

innovaphone Compatibility Test Report

Vendor: *BEYERTONE AG*
Model: *musiphone THE NEXT LEVEL*
Last Update: Friday, 04 March 2005

1 Background Information

2 Device Tested

Information in this chapter is derived from accompanying material and/or from visual inspection or from testing.

Sample chart

Sign	Category
Yes/ok	Yes, feature is present/ok
no	No, feature is not present/ok
n/a	Feature does not apply
nt	Not tested

Basic Device Information

Manufacturer	
Model	Musiphone THE NEXT LEVEL, 2 Channel, TIEL/TMOM, SmartMediaCard, mailbox, AutoAttendant
Hardware Revision	2003-01-DE
Firmware Revision	Firmware Revision 2004-04-08
	Config Software Revision 5.1 Build 128

Serial / MAC

Documentation used Musiphone THE NEXT Level Bedienungsanleitung (German)
(also available in English)

Hardware provided for testing See above

Device Type

Applies?	Category
	IP Hardware Terminal
	IP Software Client
	IP Software Server
	IP Gateway analogue
	IP Gateway ISDN
	IP Gateway SS7
	IP Gateway V5.2
Yes	Other: External, standalone, music on hold, auto attendant and voicemail box
	Media
Yes	Audio via analog port
	Video

Basic Device Characteristics

The musiphone is a self contained, stand alone box that features:

- ☞☞ Quality music on hold, including dynamically merged-in announcements and web updates (royalty free)
- ☞☞ Auto Attendant using structured DTMF menus, two-stage dialling and supervised call transfers
- ☞☞ A simple one-mailbox voicemail

The device has (depending on the model) 2 to 16 analogue ports which can be connected to an IP21 or any analogue FXS gateway that supports flash/hook transfer.

All functions can be controlled by a day/night/pause mode, which allows you to have different announcements and auto-attendant functions depending on the time, day of week and holiday.

There is no IP and thus no VoIP interface available.

Management

Applies?	
No	Admin Web Interface
No	User Web Interface
No	Boots firmware from net
Yes	Boots firmware from Flash
Yes	Firmware web upgradeable

3 Test Setup

3.1 General Setup

Musiphone is connected to the VoIP system through the analog ports of an IP21. For the standard 2-channel model, an IP21-2 is required. If only one channel is used (for example for music-on-hold only applications), an IP21-1 is sufficient.

The device accepts calls, initiates calls and can transfer connected calls. This is done via the quasi-standard hook/flash procedure.

3.2 Configuration

We have connected the musiphone to an IP21-2, using the provided RJ12 cables. TEL1 is connected to "port 1" of the musiphone, TEL2 to "port 2". By convention, "port 1" is used for announcements and "port 2" for providing music on hold.

The IP21 itself registers 2 gateways (GW1 and GW2 in "register with gatekeeper as endpoint" mode) using the aliases "musiphone-announce" and "musiphone-moh" respectively. Straight routes (that is, routes with empty maps) are configured to allow calls from and to TEL1 (for announcements) and to TEL2 (for music on hold). Note that musiphone will occasionally perform outgoing calls, so routes from and to TEL1 must exist.

In the PBX, we created a PBX user with "musiphone-announce" as HW-ID. This allows you to change this users name and extension at will without a need to adapt the IP21 config.

The "musiphone-moh" alias is configured as "MOH Codec" in the PBX applet configuration. Please note that you should configure G.711 as "MOH Codec" since musiphone delivers pretty good quality music on hold which would be greatly distorted by using one of the compressing voice codecs. However, this is subject to your network requirements of course.

The musiphone will show up as 2 registrations in the PBX: *_MOH_* and *musiphone-announce*.

When configuring music on hold in the musiphone, you must use "HIC", not "MOH".

The musiphone needs to detect busy tones generated by the IP21 to determine when a call is disconnected by the remote end. Unfortunately, the standard settings of the musiphone for detecting busy signals are not compatible with the standard german dial-tone type. The musiphone can be configured to detect different tones using the settings in "Parameter / TK-Anlage / Hörzeichen". Depending on the dial tone type configured in the IP21, you have to set that according to the following table:

Dial tone type	Tone on (ms)	Tone off (ms)
German pbx	250	250
German public	250	250
US	500	500
UK	375	375
Czech pbx	330	330
Czech public	330	330
Italy	500	500

You can verify the correct configuration by just calling the announcement and disconnecting the call as soon as you hear the announcement. If busy tone detection works, the musiphone will disconnect the call and the respective LED "port 1" will be turned off. Otherwise, the call will stay in the "Clearing" state, the LED will not turn off and the device will stay busy.

The musiphone can do active call transfers, triggered by the end of an announcement or by DTMF user input. In normal operation, the IP21 will signal a remote hold to the PBX in this case, which will in turn switch on music on hold during the transfer. While this is the right thing to do normally, this may be annoying in this special setup. To disable this, you may specify the `/silent-xfer` option in the IP21's RELAY0 configuration line, such as in `config change RELAY0 /log /silent-xfer`¹. This option cannot be set via the configuration applet.

In a multi-port configuration (i.e. with more than one channel used for announcements), you may want to register a user for each musiphone port to the PBX and add all these users as operators to a waiting queue object. This will make sure that you will not run into a busy signal when all ports are busy.

Depending on the announcement and music files used, it may be useful to adapt the volume. The "Volume" settings for the IP21 TEL1 and TEL2 ports don't have an effect here, you need to use the respective settings in the musiphone.

4 Test Results

Information in this chapter is derived from testing.

¹ Available in builds 05-5866 and later

Date Test performed, by	4/3/2005, ckl
Vendor Contact (Name, email)	
Device serial number	2004-3001-10866
Device Firmware used	Firmware Revision 2004-04-08
IP21 Firmware used	V5.01 sr1-hotfix IP21[05-5865]

Packaging and Physical Installation		Remarks	N/A	Not passed	Passed
Packaging	Appropriate packaging				Yes
	Can be easily re-used later on				Yes
Components	No components missing				Yes
	Power supply included				Yes
	Ethernet cable included				N/A
	Device easily assembled				Yes
	Plugs etc. clearly labelled				Yes
Go/Nogo	Device works OK (not dead on arrival)				Yes

Feature	Description	Remarks	Result
Setup	Register Device w/o specific configuration (requires DHCP, GK detection and "magic" alias)		
			N/A

Basic Call	Setup call from device to IP200, use vad/cng if supported, verify bidirectional media channel		N/A
	Setup call from IP200 to device, use vad/cng if supported, verify bidirectional media channel		N/A
	using g711a		
DTMF	DTMF tones sent correctly	DTMF tones sent by device are discoverable by IP21	Yes
	DTMF tones received correctly (audible)	DTMF tones received by device are correctly interpreted	Yes
Call Transfer (with cons.)	Device can be transferred by far end (check media ok, display on all 3 phones ok)		N/A
	Device can transfer both call.	Device uses flash/hook call transfer procedure on the analogue port.	Yes
Call Transfer (blind)	Device can be transferred by far end (check media ok, display on all 3 phones ok)		N/A
Various Remarks	??		
	??		

Language	Remarks	User Interface	Web Interface	Admin Manual	User Manual
German	<p>There is only little end user interface in the device. Since all announcements are downloadable to the device, they can be translated to just any language. However, built-in to the device is the voicemail menu, which is in German. There is an English version available, however, we have not at it.</p> <p>A "user manual" is not really required. The admin manual however is quite extensive.</p>	Yes	N/A	YES	No
English		Unknown	N/A	Yes	No
French					
Dutch					
Italian					
Spanish					
Swedish					
Danish					
Norwegian					
Finnish					
Other					

5 Various Remarks

Although the device's overall design is pretty un-IP-ish (no web-based configuration, needs a serial USB link to configure, voice is delivered through analogue ports), this doesn't cause major problems in daily operation, since there is only rarely a need for configuration once the initial configuration is done. All daily configuration (if any) can be done either using the device's control panel (switch from day/night/holiday mode) or

via a DTMF menu from the phone. Still, an Ethernet interface for configuration, download of firmware and music and especially to connect to the IP-PBX directly via H.323 would be nice (there is a 19" for factor version with LAN interface, which we did not have a look at).

Also, the "musiweb" music upload function is based on a modem dialup connection to the internet which in some cases may not work properly via VoIP².

Due to the interfacing via analogue ports, we have observed some annoying distortion effects compromising the overall very good sound quality, e.g. during call transfers.

The USB link is annoying und unreliable and requires a PC close to the device for configuration as well as the installation of a specific driver on the PC.

During the tests, we have seen that the device needs to be power-cycled often after configuration changes have been uploaded to the box.

6 Summary

Despite the more "legacy-style" design (seen from a VoIP perspective, see above, "Various Remarks"), this seems to be a very useful device, for installations which don't want to bother with HTTP based announcements and respective CGI scripts such as ASP, perl or PHP. It fulfils all basic requirements for announcements and music and hold. Additionally, it can even serve as a small auto attendant and voicemail solution. Although this duplicates some of the *waiting queue* features, it may be much easier to use in some scenarios.

² The modem used internally by the musiphone is a V.32bis (i.e. 19kbps) modem. Since this is not that fast, it should work sufficiently reliably though.