



# The W.A.C.O.M. Ham



## Washington Amateur Communications

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## Presidents Message April 2010

**The Spring Air sure does wonders for Amateur Operators. It brings about thoughts of antenna building and station building. Also it brings the start of the Hamfest Season and of course the Dayton Hamvention.**

**On that thought, have you ever wondered why when you replace an antenna with one for another band, that the band on the one you took down opens up clear to eternity, and the band you put up, closes up like a claim run over by a bus!**

**The Spring Air will bring a rush of WACOM activity beginning with hamfests- walkathons-fox hunting- field day 2010 and new for 2010, Club member station visits about certain facets of Amateur radio. We also will have, at our meetings, a "Show - Tell - or Sell" session. Bring in something you might want to show-off or maybe something you have to sell.**

**We are going to have some special guests again at our General Meeting. Everything from Satellite to wire antennas. So keep checking your email and visit the club website for all the latest club info.**

**As always, any items or activities you would like to see WACOM pursue, drop the Directors or any Officer a line. That's what always makes a successful club, the member's involvement.**

73

**Bud, N3TIR**



**THE NEXT GENERAL MEMBERSHIP MEETING WILL BE HELD ON THURSDAY, APRIL 1, 2010, AT 7:30 P.M. AT THE WASHINGTON COUNTY BUILDING IN ROOM 103.**



**Once again the county needs our room for a important meeting. (You can tell it's an election year.) Because of the Dayton Hamvention, or rather those who will be attending, Thursday, May 13th will not work! Bud chose the first Monday, May 3rd, as the WACOM meeting date for May. Please note this on your calendars.**

NY9H, Bill's Shack



▲ Here is the shack I left behind, :( Bill (above left and right)



Here is my mobile...Bill NY9H/3



The car has an Icom 2710 dual band 2mtr/440; a Uniden 996 scanner; and an Icom 706Mk2g HF/VHF/UHF. I'm using 19" 1/4 waves on the roof (drilled, of course) and a Tarheel mini 80 thru 6 meter screwdriver antenna.

◀ Here is my new shack.... well maybe sometime this summer..... Bill

# ARRL Field Day

June 26-27, 2010 ~~ Always The Fourth Full Weekend In June



Where the spirit of “Amateur Radio Past” joins forces with the Next Generation of Innovations, Interests and Individuals!!!

ARRL Field Day is the most popular on-the-air operating event in amateur radio. On the fourth full weekend in June, tens of thousands of amateur radio operators gather for a public demonstration of our service. Field Day is part educational event, part operating event, part public relations event – **and ALL about FUN!**

Amateur radio is about knowledge and growth. It is a hobby and service that truly offers “something for everyone.” **Amateur Radio embraces both the old and new.** While CW may no longer be a testing element, it is still a strong and favorite operating mode for many. Tens of thousands of operators are embracing digital technologies, from RTTY to newer digital modes like PSK31 and Olivia. Phone operation, probably the largest segment of the hobby, also has new frontiers to be explored with digitized voice, VOIP, and IRLP. And this is why Field Day – the largest annual on-the-air operating event – is so exciting. It gives all – the old timer and the newcomer, the brass-pounder and the computer assisted operator – the chance to share and teach the broad range of modes and technologies we find in our hobby.

Field Day is truly the time in which **we bring amateur radio to Main Street USA.** By setting up in parking lots, malls, Emergency Operations Centers, parks and even at home, amateur operators learn skills that will allow them to better serve their communities. Setting up in these public venues gives added public relations value – their friends and neighbors can see and experience the fun and public service capability that their “ham radio” neighbors bring to the community.

Join in the fun! For more information on amateur radio and the ARRL – the national organization for Amateur Radio – visit [www.arrl.org](http://www.arrl.org)

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## HAM RADIO CLASSES

Ham Radio Classes  
Salvation Army  
825 Parish St.  
Greentree, Pa 15220

Starts Wednesday 3/24/10 at 7:00 PM  
Classes Wednesdays at 7:00 PM  
3/31/10  
4/7/10  
4/14/10  
4/21/10  
4/28/10  
VE TEST 5/5/10 7:00pm  
Contact Joe, KA3TDQ at cell phone  
412 496 5441  
Or email: [KA3TDQ@VERIZON.NET](mailto:KA3TDQ@VERIZON.NET)  
Or Jerry, [K3FKI@VERIZON.NET](mailto:K3FKI@VERIZON.NET)

Ham Radio Classes  
Emergency Operations Center  
400 N. Lexington Street  
Pittsburgh, PA 15208 (Point Breeze)

Starts Thursday 3/25/10 at 7:00 PM  
Classes Thursdays at 7:00 PM  
4/1/10  
4/8/10  
4/15/10  
4/22/10  
4/29/10  
VE TEST 5/6/10 7:00pm  
Contact Joe, KA3TDQ at cell phone  
412 496 5441  
Or email: [KA3TDQ@VERIZON.NET](mailto:KA3TDQ@VERIZON.NET)  
Or Jerry: [K3FKI@VERIZON.NET](mailto:K3FKI@VERIZON.NET)

**W.A.Com General Membership Meeting Minutes for March 11, 2010**

Present: Bud(N3TIR), Norma(N3YJJ), JohnQ(N3GHR), Sam(W3CYO), JoeB(KB3QQT), Jim(KC3HW), JoeC(N3XE), Dave(N3IDH), Jacque(N3ZEL), Ed(N3ZNI), Debbie(KD8KAC), Bob(KB3IN), JohnM(WA3VKC), Frank(KB3AAG), Bill(NY9H), TomB(K3PLM), John Rodgers(N3MSE)

Bud called the meeting to order at 7:25 PM

**1. Reports**

Secretary - Minutes of the February 10, 2010 meeting were circulated; Ed moved to accept, Dave seconded. Motion approved.

Treasurer – Treasurers report was circulated; Jim moved to accept, JoeB seconded. Motion approved.

Newsletter – Bud thanked Jacque for a job well done

Web site – Joe has added an events tab; Dave asked if there could be a place on the site where net controllers could keep records of check-ins. Joe will look at this.

Repeater - Sam reported repeater OK now. Sam also explained why repeater back-up power was lost during snow storm

RACES – cub members were able to pass traffic at Bentleyville during power outages after the snow storm

Net – 10 meter net OK; Jacque said YL net OK; Elmer net is being listened to on scanners, Bud reported some interest from listeners on becoming hams.

**2. Old Business**

Field day – confirming arrangements for use of the gun club

Dayton – space confirmed

Fox hunt – Adam(KB3OMH) will contact WASH, Green and Monesson clubs to coordinate event Note: World Radio on-line has an article on fox hunts.

**3. New Business**

Info:

1. WASH repeater up – 146.995

2. Bud talked to an old club member who gave him copies of some of the clubs first newsletters

3. Jim shared his first radio with the club; anyone wanting to “show and tell” something with the club at a meeting can add their name to the sign up sheet

Jim moved to adjourn; Dave seconded; meeting adjourned

Thanks to John Rodgers, ARRL section head, who brought us up to date with NBEMS and other changes

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**Picnic pavilion is reserved for the WACOM picnic on Friday, July 9, 2010.**

**THE LOCATION IS: SOUTH STRABANE FIRE DEPT. #1, 1696 E. MAIDEN ST., WASHINGTON PA.**

**Watch for more info soon**

## AT THE MARCH MEETING...



Section Manager John Rogers, N3SME, attended our March meeting, providing us with an informative session of questions and answers. We had a discussion on 97.113 and the proposed changes to the rule to allow for amateur operators who are hospital employees to participate in emergency drills that are conducted by hospitals for accreditation purposes and that are not government-sponsored. "Section 97.113(a)(3) specifically prohibits amateur stations from transmitting communications "in which the station licensee or control operator has a pecuniary interest, including communications on behalf of an employer."

There was also a discussion of the NBEMS program and how it is the standard digital mode for the section. There have been demonstrations at some of the local club meetings, including here at WACOM. The software is free and it also works on almost any computer, even older ones using Windows 98. Check out this useful and easily used program. Get more info via <http://w1hki.com/NBEMS/>

Thanks to John for his visit and information and we hope he will pay us a return visit very soon.

***If you have an interesting or unusual item related to ham radio, or perhaps a "mystery item" to puzzle us with, bring it to a meeting to share with the rest of the members.***

*Happy Easter*

### SHOW 'N TELL



I was about eight when my dad built this radio for me. That puts it at about 1956. My brother found it in my father's attic and gave it to me. I remember what my expectations were. I thought that this radio would give me multiple stations at ear splitting volume. Well, it didn't work that way. I could get two stations (I lived in Akron, Ohio). I could pick up WHLO, 640 KHz, and WAKR, 1590 KHz. Well, if you had two stations, then that qualified for "multiple". Also, volume was a problem. I could barely hear them. This radio didn't spark my interest in electronics. That came later with a one transistor radio that I built a few years later. Now, that wasn't my only contact with a crystal set. I plan on bring in one of my favorites at one of the meetings. I have a short wave set that I have used to log many stations, short wave and regular AM broadcast.

Thanks for your interest, Jim Burtoft, KC3HW

## THE RETURN OF THE PITTSBURGH MARATHON

Fellow Amateurs...

The Pittsburgh marathon is back for another run this spring! May 2, 2010 will be the date of the marathon's 21st running, and with registration already exceeding last year's participation of over 10,000 runners, it will be the largest in the history of the event. Once again, amateur radio has been asked to help make this event a success.

We will be providing communications vital to ensuring the safety both of those athletes running in the marathon and of the many spectators. There are many positions around the 26.2 mile course that need to be covered, including mile markers, aid stations, buses and sweep vehicles, shadows for race officials, and others. To fully cover all of these positions, we will need over 150 volunteer amateur radio operators, including you!

If you're new to the hobby or have never participated in a public service event, please don't let that stop you from joining us. We have a variety of positions for new and experienced hams alike, and will provide you with the information and support you need. This is an excellent opportunity to gain The experience needed to help out during an emergency, all while having fun and doing a service to our community.

Online registration is quick and easy. Just visit [marathon.central.org](http://marathon.central.org), click "Volunteer Now!", and fill out the form. You will receive your assignment and detailed instructions during the last week of April. There will also be a pre-race meeting the day before the marathon, at which we'll review what to expect on race day, answer any questions you have, and provide your T-shirt, hat, vest, and marathon credentials.

I look forward to your participation.

73, Jeffrey Hutzelman, N3NHS



### Susan G. Komen Race for the Cure

Date: Mother's Day May 9<sup>th</sup>

Where: Schenley Park in Pittsburgh

**What:** I need operators to fill various spots along the course and also need shadows for the officials.

**Time:** Shadows need to report at 6AM. Others need to report by 7:15 AM (the police start closing off roads after that). We usually finish up by noon and go out to eat afterwards.

**Information/questions:** Contact NU3Q, Bob Mente, at (412) 279-9016 or [nu3q@nu3q.com](mailto:nu3q@nu3q.com)



### On Emergency Operations....

At the March meeting Sam, W3CYO, was explaining that he had experienced a problem with his emergency generator just when it was most needed this past February. This is what he discovered when he tore it apart to find why it was not working: **"...here are some pix of the innards of the 25kw generator, also the nest and the unwanted guest."** Sam



I'm sure that this begs for something to be said about the best laid plans of mice and men....



**Happy  
Easter**



ZCZC AG09  
 QST de W1AW  
 ARRL Bulletin 9 ARLB009  
 From ARRL Headquarters  
 Newington CT March 15, 2010  
 To all radio amateurs

SB QST ARL ARLB009  
 ARLB009 W1AW 2010 Spring/Summer Operating Schedule

Morning Schedule:

Time	Mode	Days
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1300 UTC (9 AM ET)	CWs	Wed, Fri
1300 UTC (9 AM ET)	CWf	Tue, Thu

Daily Visitor Operating Hours:

1400 UTC to 1600 UTC - (10 AM to 12 PM ET) 1700 UTC to 1945 UTC - (1 PM to 3:45 PM ET)

(Station closed 1600 to 1700 UTC (12 PM to 1 PM ET))

Afternoon/Evening Schedule:

2000 UTC (4 PM ET)	CWf	Mon, Wed, Fri
2000 " "	CWs	Tue, Thu
2100 " (5 PM ET)	CWb	Daily
2200 " (6 PM ET)	DIGITAL	Daily
2300 " (7 PM ET)	CWs	Mon, Wed, Fri
2300 " "	CWf	Tue, Thu
0000 " (8 PM ET)	CWb	Daily
0100 " (9 PM ET)	DIGITAL	Daily
0145 " (9:45 PM ET)	VOICE	Daily
0200 " (10 PM ET)	CWf	Mon, Wed, Fri
0200 " "	CWs	Tue, Thu
0300 " (11 PM ET)	CWb	Daily

Frequencies (MHz)

	-----
CW:	1.8025 3.5815 7.0475 14.0475 18.0975 21.0675 28.0675 147.555
DIGITAL:	- 3.5975 7.095 14.095 18.1025 21.095 28.095 147.555
VOICE:	1.855 3.990 7.290 14.290 18.160 21.390 28.590 147.555

Notes:

CWs = Morse Code practice (slow) = 5, 7.5, 10, 13 and 15 WPM CWf = Morse Code practice (fast) = 35, 30, 25, 20, 15, 13 and 10 WPM CWb = Morse Code Bulletins = 18 WPM

CW frequencies include code practices, Qualifying Runs and CW bulletins.

DIGITAL = BAUDOT (45.45 baud), BPSK31 and MFSK16 in a revolving schedule.

*(Continued on Page 9)*

Code practice texts are from QST, and the source of each practice is given at the beginning of each practice and at the beginning of alternate speeds.

On Tuesdays and Fridays at 2230 UTC (6:30 PM ET), Keplerian Elements for active amateur satellites are sent on the regular digital frequencies.

A DX bulletin replaces or is added to the regular bulletins between 0000 UTC (8 PM ET) Thursdays and 0000 UTC (8 PM ET) Fridays.

In a communications emergency, monitor W1AW for special bulletins as follows: Voice on the hour, Digital at 15 minutes past the hour, and CW on the half hour.

FCC licensed amateurs may operate the station from 1400 UTC to 1600 UTC (10 AM to 12 PM ET), and then from 1700 UTC to 1945 UTC (1 PM to 3:45 PM ET) Monday through Friday. Be sure to bring your current FCC amateur license or a photocopy.

The complete W1AW Operating Schedule may be found on page 102 in the March 2010 issue of QST or on the web at, <http://www.arrl.org/w1aw.html#w1awsked> .

Also, just a reminder that beginning today, March 15, 2010, W1AW alternates the digital modes used for its digital bulletin transmissions. While Baudot, BPSK31 and MFSK16 still make up the digital mode complement, the schedule is altered to give more exposure to BPSK31 and MFSK16. Because of time constraints and the varying lengths of digital bulletins, there were many instances in the past when only Baudot was used.

With the new schedule, amateurs preferring either BPSK31 or MFSK16 will find these modes no longer secondary.

The regular callup is made using the mode that is transmitted first. The digital bulletin times remain at 6 PM and 9 PM eastern, daily.

The Tuesday and Friday Keplerian data bulletins will continue to be sent using just Baudot and BPSK31.

Given time constraints and bulletin lengths, all three modes may not always be transmitted.

The new digital schedule can be found in teleprinter and packet versions of 2010 ARRL Bulletin ARLB005.

NNNN/EX



## UPCOMING VE SESSIONS

There will be a VE session at the Peter's Township Library, 616 E. McMurray Road, McMurray, PA, Thursday, April 15, 2010. The test session will begin at 6:30 PM. The fee is \$15.00. Please bring cash or check, we cannot accept credit cards. Please bring both your original and a copy of your license or CSCE, and two forms of identification (photo ID such as a driver's license, school ID, etc.). Pre-registration is requested. To register or ask questions, contact: Jacque Gosselin, N3ZEL at 724-746-9235. Or email at [n3zel@comcast.net](mailto:n3zel@comcast.net)

## World War II "Spy Radio" Shown at the March 2010 QCWA Meeting



Brian, K9VKY, at left with his radio. Only one other radio is known of in this country. It is in a museum on the west coast and not in operating condition.

The spy radio set was used by the OSS during WW2, and this particular set found its way into Germany via Belgium. Unfortunately, the manufacturer's markings were obliterated by whoever "liberated" the set after the war, so its origins are unknown.

The set is unique in that the transmitter, receiver, power supply, antenna tuner, key, headphones, spare tubes and crystals are contained in Samsonite suitcase. The set covers 2-12 Mc. AM/CW in two bands, and can be powered from a variety of AC mains supplies from 105-220 volts. The receiver is a single conversion superhet. It's performance is somewhat limited in today's operating environment in that there is no band spreading or selectivity available. The transmitter is a crystal controlled 6V6 oscillator followed by an 807 PA which puts out about 15-20 watts on CW only.

Although a senior citizen now, the set remains in use particularly on Straight Key Night, as well as the Antique Wireless and Classic Exchange QSO parties.

— Brian, K9VKY

~~ **CLASSIFIED** ~~

I have the following item to sell:

2010 ARRL Handbook New still in wrapper Cost \$50 + shipping. I will take \$50.

[dschwing2@comcast.net](mailto:dschwing2@comcast.net)

**DO YOU HAVE SOMETHING TO SELL OR SWAP? SEND IN THE INFORMATION AND HAVE YOUR AD IN THE NEWSLETTER. SEND INFO TO [n3zel@comcast.net](mailto:n3zel@comcast.net)**

## TAPE MEASURE BEAM OPTIMIZED FOR RADIO DIRECTION FINDING

Joe Leggio WB2HOL

### Description

This antenna evolved during my search for a beam with a really great front-to-back ratio to use in hidden transmitter hunts. This design exhibits a very clean pattern and is perfect for RDF use. It trades a bit of forward gain in exchange for a very deep notch in the pattern toward the rear. (You could optimize the design for more forward gain, but at the expense of a really good notch in the pattern toward the rear.) It is a design that can be constructed using only simple hand tools (no machine shop needed) and still perform well. It has been duplicated several dozen times by other local hams and has been successfully used as a club construction project.



When I designed this antenna I had one basic idea in mind. It had to be easy to get in and out of the car when hunting for a hidden transmitter. This would be accomplished by the use of steel "tape measure" elements. These elements could fold easily when fitting the antenna into my car and yet still be self supporting. I decided to use three elements to keep the boom from getting too long.

Another of my design goals was to use materials that were easy to obtain. I chose to use Schedule-40 PVC pipe and fittings available at my local hardware store for the boom and element supports. These kept the cost for the antenna very low. The element supports consist of PVC crosses and tees.

Since I had never seen any plans for an antenna using elements made from 1 inch wide steel "tape measure," I had to do the design myself. To assist in the design I used a shareware computer aided yagi design program written by Paul McMahon VK3DIP. It allowed me to optimize the antenna for the cleanest pattern combined with the best front-to-back ratio.

Performance Predicted by YAGI-CAD	
GAIN	7.3 dBd
Front-to-Back Ratio	>50 db
3 db Beamwidth	E = 67.5 degrees
3 db Beamwidth	H = 110 degrees

When I first built this beam I found it needed a matching network of some kind to have a low SWR. My first attempt was a Gamma match. This was unwieldy. The driven element could barely handle the weight and the Gamma match itself was not very flexible. The best matching network turned out to be a "hairpin match." This is simply a 5 inch length of wire that is connected across the feed points of the driven element. The antenna has some capacitive reactance without the matching network. The 5 inch length of wire has just enough inductance to cancel the capacitive reactance. This resulted in a better match than anything else I had tried.

The wire I used for the hairpin match was enamel insulated 18 gauge solid. Other hams who have duplicated this beam have used just about anything they had on hand. 14 gauge house wire works well, so does a length of 22 gauge hookup wire. **(Continued on Page 12)**

It does not seem to matter if it is stranded or solid, use whatever you have available. This results in a very good match across the two meter band once you have adjusted the distance between the halves of the driven element for minimum SWR. (1 inch apart on my prototype).

I used a pair of shears to cut the tape measure elements to length. An old pair of scissors will probably do as well. No matter how you cut the elements be very careful. Those edges are very sharp and will inflict a nasty cut if you are careless. Use some sandpaper to remove the really sharp edges and burrs resulting from cutting the elements to size. I put some vinyl electrical tape on the ends of the elements to protect myself from getting cut. I encourage you to do the same. It will probably be best if you round the corners of the elements once you cut them. Wear safety glasses while cutting the elements. Those bits of tape measure can be hazardous.

The RG58 coax feedline is connected directly to the driven element. No matter what method you use to attach the feedline, make sure you scrape or sand the paint off the tape measure element where the feedline is attached. Most tape measures have a very durable paint finish designed to stand up to heavy use. You do not want the paint to insulate your feedline connection.

If you are careful, It is possible to solder the feedline to the element halves. Care must be taken since the steel tape measure does not solder easily and since the PVC supports are easily melted. You might want to tin the tape measure elements before mounting them to the PVC cross.

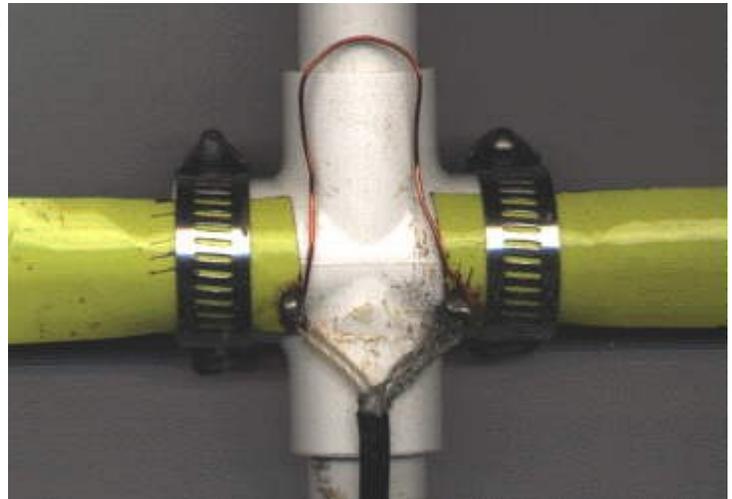
If you decide not to solder to the tape measure elements, there are two other methods that have been used to attach the feedline. One method employs ring terminals on the end of the feedline. The ring terminals are then secured under self tapping screws which hold the driven element halves. This method does not allow you to tune the antenna by moving the halves of the driven element. 6-32 bolts and nuts could be used if holes are drilled in the elements near the ends. If the bolt heads are placed nearest the PVC fitting, you could secure ring-terminals with nuts and lock washers. Another possibility is to simply slide the ends of the feedline under the driven element hose clamps and tighten the clamps to hold the ends of the coax. I know this is low-tech, but it works just fine.

Stainless steel hose clamps are used to attach the driven element halves to the PVC cross which acts as its support. This has the added benefit of allowing you to fine tune your antenna for lowest SWR simply by loosening the hose clamps and sliding the halves of the driven element either closer or further apart. By using the dimensions specified, I found that the SWR was 1:1 at 146.565 Mhz (our Fox-Hunt frequency) when the two elements were spaced approximately 1 inch apart. Figure 1 shows the method used to attach the driven element to the PVC cross.

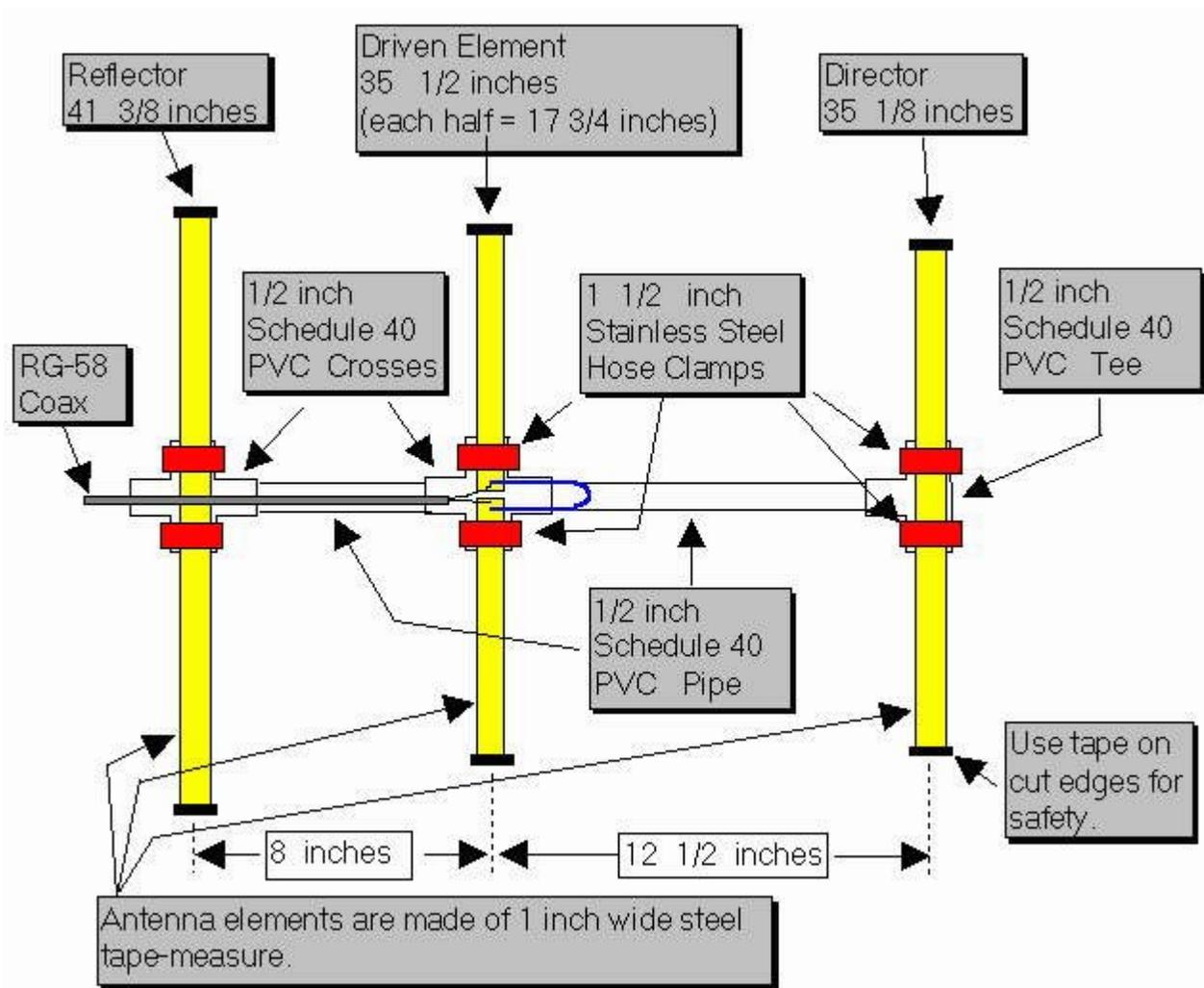
I used 1 1/2 inch hose clamps to attach all the elements on my prototype beam. Others who have duplicated my design have used self tapping screws to attach the elements to the PVC crosses and tees. Performance is the same using either method. The screws are much less expensive but they do not hold the elements as securely. If you do not use 1/2 inch PVC fittings but instead use 3/4 inch, make sure the hose clamps you buy are large enough to fit.

If you wish a slightly neater looking beam, use the self tapping screws. If you do not mind spending a few more dollars for the hose clamps, use them instead. If I were to build another beam I would use screws for the director and reflector, and hose clamps for the driven element. That would give me the best of both methods.

*(Continued on Page 13)*



Rubber faucet washers have been used by some builders between the tape measure element and the PVC fittings on the director and reflector. These allow for the tape to fit the contour of the PVC fitting and will make the antenna look better. Now you know what to do with those washers left over from the assortment you once purchased; You know the ones I mean, the washers that do not fit the faucets you have in your house. If you are an apartment dweller, ask around, these things are stashed in almost every homeowners basement or garage.



### **Construction:**

Cut a length of tape measure to 41 3/8 inches. It will be the Reflector element. Cut two lengths of tape measure to 17 3/4 inches. These will be used for the Driven element. Cut one length of tape measure to 35 1/8 inches. It will be used for the Director. Once you have cut the tape measure to length, put vinyl tape on the cut ends to protect yourself from the sharp edges. You will want to scrape or sand off the paint from one end of each of the driven element halves so you can make a good electrical connection to the feedline.

If you are planning to solder the feedline to the driven elements it is best to tin the elements first before attaching them to the PVC cross. If you don't, the PVC will melt as you apply heat to the element. It would be a good idea to also take the time to form the wire used for the hairpin match into a "U" shape with the two legs of the "U" about 3/4 inch apart. Tin the ends of the hairpin if you plan on soldering it to the driven element. If you tin 1/4 inch of each end of the hairpin it will leave 4 1/2 inches to shape into the "U".

*(Continued on Page 14)*

You will need to cut two lengths of PVC pipe to use as the boom. One should be cut to 11 1/2 inches. It is used to form the boom between the Director and the driven element. The other piece of PVC should be cut to 7 inches. It will be used between the Reflector and the Driven element. Just about any saw will cut through the soft PVC pipe. I used a hacksaw. When we mass produced this antenna as a club project, we marked the pipe and used a portable jig saw to cut the lengths in assembly line fashion. It took longer to measure the pipe than to actually make the cuts. Since the pipe is available in ten foot lengths, you can make a few beams from a single 10 foot length. In any case, you might want to cut a few extras lengths for your friends. They will want to duplicate this once they see your completed antenna.

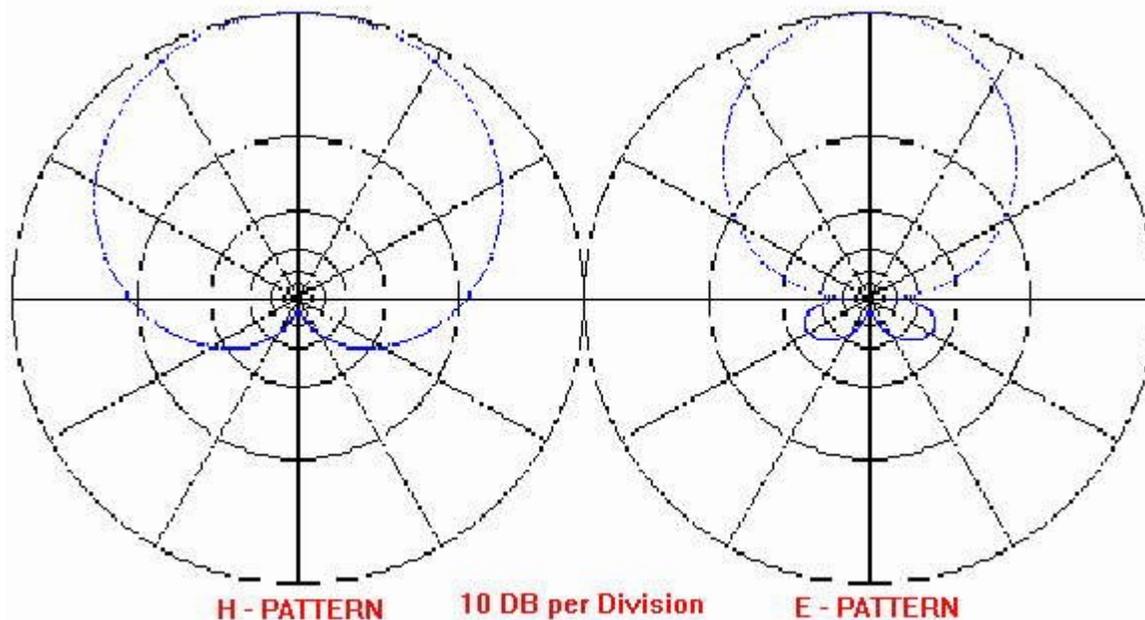
At this time you can pre-assemble the PVC boom, crosses and tee which will support the tape measure elements. I did not use any cement or glue when I assembled mine. The PVC pipe is secured in the fittings with a friction fit.

The hose clamps I used are stainless steel and have a worm-drive screw which is used to tighten them. They are about 1/2 inch wide and are adjustable from 11/16 inch to 1 1/2 inch diameter. Attach the tape measure elements to the PVC fittings as shown in the accompanying drawing. It is normal for the Reflector and Director elements to buckle a bit as it is tightened to the PVC Tee and Cross. You can eliminate this buckle if you use the washers and self tapping screws to attach these elements instead of the hose clamps. I do not think the beam will withstand as rough a treatment as when hose clamps are used.

#### **How does it perform?**

Once you have completed your beam you probably will be interested to see if it performs as well as the computer predicted. The SWR should be less than 2:1 across the entire two meter band. The front-to-back ratio is predicted to be very good with the antenna exhibiting a very deep notch in its pattern towards the rear. The [YagiCad 4.1](#) program produced these antenna pattern graphs showing the pattern you should expect. If you would like to experiment a bit with this program, the yagi specification file for this tape measure beam is available for download [here](#). Simply download the YAGI-CAD program and put the tape measure beam design file in the same directory. You will then be able to experiment with the design.

Note: under Windows95, only the first .yag file will show in the OPEN-FILE menu. You can either move all the other .yag files to a sub-directory or re-start the computer in MS-DOS mode. It works fine there. (I really do not know why this occurs but will blame Microsoft)



*(Continued on Page 15)*

**How does the tape measure beam "measure up?"**

WB4SUV and WA6EZV used a storage scope connected to a copy of this antenna constructed by KC8FQY and provided the following picture of the actual antenna pattern. I am very happy to see that the computer prediction of a clean pattern with a really great front-to-back ratio was accurate. What do you think?

**Summary**

This beam has been used on Fox-Hunts, on mountain tops, at local public service events, outdoors, indoors in attics, just about everywhere. The SWR is typically very close to 1:1 once adjusted. Front to back performance is exactly as predicted. The null in the rear of the pattern is perfect for transmitter hunts. When tested using a sensitive field strength meter and a low powered fox transmitter, full scale readings were seen from a distance of ten feet. With the same field strength meter I was able to point the antenna away from the transmitter and move the reflector element to within a few inches of the transmitter antenna and still not see a reading. I don't have the facilities to verify a 50 db notch as predicted by the Yagi-Cad software but It sure seems close. The flexible elements have taken a lot of abuse. My antenna has seen a lot of use and has held up quite well. Best of all, when on a fox-hunt, this beam is a breeze to get in or out of the car.

*(Submitted by Bud, N3TIR)*



It must be the season....CQ Magazine (in the April, 2010 issue on Page 18 ) has an article entitled "Get Ready for Foxhunting Season." Be sure to read this one.



## HAMFESTS 2010

### \* April \*

- 10-11: **Foothills Amateur Radio Club, W3LWW**. "50th Anniversary of FARC".-1400-0200Z- 7.180.  
QSL Card: Foothills ARC, PO Box 236, Greensburg, PA 15601. [www.w3lww.org](http://www.w3lww.org)
- 18: **Cuyahoga Falls Amateur Radio Club**-More Info: <http://www.cfarc.org/hamfest2010.html>
- 18: **Tri-State Radio Fest**-Center Stage Banquet Hall-1495 Old Brodhead Rd-Monaca, PA 15061  
Flea Market & Auction-More Info: <http://www.pittantiqueradios.org>-Phone: 724-942-1113
- 25: **Two Rivers ARC Hamfest**-The Boston Spectrum-6100 Smithfield Street-Boston, PA  
(McKeesport suburb) More Info: 412-664-1683-Email: [hamfest@tworiversarc.com](mailto:hamfest@tworiversarc.com)-  
Talkin:146.73 MHz- <http://www.tworiversarc.com> \* VE Testing Available:

### • \* May \*

- 2: **Pittsburgh Marathon-ARES Communication Event** (150 operators needed)  
More Info: <http://marathon.central.org-Allegheny> County Public Service Net
- 14-16 **Dayton Hamvention**-Hara Arena-Dayton, OH-More Info: <http://www.hamvention.org/>

### \* June \*

- 5: **Atlantic Division Convention** (Rochester Hamfest)-Rochester Amateur Radio Association  
More Info: <http://www.rochesterhamfest.org>
- 6: **Breezeshooters Hamfest & Computer Show**-Butler Farm Show Grounds-627 Evans City Road- Butler, PA  
More Info: 412-366-0488 Email: [hamfest2010@breezeshooters.net](mailto:hamfest2010@breezeshooters.net)-Talkin: 147.30 MHz  
More Info: <http://www.breezeshooters.net>

### \* July \*

- 11: **North Hills ARC Hamfest**-Northland Library Grounds-300 Cumberland Road-Pittsburgh, PA  
More Info: <http://www.nharc.org-Phone:412-760-7055-Email:nharchamfest@hotmail.com>  
Talkin: 147.09 Mhz
- 18: **Somerset County PA Hamfest**-Somerset County Tech Center-281 Technology Drive-Somerset,PA Talkin: 147.195/443.25 MHz-VE Testing Available 10 am  
More Info: <http://www.k3smt.org>

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**FE4240**

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DAYTON HAMVENTION 2009 -AA3GM KEN - KA3VOM FAY - BUD N3TIR - DAVE N3IDH - ROY (Bud's Brother)  
Picture courtesy N3TIR



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## Quarter Century Wireless Association Inc.

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Our next quarterly luncheon will be in June 2010, so you have lots of time to plan ahead to join us.