User-Controlled On-Line Tuners

By Jim Southwick, N7JS

Have you thought about getting a shortwave radio to listen to distant stations - whether it be broadcast, pirate radio, or ham radio? Maybe you are wanting a scanner to cover a broad range of frequencies and modes.

In theory, it sounds quite easy to purchase a radio and start listening. The problem is, though we all know the radio is only as good as the antenna system to which it is connected, we tend to forget this additional cost and hassle, yet we still hope for better than average reception. In many cases, antenna requirements can even be prohibitive depending on one's location and limitations.

If you are wanting to listen to a broad range of frequencies in various modes (AM, SSB, PM, CW, etc.), this can be a further complication - the cost can be fairly steep for sophisticated communications receivers.

Author Jim Southwick standing on his reef with a few of his antennas above him (A2 photos by Leia Honstea)

The "UCOT"

Fortunately, these days, you can tryout a variety of high-end systems without having to worry about buying the radio or the antenna system – if you have a computer connected to the internet. Even a dial-up line will work fine. Welcome to the world of the "user-controlled on-line tuner" - which, for easier reference in this article, we will refer to as a "UCOT."

Essentially, with a UCOT someone has already gone through the trouble and expense of buying the receiver and antenna system along with the software to serve it up through the internet. This allows you to tune the radio in real time, as if you were sitting right in front of it.

Of course, the down side is you may have to share this radio with other users, but you will find you can often have a radio to yourself at various times throughout the day and night. The benefits are great.

Borrowing an internet term, we'll provide some background on the subject as a series of FAQs (frequently asked questions).

Are there many UCOTs around?

Although these public on-line systems have been around for some time in various formats, they have never really become abundant due to the fact they are expensive to set up, run and maintain. So although there are sites coming on-line now and then, many other existing sites are shutting down or have gone private. Also many of the remaining sites have gone to a pay status in order to try to recoup some of the costs of running the system.

So are there any free sites?

The good news is, there are still some long time sites offering full access to the public and, yes, they are completely free. Many of these free sites are actually superior to the paid sites as they are offered up by ham radio operators who enjoy sharing their radios and antenna systems and get a kick out of providing the service. My own site at jimandleah.com was started on just that premise. I will list where you can go to find other various sites later in this article.

What types of UCOTs are there?

There are various software "styles" of on-line radio systems. Some of the oldest programs have been written privately and have a "manual" feel to the software. That is, they do not provide real time feedback such as the signal strength of the received signal or graphing and chat capabilities. You basically enter the frequency and mode and then listen. However the station quality is very good at the sites that have seen using their own written software. The others, as explained below, will provide a host of supporting information to the user in real time.

What are the most popular UCOTs?

Two of the most popular public versions that provide real time feedback and are very easy to use

are called Javoradio - not to be confused with the trademark Java - (http:/ www.javoradio.com) and VisualRadio (http: //www.visuairadio.de). With few exceptions neither version requires you to download any thing and will usually work as soon as you access the page. The Javoradio network consists *of* many radios worldwide (mainly throughout Europe*)* and has a very user friendly format rich with features. Javoradio has done a nice job *of* making this system easy to use for the on-line listener. You are able to tune many parameters of the radio, get signal strength, access, directory *of* stations, and chat. The sites on Javoradio feature the Icom PCR1OO/1OOO receivers exclusively.
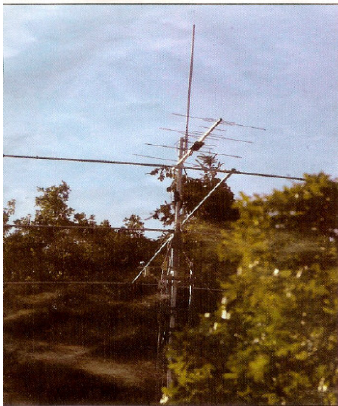
Until about a year ago, the sites were actually free but have unfortunately gone to paid status. However, the cost to use the receivers is quite minimal and they also will feature a couple of free sites *of* their choosing that you can tune into with out paying. There are a couple of sites that feature very elaborate antenna systems that alone can make the cost of admission worth it – especially if you are into TV and FM radio Dxing.

The Visualradio public network is smaller in scope, featuring only a handful of receivers, but they are completely free (we love free!), and can accommodate any type of computer controlled radio on the serving end. This can allow for some very high quality radios, as the PCRs do have their limitations.

Visualradios offer two different formats: Java (although they are not Javoradios) and Active/X. The VisualRadio java format basically gives you tuning capability, S Meter, and a chat room. It is quite basic compared to the feature rich format of the Javoradios. However, by downloading the free software (available on the main site or my site at jimandleah.com), one can take advantage of exclusive advanced features such as a signal vs. time graph, dx cluster, and a sophisticated display spectrum. The latter allows you to view a group of signals simul-taneously for a segment of the band you are

listening to and then choose the signal you want by just clicking on the graph. This is not available on the javoradios, and is a real advantage over basic scanning.

Both Visualradio and Javoradios have real time chat rooms so users can converse and share information while using the tuners. The chat window is a great place to meet people with common interests in online listening.

Let's move on to the actual operation of a UCOT once you get there.

On-line etiquette.
The first and foremost rule on any public UCOT is to ask before tuning! This is simply done by typing "May I tune?" in the chat room. Even if you think you are the only person using the radio, the owner of the radio may be using it at the time themselves. This is just a common courtesy and you will find in almost all cases the user will yield the control to you. If you experience problems with this, the owner of the UCOT will certainly want you to email them. When the system is busy, you may enjoy just listening to what others users are tuning.

Get to know the system you are using.
Each system is unique. Some may be designed for listening to VHF and UHF. Others may be designed mainly for listening to the HF spectrum. It doesn't do anyone any good if you are tuning for WWV and the UCOT only has an antenna good for UHF. A simple inquiry in the chat window will usually get a response from those that are familiar with the system.
Often the web page will tell what you need to know about the UCOT and what it does.

What frequencies can I tune?
Since the majority of UCOTs are Icom PCR 1OOOs, you will be able to tune from .100-1300 MHz (cellular excluded) and use all modes (CW, FM, USB, LSB and AM). This is a lot of frequency spectrum. The type of antenna the owner has installed will be pretty obvious, depending on where you tune. Many

owners have chosen to use a discone antenna which gives decent coverage of the VHF/UHF spectrum (50-1200 MHz) but really falls short on the HF spectrum (0-30 MHz).

Because I am a ham radio operator, I already had the antennas in place for the receiver. For my on-line tuner I currently use a tower mounted inverted V with a 45 foot apex the majority of time. This gives fairly broad coverage across the HF spectrum. For the higher frequencies I also feed the receiver simultaneously with a UHF/VHF yagi. This would be a disaster on transmit, but fortunately in receiving we don't have to worry about that when combining antennas.

For even better performance from this combination, you can purchase a splitter which minimizes the effects on one antenna detuning the other.

Who uses the UCOTs?
The UCOT's lend themselves to a host of purposes. Ham radio operators often use the receivers to check to see if they are being "heard" where the host site is located, and if so, test their signal strength. This is very useful for getting real time feedback of the band conditions, as well as determining one's audio quality.

Another group of users listens to the air traffic control broadcasts. Many of these broadcasts are carried on shortwave radio, so a good UCOT can pick up these signals for hundreds or thousands of miles. When combined with various sites that allow a listener to watch the progress of a plane in real time, you basically can follow a specific plane from origin to destination, all in real time. This aspect of the hobby really grew after 9/11, with people wanting to track a loved one who was traveling.

Still others like the public service broadcasts on the VHF/UHF spectrum. Unfortunately, many of these communications have gone to a trunking or digital system that is not available on the UCOTs. Yet another group of individuals enjoy late night AM broadcast radio DX. If a site has a decent antenna for the lower part of the HF band, it will generally work quite well for AM DX.

A few Javoradio sites actually feature large antenna arrays allowing users to listen to troposheric skip, meteor scatter, and other interesting conditions that mainly affect the VHF portions of the bands. This last group are usually people who just enjoy general listening across the bands, whether it be checking out the local FM radio

stations, trying to tune into some cordless phone or baby monitors in the area (shame on you!) or just armchair shortwave listening.

My particular site has attracted a group of people who like to gather each night to tune in to the 80-meter band. Some enjoy listening to Art Bell and a group of other ham radio operators that get together on this band each nite. Since Art has retired from his late night radio show of many years during the weekdays, this allows the people who enjoyed his show to listen to him and others in a whole new context that is very relaxed and often humorous.

How can I set up my own public UCOT?
First of all, setting up a public UCOT is an expensive endeavor. Believe it or not, there are a couple of individuals who have set up tuning and transmitting capability UCOTs, but these systems are beyond the scope of this article. Even if it is just a receiver, it won't be much of a service if you start out with one that doesn't have decent reception or is very limited such as AM mode only. Word spreads fast and you will soon find your site is only good as a chat room for you and your friends. You also need decent uploading bandwidth, or your site will not be very enjoyable to listen to if it is constantly buffering on the audio.

Javoradio has the advantage of the software being free. Everybody loves free! The downside to this is that it requires a Linux as based system, which most computer users are not set up for or familiar with. If you are you're in luck! Remember, you are limited to an Icom PCR1O0/1000 receiver only with this software, so you will need that before you even get started. You can go to http://www.javoradio.com for more details about what is involved and how you can get started.

Visualradio has the advantage of working with the Windows as format and practically any type of

ham radio/receiver that can be controlled by computer. Many people (especially hams) already have radios that can connect to their computer. The downside is, the company no longer currently sells the software for the basic amateur. Instead the software is marketed for commercial users, so although the sophistication of the commercial release is well beyond what most basic users would ever need, so is the price. However, as I write this article, I am told they are considering offering it again to the "amateur" user at a substantially reduced price.

I have been a VisualRadio UCOT for over two years now and have found the software very flexible and feature rich. The java format is very straightforward and easy to use for anyone. However, by connecting to the active/x format, one discovers a whole new world in online radio features. You can go to http://www.visuairadio.de for more information on this format. One can also view this format on my site at *http://* www.jimandleah.com

A third format that is being used is the RATS format by Kingsmith Software (http://www.kingsmith-software.com) This is another feature rich format that can be served up utilizing Windows Net Meeting. The soft ware is inexpensive. The downside is that accessing the remote radio is not as easy am straightforward as the other two formats am only one person can use it at a time. Advantages are you can use various radios in the Windows format and set up is quite inexpensive. In addition, there is hardly any delay of the audio. An exclusive site located in Hong Kong has set one up under this format at http://vr2hf.tripod.com.

Just recently, an independent site has sprung up for the general public. This is apparently utilizing sophisticated software (including a band scope) and the software is offered for free if you host your site with him. The site is located in Salt Lake City, Utah The software is currently written to run on Kenwood computer capable radios, but the developer has plans to expand to other manufacturers. It also is built on the Windows OS interface. You can access this site at http:/ www.smeter.net.

Last but not least, some who are into writing their own software have chosen to do just that. One of the oldest sites that is self written is still available at http:/www.chilton.com and has been operating since 1995.

There is a fairly complete list of most of the UCOTs in existence at the DX Zone site http://www.dxzone.com/catalog >>>
      >>> Internet_and_Radio/Online_Receivers).

Setting up the audio.
The other aspect of UCOTs is, of course, providing the audio. This is actually a big consideration, because it can require large upload bandwidth if you are going to be able to serve up decent sounding audio to the most people possible at the same time. There are various encoding styles one can choose from but suffice it to say, a full time high speed connection is practically mandatory.

Javoradios mainly uses Real Audio as their encoder and Visualradios mainly use Window Media Encoder. Both formats are available for free from the web. I am currently able to stream simultaneously to about 25 people using Windows Media Encoder, but because I sometimes exceed this number, I also stream the audio through live365.com, This can allow practically unlimited simultaneously listenership at a very high bit rate, but also requires a monthly fee from the UCOT owner depending on how many streams one want to provide, whether for free or for a member ship fee.

If your site gets to this point, you are definitely doing this as a labor of love and you may want to at least ask for donations to try to offset the costs a little. However, realize that your outgo is going to far outweigh any money coming in. You will find if you set up your site and you work to maintain free, quality service, the rewards will be meeting a lot of great people who take almost as much pride in your UCOT as you do. You may even find someone will set up a forum if you attract a group of loyal listeners who enjoy your system. *midnighthams.com* was a forum that was started by a group of dedicated individuals who frequented my site and continue to do so.

Last but not least, you can even go the extra mile and provide other useful services that practically guarantee people will enjoy visiting your site. One of the neatest aspects of remote monitoring I have witnessed is listeners using the on-line radio in conjunction with software to view slow scan TV (SSTV) pictures. These are pictures

transmitted by hams that can be viewed with the proper software on your computer.

A UCOT lends itself to this perfectly, so I feature an automatic picture viewing system on my site that doesn't require any software on the listener end. The listener only needs to tune the radio to the SSTV signal itself (usually 14.235 kHz), and the software on my end will automatically capture the image and upload it to my site. The auto ftp upload software is generously made available free from John Benedict (KE5RS) at *http://* www.ke5rs.com. This has been a popular aspect of my site that surprisingly other online tuners have not incorporated to date.

Providing a chat area is also beneficial. Because your listeners have a lot of common ideas. Feedback is guaranteed if you choose to chat with them!

In closing …

So whether you are interested in using a UCOT or in setting one up, you will find this is almost a hobby in itself - one that is currently a fairly well hidden secret to the general public. Their numbers are relatively few, but many UCOTs lie dormant waiting for someone to log on. It is my hope that the word will get out about how useful and fun these are, both to listen to and to operate if you so choose.

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