

ETSI TS 101 890-2 V1.1.1 (2002-01)

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**



Reference

DTS/TIPHON-06018-2

Keywords

IP, supplementary service, testing, TSS&TP,
VoIP

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, send your comment to:

editor@etsi.fr

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2002.
All rights reserved.

Contents

Intellectual Property Rights	5
Foreword.....	5
1 Scope	6
2 References	6
3 Definitions and abbreviations.....	7
3.1 Definitions	7
3.2 Abbreviations	7
4 Test Suite Structure	8
4.1 Structure	8
4.2 Test groups	8
4.2.1 Protocol groups.....	8
4.2.1.1 Originating Endpoint (OE).....	8
4.2.1.2 Terminating Endpoint (TE).....	8
4.2.2 Main test groups	9
4.2.2.1 Valid Behaviour (BV) tests	9
4.2.2.2 Invalid Behaviour (BI) tests	9
4.2.2.3 Inopportune Behaviour (BO) tests	9
5 Test Purposes (TP)	9
5.1 Introduction	9
5.1.1 TP definition conventions.....	9
5.1.2 TP naming conventions	10
5.1.3 TP definitions.....	10
5.2 Test purposes for Originating Endpoint (OE)	10
5.2.1 Capability Exchange Procedures (CEP)	10
5.2.1.1 Valid Behaviour test purposes (BV)	10
5.2.1.2 Invalid Behaviour test purposes (BI).....	11
5.2.1.3 Inopportune Behaviour test purposes (BO).....	11
5.2.2 Master Slave Determination procedures (MSD).....	11
5.2.2.1 Valid Behaviour test purposes (BV)	11
5.2.2.2 Invalid Behaviour test purposes (BI).....	12
5.2.2.3 Inopportune Behaviour test purposes (BO).....	12
5.2.3 Unidirectional Logical Channel Signalling procedures (LCS)	13
5.2.3.1 Valid Behaviour test purposes (BV)	13
5.2.3.2 Invalid Behaviour test purposes (BI).....	14
5.2.3.3 Inopportune Behaviour test purposes (BO).....	14
5.2.4 Bi-directional Logical Channel Signalling procedures (BLC).....	14
5.2.4.1 Valid Behaviour test purposes (BV)	14
5.2.4.2 Invalid Behaviour test purposes (BI).....	15
5.2.4.3 Inopportune Behaviour test purposes (BO).....	16
5.2.5 Close Logical Channel procedures (CLC)	16
5.2.5.1 Valid Behaviour test purposes (BV)	16
5.2.5.2 Invalid Behaviour test purposes (BI).....	16
5.2.5.3 Inopportune Behaviour test purposes (BO).....	17
5.2.6 Mode RequeSt procedures (MRS)	17
5.2.6.1 Valid Behaviour test purposes (BV)	17
5.2.6.2 Invalid Behaviour test purposes (BI).....	17
5.2.6.3 Inopportune Behaviour test purposes (BO).....	18
5.3 Test purposes for terminating Endpoint (TE).....	18
5.3.1 Capability Exchange Procedures (CEP)	18
5.3.1.1 Valid Behaviour test purposes (BV)	18
5.3.1.2 Invalid Behaviour test purposes (BI).....	18
5.3.1.3 Inopportune Behaviour test purposes (BO).....	18
5.3.2 Master Slave Determination procedures (MSD).....	19

5.3.2.1	Valid Behaviour test purposes (BV)	19
5.3.2.2	Invalid Behaviour test purposes (BI).....	19
5.3.2.3	Inopportune Behaviour test purposes (BO).....	20
5.3.3	Unidirectional Logical Channel Signalling procedures (LCS)	20
5.3.3.1	Valid Behaviour test purposes (BV)	20
5.3.3.2	Invalid Behaviour test purposes (BI).....	20
5.3.3.3	Inopportune Behaviour test purposes (BO).....	21
5.3.4	Bi-directional Logical Channel Signalling procedures (BLC).....	21
5.3.4.1	Valid Behaviour test purposes (BV)	21
5.3.4.2	Invalid Behaviour test purposes (BI).....	22
5.3.4.3	Inopportune Behaviour test purposes (BO).....	22
5.3.5	Close Logical Channel procedures (CLC).....	23
5.3.5.1	Valid Behaviour test purposes (BV)	23
5.3.5.2	Invalid Behaviour test purposes (BI).....	23
5.3.5.3	Inopportune Behaviour test purposes (BO).....	23
5.3.6	Mode RequeSt procedures (MRS)	24
5.3.6.1	Valid Behaviour test purposes (BV)	24
5.3.6.2	Invalid Behaviour test purposes (BI).....	24
5.3.6.3	Inopportune Behaviour test purposes (BO).....	24
History	25

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://webapp.etsi.org/IPR/home.asp>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

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

3.2 Abbreviations

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> <i>see below for message structure</i> 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 <i>or</i> including <coding of the field> and <i>back to a or b</i> ,	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.	

5.1.2 TP naming conventions

The identifier of the TP is built according to table 2.

Table 2: TP naming convention

Identifier:	TP/<iut>/<gp>/<x>-<nn>		
	<iut> = type of IUT	OE	Originating Endpoint
		TE	Terminating Endpoint
	<gp> = group of procedures	CEP	Capability Exchange Procedures
		MSD	Master Slave Determination Procedures
		LCS	Unidirectional Logical Channel Signalling Procedures
		BLC	Bi-directional Logical Channel Signalling Procedures
		CLC	Close Logical Channel Procedures
		MRS	Mode Request Procedures
	x = Type of testing	BV	Valid Behaviour Tests
		BI	Invalid Behaviour Tests
		BO	Inopportune Behaviour Tests
	<nn> = sequential number	(01-99)	Test Purpose Number

EXAMPLE: TP/TE/LCS/BV-10 is the tenth test purpose for the valid behaviour testing of the Unidirectional Logical Channel Signalling Procedures implemented in a Terminating Endpoint.

5.1.3 TP definitions

All TPs are specified according to ITU-T Recommendation H.245 [4]. The states that are mentioned in the present document are specified and explained in TS 101 890-1 [2]. All PICS items referred to in the present document are specified in TS 101 890-1 [2]. Unless specified otherwise, the messages indicated are valid and contain at least the mandatory parameters and possibly optional parameters.

5.2 Test purposes for Originating Endpoint (OE)

5.2.1 Capability Exchange Procedures (CEP)

5.2.1.1 Valid Behaviour test purposes (BV)

TP/OE/CEP/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: outgoing CESE state 0: Idle. Ensure that the IUT, having sent a valid TerminalCapabilitySet message, starts timer T101 and enters outgoing CESE state 1: Awaiting Response.
TP/OE/CEP/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: outgoing CESE state 1: Awaiting Response. Ensure that the IUT, on receipt of a TerminalCapabilitySetAck message and if the sequence number field is set to the variable out_SQ, resets timer T101 enters outgoing CESE state 0: Idle.
TP/OE/CEP/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: outgoing CESE state 1: Awaiting Response. Ensure that the IUT, on receipt of a TerminalCapabilitySetAck message and if the sequence number field is not set to the variable out_SQ, remains in the outgoing CESE state 1: Awaiting Response.

TP/OE/CEP/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: outgoing CESE state 1: Awaiting Response. Ensure that the IUT, on receipt of a TerminalCapabilitySetReject message and if the sequence number field is set to the variable out_SQ, resets timer T101 enters outgoing CESE state 0: Idle.
TP/OE/CEP/BV-05	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: outgoing CESE state 1: Awaiting Response. Ensure that the IUT, on receipt of a TerminalCapabilitySetReject message and if the sequence number field is not set to the variable out_SQ, remains in the outgoing CESE state 1: Awaiting Response.
TP/OE/CEP/BV-06	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: outgoing CESE state 1: Awaiting Response. Ensure that the IUT, upon the expiry of timer T101, sends a TerminalCapabilitySetRelease message, and enters outgoing CESE state 0: Idle.

5.2.1.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for outgoing CESE procedures. Consequently, no test purposes have been defined for this main test group.

5.2.1.3 Inopportune Behaviour test purposes (BO)

TP/OE/CEP/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: outgoing CESE State 0: Idle. Ensure that the IUT on receipt of a TerminalCapabilitySetAck message remains in outgoing CESE state 0: Idle.
TP/OE/CEP/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: outgoing CESE State 0: Idle. Ensure that the IUT on receipt of a TerminalCapabilitySetReject message remains in outgoing CESE state 0: Idle.

5.2.2 Master Slave Determination procedures (MSD)

5.2.2.1 Valid Behaviour test purposes (BV)

TP/OE/MSD/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 0: Idle. Ensure that the IUT, having sent a valid MasterSlaveDetermination message, starts timer T106 and enters MSDSE state 1: Outgoing Awaiting Response.
TP/OE/MSD/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 1: Outgoing Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDeterminationAck message, resets timer T106 and enters MSDSE state 0: Idle.
TP/OE/MSD/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 1: Outgoing Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDeterminationReject message, resets timer T106 and if the state variable sv_NCOUNT is greater than or equal to N100, enters MSDSE state 0: Idle.
TP/OE/MSD/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 1: Outgoing Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDeterminationReject message, if the state variable sv_NCOUNT is not greater than or equal to N100 sends a MasterSlaveDetermination message, sets timer T106 and remains in the same state.

TP/OE/MSD/BV-05	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 1: Outgoing Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDeterminationRelease message, resets timer T106 and enters MSDSE state 0: Idle.
TP/OE/MSD/BV-06	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 1: Outgoing Awaiting Response. Ensure that the IUT, upon the expiry of timer T106, sends a MasterSlaveDeterminationRelease message, and enters MSDSE state 0: Idle.
TP/OE/MSD/BV-07	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 1: Outgoing Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDetermination message and if the variable sv_STATUS is set to master/slave, sends a MasterSlaveDeterminationAck message, restarts timer T106 and enters MSDSE state 2: Incoming Awaiting Response.
TP/OE/MSD/BV-08	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 1: Outgoing Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDetermination message, if the variable sv_STATUS set to indeterminate and if the variable sv_NCOUNT is greater than or equal to N100, resets timer T106 and enters the Idle state.
TP/OE/MSD/BV-09	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 1: Outgoing Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDetermination message, if the state variable sv_STATUS set to indeterminate and if the variable sv_NCOUNT is not greater than or not equal to N100, sends a MasterSlaveDetermination message, restarts timer T106 and remains in MSDSE state 1: Outgoing Awaiting Response.

5.2.2.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for outgoing MSDSE procedures. Consequently, no test purposes have been defined for this main test group.

5.2.2.3 Inopportune Behaviour test purposes (BO)

TP/OE/MSD/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE State 0: Idle. Ensure that the IUT on receipt of a MasterSlaveDeterminationAck message remains in MSDSE state 0: Idle.
TP/OE/MSD/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE State 0: Idle. Ensure that the IUT on receipt of a MasterSlaveDeterminationReject message remains in MSDSE state 0: Idle.
TP/OE/MSD/BO-03	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE State 0: Idle. Ensure that the IUT on receipt of a MasterSlaveDeterminationRelease message remains in MSDSE state 0: Idle.

5.2.3 Unidirectional Logical Channel Signalling procedures (LCS)

5.2.3.1 Valid Behaviour test purposes (BV)

TP/OE/LCS/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE State 0: Released. Ensure that the IUT, having sent a valid OpenLogicalChannel message, starts timer T103 and enters outgoing LCSE state 1: Awaiting Establishment.
TP/OE/LCS/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of an OpenLogicalChannelAck message, resets timer T103 enters outgoing LCSE state 2: Established.
TP/OE/LCS/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of an OpenLogicalChannelReject message, resets timer T103 enters outgoing LCSE state 0: Released.
TP/OE/LCS/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of a CloseLogicalChannelAck message, remains in the outgoing LCSE state 1: Awaiting Establishment.
TP/OE/LCS/BV-05	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of a RELEASE_REQUEST from its upper layer, restarts timer T103, sends CloseLogicalChannel message and enters outgoing LCSE state 3: Awaiting Release.
TP/OE/LCS/BV-06	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 1: Awaiting Establishment. Ensure that the IUT, upon the expiry of timer T103, sends CloseLogicalChannel message and enters in the outgoing LCSE state 0: Released.
TP/OE/LCS/BV-07	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 2: Established. Ensure that the IUT, on receipt of a RELEASE_REQUEST from its upper layer, sets timer T103, sends CloseLogicalChannel message and enters outgoing LCSE state 3: Awaiting Release.
TP/OE/LCS/BV-08	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 2: Established. Ensure that the IUT on receipt of an OpenLogicalChannelReject message enters in outgoing LCSE state 0: Released.
TP/OE/LCS/BV-09	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 2: Established. Ensure that the IUT on receipt of a CloseLogicalChannelAck message enters in outgoing LCSE state 0: Released.
TP/OE/LCS/BV-10	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 3: Awaiting Release. Ensure that the IUT, on receipt of a CloseLogicalChannelAck message, resets timer T103 enters outgoing LCSE state 0: Released.
TP/OE/LCS/BV-11	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 3: Awaiting Release. Ensure that the IUT, on receipt of an OpenLogicalChannelReject message, resets timer T103 enters outgoing LCSE state 0: Released.
TP/OE/LCS/BV-12	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 3: Awaiting Release. Ensure that the IUT, on receipt of an OpenLogicalChannelAck message remains in the outgoing LCSE state 3: Awaiting Release.

TP/OE/LCS/BV-13	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 3: Awaiting Release. Ensure that the IUT, upon the expiry of timer T103 enters in the outgoing LCSE state 0: Released.
TP/OE/LCS/BV-14	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 3: Awaiting Release. Ensure that the IUT, on receipt of a RELEASE_REQUEST from its upper layer, resets timer T103, sends OpenLogicalChannel message and enters outgoing LCSE state 1: Awaiting Establishment.

5.2.3.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for outgoing LCSE procedures. Consequently, no test purposes have been defined for this main test group.

5.2.3.3 Inopportune Behaviour test purposes (BO)

TP/OE/LCS/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE State 0: Released. Ensure that the IUT on receipt of an OpenLogicalChannelAck message remains in outgoing LCSE state 0: Released.
TP/OE/LCS/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE State 0: Released. Ensure that the IUT on receipt of an OpenLogicalChannelReject message remains in outgoing LCSE state 0: Released.
TP/OE/LCS/BO-03	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE State 0: Released. Ensure that the IUT on receipt of a CloseLogicalChannelAck message remains in outgoing LCSE state 0: Released.
TP/OE/LCS/BO-04	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: outgoing LCSE state 2: Established. Ensure that the IUT on receipt of an OpenLogicalChannelAck message remains in outgoing LCSE state 2: Established.

5.2.4 Bi-directional Logical Channel Signalling procedures (BLC)

5.2.4.1 Valid Behaviour test purposes (BV)

TP/OE/BLC/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE State 0: Released. Ensure that the IUT, having sent a valid OpenLogicalChannel message, starts timer T103 and enters outgoing B-LCSE state 1: Awaiting Establishment.
TP/OE/BLC/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of an OpenLogicalChannelAck message, resets timer T103 enters outgoing B-LCSE state 2: Established.
TP/OE/BLC/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of an OpenLogicalChannelReject message, resets timer T103 enters outgoing B-LCSE state 0: Released.

TP/OE/BLC/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of a CloseLogicalChannelAck message, remains in the outgoing B-LCSE state 1: Awaiting Establishment.
TP/OE/BLC/BV-05	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of a RELEASE_REQUEST from its upper layer, restarts timer T103, sends CloseLogicalChannel message and enters outgoing B-LCSE state 3: Awaiting Release.
TP/OE/BLC/BV-06	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 1: Awaiting Establishment. Ensure that the IUT, upon the expiry of timer T103, sends CloseLogicalChannel message and enters in the outgoing B-LCSE state 0: Released.
TP/OE/BLC/BV-07	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 2: Established. Ensure that the IUT, on receipt of a RELEASE_REQUEST from its upper layer, sets timer T103, sends CloseLogicalChannel message and enters outgoing B-LCSE state 3: Awaiting Release.
TP/OE/BLC/BV-08	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 2: Established. Ensure that the IUT on receipt of an OpenLogicalChannelReject message enters in outgoing B-LCSE state 0: Released.
TP/OE/BLC/BV-09	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 2: Established. Ensure that the IUT on receipt of a CloseLogicalChannelAck message enters in outgoing B-LCSE state 0: Released.
TP/OE/BLC/BV-10	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 3: Awaiting Release. Ensure that the IUT, on receipt of a CloseLogicalChannelAck message, resets timer T103 enters outgoing B-LCSE state 0: Released.
TP/OE/BLC/BV-11	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 3: Awaiting Release. Ensure that the IUT, on receipt of an OpenLogicalChannelReject message, resets timer T103 enters outgoing B-LCSE state 0: Released.
TP/OE/BLC/BV-12	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 3: Awaiting Release. Ensure that the IUT, on receipt of an OpenLogicalChannelAck message remains in the outgoing B-LCSE state 3: Awaiting Release.
TP/OE/BLC/BV-13	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 3: Awaiting Release. Ensure that the IUT, upon the expiry of timer T103 enters in the outgoing B-LCSE state 0: Released.
TP/OE/BLC/BV-14	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 3: Awaiting Release. Ensure that the IUT, on receipt of a RELEASE_REQUEST from its upper layer, resets timer T103, sends OpenLogicalChannel message and enters outgoing B-LCSE state 1: Awaiting Establishment.

5.2.4.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for outgoing B-LCSE procedures. Consequently, no test purposes have been defined for this main test group.

5.2.4.3 Inopportune Behaviour test purposes (BO)

TP/OE/BLC/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE State 0: Released. Ensure that the IUT on receipt of an OpenLogicalChannelAck message remains in outgoing B-LCSE state 0: Released.
TP/OE/BLC/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE State 0: Released. Ensure that the IUT on receipt of an OpenLogicalChannelReject message remains in outgoing B-LCSE state 0: Released.
TP/OE/BLC/BO-03	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE State 0: Released. Ensure that the IUT on receipt of a CloseLogicalChannelAck message remains in outgoing B-LCSE state 0: Released.
TP/OE/BLC/BO-04	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: outgoing B-LCSE state 2: Established. Ensure that the IUT on receipt of an OpenLogicalChannelAck message remains in outgoing B-LCSE state 2: Established.

5.2.5 Close Logical Channel procedures (CLC)

5.2.5.1 Valid Behaviour test purposes (BV)

TP/OE/CLC/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: outgoing CLCSE State 0: Idle. Ensure that the IUT, having sent a valid RequestChannelClose message, starts timer T108 and enters outgoing CLCSE state 1: Awaiting Response.
TP/OE/CLC/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: outgoing CLCSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a RequestChannelCloseAck message, resets timer T108 enters outgoing CLCSE state 0: Idle.
TP/OE/CLC/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: outgoing CLCSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a RequestChannelCloseReject message, resets timer T108 enters outgoing CLCSE state 0: Idle.
TP/OE/CLC/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: outgoing CLCSE state 1: Awaiting Response. Ensure that the IUT, upon the expiry of timer T108, enters in the outgoing CLCSE state 0: Idle.

5.2.5.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for outgoing CLCSE procedures. Consequently, no test purposes have been defined for this main test group.

5.2.5.3 Inopportune Behaviour test purposes (BO)

TP/OE/CLC/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: outgoing CLCSE State 0: Idle. Ensure that the IUT on receipt of a RequestChannelCloseAck message remains in outgoing CLCSE state 0: Idle.
TP/OE/CLC/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: outgoing CLCSE State 0: Idle. Ensure that the IUT on receipt of a RequestChannelCloseReject message remains in outgoing CLCSE state 0: Idle.

5.2.6 Mode RequeSt procedures (MRS)

5.2.6.1 Valid Behaviour test purposes (BV)

TP/OE/MRS/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: outgoing MRSE state 0: Idle. Ensure that the IUT, having sent a valid RequestMode message, starts timer T109 and enters outgoing MRSE state 1: Awaiting Response.
TP/OE/MRS/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: outgoing MRSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a RequestModeAck message and if the sequence number field is set to the variable out_SQ, resets timer T109 enters outgoing MRSE state 0: Idle.
TP/OE/MRS/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: outgoing MRSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a RequestModeAck message and if the sequence number field is not set to the variable out_SQ, remains in the outgoing MRSE state 1: Awaiting Response.
TP/OE/MRS/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: outgoing MRSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a RequestModeReject message and if the sequence number field is set to the variable out_SQ, resets timer T109 enters outgoing MRSE state 0: Idle.
TP/OE/MRS/BV-05	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: outgoing MRSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a RequestModeReject message and if the sequence number field is not set to the variable out_SQ, remains in the outgoing MRSE state 1: Awaiting Response.
TP/OE/MRS/BV-06	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: outgoing MRSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a TRANSFER_REQUEST from its upper layer, restarts timer T109, sends a RequestMode message and remains in the outgoing MRSE state 1: Awaiting Response.
TP/OE/MRS/BV-07	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: outgoing MRSE state 1: Awaiting Response. Ensure that the IUT, upon the expiry of timer T109, sends a RequestModeRelease message, and enters outgoing MRSE state 0: Idle.

5.2.6.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for outgoing MRSE procedures. Consequently, no test purposes have been defined for this main test group.

5.2.6.3 Inopportune Behaviour test purposes (BO)

TP/OE/MRS/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: outgoing MRSE State 0: Idle. Ensure that the IUT on receipt of a RequestModeAck message remains in outgoing MRSE state 0: Idle.
TP/OE/MRS/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: outgoing MRSE State 0: Idle. Ensure that the IUT on receipt of a RequestModeReject message remains in outgoing MRSE state 0: Idle.

5.3 Test purposes for terminating Endpoint (TE)

5.3.1 Capability Exchange Procedures (CEP)

5.3.1.1 Valid Behaviour test purposes (BV)

TP/TE/CEP/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: incoming CESE state 0: Idle. Ensure that the IUT, on receipt of a TerminalCapabilitySet message, enters the incoming CESE state 1: Awaiting Response.
TP/TE/CEP/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: incoming CESE state 1: Awaiting Response. Ensure that the IUT, on receipt of a TRANSFER_RESPONSE from its upper layer, sends a TerminalCapabilitySetAck message and enters the incoming CESE state 0: Idle.
TP/TE/CEP/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: incoming CESE state 1: Awaiting Response. Ensure that the IUT, on receipt of a REJECT_REQUEST from its upper layer, sends a TerminalCapabilitySetReject message and enters the incoming CESE state 0: Idle.

5.3.1.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for incoming CESE procedures. Consequently, no test purposes have been defined for this main test group.

5.3.1.3 Inopportune Behaviour test purposes (BO)

TP/TE/CEP/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: incoming CESE state 0: Idle. Ensure that the IUT, on receipt of a TerminalCapabilitySetRelease message, remains in the incoming CESE state 0: Idle.
TP/TE/CEP/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.3.4.3 Only for IUT that supports CESE procedures. Initial condition: incoming CESE state 1: Awaiting Response. Ensure that the IUT, on receipt of a TerminalCapabilitySet message, remains in the incoming CESE state 1: Awaiting Response.

5.3.2 Master Slave Determination procedures (MSD)

5.3.2.1 Valid Behaviour test purposes (BV)

TP/TE/MSD/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 0: Idle. Ensure that the IUT, on receipt of a MasterSlaveDetermination message and if the variable sv_STATUS is set to indeterminate, sends a MasterSlaveReject message and remains in MSDSE state 0: Idle.
TP/TE/MSD/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 0: Idle. Ensure that the IUT, on receipt of a MasterSlaveDetermination message and if the variable sv_STATUS is set to master/slave, sends a MasterSlaveDeterminationAck message, sets timer T106 and enters MSDSE state 2: Incoming Awaiting Response.
TP/TE/MSD/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 2: Incoming Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDeterminationAck message, resets timer T106 and enters MSDSE state 0: Idle.
TP/TE/MSD/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 2: Incoming Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDetermination message, resets timer T106 and enters MSDSE state 0: Idle.
TP/TE/MSD/BV-05	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 2: Incoming Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDeterminationReject message, resets timer T106 and enters MSDSE state 0: Idle.
TP/TE/MSD/BV-06	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 2: Incoming Awaiting Response. Ensure that the IUT, on receipt of a MasterSlaveDeterminationRelease message, resets timer T106 and enters MSDSE state 0: Idle.
TP/TE/MSD/BV-07	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE state 2: Incoming Awaiting Response. Ensure that the IUT, upon the expiry of timer T106, resets timer T106 and enters MSDSE state 0: Idle.

5.3.2.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for incoming MSDSE procedures. Consequently, no test purposes have been defined for this main test group.

5.3.2.3 Inopportune Behaviour test purposes (BO)

TP/TE/MSD/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE State 0: Idle. Ensure that the IUT on receipt of a MasterSlaveDeterminationAck message remains in MSDSE state 0: Idle.
TP/TE/MSD/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE State 0: Idle. Ensure that the IUT on receipt of a MasterSlaveDeterminationReject message remains in MSDSE state 0: Idle.
TP/TE/MSD/BO-03	Reference: ITU-T Recommendation H.245 [4] - clause C.2.4.5 Only for IUT that supports MSDSE procedures. Initial condition: MSDSE State 0: Idle. Ensure that the IUT on receipt of a MasterSlaveDeterminationRelease message remains in MSDSE state 0: Idle.

5.3.3 Unidirectional Logical Channel Signalling procedures (LCS)

5.3.3.1 Valid Behaviour test purposes (BV)

TP/TE/LCS/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: incoming LCSE State 0: Released. Ensure that the IUT, on receipt of an OpenLogicalChannel message, enters the incoming LCSE state 1: Awaiting Establishment.
TP/TE/LCS/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: incoming LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of an OpenLogicalChannel message, sends an OpenLogicalChannelAck message and enters the incoming LCSE state 2: Established.
TP/TE/LCS/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: incoming LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of a RELEASE_REQUEST from its upper layer, sends an OpenLogicalChannelReject message and enters the incoming LCSE state 0: Released.
TP/TE/LCS/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: incoming LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of a CloseLogicalChannel message, sends a CloseLogicalChannelAck message, and enters the incoming LCSE state 0: Released.
TP/TE/LCS/BV-05	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: incoming LCSE state 2: Established. Ensure that the IUT, on receipt of a CloseLogicalChannel message, sends a CloseLogicalChannelAck message and enters the incoming LCSE state 0: Released.
TP/TE/LCS/BV-06	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: incoming LCSE state 2: Established. Ensure that the IUT, on receipt of an OpenLogicalChannel message, enters the incoming LCSE state 1: Awaiting Establishment.

5.3.3.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for incoming LCSE procedures. Consequently, no test purposes have been defined for this main test group.

5.3.3.3 Inopportune Behaviour test purposes (BO)

TP/TE/LCS/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: incoming LCSE State 0: Released. Ensure that the IUT, on receipt of a CloseLogicalChannel message, sends a CloseLogicalChannelAck message and remains in the incoming LCSE State 0: Released.
TP/TE/LCS/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports LCSE procedures. Initial condition: incoming LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of an OpenLogicalChannel message, remains in the incoming LCSE state 1: Awaiting Establishment.

5.3.4 Bi-directional Logical Channel Signalling procedures (BLC)

5.3.4.1 Valid Behaviour test purposes (BV)

TP/TE/BLC/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE State 0: Released. Ensure that the IUT, on receipt of an OpenLogicalChannel message, enters the incoming B-LCSE state 1: Awaiting Establishment.
TP/TE/BLC/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of a ESTABLISH_RESPONSE from its upper layer, sends an OpenLogicalChannelAck message, sets the timer T103 and enters the incoming B-LCSE state 2: Awaiting Confirmation.
TP/TE/BLC/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of a RELEASE_REQUEST from its upper layer, sends an OpenLogicalChannelReject message, and enters the incoming B-LCSE State 0: Released.
TP/TE/BLC/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of a CloseLogicalChannel message, sends a CloseLogicalChannelAck message, and enters the incoming B-LCSE State 0: Released.
TP/TE/BLC/BV-05	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 2: Awaiting Confirmation. Ensure that the IUT, upon the expiry of timer T103, enters the incoming B-LCSE State 0: Released.
TP/TE/BLC/BV-06	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 2: Awaiting Confirmation. Ensure that the IUT, on receipt of an OpenLogicalChannelConfirm message, resets timer T103 and enters the incoming B-LCSE State 3: Established.
TP/TE/BLC/BV-07	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 2: Awaiting Confirmation. Ensure that the IUT, on receipt of a CloseLogicalChannel message, resets timer T103, sends a CloseLogicalChannelAck message and enters the incoming B-LCSE State 0: Released.
TP/TE/BLC/BV-08	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 2: Awaiting Confirmation. Ensure that the IUT, on receipt of an OpenLogicalChannel message, resets timer T103 and enters the incoming B-LCSE State 1: Awaiting Establishment.

TP/TE/BLC/BV-09	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 3: Established. Ensure that the IUT, on receipt of an OpenLogicalChannel message, enters the incoming B-LCSE State 1: Awaiting Establishment.
TP/TE/BLC/BV-10	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 3: Established. Ensure that the IUT, on receipt of a CloseLogicalChannel message, sends a CloseLogicalChannelAck message and enters the incoming B-LCSE State 0: Released.

5.3.4.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for incoming B-LCSE procedures. Consequently, no test purposes have been defined for this main test group.

5.3.4.3 Inopportune Behaviour test purposes (BO)

TP/TE/BLC/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE State 0: Released. Ensure that the IUT, on receipt of an OpenLogicalChannelConfirm message, remains in the incoming B-LCSE State 0: Released.
TP/TE/BLC/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE State 0: Released. Ensure that the IUT, on receipt of a CloseLogicalChannel message, sends a CloseLogicalChannelAck message and remains in the incoming B-LCSE State 0: Released.
TP/TE/BLC/BO-03	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of an OpenLogicalChannel message, remains in the incoming B-LCSE state 1: Awaiting Establishment.
TP/TE/BLC/BO-04	Reference: ITU-T Recommendation H.245 [4] - clause C.5.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 1: Awaiting Establishment. Ensure that the IUT, on receipt of an OpenLogicalChannelConfirm message, enters the incoming B-LCSE State 0: Released.
TP/TE/BLC/BO-05	Reference: ITU-T Recommendation H.245 [4] - clause C.4.4.5 Only for IUT that supports B-LCSE procedures. Initial condition: incoming B-LCSE state 3: Established. Ensure that the IUT, on receipt of an OpenLogicalChannelConfirm message, remains in the incoming B-LCSE state 3: Established.

5.3.5 Close Logical Channel procedures (CLC)

5.3.5.1 Valid Behaviour test purposes (BV)

TP/TE/CLC/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: incoming CLCSE State 0: Idle. Ensure that the IUT, on receipt of a RequestChannelClose message, enters the incoming CLCSE state 1: Awaiting Response.
TP/TE/CLC/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: incoming CLCSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a CLOSE_RESPONSE from its upper layer, sends a RequestChannelCloseAck message, and enters the incoming CLCSE state 0: Idle.
TP/TE/CLC/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: incoming CLCSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a REJECT_REQUEST from its upper layer, sends a RequestChannelCloseReject message, and enters the incoming CLCSE state 0: Idle.
TP/TE/CLC/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: incoming CLCSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a RequestChannelCloseRelease message, enters the incoming CLCSE state 0: Idle.

5.3.5.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for incoming CLCSE procedures. Consequently, no test purposes have been defined for this main test group.

5.3.5.3 Inopportune Behaviour test purposes (BO)

TP/TE/CLC/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: incoming CLCSE State 0: Idle. Ensure that the IUT, on receipt of a RequestChannelCloseRelease message remains in incoming CLCSE state 0: Idle.
TP/TE/CLC/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.6.4.3 Only for IUT that supports CLCSE procedures. Initial condition: incoming CLCSE State 1: Awaiting Response. Ensure that the IUT, on receipt of a RequestChannelClose message remains in incoming CLCSE state 1: Awaiting Response.

5.3.6 Mode RequeSt procedures (MRS)

5.3.6.1 Valid Behaviour test purposes (BV)

TP/TE/MRS/BV-01	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: incoming MRSE state 0: Idle. Ensure that the IUT, on receipt of a RequestMode message, enters the incoming MRSE state 1: Awaiting Response.
TP/TE/MRS/BV-02	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: incoming MRSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a TRANSFER_RESPONSE from its upper layer, sends a RequestModeAck message, enters the incoming MRSE state 0: Idle.
TP/TE/MRS/BV-03	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: incoming MRSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a REJECT_REQUEST from its upper layer, sends a RequestModeReject message, enters the incoming MRSE state 0: Idle.
TP/TE/MRS/BV-04	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: incoming MRSE state 1: Awaiting Response. Ensure that the IUT, on receipt of a RequestModeRelease message, enters the incoming MRSE state 0: Idle.

5.3.6.2 Invalid Behaviour test purposes (BI)

No requirements for invalid behaviour have been identified in the standard for incoming MRSE procedures. Consequently, no test purposes have been defined for this main test group.

5.3.6.3 Inopportune Behaviour test purposes (BO)

TP/TE/MRS/BO-01	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: incoming MRSE State 0: Idle. Ensure that the IUT on receipt of a RequestModeRelease message remains in the incoming MRSE state 0: Idle.
TP/TE/MRS/BO-02	Reference: ITU-T Recommendation H.245 [4] - clause C.9.4.3 Only for IUT that supports MRSE procedures. Initial condition: incoming MRSE state 1: Awaiting Response. Ensure that the IUT on receipt of a RequestMode message remains in the incoming MRSE state 1: Awaiting Response.

History

Document history		
V1.1.1	January 2002	Publication