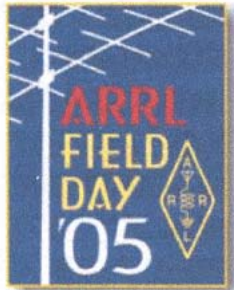




Squelch Tales



Newsletter from the Merry Meeting Amateur Radio Assoc. for June 2005



It's that time of the year. CQ CQ CQ FIELD DAY!

Mark Saturday and Sunday, June 25th and 26th your colanders. That is our fun outdoor event of 2005 for the MARA. As the header says, it's Field Day.

As in past years the event will be held at the Woolwich town museum and park area on Route-1 and Naquasset Road at the flashing yellow light about a mile north of the Sagadahoc Bridge in Bath.

All MARA members and their friends are invited to come out and participate in this radio sport. Come brush up on your skills in setting up a portable radio site. Jump into the pile-ups and work a few other like minded radio enthusiasts around the

country, Canada and Mexico.

If you want more information about Field Day and the operating rules, etc. connect to www.arrl.org and search for the key words "Field Day 2005."

We will start setting up about 10 AM Saturday and hope to operate 24 hours starting at 1:00 PM until 1:00 PM Sunday.

If enough folks are interested we will burn some meat on the BBQ grill. Bring the kids because they can go swimming at the waterfront park. There is no cost for this event unless you would like to donate a can of gas for the generator.

Hope to see you there.

MINUTES OF the April 28th MEETING

By W1ZE for KC1W

Call to Order:

The April Meeting of the Merry Meeting Amateur Radio Assoc. was called to order at 7:00pm by Trustee, Bruce Randall, W1ZE sitting in for Association

President Don/WD1F who was not able to attend. Meeting was held at the Midcoast Hospital in Brunswick, Maine.

Attendees:

MARA Members:

- Brian/AA1WI
- Michele/KC7LIF
- Paul/KA5FPT
- Lee/W1LWT
- Allan/WA1SCS
- Bruce/W1ZE
- Bob/N1VVF
- Gay/N1XBN
- Bob/N1GWE
- Harry/KB1KJY
- Linda/N1ZYC
- Paul/N1ZY
- Bob/N1VVF
- Don/WN1OTY
- Eric/KB1HYV
- Steve/KB1JTE
- Steve/AA4AK

Guests:

James McIrvine/N1IPA (former MARA member)
Jeannine Benson/XYL of WN1OTY

Treasurer's Report:

Bob/N1GWE reports a current balance of: \$730.19 (with at meeting membership renewal).

Technical Committee:

Bruce/W1ZE:

The 444.4 repeater: the notch filter authorized

at the March meeting was installed along with a pre-selector cavity. That seems to have eliminated the IMD and grunge problems. New signal to noise has improved the repeater ears.

Still need to hook-up phone line to it's controller to facilitate autopatch. Plans are still in the making to remote-base the 444.4 repeater to the Kenwood 6-meter transceiver so folks can operate on 52.525 MHz simplex.

The 147.21 repeater auto patch still needs audio level adjustments to facilitate autopatch capabilities.

The 1284.0 repeater is running smooth with folks in the Bay State getting into the machine late at night. BRUNS packet node seems to be performing OK. Time permitting Tech Committee hopes to get the APRS node back up and flying.

Activities:

Lee/N1HOC1 was unable to attend the meeting, Bruce/W1ZE reports our next event will be the Tour of Merrymeeting Bay next month and the

Dan Michaud and Morris Farm bike rides scheduled for later in the summer.

Sagadahoc ARES:

1. Machele/KC7LIF reported that several members of the MARA attended Red Cross Disaster volunteer training earlier in the month and passed out the RC membership Cards to the folks that attended. She also announced that there will be a Cumberland County/mid coast Weapons of Mass Destruction Test (WMDT) on June 6th. The scenario is an attack at the Bowdoin College Ice Arena. Sagadahoc County EC, Allan Kwong /WA1SCS confirmed Michele's information and urged MARA members to get the ARRL's Level-1 emergency communications training.

Old Business:

www.ks1r.net needs some updating and minor corrections. Don/WD1F and Mark/N1JIM tasked to see what is needed.

New Business:

MARA to make plans to operate Field Day from

Woolwich Museum and town waterfront park as in previous years. Need more folks to participate in this fun event. Maybe another BBQ is in order at FD.

Program:

Steve/KB1JTE and Lee/W1LWT gave us an excellent overview of the Ham Radio Balloon launch project scheduled for June 18th from Lee's launch site and QTH in Lisbon. They encouraged folks to check out the EOS-1 web site at www.Androscoggin.net/w1lwt. Still looking for T-hunters to help track and there will be a \$100 prize for the ham or group that finds the balloon.

Next Meeting:

The May meeting of the Merrymeeting Amateur Radio Association will be Thursday, May 26th, 7:00 PM, at the MidCoast Hospital.

Adjournment:

At 8:16pm Steve/AA4AK made a motion, seconded by Bob/N1VVF, to adjourn the meeting.

— . . — . . — . . —

Digital on 2M

In the last issue of Squelch Tales, Bruce, W1ZE had a column on QRP and Digital modes. At the April meeting Lee, W1LWT told us that there are a small group of folks doing digital modes on the 2-meter band in FM mode. Lee gave us the modes and frequencies, so folks that do not have HF privileges and want to try SSTV, RTTY and digital communications modes can give it a try. Here is the list:

PSK31/RTTY=145.560 MHz
Keyboard CW =145.53 MHz
SSTV = 145.500 MHz

There are more things to do in ham radio than work repeaters. **TRY NEW THINGS!**

— . . . — . . . — . . .



Spring HOSSTRADERS disappointing

By W1ZE

The closer the calendar and clocks got to May 6th and 7th my ears got closer to the weather reports. Pete Russell, K1MJP and yours

truly were planning on taking an early Saturday morning ride over the Fairgrounds in Hopkinton.

The weather reports were not sounding good, heavy rain predicted for Maine and Hew Hampshire starting early Saturday morning and throughout Saturday. With reluctance, we decided to forgo the annual spring event.

That Saturday morning about 5AM I looked out the window. Our decision not to attempt a trip was the correct one.

About 8AM I was listening to the net on 3940 and reports were being fed back that some of the vendors that set up in the lower parking lot area did not set up and departed Friday night. The following Monday during the Mid Coast ARES Net, net CONTROL, John, K1JJS who did go over to the two day event confirmed the reports about very low attendance and vendors not setting up. He advised that he had success finding a

Johnson Matchbox he was looking for and all in all it was fun but a bit disappointing.

Everyone should make offerings to the sunny weather Gods so the fall Hosstraders event will be a whopping success.

147.21

Repeater went QRX in May

On or about the 5th of May the 147.21 repeater quit working, or quit working if you were over a mile away from the repeater site on Oak Hill. Sunday the 8th, WD1F, W1ZE and K1MNW started probing around in the repeater cabinet and noted an intermittent in the repeater PA section. The output would go from 50 watts to a few tenths of a watt.

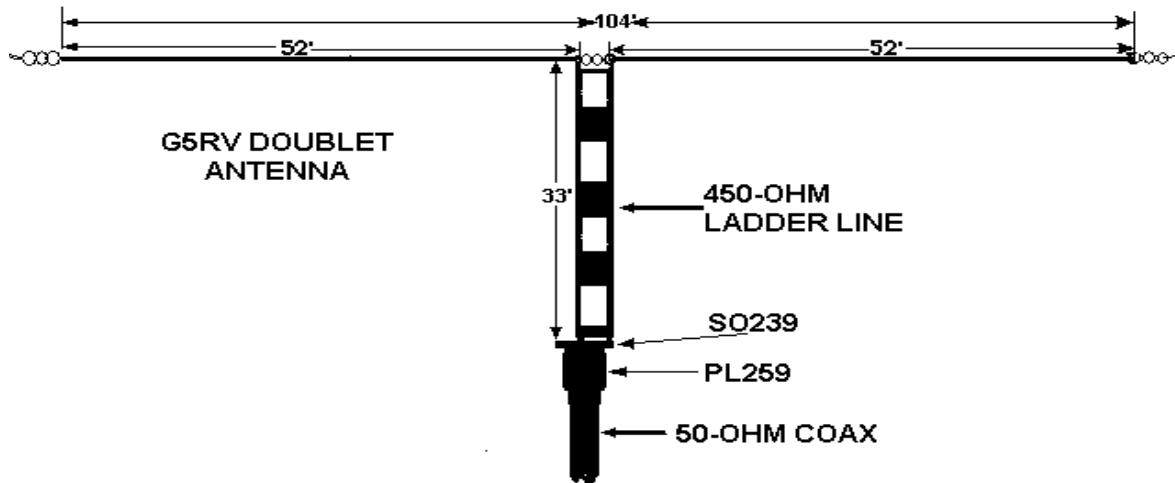
That evening Bill, K1MNW discovered two burned low value resistors on the PA board and repaired them and back up to 50 watts it went. In the process, Bill finished the microphone plug mod on the backup Aerotron transmitter/PA and has it ready in case we have a future transmitter failure.

THANKS BILL!

A G5RV or 132-foot doublet, which is best?

By W1ZE

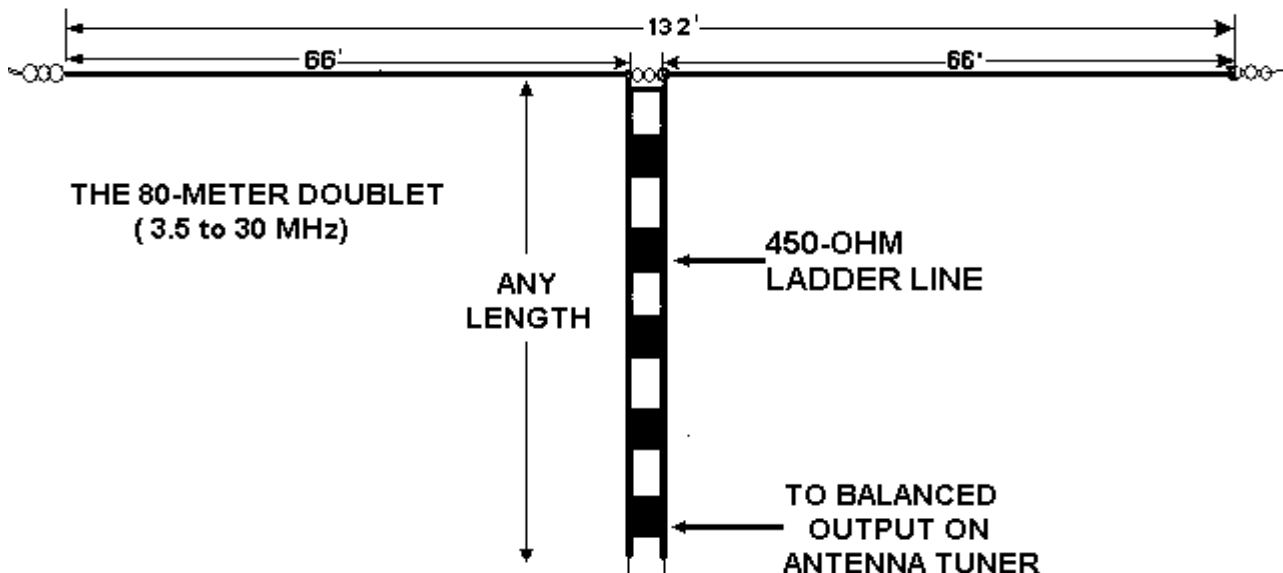
The quick answer is, both. It all depends on your physical location, lot size and on which bands do you plan to operate.



The inventor of the G5RV antenna, Lou Varnie, G5RV wanted a dipole that exhibited gain on 20 meters, was an easy match to 50-75 ohm coax and as the Brits say, "fits into his garden." Lou was successful. He noted however, that the antenna would also work as a doublet on the other HF bands with the aid of a Transmatch (antenna tuner). The antenna is longer than a half wave on 60 through 10 meters and just a bit short on 75 meters. Most antenna tuners, including some of the transceiver with built-in automatic tuners will tune out the systems SWR.

This antenna is a good one for folks that can't seem to squeeze a 132 foot long doublet into their town house lot. The antenna will do a respectable job on all the bands and start to exhibit gain (in respect to a $\frac{1}{2}$ -wave dipole) in various directions on the bands from 7 to 29 MHz. The 50-ohm coax portion of the feed line can be any length necessary to run it into the ham shack and attached to the output of the station tuner.

There is a misconception out there by sum that you don't need an antenna tuner with the G5RV.....WRONG! You will need a tuner on all bands just to keep your solid state transceiver with SWR protection happy, even on 20 meters where the impedance may be closer to 50 ohms.



If you have an extra 30-foot of room, the 132 foot long doublet (80-meter Doublet) with 450-ohm ladder-line running between the balanced output of your tuner to the center of the dipole is a very good performer and may out perform the G5RV on 75/80 and 60 meters. Like the G5RV this antenna also exhibits some gain on the bands above 5 MHz in various directions. I have used one for years, mostly on the 80/75 through 30 meters, and it gets the signal out. It tunes easy on all the HF ham bands. With some tweaking with my transmatch I managed to tune it up on 6-meters too. At 15 through 6 meters, the major lobes are off the two ends of the dipole.

The overall length of the flat-top portion of the antenna is not critical. Lengths from 100 to 260 feet can be used and center fed with tuned feeders (450-ohm ladder line). Note: 260-feet is a half wave on 160-meters.

When I move into the new QTH in Phippsburg, I plan to string up my 132-foot doublet. I have already picked out the two tall maples trees that will support it. 73, Bruce

Tech Committee Report

In addition to the 2-meter repeater repairs addressed earlier in this newsletter, other small changes were made on the repeaters on Oak Hill. With the purchase of a telephone line "Y" plug at Radio Shack, we were able to restore Autopatch access on the 444.4 repeater in addition to the 147.21 repeater. The 2M machine still needs the committee to reset the audio levels so acceptable autopatching can be experienced on that repeater.

When both repeaters have full autopatch capabilities and you want or need to make a call you will be able to do it from either repeater. If one repeater is busy with a QSO you will not need to stand by for access. Just switch to the

other machine and make your call.

The autodial numbers on the 444.4 machine are the ones used prior to the controller swap last fall. The emergency autodial numbers on that repeater are the same as before:

- **0 = State Police (Gray)
- **1 = State Pol. (Augusta)
- **2 = Brunswick 911
- **3 = Topsham 911
- **4 = Bath PD (business)
For 911 calls, use
Sagadahoc Co.
- **5 = Freeport 911
- **6 = Lisbon 911
- **7 = Sagadahoc Co. 911
(For all county towns)
- **8 = Cumberland Co. 911
- **9 = Androscoggin Co. 911

(Print this page and cut out this list and put it in your car glove box if you ever need to make an emergency call from the highway on 444.4)

As the spring and summer moves on we hope to address additional hill top projects that will include:

1. new antennas and tower locations for the KS1R-10 APRS gateway and BRUNS packet node. New half-wave J-Pole antennas have been built for this project by W1ZE and await installation.
2. 444.4 repeater to link to 52.525 Remote Base function.
3. 147.21 Phone line audio Level adjustments.

**HAVE YOU
RENEWED YOUR
MEMBERSHIP IN
THE**

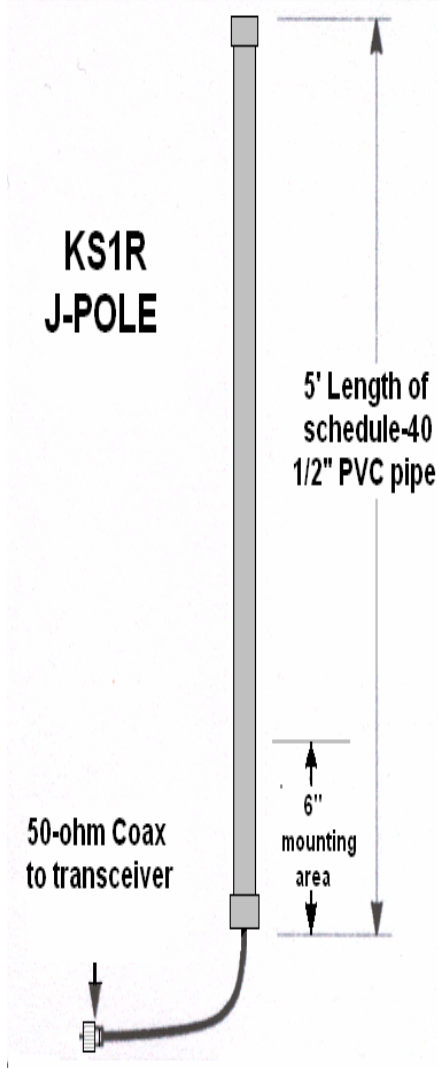


YET?

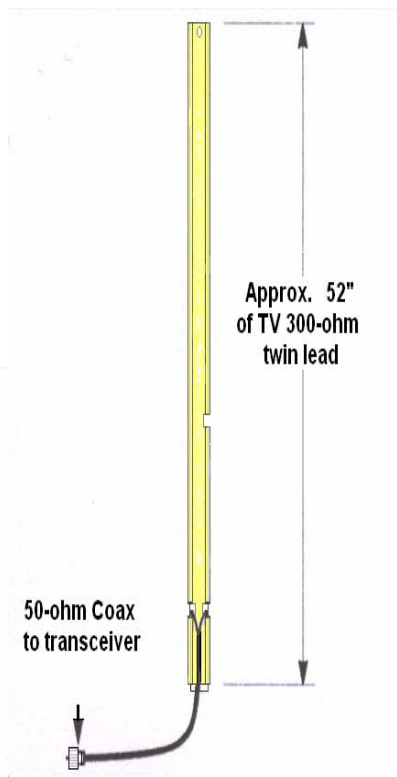
An effective 2-Meter antenna even a Ham could build for under \$20

by W1ZE

In the Tech Committee Report column there was a mention of a couple 2-meter J-Pole antennas I built for the APRS and Packet nodes. These antennas are super easy to build with parts available at your local hardware and Radio Shack stores. I won't go into the theory of the J-Pole because I have done that before, but I will tell you how to build one for yourself for just a few bucks.

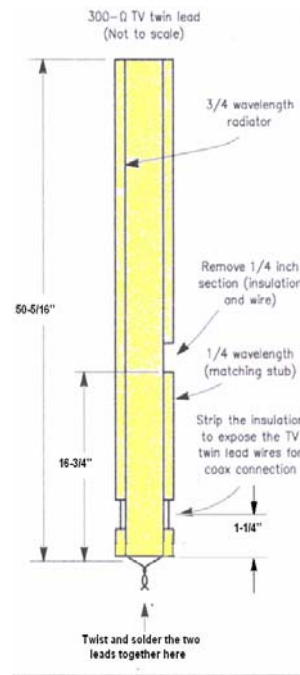


The heart of the antenna is the classic half-wave J-Pole built out of a 60-inch length of inexpensive 300-ohm TV twin lead. You may even have some in your stash of parts left over from a TV antenna installation.



DWG #1

Designs for this antenna are all over the Internet called by various names. A search for the key word "J-Pole" will give you pages of plans, descriptions and calculators. My basic dimensions I used were taken from an article in the September 94 issue of QST by Jim Reynante, KD6GLF called "An Easy Dual-Band Antenna." His designs were for a fold-up and stick in your pocket J-Pole for portable and HT use in lieu of a "no gain at all" rubber ducky. I built his antenna then inserted it into a 5-foot length of half-inch schedule-40 PVC pipe.



DWG #2

In the drawing No.2 you will see a sketch for the TV twin lead J-Pole with dimensions. The only tools you will need are diagonal cutting pliers, a razor knife (or Exacto knife) and a low-wattage soldering iron. Follow the dimensions closely for now; we will modify it later for insertion into the PVC pipe. Now, let's get to work:

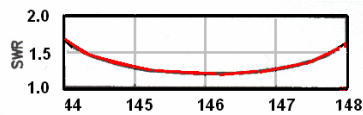
- First cut a 60-inch length of TV twin lead.
- From one end measure up about 2-inches and perform surgery with the razor knife to expose the two copper wires. Make the opening about $\frac{1}{4}$ " long.
- Now solder tin the two exposed wires.
- From the middle of the opening for the two exposed wires measure down 1-1/4" and mark the twin lead. From this point remove the insulation from the two wires.
- Twist the two wires together and solder them.

- Now from the two twisted and shorted wires, measure up the twin lead 16-3/4" and make a 1/4" notch in one of the two leads (conductor removed see diagram 2 & 3).
- From the shorted and twisted conductor end, measure up the twin lead 54" and cut off the remaining twin lead.
- Cut a three of 4-foot length of RG-58 coax.
- Strip the outer insulation back about 1/2" from one end.
- Separate the shield and center conductor. Twist the shield braid into a pigtail. Remove the insulation from the center conductor to a point about 1/8" from the center/shield separation.
- Solder-tin the center and shield pigtail. Then trim the center and shield leads to a length of about 3/8".
- Now tack solder the two coax leads to the exposed wires 1-1/4" from shorted end. Tack the shield side to the stub side of the twin lead J-Pole and the center conductor to the long antenna side.

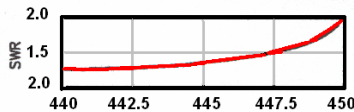
You have built the fold-up portable J-Pole. Temporarily install a PL-259 connector on the un-terminated end of the RG-58 coax but don't solder it yet.

Get out the old SWR bridge and tack the J-Pole up on a wooden wall of fence post. Apply a small amount of RF and check the

SWR. Verify that the low SWR is around 146 MHz. If it is lower than that (say 144 MHz), trim 1/4" from the stub and 1/2" off the top end length of the antenna and recheck. You may have to do this again. You should see a SWR plot similar to the following chart:



SWR plot of the J-Pole across the 2-meter band



SWR plot across the FM portion of the 70cM band

Now, let's put this puppy in a radome (PVC pipe).

When you add material, even insulation material around an RF conductor it changes the Velocity Factor (VF). When you slide the 300-ohm twin lead J-Pole into the pipe the VF changes making the antenna electrically longer and in turn lowering the resonant frequency.

Most likely you will need to snip off another 1/4" or more from the 1/4-wave stub and the overall length. Do is a 1/8-inch at a time until the SWR drops to the lowest reading at about 146 MHz.

When you find the sweet spot, Apply electrical tape over the antenna/coax junction to secure it.

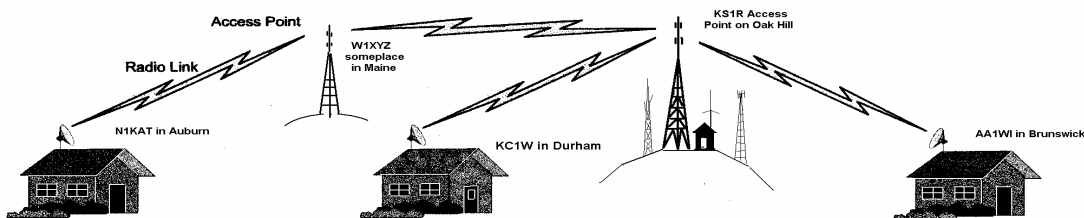
I recommend a PVC pipe length of 5-feet so that the

bottom of the twin lead J is about 6 to 8 inches up inside the PVC tube. Attach a 1/2" PVC end cap at the top end and an end cap with a hole drilled in it just large enough to slide the coax through. You may want to put a few layers of tape on the coax just inside the end cap hole to keep the coax and antenna from sliding down inside the pipe. The bottom 6 to 8 inches is where you can clamp the antenna to a mast and not have it de-tune your antenna. I used RTV vs. PCV cement to weather seal the caps, so if needed you could take the antenna apart for repairs or modification at a later date.

A Bonus: the 2-Meter J-Pole also works on the 70cM band but the radiation takeoff angle is high so don't expect to work Boston with it, but for local repeaters and simplex it will work fine with low SWR (see previous 440 SWR graph).

While you are at the hardware store buying that 10-foot length of 1/2-inch PVC pipe, pick up 4 end caps in lieu of just two. If you cut the pipe in half you will have enough material for TWO KS1R J-POLES!

I plan to bring a KS1R J-Pole to a club meeting so folks can see how easy it is to build two effective two-Meter (and 70cM) antenna for fewer than twenty bucks.



Typical HSMM WAN network

Amateur Radio into the 21st century

A long time ago, the packet radio network was one of the newest, latest, greatest, neatest thing. It was 1200bps, half duplex, but we could forward mail from one end of the country (or even the globe) in a matter of hours/days. Then, consumer modems got faster, the Internet grew, and now anyone can get a 33.6Kbit connection for peanuts and cell phones abound.

What ever happened to that packet radio network? Most of it died, and the few remaining nodes are mostly at 1200bps. APRS sprouted up to reuse some of that 1200 baud gear. It is innovative for sure, but even that has been gated to the Internet.

In 1999, the ARRL created the Technology Task Force, whose task was basically to bring Amateur Radio into the 21st century by using the latest technology. Sadly, we (or at least I) haven't heard much out of these folks. Most everybody I talk to still uses 2m/70cm or HF analog. There's been some work done in HF digital... at a whopping 31bps. That's where these guys come in: The ARRL High Speed Multi-Media project (HSMM).

The HSMM folk have, in a nutshell, begun to take commercial 802.11b gear and modify it for use in the ham bands. Interestingly, not much modification is required as channels 1-6 occupy FCC Part 97 spectrum. Hams in small areas of the country are now enjoying voice, video, and data, all simultaneously in the 2.4GHz ham bands.

Now, if you're saying to yourself, "That isn't ham radio, that's just playing with some fancy off-the-shelf crud.", then maybe this isn't for you. Then again, when is the last time anyone built their 2 meter rig from the ground up? Hams these days buy their rigs pre-built.

I personally find it interesting that technology not directly marketed at hams is being taken and used to further the hobby.

HSMM WIRELESS

By K1MNV

Well, if we can get enough Ham's interested in 802.11b WIRELESS I am willing to start the ball rolling. Check out the following web site:

<http://www.ceitron.com/mvus/hsmm1003.html>

and

<http://www.arrl.org/tis/info/pdf/0304028>

Ham Radio PC network wireless can be used for Hi speed APRS, ATV. Internet connection, etc. And we as ham's can use HIGHER power than the part-15 guys (Up to 1 KW!). On the 2.4 GHz band, channels 1 through 6 are in the HAM portion and we can use existing 802.11b,g equipment, and add power amps!

I am willing to be the first to put up the HSMM station on my 250 foot tower.

It looks like a FUN project to me and other members of the Tech Committee. All that will be required for the average ham is to buy a wireless card for their computer (laptop) and set-up on channel's 1 through 6.

I hope to present it at the next MARA meeting.

73, *Bill*, K1MNV

**Become and Elmer.
Help someone get
into Ham Radio and
get a license.**