ECHOLINK OVERVIEW
MB7IPH-L HEADCORN, KENT, UK
145.2375 MHz CTCSS 77.0Hz
NODE NUMBER 254459

1.0   INTRODUCTION

With the introduction of Echolink comes a new exciting direction for Amateur Radio. Some may argue that this is not radio, but when used as intended Echolink provides the means to voice-link (through a combination of Radio and High Speed data links) licensed amateur stations whether sitting on a home PC, in a hotel room on a laptop or mobile on an amateur 2M/4M/6M/70CMS/Microwave or 10M rig.

Echolink brings hope to those amateurs unable to operate a conventional station due to planning restrictions and those in long term care where the use of RF s not permitted but PCs are.

This guide explains how to get the best out of Echolink as a user and is tailored to the MB7IPH Link station and its additional features.

All simplex links are designated with the suffix –L. MB7IPH-L located in Headcorn operates on 145.2375 MHz and in order to use the link a CTCSS tone of 77.0Hz must be superimposed on your audio. Special commands are accessed via DTMF tones sent from your touchtone pad.

The most important thing to remember and one of the most common mistakes of users new to simplex linking is to think that the link is a repeater. Although it can be configured as a cross-band / cross area repeater, on its own it operates on a single frequency. Unless it is connected to other stations, users operating on the simplex frequency of the link will simply be talking to themselves!

Just to give you an idea of what the system looks like, here's a photo of the MB7IPH installation. It consists of a Pentium 4 3GHz hyterthreaded PC running Windows XP Pro, the echolink software in sysop mode and a whole host of other applications associated with the weather station and APRS station. It is linked via firewall to a fixed IP broadband link offering 8mb downstream and 832kbit upstream bandwidth. Sitting on top of the PC is the Echolink encode/decode interface and this is linked to an Alinco DR-135 transceiver. The whole assembly is fan cooled based on echolink activity. RF is fed to the collinear antenna on the mast at around 15M. The entire system is UPS backed for 20 minutes including the broadband link and transmitter.

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2.0   USING ECHOLINK

Echolink consists of a collection of Stations or "LINKS", each belonging to a licensed amateur and broadcasting over a local amateur frequency in the 2M, 4M, 6M, 10M, 70CMS or Microwave bands. These links are assigned NODE NUMBERS via the echolink organisation and there are thousands world-wide. In addition to these links, CONFERENCES (with their own unique numbers) are established which are the echolink equivalent of "Chat Rooms" where people from a particular geographic location or with specific interests congregate. Kent has its own conference called KENT linking the central weald with Maidstone, Medway and East Kent. Finally there are amateurs who use echolink from a PC only, and these amateurs also have NODE NUMBERS assigned to their personal callsigns.

Users of Echolink can connect into any of the echolink links in their areas and then link on to others around the world by simply requesting a connect to the node number.

A list of all Echolink LINKS is available on the internet at http://www.echolink.org/links.asp
The RSGB DCC Website http://www.dcc.rsgb.org/ [Go to the internet linking section] also provides useful information as to who has a Notice of Variation to their licence to run a link.

2.1   Via Radio

As a minimum you will need a 2M, 4M, 6M, 10M or 70CMS/MICROWAVE path to your local echolink link station. If this has an MB7I Callsign it will generally be on-air 24 hours a day. In order to be able to control the link you will need a microphone or rig with a DTMF keypad including the digits 0-9 and the characters "A – D" , STAR and HASH.

Where you don't have a DTMF keypad, you can always ask another user on the channel to connect you through to a station, link or conference of your choice.

On 2M and in some instances on the other bands too, in order to access a link you will need to have CTCSS enabled on your rig set-up according to the tone frequency operated by the local link.

For MB7IPH-L in Headcorn, the access frequency is 145.2375 MHz and the CTCSS is 77.0Hz. Coverage of this station extends from Ashford in the East to Tenterden/Hawkhurst in the South, Pembury in the West and Maidstone/M20 J7-9 in the North.

To use this station, first check the frequency is clear.
Type 08 on your DTMF touch-tone pad to see who the link is connected to. Usually this is linked to the *KENT* conference which provides interconnected links throughout the majority of KENT.

If you wish to connect to another node whilst KENT is connected, please; for the benefit of other users disconnect KENT and any other connected conferences first by pressing HASH twice.

Type the NODE NUMBER of the station who you want to connect to and Echolink will attempt the connect. Once connected, any audio you transmit will be heard over that station and vice-versa. Just call CQ as normal. Remember, once connected you may have a very wide audience especially if that link is linked out to other stations. Keep overs less than 3 minutes to avoid timeouts and ensure you allow plenty of gaps between overs to allow the QSO timers to reset on the connected echolink systems and any breakers to identify themselves.

On completion of a QSO, ensure you press HASH to disconnect. **It is seen as very bad practice to leave a link connected which you have been using.** The only exception to this is the KENT conference which is generally always connected automatically.

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The full list of commands on MB7IPH-L are as follows:

COMMAND		MEANING
88*		Play HELP message
70		Play terms and conditions of use
08		Who's Connected to this link
77*		Further Node Information
<Node Number>		Connect to NODE, USER or Conference of this number
61		MB7IPH User Guide
62		MB7IPH Connection Schedule
99*		Local Weather Information from my local weather station [Visit http://www.headcorn.org for more detailed charts]
98*		Local Weather Forecast
97*		Local Weather Warnings
96*		The Weather Channel™ Weather for Maidstone
*#		Local Time in Headcorn
*n#		Motorway Traffic Information [Key *<Motorway Number>#]
*1		Enter Interactive Mode
	*00#	Play INTERACTIVE MODE HELP message
	*1#	Request Persistent Connection Disconnect
	*2#	Request Persistent Connection Reconnect
	*#	Cancel Command Entry
	*<mins>#	Disable Persistent Connection for upto 60 minutes

Please note, the RSGB news service on Echolink was discontinued at the end of 2006.

2.2   Via a PC

Once you have downloaded and installed Echolink as per the instructions on http://www.echolink.org you will need to validate your Callsign. This is to ensure that only licensed amateurs can use the service.

You should follow the validation instructions given and either FAX of SCAN & EMAIL your validation document off to the echolink validation team.

If you have a firewall you will need to ensure your PC has a FIXED IP ADDRESS and that you allow ports 5198 and 5199 (UDP) to communicate with echolink from beyond the firewall. If in doubt speak to a local PC guru who should be able to assist.

Once validated, echolink should display a list of callsigns who are currently connected. You can sort geographically by clicking on EXPLORER VIEW.

To enter the network and begin a QSO, either double click on a users Callsign to start a private QSO or connect to a LINK, REPEATER or CONFERENCE. Remember to disconnect the KENT conference first before connecting to other stations as a matter of courtesy. When you connect to a radio-enabled link your Callsign is announced over the air to listening stations. You should just call CQ as you would normally.

3.0   GOLDEN RULES OF SIMPLEX LINKING

As a user of this gateway, you are part of a significant community of amateurs in central Kent/Sussex who now use this mode on a regular basis for keeping in touch with friends around the country and around the world via good quality links. Irrespective of the arguments for or against internet linking it is a mode of communication allowing amateurs worldwide to easily communicate whenever they want and with your help and support it will be here to stay.

The rules surrounding internet linking are stricter than those in force for regular operating and as such monitoring and control of the links has to be taken more seriously. Terms and conditions for the use of this link are available by keying *70*. By using this link you agree to these terms.

Essentially all data associated with connections from the internet is logged and maintained for a period of one month. Local transmissions are also recorded digitally and maintained for one month after which time they are deleted. This data is maintained for licence compliance purposes only and is a feature of the Echolink server itself.

Since this gateway opened it has essentially self regulated. Most local users get to know each other and agree usage patterns to ensure availability of the links. Users of this system tend to be critical sometimes, but are generally helpful. By observing a few simple rules you help make internet linking fun and enjoyable for everyone.

#1   Please don't use the frequency for local qso's. You are tying up both the frequency and could also be broadcasting to numerous other links via the gateway when you do this. Please use a simplex frequency for local qso's unless one or more stations in the group are operating via the gateway from another area.

#2   Please don't 'hog' the gateway. Its great fun but others also wish to use it. Share it and make the best of it and above all always leave gaps after overs and encourage others to join in.

#3   Please keep overs short when linked to other systems and leave adequate gap for system acknowledgement and reset of timers. My transmitter RF key-up timeout is 10 minutes

however many stations implement a 3 minute 'over-maximum' after which the link drops.

#4 **Please** *respect the pre-agreed net times on this link and auto-connect schedules in place.*
These are currently:

Thursdays 19:30-22:00   *Maidstone & Medway Club Net (Net from 20:00)*

#5 *By using this system you often connect directly into the repeater network of another country. Customs beliefs and practices may be significantly different as is often language. QSO's when linked out of he UK need to take account of this. Please ensure good operating practice at all times but especially when linking internationally.*

Complaints registered back to this system have to be taken seriously. Inbound and Outbound links can and will be restricted at anytime where complaints are received from other sysops. All complaints can be positively verified through IP logs, DTMF decode and audio records, and wherever possible all attempts will be made to resolve them before any restrictions are placed on access.

Where access is restricted due to complaint, as licence holder it is ultimately my decision to operate the gateway and as such I have to make these decisions for the wider benefit of the users. Where dispute exists, the RSGB DCC or OFCOM can be contacted and appropriate records and recordings will be made available to decide on the legitimacy of any restrictions placed. Their decision shall be final.

4.0   SUMMARY

This overview provides a brief introduction to using Internet linking, both from the PC perspective and as a radio user. The best way to learn is to get on-air and use the links to their full advantage. The world is at your fingertips irrespective of your class of licence.

Further reading is available in the form of a book from the ARRL entitled "VoiP – Internet Linking for Radio Amateurs". It can be purchased from the RSGB or via online stores. The ISBN is 0-87259-926-4.

Echolink is bringing new life into the VHF and UHF amateur bands. Hopefully I haven't scared you off so get on and enjoy it!

5.0   ACKNOWLEDGEMENTS & COPYRIGHTS

In the spirit of Amateur Radio, the text of this guide is freely available as a word 2003 document to those who would like to modify it and use it for their own systems. DTMF commands are often specific to particular installations so please check each command carefully.

In using this guide, please acknowledge myself as the original author of this work in your adaptation. MS Word versions of this file can be obtained from me direct by emailing nick@headcorn.org.

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MB7IPH uses ELIS and EchoTime TTS Plus Software
See http://elis.hythefm.com & http://www.kh2d.net/software/echotimeplus/index.cfm for details