



# HARMONICS

1916

South Jersey Radio Association

2017



## How I Spent Part of My Summer in the Poconos

by Rick Lawn, W2JAZ

Since I have not been able to participate in SJRA activities since the middle of June I thought I would make the effort to contribute a short article for *Harmonics* as a means of restitution. I've spent some of my Pocono vacation tending to much needed work at the cottage, playing a few gigs in the area, and assisting my sister-in-law with various chores she can no longer easily manage. In between these obligations I have been able to enjoy some down time operating on the HF bands, satellite operation and participate in 6 meter openings. Despite the fact that I've been licensed since 1965 (WN3EIQ ) aside from satellite operation, I had never spent time exploring the VHF/UHF bands until recently. I was looking for a new challenge and found it! I'd like to share some of my summer experiences specifically on 6 meters and the new enthusiasm I have found for this aspect of ham radio, the hobby that just keeps on giving!

Like many of us, I had discovered many of the digital modes with the release of PSK31 for HF bands and the subsequent plethora of digital modes that followed. There are so many modes that for the new comer it has become quite confusing to try and identify them by ear (or even sight if you have a panadapter). Fortunately there is a helpful audio tutorial that can be found

here: <http://www.w1hkj.com/FldigiHelp-3.21/Modes/>. This webpage helps you to aurally and visually identify a mystery mode, though there are so many new ones developed regularly that the page is not entirely up to date. At any rate, our own SJRA member and Nobel Prize winning astrophysicist Joe Taylor, K1JT, developed WSJT and related software to help exchange very weak signals well below the noise floor. His software was quickly embraced by amateurs who were exploring EME (Earth-Moon-Earth) operation since the software enabled lower powered stations with smaller antenna arrays a fighting chance of communicating with one another by bouncing their signals off the moon. It was Ray Golley's (N3RG) presentation about EME operation a few years ago at an SJRA meeting, and Joe Taylor's club presentation on WSJT that peaked my interest in both. I've just completed a very modest EME station at the home QTH in Cherry Hill and am anxious to try it out this fall.

Joe Taylor continued to develop his software and not long ago released WSJT-X, a modified version of WSJT that included improvements in decoding and new modes specifically designed for VHF and up. The latest version offers the following modes: FT8, JT4, JT9, JT65, QRA64, MSK144 and a few others. I won't go into vast detail on the purpose and design of each of these modes

(Continued on page 6)

## 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@sjra.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 for SJRA members 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  
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**Membership:** Alan Handley, K3WWT  
**Field Day:** Ken Botterbrodt, K2WB  
**Contests:** John Doran, W2FDJ  
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**Programs:** Rick Lawn, W2JAZ  
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**Picnic:** Vacant (Please Volunteer)  
**Ways & Means:** Ray Golley, N3RG  
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**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                            |
| Fusion on 2 <sup>ND</sup> & 4 <sup>TH</sup> Thurs.<br>and 2M SSB on 3 <sup>RD</sup> Thurs. | Various Locations | 145.290 @ 8PM, Fusion<br>144.270 MHz USB |

### Harmonics Deadline

Articles submitted for the next Harmonics will be accepted until Monday, September 11, 2017. Email: [ted.w2tag@gmail.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 of 26 July 2017

The meeting was opened at 1930 by Ken, K2WB, at the Gibson House in Eve-sham Twp., Nj, with a salute to the American flag. The question of the night was "How did you participate in field day?".

Minutes of the June meeting were approved as printed in Harmonics, motion by N2HQL/K2WJL. There was a question by Roy, WB2EOD as total reported members were off by one member, but the Secretary explained that that was as reported at the Membership meeting and/or the Board meeting and any error was in the report and not in the minutes.

Historian- Mark, KD2JPW reported 2 scrapbooks and several other interesting items were on display.

Repeater- KC2TN, Joe reported all are working, a packet burst can sometimes be heard. Club Stuff: Joe is still taking orders.

Roy, WB2EOD made the treasurers report. He also mentioned that for safety sake in this season, antennas should be disconnected when not in use.

VE- Al, N3AVT- 209 new or Up-graded candidates since inception of the team.

No old or New Business

DX Report- by Jack, N2VW: KH9 Wake island now working in the General Bands; Z8- South Sudan is operating as YI1DZ; The planned Dxpediton to Bouvet Island 3Y is still in the fund raising mode.

No radiosport report- Don't forget the Sept VHF.

Tonights program is the video from Field day 2017.

Don't forget the ECLIPSE on August 21st.

Submitted by Lou, N2HQL, Rec. Sec.

### Board of Directors meeting of August 2, 2017

President Ken, K2WB, opened the meeting at 1930. Participating officers/ BOD were President Ken, K2WB; Vice President Jon, W2MC; Treasurer Roy, WB2EOD; and BOD members Art, N2CPR; Burton, NJ2IT; Tony, N2ATB; Matt, N2IDW; John, W2FDJ; and Al, N3AVT.

As the Rec. Sec. and Cor. Sec. were not in attendance, Jon, W2MC, recorded the meeting minutes.

Minutes of the July BOD meeting were approved as printed in Harmonics; motion made and seconded by WB2EOD/ N2ATB.

Roy, WB2EOD, provided the Treasurers report; motion to accept N2CPR/ W2FDJ.

Membership: One potential new member was mentioned; however no application has yet been received. A discussion of several membership topics, including availability of applications at the monthly SJRA meeting, web-page email "pointers" from the SJRA.ORG web page and the need for a single application form,

*(Continued on page 9)*

## Radio Sport aka Contests

John, W2FDJ:  
johnd152 at verizon dot net

**Member's activities** *(Please send your thoughts and ideas to me for publication.)*

Recent posted results - see arrl.org or CQ Club QSO Party 2017 is history now that the deadline for filing score summaries has passed. We will have summarized data and some stories for you next month.

Please send me your summary sheet so I can list your claimed score. John/W2FDJ, contests at sjra dot org

Solar eclipse QSO Party an upcoming Operating Event of note.

Want to take part in a scientific study of the ionosphere and how it changes during a Solar Eclipse? Then mark down Monday, August 21, 2017 from 10AM EDT to 6PM EDT and if you can, get on the air. The objective is to flood the bands with activity before, during, and after the eclipse. Data will be collected by the various automated receivers such as the Reverse Beacon Network, WSPRNet, and PSKReporter. Also operator logs submitted will be analyzed by a group of researchers at Virginia Tech.

The event is cosponsored by HamSCI (Ham Radio Science Citizen Investigation) and ARRL. I highly encourage you to read about this at: <http://www.hamsci.org/seqp>

And be sure to watch the 12 minute plus video taken at Hamvention 2017 which covers the key topics in great detail.

To operate the event is easy; you can use 160-6mtrs (except for 60,30,17, and 12mtr). CW, Phone and all digital modes can be used. There is a premium placed on using CW and digi because it's easier for the automated receive sites to lock in and identify you. The exchange is call sign, signal report,

and 6 character grid square. If not sure of your full grid square you can look it up on ARRL.org, <http://arrl.org/grid-squares>.

Also, check your August QST for the featured article.

Don't have a station and want to join in the fun? K2AA will be on the air for this special event, most likely, from Ken's, K2WB, driveway. Look soon for a signup sheet. This is an excellent low stress way to be introduced into the typical tools and methods used in contests.

Finally, whatever your experiences, please jot them down and send to SJRA for inclusion in Harmonics. Your log summary will permit us to list member's results, contests at sjra dot org.

**Upcoming contests** *(see arrl.org or wa7bnm.com) for rules and more details.)*

### Every Tuesday only

Phone Fray 10:30PM-11PM (yes 30 minutes) (ten weeks, four times a year).

### Every Wednesday only

CWops Mini-CWT test 9 -10AM, 3-4PM, 9-10PM, (three one hour sprints).

### Every Thursday only

NCCC Sprint 10:30PM-11PM (yes 30 minutes).

North American QSO Party SSB, 8/19-20, Saturday 2PM EDT to Sunday 2AM.

Solar Eclipse QSO Party, 8/21, Monday 10AM EDT to 6PM.

ARRL September VHF Contest, 9/9-11, Saturday 2PM EDT to Sunday 11PM.

New Jersey QSO Party, 9/17-18, Saturday noon to midnight EDT, Sunday 10AM to 4PM EDT.

Classic Exchange CW, 9/10-11, Sunday


*(Continued on page 10)*

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

Email Ted, W2TAG, with your listing:

ted.w2tag at gmail dot com

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**Test Session Report for July 12, 2017**

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

(Please note: Test Session Reports are published in Harmonics the month after the test session so we can publish passing technicians newly assigned call.)

Gary Schellhas Jr., KD2NWZ  
1344 Spiegle Ave.  
West Deptford, NJ 08093  
Passed his Tech.

Kostas Sarris, KD2NXA  
2 Shelburne St.  
Burlington, NJ 08016  
Passed his Tech.

|         | Tech | General | Extra | Total |
|---------|------|---------|-------|-------|
| To Date | 125  | 55      | 29    | 209   |

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*(Summer in the Poconos from page 1)*

other than to suggest that you go to the WSJT website (<https://physics.princeton.edu/pulsar/k1jt/>) and read the manual for details. Incidentally the software is free! That's right, FREE and whether you enjoy digital communications modes or not, Taylor has revolutionized the hobby with his contribution.

FT8, the latest addition to this suite of modes available in WSJT-X was released just before the June 2017 VHF contest and was designed to speed up the QSO process especially on 6 meters. This is what interested me since my initial reaction to the digital modes, as an old brass pounder and phone operator, was boredom akin to watching grass grow or paint drying! For example it takes about 5 minutes to complete a very simple QSO exchange using the JT65 mode which works on the 60" odd/even time cycle for message exchanges. A note of critical importance here is that your computer's clock MUST be accurately synchronized. There are free applications such as Dimension4 or Meinberg software to insure that your clock is accurate. I found this mode of HF communications to be a bit tiresome given the lack of real operator engagement in the process. PSK31 is certainly, by comparison, more rag-chew friendly. FT8, on the other hand is based on a quick turnaround of 15" per cycle or exchange! An entire brief QSO confirming a new grid, state or DX entity can be completed in not much more than a minute! I found this faster pace to be much more interesting in that it simulates a contest atmosphere - make the contact and move on. It becomes more like watching a soccer match compared to baseball, hi hi! Understand, I'm not much into contesting, but I do enjoy a new challenge, and that is exactly what FT8 on 6 meters has

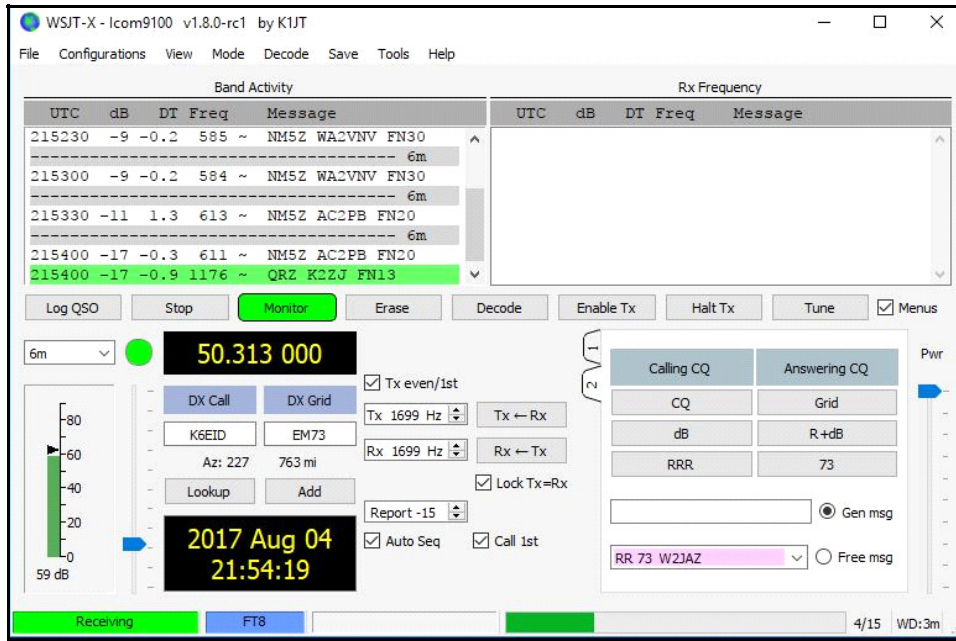
provided for me. How many states could I work on 6 meters using this and other digital modes from my lakeside QTH?

The summer is a terrific time for 6 and 2 meter operation I've learned in that there is more sporadic E and troposphere situations creating good to excellent conditions for operating stateside and even DX. And the best news is that you can do all this with a very modest station. Such openings can take place for very short periods or for many hours as has been the case recently on 6 meters.

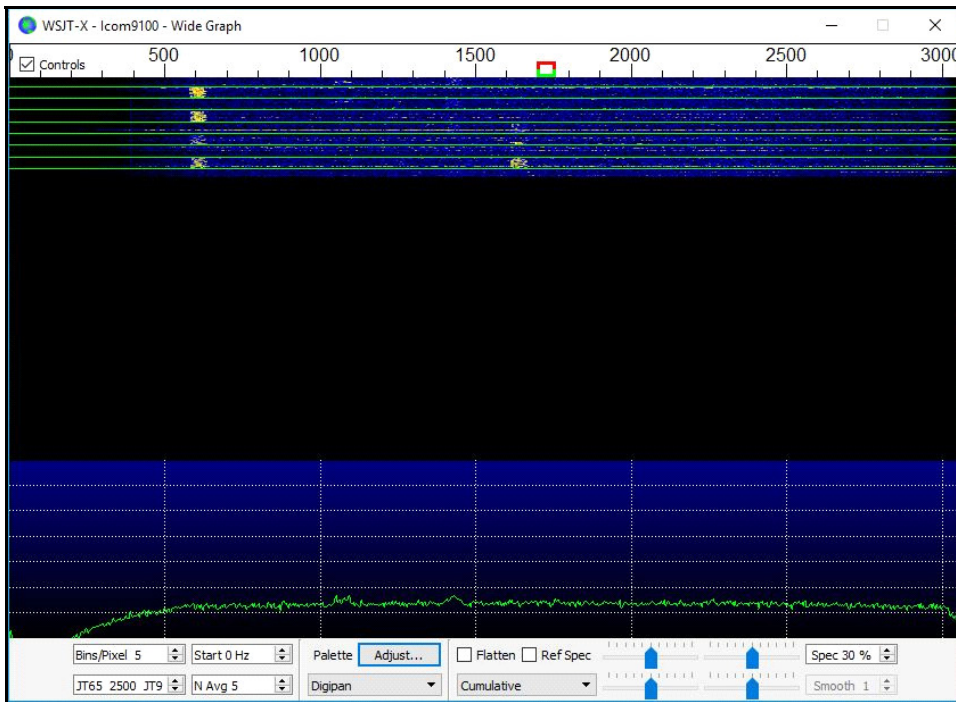
So how do I define a modest station? I admit to having a fine VHF/UHF radio at the Pocono cottage, but any 6 meter capable radio with a decent receiver will work. I am using an Icom 9100 equipped for 160 meters through 1.2 Ghz. But here comes the really modest part - my 6 meter antenna is a PAR Electronics Omniangle <http://www.parelectronics.com/index.php> that has no gain and is virtually omni-directional. It is mounted just under 25 feet on a series of 4' fiberglass surplus mast sections you can purchase inexpensively on eBay. You will see it in the accompanying photo along with the Arrow dual band antenna and TV rotor I use to operate satellites. With the Omniangle at 25 feet and 100 watts from the Icom I've worked 18 states on 6 meter using FT8.... and counting since I have a few more weeks before returning home to NJ.

The band has been open almost the entire day today! I just ordered the PAR Moxon 6 meter antenna which will provide about 6 dBi gain and directivity which hopefully will improve my situation though rotation will be the Armstrong method. I would like to snag a few more states before my summer at the lake comes to a close.

*(Continued on page 10)*



WSJT-X Shown In FT8 Mode On 6 Meters



WSJT-X FT8 Mode With Two Obvious Signals

## Ham Researcher to Investigate Effects of Solar Eclipse

By Dan Romanchik, KB6NU

August 21 is a once-in-a-lifetime opportunity for many in the U.S. to see a total eclipse. It's also an opportunity for a team of Virginia Tech researchers to study the effects of the eclipse on changes in the upper atmosphere that have an impact on HF propagation and the global positioning system (GPS). Backed by research funding from NASA and the National Science Foundation, the team is headed by Dr. Greg Earle, W4GDE.

The Virginia Tech team plans to gather data from a variety of sources, including radar systems, transceivers, satellites, ham radio, and GPS receivers, in order to analyze the effects of the solar eclipse on the conductive region of the atmosphere.

"Whether military radar, or consumer GPS signals, the eclipse is going to have effects on the medium that we would like to understand better, so that we can either mitigate them or use them to our advantage," said Earle.

Here are a couple of links to news stories on the research team and the experiments:

- ◆ Virginia Tech team prepares for special project during total solar eclipse
- ◆ Virginia Tech expert to study August solar eclipse effects on radar, ham radio, GPS

### Let's party!

In conjunction with the eclipse, the HamSCI and the ARRL are sponsoring the Solar Eclipse QSO Party. (SEQP). According to an article in the August 2017 issue of *QST*,

the goal of the SEQP is to "flood the airwaves with contacts, all measured by the automated receiver networks of the Reverse Beacon Network, PSKReporter, and WSPRNet." Once all the logs are in, researchers will analyze the data to see what effect the eclipse had on radio propagation.

A YouTube video of a presentation at Dayton on the SEQP can be found at <https://youtu.be/3EviY2Cuxp0?list=PLihPo8xWm08-xDYAtP9BWX9QnhUoT7k4>

The SEQP will run from 1400Z - 2200Z on Monday, August 21. This is well before the eclipse is due to begin on the West Coast. The reason it starts before the eclipse is to establish a baseline for radio propagation conditions.

SEQP organizers urge you to make as many contacts as you can on as many bands as you can operate. Like nearly every contest, contacts are not allowed on 60m, 30m, 17m, and 12m. CW, RTTY, and PSK31 are the preferred modes because automated receivers can record those contacts, but phone and other digital modes count, too.

An interesting twist to this contest is that, like Field Day, you can earn a number of bonus points, including:

- ◆ Operating outdoors (100 points)
- ◆ Operating in a public place (100 points)
- ◆ Operating a wide-band automated receiver at your station (100 points)

Hams have had a long history of supporting scientific research. They provided communications for some of the early polar explorations and listened for Sputnik as it flew overhead. The Solar Eclipse QSO Party

*(Continued on page 10)*

*(Meeting Minutes from page 3)*

instead of one for new and one for returning members.

Cor. Sec.: While Dennis, AC2FO, was not in attendance, it was reported he was working on "Thank You" letters for the various contributors to Field Day 2017.

Repeater: Upgrading the K2UK machine(s) to digital was discussed (in case of failure of the K2AA machine); the limitation is lack of an internet connection at the Pine Hill site. The Repeater committee is still working on moving the K2AA digital control site. The committee is also looking for ideas to increase use of the club's repeaters.

Contests: John, W2FDJ, reported the Contest committee is working on the logs and scores from the Club QSO party. The 21 August Eclipse QSO party was also discussed; SJRA will participate with K2AA from Ken's, K2WB, QTH; members are invited to participate.

Health and Welfare: Lou's, N2HQL, mother is in the hospital and Al, WA3ZKI, is welcoming a new grandchild.

VE Team: Al, N3AVT, reported 208 tested so far. Roy, WB2EOD, was presented with his VE certificate. Changes to the FCC 605 form were discussed; new applicants must disclose felony convictions.

Programs: This month is a webinar from DX Engineering; September will be the Membership Auction.

Field Day: Ken, K2WB, reported a very successful Field Day; final score was over 18,000.

Old Business: Al, N3AVT, inquired about the status of the "final" SJRA 100th anniversary book. Jon, W2MC, thanked Al

*(Continued on page 10)*

## President's Message

Ken – K2WB

The summer is going to be over well before we know it. Field Day 2017 is over and good memory. Some of us are already we are looking forward to Field Day 2018.

As the summer draws to a close, you should look carefully at your antenna farm and it may be time to start planning on any improvements or repairs that could be done while the weather is still pretty good.

While working on your projects always think of safety and get assistance for big jobs. Use the right tool for the right job and never climb a tower without the spotters, climbing gear and ground help.

Bring a friend to a meeting, SJRA meetings are a great night out, we even offer great programs to keep you entertained. Let Mario, N2AK, know if you can join us for dinner at Franco's Restaurant, Plaza 70 Shopping Center, Marlton, then follow the group to the meeting at the Gibson house in Marlton. We have about 120 members and growing. Let's see if we can get to 200!

Our club will have a table at the GCRC Hamfest. Rich, W2JAZ, is looking for help, contact him if you would like to assist him.

If you have any ideas or projects that you would like to see the club get involved with, contact any board member or club officer.

Enjoy the rest of the summer and I hope to see you on the air soon.



*(Effects of Solar Eclipse from page 8)*

continues this tradition, and it's going to be a lot of fun as well. Visit the HamSCI website for more information.

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*Dan Romanchik, KB6NU, blogs about amateur radio at KB6NU.Com, and is the author of the "No Nonsense" amateur radio license study guides and the CW Geek's Guide to Having Fun With Morse Code." You can reach him by emailing [cwgeek@kb6nu.com](mailto:cwgeek@kb6nu.com).*

*(Radio Sport aka Contests from page 4)*

9AM EDT (18 hours), Also 9/12-13, Tuesday 9AM EDT (18 hours).

Classic Exchange, Phone, 10/1-2, Sunday 9 AM EDT (18 hours). Also 10/3-4, Tuesday 9 AM EDT (18 hours).

CQ WW DX Contest SSB, 10/27&28, Friday 8 PM EDT (48 hours).



### FOR SALE:

A pair of used M2 eggbeater antennas for 2 meter and 70cm satellite frequency. No need to rotate these antennas. I used these at my Pocono place with good success. They have both got some mileage on them but still perform just fine. \$225 for the pair. I might consider selling them separately. The antennas will be available by around August 27th.

Rick, W2JAZ  
[rjlawn@gmail.com](mailto:rjlawn@gmail.com)  
 856-904-6488

*(Meeting Minutes from page 9)*

for the reminder and reported he needs to complete the final updates.

New Business: Al, N3AVT, inquired about SJRA participating in this years' Boy Scout Jamboree on the Air (JOTA). Jon, W2MC, stated SJRA has participated in the past; but not in the last few years.

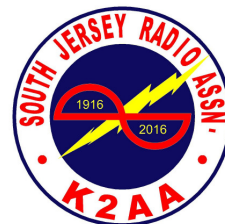
The Gloucester County Hamfest on Sunday, September 10th was also discussed; this year it will be the ARRL New Jersey State Convention and all the local clubs, including SJRA, have been invited to support a club information booth. Rick, W2JAZ, is coordinating SJRA's participation. Additional information at <http://w2mmd.org/>.

There being no further business, the President closed the meeting at approximately 9 pm.

Jon, W2MC, Vice President

*(Summer in the Poconos from page 6)*

In closing let me add that FT8 has quickly eclipsed JT65 as a mode of choice it appears, gaining ground on the HF bands as well. I tried it one night on 20 meters (14.074) and worked two ZL stations! It will dig a -20 dB signal out of the noise (not quite as good as JT65) which encourages you to give this mode a try on any of the designated digital band segments and especially 6 meters if you have the capability.



## SJRA Jackets, Shirts, Hats

Order NOW - Next order going in soon!



Spring Jacket is \$51 (S,M,L,XL), Fall Jacket is \$58 (S,M,L,XL),  
Shirts are \$28 (S,M,L,XL), Hats are \$25 (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.

**August Meeting:**

Is the **Fourth** Wednesday, August 23, 2017

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 August:**

Live Webinar (as in seminar but using the internet) with DX Engineering Personnel.

**SJRA Member September Birthdays**

Donald Cavallaro, KD2EHE; Alan Cohen, WA3ZKI; Matthew Grohgans, N2IDW; Alan Handley, K3WWT; Craig Martin, N2ASU; John Mulvey, N2ADE; and Dominic Sacca Jr., KD2EPM.

Congratulations to Alan Cohen, WA3ZKI, and XYL Judy on the birth of their first grandchild 'Lexington Aurora Solomon' born on July 25, 2017.

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

**September Meeting:**

Is the **Fourth** Wednesday, September 27, 2017

**First Class Mail**

South Jersey Radio Association  
PO Box 1026  
Haddonfield, NJ 08033

