

Sharing the excitement of operating the HF bands

Are you ready for some exciting Ham Radio?

Tired of “nothing new” on the local repeaters?

Have you ever talked to someone in a foreign country?

If you have remember the thrill of learning, firsthand, about how they lived and what they enjoyed?

Do you have a friend in another state that you would like to talk with on a regular basis but just can't seem to make the phone schedules?

How would you like to experience these types of conversations on a regular basis?

Well, you can and I am here this evening to help you see how you might do just that.

First off, let's get rid of the myths.

1. Too expensive
 - a. Ever hear of “delayed gratification”?
 - b. I live on a fixed income. Each monthly pension check has a fixed sum that goes into my Ham Radio savings account. This allows me to purchase “deals” when they come along.
 - c. Be an active seeker on the internet.
 - d. If you are not sure if it is a “deal” first check the current prices of your “deal” on the internet.

- e. Don't freak out about the guy who has nothing but complaints about his radio. On the other extreme, don't necessarily believe the guy who has nothing but praise about his radio either. Read a bunch of the comments and you'll begin to form an average opinion about the quality, ease of use, and performance of the piece of ham gear you're interested in. Read about similar pieces of equipment too (such as competing models and brands), in case one of those catches your eye even more. Once you have a good feeling about the equipment you want to invest in then go get it and get on the air!
 - f. Call one of us "older hams", there must be a 1000 years of experience in this room, use it.
 - g. Yes, it costs money to do things. You and I spend our money on what we want. I drive a 14 year old vehicle because I'd rather have a nice ham station.
2. Get active.
 - a. That means you step out and ask questions.
 3. Get to know hams who share your interests.
 - a. There are a Zillion different ham radio activities, concentrate on one or two.

Alright, now that those nasty "myths" are taken care of, let's get down to what HF operations are all about.

1. First you need a General Class license. If you do not have one, my study guide will help you get one. If you don't have my study guide, I have it on my computer and if you have a thumb drive, you will have it in 30 seconds. Otherwise, put your email on the list on the table and I will send it to you.

2. Next you need an HF rig.
3. You do not need the latest and greatest, in fact, I recommend that you get older equipment first.
 - a. Less money
 - b. Generally fewer bells and whistles – that means stuff you really don't need until you get into heavy operations like contesting.
4. The place to purchase this older equipment is from local hams, swap meets, and even used equipment from AES, HRO, and the other big Ham Dealers.
5. The internet is OK, but.....there are a lot of folks who buy and sell and don't know anything about the condition of the equipment.
6. OK, you have a rig and now what?
7. Contact your Elmer....you do have an Elmer don't you? If not, get one or two. Most of us long time hams will be happy to help you set up your station.
 - a. The first thing is a place to operate from. That means not the living room.
 - b. Second is to install a ground rod right outside the wall where your operating position will be.
 - c. Third is to install a PVC pipe through the wall big enough to carry your ground wire and several coax cables. If you have a window, MFJ makes a nice feed through panel.
 - d. Note: if you follow my "Ladder Line Feed" suggestion to follow, use separate PVC for that feed line. The MFJ panel works here too.

It's Antenna time:

I am going to tell you what works because I have used or tried almost every antenna there is.

1. Dipole, Dipole, Dipole. They work. You can bend them around. They can be high or low. Still, they work.
2. I like ladder line feed because if you put up a dipole for the lowest frequency you think you will operate, it works on every HF frequency from there up.
3. Yes, ladder line requires a tuner, but you will only have one antenna up.
4. Vertical with ground radials is a fine antenna. In fact, I recommend you have both a dipole and a vertical to allow you to take advantage of changing band conditions. Plus, one will always be quieter than the other.
5. The rule for antennas is to get them as high as you can and as much in the clear as you can.

Let's talk a bit about antenna tuners, which are meant to keep your 50 ohm transmitter happy. Auto tuners are great, but they are limited to 100 to 200 watts before they get really expensive. I like the Ameritron ATR-30 and the smaller ATR-20 as they load just about anything.

When choosing a tuner first look at your antennas now and in the future. Many turners are either coax or wire. Some have built in balun coils which allow you to use a single wire or ladder line.

Some transceivers have built in auto tuners. This works fine for a correctly matched dipole antenna feed through a 1:1 balun. They sometimes work with a 4:1 balun. This means about a 3:1 SWR which is somewhat limited, but still useful.

The bottom line with antenna tuners is to try several. Borrow one from a local ham and see what it does for you and your antennas. That is how I discovered that one model of the MFJ auto tuners did not work for me because it likes resonant antennas. My attic dipole was not liked, so I did not purchase that tuner.

Now, back to antennas: although I preach dipoles, others forms of antennas will work. Since my radios are Icoms I use the AH-4 tuner on my mobile and on the home station. The AH-4 is designed for a minimum 23 foot long wire. I have discovered that it works well with ladder line. You hook one lead to the beehive insulator and the other lead to the ground connection. I used this arrangement for my attic dipole for several years.

The reason I am not a fan of long wires is because of the high voltage at the feed point. Even with a 100 watt transceiver, that voltage can reach several thousand volts! Yes that is correct, several thousand volts.

A few words about the G5RV: It is a fine 20 meter extended dipole. Using it on frequencies below 20 meters is suspect. Remember that MFJ auto tuner I tried and it did not like my dipole, that is because anytime you attempt to use an antenna below its resonant frequency problems arise. The best way to see those problems is to take my favorite antenna analyzer, the MFJ -259B, and see how high the R and X values go when you put it on a G5RV on 40 meters. All that R and X has to be tuned out to make your 50 ohm transmitter happy. Several hams, over the years, have taken my advice and put up a simple 40 meter dipole and discovered instant improvement in their contacts on 40 meters. Bottom line is; you generally do not get something for nothing.

Now, having said that, I will go back to my earlier statement about operating a dipole on its resonant frequency, and up. My attic dipole is a full 160 meter antenna. That's correct, 276 feet of wire. I use it on 160 and up with the ATR-20 tuner. I have even made contacts on 6 meters. So, I recommend an 80 meter dipole feed with ladder line for your antenna.

But wait...there is an even better choice; the full wave horizontal loop. The loop may be any shape. Several DARC members use the triangle; others use an almost square shape. The perfect shape is a circle, but I have had no luck hanging a circle. In general, the loop does not care. I like to feed a loop with ladder line so that it is easier to tune. Some folks terminate the ladder line in a 4:1 current balun then bring a coax into the shack. This arrangement appears to work just as well and it is easier to bring coax into the shack. The loop is generally a quieter antenna and for those who have tried them, they appear to get out better. A case in point is Bob, AE7HY who was having difficulty working the Beehive Utah Net on 7.272 MHz. Bob lives behind a big bluff to his north and most of the net members are north of St George. Bob put up a temporary diamond loop and was impressed with its ability to get out. I helped Bob put it up higher...to 17 feet...and move the feed so that it was next to the shack. Bob uses ladder line to a 4:1 balun and a short run of coax to the shack. When I am at the Duck Creek Ham Shack, Bob's 100 watts is as loud as George, WI7E who runs a loop at 35 feet plus a little bit of power. Impressed yet?

OK, so you are thinking that I cannot put up that much antenna. My wife, neighbors, or my HOA will not allow "ugly antennas" up in the air. Let's see, I have been in all three of those situations.

I lived on the lake in a very tight HOA community, so tight that I was not allowed to ride my motorcycle, the one I rode to work every day inside the gates of the community. I put up a 276 foot full wave 80 meter loop at 35 feet. I operated for 6 years without detection. One of the supports was a 30 foot Rohn tower camouflaged to look like an Italian Pine. The entire antenna floated on pulleys with a bird feeder as the counter weight. At one party we had the guests wondering why the feeder was moving up and down with the wind. The antenna was #22 motor winding wire. Above 15 feet you could hardly see it and at 35 feet you really had to look for it. Part of the wire ran over the side walk to the front door. One day one of the HOA busy bodies came over to talk to me about a bush that was overgrowing into the street. As the person talked to me they kept glancing up. I asked what the problem was. He said: "That bird hasn't moved and it is in midair." The bird was perched on the # 22 wire antenna. In a flash I responded, "As a matter of fact, that's a humming bird." He said, that is a big humming bird. My response was, it is special bread that only nests around the lake. He then went on about the bushes.

My moto is "Seek Forgiveness" Never ask for permission because you will be denied.

I am finding out that the black insulated antenna wire now being sold is a great idea. I have a 160 meter dipole up at the Cabin and almost no one has spotted it when asked to find it.

So...what to do? I say put up that dipole or loop and give it a try. I have learned how to use my MFJ-259B as a signal source to find the best setting on your antenna tuner. I then put these settings in an Excel spreadsheet which I keep next to the antenna

tuner. This enables me to preset my tuner before I apply power. Thus, I am not tuning up on another station or net and I can break into a conversation without having earned their ire by tuning up on them.

OK, what have I covered?

Get your General

Get an inexpensive transceiver

Get an antenna tuner

Put up a dipole or loop

Start having fun talking to the world.

Now one final thing to cover: which band to operate on?

Right here in St George, 40 meters works great.

20 meters is ok, but you are competing with big antenna arrays and lots of power. 17 meters is very nice providing lots of stateside contact and many close in foreign stations.

15 meters is another great band but is squirrely sometimes dropping out on you because the ionosphere made a sudden change.

12 meters is sorta dead because not many use it

10 meters is a hoot, especially when it is open. But the real fun is when it appears to be dead. I can't tell you how many times I have given a call or two on a known hang out frequency like 28.415 or 28.465 and been answered by someone halfway

around the world who just happen to be listening. The way you find out these known hang out frequencies is to LISTEN.

Listening is the key to fun ham radio contacts. It gives you a sense of who and what the person is about. I will be the first to tell you that there are Hams I avoid both on the air and in person. Hams are like most folks, they come in all flavors and therefore, you need to pick and choose for your own sanity and enjoyment.

Well, that about wraps this up.

I'd like to leave you with this thought: Antennas are everything. Without them you cannot hear anyone and nobody will hear you. Therefore, put your efforts into the most effective antenna you can both afford and get into the air.

Mr. President, do we have time for questions?

I would like to keep the questions to those new hams in the audience, as the rest of you have your opinions and I am not about to change your minds. So, let's have the new comers ask the questions.

The Vertical antenna: I have experimented for years on the perfect length for the HF vertical. Here it is...21' 9 1/2 " I feed mine with a 4:1 Current balun from RF Systems. I used the 30 meter vertical from DX Engineering as it has an insulated mount. My ground is one 43' wire and one 176' one inch wide braid. The braid is on the lawn boarder so it is wet all the time. I use LMR 400 to the ATR-20 antenna tuner. This antenna works 40 meters thru 6 meters. I have used it on 60 meters but only for really long haul contacts.

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By Mac K8NG