



Merrymeeting Amateur Radio Association Newsletter for May 2008

Analog Broadcast TV to go QRT

By Pete Russell K4POR (ex, K1MJP)

Most of you may know that on Feb.17, 2009, all over the air analog television, AKA terrestrial TV, will be history. The exception is rural translators and LPTV stations. After many years of time extensions, the FCC finally made that “drop-dead” decision.

What does this mean to you? If you have a conventional TV set that is over 4 years old, you will not be able to receive off-air digital signals with it’s older NTSC tuner. All you will see is snow and hear white noise!

Not to worry, there are several alternatives:

- First are the folks who receive their signal via cable or satellite (i.e. Direct-TV or Dish Network).
- Second are the cable TV providers who have the option from the FCC to retransmit in analog and digital, just as they do now. You would have a digital box, therefore your older TV set will work on the analog signals. When they go all digital, you will be offered a digital converter box that you will most likely have to pay for.

The satellite giants, Dish and Direct have receivers to bring in their signals and come out in analog (if you wish) to your set.

Remember that digital and analog in this case are the methods of modulating the signal to transport video and audio from the source to you, it does not indicate the strength or quality of the signal. In an analog signal, a strong signal would show up as a clear picture versus a snowy one. Digital on the other hand, primarily is either there or it is not. Some who have satellite dishes have seen when the signal is right on the edge of not coming in; the picture will freeze for a moment or pixelate. Quality of the picture is a result of the number of resolution lines or the number of pixels. The larger the number, the better the quality (assuming the original source has the same quality).

As you may read in your new TV sets owners manual, standard definition TV is the basic television of less than 480 horizontal scanned lines, then there is High Definition Television (HDTV) which has 720 lines or more resolution. What I am saying is, you will see standard definition programming on digital stations, and because they compress the digital stream so that they can put 4 or 5 different programs on 1 channel, the pictures will not be as sharp.

In the early 90’s when I was at Bowdoin College, we would have satellite feeds that were

baseband video, over 800 lines of resolution and analog transmission. Viewed on a 12-inch by 12-inch screen using a Sony three gun projector, the pictures were equal to the 720P format you see now from the networks at night during primetime. If you have a HDTV and want to subscribe to premium services, the satellite providers will provide a newer receiver that will pick up regular and HD channels. You may need a newer dish and feed horn system to receive the HD channels as they are on a different satellite and use their own scrambling (encryption) system. Cable TV is doing the same, offering HD programming through their encoder box. Local Portland viewing area channels such as 6 (NBC), 8 (ABC), 13 (CBS), 10 (PBS), Fox, CW and MyTV will be available at no extra charge after Feb.17. They may be available now for an extra charge since most broadcasters (except for Fox) are already broadcasting in HD when their programming is scheduled. Satellite will have them or do now at an extra charge.

Next month I’ll cover UHF and HDTV antennas that are available and what works well, websites for info, and the converter boxes. Stay tuned. **73’s, Pete K4POR**



Another Good Ham Web Site

By Bruce Randall, W1ZE

Many of you are familiar with the www.ac6v.com AC6V web site devoted to Amateur Radio. It has loads of good information from Amplifiers to Z-Matches.

I found another informative site. If you are a reader of CQ magazine I am sure you have read construction articles written by Phil Salas, AD5X of Richardson, Texas. In last months issue of CQ he had an article on how to build a high-voltage power supply without using a HV (Plate) transformer that delivers 325 and 450 VDC for folks who want to fire up a vacuum tube rig.

Phil has his own web site with loads of articles he has written. These articles are on projects the average ham can build. I have found several of them that are of great interest to me. Take a peak at his site at www.ad5x.com, you just may find something there that gets the old building urge going. **73, W1ZE**



HF mobile antenna matching made easy

By W1ZE

A HF mobile antenna at best is a very inefficient radiating device. The major reason is that to make a HF antenna fit on a car

and not smash into every branch or overpass it should not be longer than about eight feet.

When you have a short antenna you have to make up the required length by adding a coil to resonate it on the desired band. The “loaded” whip antenna will exhibit feed point impedance much less than 50-ohms. On 75 and 40 meters the base impedance is in the neighborhood of a few ohms requiring some type of impedance matching to get the SWR into reason.

Some hams get past the SWR the transceiver see with an antenna tuner between the transceiver, (or built into the transceiver itself) and the antenna. This makes the SWR protection circuit in the rig happy but does not improve the SWR at the base of the antenna.

If you look in the antenna books they recommend several types of base impedance matching for mobile HF antennas. Since the early days of mobile HF, a coil with a dozen turns is placed between the base of the antenna and chassis ground and the coax center conductor is tapped onto the coil at a point where the coax sees an impedance close to 50-ohms. Some of the Screwdriver type antennas use this method with the coil wound on a toroid to reduce size.

Hams not wanting to go to the expense of a screwdriver type antenna may settle for the hustler antenna with individual band coils and whips, while others like the inexpensive fiberglass Hamstick® type whips. These antennas need help too to get a good match to 50-ohm coax.

The previously mentioned matching coil will work with these antennas, but there is another simple matching device.

By adding a simple inexpensive ceramic disc capacitor across the antenna feed point a 50-ohm match can be achieved. In turn the whip length will be a few inches longer when tuned to resonance. Each band will require a different value of capacitance (pF).

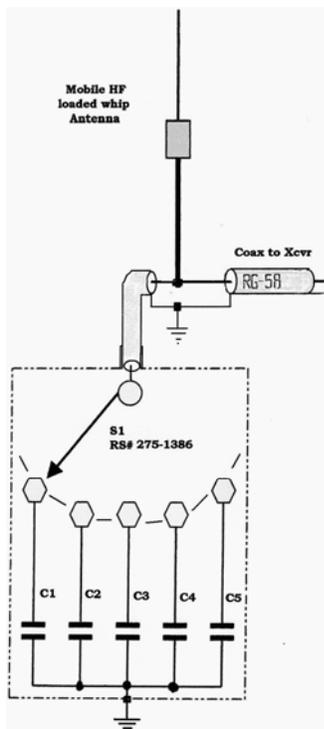
I have used the base capacitor method several times on loaded mobile whip antennas with excellent results. I have even used them with a Screwdriver antenna.

If you only operate one band only one capacitor is needed but if you like to go from band to band you will need a way to quickly change the base capacitor.

The way to switch in various capacitors is to use an inexpensive 6 position rotary switch and enclose it in a small metal or plastic box as shown in the following diagram. All the parts needed may be obtained from Radio Shack. The Shack sells an assortment pack of ceramic disc capacitors and you can select from them the needed values to achieve a proper match.



Maine State Convention was a success for MARA members



The following band vs. capacitor table will get you close to the necessary value. Some mix and matching may be required depending on the resonant frequency and style of HF antenna.

BAND	Center loaded	Hamstick
75M	1000pF	880pF
60M	880pF	720pF
40M	680pF	470pF
20M	220pF	150pF
17M	150pF	110pF
15M	50pF	-----
12/10M	22pF	-----

73, W1ZE



NEAR-Fest

May 2nd & 3rd
See you there!

www.near-fest.com



Lewiston: Last months ARRL Maine State Convention and Andy Hamfest at the Ramada Inn by all reports was a success. The weather for a change was accommodating and the turnout high.



The two-day convention started on Friday evening with forums being held in various conference rooms. The first talk was conducted by Bruce Randall, W1ZE who enlisted the assistance from Bill Messier, K1MNW, Steve Kerchel, AA4AK, Jerry Burns, K1GUP and the resident Maine Ham Radio Historians Phil and Dot Young (W1JTH & W1TGY).



The forum was well attended and there were several comments on how much they liked the information provided and especially the stories told by Bill, K1MNW of his teenage years as a Ham in Brunswick.



The following morning DR Steve Kerchel, AA4AK provided a technical talk on “The Amazing Half Square Antenna.” Like the night before, this forum was well attended and as usual Steve gave an outstanding presentation that may have inspiring some of the attendees to go home and start stringing up some wires in the trees.

Later that day the OM and YL team of John and Michele Briggs, KC6TVF and KC7LIF sat down and took exams at the VE test session. After the session was complete, the duo had passed their Extra Class exams and are now enjoying the good life on the HF bands.

WELL DONE MARA members!



Are you trained and ready to help?



MARA Volunteers do MS Walk

Brunswick: The morning of April 12 had a good group of Association volunteers assemble at the Brunswick Junior High School to do what they have been doing for almost ten years, provide field support



and communications for the annual MS-Walk through the streets of Brunswick.

The support team consisted of the following folks:

- Allan Kuong, WA1SCS, Sagadahoc County EC
- Annette Dorval, KB1HNU
- Lee Tribou, N1HOC, Sagadahoc County AEC & net control
- Steve Kerchel, AA4AK, Sagadahoc County AEC & event net control
- Marjorie Turner, KX1I
- Bruce Randall, W1ZE, Sagadahoc County AEC
- Samuel Turner, KB1PHP
- Harry McNelley, N1TTT, MARA Pres.
- Jim McIrvin, N1IPA
- John Briggs, KC6TVF (not in above photo)

- Michele Brigs, KC7LIF, MARA VP (not in above photo)

The Walk organizers made arrangements to feed all the participants and volunteers with food and goodies from Tim Horton's, Sarah's Restraint, Subway, and Papa John's Pizza to name a few.

The MS folks really appreciate the effort put forth by the MARA communications team, with special thanks going to Lee Tribou, N1HOC for her efforts as MARA event chairperson.

Well-Done MARA Team!



More on Digital Television

By Peter Russell, K4POR

Here is an important point! Remember when the videocassette first came out? There were two types; the Beta put out by Sony and the VHS format marketed by many others. They were not compatible electronically, and you could not physically fit a Beta tape into a VHS machine or vice-versa. Today, the Government is offering everyone a \$40 coupon to purchase a converter box that will receive off air digital signals only. It will not receive digital signals sent over the cable system because off air uses the A.T.S.C. standard and the cable systems use QAM (Quadrature Amplitude Modulation) not compatible. You may read all the governmentese discussion that went into deciding what was going to be offered to the public at www.fcc.gov/dtv. Or on the FCC homepage, on the top right side, you will see the DTV logo, click there. The good news as was mentioned, is that the new TV sets have digital tuners that will do both ATSC and QAM and most are HD capable as well. There are other converter boxes available that will

do both digital signals so if you have a big screen TV or projection unit, one of those will keep you in business.

I have experimented with off air antennas for years, once having in the 70's, an 8-foot parabolic dish antenna so that UHF stations in Boston would come in (original Star Trek!). Couple that up with a low noise preamp and rotor, and Mr. Man (as Tim Sample would say) the picture would come in very nicely. Of course being over water on the coast helped but elevation is great too. The fishermen on the island called the antenna, the seagull trap. For digital, I suggest having an outside antenna with a rotor so that you may aim the antenna directly at the transmitter site. There are new rotors now, that may be programmed to move to the correct location for the best signal (oh no, another remote control to deal with!!) Try an antenna first without a preamp; even set it up on a pole on your lawn or an easy place to get to. See how the signals are, then go up in height or add a preamp at the antenna. Check to make sure there are no strong FM radio stations (transmitters) near you say within 5 miles as they can overload the preamp. To find out the info needed to know the direction and distance to you favorite off air TV stations, go to www.antennaweb.org, just put in you zip code at the beginning, you do not have to fill out the whole address boxes to make the chart work for you. Click to continue and a map will pop-up base on your zip code. Use the arrows to move the map to your exact location. Now click the pointer on the map and an X will show. Click for the box in the program to find the stations. Note, it will give both analog and digital stations. Check the digital box only, which will give just DTV stations

making it easier to understand. The data will give you the azimuth (compass) reading direction to the transmitter tower plus the distance. For most of you in the mid coast area, 6, 8, 13, 35, and 51 will be somewhat in the same direction. But channel 10 and 23 (Fox is on the same tower as channel 10) will be about 90 degrees off from the others. That is why a rotor may be needed. There are other channels (LPTV) 14 in Harpswell, 15 in Gorham, 32 in Gray, plus 5 in Dixmont and 11 (PBS) in Durham, NH. If your antenna is high enough, I bet you can get three channels from Mt. Mansfield, VT!

Since channel 8 will be the lowest channel in digital TV spectrum, an UHF only antenna might work for all the digital channels. For antenna brands and types, look on the web at Channel Master, Wineguard, Blonder-Tongue and Phillips. Wal-Mart sells a small flat panel, amplified antenna that you can put on a rotor for \$40. The Radio Shack antennas have been tested and look impressive, but not worth the money. **73, Pete**

Merrymeeting Amateur Radio Association



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