interactions .....	18
6.1.3.1.1 M/BV/PI/Association .....	19
6.1.3.1.2 M/BV/PI/Access .....	19
6.1.3.1.3 M/BV/PI/Directory .....	19
6.1.3.1.4 M/BV/PI/Save .....	19
6.1.3.1.5 M/BV/PI/Load .....	20
6.1.3.1.6 M/BV/PI/Rename .....	20
6.1.3.1.7 M/BV/PI/Delete .....	20
6.1.3.1.8 M/BV/PI/File Transfer .....	20
6.1.3.1.9 M/BV/PI/Typed Data .....	22

6.1.3.2	M/BV/Parameter Variations .....	22
	6.1.3.2.1 M/BV/PV/File Transfer .....	22
6.1.3.3	M/BV/Parameter Combinations .....	23
	6.1.3.3.1 M/BV/PC/File Transfer .....	23
6.1.3.4	M/BV/Inopportune Event .....	23
	6.1.3.4.1 M/BV/IE/Association .....	23
	6.1.3.4.2 M/BV/IE/Access .....	24
	6.1.3.4.3 M/BV/IE/Save .....	24
	6.1.3.4.4 M/BV/IE/Load .....	24
	6.1.3.4.5 M/BV/IE/Typed Data .....	24
6.1.3.5	M/BV/Timer Variations .....	25
	6.1.3.5.1 M/BV/TI/Access .....	25
	6.1.3.5.2 M/BV/TI/Directory .....	25
	6.1.3.5.3 M/BV/TI/File Transfer .....	25
6.1.4	M/Invalid Behaviour Tests (BI) .....	26
6.1.4.1	M/BI/Parameter Variations .....	26
	6.1.4.1.1 M/BI/PV/Association .....	26
	6.1.4.1.2 M/BI/PV/Access .....	27
	6.1.4.1.3 M/BI/PV/Directory .....	27
	6.1.4.1.4 M/BI/PV/Save .....	27
	6.1.4.1.5 M/BI/PV/Load .....	28
	6.1.4.1.6 M/BI/PV/Rename .....	28
	6.1.4.1.7 M/BI/PV/Delete .....	28
	6.1.4.1.8 M/BI/PV/File Transfer .....	29
	6.1.4.1.9 M/BI/PV/Typed Data .....	30
6.1.4.2	M/BI/Parameter Combinations .....	30
	6.1.4.2.1 M/BI/PC/File Transfer .....	30
6.1.5	M/Inopportune Behaviour Tests (BO) .....	30
6.1.5.1	M/BO/Inopportune Event .....	30
	6.1.5.1.1 M/BO/IE/Association .....	31
	6.1.5.1.2 M/BO/IE/Access .....	31
	6.1.5.1.3 M/BO/IE/Directory .....	32
	6.1.5.1.4 M/BO/IE/Save .....	32
	6.1.5.1.5 M/BO/IE/Load .....	32
	6.1.5.1.6 M/BO/IE/Rename .....	33
	6.1.5.1.7 M/BO/IE/Delete .....	33
	6.1.5.1.8 M/BO/IE/File Transfer .....	33
6.2	IUT as a Slave .....	34
6.2.1	S/Basic Interconnection Tests (IT) .....	34
6.2.2	S/Capability Tests (CA) .....	34
	6.2.2.1 S/CA/Association .....	34
	6.2.2.2 S/CA/Access .....	35
	6.2.2.3 S/CA/Directory .....	35
	6.2.2.4 S/CA/Save .....	35
	6.2.2.5 S/CA/Load .....	35
	6.2.2.6 S/CA/Rename .....	36
	6.2.2.7 S/CA/Delete .....	36
	6.2.2.8 S/CA/File Transfer .....	36
	6.2.2.9 S/CA/Typed Data .....	36
6.2.3	S/Valid Behaviour Tests (BV) .....	37
6.2.3.1	S/BV/Protocol Interactions .....	37
	6.2.3.1.1 S/BV/PI/Association .....	37
	6.2.3.1.2 S/BV/PI/File Transfer .....	37
	6.2.3.1.3 S/BV/PI/Typed Data .....	38
6.2.3.2	S/BV/Parameter Variations .....	39
	6.2.3.2.1 S/BV/PV/Access .....	39
	6.2.3.2.2 S/BV/PV/Directory .....	39
	6.2.3.2.3 S/BV/PV/Save .....	40
	6.2.3.2.4 S/BV/PV/Load .....	40
	6.2.3.2.5 S/BV/PV/Rename .....	40
	6.2.3.2.6 S/BV/PV/Delete .....	40
	6.2.3.2.7 S/BV/PV/File Transfer .....	41
6.2.3.3	S/BV/Parameter Combinations .....	41

	6.2.3.3.1	S/BV/PC/Association .....	42
	6.2.3.3.2	S/BV/PC/Directory .....	42
	6.2.3.3.3	S/BV/PC/Save .....	42
	6.2.3.3.4	S/BV/PC/Load .....	42
	6.2.3.3.5	S/BV/PC/Rename .....	43
	6.2.3.3.6	S/BV/PC/Delete .....	43
	6.2.3.3.7	S/BV/PC/File Transfer .....	43
6.2.3.4		S/BV/Inopportune Event .....	43
	6.2.3.4.1	S/BV/IE/Association .....	44
	6.2.3.4.2	S/BV/IE/Access .....	44
	6.2.3.4.3	S/BV/IE/Save .....	44
	6.2.3.4.4	S/BV/IE/Load .....	44
6.2.4		S/Invalid Behaviour Tests (BI) .....	44
	6.2.4.1	S/BI/Parameter Variations .....	45
	6.2.4.1.1	S/BI/PV/Association .....	45
	6.2.4.1.2	S/BI/PV/Access .....	45
	6.2.4.1.3	S/BI/PV/Directory .....	46
	6.2.4.1.4	S/BI/PV/Save .....	46
	6.2.4.1.5	S/BI/PV/Load .....	46
	6.2.4.1.6	S/BI/PV/Rename .....	47
	6.2.4.1.7	S/BI/PV/Delete .....	47
	6.2.4.1.8	S/BI/PV/File Transfer .....	47
	6.2.4.1.9	S/BI/PV/Typed Data .....	48
	6.2.4.2	S/BI/Parameter Combinations .....	49
	6.2.4.2.1	S/BI/PC/File Transfer .....	49
6.2.5		S/Inopportune Behaviour Tests (BO) .....	49
	6.2.5.1	S/BO/Inopportune Event .....	49
	6.2.5.1.1	S/BO/IE/Association .....	49
	6.2.5.1.2	S/BO/IE/Access .....	50
	6.2.5.1.3	S/BO/IE/Save .....	50
	6.2.5.1.4	S/BO/IE/Load .....	51
	6.2.5.1.5	S/BO/IE/File Transfer .....	51
Annex A (informative):		Test Identifier acronyms .....	52
History .....			53

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## Foreword

Part 2 of this Interim European Telecommunication Standard (I-ETS) has been produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

An ETSI standard may be given I-ETS status either because it is regarded as a provisional solution ahead of a more advanced standard, or because it is immature and requires a "trial period". The life of an I-ETS is limited to three years after which it can be converted into an ETS, have its life extended for a further two years, be replaced by a new version, or be withdrawn.

This is the second part of an I-ETS which comprise three parts as follows:

"Terminal Equipment (TE); Conformance testing for file transfer over the Integrated Services Digital Network (ISDN):

Part 1: ETS 300 075 Protocol Implementation Conformance Statement (PICS) proforma;

**Part 2: ETS 300 075 Test Suite Structure and Test Purposes (TSS&TP);**

Part 3: Conformance testing for ETS 300 075 restricted by ETS 300 383 - Abstract Test suite (ATS)".

Proposed announcement date	
Date of adoption of this I-ETS:	30 August 1996
Date of latest announcement of this I-ETS (doa):	31 December 1996

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## 1 Scope

Part 2 of this Interim European Telecommunication Standard (I-ETS) specifies the Test Suite Structure and Test Purposes (TSS&TP) for the Telesoftware Data Unit (TDU) layer protocol requirements of ETS 300 075 [1], restricted to the test specification for simple file transfer over the ISDN. Only the protocol exchanges aspects are described here, i.e. no Test Purpose concerning the telesoftware application and its specific parameters values is specified here.

The ISO/IEC standard for the methodology of conformance testing (ISO/IEC 9646-1 [2], ISO/IEC 9646-2 [3] and ISO/IEC 9646-3 [4]) is used as a basis for the test methodology.

## 2 Normative references

Part 2 of this I-ETS incorporates by dated or 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 this part of the I-ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 075 (1994): "Terminal Equipment (TE); Processable data, File transfer".
- [2] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [3] ISO/IEC 9646-2 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".
- [4] ISO/IEC 9646-3 (1992): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: Tree and Tabular Combined Notation (TTCN)".
- [5] ETS 300 383 (1995): "Integrated Service Digital Network (ISDN); File transfer over the ISDN-EUROFILE transfer profile".

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of this part of the I-ETS, the following definitions apply:

**Abstract Test Suite (ATS):** A test suite composed of abstract test cases (ISO/IEC 9646-1 [2]).

**Implementation Under Test (IUT):** An implementation of one or more Open Systems Interconnection (OSI) protocols in an adjacent user/provider relationship, being the part of a real open system which is to be studied by testing (ISO/IEC 9646-1 [2]).

**Lower Tester (LT):** The representation in ISO/IEC 9646-1 [2] of the means of providing, during test execution, indirect control and observation of the lower service boundary of the IUT via the underlying service-provider (ISO/IEC 9646-1 [2]).

NOTE: The underlying service-provider is immediately beneath the (lowest) protocol which is the focus of testing. It may use one or more OSI layers, or only the Physical medium.

**master:** The entity which controls the dialogue.

**PICS proforma:** A profile RL plus the set of ICS proformas which when completed for a system and taken together with the profile RL become a profile ICS [ISO/IEC 9646-1 [2]].

**PIXIT proforma:** A profile XRL plus the set of IXIT proformas which when completed for an SUT and taken together with the profile XRL become a profile IXIT [ISO/IEC 9646-1 [2]].

**Point Of Control and Observation (PCO):** A point within a testing environment where the occurrence of test events is to be controlled and observed, as defined in an Abstract Test Method [ISO/IEC 9646-1 [2]].

**Protocol Implementation Conformance Statement (PICS):** An ICS for an implementation or system claimed to conform to a given protocol specification [ISO/IEC 9646-1 [2]].

**Protocol Implementation Extra Information For Testing (PIXIT):** An IXIT related to testing for conformance to a given protocol specification [ISO/IEC 9646-1 [2]].

**slave:** The entity which performs the operations requested by the Master.

**System Under Test (SUT):** The real open system in which the IUT resides [ISO/IEC 9646-1 [2]].

**Upper Tester (UT):** The representation in ISO/IEC 9646-1 [2] of means of providing, during test execution, control and observation of the upper service boundary of the IUT as defined by the chosen Abstract Test Method [ISO/IEC 9646-1 [2]].

### 3.2 Abbreviations

For the purposes of this part of the I-ETS, the following abbreviations apply:

ATS	Abstract Test Suite
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
LT	Lower Tester
OSI	Open Systems Interconnection
PCO	Point of Control and Observation
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
SUT	System Under Test
TDU	Telesoftware Data Unit
TE	Terminal Equipment
TLV	Type, Length and Value
TSS	Test Suite Structure
TSS&TP	Test Suite Structure and Test Purposes
TTCN	Tree and Tabular Combined Notation
UT	Upper Tester

## 4 Test suite overview

### 4.1 Test Suite Structure (TSS)

The Test Suite Structure (TSS) complies, in general, with ISO/IEC 9646-2 [3]. It is restricted to the use of ETS 300 075 [1] for the EUROFILE transfer profile (ETS 300 383 [5]; e.g. T\_Protocol testing in Symmetrical Service).

The test suite consists of test groups and test cases. Each test case has a narrowly defined purpose. Within the test suite nested test groups are used to provide a logical ordering of the test cases.

Figure 1 shows the TSS for TDU testing. The test suite is hierarchically structured, and is composed of 4 levels in the tree structure.

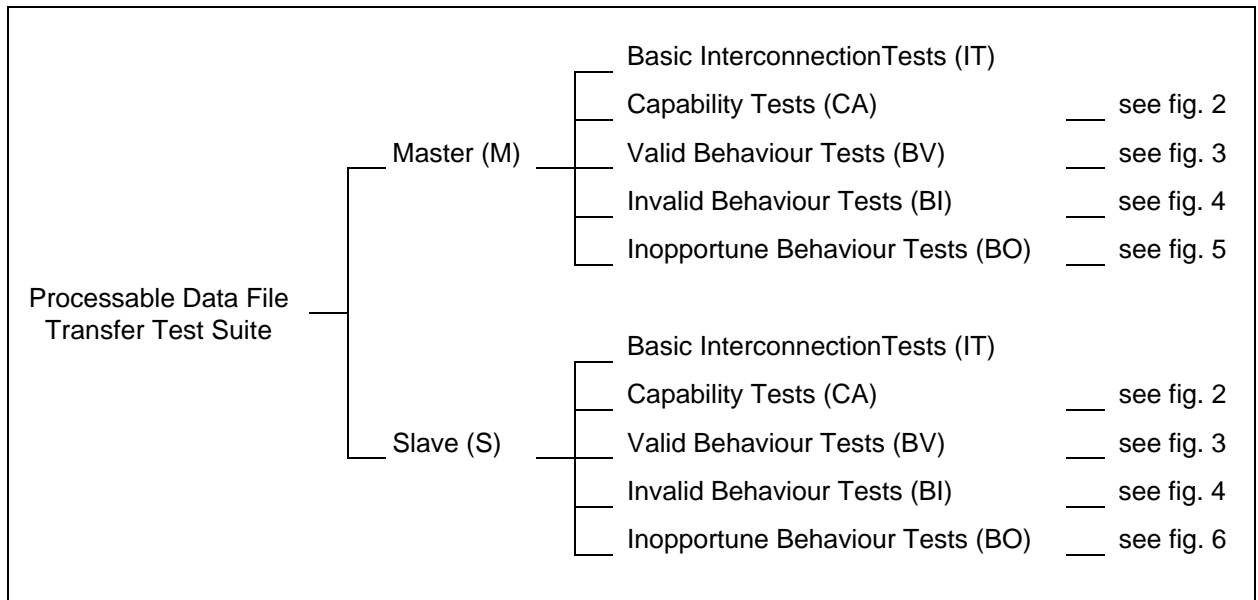
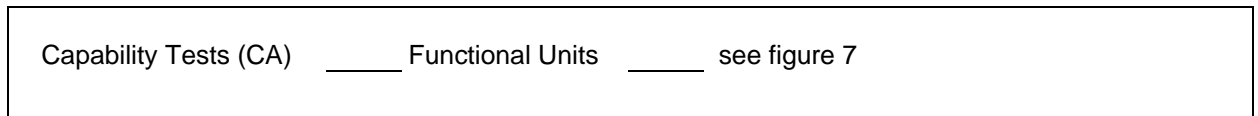


Figure 1: ETS 300 075 Test Suite Structure



**Figure 2: Capability test group structure**  
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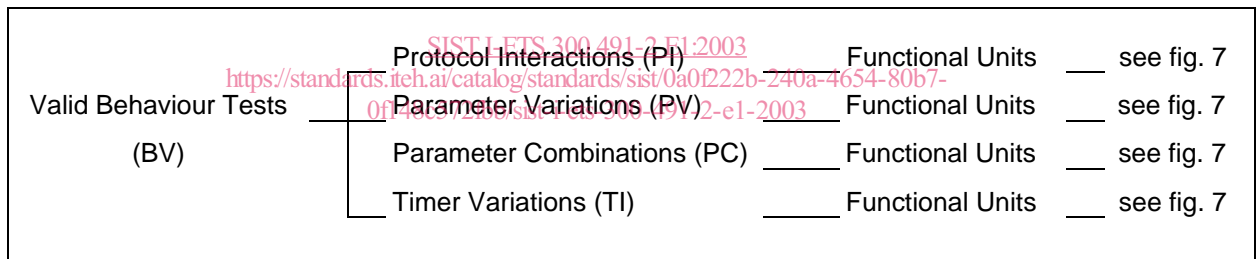


Figure 3: Valid Behaviour Test Group Structure

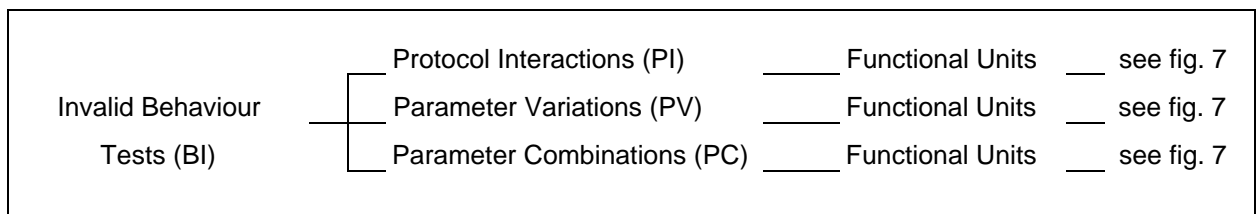
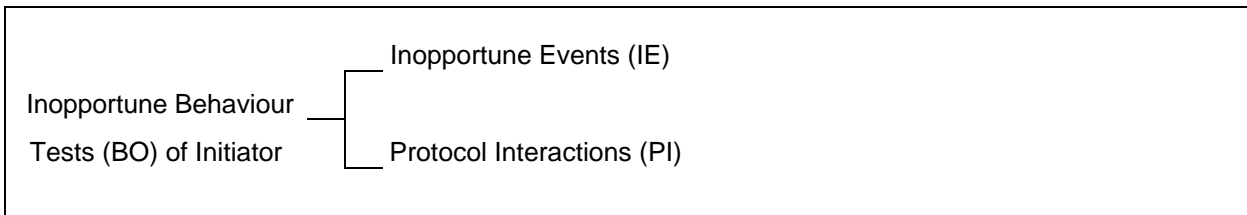
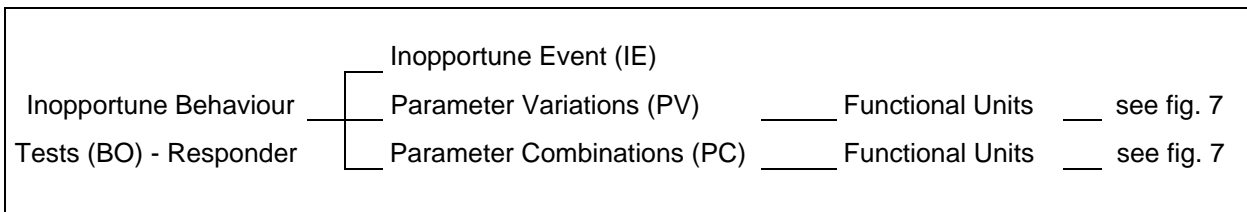


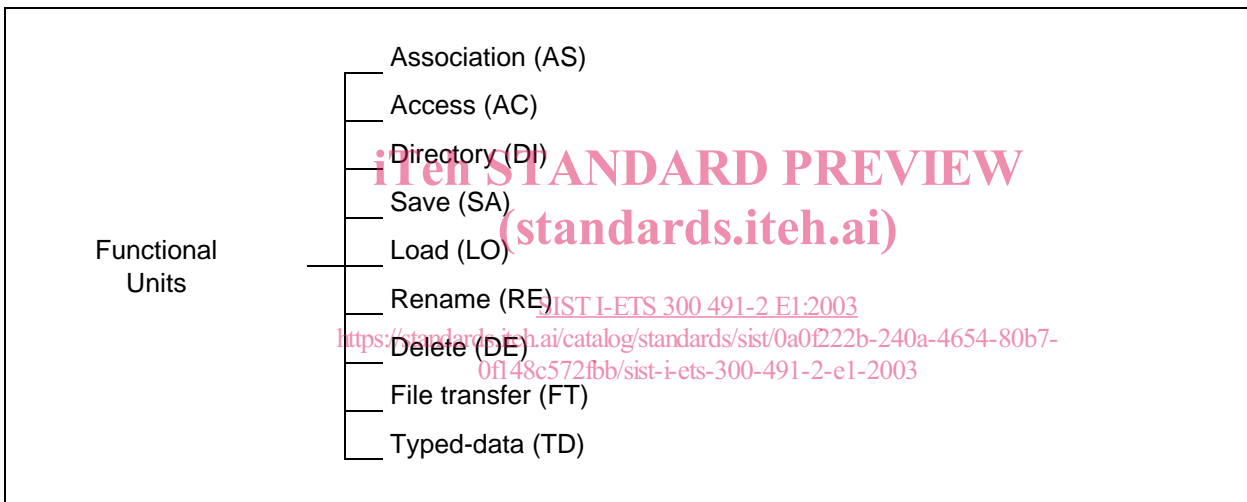
Figure 4: Invalid Behaviour Test Group Structure



**Figure 5: Inopportune Behaviour Test Group Structure (Initiator)**



**Figure 6: Inopportune Behaviour Test Group Structure (Responder)**



**Figure 7: Functional units**

## 4.2 Test groups

At the highest level, the TSS consists of the roles, which determine the set of services.

### 4.2.1 Major roles

The Master is the entity which controls the dialogue. The Slave is the entity which performs the operations requested by the Master.

### 4.2.2 Main test groups

#### 4.2.2.1 Basic Interconnection Test (IT)

The IT test should contain a basic set of Test Purposes which assures that there is a sufficient conformance for interconnection and that the chosen parameters are valid for the configuration.

The IT group may have no additional structure.

#### 4.2.2.2 Capability Tests (CA)

The tests in this group are intended to check that the observable external static capabilities of the implementation are valid with respect to the static conformance requirements expressed in the PICS of the IUT.

#### 4.2.2.3 Valid Behaviour Tests (BV)

All tests in the valid behaviour group are intended to verify, as thoroughly as possible, the various functions of the protocol. This test group is further divided into tests that check the IUT's response to:

- Protocol Interactions;
- Parameter Variations;
- Parameter Combinations;
- Timer Variations.

#### 4.2.2.4 Invalid Behaviour Tests (BI)

This test group is intended to verify that the IUT is able to react properly having received an invalid Protocol Data Unit (PDU). Invalid PDU here means a syntactically invalid PDU. This test group is further divided into tests that check the IUT's response to:

- Protocol Interactions;
- Parameter Variations;
- Parameter Combinations.

#### 4.2.2.5 Inopportune Behaviour Tests (BO)

This test group is intended to check that the IUT is able to react properly, in case an inopportune protocol event occurs. This test group is further divided into tests that check the IUT's response to:

- Inopportune Event;
- Protocol Interactions;
- Parameter Variations;
- Parameter Combinations.

### 4.2.3 Functional units test groups

These test groups are:

- AS Association;
- AC Access;
- DI Directory;
- SA Save;
- LO Load;
- RE Rename;
- DE Delete;
- FT File Transfer;
- TD Typed-Data.

## 4.3 Test step structure

### 4.3.1 State definitions

The following definitions of states correspond to different states entered by the IUT:

IDLE: Physical connection established, no regime established.

States for Association regime management:

ASSOCIATE\_PD: Associate pending, wait for association response PDU;  
ASSOCIATE: Associate regime established.