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)

December 2024

Volume 57 No. 12

Regular Meetings

Second & Fourth Mondays
at New Providence Municipal Center

December 7 - NPARC Luncheon
December 9 - Power Supplies
December 23 - No Meeting

Upcoming Events

Digital Net Mondays at 9 PM – 28.085 MHz (+/-)
CW Training Net, 9PM Thurs – 28.050 or 7.030 MHz

Check announcements in the Reflector for details.

Meeting Schedule

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

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 2024

President: K2UI, Jim Stekas
908-868-4970
Vice President:W2EMC Brian DeLuca
973-543-2454
Secretary: K2AL: Al Hanzl
908-872-5021
Treasurer: K2YG Dave Barr
908-277-4283
Activities: KC2OSR, Sam Sealy
973-635-8966

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 MHz
Will be using PSK and RTTY
Net control KC2WUF

CW Training Net
Thursdays 9 PM
28.050 or 7.050 MHz
Net control K2YG

Club Internet Address

Website: http://www.nparc.org
Webmaster KC2WUF David Bean
Reflector: nparc@mailman.qth.net
Contact K2AL, Al

MOUNTAIN SPARK GAPS

Published Monthly by NPARC, Inc.
The Watchung Mountain Area Radio Club
P.O. Box 813
New Providence, NJ 07974

Editor Emeritus: K2EZR Frank McAneny
Acting Editor: K2UI Jim Stekas
Contributing Editors:
WB2QOQ Rick Anderson

Climatological Data for New Providence - September 2024

The following information is provided by Rick, WB2QOQ, who has been recording daily weather events at his station for the past 43 years.

TEMPERATURE -

Maximum temp. this October, 78 F (October 22,31)
Last October(2023) maximum was 78 F.
Average Maximum temp this October, 67.0 F

Minimum temp this October, 36 F (October 28)
Last October(2023) minimum was 40 F.
Average Minimum temp this October, 47.0 F

Minimum diurnal temp range, 11 F (68 – 57 F)10/2
Maximum diurnal temp range, 32 F(78 - 46 F)10/22

Average temp this October, 57.0 F
Average temp last October, 57.4 F

PRECIPITATION -

Total precipitation this October– Trace rain
Total precipitation last October– 2.93” rain

Maximum one day precip. event this October 29, Trace rain.
Measurable rain fell on 0 days this October
11 days last October.

YTD Precipitation – 40.19”

==========

Rick Anderson 11/17/2024
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

Al, K2AL, has been testing the new FT-710 transceiver purchased for Field Day and other NPARC events. The rig has worked well and no operational issues have been encountered. Based on Al's evaluation we have ordered a second rig.

The Icom IC-756 Pros that we used last year will be sold to cover some of the cost of the new Yaesus. We will give club members the first shot at purchasing these rigs. Details are TBD.

At the November 25 members elected the following slate of new officers for 2025:

President – Al Hanzl, K2AL
Vice President – Brian Deluca, W2EMC
Secretary – Al Hanzl, K2AL (Acting)
Treasurer – Dave Barr, K2YG
Activities – Kevin Glynn, N2TO

Al Hanzl will serve as Secretary until we can find someone to relieve him of that duty.

The annual NPARC Holiday/Awards Luncheon will be held on December 7 from 11:30 to 2:30 at the Vintage Tavern, 342 Valley Rd, Gillette. We look forward to a good turnout and Zita's ice cream.

Be sure to check out Colin Phoon's (AE3A) excellent article on his collection of straight keys and their history.

73,
Jim – K2UI

Popular Contests in December 2024

Dave Barr – K2YG

Contest Name*	Dates (EDT)	Modes	Exchange	Notes & Websites**
ARRL 160-Meter Contest	Fri 12/6 5pm to Sun 12/8 11am,	CW	W/VE: rst + section DX: rst	QRP/LP/HP 160 Meters Only Rules: www.arrl.org
FT Challenge	Sat 12/7 1pm to Sun 12/8 7pm	FT8/FT4	Signal Report + 4 Character Grid Square	QRP/LP 80-10 Meters Rules at: www.rttycontesting.com
ARRL 10-Meter Contest	Fri 12/13 7pm to Sun 7pm12/15	CW Phone	W/VE/XE: rst + State/Prov DX: rst + serial #	QRP/LP/HP 10 Meters Only Rules: www.arrl.org
OK DX RTTY Contest	Fri 12/20 7pm to Sat 12/21 7pm	RTTY	RST + CQ Zone	LP/HP 80 – 10 meters Rules at: okrtty.crk.cz
Stew Perry Topband Challenge	Sat 12/28 10am-Sun 12/29 10am	CW	4 Character Grid Square	QRP/LP/HP 160 m only. Rules at: www.kkn.net
ARRL Straight Key Night	Tue 12/31 7pm to Wed 1/1 7pm	CW	Not a contest. Just have a short or long rag chew.	All Bands. No score. Straight key or bug preferred. Info at: www.arrl.org

* State QSO Parties allow out-of-state stations to contact only in-state stations for that specific contest. In-state stations may contact all contest stations. See websites for county abbreviation lists. State qso parties begin again in February.

** No WARC bands in any contest.

There are many more contests every month including weekly and monthly repeating contests with a variety of abilities required, such as slow speed cw contests. Check www.contestcalendar.com or contest specific websites for more information.

Keys to Communications
A Journey Through Some Straight Keys
Colin Phoon, AE3A

Although I don't get on the air often, when I do, it's almost always QRP CW. I grew up with Heathkit equipment in my high school and a JJ-38[1] straight key, and somehow never evolved much from there. What has changed is the acquisition of more modern ham gear and a collection of straight keys (also known as "hand keys.")

Most of the keys in the shack are no longer manufactured, but can be found on eBay and ham swap/auction sites. These brief blurbs are culled from the Internet (URL's provided, accessed 11/22/24 & 11/23/24) as well as *Perera's Telegraph Collectors Guide* (W1TP; see Print Sources).

- **Nye Viking Speed-X**: According to 4S6TMP, the Speed-X straight key is a classic straight key first made by Les Logan (1937), then by E.F. Johnson (1947) and subsequently by the Wm. M. Nye Company (early 1970's). Many Speed-X keys have an oval base, in contrast to this one with its rounded rectangular base, which is a different Speed-X model. The knob is a so-called "Navy knob," which is a "doorknob style knob with a flat base under it" that allows the operator to rest a finger (or fingers) on the top level. I secured my Speed-X key on a J-38 Bakelite base... backwards, so that I wouldn't need to hold the base to transmit.

- **Nye Viking Master**: According to WJ1B, this key was the mainstay of the Nye line. I agree this key has a great (read: very clean) action, supported by its heavy base. Apparently, it is often described as "the perfect key". It's one of my favorite keys.

---

1 - A Japanese copy of the U.S. J-38 design.

- **CMI-26003A Navy "flameproof"**: This key was widely used throughout World War II. It was called "flameproof" because the contacts are totally enclosed, allowing it to be used in explosive environments without the danger of sparks. The Navy knob was designed differently from the others shown in the picture -- taller. Several manufacturers made this key, and the second and third letters tell you the manufacturer: This CMI-26003A key was made by the (Contracted out) Moulded Insulator Company (Philadelphia, PA).
  According to W1TP's book, the design was copied from the German Luftwaffe flameproof key, but another website claims it's the other way around! - "These keys were once believed to be copies of German Luftwaffe keys. However - a recent blueprint has surfaced showing they are a progression of the Navy _26000 flameproof key. This document is dated Jun 2, 1919 and could be the earliest recorded use of the _26000 numbering scheme. It is now suggested that the Germans copied the Luftwaffe key from the _26003A."

- **British MKIII**: The WT-8A AMP key was made in huge quantities starting in the 1920's. This key used by the British armed forces with most of their communications gear throughout World War II. The WT-8 AMP key evolved through several different models. For more than you would ever want to know about the WT-8 AMP key, please consult: N7CFO. (57 pages!!)

- **Bulgarian key**: Further research (using Google Translate!) revealed this to be a Bulgarian Damjanov key. According to 9H1PI, "This Bulgarian key is marked on the top of the cover with 'G. Damjanov' [Г. Дамянов] and 'Razgrad' [РАЗГРАД]. G. Damjanov was the name of the factory and Razgrad is the city in which it was located. George Parvanov Damjanov, 1892-1958 was a hero of socialistic work." (www.9h1pi.com)

- **Ham-Key HK-3M**: These were manufactured by the Ham Key Company in St. Louis, MO, and "are essentially knock-offs of Brown Bros.' work" (KD2UJ), produced ca. 1975 (Radio Museum). While an attractive key, the frame is made partly of molded plastic, and the feel is "gummier" than many other keys.

- **Brown Brothers Model ST**: As you can see, the Brown Brothers key and the Ham-Key are indeed similar in appearance. I agree with W1JB that these keys are of higher quality, with a clean, crisp action. According to W1JB, "These keys were hand-made from 1964 to 1979 by Bill Brown who made the die-cast machine and all the parts himself. He also designed, painted and labeled each key ever made by the BBMC [Brown Brothers Machine Company]. The keys were made in his basement shop." Further information from Jim Zimmerman, KG6VI (QSL.net): "The ST was the original straight key of the BBMC line. It used a conventional pivot mechanism to give the make-break key switch action. Connections to the transmitter key jack cable was through two rear-mounted, screw-type terminals. The key's knob was a Navy style (with skirt), in the usual bright red color."

- **J-37 "Mae West"**: The J-37 is a general-purpose radio key manufactured with a phenolic oval base. This is a very common key and was the “real workhorse key” of WWII, the Korean War, and even into the Vietnam era (K6IX). One distinctive feature is that this key lacks a spring to adjust the tension; instead, there is a metal leaf spring, which also provides the ground connection to the lever. The special base shown was "designed to allow the connecting wire to be wrapped around the key and base so that they both can be stored in the cover of the... AN/GSC-T1 Training Set” (W1TP). Trivia: This J-37 key model was nicknamed the "Mae West" key because of the hourglass waist shape of its Bakelite base.

- **Lionel J-38**: The J-38 is a general-purpose radio key that was made in very large quantities during World War II and used by the U.S. Army Signal Corps. Many manufacturers made these keys, but it seems the ones made by the Lionel Electric Company (manufacturers of the Lionel toy trains, yep!) are among the most sought-after. J-38 keys have binding posts with a shorting strap at the back, which were used to connect a set of headphones to a Signal Corps radio/telegraph operator training set (K6IX). The Bakelite base of a Lionel key has distinctly rounded corners, and there is the Lionel "L" logo on the bottom.

- **Soviet key**: When I set up my ham shack again in 2003 – after many years of inactivity – I bought an entry-level HF rig, the Yaesu FT-840 (upper left) and needed a telegraph key, which was gifted to me by my father-in-law, Barry Cohen (K2JV, SK). W1TP called these "Plastic-Based Russian Military Keys"; they are of a simple design and show the influence of the "classic European-style straight lever." If you look closely, this key and the British MKIII are the only two in the photo with a straight lever; the rest sport a modified step lever or curved (aka “Triumph”) lever design.

- **Chinese Army key DJG-K4**: In 2008, W1TP wrote, "These nicely made keys are beginning to show up in small quantities in the U.S." Despite the name, W1TP has stated this is not a military key! According to OH6NT, this army key was/is manufactured by Changsu Telecommunication (OH6NT). The online store Radioworld UK states that these keys were “made for the Chinese Peoples' Liberation Army (PLA) in factories owned by the PLA, from the early 1960s to the present time.” (radioworld.co.uk)

As you can see, it's a very old-fashioned shack – no computers, no SDR, nothing digital (except the clock!). (The unassuming box at the upper right is a RockMite-40 crystal-controlled transceiver in a commercial enclosure, my first foray into kit building. See the April 2003 QST article by Dave Benson, K1SWL: ARRL.org)

I’d be very curious to see what keys NPARC members have in their shacks!

Colin, AE3A

Print sources:

1 *Perera's Telegraph Collectors Guide*, 3rd ed. Prof. Tom Perera, W1TP. Radio Society of Great Britain, Herts., UK, 2008. (For W1TP's online Telegraph & Scientific Instrument Museums, see also: http://w1tp.com/)

Fldigi and the NPARC Digital Net

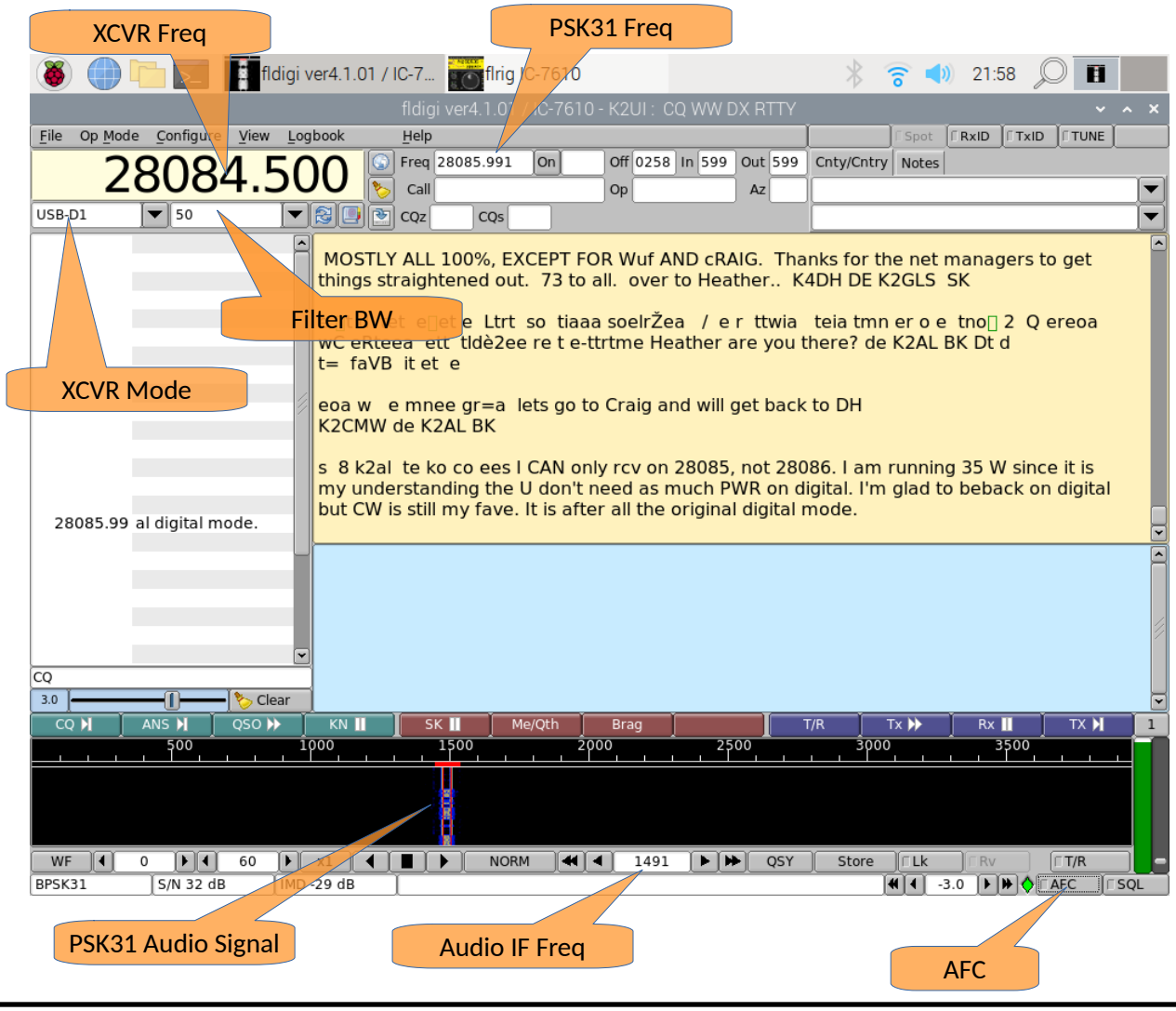
Jim Stekas – K2UI

Most Monday nights NPARC holds a digital net on 28086 KHz at 9PM local time. The digital mode we have settled on is PSK31, which has good performance and minimal delay. We all use **`fldigi`** for coding and decoding the PSK31 signals.

Much of the strength of PSK31 coding lies in its narrow bandwidth of 31 Hz, which allows the use of a narrow filter to reject as much noise as possible while passing the signal. With **`fldigi`** there are two stages of filtering:

1. the SSB filter in the transceiver (~2400 Hz), and
2. the digital filtering of the audio in **`fldigi`** (~50 Hz).

For 100% copy, a PSK31 receiver must be tuned within a few Hz of the transmitted signal. Being 10 Hz off in frequency generally means 0% copy. Therefore it is important to understand how **`fldigi`** allows for precise frequency control. The figure below shows my **`fldigi`** screen from a recent NPARC digital net on 28086 kHz.



The following are key areas of interest on the **fldigi** display:

- **XCVR Mod**e - By default, **fldigi** expects USB audio. The USB-***D1*** means that the transceiver is processing audio from a digital stream as opposed to analog microphone and speaker.
- **Filter BW** – The bandwidth of the **fldigi** baseband audio filtering.
- **XCVR Freq** – The frequency that the transceiver is tuned to, 28084.5 KHz. **fldigi** reads this over a rig control interface like CI-V.
- **PSK31 Freq** - The RF center frequency of the PSK31 signal, 28085.991 KHz. It is the sum of the XCVR frequency and the PSK31 audio frequency.
- **PSK31 Audio Signal** – A waterfall display of the PSK31 audio signal from the XCVR. The red lines bracketing the signal show the passband of the **fldigi** filter, which should surround the signal when properly tuned.
- **Audio IF Frequency** – The center frequency of the PSK31 audio signal, 1491 KHz.
- **AFC** – Automatic Frequency Control, will automatically track a PSK31 signal.

Note that in this example **fldigi** is set up for a nominal audio IF frequency of 1500 Hz. Another common audio IF is 1000 Hz, in which case the transceiver would be tuned to 28085 kHz. In either case the over-the-air frequency would be 28086 KHz.

Operating on the NPARC Digital Net

What follows assumes you have set up **fldigi** to work with your rig. Consult on-line resources for instructions and ask for help if you need it. When checking into the NPARC digital net you should take the following steps …

1. Set **fldigi** for PSK31 and set the transceiver to 28086 KHz minus the audio IF.
2. Listen for NCS calling CQ. Click on the waterfall to adjust the audio IF so you are tuned to his frequency. Turn on AFC and allow it to fine tune. You should have clean copy of NCS.
3. Right down the audio IF frequency for later reference.
4. Turn off the AFC! This will keep you from tracking off frequency when there is no signal.
5. Call the NCS with the same parameters used to receive. You should be exactly on NCS frequency.

If other stations' transmissions are off NCS frequency, you will need to click on the waterfall and/or use the AFC to adjust the IF to get 100% copy. In this configuration you will have solid copy but you will be off NCS frequency. When is your turn to transmit, you have two possible choices:

1. set the IF frequency to the value you wrote down in step 3 to get back on NCS frequency, or
2. transmit with the current receive parameters to stay on the same frequency as the last station.

If all stations use choice #1 then everyone should stay on or close to NCS frequency. Choice #2 require little retuning but the entire net will drift in frequency. In either case, sign your call your call multiple time to allow others to tune to your exact frequency.