



# HARMONICS

1916

South Jersey Radio Association

2015



## HAM TECH

Vol 6 No. 6 by John - WY2J

wy2j at arrl dot net

### Understanding Common Multiband Antennas

#### Part 3 of 3: The 43 foot HF Vertical

**Introduction** - When a ham lacks a tower for a beam or tall trees on his property which can support the horizontal antennas like described in the first two parts of this series, he often turns to a ground mounted vertical antenna. This antenna is easy to build and install but does require at least 8 radial ground wires extending about 25 feet or more from the antenna base. These radials can be laid on the ground or buried an inch or so below ground level to allow unobstructed use of the property. You can buy this antenna less radials from MFJ, their part number MFJ- 2990 for about \$360 + S/H. They advertise that it works on all bands from 160 to 6 meters with excellent low angle DX performance but the author doubts some of these claims. They will also sell you an add on impedance matching network for 80 and 160 that allows you to load it with your shack tuner but with higher losses, another \$80 to \$250 + S/H. Hold on to your wallet and let's see how well this antenna really works.

**The Antenna Model:** - An EZNEC model of this antenna was built using software that uses the NEC-2 computation engine. This engine does not support buried

ground wires so the model was built with the radials 1.2 inches above ground. This is a good approximation to a shallow burial. The vertical radiator is 43 ft of 2 inch diameter aluminum tubing fed at the base. The 43 feet is about 5/8 wavelengths at 20 meters. The 8 equally spaced radials are each 25 feet long, a minimum practical ground system for this antenna. Yes longer and more radials will reduce ground losses. A graphic of the antenna model in XYZ space is shown in Figure 1.

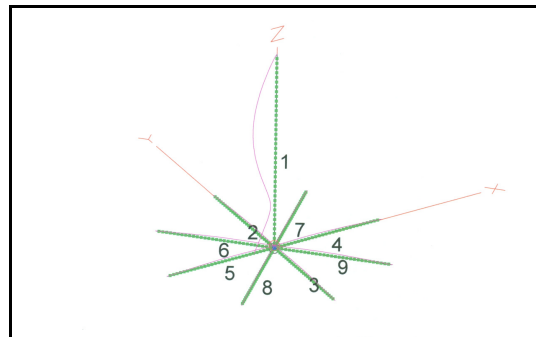


Figure 1 - Antenna Radiator & Radials with current plotted for 20 meters.

For frequencies up to 20 meters the elevation pattern is well behaved with a peak response between 25 and 15 degrees. The azimuth pattern is of course circular at all frequencies. The elevation pattern for 20 meters is shown in Figure 2 and the highly elevated one, 55 degrees, for 10 meters is in Figure 3.

(Continued on page 4)

# SOUTH JERSEY RADIO ASSOCIATION

HARMONICS is published monthly and is the official news letter of the South Jersey Radio Association. The SJRA was established on June 16, 1916 and has been meeting continuously since its inception. The club has been affiliated with the American Radio Relay League since 1920.

The SJRA meets each month on the fourth Wednesday, January through September; and usually the third Wednesday, October, November and December; in one of the Meeting Room of the Gibson House at 525 East Main Street, Marlton, NJ 08053. Visitors are always welcome at our general meetings. **"Our Meetings are Smoke Free"**

SJRA operates the K2AA Repeater (145.290 - PL 91.5) located in Medford, NJ and the K2UK Repeaters (146.865 and 442.350 - PL 131.8) located in Pine Hill, NJ. The repeaters are open for use without restriction to all licensed amateur operators.

There are currently over 100 SJRA members active in most all aspects of amateur radio. Membership is by application and is subject to the approval of the Board of Directors. Club dues are currently \$30/yr. for memberships, \$22.50/yr. for retired-person membership (62 plus 1 yr membership), and \$15/yr. for additional family members and student membership. Membership information is available on the K2AA Repeater or from Mary Von Lintig, KV2M, 856-772-6475

EMAIL: [sjra at sjra dot org](mailto:sjra@sjra.org) SJRA's web page: [www.sjra.org](http://www.sjra.org)

SJRA VE Team: [ve@sjra.org](mailto:ve@sjra.org) is the SJRA/ARRL VUCC card checker

Joe Fisher, KC2TN, is the SJRA/ARRL WAS card checker

\*\*\*\*\*  
★ **Harmonics** is now available on the WEB in pdf format at: ★  
★ <http://www.sjra.org> ★  
★ **South Jersey ARRL Section News** is available on the WEB at: ★  
★ <http://www.arrl.org/sections/?sect=SNJ> ★  
\*\*\*\*\*

### Officers

**President:** Ken Botterbrodt, K2WB  
**Vice Pres.:** Jon Mac Millan, W2MC  
**Treasurer:** Ray Golley, N3RG  
**Rec. Sec:** Lou Priestley, N2HQL  
**Cor. .Sec:** Dennis Cioffi, AC2FO

### Directors:

Roy Herman, WB2EOD  
Rich VonLintig, KV2R  
Rick Lawn, W2JAZ  
Ira Weinstein, W2IRA  
Mary VonLintig, KV2M  
Jim Vecchiola, KR2T  
Al Witner, N3AVT

### Committees:

**Historian:** Mary VonLintig, KV2M  
**Membership:** Mary VonLintig, KV2M  
**Field Day:** Ken Botterbrodt, K2WB  
**Contests:** John Doran, W2FDJ  
**Repeater:** Joe Fisher, KC2TN  
**Programs:** Rick Lawn, W2JAZ  
**H&W:** Roy Herman, WB2EOD; and Dara Herman, KC2THQ  
**Awards:** Rick Stoneking, W2RDS  
**Hospitality:** Jean Priestley, KA2YKN  
**Nets:** John Fogleboch, WY2J  
**Publicity:** **Vacant (Please Volunteer)**  
**Picnic:** **Vacant (Please Volunteer)**  
**Ways & Means:** Ray Golley, N3RG  
**Property:** Jon Mac Millan, W2MC  
**Web Site:** Ira Weinstein, W2IRA

### Harmonics Staff:

**Publisher/Editor:** Ted Groke, W2TAG  
**Alternate Editor:** Rick Stoneking, W2RDS  
**Circulation:** Mary VonLintig, KV2M; Jim Vecchiola, KR2T

## LOCAL WEEKLY NETS

Monday	K2AA, Medford	145.290 @ 8PM
Alternating Thursday	Various Locations	28.405 @ 8PM

### Harmonics Deadline

Articles submitted for the next Harmonics will be accepted until Monday, July 6, 2015. Email: [ted.w2tag at gmail dot com](mailto:ted.w2tag@gmail.com)

**SWAP SHOP** - For Sale/Wanted ads are free of charge and are accepted for Amateur Radio related items only. While ads are not restricted to SJRA members, there is only limited space available and members have priority for listings. No items will be accepted for inclusion in the Swap Shop from commercial vendors or traders. All ads must be submitted at least three weeks prior to the scheduled SJRA general meeting date.

**GENERAL ADVERTISING** - Limited commercial advertising is accepted on a space available basis. Annual advertising rates range from \$25/yr (Min 1/8 page) to \$200/yr (Full Page). Information is available from Ken Botterbrodt, K2WB.

## Meeting Minutes

### Minutes of Membership Meeting May 27, 2015

The meeting held at the Gibson house in Marlton, was opened at 1931 with a flag salute by Ken, K2WB. The question of the night was "what are you doing to help win field day." Ken announced a cancellation of the Storm Robotics program due to the coaches daughter being in the emergency room. The minutes were approved as printed in harmonics on a motion by N2HQL/W2RDS.

Membership by Jim, KR2T - A badge was issued to Ed, K2MBC, and also to Bob, KE2D. For the historians report, he showed the room a 1925 notice from world radio that a distance record had been broken from Gloucester to India.

Repeaters - All are okay, and the committee looked into digital add-ons to the computer and found that fusion would work along with analog.

Club Stuff - Joe is taking orders, everything is available with the old logo or the new Centennial logo. He has three inch badges available for five dollars each. The large patch is available at \$25.

Health & Welfare - Roy, WB2EOD had nothing to report.

VE report - 133 successful tests so far.

Treasurer report - "We have money."

Centennial Committee - Our club origin date has been confirmed as June 12, 1916. Joe, KC2TN, got commitments for centennial membership while attending the Dayton Hamfest.

DX report by Jack, N2VW - Yes, it's out there. May 30-31 CQWWPX CW, 3V8SS, Tunisia; 6Y6N, Jamaica; 4X6FR, Israel; 9M2M, W. Malaysia; 5C5T, Morocco; HS0ZIA, Thailand; all above are expected in the contest. Planned DXpeditions: 1S, Spratly in July-December; 9N7CW, Nepal (UN food program); SV/A Mt. Athos is a no go, ops only had visitors visas, no operating permits.

Contests, by Jon, W2? - ARRL Jun VHF, June 13-15

Old Business - Motion for secretary to cast one ballot for all unopposed officers-KR2T/WA2JHG - ballot so cast. Rice school demo, still up in air due to paperwork and insurance required.

New business - Christmas party needs to be rescheduled. December 9th was selected.

Tonight's replacement program to be Demo of N1MM+ logging program. Break at 2010. 2025- Program began but demo deteriorated into general field day discussion.

### Minutes of Board of Directors Meeting 6/3/15

Meeting opened at the Gibson House at 1930. Minutes of May meeting approved as printed- motion by N2HQL/AC2FO. The treasurers report was made via telephone as webex was not working well. It was approved on a motion by WB2EOD/KR2T.

*(Continued on page 9)*

(Ham Tech from page 1)

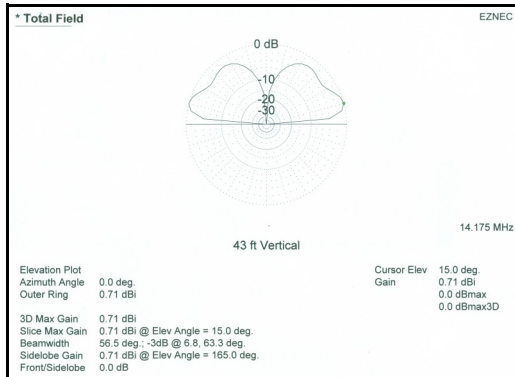


Figure 2 - Elevation Pattern at 20 meters

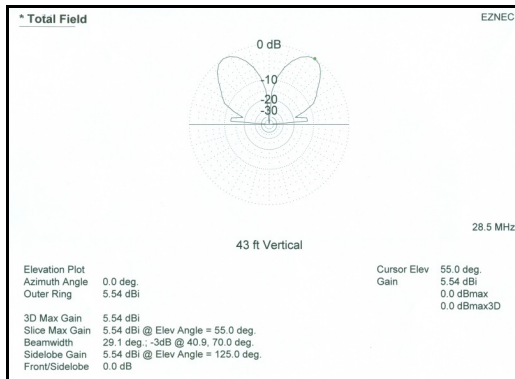


Figure 3 - Elevation Pattern at 10 meters

Note that the peak response is at 55 degrees making it a nearly useless DX antenna at 10 meters. At 15 meters the peak is at 35 degrees but it has useful performance at 15 degrees with about 6.5 dB less gain.

**Antenna And Feed Losses** - Grounded vertical radiator antennas are low gain when mounted above land due to the high far field losses of vertical polarization. In addition if the near field currents flow through the earth to complete the path back to the feed line there are added losses. Also the circular azimuth coverage precludes any directive gain in that plane. The author used average ground (0.005 mho conductivity and a di-

electric constant of 13) in the EZNEC analysis. An automatic L network antenna tuner located at the antenna base with 50 feet of RG-213 coax back to the shack make up the feed system. Antenna feed impedance, losses and effective radiated power (ERP) were calculated for a 100 watt output transceiver. Table 1 gives the frequency, elevation angle, antenna gain and ERP. Table 2 gives the frequency, antenna terminal impedance, tuner and coax loss and the total system gain/loss used to calculate the ERP.

**Conclusions** - The 43 ft. vertical is a simple and fairly effective DX antenna on 40, 30 and 20 meters with usable performance on 80, 17 and 15 meters if fed with an ATU at the antenna base. The vertical radiation angle is too high on 10 meters to be useful and the terminal resistance is too low with an excessively high reactance to achieve a low loss feed at 160 meters. Some improvement in losses at 160 meters can be obtained by inserting a high Q loading coil between the antenna and ATU. It must contain high voltage switching to remove it on the other bands. You can build this antenna yourself for 80 to 15 meter operation at the 100 watt level for a reasonable amount of money. All you need is a 50 X 50 ft backyard that is reasonably free of conductive structures. Of course this antenna like all verticals has a big null in the radiation pattern over head so don't expect to work stations at short distances. But from 80 to 15 meters you may find it to be an acceptable modest DX antenna.

**Next Month** - We will start a new three month series on the topic of Engineering a Portable HF Station. July will focus on the System Engineering and Tradeoffs including Bands, Modes, Power and Antennas.

(Continued on page 5)

(Ham Tech from page 4)

Freq., MHz	$\Phi$ , Degrees	Gain, dBi	ERP, Watts
1.85	25	-3.81	2.9
3.6	25	-1.94	52.7
7.15	25	-0.68	78.3
10.1	20	+0.06	89.7
14.175	15	+0.71	102
21.225	35 peak	+3.94	214
21.225	15	-2.6	48
28.5	55 peak	5.54	310
28.5	15	-13	4.3

Table 1—Elevation Angle, Gain/Loss, and ERP

Freq. MHz	Z ant ohms	Tuner + TL Loss	Total Gain/
1.85	9 - j650	11.58	-15.4
3.6	20 - j241	0.84	-2.8
7.15	102 - j13	0.38	-1.1
10.1	824+j332	0.53	-0.47
14.175	80- j213	0.64	+0.07
21.225 pk	606+j13.7	0.64	+3.3
21.225	606+j13.7	0.64	-3.2
28.5 pk	81.2 + j7	0.62	+4.0
28.5	81.2 + j7	0.62	-13.6

Table 2— Antenna Impedance, Tuner & TL Losses, and Total System Gain/Loss.

## Monthly Puzzle

**Don – WA2DUE**, wa2due at arrl dot net

Last months puzzles were as follows:

A hamfest a used HT and an antenna tuner were bought. The amount paid was the same for each. If the HT had cost \$30 less and the antenna tuner \$20 more, the HT would have cost half the price of the antenna tuner. How much was spent for the two items?

**Answer:** Since these items both cost the same we can set up an equation with one unknown to describe the problem.  $2(HT - 30) = HT + 20$  which  $HT = 80$  so both items cost a total of \$160.

There is a 61 year old father whose daughter is 37 years old. How many years ago was she one-quarter as old as he?

**Answer:** By subtracting their ages we find that 24 years separate them and therefore we can set up an equation  $Father = Daughter + 24$ . We can use the equation  $D = F/4$  to represent the problem. Substituting for F the term  $(D + 24)$  we have  $D = (D + 24)/4$  which gives us  $D = 8$ . The Father was 32 and that was 29 years ago.

Art, N2CPR, and Mary, KV2M, sent in puzzle solutions. Thank you both.

**For summer relaxation after field day try these:**

A dealer buys a number of high quality coax switches for \$336. The price he paid for each is equivalent to seven thirds the quantity he bought. How many did he buy and what was the price of each?

An investment trust contains holdings of 183 million dollars which provides

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## Interesting Stuff About The Presidents of SJRA

Nine of our Presidents served for more than one term:

1. Evan L. Rhoads - 1927 and 1929
2. Gedney M. Rigor (W3QL) - 1934 and 1938
3. John A. Terrell (W3FDF and W2RFU) - 1941 and 1944
4. George Weilenmann (W2REB) - 1950 and 1960
5. J. Wesley (Wes) Sammis (W2YRW) - 1954 and 1990-1991
6. Amor R. Klotzbach II (W2FYS and N2FY) - 1966 and 1971
7. Edward J. Ramming (AB2Y) - 1979-1980, 1982-1983, 1988, and 1992-1993
8. Alan P. Sherman (WB2OEZ and KE2VX) - 1989 and 1994-1995
9. Kenneth W. Botterbrodt (WA2CVJ and K2WB) - 1998-1999 and 2009-2015, etc.

Three of our Presidents joined SJRA when they were students:

1. Alan Grossman (WB2BNE) age 16
2. Frank L. Widmann (WA2VYA) age 14 (WN2VYA)
3. Kenneth Botterbrodt (K2WB) age 14 (WN2UAD)

These Presidents had Joe Duffin (W2ORA) from Mooorestown as their sponsor:

1. Frank W. Widmann, WA2YSW
2. Simpson B. Adler, K2KA
3. Kenneth Botterbrodt, K2WB
4. Patrick Doyle, KD2P
5. Jon MacMillan, W2MC
6. Shawn MacDonald, K2SMD

These Presidents had E. Miles Brown (Brownie) as their sponsor:

1. Joe Blake ,W2PFO
2. Edwin Kephart, W2SPV
3. Samuel Zollers, W2EWN

These Presidents called Haddonfield their QTH:

1. Edward Braddock
2. Louis B. Spencer, W2RBE
3. H. Walcott Brown, K1TQ former W2OQN and W1KIQ
4. J. Wesley (Wes) Sammis, W2YRW
5. Samuel Zollers, W2EWN
6. Robert Dennison, W2HBE
7. Joseph Duffin, W2ORA
8. Frank W. Widmann, WA2YSW
9. Simpson B. Adler, K2KA
10. Rawlins Eastwick, N2AWC
11. Frank L. Widmann, WA2VYA

These Presidents called Collingswood (the founding QTH of SJRA) their QTH:

1. Harry Densham
2. Clarence E. Owens - W2BGP
3. Armand M. Fischer - W2DAJ
4. Thomas E. Stewart - W2TBC

Sixteen of our Presidents (only the ones I was able to find and I am certain that there were many more) were engineers at the time of their application. Also many of our leaders were employed by RCA.

Our leaders and all SJRAers seem to be able to connect to another SJRA member in some way. As Historian and Membership person, I certainly found that to be true. There are or were members whose kids went to Oaklyn Junior School with me. Some of us were also in Japan. Some have contacted Panama when it belonged to the United States or were even stationed there. My birthplace is the Canal Zone, Panama. We are all connected by a magic thread that binds all SJRAers together. United we stand.

I, KV2M, would like to say Thank You to all our presidents for your service to our club. All of you certainly have made SJRA a perfect 59 (599).

*(Continued on page 10)*

## President's Message

Ken – K2WB

Field Day is one of those club events that helps bring club members together. This common goal of success has been a tradition with the SJRA from the beginning of Field Day in 1933.

One of the best parts of Field Day is the friendships that grow and the exchange of ideas or techniques. I look forward to seeing everyone at Savich Farm at Field Day. Hospitality is back! One of our members has offered to make certain that there will be food.

I want to thank Mary KV2M and Jim KR2T for their many years of service to the SJRA as Board Members. They will be missed at the Board of Directors meetings. However, we have new members on the board. Change is a good thing.

## SJRA Member July Birthdays

Don Beaulieu WA2DUE; John Doran, W2FDJ; Anthony Dianora, KC2HHX; Craig Henning, NC2H; Carol Hutkin, K2BL.

Health and Welfare Co-chairpersons:  
Roy, WB2EOD, and Dara, KC2THQ

## List Your "For Sale" Ham Stuff in the SJRA Harmonics

Email Ted, W2TAG, with your listing,  
ted.w2tag at gmail dot com

## 100<sup>th</sup> Anniversary Happenings

So far the 100th anniversary committee has had 8 meetings (many more to come). Just to keep everyone up to date here is where we are.

Over 50 coffee cups have been sold. There are plenty more to go. Mugs may be acquired to SJRA members by a minimum donation of \$10.00. There will be coffee mugs available at the General Membership Meeting on June 24th, 2015 and at the Field Day Site June 26th through the 28th.

We now have 5 centennial members. Joe KC2TN met with up with some hams and has 5 more potential members, including Bob Weil. Our goal would be to have at least 2 members in each of the States. At least 1 member in each of the ARRL sections and at least 1 member in 100 countries. This will make some of radio sport events planned very exciting. Pass the word around.

We still need a lot of money to achieve our goals and objectives. Our anniversary is only 373 days away.

With that said, Joe KC2TN is already selling 100th Anniversary clothing and hats, in addition he has patches. Contact Joe should you want to have the "New" SJRA Look.

There is still a lot to do and we need your help. Please contact me if you are interested in helping with the 100th.



## Dayton was a Blast this Year

Dan, KB6NU, cwgeek at kb6nu dot com

A couple of weeks ago, I made my annual pilgrimage to Dayton for the 2015 Hamvention. This year, I had even more fun than in the past, and that's saying a lot.

I started Dayton 2015 on Thursday by attending the QRP-ARCI's Four Days in May (<http://www.qrparci.org/fdim/>) seminar. George Dobbs, G3RJV, gave a very nice talk that not only talked about circuits, but also the people he's met over the years and the places he's been. Paul, M0XPD, gave an interesting talk on crystal filters and using an Arduino to control a QRP rig. The final talk, by Glen, KW5GP, was also about using an Arduino to control a QRP rig. Other talks covered transmission lines and SWR and adventures in PCB making. I learned something in every single one.

That evening, I participated in Vendor's Night. I sold quite a few copies of my CW Geek's Guide to Having Fun with Morse Code and gave out quite a few "I'm a CW Geek" buttons and "Hams Obey Ohm's Law" stickers.

Friday and Saturday were all about the Hamvention. As far as new products go, there were a couple of interesting announcements. Elecraft introduced the K3S, an updated and upgraded K3 HF Transceiver, and FlexRadio introduced the Maestro, a "front end" with knobs, dials, and LCD screen for their software-driven radios. Apparently, hams like knobs and dials after all.

It seemed to me that there were more people at this year's Hamvention. There were certainly more sellers out in the flea market. And deals were to be had. I picked up a Bencher BY-1 for only \$50. I also found a Hallicrafters HA-1 T.O. Keyer (<http://>

[www.ai4fr.com/main/page\\_ham\\_radio\\_hallicrafters\\_ha1.html](http://www.ai4fr.com/main/page_ham_radio_hallicrafters_ha1.html)), which I believe to be the first commercially-available electronic keyer. Produced in the 1960s, it uses tubes to generate dots and dashes.

Dayton usually has a great lineup of forums, but aside from perhaps the TAPR forum, the Antennas forum, and maybe the ATV forum, none of them really called to me. Also, I was really busy talking to people I know, meeting readers, and trying to get the dealers to carry my books, so I didn't get to a single one.

Being the CW geek that I am, I'm hoping to hold a CW forum at next year's Hamvention. I've already contacted the forum people, and while they haven't committed to giving me time, I did get a very positive response. C U THR?

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*When he's not attending the Dayton Hamvention, Dan, KB6NU enjoys working CW on the HF bands and teaching ham radio classes. For more information about his operating activities and his "No-Nonsense" series of amateur radio license study guides, go to KB6NU.Com or e-mail cwgeek@kb6nu.com.*



*(Meeting Minutes from page 3)*

Corresponding secretary received an e-mail from NW2M requesting help with an estate sale. Club records will have to be checked to find if the deceased was ever a club member, as club policy is to only get involved in estates of current or former members.

Repeaters - All working ok, Pine Hill has no funding to expand at present, relocation work to continue.

Contests - Jon, W2? gave very good report at May general meeting. Lou, N2HQL, added Museum ships weekend on June 6 and 7 to list.

Historian - Mary reported she has written her last column and presented a list from 1948 showing operator class of members.

Trustee - FD is coming in 23 days. QSL mgr, Dave, N3MUA, appears to be MIA.

Club stuff - new logo patches available, all items available with either logo.

Programs by Rich, W2JAZ - He has e-mailed the sponsors of the storm team regarding a reschedule- no response as yet. He has contacted a portable power group looking for a program. June and July FD; August K2UT on Arduino. He has talked to John Dilks, K2TQN, regarding the centennial celebration. John just needs a reminder, as he has agreed to speak.

VE - Now 135 total, four candidates last month.

Website- Ira, W2IRA - Should we replace logo currently on page with the centennial? A definite yes! The centennial logo will be added.

Health & Welfare- Roy, WB2EOD, handed out some birthday cards, the rest to be mailed.

Old business - Rice School demo still on hold due to insurance and liability release problems. Ken thanked Mary and Jim for their many years of service on the board., A welcome was extended to Tony, N2ATB, who was present at the meeting.

New Business- Those taking June tests to receive a special invite to Field Day.

Centennial- Bob Heil has received his centennial membership and coffee mug. He will mention the centennial and special membership during his show.

Jim, KR2T, mentioned that the Voorhees EOC radio group was very active but it has faltered. He will inquire as to the disposition of existing equipment and report back if it can be made available.

## Items for Sale

50 Foot Free Standing Tower (not heavy duty). Tower is on the ground in two pieces that bolt together at the 30 foot level. \$100.

*All proceeds from the sale of this item will be donated to SJRA.*

## Items for Free

Two Cushcraft 2M Ringo Antennas

If you don't want both antennas the first person to come and get one will have pick of the two. :-)

Contact Ted, W2TAG  
Tabernacle, NJ  
ted.w2tag at gmail dot com  
(609)268-8460

(Monthly Puzzle from page 5)

a fixed income of 17 million per month. Another trust has holdings of 1149 million dollars which are decreasing in value by 6 million per month. In how many months will these two trust be equal in value?

Please submit solutions and/or comments to wa2due at arrl dot net.

(Presidents of SJRA from page 6)

73 to all and I am History  
Mary, KV2M

#### Addendum

*This is my last article as Historian of the South Jersey Radio Association. I have been the Historian of our great radio club for over ten and a half years. I have held in my hands original articles from our past that are over 100 years old. Through the magic of those historical documents, I have traveled back to our very beginning and have seen the growth of the greatest radio club in the world. Thank you all for giving me the privilege of being the Guardian of the Sands of Time. I now pass the torch of our past to another member of SJRA. Whoever takes this torch, carry it with pride. Let others share our past through you. All our tomorrows will become today's yesterdays and fall into history. Our new Historian should serve with pride, honor, and joy. You will literally hold our past in your hands and also the present and future of the South Jersey Radio Association. I will gladly assist our next Historian in any way that I can. Again, thank you for the honor of being your Historian.*

*Again, 73 to all and I am History  
Mary, KV2M*

The SJRA would like to congratulate the following on their recent achievements:

#### Test Session Report for May 13, 2015

William Latham III, KD2EBA  
245 South Logan Ave.  
Audubon, NJ 08106  
Earned his General

Jacob Brudno, KC2RGK  
14 Oakley Ct.  
Cherry Hill, NJ 08003  
Earned his Extra

Joseph Szumowski, KD2INN  
412 Pomona Rd.  
Cinnaminson, NJ 08077  
Earned his Extra

Ryan Schuler, KD2HWF  
27 Onondago Trail  
Medford Lakes, NJ 08055  
Earned his General

Jeffrey Duperret, KC3FAQ  
2227 Delany Place, Apt 1R  
Philadelphia, PA 19103  
Earned his Technician

#### Test Session Report for June 10, 2015

Craig Odem  
11 Candle Court  
Shamong, Nj 08088  
Earned his Tech

Charles S. Yurek, KD2HNS  
3494 New Jersey Ave.  
Pennsauken, NJ 08109  
Earned his General

George Colbert, N2AGC  
38 Granbury Lane  
Willingboro, NJ 08046  
Earned his General

(Continued on page 11)

<p><i>(Recent Achievements from page 10)</i>                  James Scott Jr.                  128A Church St.                  Beverly, NJ 08010                  Earned his Tech</p>	John Hill, W2HUV 24 Chew Ln. Sewell, NJ 08080 Earned his Extra												
	<table border="1"> <thead> <tr> <th></th> <th>Tech</th> <th>General</th> <th>Extra</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>To Date</td> <td>85</td> <td>36</td> <td>17</td> <td>138</td> </tr> </tbody> </table>		Tech	General	Extra	Total	To Date	85	36	17	138		
	Tech	General	Extra	Total									
To Date	85	36	17	138									

**SJRA Jackets, Shirts, Hats**  
 Order NOW - Next order going in soon!





Spring Jacket is \$44 (S,M,L,XL), Fall Jacket is \$55 (S,M,L,XL),  
 Shirts are \$27 (S,M,L,XL), Hats are \$20 (*New Lower Price*, one size fits all)  
 Name and Call Sign embroidery included....Larger sizes slightly more!  
 Email Joe, KC2TN, with orders or additional info: *kc2tn at comcast dot net*

**Amateur Radio FCC License Testing**

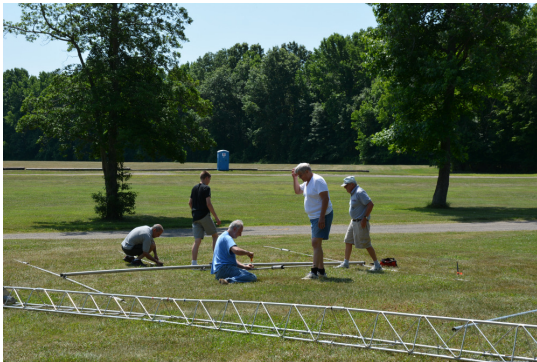
The SJRA sponsors *FREE* Amateur Radio FCC License testing on the second Wednesday of each month. The location is: 443 Commerce Lane, Suite 5, West Berlin, NJ 08091. Registration is at 7:00 PM and testing begins at 7:30PM. Walk-ins are accepted.

VE team members can be reached at VE *at* SJRA *dot* org. A calendar and more information can be found on the SJRA web site.

**June Meeting:  
Fourth Wednesday, June 24, 2015**

The meeting commences promptly at 7:30PM in the first floor Meeting Room of the Gibson House on Main Street, Marlton, NJ 08053. Guests are always welcome.

**Program For June:  
Field Day Kick-Off**



**First Class Mail**

South Jersey Radio Association  
PO Box 1026  
Haddonfield, NJ 08033

