

# MOUNTAIN SPARK GAPS

**NPARC—The Radio Club for the  
Watchung Mountain Area**



**Website: <http://www.nparc.org>  
Club Calls: N2XJ, W2FMI**

VOLUME 48 NO. 10 October 2013

## UPCOMING EVENTS

### Regular Meetings

**Mon. 7:30  
11/11 & 11/25  
Salt Brook School Cafeteria**

**Holiday Luncheon  
Saturday 12/7  
Keep the Date Open**

## Meeting Schedule

**Regular Meeting:** 7:30—9:00 PM  
**2nd Monday of each month** at the  
Salt Brook School Cafeteria  
Springfield Ave. and Maple St.  
New Providence

**Informal Project Meeting:** 7:30—9:00 PM  
**4th Monday of each month** at the  
Salt Brook School Cafeteria  
Springfield Ave. and Maple St.  
New Providence

### Everyone is Welcome

If a normal meeting night is a holiday,  
we usually meet the following night.  
Call the contacts below.  
When Schools are closed,  
Meetings are held in the Recreation  
Department Meeting Room in Borough Hall

## Club Officers for 2013

President: K2MUN David Berkley  
908-500-9740  
Vice President: KC2WUF David Bean  
973-747-6116  
Secretary: KC2HLA Hillary Zaenchik  
908-244-6202  
Treasurer: K2YG Dave Barr  
908-277-4283  
Activities: W2PTP Paul Wolfmeyer  
201-404-6914

## On the Air Activities

Club Operating Frequency  
145.750 MHz FM Simplex

Sunday Night Phone Net  
Murray Hill Repeater (W2LI) at 9:00 PM  
Transmit on 147.855 MHz  
With PL tone of 141.3 Hz  
Receive on 147.255 MHz  
Net Control K2AL

Digital Net  
First & Third Mondays 9 PM  
Details as announced.

## Club Internet Address

Website: <http://www.nparc.org>  
Webmaster K2MUN David Berkley  
Reflector: [nparc@mailman.qth.net](mailto:nparc@mailman.qth.net)  
Contact K2UI, Jim

## MOUNTAIN SPARK GAPS

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Editor: K2EZR Frank McAneny  
Contributing Editors:  
WB2QQQ Rick Anderson  
WB2EDO Jim Brown

Climatological Data for New Providence for  
September 2013

The following information is provided by  
Rick, WB2QQQ, who has been recording  
daily weather events at his station for the  
past 33 years.

### TEMPERATURE -

Maximum temperature this September, 93 deg.  
F (September 11)

Last September (2012) maximum was 89  
deg. F.

Average Maximum temperature this September,  
74.4 deg. F

Minimum temperature for this September, 41  
deg. F (September 24)

Last September (2012) minimum was 45 deg. F.  
Average Minimum temperature this September,  
53.5 deg. F

Minimum diurnal temperature range, 9 deg.  
(79-70 deg.) 9/2

Maximum diurnal temperature range, 28 deg.  
(72-44 deg.) 9/15; (69-41 deg.) 9/24

Average temperature this September, 64.0  
deg. F

Average temperature last September, 66.4  
deg. F

### PRECIPITATION -

Total precipitation this September - 1.81"  
rain

Total precipitation last September - 4.8"  
rain

Maximum one day precip. event this Septem-  
ber; September 21, 0.47" rain.

Measurable rain fell on 7 days this Septem-  
ber, 13 days last September.

=====  
Rick Anderson  
10/16/13

243 Mountain Ave.  
New Providence, NJ

(908)464-8912  
[rick243@comcast.net](mailto:rick243@comcast.net)

**Lat = 40 degrees, 41.7 minutes North**  
**Long = 74 degrees, 23.4 minutes West**

Elevation: 380 ft.

CoCoRaHS Network Station #NJ-UN-10



## **PRESIDENTS COLUMN**

### **By K2MUN**

President's Column - David Berkley, K2MUN, October, 2013

I ended last month's column by suggesting I would be following up on my misbehaving antenna system this month. However, although I still want to discuss the topic of antenna design and measurement in future, I was distracted by the arrival of the November QST (Vol. 97, No. 11). I always look forward to a new copy of QST and it is rare that I don't learn something new and find significant food for thought.

This issue was no exception. There were two articles that interested me in particular. Both were about Software Defined Radio (SDR). First was a product review of the Peaberry V2 software defined transceiver (pp. 57 - 59) and the second was a discussion of the use of CW Skimmer (pp. 42 - 43), an interesting piece of software that uses a SDR receiver and can be a great aid in CW contesting and working CW DX.

I have dabbled in SDR, although I joined NPARC slightly too late for the Softrock summer building project in 2007. However, I followed the trials and tribulations of many of the club builders and learned a lot about building kits with surface mount components. I went on to build a number of surface mount projects, including a specialized Softrock SDR receiver that I'll discuss in a minute.

So what is the Peaberry and why did it fascinate me? First, I love kits and this one promises a complete, competent, multi-band (3 or 4 bands depending on how you build it) QRP (1 watt) transceiver. It is a dense surface mount design, and is quite inexpensive -- weighing in at only \$149 -- appealing to my innate Ham, price conscious, sensibilities (in other words, I'm 'cheap'). What fun it would be to build!

I have been looking for the solution to an irritating problem that comes up in running the latest WSJT-X JT9/JT65 software. In particular, the informally defined bands for the combined modes extends for 4 kHz and, with a proper sideband receiver, you can decode all of the signals, covering both modes, over that bandwidth. The transmitter is not as critical if you have a CAT controlled unit that can handle split mode, which my Elecraft K2/100 does nicely. The bad news is that the same K2, and many other modern transceivers, can only provide about 2.5 kHz receive bandwidth.

The Peaberry V2, as a full SDR, seems as though it should handle this problem easily since an SDR should have very broad audio capability. The bandwidth is limited only by the software used for I/Q (quadrature audio used as input for SDR software) audio decoding, and the sampling rate of the A/D converters used to gather that data (and any roofing filters in the receiver). This bandwidth is at least 44.1 kHz in a modern computer easily ranging up to 96 kHz or even 192 kHz if you are willing to invest in an aftermarket converter (sound card). So, a SDR is suitable for looking at a wide swath of a band, far more than needed for the JT9/JT65 mode solution.

This is why I was startled to see QST list the measured audio bandwidth as 2.4 kHz in USB mode for the Peaberry running with HDSDR software. I am not positive, but I believe this is merely the default settings that was used since in my later experience, the audio receive bandwidth in HDSDR can be set to at least 6 kHz in any mode. This made me think that even the most experienced radio people among us can be confused by SDR specifications.

However, a SDR is also a 'natural' panadapter. That is, the entire bandwidth seen by the A/D converters can be spread out and examined by either human eyes or, in the case of CW Skimmer, your computer. As mention above, I had built a Softrock SDR 'IF' receiver that, with a small preamp (Clifton Labs kit) installed internally, provides the IF output of the K2/100 in I/Q (SDR) form to my computer. CW Skimmer decodes all CW within a +/- 12 kHz range, centered at the frequency chosen for listening. This can be calibrated to match what you hear from the K2, and I had done that some time ago.

What suddenly hit me with a flash of insight, is that my existing K2/100-Softrock IF combination could provide exactly the sideband audio output needed to see the entire assigned JT9/JT65 frequency range! My next week was spent fitting together the software plumbing needed to realize this solution with patient e-mail comments and advice from David, KC2WUF, who is a font of information on a surprising range of topics. The complete working system is now running in my shack and I have had a number of worldwide JT65 and JT9 QSO's while seeing the entire range of JT9/JT65-mode frequencies. Calibration and getting all the bits to play well together was maddeningly complicated but, now, a push of a few software buttons spreads out the band in glorious detail.

It may still make sense to tackle building a Peaberry kit and it would certainly satisfy my need for some solder smoke. However, I no longer have the excuse of needing a wider audio output than I can get from my modified K2. It has been suggested that this setup would make an interesting project demonstration. I am contemplating the minimum elements needed to show the system to the club. If I can figure it out, one day you should have a chance to see the miracle of a K2 running as a SDR and decoding the multiple JT9/JT65-modes simultaneously.

Maybe next month I will finally get to my wonky antenna. In the meantime another reminder to make sure our NPARC Holiday Luncheon is on your calendars. This year the Luncheon will be held at Chimney Rock in Gillette, as it was last year, on Saturday, December 7. James, KB2FCV, has been organizing and will send out more information shortly.

## SCIENTIFIC TIDBITS

### Safer ID Device

The military has a special ID device in development. The Department of Defense has awarded a development contract to create a smartphone that can identify someone from a distance by scanning their face, eyes and thumbs and recording their voice. The “smart mobile identity” device will record facial features and iris or thumb features and send them to a database. The military uses an expensive dedicated device today, but the soldier has to bring it near the persons face and thumb to scan. As this may no longer be necessary, the implications are a little scary. Kiss what is left of individual privacy goodbye.

### More Rover Discovery

The Curiosity Rover has discovered condition on Mars that once were favorable for life, according to NASA. From a new dig site on the gray part of the red planet, the rover found samples that contain the building blocks of life: sulfur, nitrogen, hydrogen, oxygen, phosphorus and carbon. Maybe in the distant past there were little green men from Mars.

### Another New Battery Type

Batteries developed by the Institute of Physical Chemistry of the Polish Academy take in oxygen from the air and turn it into energy. The biofuel batteries are long-lasting and do not contain harmful corrosive material. This makes them perfect candidates for use in bio devices like pacemakers or hearing aids or even futuristic contact lenses that auto-focus.

### Pain, Pain Go Away

A superficial cut just needs a bandage and some time to heal. But now bandages, created by Thimble Bioelectronics, can help heal deeper pain. The company is developing a patch that uses Transcutaneous Electrical Nerve Stimulation (TENS) or low voltage electrical stimulation to help relieve pain. The TENS bandage will feature Bluetooth and a smartphone application for pain monitoring. Some researchers question the effectiveness of TENS treatments. But for people already using larger TENS devices, the new Bandage could be a lifesaver.

Jim WB2EDO

**This issue inaugurates a new periodic Spark Gaps feature—  
For Sale ADS**

**Neither NPARC nor the Spark Gaps staff benefit from these ads and do not warrant their accuracy or the suitability of the items offered. They are Provided as a service to club members and friends.**

This comes from Gerry, AA2ZJ

**ONLY SEALED BIDS WILL BE ACCEPTED.** These items are from the estate of Marty Allen, W2MA.

**Yaesu Transceiver FT 1000 MP ASKING \$700/ B.O.**

This transceiver in excellent condition used virtually for nothing but CW. Yaesu Dynamic Microphone MC-100 included.

**Aluma 40' Crank up Welded Tubular Aluminum Tower.** Includes CDE Rotor and 3 Element 20 meter Beam.

**ASKING \$500/ B.O.** (Must be taken down by purchaser)

**Kenwood TS 520S Package deal.** Includes all Kenwood Digital Display, VFO, Speaker and Microphone.

**ASKING 200/B.O.**

Sealed bids to be mailed to:

Mrs D. Allen  
9 Sandra Circle Westfield, NJ 07090

Bids must be received by November 25, 2013 for consideration.

Please contact Jerry for additional information.