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Technical Specification

Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 4; Interoperability test methods and approaches; Part 2: H.323-SIP interoperability test scenarios to support multimedia communications in NGN environments



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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 a multi-part deliverable covering Interoperability test methods and approaches, as identified below:

- Part 1: "Generic approach to interoperability testing";
- Part 2: "H.323-SIP interoperability test scenarios to support multimedia communications in NGN environments".

# Introduction

The objective of the project team that produced the present document was to develop TIPHON Release 4 - H.323 - SIP Interoperability Test Scenarios". The other objective was to provide information, based on this particular exercise, for further development/enhancement/correction of the meta-protocol and the relevant profiles of the TIPHON technical specifications.

The initial analysis showed that the TIPHON documentation (H.323 and SIP profiles) for Release 4 was not finalized at the time of writting the present document. So the present document concentrates on the TIPHON Release 3 documentation.

To prepare the present document, the project team used the following publications as input: TR 101 308 [14], TS 101 314 [5], TS 101 315 [6], TS 101 882 [8], TS 101 883 [11], TS 101 884 [12], TS 101 878 [7], ITU-T Recommendation H.323 [1], RFC 2327 [10] and RFC 3261 [9] standards.

# 1 Scope

The present document describes an H.323-SIP Interoperability Test Suite focusing on test cases for functionality that include protocol interworking. It is based on the documents TS 101 883 [11] (H.323 Profile) and TS 101 884 [12] (SIP Profile) of TIPHON Release 3.

# 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.

Referenced documents which are not found to be publicly available in the expected location might be found at <a href="http://docbox.etsi.org/Reference">http://docbox.etsi.org/Reference</a>.

- [1] ITU-T Recommendation H.323 (2000): "Packet-based multimedia communications systems".
- [2] ITU-T Recommendation H.225.0 (2000): "Call signalling protocols and media stream packetization for packet-based multimedia communication systems".
- [3] ITU-T Recommendation H.245 (2000): "Control protocol for multimedia communication".
- [4] ITU-T Recommendation Q.931: "ISDN user-network interface layer 3 specification for basic call control".
- [5] ETSI TS 101 314: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Abstract Architecture and Reference Points Definition; Network Architecture and Reference Points".
- [6] ETSI TS 101 315: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Functional Entities, Information Flow and Reference Point Definitions; Guidelines for application of TIPHON functional architecture to inter-domain services".
- [7] ETSI TS 101 878: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Service Capability Definition; Service Capabilities for a simple call".
- [8] ETSI TS 101 882: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Protocol Framework Definition; General (meta-protocol)".
- [9] IETF RFC 3261: "SIP: Session Initiations Protocol".
- [10] IETF RFC 2327: "SDP: Session Description Protocol".
- [11] ETSI TS 101 883: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Mapping; Implementation of TIPHON architecture using H.323".
- [12] ETSI TS 101 884: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 3; Technology Mapping; Implementation of TIPHON architecture using SIP".
- [13] IETF RFC 2833:"RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals".
- [14] ETSI TR 101 308: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON); Requirements Definition Study, SIP and H.323 Interworking".

# 3 Definitions and abbreviations

### 3.1 Definitions

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

End-Point (EP): can be a terminal or a gateway

In-Band DTMF: DTMF signals are sent on the media channel according to RFC 2833 [13]

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Out-Band DTMF: DTMF signals are sent in a H.245 IndicationMessage, in field userInput

SIP Server: SIP entitiy comprising a SIP Proxy and a SIP Registrar

### 3.2 Abbreviations

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

BC	Basic Call
CC	Call Clearing
CEE	Call Establishment EnBLoc-sending
CEO	Call Establishment Overlap-sending
CLIP	Calling Line Identity Presentation
CLIR	Calling Line Identity Restriction
COLP	COnnected Line identity Presentation
COLR	COnnected Line identity Restriction
CPB	Called Party Busy
CPNA	Called Party does Not Answer
DR	DeRegistration
DTMF	Dual Tone Multi-Frequency
EP	EndPoint
EUT	Equipment Under Test
GK	GateKeeper
НО	H.323 Originated
IWF	InterWorking Function
NRIS	No Registration Indication Support
QE	Qualified Equipment
RE	REgistration
RIS	<b>Registration Indication Support</b>
SO	SIP Originated
SS	Supplementary Services
TP	Test Purposes
TSS	Test Suite Structure

# 4 Methodology

The process used in this work is outlined in the diagram below. Initially the H.323 [1] and SIP [9] standards are used as references to study and verify the protocol profiles of TIPHON H.323, TS 101 883 [11], and TIPHON SIP, TS 101 884 [12]. The results were used to generate the interoperability testing specifications.

Output of this work may lead to contributions to other working groups in TIPHON on any deficiencies and problems discovered whilst performing this work.



Figure 1: Methodology

# 5 Abstract architectures

The abstract architectures show the individual entities of the test architecture, as well as the human test operators.

We recommend that interoperability testing is performed in a way that one entity Equipment Under Test (EUT) is tested with equipment that already proved interoperability Qualified Equipment (QE). There are no restrictions in regard to which entity of the test architecture actually may be the EUT.

The following architectures give examples for a possible division into EUT and QE.

# 5.1 H.323-administered architecture



Figure 2: H.323-administered architecture

# 5.2 SIP-administered architecture



Figure 3: SIP-administered architecture

# 5.3 Architectures with two administration authorities





# 6 Test Suite Structure (TSS)

The Test Suite Structure (TSS) follows the network architecture and the protocol architecture. The first two levels are determined by the desired functionality. The third level is defined by the protocol of the originating side.

Functionality	Sub-Functionality	Originating Protocol
Registration (RE)		
	Registration Indication Support (RIS)	
		H.323 Originated (HO)
		SIP Originated (SO)
	No Registration Indication Support (NRIS)	
		H.323 Originated (HO)
		SIP Originated (SO)
	Deregistration (DR)	
		H.323 Originated (HO)
		SIP Originated (SO)
Basic Call (BC)		
	Call Establishment EnBLoc-Sending (CEE)	
		H.323 Originated (HO)
		SIP Originated (SO)
	Call Establishment Overlap-Sending (CEO)	
		H.323 Originated (HO)
		SIP Originated (SO)
	Call Clearing (CC)	
		H.323 Originated (HO)
		SIP Originated (SO)
	Called Party Busy (CPB)	
		H.323 Originated (HO)
		SIP Originated (SO)

Functionality	Sub-Functionality	Originating Protocol
	Called Party does not answer (CPNA)	
		H.323 Originated (HO)
		SIP Originated (SO)
Supplementary Services (SS)		
	Calling Line Identity presentation (CLIP)	
		H.323 Originated (HO)
		SIP Originated (SO)
	Calling Line Identity Restriction (CLIR)	
		H.323 Originated (HO)
		SIP Originated (SO)
	COnnected Line identity Presentation (COLP)	
		H.323 Originated (HO)
		SIP Originated (SO)
	COnnected Line identity Restriction (COLR)	
		H.323 Originated (HO)
		SIP Originated (SO)
	Dual Tone Multi-Frequency (DTMF)	
		H.323 Originated (HO)
		SIP Originated (SO)

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# 7 Test Purposes (TP)

# 7.1 TP naming convention

The naming scheme was chosen to be able to easily enter additional test cases in case of adaptions.

### Table 2: Numbering scheme

Identifier: <fur< th=""><th>nct&gt;_<nni< th=""><th>1&gt;</th><th></th></nni<></th></fur<>	nct>_ <nni< th=""><th>1&gt;</th><th></th></nni<>	1>	
<funct></funct>	=	RIS, NRIS, DR, CEE, CEO, C	C, CBA, CPB. CPNA, CLIP, CLIR, COLP, COLR, DTMF
<nnn></nnn>	=	sequential number	(01 to 99)

# 7.2 Test strategy

As the TIPHON profiles for H.323 and SIP contain no explicit requirements for testing, the TPs were generated as a result of the profiles' analysis. The TPs are based on functional requirements for interoperability testing.

# 7.3 Interoperability TPs

### 7.3.1 REgistration (RE)

### 7.3.1.1 Registration Indication Supported (RIS)

### RIS\_01

To verify that a user whose terminal indicates registration is able to register at a SIP Server using a H.323 EP with manual GK discovery

### $RIS_{02}$

To verify that a user whose terminal indicates registration is able to register at a SIP Server using a H.323 EP with automatic GK discovery

### RIS\_03

To verify that a user whose terminal indicates registration is able to register to the H.323 GK by means of a manually configured SIP EP

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#### RIS\_04

To verify that a user whose terminal indicates registration is able to register to the H.323 GK by means of a SIP EP using multicast discovery

### 7.3.1.2 No Registration Indication Supported (NRIS)

### NRIS\_01

To verify that a user whose terminal does not indicate registration is able to register at a SIP Server using a H.323 EP with manual GK discovery

#### NRIS\_02

To verify that a user whose terminal does not indicate registration is able to register at a SIP Server using a H.323 EP with automatic GK discovery

#### NRIS\_03

To verify that a user whose terminal does not indicate registration is able to register to the H.323 GK by means of a manually configured SIP EP

#### NRIS\_04

To verify that a user whose terminal does not indicate registration is able to register to the H.323 GK by means of a SIP EP using multicast discovery

### 7.3.1.3 DeRegistration (DR)

### DR\_01

To verify that a H.323 EP is able to deregister from a SIP Server

#### DR\_02

To verify that a SIP EP is able to deregister from a H.323 GK

### 7.3.2 Basic Call (BC)

### 7.3.2.1 Call Establishment EnbBloc-sending (CEE)

#### CEE\_01

To verify that a call can be established successfully from a H.323 EP to a SIP EP using EnBloc-sending, that the media channels are opened after the call establishment and that a ring tone is heard at the calling party

### **CEE\_02**

To verify that a call can be established successfully from a SIP EP to a H.323 EP using EnBloc-sending, that the media channels are opened after the call establishment and that a ring tone is heard at the calling party

### 7.3.2.2 Call Establishment Overlap-sending (CEO)

#### **CEO\_01**

To verify that a call can be established successfully from a H.323 EP to a SIP EP using Overlap-sending, that the media channels are opened after the call establishment and that a ring tone is heard at the calling party

#### **CEO\_02**

To verify that a call can be established successfully from a SIP EP to a H.323 EP using Overlap-sending, that the media channels are opened after the call establishment and that a ring tone is heard at the calling party

### 7.3.2.3 Call Clearing (CC)

#### CC\_01

To verify that an established call, originated by a H.323 EP, can be released by the calling H.323 party and that releasing the call also clears the media channel

### CC\_02

To verify that an established call, originated by a H.323 EP, can be released by the called SIP EP and that releasing the call also clears the media channel

#### CC\_03

To verify that an established call, originated by a SIP EP, can be released by the calling SIP party and that releasing the call also clears the media channel

#### CC\_04

To verify that an established call, originated by a SIP EP, can be released by the called H.323 EP and that releasing the call also clears the media channel

#### CC\_05

To verify that a call attempt from the H.323 EP may be released by the calling H.323 EP before the called SIP EP answers

### CC\_06

To verify that a call attempt from the SIP EP may be released by the calling SIP EP before the called H.323 EP answers

### 7.3.2.4 Called Party Busy (CPB)

### CPB\_01

To verify that a call attempt from a H.323 EP to a busy SIP user delivers a busy indication at the calling party

### CPB\_02

To verify that a call attempt from a SIP EP to a busy H.323 user delivers a busy indication at the calling party

### 7.3.2.5 Called Narty does Not Answer (CPNA)

#### CPNA\_01

To verify that a call attempt from a H.323 EP to a SIP EP is cleared and that the calling H.323 party receives a "No answer"-indication if the SIP EP does not answer in a certain time period

#### CPNA\_02

To verify that a call attempt from a H.323 EP to a SIP EP is cleared and that the calling SIP party receives a "No answer"-indication if the H.323 EP does not answer in a certain time period

### 7.3.3 Supplementary Services (SS)

### 7.3.3.1 CLIP

### CLIP\_01

To verify that the line identity of a calling H.323 EP is presented to the called SIP EP

#### CLIP\_02

To verify that the line identity of a calling SIP EP is presented to the called H.323 EP

### 7.3.3.2 CLIR

#### CLIR\_01

To verify that the transmitted line identity of a calling H.323 EP is not presented to the called SIP EP if CLIR is enabled for the calling party

#### CLIR\_02

To verify that the transmitted line identity of a calling SIP EP is not presented to the called H.323 EP if CLIR is enabled for the calling party

### 7.3.3.3 COLP

#### COLP\_01

To verify that the line identity of a SIP EP called from a H.323 EP is presented to the calling H.323 EP on connection

### COLP\_02

To verify that the line identity of a H.323 EP called from a SIP EP is presented to the calling SIP EP on connection

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### 7.3.3.4 COLR

### COLR\_01

To verify that the line identity of a SIP EP called from a H.323 EP is not presented to the calling H.323 EP on connection if COLR is enabled for the called party

### COLR\_02

To verify that the line identity of a H.323 EP called from a SIP EP is not presented to the calling SIP EP on connection if COLR is enabled for the called party

### 7.3.3.5 DTMF

### DTMF\_01

To verify that the calling party in a H.323 originated and established call is able to send In-Band DTMF to the called party

### DTMF\_02

To verify that the called SIP EP in a H.323 originated and established call is able to send In-Band DTMF to the calling party

### DTMF\_03

To verify that the calling party in a SIP originated and established call is able to send In-Band DTMF to the called party

#### DTMF\_04

To verify that the called H.323 EP in a SIP originated and established call is able to send In-Band DTMF to the calling party

#### DTMF\_05

To verify that the calling party in a H.323 originated and established call is able to send Out-Band DTMF to the called party

#### DTMF\_06

To verify that the called SIP EP in a H.323 originated and established call is able to send Out-Band DTMF to the calling party

#### DTMF\_07

To verify that the calling party in a SIP originated and established call is able to send Out-Band DTMF to the called party

#### DTMF\_08

To verify that the called H.323 EP in a H.323 originated and established call is able to send Out-Band DTMF to the calling party

# 8 Interoperability test suite

# 8.1 Configuration

All entities of the test architecture shall be configured according to the TIPHON H.323 profile TS 101 883 [11] and the TIPHON SIP profile TS 101 884 [12].

Rough configuration information concerning the individual test cases is given in the section "Pre-Test Condition" in each test case.

# 8.2 Endpoint RE

# 8.2.1 EP supports registration indication

# 8.2.1.1 H.323 EP registers at SIP server using manual GK discovery

Test:	RIS_01	Selection Criteria:	Optional	Selected:	Yes No
Title:		H.323 EP registers at SIP Server	using manual GK discovery		
Test Purpose:		To verify that a user whose termir a H.323 EP with manual GK disco	nal indicates registration is able to	o register at a SIP Ser	ver using
Abstract Architec		SIP-administered architecture, cla	ause 5.2, figure 3		
Pre-test conditions:		•	to use manual GK discovery the the user's registration informat	ion	
Step		Test descri	ption	Vero	lict
				Pass	Fail
1	Initiate regi	stration			
2	Check: Is	H.323EP indicating registration (v	isual indicator)?	Yes	No

### 8.2.1.2 H.323 EP registers to SIP server using automatic GK discovery

Test:	RIS_02	Selection Criteria:	Optional	Selected	: Yes No
Title:		H.323 EP registers at SIP Server	using automatic GK discovery		
Test Purpose:		To verify that a user whose termi a H.323 EP with automatic GK di	nal indicates registration is able to scovery	o register at a SIP Se	rver using
Abstract Architec	-	SIP-administered architecture, cl	ause 5.2, figure 3		
Pre-test conditions:		•	to use automatic GK discovery ith the user's registration informat stration indication	ion	
Step		Test descr	iption	Ver	dict
-			-	Pass	Fail
1	Initiate registration				
2	Check: Is H.323EP indicating registration (visual indicator)?		Yes	No	

Test:	RIS_03	Selection Criteria:	Optional	Selected:	Yes
					No
Title:		SIP EP registers to H.323 GK usin	ng manual configuration		
Test Pur	pose:	To verify that a user whose termin	al indicates registration is able to	register to the H.323	GK by
		means of a manually configured S	IP EP		
Abstract		H.323-Administered architecture,	clause 5.1, figure 2		
Architec	ture:				
Pre-test conditions:		Provide SIP EP with the	IWF's registrar address		
		<ul> <li>Configure H.323 GK with</li> </ul>	user's registration information		
		<ul> <li>SIP EP supports Registration</li> </ul>	ation Indication		
Step		Test descri	ption	Verd	ict
				Pass	Fail
1	Initiate re	gistration			
2		Is SIP EP indicating registration (visu	ual indicator)?	Yes	No
Observa				· ·	

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# 8.2.1.3 SIP EP registers to H.323 GK using manual configuration

# 8.2.1.4 SIP EP registers to H.323 GK using multicast discovery

Test:	RIS_04	Selection Criteria:	Optional	Selected:	Yes No
Title:		SIP EP registers to H.323 GK			
Test Purpose:		To verify that a user whose termi means of a SIP EP using multica	nal indicates registration is able to st discovery	p register to the H.323	GK by
Abstract Architect	ure:	H.323-Administered architecture,	clause 5.1, figure 2		
Pre-test conditions:		<ul> <li>Configure SIP EP to use</li> <li>Configure H.323 GK with</li> <li>SIP EP supports Registration</li> </ul>	h user's registration information		
Step		Test descr	iption	Verd	lict
•			-	Pass	Fail
1	Initiate registration				
2	Check: Is SIP EP indicating registration (visual indication)?		Yes	No	

# 8.2.2 EP does not support registration indication

8.2.2.1	H.323 EP registers at SIP server using manual GK discovery
•	

Test:	NRIS_01	Selection Criteria:	Optional	Selected:	Yes No
Title:		H.323 EP registers at SIP Server	using manual GK discovery	·	
Test Pur	pose:	To verify that a user whose termin Server using a H.323 EP with mar	al does not indicate registration is a nual GK discovery	ble to register at a	SIP
Abstract Architec		SIP-administered architecture, cla	use 5.2, figure 3		
Pre-test conditions:		5	to use manual GK discovery h the user's registration information ate a call		
Step		Test descri	ption	Verd	lict
-			-	Pass	Fail
1	Initiate call				
2	Check: C	all attempt is permitted?		No	Yes
3	Initiate regi	stration			
4	Initiate call				
5	Check: C	all attempt is permitted?		Yes	No
Observa	tions:				

### 8.2.2.2 H.323 EP registers at SIP server using automatic GK discovery

Test:	NRIS_02	Selection Criteria:	Optional	Selected:	Yes No	
Title:		H.323 EP registers at SIP Server	using automatic GK discovery			
Test Purpose:		To verify that a user whose termir Server using a H.323 EP with aut		s able to register at a	SIP	
Abstrac	t	SIP-administered architecture, cla	use 5.2, figure 3			
Archited	ture:					
Pre-test	conditions:	Configure the H.323 EP to use automatic GK discovery				
		<ul> <li>Configure SIP Server with the user's registration information</li> </ul>				
		Configure testbed to initiate a call				
		<ul> <li>H.323 EP does not supp</li> </ul>	ort registration indication			
Step		Test descri		Verc	lict	
Step				Verc Pass	lict Fail	
Step	Initiate call					
1		Test descri		Pass	Fail	
1 2	Check: C	Test descri		Pass	Fail	

Test:	NRIS_03	Selection Criteria:	Optional	Selected:	Yes No
Title:		SIP EP registers to H.323 GK usin	g manual configuration		
Test Purpose:		To verify that a user whose termina GK by means of a manually config	al does not indicate registration is al ured SIP EP	ole to register to the	э Н.323
Abstract Architec		H.323-Administered architecture, o	lause 5.1, figure 2		
Pre-test conditions:		<ul> <li>Provide SIP EP with the I</li> <li>Configure H.323 GK with</li> <li>Configure Testbed to initia</li> <li>SIP EP does not support</li> </ul>	user's registration information ate a call		
Step		Test descrip	otion	Verd	ict
				Pass	Fail
1	Initiate call				
2	Check: C	all attempt is permitted?		No	Yes
3	Initiate regi	stration			
4	Initiate call				
5	Check: C	all attempt is permitted?		Yes	No
Observa	tions:				

# 8.2.2.3 SIP EP registers to H.323 GK using manual configuration

# 8.2.2.4 SIP EP registers to H.323 GK using multicast discovery

Test:	NRIS_04	Selection Criteria:	Optional	Selected:	Yes No	
Title:		SIP EP registers to H.323 GK				
Test Purpose:		To verify that a user whose terminal does not indicate registration is able to register to the H.323 GK by means of a SIP EP using multicast discovery				
Abstract	t	H.323-Administered architecture,	clause 5.1, figure 2			
Archited	ture:					
Pre-test conditions:		<ul> <li>Configure SIP EP to use</li> <li>Configure H.323 GK with</li> <li>Configure Testbed to init</li> <li>SIP EP supports Registration</li> </ul>	user's registration information iate a call			
Step		Test descri	ption	Verd	ict	
-			-	Pass	Fail	
1	Initiate call					
2	Check: C	all attempt is permitted?		No	Yes	
3	Initiate regi	stration				
4	Initiate call					
5	Check: C	all attempt is permitted?		Yes	No	
Observa	itions:					

# 8.2.3 Deregistration

### 8.2.3.1 H.323 EP deregisters

H.323 EP deregisters from SIP Server         To verify that a H.323 EP is able to deregister from a SIP Server         SIP-administered architecture, clause 5.2, figure 3         •       H.323 EP must be registered at SIP Server		
SIP-administered architecture, clause 5.2, figure 3         • H.323 EP must be registered at SIP Server		
H.323 EP must be registered at SIP Server		
Test description		
	Pass	Fail
eregistration at H.323 EP		
Is terminal indicating deregistration (visual(indicator) or audible indication(dial tone))?	Yes	No
	eregistration at H.323 EP Is terminal indicating deregistration (visual(indicator) or audible indication(dial	Pass         eregistration at H.323 EP         Is terminal indicating deregistration (visual(indicator) or audible indication(dial Yes

### 8.2.3.2 SIP EP deregisters

Test:	DR_02	Selection Criteria: Mandatory	Selected:	Yes <del>No</del>
Title:		SIP EP deregisters from H.323 GK		
Test Pu				
Abstract Archited	-	H-323-administered architecture, clause 5.1, figure 2		
Pre-test	est conditions: • SIP EP must be registered at H.323 GK			
Step	Test description			ct
			Pass	Fail
1	Initiate d	eregistration at SIP EP		
2	Check:	Is terminal indicating deregistration (visual(indicator) or audible indication(dial tone))?	Yes	No

# 8.3 Basic Call establishment

The test cases in this clause are valid for all test architectures. Therefore, there is no section "abstract architecture" in the test cases.

The test cases of clauses 8.3.1 and 8.3.2 shall be run for each supported codec.

# 8.3.1 Call Establishment with EnBloc-Sending

### 8.3.1.1 Call Establishment from H.323 EP to SIP EP

Test:	CEE_0	1 Selection Criteria:	Mandatory	Selected:	Yes <del>No</del>
Title:		Call establishment from H.323 EF	P to SIP EP	·	
Test Purpose:			lished successfully from a H.323 s are opened after the call establi		
Pre-test	conditions				
		<ul> <li>Both EPs must have such</li> </ul>	cessfully registered		
Step		Test descr	ption	Verd	lict
				Pass	Fail
1	Initiate c	all from H.323 EP to SIP EP			
2	Check:	Is Ringing Tone heard at H.323 EP?	•	Yes	No
3	Check:	Is SIP EP alerting (visual or audible		Yes	No
4	Check:	Can voice from SIP EP be heard at	H.323 EP?	No	Yes
5	Check:	Can voice from H.323 EP be heard	at SIP EP?	No	Yes
6	Accept of	all at SIP EP			
7	Check:	Is Ringing Tone heard at H.323 EP?	•	No	Yes
8	Check:	Is SIP EP alerting?		No	Yes
9	Check:	Can voice from SIP EP be heard at	H.323 EP?	Yes	No
10	Check:	Can speech from H.323 EP be hear	d at SIP EP?	Yes	No
		II at H.323 EP or SIP EP			

### 8.3.1.2 Call Establishment from SIP EP to H.323 EP

Test:	CEE_02	Selection Criteria:	Mandatory	Selected	: Yes <del>No</del>
Title:		Call establishment from SIP EP t	o H.323 EP		
Test Purpose:			lished successfully from a SIP EP s are opened after the call establis		
Pre-test	conditions:	<ul> <li>Configure equipment to</li> </ul>	use EnBloc-Sending		
		<ul> <li>Both EPs must have su</li> </ul>	ccessfully registered		
Step		Test desc	iption	Vero	dict
-				Pass	Fail
1	Initiate ca	II from SIP EP to H.323 EP			
2	Check:	Is Ringing Tone heard at SIP EP?		Yes	No
3	Check:	Is H.323 EP alerting (visual or audil	ole indication)?	Yes	No
4	Check:	Can voice from SIP EP be heard at	H.323 EP?	No	Yes
5	Check:	Can voice from H.323 EP be heard	at SIP EP?	No	Yes
6	Accept ca	III at H.323 EP			
7	Check:	Is Ringing Tone heard at SIP EP?		No	Yes
8	Check:	Is H.323 EP alerting?		No	Yes
9	Check:	Can voice from SIP EP be heard at	H.323 EP?	Yes	No
10	Check:	Can speech from H.323 EP be head	d at SIP EP?	Yes	No
11	Clear call	at SIP EP or H.323 EP			
Observa	tions:				

# 8.3.2 Call Establishment with Overlap-Sending

## 8.3.2.1 Call Establishment from H.323 EP to SIP EP

Test:	CEO_0	1 Selection Criteria:	Mandatory	Selected:	Yes <del>No</del>	
Title:		Call establishment from H.323 EF	to SIP EP	·		
Test Purpose:			To verify that a call can be established successfully from a H.323 EP to a SIP EP using Overla Sending, that the media channels are opened after the call establishment and that a ring tone i heard at the calling party			
Pre-test	conditions	e ooningalo oquipinoni to				
		<ul> <li>Both EPs must have such</li> </ul>	cessfully registered			
Step		Test descr	ption	Verd	lict	
				Pass	Fail	
1	Initiate c	all from H.323 EP to SIP EP				
2	Check:	Is Ringing Tone heard at H.323 EP?		Yes	No	
3	Check:	Is SIP EP alerting (visual or audible	indication)?	Yes	No	
4	Check:	Can voice from SIP EP be heard at	H.323 EP?	No	Yes	
5	Check:	Can voice from H.323 EP be heard a	at SIP EP?	No	Yes	
6	Accept c	all at SIP EP				
7	Check:	Is Ringing Tone heard at H.323 EP?		No	Yes	
8	Check:	Is SIP EP alerting (visual or audible	indication)?	No	Yes	
9	Check:	Can voice from SIP EP be heard at	H.323 EP?	Yes	No	
10	Check:	Can voice from H.323 EP be heard a	at SIP EP?	Yes	No	
10		l at H.323 EP or SIP EP				

### 8.3.2.2 Call Establishment from SIP EP to H.323 EP

				No		
	Call establishment from SIP EP to	0 H.323 EP				
ose:		To verify that a call can be established successfully from a SIP EP to a H.323 EP using Overlap- Sending, that the media channels are opened after the call establishment and that a ring tone is heard at the calling party.				
onditions:	e egane e quipinent te .	Configure equipment to use Overlap sending				
	Test descri	ption	Ver	dict		
		-	Pass	Fail		
Initiate ca	II from SIP EP to H.323 EP					
Check:	Is Ringing Tone heard at SIP EP?		Yes	No		
Check:	Is H.323 EP alerting (visual or audib	le indication)?	Yes	No		
Check:	Can voice from SIP EP be heard at I	H.323 EP?	No	Yes		
Check:	Can voice from H.323 EP be heard a	at SIP EP?	No	Yes		
Accept ca	II at H.323 EP					
Check:	Is Ringing Tone heard at SIP EP?		No	Yes		
Check:	Is H.323 EP alerting (visual or audib	le indication)?	No	Yes		
Check:	Can voice from SIP EP be heard at I	H.323 EP?	Yes	No		
Check:	Can voice from H.323 EP be heard a	at SIP EP?	Yes	No		
Clear call	at SIP EP or H.323 EP			[		
	onditions: Initiate ca Check: Check: Check: Check: Accept ca Check: Check: Check: Check:	ose: To verify that a call can be establi Sending, that the media channels heard at the calling party onditions: Configure equipment to Both EPs must have suc Test descri Initiate call from SIP EP to H.323 EP Check: Is Ringing Tone heard at SIP EP? Check: Is H.323 EP alerting (visual or audib Check: Can voice from SIP EP be heard at Check: Can voice from H.323 EP Check: Is Ringing Tone heard at SIP EP? Check: Can voice from H.323 EP be heard at Check: Is Ringing Tone heard at SIP EP? Check: Is Ringing Tone h	Sending, that the media channels are opened after the call establisheard at the calling party         onditions: <ul> <li>Configure equipment to use Overlap sending</li> <li>Both EPs must have successfully registered</li> </ul> Test description         Initiate call from SIP EP to H.323 EP         Check:       Is Ringing Tone heard at SIP EP?         Check:       Is H.323 EP alerting (visual or audible indication)?         Check:       Can voice from SIP EP be heard at H.323 EP?         Check:       Can voice from H.323 EP be heard at SIP EP?         Accept call at H.323 EP         Check:       Is Ringing Tone heard at SIP EP?         Check:       Can voice from H.323 EP be heard at SIP EP?         Check:       Is Ringing Tone heard at SIP EP?         Check:       Can voice from SIP EP be heard at H.323 EP?         Check:       Can voice from SIP EP be heard at SIP EP?         Check:       Can voice from SIP EP be heard	ose:       To verify that a call can be established successfully from a SIP EP to a H.323 EP using a Sending, that the media channels are opened after the call establishment and that a ring heard at the calling party         onditions: <ul> <li>Configure equipment to use Overlap sending</li> <li>Both EPs must have successfully registered</li> <li>Both EPs must have successfully registered</li> </ul> Vere         Initiate call from SIP EP to H.323 EP       Pass         Check:       Is Ringing Tone heard at SIP EP?         Check:       Is H.323 EP alerting (visual or audible indication)?       Yes         Check:       Can voice from H.323 EP be heard at SIP EP?       No         Check:       Is Ringing Tone heard at SIP EP?       No         Check:       Is Ringing Tone heard at SIP EP?       No         Check:       Is Ringing Tone heard at SIP EP?       No         Check:       Is Ringing Tone heard at SIP EP?       No         Check:       Is Ringing Tone heard at SIP EP?       No         Check:       Is Ringing Tone heard at SIP EP?       No         Check:       Is Ringing Tone heard at SIP EP?       No         Check:       Is Ringing Tone heard at SIP EP?       No         Check:       Is Ringing Tone heard at SIP EP?       No         Check:       Is Ringing Tone heard at SIP EP?		

# 8.3.3 Call Clearing

### 8.3.3.1 H.323 EP calls SIP EP and H.323 EP clears the call

Test:	CC_01	Selection Criteria:	Mandatory	Selected	: Yes <del>No</del>
Title:		H.323 EP calls SIP EP and H.323	EP clears the call		110
Test Purpose:		To verify that an established call, party and that releasing the call a		released by the callir	ng H.323
Pre-test conditions:			be able to establish a call		
Step		Test description		Vero	dict
-			-	Pass	Fail
1	Initiate call	from H.323 EP to SIP EP			
2	Accept call	at SIP EP			
3	Clear call a	Clear call at H.323 EP			
3	- · ·	s call released(call signalling)?		Yes	No
4	Check: Is	s can released(can signalling):			

### 8.3.3.2 H.323 EP calls SIP EP and SIP EP clears the call

Test:	CC_02	Selection Criteria:	Mandatory	Selected:	Yes No
Title:		H.323 EP calls SIP EP and SIP E	P clears the call		
Test Pur	pose:	To verify that an established call, and that releasing the call also cle		released by the calle	d SIP EF
Pre-test conditions:		Configure equipment to I	be able to establish a call		
		Both parties must be reg	istered		
Step		Test description		Vero	lict
-			-	Pass	Fail
1	Initiate cal	I from H.323 EP to SIP EP			
	Accept call at SIP EP				
2	Accept ca	li at SIP EP			
2	Accept cal				
	Clear call			Yes	No

### 8.3.3.3 SIP EP calls H.323 EP and SIP EP clears the call

Test:	CC_03	Selection Criteria:	Optional	Selected	: Yes No	
Title:		SIP EP calls H.323 EP and SIP E	P clears the call			
Test Pur	pose:	originated by a SIP EP, can be re ears the media channel	eleased by the calling	SIP party		
Pre-test	conditions	<ul> <li>Configure equipment to</li> <li>Both parties must be reg</li> </ul>	be able to establish a call jistered			
Step		Test descr	iption	Vero	dict	
				Pass	Fail	
1	Initiate ca	II from SIP EP to H.323 EP				
2	Accept ca	Accept call at H.323 EP				
3	Clear call	Clear call at SIP EP				
4	Check:	Is call released(call signalling)?		Yes	No	
4	- · ·	Are voice channels cleared?		Yes	No	

Test:	CC_04	Selection Criteria:	Optional	Selected:	Yes	
Title:		SIP EP calls H.323 EP and H.323	BEP clears the call	ł		
Test Purpose:         To verify that an established call, originated by a SIP EP, can be released and that releasing the call also clears the media channel					1.323 EF	
Pre-test conditions:         • Configure equipment to           • Both parties must be reg			be able to establish a call jistered			
Step		Test descri	iption	Verd	ict	
				Pass	Fail	
1	Initiate call	from SIP EP to H.323 EP				
2	Accept call	Accept call at H.323 EP				
~		Clear call at H.323 EP				
3	Clear call a					
		s call released(call signalling)?		Yes	No	

### 8.3.3.4 SIP EP calls H.323 EP and H.323 EP clears the call

### 8.3.3.5 H.323 EP calls SIP EP and H.323 EP clears call before SIP EP answers

Test:	CC_05	Selection Criteria:	Mandatory	Selected:	Yes <del>No</del>
Title:		H.323 EP calls SIP EP and H.323	EP clears call before SIP EP ans	wers	
Test Pur	pose:	To verify that a call attempt from t called SIP EP answers	he H.323 EP may be released by	the calling H.323 EP	before the
Pre-test	conditions	<ul> <li>Configure equipment to</li> <li>Both parties must be reg</li> </ul>	be able to establish a call istered		
Step		Test descri	ption	Verd	ict
				Pass	Fail
1	Initiate c	all from H.323 EP to SIP EP			
	Clear cal	l at H.323 EP			
2					
2 3	Check:	Is the call released(call signalling)?		Yes	No

### 8.3.3.6 SIP EP calls H.323 EP and SIP EP clears call before H.323 EP answers

Test:	CC_07	Selection Criteria:	Mandatory	Selecte	d: Yes <del>No</del>
Title:		SIP EP calls H.323 EP and SIP E	P clears call before H.323 EP ans	wers	
Test Purpose: To verify that a call attempt from the SIP EP may be released by the calling called H.323 EP answers					fore the
Pre-test conditions:		<ul> <li>Configure equipment to</li> </ul>	be able to establish a call		
		Both parties must be reg	istered		
Step		Test descri	ption	Ve	rdict
				Pass	Fail
1	Initiate c	all from SIP EP to H:323 EP			
2	Clear ca	Clear call at SIP EP			
	Charles	Is the call released(call signalling)?		Yes	No
3	Check:				Yes

# 8.3.4 Called Party is busy

# 8.3.4.1 H.323 EP calls SIP EP and SIP EP is busy

Test:	CPB_01	Selection Criteria:	Mandatory	Selected:	Yes <del>No</del>
Title:		H.323 EP calls SIP EP and SIP	EP is busy		HO
Test Pur	pose:	To verify that a call attempt from calling party	a H.323 EP to a busy SIP user delive	rs a busy indicatio	n at the
Pre-test	conditions:	<ul> <li>Configure equipment to</li> <li>Both parties must be re</li> </ul>	be able to establish a call to a busy u gistered	ser	
Step		Test desc	ription	Verd	lict
-				Pass	Fail
1	Initiate call	from third party to SIP EP or vio	ce versa		
2	Accept call	at called party			
3	Initiate call	from H.323 EP to SIP EP			
4	Check: Is	Busy indication received (audible	e or visual) at H.323 EP?	Yes	No
	Clear call at	H.323 EP			
5	orear can a				

# 8.3.4.2 SIP EP calls H.323 EP and H.323 EP is busy

Test:	CPB_02	Selection Criteria:	Mandatory	Selected:	Yes <del>No</del>
Title:		SIP EP calls H.323 EP and H.32	23 EP is busy	•	
Test Pur	pose:	To verify that a call attempt from calling party	a SIP EP to a busy H.323 user delivers a b	ousy indicatior	at the
Pre-test	conditions:	<ul> <li>Configure equipment to</li> <li>Both parties must be readered.</li> </ul>	b be able to establish a call to a busy user egistered		
Step		Test desc	ription	Verd	ict
				Pass	Fail
1	Initiate call	from third party to H.323 EP or	vice versa		
2	Accept call	at called party			
3	Initiate call	from SIP EP to H.323 EP			
4	Check: Is	Busy indication received (audibl	e or visual) at SIP EP?	Yes	No
5	Clear call at	SIP EP			
6	Clear call at	H.323 EP or Third party			
Observa	tions:				

Yes No

Fail

No No Yes

#### Called Party does not answer 8.3.5

Test:	CPNA_(	O1 Selection Criteria:	Mandatory	Selected	: Ye N
Title:		H.323 EP calls SIP EP and SIP E	P does not answer	•	
Test Pu	rpose:		a H.323 EP to a SIP EP is cleared and ication if the SIP EP does not answer i		
Pre-test conditions:		<ul> <li>Configure equipment to</li> <li>Both parties must be reg</li> <li>Configure call initiation to</li> </ul>			
Step		Test descr	iption	Vere	dict
-				Pass	Fail
1	Initiate c	all from H.323 EP to SIP EP			
2	Check:	Is "No Answer" indication received (	audible or visual) at H.323 EP?	Yes	No
3	Check:	Does H.323 EP stop call attempt af	er timeout?	Yes	No
	Check:	Is the SIP EP still alerting?		No	Yes

#### H.323 EP calls SIP EP and SIP EP does not answer 8.3.5.1

#### 8.3.5.2 SIP EP calls H.323 EP and H.323 EP does not answer

Test:	CPNA_(	02 Selection Criteria:	Mandatory	Selected	
Title:		SIP EP calls H.323 EP and H.323	EP does not answer		No
Test Pur	pose:	To verify that a call attempt from a	H.323 EP to a SIP EP is cleared and if the H.323 EP does not answer in		
Pre-test conditions:		<ul> <li>Configure equipment to b</li> <li>Both parties must be regi</li> <li>Configure call initiation tir</li> </ul>	stered		
Step		Test descri	otion	Ver	dict
-		-		Pass	Fail
1	Initiate c	all from SIP EP to H.323 EP			
2	Check:	Is "No Answer" indication received (a	udible or visual) at SIP EP?	Yes	No
3	Check:	Does SIP EP stop call attempt after t	imeout?	Yes	No
	Check:	Is the H.323 EP still alerting?		No	Yes

# 8.4 Supplementary Services (SS)

# 8.4.1 CLIP

### 8.4.1.1 Call Establishment from H.323 EP to SIP EP

Test:	CLIP_01	Selection Criteria:	Optional	Selected	: Yes No
Title:		Call establishment from H.323 EF	P to SIP EP		
Test Purp	pose:	To verify that the line identity of a	calling H.323 EP is presented to	the called SIP EP	
Pre-test conditions:		Configure equipment to	be able to establish a call		
		Configure equipment to	use CLIP		
		Both parties must be reg	jistered		
Step		Test descr	iption	Vero	dict
-			-	Pass	Fail
1	Initiate call	from H.323 EP to SIP EP			
2	Check: I	s H.323 EP's identity shown at SIP	EP?	Yes	No
3	Clear the c	all at either party			

### 8.4.1.2 Call Establishment from SIP EP to H.323 EP

P IP EP is presented to the establish a call		
establish a call		
	Ver	dict
	Pass	Fail
	Yes	No
-		

# 8.4.2 CLIR

### 8.4.2.1 Call Establishment from H.323 EP to SIP EP

Test:	CLIR_01	Selection Criteria:	Optional	Selected:	
					No
Title:		Call establishment from H.323 EF	P to SIP EP		
Test Purpose: To verify that the transmitted line identity of a calling H.323 EP is not presen EP if CLIR is enabled for the calling party					lled SIP
Pre-test conditions:		<b>9</b> 1 1		у	
Step		Test descr	iption	Verd	lict
-			-	Pass	Fail
1	Initiate call	from H.323 EP to SIP EP			
2	Check: Is	H.323 EP's identity shown at SIP	EP?	No	Yes
3	Clear the ca	all at either party			
Observa	tions:				

### 8.4.2.2 Call Establishment from SIP EP to H.323 EP

Test:	CLIR_02	Selection Criteria:	Optional	Selected	Yes No
Title:		Call establishment from SIP EP t	o H.323 EP		
Test Pur	pose:	To verify that the transmitted line EP if CLIR is enabled for the call	identity of a calling SIP EP is not p ing party	resented to the calle	d H.323
Pre-test conditions:		•		ty	
Step		Test desci	iption	Vero	lict
				Pass	Fail
1	Initiate call	Initiate call from SIP EP to H.323 EP			
2	Check: Is SIP EP's identity shown at H.323 EP?		No	Yes	
3	Clear the ca	Il at either party			
Observa	tions:				

# 8.4.3 COLP

### 8.4.3.1 Call Establishment from H.323 EP to SIP EP with COLP

Test:	COLP_01	Selection Criteria:	Optional	Selected	l: Yes No
Title:		Call establishment from H.323 El	P to SIP EP with COLP		110
Test Purpose: To verify that the line identity of a SIP EP called from a H.323 EP is p EP on connection			s presented to the ca	lling H.323	
Pre-test conditions:		<ul> <li>Configure equipment to</li> <li>Configure equipment to</li> <li>Both parties must be readered.</li> </ul>			
Step		Test desci	ription	Ver	dict
•			•	Pass	Fail
1	Initiate call	Initiate call from H.323 EP to SIP EP			
2	Accept call at SIP EP				
		Check: Is SIP EP's identity shown at H.323 EP?			N.L.
3	Check: Is	s SIP EP's identity shown at H.323	EP?	Yes	No
		s SIP EP's identity shown at H.323 t <b>either party</b>	EP?	Yes	

### 8.4.3.2 Call Establishment from SIP EP to H.323 EP with COLP

Test:	COLP_02	Selection Criteria:	Optional	Selected:	Yes No
Title:		Call establishment from SIP EP	to H.323 EP with COLP		
Test Purpose:		To verify that the line identity of EP on connection	a H.323 EP called from a SIP EP is p	presented to the call	ing SIP
Pre-test conditions:		<ul> <li>Configure equipment to</li> <li>Configure equipment to</li> <li>Both parties must be reduced</li> </ul>			
Step		Test desc	ription	Vero	lict
•					
				Pass	Fail
1	Initiate call	from SIP EP to H.323 EP		Pass	Fail
1 2	Initiate call Accept call			Pass	Fail
1 2 3	Accept call		? EP?	Pass Yes	Fail No
_	Accept call Check: Is	at H.323 EP	? <u>EP?</u>		

## 8.4.4 COLR

### 8.4.4.1 Call Establishment from H.323 EP to SIP EP with COLR

				No
	Call establishment from H.323 EP	to SIP EP with COLR		
ose:	,		s not presented to the	calling
onditions:	<ul> <li>Configure H.323 EP to u</li> <li>Configure SIP EP to use</li> </ul>	se COLP COLR		
	Test descri	ption	Vero	dict
		-	Pass	Fail
Initiate call from H.323 EP to SIP EP				
Accept call at SIP EP				
Check: Is SIP EP's identity shown at H.323 EP?		No	Yes	
Clear call at either party				
	Accept call Check: Is	Dose:       To verify that the line identity of a H.323 EP on connection if COLR         Onditions:       • Configure equipment to B         • Configure H.323 EP to u       • Configure BIP EP to use         • Both parties must be reg       • Test descri         Initiate call from H.323 EP to SIP EP         Accept call at SIP EP	H.323 EP on connection if COLR is enabled for the called party  Conditions:  Configure equipment to be able to establish a call Configure H.323 EP to use COLP Configure SIP EP to use COLR Both parties must be registered  Test description  Initiate call from H.323 EP to SIP EP Accept call at SIP EP Check: Is SIP EP's identity shown at H.323 EP?	Dese:       To verify that the line identity of a SIP EP called from a H.323 EP is not presented to the H.323 EP on connection if COLR is enabled for the called party         Onditions:       • Configure equipment to be able to establish a call         • Configure H.323 EP to use COLP       • Configure SIP EP to use COLR         • Both parties must be registered       Vero         Pass         Initiate call from H.323 EP to SIP EP         Accept call at SIP EP       No

### 8.4.4.2 Call Establishment from SIP EP to H.323 EP with COLR

No
the calling
Verdict
Fail
Yes

### 8.4.5 DTMF

# 8.4.5.1 H.323 EP calls SIP EP and calling EP sends In-Band DTMF

Test:	DTMF_0	1 Selection Criteria:	Optional	Selected:	Yes No
Title:		H.323 EP calls SIP EP and calling	EP sends In-Band DTMF		INU
Test Pur	pose:	To verify that the calling party in a DTMF to the called party	H.323 originated and establishe	d call is able to send I	n-Band
Pre-test conditions:		<ul> <li>Configure equipment to b</li> <li>Configure calling EP to se</li> <li>Configure called EP to ree</li> <li>Both parties must be registed</li> </ul>	end In-Band DTMF ceive In-Band DTMF		
Step		Test descrip	otion	Vero	lict
-				Pass	Fail
1	Initiate ca	all from H.323 EP to SIP EP			
2	Accept c	Accept call at SIP EP			
3	Press DT	Press DTMF key on H.323 EP			
4	Check:	Is DTMF indicated(visual or audible) a	at H.323 EP?	Yes	No
5	Check:	Is DTMF indicated (visual or audible) a	at SIP EP?	Yes	No
		at either party			

### 8.4.5.2 H.323 EP calls SIP EP and called EP sends In-Band DTMF

Test:	DTMF_02	Selection Criteria:	Optional	Selected	: Yes No
Title:		H.323 EP calls SIP EP and called	EP sends In-Band DTMF	·	
Test Pur	pose:	To verify that the called SIP EP in DTMF to the calling party	a H.323 originated and establish	ed call is able to send	d In-Band
Pre-test conditions:		Configure equipment to I	be able to establish a call		
		Configure calling EP to r			
		Configure called EP to set	end In-Band DTMF		
		<ul> <li>Both parties must be reg</li> </ul>	istered		
Step		Test descri	ption	Vero	dict
-				Pass	Fail
1	Initiate call	from H.323 EP to SIP EP			
2	Accept call	at SIP EP			
3	Press DTM	F key on SIP EP			
4	Check: Is	s DTMF indicated(visual or audible)	at H.323 EP?	Yes	No
5	Check: Is	s DTMF indicated(visual or audible)	at SIP EP?	Yes	No
6	Clear call a	t either party			
Observa					

Test:	DTMF_03	Selection Criteria:	Optional	Selected:	Yes No
Title:		SIP EP calls H.323 EP and calling	EP sends In-Band DTMF		
Test Pur	pose:	To verify that the calling party in a DTMF to the called party	SIP originated and established ca	all is able to send In-I	Band
Pre-test	conditions:	<ul> <li>Configure equipment to b</li> <li>Configure calling party to</li> <li>Configure called party to r</li> <li>Both parties must be registed</li> </ul>	send In-Band DTMF receive In-Band DTMF		
Step		Test descrip	otion	Verc	lict
				Pass	Fail
1	Initiate ca	II from SIP EP to H.323 EP			
2	Accept ca	II at H.323 EP			
3	Press DT	/IF key on SIP EP			
4	Check:	Is DTMF indicated(visual or audible) a	at H.323 EP?	Yes	No
5	Check:	Is DTMF indicated (visual or audible) a	at SIP EP?	Yes	No
		at either party			

# 8.4.5.3 SIP EP calls H.323 EP and calling EP sends In-Band DTMF

### 8.4.5.4 SIP EP calls H.323 EP and called EP sends In-Band DTMF

Test:	DTMF_04	Selection Criteria:	Optional	Selected:	Yes No
Title:		SIP EP calls H.323 EP and called	EP sends In-Band DTMF	·	
Test Pur	pose:	To verify that the called H.323 EP DTMF to the calling party	in a SIP originated and establish	ed call is able to send	In-Band
Pre-test	conditions:	Configure equipment to b	e able to establish a call		
		Configure calling party to	receive In-Band DTMF		
		Configure called party to	send In-Band DTMF		
		Both parties must be regi	stered		
Step		Test descrip	otion	Verd	lict
				Pass	Fail
1	Initiate call	from SIP EP to H.323 EP			
2	Accept call	at H.323 EP			
3	Press DTM	key on H.323 EP			
4	Check: Is	DTMF indicated(visual or audible)	at H.323 EP?	Yes	No
5	Check: Is	DTMF indicated (visual or audible)	at SIP EP?	Yes	No
6		either party			

Test:	DTMF_05	Selection Criteria:	Optional	Selected:	Yes No
Title:		H.323 EP calls SIP EP and calling	EP sends Out-Band DTMF		
Test Pur	rpose:	To verify that the calling party in a I DTMF to the called party	H.323 originated and established	I call is able to send C	Out-Band
Pre-test	conditions:	Configure equipment to be	e able to establish a call		
		Configure calling party to	send Out-Band DTMF		
		<ul> <li>Configure called party to r</li> </ul>	eceive Out-Band DTMF		
		<ul> <li>Both parties must be regis</li> </ul>	stered		
Step		Test descrip	tion	Verd	lict
				Pass	Fail
1	Initiate ca	I from H.323 EP to SIP EP			
2	Accept ca	Accept call at SIP EP			
3	Press DTM	IF key on H.323 EP			
	Check:	Is DTMF indicated(visual or audible) a	at H.323 EP?	Yes	No
4				Yes	No
4 5	Check:	Is DTMF indicated(visual or audible) a		100	

# 8.4.5.5 H.323 EP calls SIP EP and calling EP sends Out-Band DTMF

### 8.4.5.6 H.323 EP calls SIP EP and called EP sends Out-Band DTMF

Test:	DTMF_06	Selection Criteria:	Optional	Selected:	Yes No
Title:		H.323 EP calls SIP EP and called	EP sends Out-Band DTMF	•	
Test Purpose:		To verify that the called SIP EP in Band DTMF to the calling party	a H.323 originated and established call i	s able to send	Out-
Pre-test	conditions:				
Step		Test descri	ption	Verdi	ct
				Pass	Fail
1	Initiate cal	I from H.323 EP to SIP EP			
2	Accept ca	l at SIP EP			
3	Press DTM	IF key on SIP EP			
4	Check:	Is DTMF indicated(visual or audible)	at H.323 EP?	Yes	No
5	Check:	Is DTMF indicated (visual or audible)	at SIP EP?	Yes	No
6	Clear call	at either party		1	
Observa	tions:				

SIP EP calls H.323 EP and calling To verify that the calling party in a DTMF (UserInputIndication) to the			No
To verify that the calling party in a		all is able to send Our	
	called party	all is able to send Ou	t-Band
Configure called EP to re	end Out-Band DTMF cceive Out-Band DTMF		
Test descri	ption	Vero	lict
	-	Pass	Fail
II from SIP EP to H.323 EP			
III at H.323 EP			
MF key on SIP EP			
Is DTMF indicated(visual or audible)	at H.323 EP?	Yes	No
Is DTMF indicated(visual or audible)	at SIP EP?	Yes	No
	Configure calling EP to s     Configure called EP to re     Both parties must be regined.     Test description     Ill from SIP EP to H.323 EP     Ill at H.323 EP     MF key on SIP EP     Is DTMF indicated(visual or audible)	Configure calling EP to send Out-Band DTMF     Configure called EP to receive Out-Band DTMF     Both parties must be registered     Test description  all from SIP EP to H.323 EP MF key on SIP EP Is DTMF indicated(visual or audible) at H.323 EP? Is DTMF indicated(visual or audible) at SIP EP?	Configure calling EP to send Out-Band DTMF     Configure called EP to receive Out-Band DTMF     Both parties must be registered      Test description      Verd Pass all from SIP EP to H.323 EP all at H.323 EP MF key on SIP EP Is DTMF indicated(visual or audible) at H.323 EP? Is DTMF indicated(visual or audible) at SIP EP?     Yes

# 8.4.5.7 SIP EP calls H.323 EP and calling EP sends Out-Band DTMF

### 8.4.5.8 SIP EP calls H.323 EP and called EP sends Out-Band DTMF

Test:	DTMF_08	Selection Criteria:	Optional	Selected:	Yes No
Title:		SIP EP calls H.323 EP and called	EP sends Out-Band DTMF		
Test Pur	pose:	To verify that the called H.323 EP OutBand DTMF (UserInputIndicati		ished call is able to se	nd
Pre-test conditions:		Configure equipment to b	e able to establish a call		
		<ul> <li>Configure calling EP to re</li> </ul>	eceive Out-Band DTMF		
		<ul> <li>Configure called EP to set</li> </ul>	end Out-Band DTMF		
		<ul> <li>Both parties must be regi</li> </ul>	stered		
Step		Test descri	otion	Verd	ict
				Pass	Fail
1	Initiate cal	I from SIP EP to H.323 EP			
2	Accept cal	l at H.323 EP			
3	Press DTM	IF key on H.323 EP			
4	Check: I	s DTMF indicated(visual or audible)	at H.323 EP?	Yes	No
5	Check: I	s DTMF indicated(visual or audible)	at SIP EP?	Yes	No
	Cloar call	at either party			

# Annex A (informative): Additional test cases

# A.1 Call clearing

The following two test cases are not included in the official test suite, because the functionality they cover is not part of the specifications, the test suite is based on. However, they provide value to manufacturers of soft-phones.

# A.1.1 H.323 EP calls SIP EP and SIP EP clears call before answering

Test:		Selection Criteria: Optional Selected			Yes No
Title:	H.323 EP calls SIP EP and SIP EP clears call before it answers				
Test Pur	pose:	To verify that a call attempt from th answering	e H.323 EP may be released by	ed by the called SIP EP before	
Pre-test conditions:		<ul> <li>Configure equipment to b</li> <li>Both parties must be regis</li> </ul>			
Step	tep Test description		Verdict		
				Pass	Fail
1	Initiate c	Initiate call from H.323 EP to SIP EP			
	Clear call at SIP EP				
2				Yes	No
2 3	Check:	Is the call released(call signalling)?		100	

# A.1.2 SIP EP calls H.323 EP and H.323 EP clears call before answering

Test:		Selection Criteria: Optional		Selected:	Yes	
Title:	SIP EP calls H.323 EP and H.323 EP clears call					
Test Pur	urpose: To verify that a call attempt from the SIP EP may be released by the called H.323 EP					
Pre-test	conditions	<ul> <li>Configure equipment to b</li> <li>Both parties must be regi</li> </ul>				
Step		Test descri	est description Ver		dict	
-		-		Pass	Fail	
1	Initiate c	Initiate call from SIP EP to H:323 EP				
2	Clear call at H.323 EP					
~	Check:	Is the call released(call signalling)?	s the call released(call signalling)?		No	
3		Are the voice channels established?		No	Yes	

# A.2 Miscellaneous

# A.2.1 Refresh bindings/Keep alive of SIP EP with H.323 GK

	Selection Criteria:	optional	Selected:	Yes No
	Refresh bindings/Keep Alive of S	P EP with H.323 GK		
pose:	To verify that once an SIP EP has	s been registered it stays registered with	the H.323 GK	
conditions:	Configure EUT to set TTL(Time T	o Live) to a value(e.g. 30 s)		
	Test description		Verdict	
			Pass	Fail
Initiate reg	gistration SIP EP			
	5 5 1	sual(indicator) or audible indication(dial	Yes	No
Start coun	tdown timer(30")			
	Is terminal indicating registration (vis tone)) after countdown timer expires		Yes	No
	Initiate reg Check B: Start coun Check B:	Refresh bindings/Keep Alive of SI         pose:       To verify that once an SIP EP has         conditions:       Configure EUT to set TTL(Time T         Test description         Initiate registration SIP EP         Check B: Is terminal indicating registration (vis tone))?         Start countdown timer(30")         Check B: Is terminal indicating registration (vis tone))?	Refresh bindings/Keep Alive of SIP EP with H.323 GK         To verify that once an SIP EP has been registered it stays registered with the conditions:         Configure EUT to set TTL(Time To Live) to a value(e.g. 30 s)         Test description         Initiate registration SIP EP         Check B: Is terminal indicating registration (visual(indicator) or audible indication(dial tone))?         Start countdown timer(30")         Check B: Is terminal indicating registration (visual(indicator) or audible indication(dial tone))?	Refresh bindings/Keep Alive of SIP EP with H.323 GK         rpose:       To verify that once an SIP EP has been registered it stays registered with the H.323 GK         conditions:       Configure EUT to set TTL(Time To Live) to a value(e.g. 30 s)         Verdi         Pass         Initiate registration SIP EP         Check B:       Is terminal indicating registration (visual(indicator) or audible indication(dial tone))?         Start countdown timer(30")         Check B:       Is terminal indicating registration (visual(indicator) or audible indication(dial tone))?

# A.2.2 Voice call from H.323 EP to SIP EP using silence suppression/comfort noise

Test:		Selection Criteria:	Optional	Selected	l: Yes No	
Title:	Voice call establishment from H.323 EP to SIP EP using silence suppression/comfort noise					
Fest Pur	pose:	To verify that a call can be establi communication is possible betwee noise				
Pre-test	conditions:	Configure EUT and QE to support Configure EUT and QE to support		rt noise		
Step		Test description		Ver	Verdict	
				Pass	Fail	
1	Initiate new	call at H.323 EP to the address of	of SIP EP			
2	Check A: Is dial Tone heard? Yes				No	
3	Make address SIP EP					
4	Check A: Is	s Ringing Tone heard?		Yes	No	
5	Check B: Is terminal alerting (visual or audible indication)? Yes				No	
6	Accept call	at SIP EP				
7	Check A: Is Ringing Tone heard?				Yes	
8	Check B: Is terminal alerting? No Ye					
9	Apply speech at H.323 EP					
10		Can speech from H.323 EP be heard	d and understood?	Yes	No	
	Apply speech at SIP EP					
11			and understand?	Yes	No	
11 12		Can speech from SIP EP be heard a all at H.323 EP and SIP EP		103		

# A.2.3 G3 Fax call establishment from H.323 EP to SIP EP using T.38

For this test case additional hardware (G3 Fax) is needed. The SIP EP and H.323 EP have to be able to connect a G3 Fax.



### Figure 5: Configuration for FAX call

Test:		Selection Criteria:	Optional	Selected:	Yes No
Title:		G3 Fax call establishment from H.	323 EP to SIP EP using T.38	•	
Test Purpose:		To verify that a G3 Fax call can be communication is possible betwee		EP by H.323 EP and t	that Fax
Pre-test	conditions:	Configure EUT and QE to support Configure EUT and QE to support			
Step		Test description	Verd	Verdict	
				Pass	Fail
1	Initiate new	G3 Fax call at H.323 EP to the ad	dress of SIP EP		
2	Make addre	ss SIP EP			
3	Check B: Is	G3 Fax alerting (visual or audible i	ndication)?	Yes	No
4	Accept Fax call at SIP EP				
5	Check B: Is terminal alerting?			No	Yes
6	Apply Fax sheet at G3 Fax A				
7	Check A: Is Fax sheet completely send?		Yes	No	
8				No	
9	Clear the ca	all at H.323 EP and SIP EP			
9 Observa		an at n.323 er and sir er			

# History

	Document history				
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