



The Blurbs



Newsletter of The Phil-Mont Mobile Radio Club

68 Years of Public Service, 1949-2017

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October 2017

The General Meeting on the 11th

Inside ... Barry K3EUI gives us part 1 of his primer on FT-8: New Digital Mode



Hams and ARRL helping in Puerto Rico

"Force of 50" Steps Up to Assist Hurricane-Ravaged Puerto Rico

Members of the Amateur Radio community have volunteered to assist in the ongoing recovery from Hurricane Maria, which devastated Puerto Rico and Dominica and, to a lesser extent, the US Virgin Islands. This week, 50 of the most accomplished US radio amateurs responded within 24 hours to a call from the American Red Cross (ARC) to deploy to Puerto Rico and provide emergency communications assistance there. At the ARC's request,

ARRL rallied the US Amateur Radio community to provide up to 25 two-person teams of highly qualified hams. ARRL CEO Tom Gallagher, NY2RF, said that more than 350 answered the call, from nearly every state. "This generous outpouring of response represents the finest qualities of the Amateur Radio community," he said. "These individuals are dropping whatever they are doing now, heading off to an extended hardship-duty assignment, and offering their special talents to Americans who have been cut off from their families, living amid widespread destruction and without electrical power since Hurricane Maria struck the Caribbean region last week."

continued on page 7



<p><i>The Blurb</i> is published monthly by and for the members of The PHIL-MONT MOBILE RADIO CLUB, Inc., whose purpose is to promote Amateur Radio in general, and Mobile Radio in particular. Copying and quoting is permitted with a credit line. We gladly exchange publications with other amateur radio clubs.</p> <p>Requests should be sent to the Editor: Rick DeVirgiliis ND3B@ARRL.net</p> <p>Subscriptions are available to non-members for \$12, addressed to the Treasurer.</p> <p>Labels and mailing: KB3IV</p> <p>Submissions deadline: All copy must be in the hands of the Editor by the 20th of the previous month.</p>	<p>Directors:</p> <p>AJ3DI (18) WA3DSP (18) KB2ERL (18) N3QV (17) W3RM (17) K3HWG (17) W3AOK (A)</p>	<p>Contact Phil-Mont: P.O. Box 404 Warminster, PA 18974 http://www.phil-mont.org Website: Eric N3QV & Andrew KC2PMW</p> <p>For club information: Contact any club officer, or the repeaters listed below. Address or club directory changes and articles for the membership e-mail list should be sent to: KB3IV</p>	
<p>Committees</p> <p>Blurb folding: KB3IV & N3GLU Directory: KB3IV Field Day: KC2PMW Fusion Coord: NC3U</p>	<p>Internet: N3QV & KC2PMW Membership: K3HWG Net Control: KB3IV</p>	<p>Program: W3AOK Publicity: W3RM Refreshments: W3AOK Repeater: W3AOK</p>	<p>Scholarship: W3RM Sunshine: N3GLU VE Program: NS3K Welcome: N3UBY Youth: KC2PMW</p>

- Sunday Morning Net Schedules**
- **2 Meter/ 70cm Net**..... at 0930L on W3QV repeater
 - **10-on-10 Net** at 1000L 28.393 MHz USB (±QRM)
 - **75 meter Net** at 1020L 3.993 MHz LSB
 - **ARES** at 2100L on the W3QV repeater

All visitors are welcome!

The club meets at 7:00 PM on the *second* non-holiday Wednesday each month except July and August at Giant Supermarket, 315 York Rd, Willow Grove, PA
 Maps and directions are available at www.phil-mont.org.

License Examinations are held on the fourth **non-holiday Thursday** each month at **Community Ambulance Association, 1414 E. Butler Pike, Ambler PA 19002**
 Registration begins at 7:00 P.M. Applicants should contact Jim McCloskey NS3K at 215-275-2979 or jmccloskey@msn.com for the latest information.

Club Stations W3QV/R: The Jim Spencer Memorial Repeater System
 Ridge & Port Royal Avenues, Philadelphia, PA **Trustee: W3RM**
147.03 MHz + PL 91.5 Hz 444.80 MHz + PL 186.2 Hz C4FM Fusion digital
 Reach us on EchoLink through W3QV-R
W3AA Trustee: WU3I
W3EM: Field Day/special event station Trustee: N3OV

The Officers

President: NC3U Sal Marandola nc3u@verizon.net
Vice President: WA3GM Greg Malone wa3gm@yahoo.com
Treas: KB3IV Ed Masarsky kb3iv@comcast.net
Secretary: WU3I Steve Hoch wu3i@arrl.net

The Prez Sez ...

Hello Phil-Mont Members,

Fall is here and I hope everyone is doing well. Last meeting was great! Barry W3EUI did an outstanding presentation on RFI. He could have easily gone another hour. I hope we can get Barry back again in the spring.

This month we will have Tom Nolan W3EX going over our Montgomery County Races-Ares. Are we ready for a disaster? Come with your questions. He also has a new toy to show off he has a Maestro for his Flex radio I'm sure everyone would like to take a look.

Breakfast at Andy's in Spring House is set up for 10 AM on October 7th. Any questions ask at the meeting.

I would like to thank everyone who helps make Phil-Mont the club that it is, from the officers to the people who update web sites and face book and our all-important repeater gurus and system operators. Everything helps us be the best Radio Club in the area.

Hopefully please listen to the nets and read the emails from the Philmontmobileradio newsgroup. If anyone has an idea please send me an email at nc3u@arrl.net or at nc3u@verizon.net.

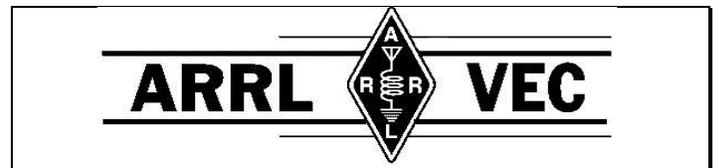
Don't forget that Phil-Mont has a Yahoo mailing list. This is one of the best ways to get some up to

date news on things going on at the club. Look up philmontmobileradioclub in the Yahoo list and you will find us.

I hope to see everyone at a meeting and have the opportunity to shake your hand.

Remember we are not a club without YOU

73, Sal NC3U



*Thursday evening session is
on the 26th this month.*

As always, many thanks to our VE team!

Phil-Mont Birthdays & Tidbytes**OCTOBER BIRTHDAYS**

- 01 Ed Masarsky - KB3IV
- 02 Donna Stevenson (XYL K3HWE)
- 03 Lisa Brady – KA3VIL(XYL N3CB)
Susan Lamont (XYL N3SHM)
John Egoville-KA3BBU
- 05 Domenic Cantarella K3DTC
- 06 Chris Brady – N3CB
Joan Freer (XYL W3YLT)
- 08 Frank Kohn - W3MHP
- 09 Griffin Timm - W3HIA
- 10 Patricia Dinardi (XYL N3XKE)
- 11 Charlye Johnson, Jr. - K3CJ
- 20 Rita Ruhl (XYL N3GBJ)
- 29 Bob Harcarik WA2POW
- 31 Dick Klein - W3WXC
Norman Miles-AA3ZZ

MEMBERSHIP STATS

At press time P.M.R.C. has:
 107 FULL PAID MEMBERS
 10 FAMILY MEMBERS
 3 YOUTH MEMBERS
 1 HONORARY MEMBERS

New member application:

John Egoville KA3BBU
 Oreland, Pa.
 General Class
 Validation Engineer

From the Secretary

Board of Directors minutes 9/6/2017

Meeting opened at 7:16 by NC3U. In Attendance were KB2ERL, KB3IV, W3AOK, WA3KIO, WA3GM, AJ3DI, N3QV and WU3I

REPEATER

W3AOK reported current PECO power issues. New wood siding to be installed.

FIELD DAY

KB2ERL reported that bandpass filters were acquired by WU3I for the operation in 2018. This should cut down on station to station interference.

KB3IV reported that the club calls W3EM & W3QV have been renewed.

Membership AA3WB and KC3JPI were new members with W3HYB a returning member.

Treasury we are doing well for september.

NEW BUSINESS

Motion made to buy Bandpass Filters for \$214.00 by AJ3DI seconded by WA3GM Motion carried.

NC3U brought up the recent events of timing out the repeater. Discussion ensued.

KB3IV brought up Social Events and a Breakfast was planned at Andy's Diner in Springhouse on 10/7.

AJ3DI brought up the new Domain available radio Discussion ensued.

WA3GM was appointed Nomination Chairperson for the upcoming elections. Be ready for a phone call.

KB3IV started a discussion about lightening his Club Load as he is wearing way too many hats (and he does not wear a hat).

Motion to close by AJ3DI Seconded by WA32GM. Motion carried.

General Meeting Minutes 9/13/2017

NC3U opened the meeting at 7:02 PM and presented K3EUI who gave an informative talk on Radio Frequency Interference (RFI).

KB3IV reported that the treasury is in great shape. AF4NC reported that K3RF has been disqualified to run for Election as Director of the Atlantic Division. The league is pushing for K4ZDH Riley Hollingsworth of Gettysburg PA. The division is promoting K3QNT Lloyd Roach a lifelong PA resident located in Bedford PA. Please make sure to vote in the upcoming election.

It was announced that WA3GM is the Nominating Committee Chairperson (be very afraid).

The meeting was attended by 25 Members and 6 guests.

KB2ERL reminded all of the upcoming MS150 and the need for more Operators.

Motion to Adjourn WA3GM Seconded by WU3I Meeting adjourned.

Respectfully Submitted.

Steve, WU3I

FT-8: New Digital Mode Dominating the HF Bands

By K3EUI Barry Feierman

Part I Digi Mode Summary

Listen to the 20 meter band midday and what you will likely notice is the scarcity of RTTY and PSK31 signals. Why is that so? Who is the “new kid on the block”? If you are interested in working DX yet have low power (under 25 watts) and a simple antenna (dipole or vertical) then you will be looking for an “efficient” mode to communicate, likely one of the new JT modes.

I got involved with digital keyboard modes around 1990 when they became more accessible with the advent of TNC’s (terminal node controllers). The mating of a SSB radio and a TNC allowed for us to work the digi modes using the computer only as a terminal to display text and control the software PTT. I was able to work Pactor, Amtor, RTTY, PACKET, and even CW (by keyboard) using a very popular piece of hardware back then, the AEA PK232. The computer was just acting like a “dumb terminal”.

By the later 1990’s reliable sound cards were installed as part of the standard desktop computer. Thus we saw a tremendous growth of sound-card based digital modes, eliminating the need for a separate (and often expensive) TNC. Thus the creation of the sound card modes like PSK, MFSK, Olivia, Contestia, SSTV, Thor, and others began to dominate the HF digital sub-bands. Much of the software was low cost or free.

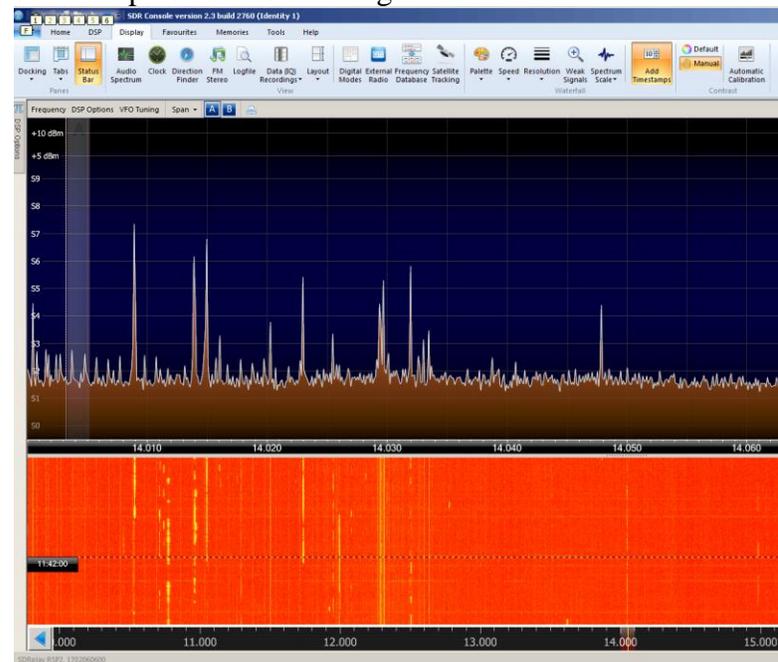
With more amateurs competing for a fixed HF spectrum, it would be great if we could make our QSO’s without QRM to each other. How do we accomplish more QSO’s with the same HF spectrum? RTTY at a speed of 60 wpm takes up perhaps a 300 Hz slice of spectrum and works with a signal to noise ratio of 0-3 dB or more. PSK31 takes up much less spectrum (60 Hz) than RTTY (about 300 Hz) and works to a lower level of signal to noise, yet still prints at 50 wpm. Perhaps that is why PSK31 has been dominating the HF digital sub-bands for the past twenty years, displacing the older RTTY completely (other than during RTTY

contests). So now what mode seems to be replacing PSK31?

Jump to 2017 and when I tune around 14070 kHz (usb) I am hearing fewer and fewer PSK31 stations. But when I tune up to 14074 kHz I am hearing a series of slow-baud, long-duration, sine-wave tones that sound like an orchestra tuning up. These tones, of course, are the new “JT modes”, modes created by Joe Taylor (K1JT) and others. These modes are evolving each year, and are allowing QSO’s around the world with very little power, simple antennas, and some operator persistence.

The present RF spectrum of the 20 meter Digi Sub-band

I thought it might be interesting to capture a view of the 20 meter digi sub-band spectrum from 14.000 to 14.100 MHz on a typical afternoon from my QTH near Philadelphia. I used the new hardware SDRplay2 (software defined radio) with SDR Console software and a 20 meter vertical antenna. The waterfall is showing a history of a few minutes of screen action. There are over a dozen CW signals from 14.000 to 14.050 MHz, and just a few PSK31 signals around 14.071 MHz. About a dozen FT-8 signals and JT-65 / JT-9 signals appear within the slice of spectra from 14.073 to 14.078 MHz. You see their presence dominating the waterfall.



So what makes the JT modes so popular?

The JT modes like JT-65 and JT-9 allow us to work stations under really terrible HF propagation, copying down to levels that seem unreadable. JT-65 sends one of 65 possible tones, in slow succession, making it quite a distinct sound. With JT-65, a single line of 15 characters takes about 47 seconds to send.... yes, 47 seconds to send just one line of CQ. That is about 3 words per minute! But this signal can be copied by other stations around the world (using the same software) at received and decoded signal levels as low as -24 dB signal/noise ratio. Sometimes we do not even see these tones on the waterfall, and often we do not hear them in our speaker/headphone. So what we gain from the JT modes in increasing sensitivity we lose in needing a longer time to send a brief response. JT-65 quickly became a huge success on the HF bands, especially on 20, 40, and 80 meters. It was also the mode of choice for "Moon Bounce" on VHF/UHF frequencies, exceeding the copy of CW signals. The JT-65 signals always appear around specific segments of each HF band (3570, 7076, and 14076 kHz). Your radio is in USB, so these are actually the VFO (suppressed carrier) frequencies, not the locations of the actual RF signals. Each JT-65 signal is composed of one of 65 tones, sent one at a time at constant amplitude, requiring a bit less than 200 Hz bandwidth. This allows multiple QSO's within that 2 kHz slice of spectra. The JT-65 sounds are very distinct, each tone lasting more than one-third of a second. One feature of the JT-65 mode is that each transmission must start at precisely one second after the start of each minute. Thus, you transmit for one minute, and then listen for one minute. Both stations in QSO must synchronize time to each other within a second. This is easy to do with access to the internet (www.time.nist.gov) or you can even set your computer clock by hand to WWV (5, 10, 15 MHz AM) or CHU (7.850 AM) time standards. Once you establish contact, the QSO moves very slowly, with each station transmitting no more than 15 characters in 48 seconds. One can send a CQ with your call and grid square, or a response of two calls and a signal report, or a confirmation of signal (RRR) or a 73. In fact, if you so choose, after you start a QSO, just sit back and watch the QSO continue with previously defined macros on the WSJT-X software.

A sample CQ might look like this on your screen:
CQ K3EUI FM29

A response might look like this:

K3EUI W3XXX FM20

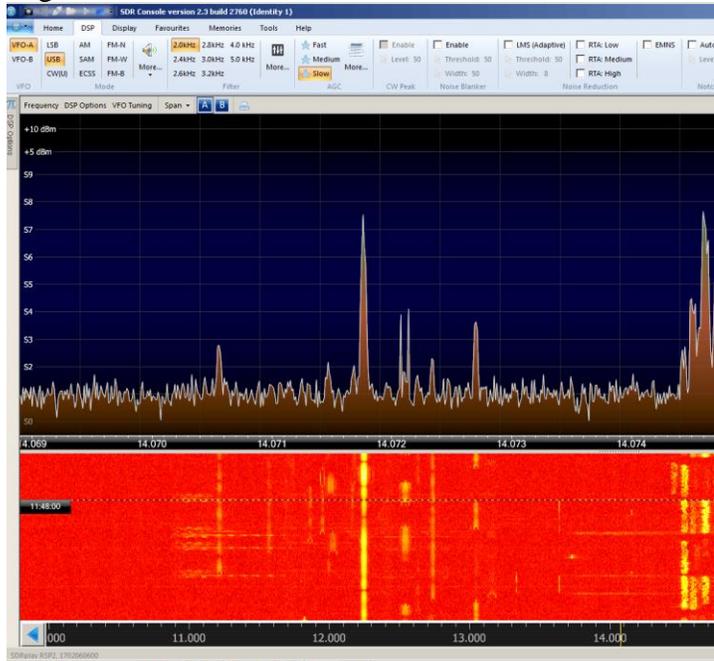
JT-9 has fewer tones (9) and a narrower bandwidth (16 Hz). Signals of JT-9 are usually 2 kHz above the JT-65 watering holes on each band. This is still a very slow mode for a QSO.

FT-8 The new kid on the JT block

The new mode FT-8 seems speedy compared with JT-65. FT-8 sends 1 of 8 possible tones, one at a time, at a constant amplitude, but requires transmissions every 15 seconds, thus moving along at four times the speed of JT-65. Actually the transmission of each FT-8 sequence is about 13 seconds, with only 2 seconds for the operator to make a decision on what to send next. So now the entire QSO moves along at a faster speed, yet is still very robust, copying down to -20 dB S/N and occupying a reasonable bandwidth of about 50 Hz. Thus, the increased speed, narrow bandwidth, and excellent copy of weak signals is why FT-8 is so popular today. It is no wonder why FT-8 is heard dominating the HF bands today.

Often when I tune to the 20 meter FT-8 "watering hole" frequency of 14.074 MHz (always upper sideband) I can hear many distinctive FT-8 QSO's spaced from 500 Hz pitch to 3000 Hz pitch. Sometimes the tones from each station overlap a bit, yet the software identifies each station as a unique signal. Thus, you will not use narrow bandwidth 500 Hz filters. Just set the bandwidth to typical phone bandwidths (300 to 3000 Hz) and let the software demodulate the tones back to print on your screen. Operators often run low power (QRP) and use simple antennas like a dipole in a tree or even an antenna in an attic. Stealth antennas work wonders with this mode.

Here is a closer view of the waterfall (one minute) on 20 meters from 14.070 to 14.078 MHz. One can see six PSK31 stations around 14.070-072 MHz and perhaps two dozen JT mode stations (FT8, JT65, JT9) from 14.074 MHz to 14.079 MHz.



Puerto Rico Help *from cover*

The group's principal mission will be to move health-and-welfare information from the island back to the US mainland, where that data will be entered in the Red Cross [Safe and Well](#) system. The Salvation Army Team Emergency Radio Network ([SATERN](#)) has been asked to assist these operators when they check in with tactical, health-and-welfare (H&W), and Safe and Well messages

This is what it's all about:
When all else fails!
 Well, all else has failed.

In part II of this article, I will take a closer view of the WSJT-X software, including setup, monitor and TX/RX windows along with the existing macros to simplify and speed up a QSO.

Barry Feierman K3EUI
 West Chester, PA
 September 21, 2017

The Board of Directors and the entire membership of Phil-Mont send our warmest regards to Eric and Emily Marano on their Wedding Day, Saturday September 23.

October at Phil-Mont

- 1 Sun W3MHP
- 8 Sun KB3SJS
- 11 Wed Club Meeting
- 15 Sun KB3IV
- 22 Sun WU3I
- 26 Thur VE Session
- 29 Sun N3QV
- 31 Tues Halloween

Don't forget the ARES net on Sunday nights and the Digital net on Tuesday nights.

For Sale

1/8" (290#) & 3/16" (380#) Dark Olive Drab Braided Cord · 100% Polyester/Dacron Knit Braided. Nice stuff! Tough and long lasting · UV Resistant and Low Stretch Proudly Made in the U.S.A.! Contact Steve WU3I at wu3i@arrl.net or 215-605-6074

DAIWA CS 201 Two position SO239 Coax Switch
\$25.00 each. I have 5.
Bill K3HWG K3HWG@arrl.net

First Class Mail

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The Phil-Mont Mobile Radio Club, Inc

