



The VHF Transmitter



Keystone VHF Club, Inc.

W3HZU

Founded 1955 – York, PA

VOL 62 No 2

CIRCULATION 185

February, 2017

The January ARRL VHF Sweepstakes at the Club



Contest operations at the club somewhere around 9 PM on Saturday evening. Both 6 and 2 meters were big winners for us. We got kind of a slow start on 432 MHz. For the first several hours, we didn't realize that we were not connected to the 432 Mhz contest beam ... we were on the 70 cm vertical repeater antenna! We were making contacts but signals were weak ... switching over to the beam sure helped!!

N3LED	Larry Frey
W3TWB	Tim Barefoot
KC3EED	Tony McMonagle
KB3JSV	Dan Melato
KC3FSJ	Ryan Duke
WA3USG	Dick Goodman
KB3RFH	Andy Hertz
KC3JD	Jack Dellinger
W3OKU	Rich Diem
K3WHC	Steve Cruse
KC3GMQ	Dave Smith
W3UQJ	Adam Barefoot
KC3GEM	Mike Weiss
KE3CW	Greg Hagens
KO3T	Brad Kline
WA1HEW	Craig Dowling
AA1ON	Martin Bayes
KC3AJH	John Ingram
W2EDT	Evan Rosser
N3PNF	Tom Alsted
N3VQH	Mike Stackpoole
KB3RCT	Jeff Patterson
W3BEK	Brian Klimes
KB3CNH	Eric Snyder
KC3EWN	Jim Fry
K3UQJ	Lynn Bortner

We had a great gang that showed up to operate on both Saturday & Sunday (see list on left). We also racked up a fine score:

Number of QSO's: 413
QSO Points: 472
Multipliers: 55
Final Score: 25,960

We operated on 6 meters with a power level of 1 KW, on 2 meters at 100 watts, and on 432 at 50 watts.

On Saturday, we started at 2 PM "on the nose" and shut down operations at about midnight. On Sunday, after a great breakfast of Eggs, Sausage, Bacon, Toast, Coffee, and O.J. Provided by Tim, W3TWB, we operated straight through until about 2 PM.

Throughout the weekend we had Sausages, Chili, Sangria, Chips & dips, and a variety of other epicurean delights made by our members. **A GREAT time gang!**

Club Tech Sessions Construction of a Black Widow HF Vertical



On Monday, January 23rd, we had 5 more folks come up to build Black Widow vertical antennas. Considering how simple it is, this antenna is superb in respect for its ease of setup and performance. It was originally designed to be a QRP antenna but by feeding it with 50 to 100 watts, it's performance is good enough that you can talk to anyone that you can hear ... with good signal reports on both ends! ... of course, if you wish, you can struggle with QRP power levels.

Currently, Tony McMonagle, KC3EED; Tim Snook, KB3WZX and myself have finished our antennas and are on the air. The following folks have finished their coil assembly and should be ready to tune their antennas to resonance:

Brian Klimes, W3BEK	Jim Woof, N3QZS
Bill Rosevear, KC3GTX	Mike Weiss, KC3GEM
Jack Himes, KA3GLQ	Patrick Hock, W3CNB
Andy Hahn, KB3CHT	Alex Smith (Smitty), KC1EWD

Please see the brief synopsis of the Black Widow Vertical on Page 3

Setting up and operating out in the Field...

Operation out in the field is one of the most satisfying and challenging aspects of Amateur Radio. It is also excellent preparation for Public Service communications, and ultimately, Emergency Communications. Assembling a Go Kit is fun and gives you serious communications potential anyplace you are. These kits can be initially simple. An HT, an extra battery, a Slim Jim antenna. With these three items, you are prepared to be a "Value Added" communicator at most of our Public Service events ... this also holds true at our EmComm events such as the Peach Bottom Nuclear Power Drill and the TMI Drill.

Taking an HT with a Slim Jim to the top of a mountain may allow simplex contact in excess of 100 miles ... fun! However, if you want to get some real practice in operating out in the field, consider taking part in some of our Public Service Events. It will not only be a challenge, but will give you great experience in many facets of communications. *Please continue to Page 3 to see if any of these events would interest you.*

NEXT MEETINGS

**Thursday February 2nd and March 2nd
at the York County EOC**



Schedule of Keystone VHF Club Sponsored VE Testing for 2017

Laurel VE Group Testing sponsored by the Keystone VHF Club are held the second Saturday of the odd months. All tests are at 10 AM, pre-registration is appreciated except at the Hamfest. Contact, Ralph Brandt at ralph.brandt@comcast.net or phone 717-792-1017.

Location is the York EMA Office at 120 Davies Road, York,

Testing dates: Mar 11 May 13 Jul 8 Sep 9 Nov 11

Keystone VHF Club sponsored testing by the Laurel V.E. Group. These sessions are held in the Training Room at the York County EOC, 120 Davies Rd., York, PA. Testing starts at 10:00 AM. Preregistration is appreciated. *Contact Ralph Brandt at:*

Ralph.brandt@comcast.net or phone 717-792-1017 to register.

VE exams will be sponsored by Southern Pennsylvania Communications Group (SPCG). These sessions are held at the Shrewsbury Borough Building, 35 Railroad Ave., Shrewsbury, PA. Testing starts at 9:30 AM. *The point of contact for these sessions is Nate, WN3I at wn3i@comcast.net.*

Feb 11 Apr 8 Jun 10 Aug 12 Oct 14 Dec 9

Local area nets:

Capitol Area Traffic Net starts **Monday at 8 PM** on the South Mountain Radio Amateurs (SMRA) repeater on 146.46 (67.0 tone), 1 MHz offset.

The Combined Club ARES/RACES Net meets **Monday at 8:30 PM** on the Keystone 146.97 Repeater (Tone: 123 Hz).

South Mountain Radio Amateurs (SMRA) Net on **Monday at 9 PM** on the 145.43 (Tone: 67 Hz) repeater located in Mt. Holly Springs.

The Keystone VHF Club Digital Net on **Tuesday at 8 PM** on the York 146.97 Repeater ... *to restart on September 6.*

The Keystone VJF Club ELMER Net on **Tuesday at 9 PM** on the York 146.97 Repeater right after the Digital net

A local FM Simplex Net runs **Thursday at 8:30 PM** on 146.55 MHz.

South Central PA 10 Meter Net **Friday at 8 PM** 28.495 MHz USB

Ham Shack Talk Net - Monday at 9 PM: 28.335 MHz.

Delaware Lehigh Valley ARC Net - Sunday 4:00 PM: 28.430 MHz

Do Drop In net - Sunday 8:30 PM: 28.450 MHz

Penn- Mar Club net - Friday. 8:30 PM: 28.495 MHz.

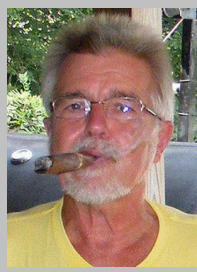
10 Meter Ragchew Net - Every evening starting 7:30PM: 28.600 Mhz

6 Meter Magicians Net from Pottstown Wednesdays at 8:30 PM on 50.130 USB. At 9 PM, they switch to 50.400 and run A.M. modulation and call themselves the Mini Boat Anchor Net.

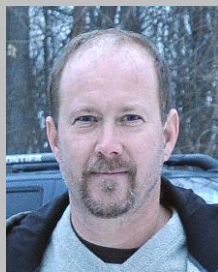
Trustee's Report



Tim, W3TWB



Dick, WA3USG



Jeff, KB3RCT

Well we are in the throes of Winter ... the most miserable two months of the year. We are still getting a great turnout on our Thursday evening "Tech Sessions." Lots of projects were completed but we still have a lot to do. Our main storage shed needs a lot of work to clean it out. I don't think that it will ever be well organized HI! **THINK SPRING !!!!!**

Scheduled Club P.S. Events for 2017

- * **April 9, 2017 - Buckridge Burn Hike Pine Grove ***SJ**
POC: Dick Goodman, WA3USG wa3usg@verizon.net
- * **Date April 11, 2017 - TMI Nuclear Power Drill**
POC: Sandy Goodman, N3ECF slgoodman1@verizon.net
- * **April 23, 2017 - York MS Walk**
POC: Sandy Goodman, N3ECF slgoodman1@verizon.net
- * **April 30 2017 - Ironmasters Challenge Hike *** SJ**
POC: Dick Goodman, WA3USG wa3usg@verizon.net
- * **May 14, 2017 - The York Marathon *** SJ**
POC: Jack Dellinger, KC3JD jdelli@aol.com
- * **May 7, 2017 - March of Dimes March for Babies**
POC: Jack Dellinger, KC3JD jkdelli@aol.com
- * **June 11 2017 - 5K/Walk Run (Rudy park)**
POC: (Brian, KC3CFW bklimes@klimesgroup.com)
- * **June 17, 2017 - Double Creek Half Marathon**
POC: Sandy, N3ECF slgoodman1@verizon.net
- * **July 29 - 30, 2017 - Camp Muckelratz Horse Performance Ride**
POC: Sandy, N3ECF slgoodman1@verizon.net
- * **Date August 12, 2017 - Red Lion Street Fair**
POC: Jack Dellinger, KC3JD jdelli@aol.com
- * **Sept 9, 2017 - KTA Superhike *** SJ**
POC: Ken Wiggens, N2DYK n2dyk1940@yahoo.com
- * **Date TBD, 2017 - Kings Gap Time Trials**
POC: (Micah Neff, KB3TGY tortmentor@aol.com)
- * **Oct 14 - 15, 2017 - MS Bike Tour Gettysburg *** SJ**
POC: Sandy Goodman, N3ECF slgoodman1@verizon.net
- * **Oct 29, 2017 - Michaux Team Challenge *** SJ**
POC: Dan McGlothlin kb3mun@mcglothlin.us
- * **Dec 24-25, 2017 - Glen Rock Carolers**
POC: Stan Walters, AB3EM abacuspc@comcast.net

*** SJ - Your Slim

Jim is advisable here

While not a member of our organization, the Keystone VHF Club had a good friend in Marty Gutekunst, KB3BAA who became a Silent Key on Saturday, January 7th, 2017. Marty was active in York ARES RACES Skywarn (YARS). He was also a member of the Amateur Radio Work Group (ARWG) which is a part of the South Central PA Task Force (SCTF). Marty was the Emergency Coordinator (EC) for Dauphin County and then became the EC of Perry County after he moved to Ickesburg. Marty was also active in the capitol Area Traffic net. He will be greatly missed SK

The VHF Transmitter

published monthly by the
Keystone VHF Club, INC
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Distribution only via the Internet by WA3USG

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Black Widow Vertical Continued from Page 1

The Black Widow vertical Antenna was initially designed to be a low power QRP antenna. I have made several QRP contacts with mine using a Yaesu FT817 backpack radio. If you wish you could get DXCC running QRP (5 watts or less) but you would really have to work at it.

I found that this antenna will handle 50 to 100 watts with no problems. Running this much power, Hamming with it becomes fun and I find that I can contact everyone that I can hear. The Black Widow takes about 5 minutes to set up and it covers 20, 30, and 40 meters.

This would make a great addition to your Go Kit. It would give you much better HF capability than you would think with an antenna of this size.

Check out the Black Widow Website below for details: <http://wa3wsj.homestead.com/BW.html>



We still have quite a few guys who haven't finished their antennas yet. Within the next month, I'll have a Saturday or Sunday session up at the club during daylight hours and we can set your antenna up and get it properly tuned.

I also have obtained brackets that can be used to mount the coax connector at the bottom of the coil assembly making it much easier to connect your feedline. Some of the folks have mounted their connector directly through the side of the Coil form, while this works, it becomes awkward to install the jumper necessary for 20 meter operation.

Finally, after we get everyone on the air, we need an "Out in the Field" session to make some contacts

Operations in the Field Continued from Page 1

For you guy's (and Gal's) for who this will be a "first time" at this kind of event, let me recommend **The York MS Walk on April 23rd, The March of Dimes Walk on May 7th, or the 5K Run/Walk on June 11th.**

All of these events will be held at Rudy Park. These events get their mileage in by generally walking or running 1 mile loops inside the park. All communication can be done with HT's and a Rubber Ducky antenna. You don't need to worry about masts, feedlines, or even setting up a station. An HT (perhaps with an extra battery), and a lawn chair are all you need ... if it's a hot day, an umbrella, maybe some insect repellent, and a bottle of water are nice too.

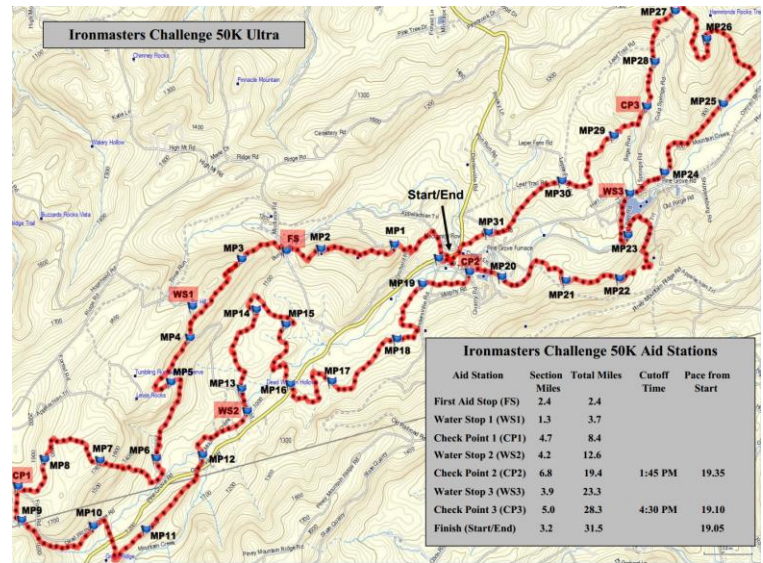
Working an event such as these will give you practice at basic communications skills and builds confidence ... you will also probably find out that other people make the same dumb mistakes that you do! The good thing at events like this is that if you need help, chances are, there's another Ham less than 100 yards away.

The next step would be working at one of our events that covers a much wider area. **The Buckridge Burn Hike on April 9th, the Ironmasters Challenge Hike on April 30th, and the York Marathon on May 14th** are highly recommended.



The Buckridge Burn shown to the left consists of two hikes. A 5K (3 mile) loop and a longer hike of about 14 miles. This may require an HT with a Slim Jim antenna or equivalent. In some instances, a higher power mobile radio and an external antenna might be necessary. You would either be stationed at one of the Aid Stations or if you feel energetic, you could be a sweep hiker and actually do part of the hike. **** Note: a Sweep Hiker stays behind the last participant and thus is able to report in by radio where the end of the hike is. It should also be noted that most problems seem to occur at where the end of the hike is!**

Communicators at our hiking/running events perform an important function. The participants **do get lost, become injured, get dehydrated, and simply become exhausted.** Over the years, I've found that we have become extremely valuable at these events. In some of the parks, the event will not be approved unless there is radio support



This is the Ironmasters Challenge held at Pine Grove Furnace State Park. It is our biggest hiking event. It consists of two (2) hikes, a 9.3 mile event and a 31 mile hike/run (shown above). This is an all day event, it starts at 6:30 AM and runs until after 6 PM (perhaps longer). As well as providing communicators at all of the check points, **we** actually keep track of every single participant by logging in their BIB number on a spreadsheet. If someone doesn't arrive at a check point in a reasonable amount of time after they cleared the last one, we either send our folks out to find them or assist in the search & rescue. I should mention that we are accounting for over 500 participants! We also man and operate the most remote checkpoint ... this includes food, water, and all of the communications & tracking requirements.

For the Ironmasters, we set up a portable repeater since the coverage area is so wide (we also run a simplex net). Since we are using a repeater, most check points can get in with HT's. Because the hike route drops down into such geographically low areas, we highly recommend that all check points be equipped with higher power radios running 40 or more watts to a good external antenna. **We** also have many Sweep hikers on the course. They all have HT's and need to be able to reach the Net Control Station or at least a checkpoint at all times. Working at an event like this is exciting, interesting, and is what Ham radio is all about!

A very similar event is the KTA Superhike which takes place in Lancaster County. This usually gets 300 - 400 participants and is an absolutely arduous hike. There are steep climbs, creek crossings, slippery trails, and over the last several years, bad weather has caused major problems.

The York Marathon is also dependent on our communication capabilities. This event starts at the York YMCA, and runs along the NCR Rail Trail for about 13.3 miles and back. We provide communicators at all of the rest stops. We also provide bicyclists with HT's to patrol the course. We use a portable repeater and several simplex nets. In this event, we don't have to track anyone.

Other events similar in nature are the Muckelratz Horse Performance ride near Carsonville. This is a 2 day event where there are two 12.5 miles courses each day that the horses must transverse. The Michaux Team Challenge (MTEC) is a triathlon where the participants Mountain bike, hike, and paddle a course that they are not familiar with. Matter of fact, they have to figure out what the course is by using clues given to them by the organizers.

I left our biggest events for the last. The MS Bike Tour in the Gettysburg area is out biggest and most critical event. We have been supporting it for over 30 years now! This takes more manpower than any thing else we do. We provide communicators at all the rest stops, and set up Net Control at the Starting point. We ask for permission to use local repeaters and in the past have set up our own repeater up on a mountain in the area. Mobile radios and good external antennas are required.

In the past, we have provided information that has led to the early termination of the event due to severe weather conditions. We provide SAG

Continued on page 4

Field Operations ... Continued from Page 3

vehicles that are Ham Radio equipped that patrol the three courses (50 mile, 75 mile, and 100 mile). We dispatch SAGs where necessary to pick up an injured or exhausted rider. More things happen during this event than in anything else we support. We always have injuries, people getting lost, dehydration problems, muscle cramps ... last year, we had a death (our first).

What I tried to do in this article was to give you a brief synopsis of what we do and how you can use these events to gain experience in operating out in the field. Taking part in public service events will help you become prepared for most anything that will happen in the Emergency Communications arena. Taking part in all of these, just makes us look good ... and it is what Amateur radio is all about!

How Low Do We Need to Go

By Cameron Bailey, KT3A

This article is for anyone who enjoyed N3VTX, Skip's newsletter article regarding the VHF FM experiment conducted in an unused PA Turnpike Tunnel near Breezewood. If you recall from the article (November 2016), he could not communicate to WA3USG who was on the other end of this 5200 foot tunnel. They used 2m HT radios on high power. Skip entered the tunnel and when he had light visual of the other end, tried to call again to no avail. As Skip pointed out in the article, there is a lot of attenuation from the surrounding earth.

The truth is that the frequencies that we use in our hobby use the atmosphere and space above us by modulating magnetic and electric fields that are woven at the speed of light. Within the earth, the soil contains materials like water, soil, minerals, and stone, which can block or otherwise ruin those radio signals. Water has the same issue, which is why divers use hand signals and not cell phones!

My interest peaked lately when I saw that DARPA (Defense Advanced Research Projects Agency) hosted a Proposer's Day on January 6th to lay out the vision, technology goals, and R&D challenges of the AMEBA (A Mechanically Based Antenna) program. I was not there, but thought that the basic information presented would be of interest to club members. Troy Olsson of DARPA's Microsystem Technology Office has been experimenting with electromagnetic physics that could prove successful in undersea, underground, and other settings where communications are absent. He is using ultra-low frequencies (ULF) electromagnetic waves that range from 300 to 3,000 Hertz. These frequencies can penetrate some distance into media like soil, water, rock, and even metal. The next band up of very-low-frequencies (VLF), 3 - 30 KHz provide even more potential for long distance communications in the layer between earth's surface and the ionosphere. Who needs sunspots?! The ionosphere provides a waveguide along with the surface which could carry signals halfway around the world.

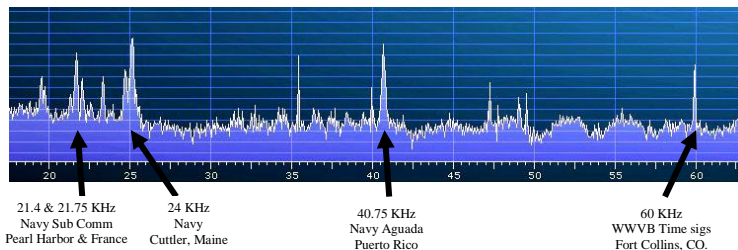
The ULF band would be used for low bit-rate communications, like a text message to communicate deep into oceans, caves, bunkers, or mines. Now amateurs are experimenting too and the main challenge is the antenna size. Very large antenna structures that communicate to submarines are in use now. Some of these structures occupy over 2000 acres and operate with megawatts of power. Probably not HOA friendly. What is unique about the AMEBA program is that the idea is to use small, light, and power efficient. You know, something we could hike with! Instead of using electronics and power amps to create oscillating electric currents pushed to antennas, the AMEBA program would generate the signals using mechanically moving materials that contain strong electric or magnetic fields. Think of a magnetic bar sliding through a cylinder made of quartz or glass at a rate that will generate ULF or VLF frequencies.

This technology will require innovations in chemistry and materials such as magnets and electrets. It will require experimenting with new shapes and geometries of these materials. The uses for this technology will open new possibilities that never existed before.

See www.darpa.mil for other interesting projects.

How Low can we Listen - what will we Hear?

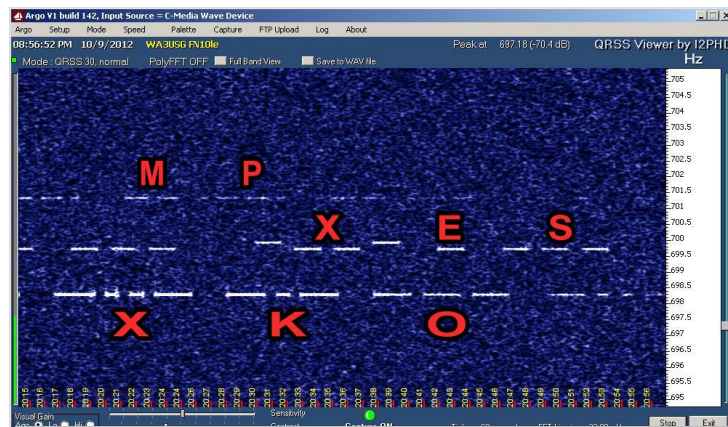
By Dick Goodman, WA3USG



Using my SDR Play RSP2 and an **E-Field Probe antenna** that excels in the reception from VLF through 40 meters, these beacons may be easily copied. The stations transmitting on 21.4 through 40.75 KHz are all Navy stations who's purpose if to communicate with Submarines while they are submerged. The Time signals at 60 KHz are those used to set your MFJ Atomic Clocks, wrist watches, and other consumer time pieces.

There are an incredible amount of signals on the VLF and LF bands that we as Amateurs can receive. There is also an entirely different class of operators (who are mostly Hams) who transmit beacons on the LF band. These are known as "Lowfers" (Low Frequency Operators). Lowfers are permitted to operate on a frequency between 160 and 190 KHz. They are limited to an output power of no more than 1 watt into an antenna that may not exceed 50 feet in length.

In the past (before computers), their maximum range was about 100 miles using CW and copy was by ear. Using computers with Digital Signal Processing via Fast Fourier Transforms (FFTs), these signals can be detected at well over 1,000 miles even though absolutely nothing can be heard from the loudspeaker. Amateurs using LF have even made it across the pond!



Three separate Lowfer signals being received at once on 185.300 KHz using ARGO. While this software can actually go below the noise floor to detect weak signals, it should be noted that the entire displayed passband is 9 Hz. The ability to find a signal in that small of a passband requires precise frequency accuracy down to 3 or 4 Hz.

The signals being displayed above are actually CW signals with a dot length of 30 seconds. In order to detect these signals so far below the noise floor, each signal must remain precisely on the same frequency for the entire CW character cycle (**less than** 1 Hz drift over about 20 minutes). That means neither the transmitter or receiver can drift by more than amount.

The RSP2 meets all the requirements of frequency accuracy and stability. Usually Lowfer transmitters are locked to a high precision reference oscillator or disciplined to GPS.

I received all of these signals on 9 Oct, 2012 at 20:56 EST.

- MP - London, Ontario EN93ja - 291 Miles
- XES - Holden, Mass FN42ch - 310 Miles
- XKO - Stanfield, NC EM95tg - 386 Miles

See page 6 for details on an antenna that will work well here!

The KVHFC Holiday Party

I hope that everyone enjoyed the Holiday Banquet on Saturday, January 14th. I thought that the food and accommodations were quite good. I think that everyone got around and socialized. Tim, W3TWB did a fantastic job with the slide show ... and my videos should have made clear that we are a fun loving bunch!



We had over 50 people attend this year. I know that most folks don't like doing survey's or answering a lot of questions, but if you get a chance, drop me or any of our officers & Trustees an e-mail and let us know how you liked the Viking Club. Did you like the sit down dinner or would you rather have a buffet. In the past, we have rented a fire hall and prepared the dinner ourselves, would any of you like to take part in that? It's a lot of work but fun.

FOR SALE/WANTED



Free to a good home Heathkit Grid Dip Meter. No Coils, as is.

Contact Ed Swank, KA3LJL

Only 3 left! **Portable Grounding System.** No need to connect to those dangerous gas lines. Includes everything that you see here less the soil, blue container, and ground rods **Act now ... demand will be enormous!**



**MK 88
MOD 1**

**Portable
Grounding
System**

HAM RADIO CLASS

Preparation and Test for FCC Amateur Radio Technician License

February 18, 2017 (0800-1600) – February 19, 2017 (0800-1200)

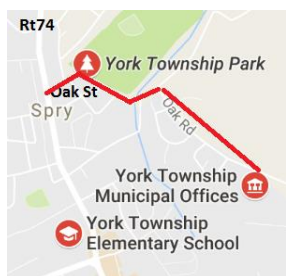
FCC License Testing February 19 (12-3 PM)
Inclement Weather Reschedule – February 25-26, 2017

No Charge for the class

There may be \$15 FCC License Testing Fee*
Come with an open mind, pen and paper. We discourage the use of iPhones, etc. in the class except for emergencies. Please put on vibrat.

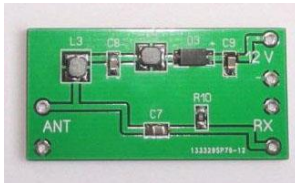
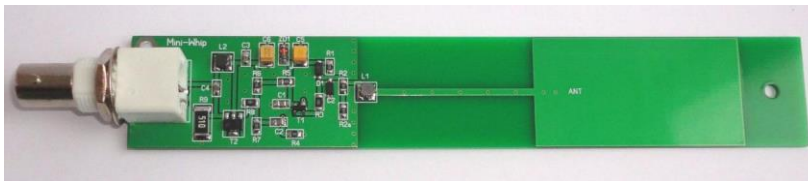
A simple calculator and a windows PC are useful. Class is held at the York Township Building 190 Oak Road, Dallastown PA 17313

Contact: Ralph Brandt K3HQ1 717-885-3063 or ralph.brandt@comcast.net Pre-registration helps planning but payment is at the time of testing on Sunday. Please give a phone number where you can be reached in case bad weather. Upon passing the test an FCC license is usually issued within a week. You will need a government issued photo ID for the testing. If you do not have one, contact Ralph for alternatives. *The license fee I determined by the testing team that is independent of the instructor. Some teams have no fee and I work with them if possible.



Ham Radio is Amateur Radio, FCC Part 97. It is a licensed service. The class is targeted to prepare the student to pass the Technician Class License test which is restricted to frequencies above 28 Mhz. There are many hand held and mobile transceivers available for use in these bands for as low as \$35 for Handheld and \$100 for Mobiles. There are many repeaters in the area that extend the range of these radios. A ham license is a good tool for a family in times of disaster when land lines and cell phones often are not useable.

E-Field Probe Antenna 10 KHz - 30 MHz Perfect for the SDR Play RSP2



This is PA0NHC's newest design. We have redesigned its PCB and used SMD components. The circuit diagram itself remained the same as it had been in the original model described on his web page.

- New version, using modern **BF998** and **BCX54** semi conductors.
- **Class A** circuitry, clean reception without IMD.
- One coax connection.
- Broadband R/C coupling to the receiver, no transformer.

Technical Specifications:

- Frequency range: **10 kHz - 30 MHz**
- Power: **12 - 15 volts at 150 mA**
- Second order output intercept point: **> + 70 dBm**
- Third order output intercept point: **> + 30 dBm**
- Maximum output power: in excess of **- 15 dBm**
- PCB Size: Length (mm): **155 x 27**
- Connector: **BNC**
- Feed line: **50 - 100 ohm coaxial cable up to 100 meter long**

This should also make an excellent AM Broadcast band and international Shortwave band DX antenna

Please note:

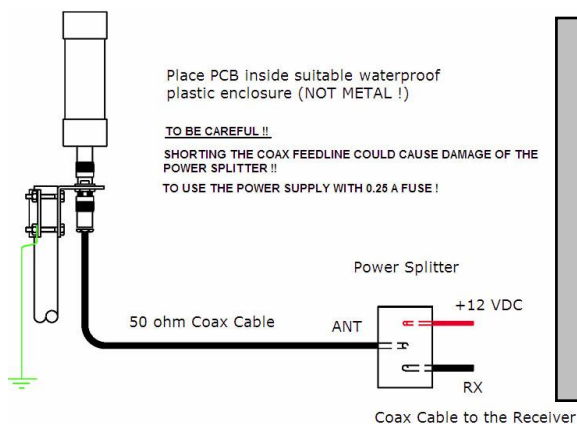
This antenna performs only as good as its installation permits. **Any active antenna will not work inside the house!** It should be mounted **OUTSIDE** and as high as possible. Place this MiniWhip antenna PCB inside suitable enclosure of your choice and mount outside the house. Use a piece of the PVC tube for the enclosure. **Do not use a metal enclosure! It won't work!**

For max. sensitivity:

- this antenna should be positioned as high and free from metal conductors as possible.
- the ground plane of the PCB must not be lower than the top of the mast. (the connection to and the antenna surface itself must be ABOVE the top of the mast).

For best signal-to-noise ratio:

- install the Miniwhip on a well grounded mast.
- connect "GND" of the Miniwhip PCB to that mast.
- place Ferrite cores on the beginning and end of all cables to block cable noise currents.



Available on
eBay for
\$22.00

On eBay, do a
word search on
"Miniwhip Active
Antenna"

Or use link below

<http://www.ebay.com/itm/MiniWhip-Active-Antenna-HF-LF-VLF-mini-whip-ham-radio-receiver-shortwave-sw1-sdr-/222327564468?hash=item33c3c168b4:g:wGoAAOSw241Yf1n6>



8th Annual Techno-Swap-Fest

Feb 25, 2017 - 9am to 2pm

National Electronics Museum

1745 West Nursery Road, Linthicum MD



Attention All Hobbyists

- *Is your workshop so cluttered that you can barely work on your projects?*
- **Did you buy something online that didn't fit into your plans?**
- ***Are you still looking for that perfect gadget, part or tool?***

If you answered YES or NO to any of these questions, you need to attend the 8th Annual Techno-Swap-Fest to buy, sell and gawk at all the precious junk that other hobbyists crave.

Here are just some of the hobbies represented last year:

- R/C (boats, planes, tanks, cars, trains, geese, monsters)
- Robotics (competition, combat, R2D2, micro-bots, junk-bots)
- Electronics (hackers, makers, crackers, phreaks, HAMs)
- Mechanical (steam engines, CNC, animatronics, whimsical)

And some of the precious stuff (a.k.a. junk) you'll find:

Motors, gears, tools, parts, radios, batteries, materials, wheels, circuits, gadgets, cases, plans, complete projects, never-completed projects, models, books, and much, much more



***** Door Prizes : Most Unusual, Least Useful, Best Dust Collector *****

All proceeds support the National Electronics Museum:

Entrance Donation:	Adults \$5, Kids under 16 FREE
Seller's Table:	\$10 (limited number, reserve early)
Club Sponsorship:	FREE (just send us your info)

For more information, to reserve a table or become a sponsor send email to:

techno.swap.fest@gmail.com

<http://sites.google.com/site/technoswapfest2>

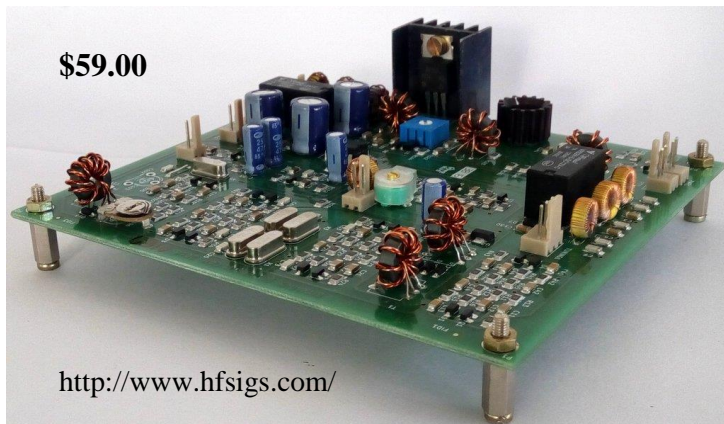
*** Your choice for a wintry Saturday morning ***

- Attend Techno-Swap-Fest and experience the thrill of hunting for junk
- Help put up new wallpaper in the guest bathroom



The Bitx40 SSB Transceiver

If you're been checking the clubs Facebook page, you might notice that **Brad Kline, KO3T** just received his Bitx40, a complete 40 meter SSB transceiver built on two circuit boards. This isn't a kit! Both boards are complete and stuffed with all parts. You have to install the boards in some kind of enclosure, mount switches & connectors, run some preliminary tests and you're on the air ... with 7 watts!

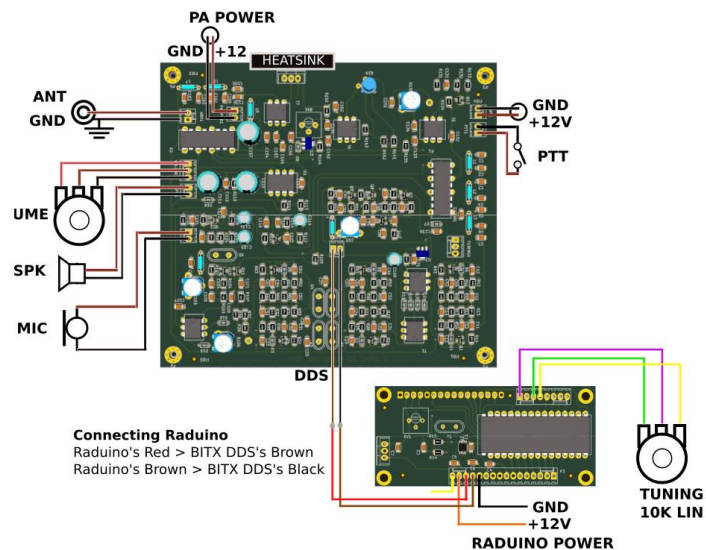


When was the last time you used a radio you had built? The BITX40 board is a two board, 40 meter SSB transceiver module kit with digital control! Inside an evening, you can be on-air with this digital SSB transceiver, chatting with the local gang or chasing DX. Plug in the earphones, the included electret mic, tuning and volume controls and you are on air! Included are high quality connectors, all the needed sockets and jacks, tuning and volume controls, mounting hardware, etc.

The Raduino The new BITX40's Raduino is an Arduino Nano powered, small, hackable board based on the rock steady Si5351 synthesizer with a clean 16x2 frequency display, free and open source code, 6 analog ports, three oscillators and six digital lines.

Receiver The listen to the very clean, crisp and quiet receiver. The front-end has a triple tuned circuit that cuts out-of-band signals. The diode ring mixer front-end makes this a crisp receiver that doesn't overload easily. The all analog signal path to your ear provides outstanding signal clarity that is to be heard to be believed.

Transmitter 7 watts of low distortion SSB provides you with enough juice to have thousands of contacts on 40 meters, daily rag chew and occasional DX chasing. Any common 2 ampere 12 linear volts supply will provide enough juice for this transceiver. Or you could simply run it from a battery!



The BITX40 will inspire you to experiment. Modify it, mount it, tweak it, change it.

Raduino is a standard Arduino Nano that makes it easy to write code in simple C language to work on more modes, bands, utilities. RIT, dual VFOs, more bands, CW/RTTY are just some code away! who will be the first to create the Raduino keyer?

The main board uses all analog large sized SMD components that are laid out on an easy to understand manner on a double sided board with broad tracks. This can be your main module around which you can start experimenting. There are jump-points from where you can add more modules like the DDS, more bands, better audio amplifier, etc. Imagination is your limit. You can separately increase the power amplifier's supply voltage to 25 volts to obtain more than 20 watts of power : You will have to add a better heat sink. The mods are on the way!

The boards can be installed inside any box that you like. Make your own station rigs, man-packs, SOTA rigs, trail radio or mount it in a cigar box and leave it on your bedside table. Watch the instructions video.



Example of mounting both boards in a homebrew enclosure.

We have tried to include all connectors/hardware you might possibly need to build a full radio. However, we also had to balance the shipping weight to keep the overall cost down. You will have to supply your own box, power supply and earphones/headphones/speaker.

4-1/2 inches by 5 inches tested SSB transceiver module, covering any 400 KHz segment of the 7 MHz band

The Raduino board with Si5351, Arduino Nano. Fully tested

High quality BNC connector for the antenna

Small electret microphone

Two earphone style audio jacks for the mic and the earphones/speaker

A set of DC power socket and plug

Volume control with on/off switch

10k linear pot for tuning

8 Brass stand-offs with mounting nuts and bolts

Connectors with wires for all connections on the board

* Note : A speaker is not included in the kit as earphones/headphones/speakers are easily available locally. No cabinet is included to save on the postage cost. Almost any box maybe used.

The manufacturer, HF Signals was founded by Ashhar Farhan, VU2ESE as a part of Paradigm E-commerce Pvt. Ltd to encourage people all over the world to get more active in amateur radio, analog electronics and self-learning. Building and modifying radios is a great education. Lack of access to Elmers and and radio builders' community, absence of test equipment : all impede the spread of homebrewing. With the BITX40, we hope to recover that ground and encourage more and more people to get on air, modify, experiment, build and learn. So, go ahead, make that mod you wanted to.

The \$59 price tag includes shipping! 7 watts is a healthy power level for a radio such as this ... and it would make a great companion for the Black Widow Vertical! All eyes will be on Brad, KO3T over the next few weeks.



**Keystone VHF Club
General Meeting Minutes of
January 5, 2017**

By Sandy Goodman, N3ECF – Secretary

The General Club Meeting held at York County Emergency Management Center was called to order by Pres. Mike, N3VQH, at 19:03. There were 35 members present and 3 new member applicants. Don Schmitt, K3DCS, introduced himself. He is the Adams County Emergency Coordinator, and now lives in Cross Keys Village, New Oxford.

TECHNICAL HAPPENINGS: Dick, WA3USG, showed his new Quadrifilar Helix antenna.

SPECIAL BUSINESS: We mistakenly forgot to do the Officer Elections in December. Anne, KB3ZLJ, is stepping down as Treasurer. Tim, W3TWB, nominated Dan Melato, KB3JSV, as Treasurer. Steve, WB3EFA, moved to close the nominations and have the Secretary cast a vote for the slate of Officers. The 2017 Officers are: President: Mike Stackpoole, N3VGH; First Vice President: Joe Imgrund, KB3TCM; Second Vice-President: Jack Dellinger, KC3JD; Secretary: Sandy Goodman, N3ECF; Assistant Secretary: Eric Snyder, KB3CNH; Treasurer: Dan Melato, KB3JSV; Assistant Treasurer: Tim Snook, KB3WZX; Trustee: Tim Barefoot, W3TWB (for 2017-2019). Jeff Patterson, KB3RCT (to 2018), and Dick Goodman, WA3USG (to 2017), remain as the other 2 Trustees.

SECRETARY REPORT: Sandy, N3ECF. Joe, KB3TCM, moved to accept the December 2016 minutes as published, 2nd Ralph, K3HQL. Motion carried.

TREASURER REPORT: Anne, KB3ZLJ, reported for December 2016 : Income: \$1,216.09; Expenses: \$3,843.87, of which \$274.87 was for electric and \$3,465 was for the new HVAC; Balances: Club CD \$7,656.09; Checking Acct \$1,235.92; Trustee Acct \$540.83; Total \$9,436.65. Craig, WA1HEW, moved to accept the report; 2nd by Ralph, K3HQL. Motion carried.

COMMITTEE REPORTS:

TRUSTEE REPORT – The new HVAC was installed and is doing a great job of keeping the club comfortable. When members are at the club, continue to burn wood to keep the room warm (we have lots of wood). Tim, W3TWB, noted that members of the club did the electrical work prior to the HVAC installation and donated the material to make that happen. The club is being used a lot for different activities, including the Black Widow Antenna building.

TECHNICAL COMMITTEE REPORT - There was interference on the club's internet from our 6 meter repeater. The coax from that repeater was **relocated to fix that problem.**

EMCOMM/PUBLIC SERVICE NEWS –

TMI Drill will be April 11th. We will also do communications for the Decon on either March 8 or April 12.

YARS members were sent a questionnaire for the ARES Annual Report. Sandy, N3ECF, thanked those (about 15) who answered quickly. Public Service starts in April. Dick, WA3USG, provided a list in the newsletter. The date for the March of Dimes March for Babies is May 7th. It won't conflict with the Iron Masters Hike this year, which is on April 30th. We are considering working with Lancaster on another event, scheduled for June 25. That will depend on how many operators are needed and locations. It was noted that is the 2nd day of the Field Day weekend.

A Winter Field Day exercise is planned for January 28-29. If anyone does participate, let Sandy know so it can be recorded as part of the Emergency Communications practice.

VE/ED REPORT - VE testing will be done on January 14 at the EOC.

CONTEST REPORT - VHF contest is January 21-22. RTTY round-up is January 7.

NEWSLETTER/WEBSITE –

On the Website, the membership updates for Dues payments should be up to date. Dick asked that if you paid 2017 dues and the roster doesn't reflect that, let him know. Newsletter did go out.

OLD BUSINESS:

The Holiday Party will be January 14th at the Viking Club in West York, NOT at last years location. Dick and Tim plan a slide show history presentation. Second readings were done for George Klinedinst (no call) and Jeff Elliott, KC3IBR. Both were voted into membership.

NEW BUSINESS:

Ralph, K3HQL, is now the District Emergency Coordinator for District 5. He is also the new Chair of the SCTF-ARWG, with Dick, WA3USG, as the Vice-Chair. Ralph will be trying to encourage involvement in Emergency Communications. As part of that he encourages operators to work contests as training for that. He is also part of the Amateur Auxiliary as an Official Observer. He noted that he will not only point out operating mistakes, but he will send notices of GOOD operating habits. Sandy answered Craig's, WA1HEW, question of "What is ARWG?" ARWG is a sub-group of the South Central Task Force if Amateurs who support Emergency Communications for the region. The SCTF consists of the 8 county Emergency Managers for Franklin, Adams, York, Lancaster, Lebanon, Dauphin, Cumberland and Perry counties. There is a sub-committee for the Communications and Technical staff under that Executive Board, with the ARWG as a group under that sub-committee.

Tim, W3TWB, reminded the Echolink users that they need to give their Call Signs whenever they bring up Echolink.

Jack, KC3JD, mentioned the Emergency Management Quarterly Training where the SCTF Incident Management Team provided an excellent talk about how they support incidents.

Tim advised that improvements are still needed for the club. He bought a new Lock Pad for the door. This one allows for codes for every person granted access to the club. It records the code and a time stamp when the door is opened. The cost was \$262. Steve, WB3EFA, moved to accept the purchase for reimbursement to Tim. Ralph, K3HQL, seconded the motion. Motion carried.

The club is accepting donations toward the new HVAC using Go-Fund-Me. To date we have collected \$500 in donations on the site, plus one very generous anonymous member who contributed \$2,000. The Go-Fund-Me link can be found on the club's website (W3HZU.com).

Letters will be written for those donations so you can use them for tax deductions since we are a 501©3 organization. Donations can be made by cash or check as well.

Tim, W3TWB, made a motion to set up a Pay-Pal account for our club to allow dues payments online. Ralph, K3HQL, seconded the motion. Motion carried. Dan will set that up.

First reading was done for Don Schmitt, K3DCS.

Mike, N3VQH, asked Joe, KB3TCM, to set up an Audit Committee, to include Sandy, N3ECF. The Audit is usually conducted in early to mid-February on a Sunday afternoon.

GOOD OF THE CLUB –

Jack noted that there is now an Automatic Light in the Jiffy John, which should stay on for up to half an hour. Tim said future plans include rebuilding the out-house, keeping the current tank, as part of the facility refurbishing efforts.

There will be a weekend Technician License Class in York Township in February. Cross Keys Village also holds training classes (several week long class).

50-50 was won by Evan, W2EDT, won \$42

Adjourned at 19:55.

KEYSTONE VHF CLUB OF YORK, PA



Membership Application

Name: _____ Phone: _____ - _____

Address: _____ Callsign: _____ Expires: _____

City: _____ State: _____ Zip: _____ Lic Class: _____

Occupation: _____ E-Mail: _____

Membership Desired

- Full** → Full Club Privileges
\$25.00 annually & one time \$5.00 Application fee
- Family** → Sponsoring members call: _____
Privileges same as Full membership
\$6.25 annually & a one time \$5.00 Application fee
- Associate** → Repeater Support
\$20.00 annually & a one time \$5.00 Application fee

Are you a member of:

- ARRL Y-N
- ARES Y-N
- RACES Y-N
- OCWA Y-N

Special Areas of Interest (circle all that apply)

AM Antenna building ATV Contesting CW Digital (Packet, RTTY, PSK-31, etc)
DX FM HF QRP Satellites SSB SSTV SWL Tower climbing LF DSP
UHF/Microwaves VHF Astronomy Photography Other: _____

Application & Dues Mailing Address:

Make checks payable to: *Keystone VHF Club Inc.* Mail to: *PO Box 20143*
York, Pa. 17402-0140

FOR CLUB USE ONLY	
First Reading Date: _____	Second Reading Date: _____
Date voted IN-OUT: _____	Date Dues Collected: _____
Applicant Sponsored by: _____	