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Harmonizacija telekomunikacij in internetnega protokola prek omrežij (TIPHON), 3. izdaja - Specifikacija tehnološke ustreznosti - Profil TIPHON za ITU-T H.245 - 2. del: Specifikacija zgradbe preskušalnega niza in namenov preskušanja (TSS&TP)

Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Compliance Specifications; TIPHON profile for ITU-T H.245; Part 2: Test Suite Structure and Test Purposes (TSS&TP) specification

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Technical Specification

Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Compliance Specifications; TIPHON profile for ITU-T H.245; Part 2: Test Suite Structure and Test Purposes (TSS&TP) specification

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Foreword

This Technical Specification (TS) has been produced by ETSI Project Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON).

The present document is part 2 of multi-part deliverable covering Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Compliance Specifications; TIPHON profile for ITU-T Recommendation H.245, as identified below:

Part 1:   "Protocol Implementation Conformance Statement (PICS) proforma specification";

Part 2:   "Test Suite Structure and Test Purposes (TSS&TP) specification";

Part 3:   "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".

1 Scope

The present document specifies the Test Suite Structure and Test Purposes (TSS&TP) for TIPHON profile for ITU-T Recommendation H.245 [4], according to TS 101 883 [1].

The objective of this test specification is to provide a basis for conformance tests for TIPHON profile for ITU-T Recommendation H.245 equipment giving a high probability of inter-operability between different manufacturer's TIPHON profile for ITU-T Recommendation H.245 equipments.

This test specification covers the procedures described in TS 101 883 [1], ITU-T Recommendation H.323 [3] and ITU-T Recommendation H.245 [4].

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [6] and ISO/IEC 9646-2 [7]) as well as the ETSI rules for conformance testing (ETS 300 406 [5]) are used as a basis for the test methodology.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

[1]   ETSI TS 101 883: "Telecommunications and Internet protocol Harmonization Over Networks (TIPHON) Release 3; Technology Mapping; Implementation of TIPHON architecture using H.323".

[2]   ETSI TS 101 890-1: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Compliance Specifications; TIPHON profile for ITU-T H.245; Part 1: Protocol Implementation Conformance Statement (PICS) proforma specification".

[3]   ITU-T Recommendation H.323 (Version 3, 1999): "Packet-based multimedia communications systems".

[4]   ITU-T Recommendation H.245 (Version 7, 2000): "Control protocol for multimedia communication".

[5]   ETSI ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[6]   ISO/IEC 9646-1 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[7]   ISO/IEC 9646-2 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".

[8]   ISO/IEC 9646-6 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".

[9]   ISO/IEC 9646-7 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the following terms and definitions apply:

- Terms defined in ITU-T Recommendation H.323 [3];

- Terms defined in ITU-T Recommendation H.245 [4];

- Terms defined in ISO/IEC 9646-1 [6] and in ISO/IEC 9646-2 [7].

Inopportune: specifies a test purpose covering a signalling procedure where an inopportune message (type of message not expected in the IUT current state) is sent to the IUT

Syntactically invalid: specifies a test purpose covering a signalling procedure where a valid (expected in the current status of the IUT) but not correctly encoded (unknown or incorrect parameter values) message is sent to the IUT, which shall react correctly and eventually reject the message

Test purpose: non-formal test description, mainly using text. This test description can be used as the basis for a formal test specification (e.g. Abstract Test Suite in TTCN)

NOTE: See ISO 9646-1 [6].

Valid: specifies a test purpose covering a signalling procedure where all the messages sent to or received, from the IUT, are valid (expected in the current status of the IUT) and correctly encoded

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3.2   Abbreviations   (standards.iteh.ai)

For the purposes of the present document, the following abbreviations apply:

ATS	Abstract Test Suite
BI	Invalid Behaviour
BLC	Bi-directional Logical Channel
B-LCSE	Bi-directional Logical Channel Signalling Entity
BO	Inopportune Behaviour
BV	Valid Behaviour
CEP	Capability Exchange Procedure
CESE	Capability Exchange Signalling Entity
CLC	Close Logical Channel
CLCSE	Close Logical Channel Signalling Entity
IUT	Implementation Under Test
LCS	Logical Channel Signalling
LCSE	Logical Channel Signalling Entity
MC	H.323 Multipoint Control entity
MCU	Multipoint Control Unit
MRS	Mode RequeSt
MRSE	Mode Request Signalling Entity
MSD	Master Slave Determination
MSDSE	Master Slave Determination Signalling Entity
OE	Originating Endpoint
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
TE	Terminating Endpoint
TP	Test Purpose
TSS	Test Suite Structure

4   Test Suite Structure

4.1   Structure

Figure 1 shows the H245 Test Suite Structure (TSS) including its subgroups defined for the conformance testing.

Test Suite	Protocol group	Protocol subgroup	Test group
H245	Originating Endpoint (OE)	Capability Exchange Procedures	BV - BI - BO
		Master Slave Determination Procedures	BV - BI - BO
		Unidirectional Logical Channel Signalling Procedures	BV - BI - BO
		Bi-directional Logical Channel Signalling Procedures	BV - BI - BO
		Close Logical Channel Procedures	BV - BI - BO
		Mode Request Procedures	BV - BI - BO
	Terminating Endpoint (TE)	Capability Exchange Procedures	BV - BI - BO
		Master Slave Determination Procedures	BV - BI - BO
		Unidirectional Logical Channel Signalling Procedures	BV - BI - BO
		Bi-directional Logical Channel Signalling Procedures	BV - BI - BO
		Close Logical Channel Procedures	BV - BI - BO
		Mode Request Procedures	BV - BI - BO

Figure 1: TSS of TIPHON profile for H245

The test suite is structured as a tree with a first level defined as H.245 representing the protocol group: "TIPHON profile for H245".

4.2   Test groups

The test groups are organized in three levels. The first level creates two protocol groups representing the role of the IUT. The second level separates the selected role for the IUT in groups of procedures. The last level in each branch contains one or more of the standard ISO subgroups BV, BI, BO.

4.2.1   Protocol groups

The protocol groups identify the two roles of the IUT: Originating Endpoint (OE also known as Outgoing), and Terminating Endpoint (TE also known as incoming), as defined in ITU-T Recommendation H.245 [4].

4.2.1.1   Originating Endpoint (OE)

The Originating Endpoint protocol group is divided in six groups of procedures. The first group of procedures identifies the Capability Exchange procedures. The second group of procedures identifies the Master Slave Determination procedures. The third group of procedures distinguishes the Unidirectional Logical Channel Signalling procedures. The fourth group of procedures distinguishes the Bi-directional Logical Channel Signalling procedures. The fifth group of procedures distinguishes the Close Logical Channel procedures. The sixth and last group of procedures distinguishes the Mode Request procedures.

4.2.1.2   Terminating Endpoint (TE)

The Terminating Endpoint protocol group is divided in six groups of procedures. The first group of procedures identifies the Capability Exchange procedures. The second group of procedures identifies the Master Slave Determination procedures. The third group of procedures distinguishes the Unidirectional Logical Channel Signalling procedures. The fourth group of procedures distinguishes the Bi-directional Logical Channel Signalling procedures. The fifth group of procedures distinguishes the Close Logical Channel procedures. The sixth and last group of procedures distinguishes the Mode Request procedures.

4.2.2   Main test groups

The main test groups are the valid behaviour group, the invalid behaviour group and the inopportune behaviour group.

4.2.2.1   Valid Behaviour (BV) tests

This test sub group shall verify that the IUT reacts in conformity with the TS, after receipt or exchange of valid Protocol Data Units (PDUs). Valid PDUs means that the exchange of messages and the content of the exchanged messages are considered as valid.

4.2.2.2   Invalid Behaviour (BI) tests

This test sub group shall verify that the IUT reacts in conformity with the TS, after receipt of a syntactically invalid PDU.

4.2.2.3   Inopportune Behaviour (BO) tests

This test sub group shall verify that the IUT reacts in conformity with the TS, after receipt of a syntactically correct PDU not expected in the actual message exchange or state.

5   Test Purposes (TP)

5.1   Introduction

5.1.1   TP definition conventions

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. The TPs are defined following particular rules as shown in table 1. This table should be read in conjunction with any TP, i.e. use a TP as an example to fully understand the table.

Table 1: TP definition rules

TP part	Text	Example
Header	**<Identifier>** tab **<paragraph number in base ETS>**	**TP/OE/MSD/BI_01** **Clause 0.0.0**
Stimulus	Ensure that the IUT <state> <message already sent> <trigger> *see below for message structure* *or* <goal>	in the idle state having sent a XXX message on receipt of a YYY message to request a ...
Reaction	<action> <conditions> if the action is sending see below for message structure <next action>, etc.	sends, does, etc. ...
Message structure	<message type> message containing a *a)* <message element> *b)* <information element> or <filed code> encoded as *or* including <coding of the field> and *back to a or b,*	MasterSlaveDetermination, OpenLogicalChannel ... TerminalType, statusDetermination Number...
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.	