



June 2011

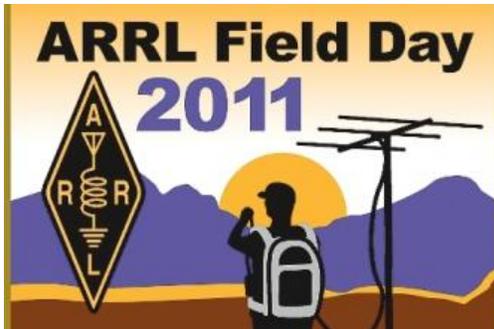
The HARC Spark

The Official Newsletter of the
Holmesburg Amateur Radio Club
WM3PEN 146.685 Mhz Repeater
K3RJC 444.9 Mhz Repeater
K3FI CLUB CALLS WM3PEN
Web Site <http://www.harcnet.org>



HARC IS RADIO ACTIVE!
Club Meeting June 23 - The Last Big Field Day
FIELD DAY JUNE 25-26
13 Colonies Special Event July 1-5

FIELD DAY
June 25-26
Alverthorpe Park,
Jenkintown



The time has come again to brush off the radio, tune up the vocal chords, and get ready to have a good time. Field Day promises to be bigger and better than ever this year as HARC. HARC members and guests will be calling CQ Field Day de K3FI from Alverthorpe Park in Jenkintown.

ARRL Field Day is the single most popular on-the-air event held annually in the US and Canada. Each year over 35,000 amateurs gather with their clubs, friends or simply by themselves to operate.

HARC will again be on the air for the weekend. Set up begins early Saturday morning with operation beginning at 2 PM. Operations will continue for 24 hours.

Field Day is an annual operating event, designed to test operating capabilities of radio amateurs under simulated emergency conditions. The event has a number of objectives, particularly for our club. In addition to making as many contacts during the Field Day period as possible, it will provide an opportunity for members to experience HF operating conditions, and to publicize the value of amateur radio to local government officials and media. See map and more info on page

NEXT HARC MEETING
Thursday, June 23 - 8 PM
8th District Police Station
Field Day/13 Colonies

13 Colonies Special Event ***July 1-5***

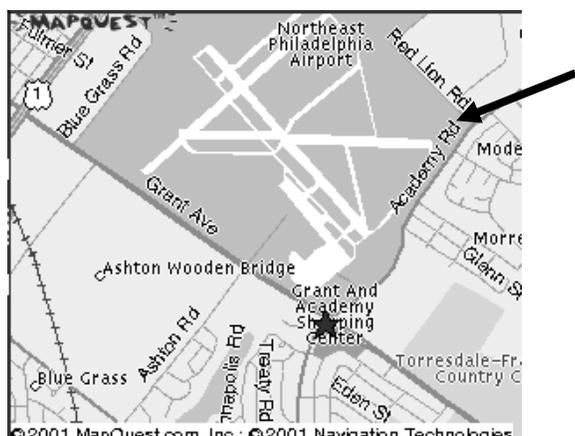
Amateur radio stations operating from the 13 original U.S. colonies will be joined by members of the Holmesburg Amateur Radio Club to celebrate Independence Day from the city where independence was declared, Philadelphia, PA.

The theme for the 2011 event is the Declaration of Independence. Each of the original 13 colonies will be represented by a special event station using a 1x1 callsign, K2A - K2M. The Holmesburg Amateur Radio Club will operate the Club call, **WM3PEN**, as a special event station and will offer a special QSL card featuring Independence Hall, where the Declaration of Independence was signed. In all you can collect 14 QSL cards during the 5 day event.

HARC Board of Directors

President - Mike Wurgley, N3LXN
Treasurer - Bob Josuweit, WA3PZO
Membership - Charley Johnson, K3CJ
Technical - Ron Cardullo, K3RJC
Member-at-Large - Sol Volen, N3UBY
Webmaster - Rich Shivers, AB3EO
UPARC Rep - Mike Feeley, KB3NDC
Newsletter Editor - Bob Josuweit, WA3PZO
WM3PEN @ AOL.COM

H.A.R.C. Monthly Meetings - The Board of Directors meets on the 2nd Thursday @ 7:30 PM (Odd number months). General meetings are held the 4th. Thursday @ 8:00 PM. 8th District Police Station, Red Lion & Academy Rd. Phila PA. No meeting in August.



H.A.R.C maintains the 146.685 repeater located @ Univ. of PA., Phila PA with inputs in Abington, N.E. Phila, and Cherry Hill, NJ; More Club Information & Member Applications can be had by contacting any of the Directors via E-mail. WM3PEN@arrl.org, the web page <http://www.harcnet.org> or writing to HARC 3341 Sheffield Ave, Philadelphia, PA 19136.

HF AWARDS MANAGER

Are you getting close to having all 50 states confirmed for the Worked All States award or working enough grid squares for to qualify for the VUCC Award? As a HARC service you can now have your QSL cards verified by Bob, WA3PZO, and not have to ship the cards to ARRL Headquarters. You must be an ARRL member to qualify for the awards. Additional information and links can be found on the HARC website (www.harcnet.org)

HARC Bulletin Schedule

Bulletin Station K3CJ

Wed 2000L Amateur Radio News Line
ARRL Audio News
The RAIN Report
Contests / Special Events / Hamfests
Sun 1000L This Week In Amateur Radio
Gate Way 160
Handy Hams
Contests / Special Events / Hamfests

PHILA ARES INFORMATION

All amateurs interested in participating should check into the Phila ARES Net, Sunday's at 9:00 PM, hosted on the Phil-Mont Repeater System; 147.030 MHz (+offset 91.5 PL) ;444.80 MHz (+offset 186.2 PL) When control operators are available, Echolink node 29742, WU3I-L, is on the repeater. Backup link is KB3IV-L.

All interested amateurs are welcomed and encouraged to check in for more information. There is always a different topic of interest to the amateur community discussed with an informal round table of comments and suggestions.

Look forward to having all check in on Sunday nights @ 9:00 pm. See web site for more information.

- Visit the Philadelphia ARES web site
<http://www.harcnet.org/aresindex.html>



VE SESSIONS

PhilMont Mobile Radio Club has testing in Ambler, PA on the 4th Thursday of every month. Exams , 1414 E. Butler Pike in Ambler, PA.

Registration begins at 7pm.

Warminster Amateur Radio Club has testing the last Wednesday evening of each month except August and December. The sessions are at the Warminster Recreational and Educational Center on Little Lane, and start promptly at 7:00 PM (registration 6:45 PM).

Bryn Mawr - quarterly on a Saturday. Contact Bob Lees, W3ZQN, rjlees@aol.com

Keep up on the latest HARC news by checking out the Club website
www.HARCNET.org

Upcoming Events

Next Club Meeting: June 23rd
Field Day: June 25-26

The 13 Colony Special Event will be offering a special certificate with the Declaration of Independence on it. For further information on the 13 colony certificate look up the **The U.S. Original 13 Colonies Group** at <http://www.13colonies.info>. When you work **WM3PEN** make a note on the 13 colony log sheet and you will get a "Liberty Bell" endorsement with the **WM3PEN** call place on the certificate. The Pennsylvania Assembly ordered the Liberty Bell in 1751 to commemorate the 50-year anniversary of William Penn's 1701 Charter of Privileges, Pennsylvania's original Constitution.

When you work **WM3PEN** send an SASE, IRC, or Green Stamp (\$1) with your QSL to **WM3PEN**. Use the address for **WM3PEN** at QRZ.COM. SWLs may send a confirmation of reception to request a QSL card. Simply indicate the stations making contact with **WM3PEN**, time, frequency, and your receiving equipment. SWL stations should follow the same mailing instructions. Collect all "13" for a set. All Colony States have real nice special event QSL cards in full color, depicting their state flag or other Colonial period designs promoting their Colony State! This is a must have collection! The only way you can acquire a "set" is to complete a "Clean Sweep" of all Colony stations during the 5 day event.

WM3PEN, along with the other stations participating in the 13 Colonies Event will be operating on 10 - 80 Meters, but will not be operating on the WARC bands. **WM3PEN** is planning on operating on 2 Meter Simplex. Using K2M and representing Pennsylvania will be WX3A in Hamlin and N2MZZ in Stroudsburg.

Times will be: 12:01 AM Eastern on July 1st to 11:59 PM Eastern on July 5th. Join in the fun and be Radio active. Hope to see you on the air.

For further information on the **WM3PEN** operation, check out the Club website at www.harcnet.org or contact WM3PEN@ARRL.NET.

HARC wishes to thank the Marple Newtown ARC for their support of this event.

Here are the websites for the 13 colonies special event

Look over the 13 colonies web site:

www.13colonies.info

HARC info at:

<http://www.harcnet.org/independence.htm>

WM3PEN QRZ.com listing:

<http://www.qrz.com/db/wm3pen>

Here's an online logging program that can be used.

http://www.qsl.net/w3km/gen_log.htm

ARRL VHF/UHF Advisory Committee Seeks Input

The ARRL would like to encourage more participation in its several VHF/UHF contests held each year. Many of the HF transceivers sold in recent years include 50 MHz, and some also include the 144 and 432 MHz bands with multi-mode capabilities. The question at hand is how can we encourage more owners of such radios to utilize these bands and modes to participate in VHF/UHF contests? Bob, WA3PZO responded;

HARC has sponsored a Delaware Valley FM Simplex Contest for several years. After seeing several local FM contests where the exchange included the operators zip code, we created a PA FM Sprint to encourage all hams to get on the air. Someone with an ht or a multimode rig could participate. It also served a purpose for the Emcom community where they could test their capability beyond the repeater. The contest runs for 4 hours on a Saturday night. (7-11). Complete rules: <http://www.harcnet.org/contestinfo.htm>

For the first year we had reports of activity in many of the PA metro areas and some in more rural areas of the state. The metro areas were clearly at an advantage because of multiple zips and more ops in the populated area. Other areas had antenna height and ground elevation in their favor. This year we saw activity on 6, 2, 440 FM. Six meters was a result of multi-band rigs.

With better publicity and participation, this could give all hams including Technicians the chance to experience contesting at an entry level and possibly create interest to try other modes. Many hams in Philadelphia are limited in the number of antennas they can put up so a 2/440 vertical antenna is the antenna of choice instead of a horizontal V/U antenna.

Comments can be submitted before July 1 to the Atlantic Division Committee Rep:
n2mg@contesting.com.

FIELD DAY LOCATION

LOCATION will be the same as last year. Alverthorpe Park, Jenkintown Rd., Jenkintown.

From Rt. 73 (Township Line Rd) take Jenkintown Rd just opposite Holmehurst Rd. A gated entrance to the park will be on the right. (approximately at the arrow on the map) Give a call on the repeater (or 146.685 simplex) and someone will unlock the gate. Parking will be on the left as



you enter the park

PA Amateur Radio Month

COMMONWEALTH OF PENNSYLVANIA
OFFICE OF THE GOVERNOR
HARRISBURG

GREETINGS:

It gives me great pleasure to join with the citizens of Pennsylvania in supporting June 2011 as "Amateur Radio Month".

Thousands of our Commonwealth's citizens have been licensed by the Federal Communications Commission as Amateur Radio operators. These

dedicated volunteers, also known as Hams, have been providing vital supplemental communications to their communities during times of natural disasters, in local emergencies, and at public events since wireless radio's earliest days. These individuals work without compensation in the best interests of our Commonwealth and world—they are on the alert for any local or global emergency and are committed to being a critical resource in our Homeland Security efforts.

As Governor of the Commonwealth of Pennsylvania, I am proud to support June 2011 as "Amateur Radio Month". I thank the many men and women across the state that promote international goodwill, encourage young people to pursue an education and careers in scientific, engineering, and liberal arts fields, and expand state-of-the-art communications and electronics through experimentation in the field of Amateur Radio.

TOM CORBETT
Governor
June 2011

Pennsylvania "67" Challenge Award

Amateur Radio operators around the world have the opportunity to participate in the Pennsylvania "67" Challenge. The Challenge, sponsored by the Holmesburg Amateur Radio Club, is to make contact with all 67 Pennsylvania Counties.

The Challenge is open to all amateur radio operators regardless of individual station capabilities. All contacts must be 2-way communications made in real time. These contacts may be on any Amateur Radio band/mode.

Contacts made using repeating devices such as FM repeaters, Amateur satellites, moon-bounce, and keyboard-to-keyboard contacts through digipeaters/nodes are valid, because these QSOs are made in real or near-real time. Contacts

using IRLP, Echolink, or D-Star are valid as long as a radio is being used by both operators. All contacts must be made from the same county.

As an incentive Pennsylvania "67" Challenge certificates may be earned by working stations in 20, 40, 60, or all 67 Counties. Paper or electronic QSLs are acceptable. The contacts can be verified by a local club officer or mailed to the Holmesburg Amateur Radio Club.

HARC Award Manager Bob Josuweit, WA3PZO said there was a need to have a County Challenge in Pennsylvania that was within the reach of most hams in Pennsylvania. When other state awards lost their sponsorship it was an opportunity for the Holmesburg Amateur Radio Club to fill the void.

Complete rules will be posted on the HARC website. Questions on the Award can be directed to HARC at WM3PEN@ARRL.NET.

HARC Going to MARS

WM3PEN will venture to MARS on NASA's Science Laboratory rover, Curiosity. HARC is scheduled to arrive in August, 2012.

NASA's Mars Science Laboratory mission is preparing to set down a large, mobile laboratory — the rover Curiosity — using precision landing technology that makes many of Mars' most intriguing regions viable destinations for the first time. During the 23 months after landing,



The tires on the new Mars rover -- set to launch in November or December 2011 -- will display the letters JPL in Morse code. [Photo courtesy of NASA/JPL]

Curiosity will analyze dozens of samples drilled from rocks or scooped from the ground as it explores with greater range than any previous Mars rover.

Curiosity will carry the most advanced payload of scientific gear ever used on Mars' surface, a payload more than 10 times as massive as those of earlier Mars rovers. Its assignment: Investigate whether conditions have been favorable for microbial life and for preserving clues in the rocks about possible past life.



PA Bill Would Exempt Amateur Radio

The Pennsylvania State Senate passed a bill (SB314) setting up new regulations aimed at cell phone usage in Pennsylvania and more specifically focusing on texting while driving, with a majority vote of 41 - 8.

This Bill originally started out to only address "junior" licenses issued to new teenage drivers, and that part of the Bill is now referred to as "Lacey's Law" in honor of Lacey Gallagher. When this Bill came before the Senate they decided to amend it to also incorporate some cell phone and texting changes to the law, and the good news for Amateur Radio operators that there is one paragraph that specifically excludes mobile Amateur Radio use from the new proposed law changes.

There had been a couple of other bills pending in both the House and Senate (including SB863 and HR8) dealing with cell phone usage, and some were very restrictive in the use of ANY wireless device while driving, which would have included Amateur Radio, among other services. This new Bill has to be approved by the House and then be signed by the Governor, but hopefully it will go through including the exclusion of mobile Amateur Radio. (Bob WB3W)

WA3PZO QSL Card in Italian Contest

Earlier this year WA3PZO worked IO5O in Italy and has been entered into a QSL Card Contest. According to the email from the Ten-Fifty Contest Group "The main goal is to award the best QSL Card for Graphics and Creativity." This is the third edition of the contest and they have selected WA3PZO's QSL card as one of the top 20. The "QSLCard Contest 2011" will be FOUR MONTHS long, from June 1st 2011 till September 30th 2011, the first THREE QSL Cards that collected more votes, will be awarded

- 1) Wood laminated plate + Award Certificate
- 2) T-Shirt with TFCG logo + Award Certificate
- 3) TFCG patch + Award Certificate

To cast your vote for WA3PZO go to

(http://www.ik5ros.net/index.php?option=com_joomgallery&func=viewcategory&catid=3)

and click on the WA3PZO QSL card to cast your vote.

Pass the email onto friends. Non hams can also vote.

WA3PZO had no knowledge of the QSL card contest until he received the email. Lets have some fun with it.

HAM TECH

Vol 2 No 5

By: JOHN - WY2J /SJRA

HF Antennas: Horizontal or Vertical Polarization?

Part 1 of 2

Is there any truth to the old saying that vertical antennas have better low angle performance and therefore yield better DX than horizontal antennas? This question has been around, and largely unanswered with hard facts for many decades. If we go back 100 years to the earliest days of radio we find only vertical antennas. Why? Because the first useful mode of propagation that these early experimenters tripped over was ground wave and this mode must be vertically polarized to propagate. So important was this mode and the low and medium frequencies that supported it; that it was the reason that the Hams were kicked out of the frequencies below 1500 KHz (200 meters) by the original FCC when they started issuing licenses in 1912. The present day commercial AM broadcasting still uses vertical polarization and ground wave to deliver daytime signals to the public. Low frequency navigation like the 100 KHz Loran C depends on ground wave to deliver straight line great circle propagation between their transmitters and the receivers on ships at sea. WWVB delivers 60 KHz

HARC EMAIL LIST AVAILABLE

The list is open to club members. Information that is ham radio related may be posted. Here's a great way to reach out to other club members. General information about the mailing list is at:
<http://mailman.qth.net/mailman/listinfo/harc>

You can subscribe to the list and indicate whether or not you want to receive each email as they are sent or in a digest form.

HARC Joins Facebook

If you spend some of your time on Facebook, you can now join up with other HARC members. Simply do a search for HARC and sign up. For more info contact Mike, N3LXN.

atomic clock signals to your radio controlled clocks by vertically polarized ground wave.

So when did horizontal antennas and polarization appear? It was probably when some ham ran a random length of wire out an attic window to a back yard tree and found out it worked on 40 and 80 meters. He didn't know why or how well it worked anymore than his professional engineering cousins did. Neither had the analytical tools needed so they both resorted to experiments with varying degrees of rigor. The least rigorist are the RST reports from Ham QSOs but you still read this defense for an antenna in QST articles today. At least the editors run the antennas through a minimum level of simulation to sort out the truly unbelievable claims. The tools that let us do accurate antenna performance calculations today are computer simulation programs that grew out of extensive government funded work in the 1970's and 80's on electromagnetic computations. In essence they built a program to solve James Clerk Maxwell's famous four equations from the 1860's, that describe one of the four fundamental forces of the universe, electromagnetism, and predicts propagation.

After the Numerical Electromagnetic Code (NEC-2) software was released to the public domain, Roy Lewallen W7EL wrote a Windows user friendly front end for it and sold it as EZNEC. Chapter 4 in the ARRL 20th edition Antenna Handbook gives a good introduction to antenna modeling and the capabilities of several software modeling tools. It's a good read

and not too technical. We are going to use the free ARRL version of this software that comes with the Antenna Handbook, to compare two very elementary antennas and to try and quantitatively answer the question; which is better horizontal or vertical polarization.

The modeled antennas are simple half wave center fed dipoles, one horizontal and one vertical. Both can run on the free ARRL version of EZNEC which is limited to 20 segments. Why not use the common 1/4 wavelength vertical? Because it requires an extensive radial ground that introduces significant near field losses and makes comparisons difficult with horizontal antennas. I will cover the 1/4 wavelength vertical in part two next month.

Figure 1 is the elevation gain pattern of the horizontal dipole mounted 1/2 wavelength, (34.7 ft at 20 meters) above good ground. For good ground the conductivity is specified as 0.03 Siemens/Meter with a dielectric constant of 20. We will cover the sensitivity to ground characteristics next month.

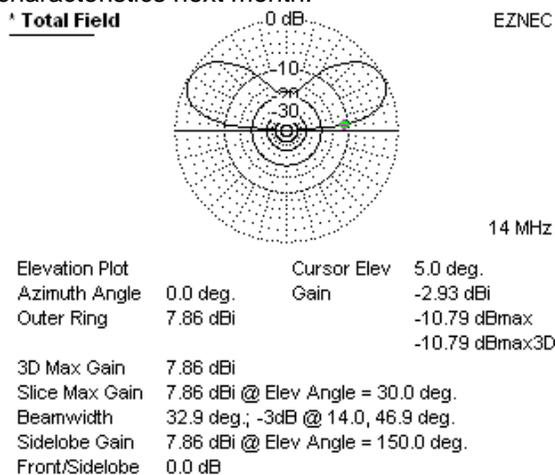


Fig.1. Horizontal Dipole at 1/2 wavelengths
Note that at 30 degrees elevation angle this antenna has 7.86 dBi of gain but this deteriorates by 10.79 dB to -2.93 dBi at the 5 degree angle commonly forecast for long distance DX. This was the angle we forecast in last month's HAM TECH propagation from NJ to Australia on 20 & 15 meters.

Lets' erect the vertical dipole with the center at 1/4 wavelengths above ground. This is when the top element end is at 34.7 ft and the bottom is nearly at ground level, a practical configuration. The performance is shown in figure 2 below.

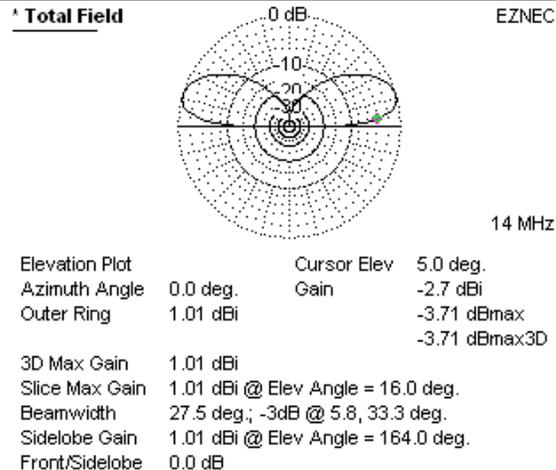


Fig 2. Vertical Dipole at 1/4 wavelengths
The peak of the elevation plot is now 16 degrees but the peak gain is only +1.01 dBi where as the horizontal had a peak gain of +7.86 dBi. At the 5 degree DX elevation angle the gain is down to -2.7 dBi, only 0.23 dB better than the horizontal. Let's raise the vertical so that the maximum current center is at the same height as the center of the horizontal. The pattern is given in figure 3.

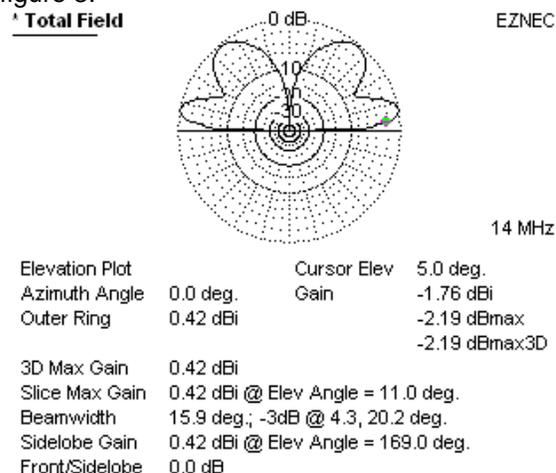


Fig. 3. Vertical Dipole at 1/2 wavelengths
The elevation pattern split in two with the lower lobe at 11 degrees and a modest null at 30 degrees, an angle useful for shorter range QSOs. The gain at 5 degrees is -1.76 dBi, only 1.17 dB better than the horizontal and 0.94 dB better than the lower vertical. It looks like the verticals aren't delivering much improved low angle performance over the horizontal. Could this long standing belief about verticals and superior DX be just a myth?

Next month we will look at what happens when the ground conditions change from excellent to poor and when we introduce the radial grounding system to allow shortening the vertical to 1/4 wavelengths.



HOLMESBURG AMATEUR RADIO CLUB
3341 Sheffield Ave., Philadelphia, PA 19136
"Serving the Community Through Ham Radio"

NEXT MEETING June 23



HOLMESBURG AMATEUR RADIO CLUB MEMBERSHIP FORM

HARC, 3341 Sheffield Ave, PHILADELPHIA, PA 19136

<http://www.harcnet.org>
WM3PEN/K3FI



All members in good standing are eligible to vote and hold a board office. Dues are \$20.00/year.
Make checks payable to H.A.R.C. and mail to 3341 Sheffield Ave, Philadelphia, PA 19136.

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Are you an ARRL member? YES NO Membership Expires (mm/yy) _____