

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 52 NO. 5 May 2017

UPCOMING EVENTS

Field Day

6/24—6/25

See President's column.

Regular Meetings

6/12 & 6/26

Mondays at 7:30

DeCorso Community Center

Meeting Schedule

Regular Meeting: 7:30—9:00 PM
2nd Monday of each month at the
NP Senior & Adult Center
15 East Forth Street
New Providence

Informal Project Meeting: 7:30—9:00
PM

4th Monday of each month
Same location

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 2017

President: W2PTP Paul Wolfmeyer
201-404-6914
Vice President: K2GLS Bob Willis
973-543-2454
Secretary: K2AL Al Hanzl
908-872-5021
Treasurer: K2YG Dave Barr
908-277-4283
Activities: AC2GL David Hartman
908-665-1419

—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 and Third Mondays
28,084—28,086 kHz
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 K2UI, Jim

MOUNTAIN SPARK GAPS

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Contributing Editors:
WB2OOO Rick Anderson
W2PTP Paul Wolfmeyer
K2UI Jim Stekas

Climatological Data for New Providence for April 2017

The following information is provided by
Rick, WB2OOO, who has been recording
daily weather events at his station for the
past 35 years.

TEMPERATURE -

Maximum temperature this April, 86 deg. F
(April 11, 16)
Last April (2016) maximum was 80 deg. F.
Average Maximum temperature this April, 66.6
deg. F
Minimum temperature this April, 33 deg. F
(April 9)
Last April (2016) minimum was 22 deg. F.
Average Minimum temperature this April, 45.8
deg. F
Minimum diurnal temperature range, 5 deg.
(46-41 deg.) 4/6
Maximum diurnal temperature range, 36 deg.
(79-43 deg.) 4/10
Average temperature this April, 56.2 deg. F
Average temperature last April, 51.6 deg. F

PRECIPITATION -

Total precipitation this April - 3.52" rain
Total precipitation last April - 1.99" rain
Maximum one day precip. event this April -
April 4, 1.0" rain
Measurable rain fell on 13 days this April,
13 days last April.
YTD Precipitation - 14.98" (includes rain +
melted snow; 22.25" snow as of 3/31/17)

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Rick Anderson
5/13/17

243 Mountain Ave.
New Providence, NJ
(908) 464-8912

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
-UN-10

President's Column May 2017

First, our condolences to David Hartman AC2GL on the passing of his wife Saturday, May 27. Our thoughts and prayers are with David and his family.

The Memorial Day Parade was damp (but not a downpour)! Thanks to Rick WB2QOQ for coordinating our participation. We had ten walkers—up from the last couple of years. Thanks to the participants.

Next up is Field Day—June 24 and 25. We are approved to be at Governor Livingston High again and our operations will include digital modes at one of the HF stations and GOTA (get on the air). GOTA is a way for new hams and prospective hams to get on the air with coaching right there. So plan to be there and operate. We still need a GOTA leader—so please step up to this if you can—call me.

We are also looking for the fourth gazebo—we know W2UDT, K2AL, and K2EZR each have one—but where is the fourth? K2MUN used to have it and I took it from the last Field Day and brought it to the club meeting, but I can't remember who took it from there...Help?

The digital net is operating on first and third Mondays at 9 PM. We are limiting it to PSK31 and RTTY at this time to encourage more people to join. I know a couple of you are trying to get on—let us know if we can help, although getting on is rig and computer dependent... I found the ARRL pub "Get on the Air with HF Digital" very helpful and done in a step by step approach. I'd suggest Dave K2YG, David KC2WUF, Al K2AL, or Bob K2GLS as possible mentors—talk to them or to me.

Finally—get your QSLS for "pooling" to Sam KC2OSR.

73 for now

Wolf

W2PTP

201-404-6914 or W2PTP@arrl.net

Using Quad-Copter Power

Jim Stekas - K2UI

For small homebrew projects my battery of preference has long been the alkaline AA. They're small, have a good battery life, and are reasonably priced when bought in bulk. NiCad and NiMH batteries are available in the AA form factor are rechargeable alternatives, but their capacity is only about ½ that of an alkaline. With alkaline AAs, I can fill my HT with brand new, fully charged batteries for about \$2.

I recently built a hand-held VNA (www.qsl.net/k5bcq/Kits/Kits.html) that requires +5V DC power. The kit came with two 3xAA battery holders (9v in series) and a small DC-to-DC "buck" converter to drop the voltage to 5v. Unfortunately the enclosure I used was n't quite big enough to accommodate the AA batteries cleanly. (I could have soldered them in series and squeezed them into whatever random places I could find, but this project deserved better.) What to do?

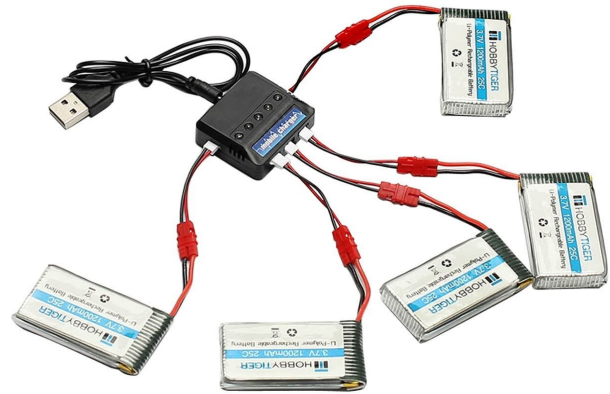
At work we had some discarded 3-cell Lithium Polymer (LiPo) batteries so I decided to try powering my cool little gadget with one. The LiPo I used was a 3-cell battery that put out about 11.1v, a bit more than 6xAAs. But the DC-to-DC converter was rated up to 20v input so I figured it would work. And it did ... for about 30 seconds. Then the converter overheated and failed, delivering the entire 11.1v across the 5v power input. The CPU board was instantly fried along with who knows what else. Fortunately, the CPU board was the only fatality and I was back in business a week later at a cost of \$25. This time I was determined not to repeat my stupidity.



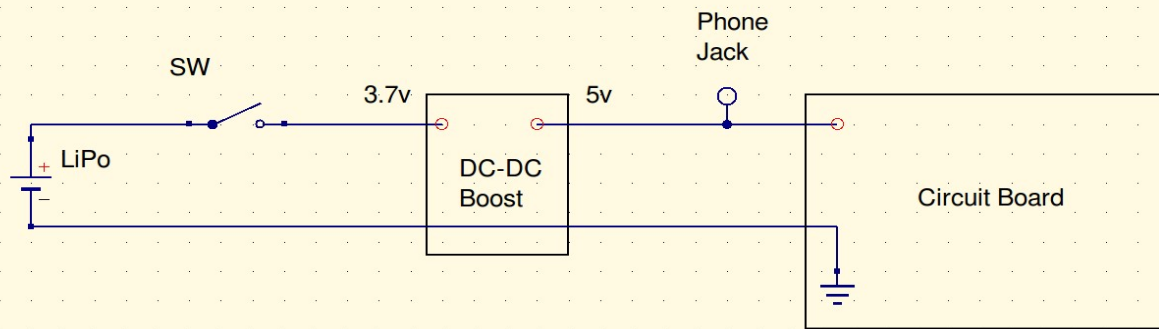
Net Weight: 26g

Quad copters to the rescue! Well, not the actual copters but quad copter LiPo batteries. A typical quad copter is powered by five little 3.7V one-cell LiPo batteries, each about the size of a pack of Tic-Tacs. Capacities of these batteries range from 350-1200mAh, enough to provide 100ma for up to 10 hours.

For a little over \$20 I picked up a set of five batteries with charger from Amazon. I also ordered some pigtails to plug into the battery and connect it to the circuit.



The circuit I used is shown below. The DC-DC converter provides a boost from the 3.7v from the LiPo battery to the 5v needed by my circuit board. The boost configuration allows me to power my project with a tiny little battery and protects my circuit board from over voltage should the converter fail.



The 1/8 inch phone jack serves two purposes. When the switch is on and the circuit is powered, the jack provides a simple way of monitoring the voltage into the circuit board. When the switch is off, the jack can be used to provide power from an external 5v source. (Putting 5v across the DC-DC converter output doesn't cause any problems for the converter or my cellphone charger.)

The LiPo battery would be lost in the space where 6xAAAs couldn't quite fit. I used a few pieces of pink electrostatic foam to safely contain the LiPo and keep it from bouncing around. I cut the end off a USB cable and soldered on a 1/8 phone plug, allowing me to use a cellphone charger to power my circuit when working at the bench.



The small DC-to-DC converter is mounted on a wall of the enclosure using double sided tape (photo at right). It can be seen next to the 1/8 inch phone plug just above the circuit board. The tiny circuit board could easily be hidden under a quarter.



| | |
|-----------------------|---|
| Model specifications | DSN6009 Boost converter Module |
| Module nature | Non-Isolated Boost |
| Rectification method | Non-synchronous rectification |
| Input voltage | 3V ~ 30V(optimum operating voltage range: 5V to 30V) |
| Output voltage | 5V ~ 35V |
| Input Current | 4A (max), No-load: 18mA (5V input, 8V output, no load less than 18mA. The higher the voltage, the greater the no-load current.) |
| Conversion efficiency | <94% (the greater the pressure, the lower the efficiency) |
| Switching frequency | 400KHz |
| Output ripple | 50mV (the higher the voltage, the greater the current, the larger the ripple) |
| Load Regulation | ± 0.5% |
| Voltage regulation | ± 0.5% |
| Operating temperature | -40 °C ~ + 85 °C |
| Dimensions | 43mm * 21mm * 14mm (L * W * H) |

Many small DC-DC converters are available for \$1-3 each from Amazon and Ebay depending on quantity. They are all manufactured in China to unknown quality standards. Before you buy, read the reviews and make sure you get something with a clean DC output and a voltage that can be reliably adjusted. If you are building a sensitive HF receiver assume that you will have to add some filtering to prevent RF hash from the converter leaking into you receiver. Some good old AA batteries might be a better solution.