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# INTEROPERABILITY REPORT

Ascom i62

Innovaphone, version 9.00 hotfix 15

IP PBX Integration (H323)

Ascom i62, Software version 3.4.6

Ascom, Gothenburg

October 2012



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## INTRODUCTION

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This interoperability report describes test results and optimal configuration of Ascom i62 towards the Innovaphone IP PBX. The document should be used in conjunction with configuration guide(s) from Innovaphone and Ascom.

### **Ascom**

Ascom Wireless Solutions is a leading provider of on-site wireless communications for key segments such as hospitals, manufacturing industries, retail and hotels. More than 75,000 systems are installed at major companies all over the world. The company offers a broad range of voice and professional messaging solutions, creating value for customers by supporting and optimizing their Mission-Critical processes. The solutions are based on VoWiFi, IP-DECT, DECT and Nurse Call and paging technologies, smartly integrated into existing enterprise systems.

Founded in the 1950s and based in Göteborg, Sweden, Ascom Wireless Solutions is part of the Ascom Group and listed on the Swiss Stock Exchange. The company has subsidiaries in 10 countries and approximately 1,200 employees worldwide.

For further information, see the following URL: <http://www.ascom.com/ws>.

### **Innovaphone**

Innovaphone develops pure IP telephone systems under the name of “innovaphone PBX”, uniting security and high availability with the flexibility and scalability of IP. The innovaphone PBX hardware comprises gateways and a series of IP telephones which are developed entirely in Germany and manufactured to a large extent in Europe. The entire product range is based on the unified hardware and software platform which is the core of the innovaphone product philosophy. The number of activated licenses can be determined as required which renders the solution suitable for companies of any size: from small companies over medium size companies with several branch offices to large enterprises. The innovaphone IP telephone systems are available exclusively through authorised distributors and resellers.

Innovaphone has been playing a decisive role in the development of IP telephony ever since the company was founded in 1997. Head office is located in Sindelfingen, South Germany.

For further information, see the following URL: <http://www.innovaphone.com/>

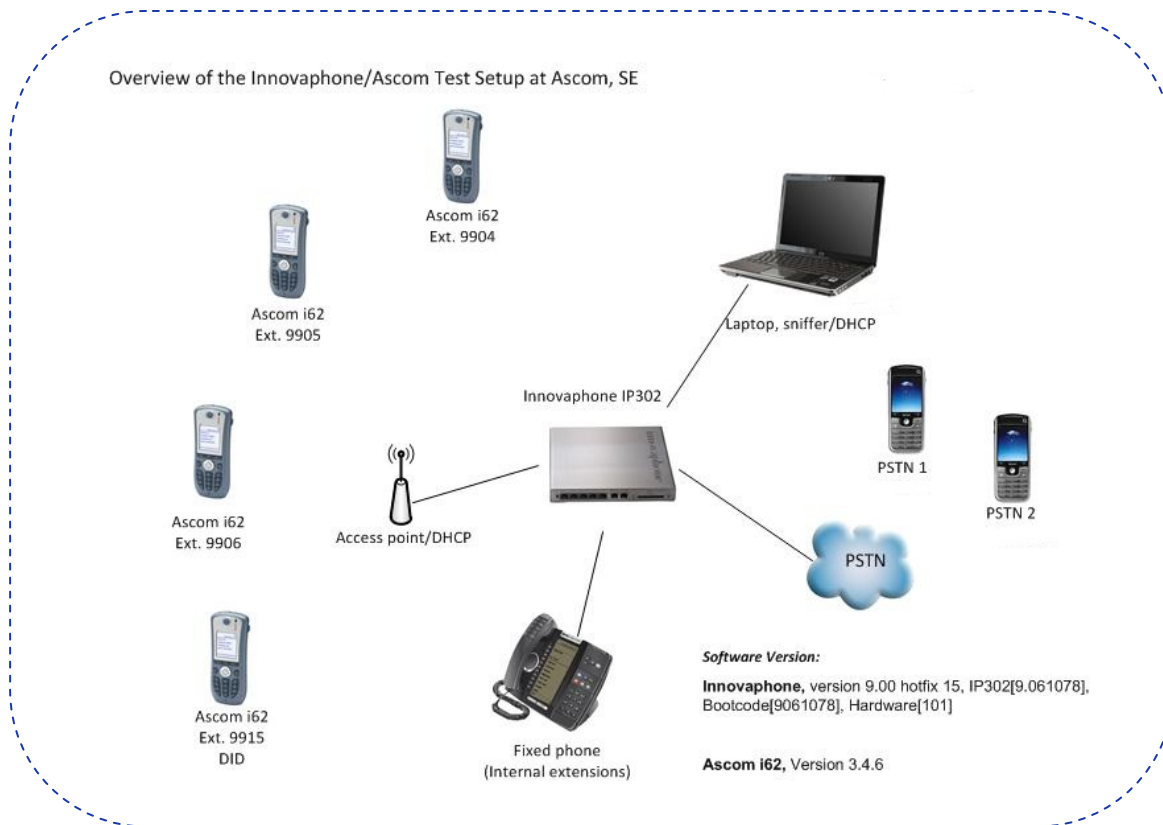
SITE INFORMATION

Test Site: Ascom HQ  
Gothenburg  
Sweden

Participant(s):

Raheleh Kamali (Ascom HQ, SE)

Test Topology



## SUMMARY

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### Innovaphone, version 9 hotfix 15

Test cases in nearly all areas with regard to Ascom i62 and Innovaphone IP PBX passed successfully. Overall, the conclusion has to be that H.323 integration towards IP302 is very good.

Queries about licensing should be directed to Innovaphone.  
Please also see “**APPENDIX A: TEST CONFIGURATIONS**” for further details.

### VoWiFi

High Level Functionality	Result
Basic Call	OK <sup>b</sup>
DTMF	OK
Hold, Retrieve, Enquiry and Brokering	OK
Attended Transfer	OK
Blind-transfer	OK
Semi-attended Transfer	OK
Call Forward Unconditional	OK <sup>a</sup>
Call Forward No Reply	OK <sup>a</sup>
Call Forward Busy	OK <sup>a</sup>
Call Waiting	OK
Message Waiting Indication	Not Tested
Do Not Disturb	OK
Calling Line/Name Identification	OK
Connected Line/Name Identification	OK

a. Soft- or hot-key is optional (call diversions can also be configured via the GUI of the IP PBX)

b. See **Known Issue(s)** in page 7

## General Conclusion

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Ascom interoperability verification produced good results towards Innovaphone IP302 version 9 hotfix 15 with few exceptions; see **Known Issue(s)** in page 7.

Ascom i62 handsets were configured to register at the IP PBX using endpoint numbers. The codec of choice for these tests was G.711A/20ms, while DTMF signaling was transmitted through RTP. One can say that, in comparison to SIP, H.323 requires little configuration besides the IP address of the H.323 gatekeeper and abovementioned settings. Parameter settings are elaborated upon in the “**TEST RESULTS**” section for respective platforms.

Ascom i62 can use a special configuration of a soft- or hot-key for the purpose of programming call diversion (CDIV) at the IP PBX. Practically all test cases regarding basic call, brokering/enquiry, transfer and CDIV passed with positive results. No issues were logged for follow-up at Ascom HQ.

## TEST RESULTS

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### Innovaphone IP PBX Integration – VoWiFi

- Innovaphone IP PBX version 9.00 hotfix 15
- Ascom i62, v 3.4.6

#### Signalling Protocol:

- H.323

#### Innovaphone IP302:

- Settings are based on "Ascom VoIP Gateway: Installation and Operation Manual" (TD 92326GB), pp. 62-100
- DSCP should be configured appropriately under IP -> Settings

#### Ascom i62:

- Endpoint ID" and "Endpoint Number" corresponds to name and number in the user object (Assigning password is optional, it works in both cases)
- Default H.323 settings except hot-key for call diversions
- Call waiting enabled

### Known Issue(s)

- No timeout when i62 calls another i62 that does not answer (PBX issue, per design)
- Ascom i62 does not support post-dial (per design)
- Possible to divert call to "diverter", calling party hears busy (minor issue)

## Test Areas

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Basic Call, DTMF: 94% pass (17/18)

- CNIP/CONP OK, requires IP PBX configuration
- DTMF OK
- Overlap sending (post-dial) not supported by Ascom i62
- i62 ignores i62 NOK (#5103.1), no timeout

Basic Call, Portable Unavailable: 100% pass (8/8)

- Good results overall

Procedure Mapping: 100% pass (2/2)

- Hot-key used in i62

Three-party Services: 90% pass (37/41)

- CNIP/CONP OK (updated after transfer)
- CLIP/COLP could not be verified properly for PSTN extensions
- Ignored CW on internal call does not give busy(#5125.3)

Call Diversion: 90% pass (9/10)

- Call diversion programmed through i62 hot-key
- Test case #5132.1 (Diversion to Diverter), it is possible to divert the phone to itself (Minor issue)

Telephony Feature: 100% pass (9/9)

- Limited testing due to lack of 3rd party competence
- Group calls tested with good results
- MWI was not tested

Please keep in mind that metrics do NOT account for untested cases



## APPENDIX A: TEST CONFIGURATIONS

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### Innovaphone IP302, version 9 hotfix 15

Below one will find screen shots reflecting the management interface and some aspects of setting up the PBX application on the IP302.

General -> info

**IGWP01: innovaphone IP302**

General Interfaces IP4 IP6 Services PBX Gateway Maintenance

Info Admin Compact-Flash License Kerberos Certificates

<b>Version</b>	9.00 hotfix15 IP302[9.061078], Bootcode[9061078], Hardware[101]
<b>SerialNo</b>	00-90-33-1e-02-fd (20)
<b>DRAM</b>	16 MB
<b>FLASH</b>	8 MB
<b>Coder</b>	4 Channels of G.711,G.729,G.723
<b>Conference</b>	0 Channels
<b>HDLC</b>	2 Channels
<b>Sync</b>	BRI1-L1
<b>SNTP Server</b>	10.11.24.243
<b>Time</b>	03.10.2012 16:15
<b>Uptime</b>	9d 1h 49m 55s
<b>Test License</b>	78 Hours remaining! <a href="#">Click here to extend</a>

IP->Settings: DSCP markings used for signalling and RTP

**IGWP01: innovaphone IP302**

General Interfaces IP4 IP6 Services PBX Gateway Maintenance

General ETH0 ETH1 PPP NAT

**Settings Routing**

TOS Priority - RTP Data  0xb8

TOS Priority - Signaling  0x0

First UDP-RTP Port  Number of Ports  First/Last 16384 / 32767

First UDP-NAT Port  Number of Ports  First/Last 0 / 0

-Local Networks-

Address	Mask
<input type="text"/>	<input type="text"/>

-Private Networks-

Address	Mask
<input type="text"/>	<input type="text"/>

PBX->General: General Settings

IGWP01: innovaphone IP302


General Interfaces IP4 IP6 Services **PBX** Gateway Maintenance

Config Objects Registrations Calls SOAP myPBX Dyn-PBXs

- General
- Security
- Filter
- myPBX
- Import
- Export

PBX Mode  ▾

---

System Name  Use as Domain

PBX Name

Unknown Registrations  - With PBX Pwd only

Music On Hold URL

External Music On Hold

Response Timeout

Dial Complete Timeout

No of Regs w/o Pwd.

Recall Timeout

Max Call Duration (h)

Enable External Transfer

No CLIR on internal calls

RTP Proxy

Generate CDRs

Route Root-Node External Calls to  on Master or Slave with License Only

Route PBX-Node External Calls to

Route Internal Calls to

Escape Dialtone from

Prefix for Intl/Ntl/Subscriber

Log Calls

---

Licenses

Name	Count	Usage	Local	Slaves
Port9	100	4	4	0
Standby9	100	100	100	0
Voicemail9	100	100	100	0
Mobility9	100	0	0	0
Operator9	100	0	0	0
SoftwarePhones9	100	0	0	0

PBX->Objects: PBX objects added to PBX application

## IGWP01: innovaphone IP302

[General](#)
[Interfaces](#)
[IP4](#)
[IP6](#)
[Services](#)
**[PBX](#)**
[Gateway](#)
[Maintenance](#)

[Config](#)
**[Objects](#)**
[Registrations](#)
[Calls](#)
[SOAP](#)
[myPBX](#)
[Dyn-PBXs](#)

User  ▼ new

show

• .

Long Name	Name	No	HW-ID	Node	PBX	Filter	Groups	CF*
DECT				root	.		+	+
DECT2				root	.		+	+
EXTERN	EXTERN	EXTERN	root	.	normal		+	+
FE	9990	9990	9990	root	.		FE*	+
Miratel 6202	6202	6202	6202	root	.		+	+
Miratel 6212	6212	6212	6212	root	.		+	+
Miratel 6213	6213	6213	6213	root	.		+	+
Miratel 6221	6221	6221	6221	root	.		+	+
Miratel 6222	6222	6222	6222	root	.		+	+
Miratel 6223	6223	6223	6223	root	.		+	+
Miratel 6231	6231	6231	6231	root	.		+	+
serak 9900	9900	9900	9900	root	.		+	+
serak 9901	9901	9901	9901	root	.		+	+
serak 9902	9902	9902	9902	root	.		+	+
serak 9903	9903	9903	9903	root	.		+	+
serak 9904	9904	9904	9904	root	.		+	cfu:9906
serak 9905	9905	9905	9905	root	.		FE*	+
serak 9906	9906	9906	9906	root	.		FE*	+
serak 9907	9907	9907	9907	root	.		FE*	+

**PBX->Objects: Adding a new user object**

10.11.24.244/PBX0/ADMIN/mod\_cmd\_login.xml?cmd=show&user-guid=88ca04a6e909d31194e60090331e02fd&loc=\*&filter=\*&cor

**General** **User** DECT

Description  Hide from LDAP

Long Name  Display Name

Name  Number  Critical

Password  retype Password

Node  Local

PBX

Send Number  URL

Group Indications

Config Template

- Devices -

Hardware Id	Name	PBX	Pwd	No Filter
<input type="text" value="9900"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OK Cancel Apply Delete Help

**PBX->Objects: Adding a gateway object ("EXTERN")**

**General** **Gateway**

Description  Hide from LDAP

Long Name  Display Name

Name  Number  Critical

Password  retype Password

Node  Local

PBX

Max Calls  Response Timeout

Reporting

- Devices -

Hardware Id	Name	PBX	Pwd	No Filter
<input type="text" value="EXTERN"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OK Cancel Apply Delete Help

Gateway->GK: Binding an interface to the gateway object ("EXTERN")

IGWP01: innovaphone IP302

General Interfaces IP4 IP6 Services PBX **Gateway** Maintenance

General Interfaces SIP **GK** Routes CDR0 CDR1 Calls

Interface	CGPN-In	CDPN-In	CGPN-Out	CDPN-Out	Alias	Registration	Product
GW1		+					
GW2		+					
GW3		+					
GW4		+					
GW5		+					
GW6		+					
GW7		+					
GW8		+					
GW9		+					
GW10		+					
GW11		+					
GW12 EXTERN		+					EXTERN → 127.0.0.1

Gateway->GK: Registering the gateway in H.323

Name:

Disable:

Protocol:

Mode:

Address:

Address:  (alternate)

Gatekeeper Identifier:

Local Signaling Port:

---

Authorization

Password:  Retype:

---

Alias List

Name	Number
<input type="text" value="EXTERN"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

---

Media Properties

General Coder Preference:  Framesize [ms]:  Silence Compression:  Exclusive:

Local Network Coder:  Framesize [ms]:  Silence Compression:

Enable T.38:  SRTP:  No DTMF Detection:  Enable PCM:  Media-Relay:

Record to (URL):

---

H.323 Interop Tweaks

No Faststart:  No H.245 Tunneling:

Suppress HLC:  Suppress FTY:  Suppress Subaddr:

OK Cancel Apply Delete Help

**PBX->Registrations: Overview of H.323 registrations**

IGWP01: innovaphone IP302

General Interfaces IP4 IP6 Services **PBX** Gateway Maintenance

Config Objects **Registrations** Calls SOAP myPBX Dyn-PBXs

Address	Long Name	Name	No	Device	Product	Firmware	Uptime
127.0.0.1	H323	EXTERN	EXTERN	EXTERN	innovaphone IP302:IGWP01	9.00 hotfix15 [9.061078/9061078/101]	9d 2h 50m 27s
10.11.24.151	SIP	Test 24	9924	9924 9924	snom320	7.3.30	9d 2h 46m 37s
10.11.24.168	SIP	Test 25	9925	9925 9925	PolycomSoundPointIP-SPIP_335-UA 3.2.1.0078		9d 2h 50m 20s
127.0.0.1	H323	Test 29	9929	9929 9929	innovaphone IP302:IGWP01	9.00 hotfix15 [9.061078/9061078/101]	9d 2h 50m 27s

**Gateway->Routes: Routing of incoming and outgoing calls**

IGWP01: innovaphone IP302

General Interfaces IP4 IP6 Services PBX **Gateway** Maintenance

General Interfaces SIP GK **Routes** CDR0 CDR1 Calls

From	To	Counter	CGPN	Maps
BRI1	03155 →	GW12:EXTERN	i	→
GW12:EXTERN	→	BRI1	i	→ PBX to EXTERN
TEL1:tel1	→	RAB1:tel1		→
RAB1:tel1	→	TEL1:tel1		→

**PBX->Registrations: Calling and called party number formats for incoming and outgoing calls**

IGWP01: innovaphone IP302

General Interfaces IP4 IP6 Services PBX **Gateway** Maintenance

General **Interfaces** SIP GK Routes CDR0 CDR1 Calls

Interface	CGPN-In	CDPN-In	CGPN-Out	CDPN-Out	State	Alias	Registration
TEL1	tel1 +				Up	9929:9929 →	127.0.0.1
TEL2	+				Up		
BRI1	n→0		9916→03155	9916	Up		
	i→00		9915→03155	9915			
TEST							
TONE							
HTTP							
ECHO							

Please refer to Innovaphone's documentation for further details about Innovaphone configuration and licensing.



**Ascom i62**

Network => <A|B|C|D>

- DHCP mode: Enable
- SSID: <ssid>
- Encryption: WPA-PSK & WPA2-PSK
- Voice Power Save Mode: U-APSD
- 802.11 b/g Channels: UNII1
- World Mode Regulatory Domain: ETSI
- IP DSCP for VOICE: 0x2E (46) – Expedited Forwarding
- IP DSCP for SIGNALLING: 0x1A (26) - Assured Forwarding 31

Device => General

- Time Zone: Central European Time (UTC+1)
- Shared Phone License: No

Audio => General

- Dialing Tones Pattern: <country>

VOIP => General

- VoIP Protocol:H.323
- Codec Configuration: G711A
- Codec Packetization Time Configuration: 20ms
- Internal call number length: 4
- Endpoint ID: <extension>

VoIP => H323

- Gatekeeper IP Address: <ip>
- Secondary Gatekeeper IP Address: <n/a>
- Gatekeeper Listening Port: 1720
- Gatekeeper ID: <n/a>
- Gatekeeper Password: <n/a>

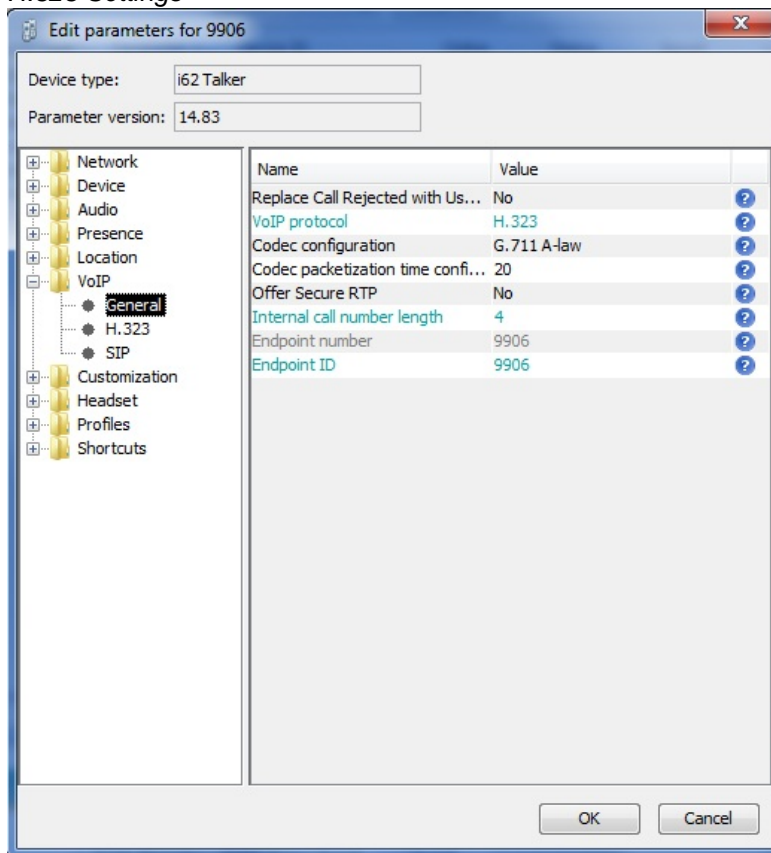
Shortcut => Hot Key 2

- Function: Call\_Diversions

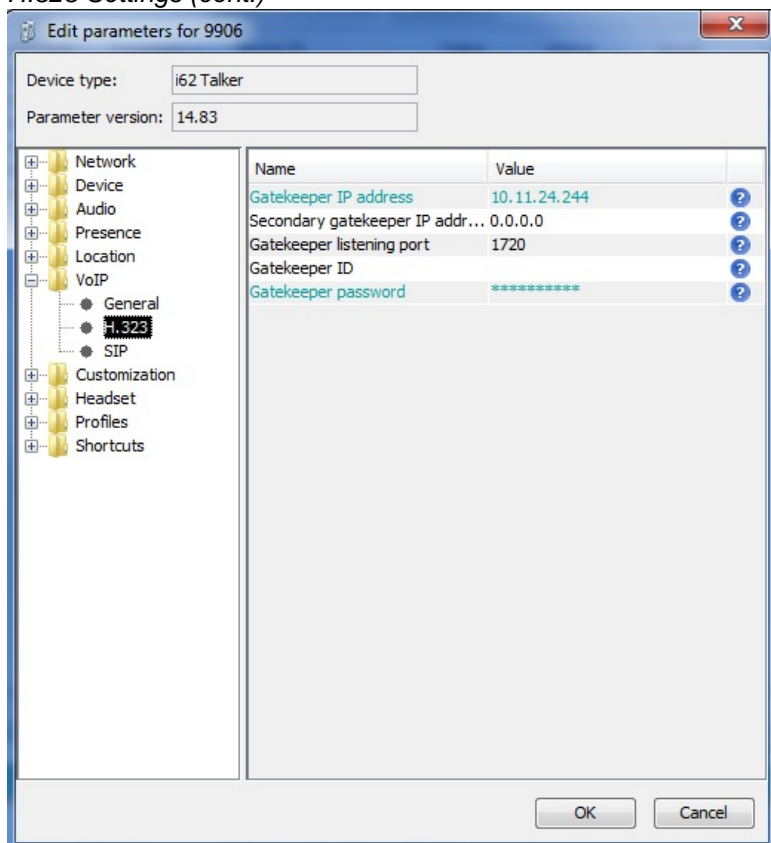
< I62 Template file >

**Other settings were left as their defaults.**

### H.323 Settings

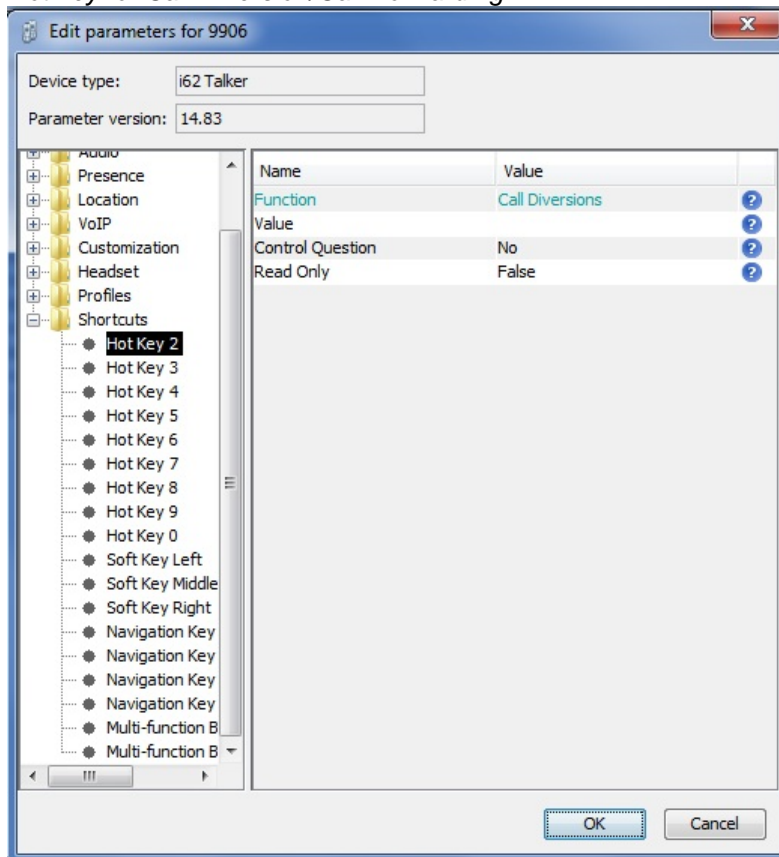


### H.323 Settings (cont.)





Hot-key for Call Diversion/Call Forwarding



Please refer to **APPENDIX B** for more information regarding device configuration.

## APPENDIX B: DETAILED TEST RECORDS

### Ascom i62

Pass	82
Fail	1
Comments	5
Untested	16
Total	104



Test  
Record-Innovaphone

### Miscellaneous

Please refer to the VoWiFi test specifications available on the Ascom Extranet for detailed information regarding each test case.

See URL (requires login):

<https://www.ascom-ws.com/AscomPartnerWeb/en/startpage/Sales-tools/Interoperability>

### Document History

Rev	Date	Author	Description
PA1	5.10.2012	SERAK	Initial draft
PA2	16.10.2012	SERAK	Minor changes
PA3	18.10.2012	SERAK	Minor changes