

MOUNTAIN SPARK GAPS

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



**Website: <http://www.nparc.org>
Club Calls: N2XJ, W2FMI
Facebook: New Providence Amateur Radio Club
(NPARC)**

VOLUME 54 NO. 3 March 2021

Regular Meetings

**Second & Fourth Mondays
“ZOOM” until we can all
get together again**

Upcoming Events

**Digital Net Mondays at 9:00 PM
PSK on 80 or 10 meters
CW training Net, Thursday at 9:00 PM
Watch for Email announcements.**

Meeting Schedule

Regular Meeting: 7:30—9:00 PM
2nd & 4th Monday
of each month

ZOOM until further notice

Everyone is Welcome

If a normal meeting night is a holiday,
we usually meet the following night.
Call one of the contacts below
or check the web site

Club Officers for 2021

President: W2PTP Paul Wolfmeyer
201-406-6914
Vice President: K2GLS Bob Willis
973-543-2454
Secretary: K2AL: Al Hanzl
908-872-5021
Treasurer: K2YG Dave Barr
908-277-4283
Activities: KC2OSR: Sam Sealy
973-462-2014

—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

Mondays 9 PM
28,084 — 28,086
Will be using PSK and RTTY
Net control K2YG

Club Internet Address

Website: <http://www.nparc.org>
Webmaster KC2WUF David Bean
Reflector: nparc@mailman.qth.net
Contact K2JV, Barry

MOUNTAIN SPARK GAPS

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Editor: K2EZR Frank McAneny
Contributing Editors:
WB2QOO Rick Anderson
W2PTP Paul Wolfmeyer
K2UI Jim Stekas

Climatological Data for New Providence for February 2021

The following information is provided by Rick, WB2QOO, who has been recording daily weather events at his station for the past 39 years.

TEMPERATURE -

Maximum temperature this February, 46 deg. F
(February 24)

Last February(2020) maximum was 59 deg. F.
Average Maximum temperature this February,
36.0 deg. F

Minimum temperature this February, 13 deg. F
(February 8)

Last February(2020) minimum was 11 deg. F.
Average Minimum temperature this February,
25.1 deg. F

Minimum diurnal temperature range, 2 deg.
(30-28 deg.) 2/2

Maximum diurnal temperature range, 16 deg.
(34-18 deg.) 2/21

Average temperature this February, 30.6 deg.
F

Average temperature last February, 37.7 deg.
F

PRECIPITATION -

Total precipitation this February- 5.28"
rain/snow melt; 33.9" snow.

Total precipitation last February- 3.06"
rain/snow melt; 0.2" snow.

Maximum one day precip. event this February-
February 1, 17" snow.

Measurable snow fell on 7 days this Febru-
ary, 1 day last February.

YTD Precipitation - 8.15"

=====
Rick Anderson

3/11/2021

243 Mountain Ave.

New Providence, NJ

(908)464-8911

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

President's Column March 2021

A special program is coming up in April and we have a Special Business Meeting April 26th—so read on...

Thanks to Dave Barr K2YG for a fine program introducing us to contesting. We have a number of club members active in this area of ham radio. It's a fun area and one you can "get your feet wet" in relatively easily. This was Dave's theme. Our second meeting of March was an informal information-sharing meeting. Congratulations to Heather Speas on passing her Technician exam. And we are glad Bill Hudzik W2UDT is home now after his fall and hospitalization. Gordon West WB6NOA is scheduled for our program on April 12th—his topic will be emergency communications. Attendance is limited to NPARC members and their invited guests—100 total is the limit of my ZOOM. You will need to forward the ZOOM invitation to your invited guests when it comes out about April 9th. For ease of admittance, club members should use their first name and call on their ZOOM window—this is easy to change (if you don't already have it that way already) with a right-click on your name and then selecting "rename". Because of the program on April 12th, we will NOT have our regular business meeting; instead I am calling a Special Business Meeting for April 26th—the specific agenda items are 1) Constitution Bylaw changes and 2) Honorary Life memberships. While the changes are not major, in my view, we do need to do them to be consistent with the way we have been operating and **we need a quorum for the meeting—so please attend.**

The changes, as proposed by the Executive Committee are:

Executive Committee recommended several revisions to the Constitution BY-LAWS to adhere to current technology and to reflect current Club methods and policies.

Sec. 1 NEW MEMBERSHIP

Action: **Eliminate Subsec. A and Subsec. B**

Reason: Outmoded exclusionary wording and not currently applied.

Sec. 4 MEETINGS

Current: "Notices shall be **mailed** to all members..."

New: "Notices shall be **mailed or emailed** to all members..."

Reason: Update per current technology

Sec. 7 OTHER COMMITTEES

Current: “There will be standing committees for **Education, Publicity, and Club Bulletin, and Radio Frequency Interference (RFI).**”

New: “There will be standing committees for **Awards and Officer Election Nominations.**”

Reason: Update to current practice.

The recommendations will be submitted to the club membership for approval per the constitution.

If you wondering what the Constitution and Bylaws currently read, go to our website:

Constitution—

<http://www.nparc.org/constitution.html>

Bylaws—

<http://www.nparc.org/bylaws.html>

At our Executive Committee Meeting, we also discussed several other items:

- 1) Members who are un-renewed at this time because they have not paid dues. Dues must be paid by the end of March.
- 2) Recommendations for Honorary Life Memberships (approved for submission to the club membership).
- 3) Adding our Hudson Director Ria Jairam N2RJ as an Associate Member (approved).
- 4) Field Day 2021—expect to participate as we did last year with no club specific site.
- 5) Memorial Day NP Parade—expect (sadly) to be cancelled.
- 6) Location for return to in-person meeting (at least once per month) in fall
New Providence will be contacted re Senior Center.

On to springtime!!

73

Wolf W2PTP

Another Month, Another Gadget

Jim Stekas - K2UI

As a young ham my first piece of test equipment was a screwdriver. Touching it to the grid of each stage of a receiver injected noise and one could identify where the signal got lost. With luck, swapping in another tube could get me on the air again. But if it was anything other than a bad tube, that was a dead end. I soon augmented the screwdriver with my first serious bit of test gear, a VOM from Lafayette electronics that set me back about \$20. It was more than a week of paperboy wages, but it unlocked measurements that revealed the invisible workings of my radio gear. That VOM was just the first step down a lifetime path of “Gear Acquisition” (GA).

A 10MHz dual trace oscilloscope was another major addition, followed by a homebrew 400 MHz spectrum analyzer¹ designed by K2BLA that used the oscilloscope as an output device. The design used a modified varactor tunable CATV tuner modified to up-convert 0-400 MHz to a 512 MHz first IF. A saw-tooth generator swept the frequency and controlled the X-axis and a logarithmic amplifier fed the Y-axis. The frequency and power scales were not calibrated, dynamic range was low, and resolution was poor. I had cut a lot of corners and the result fell short of useful test instrument that K2BLA had built.

Recently I came across the TinySA, a small spectrum analyzer in a package similar (identical?!) to the NanoVNA. It covers the frequency range 0.1-350 MHz by design, but will go up 960 MHz with “lesser quality”. It didn’t take long for me put in a \$60 order with Amazon. A few days later I received the items below.



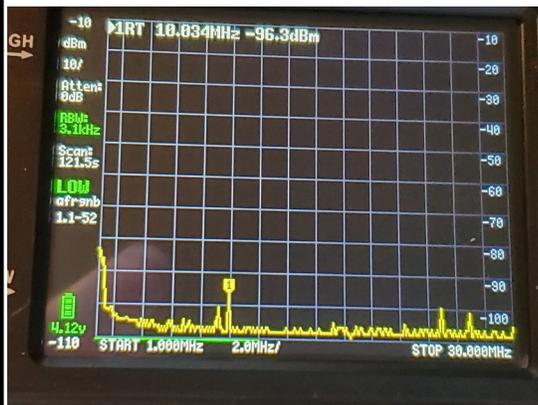
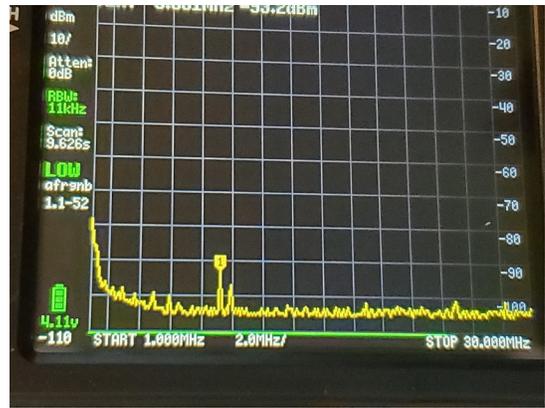
The TinySA arrives with everything you need to get it working save a USB charger. Documentation and information on recognizing poorly built clones can be found at www.tinysa.org. PC control and display software is available, but I haven’t bothered (yet). One of the nice features of the device is that it is very portable and self contained, which goes away when connected to a PC. A larger version with a 4 inch display may be released in the future if there is sufficient demand.

1 “An Inexpensive Spectrum Analyzer for the Radio Amateur”, K2NLA, QST Nov. 1985.

To the right is a sweep of 1-30 MHz at a resolution of 11 kHz with TinySA connected to my OCF antenna.

Note that not many signals are seen. A spectrum analyzer is not a receiver, and I don't think a vintage HP spectrum would do much better. The noise level is about -104 dBm, a good 20 dB worse than your ham rig.

Also note that the scan took 9.6 sec, which a long time. Only 3 msec are spent on any given frequency bin, about 0.03% of the scan time.



The narrowest resolution supported is 3 kHz which is about the bandwidth of an SSB signal and far too coarse for sweeping narrowband filters. The figure to the left is a 3 kHz resolution sweep from 1-30 MHz which took a whopping 120 seconds! So if you are looking for a short duration SSB signal that pops up now and again you are very likely to miss it.

If scans take too long, you will need to increase resolution bandwidth, decrease the sweep width, or both.

The purpose of a spectrum analyzer is to show the frequency spectrum of strong signals well above the noise floor such as transmitter harmonics. Dynamic range tends to be more important than sensitivity, and the TinySA should work well as a replacement for a 30 year old HP in many applications.

The TinySA should be very useful at Field Day to help adjust antenna tuners for low SWR *and* harmonic interference. Often tuners can get to a 1:1 SWR at multiple settings, but those settings may have very different levels of harmonic suppression, which goes unmeasured. TinySA gives us a cheap and effective way to measure harmonic radiation and possibly do something about it.

This article leaves out more than it reveals about the TinySA, and that is by design. There are so many reviews and tutorials available on-line it should be easy to fill in the blanks. The key point to be made is that you can now buy a real spectrum analyzer that fits in your pocket for about \$50. Amazing.