



HARMONICS

1916

South Jersey Radio Association

2015



SJRA Field Day 2015 With K2AA (6A-SNJ)



SJRA President Ken, K2WB, with Cherry Hill Fire Commissioner, Skip Gibson



SJRA President Ken, K2WB, with Red Cross Representative, Chris Cannatella, KC2GNQ

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
 SJRA VE Team: 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

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 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, August 10, 2015. Email: 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 6/24/2015

The meeting was opened at 1940 by Ken, K2WB, with a salute to the American Flag. Due to the absence of Ray, N3RG, no treasurers report was made. The minutes were approved as printed in Harmonics with corrections to the spelling and call-sign of the contest chairperson, John, W2FDJ. Motion by N2HQL/N2JIT.

Membership by Rich, KV2R, representing Mary, KV2M - Presentation of a 2014 Field Day certificate to Chris, KC2GNQ. As historian, Rich reported progress in the sorting and preparation for storage of the Club Archives. After sorting is complete, many documents will be scanned and placed on the website.

Ken, K2WB, showed hard hats for sale for use at field day (a safety measure). All repeaters were reported as working, with no downtime due to the power failures from the storm.

DX report by Jack, N2VW - E6GG-NIUE 15-29 Sept by English DXpedition team: 4W/JA7LU 25-29 June - Timor Leste; T88MZ Palau 30 June-3 July 80 thru 6: V6?? Pohpel Island 29 June-5 July by Japanese group; LX9YL all YL team- Luxembourg, 7-10 August; 27-28 June- Field Day!; 6-12 July N2M special event at the Carranza Memorial- Ceremony 11 July.

Contests by John, W2FDJ - (from WA7BMN website): Marconi Memorial 10 AM EDT July 4, until 10 AM EDT; July 5, CW- exchange RST and Serial Number; QRP 11 AM EDT; July 4 until 11 AM EDT; July 5, 20W max., exchange- RST, Serial

Number and power category, 80, 40, and 20 only

Web Team - Fixed link to Laurel, doing security update, sign-on improvements to come.

Health & Welfare - Nothing to report. Joe Lameiras, K2WJL, present tonight, good to see him.

Club Stuff - Patches available, two sizes!.

New Business: back to membership-introduction of prospective member-sponsored by Ray, N3RG.

Ken, K2WB, announce centennial coffee cups were available. The meeting was closed- opened the Annual meeting for swearing in of new club officers by Joe Lameiras, K2WJL.

The membership meeting was opened with the new officers. There was an auction of a Heathkit "2er," which was donated to the club. We recessed at 2014 for refreshments and opened the program "field day warmup" at 2030.

Minutes of Board of Directors Meeting 6/1/2015

The meeting opened at 1945 at the Gibson House by Jon, W2MC. Minutes of previous meeting were approved as published, motion N2HQL/WB2EOD. Meeting turned over to K2WB. New Member- Joe Szumowski, KD2INW, sponsored by Ray, N3RG. Motion by KV2R/N2ATB member accepted.

(Continued on page 10)

HAM TECH

Vol 6 No. 7 by John - WY2J

wy2j at arrl dot net

Upgrading a Portable HF Vacation Station

Part 1 of 2: Bands, Power & Antenna

Introduction - Four years ago HAM TECH described a small QRP station that the author had configured for 20, 17 and 15 meters using CW, PSK-31 and JT-65HF modes in the July and August 2011 issues of Harmonics. It was designed for use at the author's vacation home in Ocean City where the antenna was severely constrained in length and height. Prime power included both batteries and AC line. Everything fit into a 12 x 17 x 5 in carrying case except the Dell mini-computer used for digital modes which added about 25 percent to the volume and weight, including an extra battery and charger.

Coverage out to 1300 miles (1 hop) was calculated for all three modes, 2400 miles (2 hops) to the west coast for the digital modes and 4000 miles (3 hops) into Europe and South America with the JT-65HF mode. This was with a solar flux of 125, realistic then since we were just entering the peak of solar cycle 24. Operation in August of the past four years has roughly verified the coverage calculations and I had a lot of fun with this portable station. However, things have changed. We are on the down side of the solar curve and the lower bands are more important so I am adding 30 and 40 meters. This means antenna changes that were initiated and tried out in 2014 by adding switchable end sections to the bent 20 meter dipole to make it a bent 30 meter dipole. It will also work on 40 meters but has about 3 dB added transmission line and tuner losses.

Being a rag chew ham rather than one who just likes piling up Q's in the log has led

to a lack of interest in JT-65HF, which means more power is needed for CW, PSK, and possible SSB modes.

Equipment Changes - The original QRP station electronics is shown in Figure 1 including the Yaesu FT-817ND, an LDG battery powered ATU, paddles, Rig Blaster interface, Dell mini-computer, and headphones. Not shown are the 2.9 amp switcher power supply and antenna balun that are required in the system.



Figure 1, Original QRP Vacation Station on PSK-31

The upgrade deletes the LDG ATU and 2.9 amp switching power supply. It adds a 50 watt 160 to 6 meter amplifier with a built in wide range ATU and a 15 amp switching power supply for the 817 and the amplifier. The ATU also works in QRP mode with the amplifier off. The heavy paddles have been replaced with Palm Radio mini-paddles to save two pounds of weight. See Figure 2 for details.

Antenna Changes - The original 20, 17, and 15 meter dipole is No. 18 wire 34 feet long

(Continued on page 5)

(Ham Tech from page 4)



Figure 2, Up-graded vacation station with 50 watts output for 40 to 10 meter operation.

center fed with 30 feet of receiving type 300 ohm twin lead. The center 24 feet of the dipole is horizontal at 15 feet above ground. The two 5 feet ends are vertical and terminated in insulators. The 30 meter bent dipole was made by adding 7.2 feet of wire at the end of each insulator. Each wire drops vertically by 3 feet then extends horizontally for 4.2 feet as shown in Figure 3. Jumpers at the junction insulators connect the additional wire for 30 and 40 meter operation only. The configuration may seem strange but it is all I can do with a dipole on the porch of a first floor house. It loads up well on all bands with feed losses < 0.6 dB on 30 to 15, 1.4 dB on 10, and 3 dB on 40 meters.

The antenna gain at the defined elevation angle, feed losses and effective radiated power (ERP) for each band are given in Table 1.

Amplifier and Alternate Transceivers - There are not many choices in 50 watt HF amplifiers in the market primarily due to the FCC's paranoia with the CB crowd. The unit chosen here was a design by Jim Veatch,

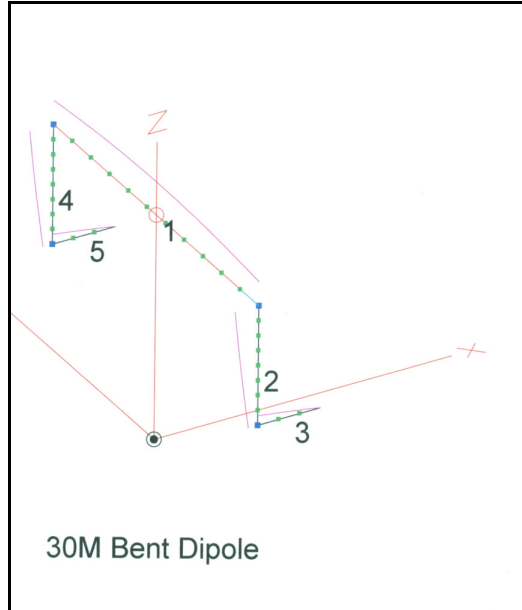


Figure 3, 30 M Bent Dipole with Current Plotted.

Band	Φ deg.	G dBi	L dB	ERP
40	25	-3.05	3.15	12
30	25	-0.83	0.34	38
20	15	-1.75	0.32	31
17	15	-0.16	0.44	44
15	15	+1.1	0.64	51
10	15	+4.48	1.43	101

Table 1, The antenna system performance with 50 watts out of the amplifier into the ATU.

(Continued on page 10)

President's Message

Ken – K2WB

When I look at the SJRA membership I see a great group of people with common interest. Some call it "Ham Radio" and others call it "Amateur Radio". We come from many diverse backgrounds both professionally and ethically and yet we still hold true to our hobby and friends. This is the principal ingredient of the continued success of the SJRA. This is something to think about as we move closer to our 100th Anniversary in June 2016.

Field Day 2015 is now a fond memory, much kudos to the band captains and members for their tireless efforts in keeping the club call sign of K2AA on the air for 24 hours. Field Day would not be field day without help. It takes a lot of help to setup, operate and breakdown the equipment for Field Day. This year we had a lot more help than last year and it really made a difference. We can always use more help. Congratulations to all that participated. I already look forward to Field Day 2016, it is already less than a year away, are you making plans?

With some of the activities, it reminds us to be safe while working on our antennas or equipment. Accidents come with no warning. Towers, antennas and equipment can be replaced easily, but injuries are not so easily remedied. For this reason we have made SJRA Hard Hats available for a \$15.00 donation to the club. Each hat comes with sheet of SJRA stickers so you can proudly show our colors. Hard Hats will be available at SJRA meetings while supplies last.

There are following committee vacancies,

History Committee (Mary KV2M

would like to pass the torch)

Let me know if you would like to help. It takes people to operate and run the club. Your help would be greatly appreciated.

As the heat of the summer continues, everyone should be mindful of the staying hydrated. The other bad side of the heat is severe weather. Some of our members are experiencing this and hopefully by the time Harmonics is published things will returned to normal.

Thank you for being a member of the South Jersey Radio Association, encourage others to do the same.

100th Anniversary Happenings

Ken – K2WB/100

So far the 100th anniversary committee has had 9 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 July 22nd.

We now have 8 centennial members. 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 341 days away.

(Continued on page 7)

(100th Anniversary Happenings from page 6)

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.



Test Session Report for July 11, 2015

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

William Latham III, KD2EBA
 245 S. Logan Ave,
 Audubon, NJ 08106
 Earned his Extra

Joe E. Jesson, KC2VGL
 106 Albermarle, Rd.
 Trenton, NJ 08690
 Earned his General

Matthew A Frampton
 1316 E. Susquehanna Ave.
 Phila, PA 19125
 Earned his Technician

Ian Patel
 11 Wendover Ct.
 Mt. Laurel, NJ 08054
 Earned his General

	Tech	General	Extra	Total
To Date	86	38	18	142

Monthly Puzzle

Don – WA2DUE, wa2due at arrl dot net

For June the puzzle was:

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?

Answer: Let n equal number purchased.
 $336/n = (7/3)n$ multiplying both sides by 3n to get rid of the denominators we get $1008 = 7n^2$ Then dividing both sides by 7 we have $n^2 = 144$. Therefore the number purchased was 12 and the unit price was $336/12 = \$28$.

An investment trust contains holdings of 183 million dollars which provides 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?

Answer: Since all terms are in millions we can divide them by 1000 and use the numbers as represented. We set up one equation thusly: $182 + 17m = 1149 - 6m$, where m = months. This breaks down to $23m = 966$ and by dividing both sides by 23 we get $m = 42$ months.

For July let us solve these:

An amateur radio club decided to buy land to erect repeater tower. A number of club members pledged to donate \$500 each towards this purchase. However, five members backed out and the remaining pledges upped their pledge by \$200 to make up the difference. How many members originally were going to fulfill their pledge?

(Continued on page 11)

HamShield turns an Arduino into a VHF/UHF transceiver

By Dan Romanchik, KB6NU

The Arduino seems to be making a big splash in ham radio circles these days. The ARRL has recently published a couple of books about the Arduino and Arduino-based amateur radio projects. And, recently, I purchased a NanoKeyer (nanokeyer.wordpress.com), which is a CW keyer powered by an Arduino Nano.

Now, a couple of enterprising young hams have built the HamShield (<https://www.kickstarter.com/projects/749835103/hamshield-for-arduino-vhf-uhf-transceiver>). It's an Arduino shield that turns an Arduino into a VHF/UHF transceiver. With the HamShield, you can transmit and receive on the 2 m, 220 MHz, and 440 MHz bands.

According to Casey, KC7IBT, one of the project leaders, "We have both voice and data working on the shield right now and also have a powerful library to control it."

"We also have it talking to the Chrome browser, so any computer that can run a web browser can operate a packet radio station or voice station. We also have another piece of chrome software called "APRS Messenger", a text messaging app for APRS. One of our prototypes is in a neat little case that clips right to the back of your laptop (shown in the video). I will launch these apps in the Chrome Store once we get closer to completion.

"We have 10 working prototypes currently, but need to raise money to fund the production cost and get the unit prices down to acceptable levels. This means buying parts in bulk and reducing production costs."

I think this is a very cool project, and I hope that you'll consider supporting the HamShield Kickstarter project. I plan to get one and see what I can do with it.

.....

When not playing with Arduinos, Dan operates CW on the HF bands and blogs about amateur radio at KB6NU.Com. He is also the author of the "No-Nonsense" amateur radio license study guides. His most recent book is The CW Geek's Guide to Having Fun with Morse Code. The books are available on his website or on Amazon.

Thank You Mary, KV2M

For all of the many articles you provided to Harmonics for SJRA member enjoyment and enlightenment over at least the past 15 years. Your efforts have helped make the SJRA Harmonics one of the best amateur radio club newsletters in the country.

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

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

More Scenes From the 2015 SJRA Field Day Effort.



(Ham Tech from page 5)

WA2EIJ, and featured in the December 2014 and March 2015 issues of QST. It is available only as a kit from his little three man company, HobbyPCB (www.hobbypcb.com) either with or without the ATU. It is not cheap, \$299 for the amp and \$179 for the ATU, which mounts inside the amplifier, but it is an excellent design that is nearly bullet proof. About the only way you can damage it by over driving it and burning out four surface mount resistors. It is not a building project for someone new to kits even with all the SMT parts factory installed, and the toroids and transformers purchased from a third party.

The unit was designed to work with popular QRP rigs, which include the FT-817, KX-3, Flex-1500, and others with carrier operated or PTT keying, and with automatic band selection. The ATU is the only one the author has seen that will tune up on Morse keyed CW and voice modulated SSB. The design supports 100 percent duty cycle modes like FM, RTTY and JT-65 at full power. The amplifier draws about 10 amps at full power and the ATU draws 0.5 amp when tuning. And it all fits in a box 3.5 X 4.25 X 7.5 inches weighing 3 pounds without the ATU and 4 pounds with it. Support is outstanding and they guarantee a working unit.

Next Month - Next month we look at two alternate antennas for this station, the vertical with a single elevated radial and the small magnetic loop. In September we close the series with a look at new battery technology for those who may want to take a 50 watt HF station off grid and be truly portable.

(Meeting Minutes from page 3)

Historian by Rich, KV2R - four boxes packed, another in the works. There was a long discussion regarding scanning all of the documents before storage. All excess copies of Harmonics are to be scrapped, one copy of each will be sufficient to keep.

Health & Welfare - July cards to go out. Bob Petty doing well.

Programs - July, Field Day wrap; August, Pat, K2UT - with Arduino/Raspberry Pi; Sept, Storm Robotics; Oct, Gridless Power; Nov, Tony, N2ATB presentation; Dec 9, Holiday Party.

Membership - Alan, K3WWT, will work with Mary, KV2M, to handle membership. VE Team- 138 tested so far, still waiting for internet access.

Web Team - Rick, W2JAZ, has been trained to update his page. Ira, W2IRA will train others as time permits. Security update to be done on 2 July. Work progressing on Centennial Pages.

Field Day - 359 days until FD 2016. FD 2015- nice setup weather Friday, Misty Saturday AM, rain started after operations began. We had good operations, great camaraderie, and great food.

Centennial Member Applications - Gene, WB2WBK, Gil Lugo, K2YNY, Mike Slepian, WB2LKO, members were accepted on motion by N3AVT/WB2EOD.

Old business - Repeater; Fusion Repeaters - Only for sale to clubs. The board of directors will purchase one repeater (donations made by members). The purchase of a second repeater and controller will be put to the membership at the July meeting.

New business - None.

Adjourn at 2135.

(Monthly Puzzle from page 7)

A train after leaving station A has completed one-quarter of its trip to the station B. After going 6 more miles it would have completed one-third of the distance to sta-

tion B. What is the distance between the two stations?

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

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.

**July Meeting:
Fourth Wednesday, July 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 July:
Field Day Wrap-up**



Robert Ewing, WA4GWW, Helping
to Track AO-7 during the 2015
SJRA Field Day Effort

SJRA Member July Birthdays

Debbie Pullaro W9QWN; Skip Arey, N2EI; Jim Higgins, KC2SZ; Rick Stoneking, W2RDS;
Jordon Bookstaber; Alfred Chai, KD2ELG; Lou Priestley, N2HQL; Anthony Saranchak,
KC2URK; and Robert Price.

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

First Class Mail

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