



The Repeater

Portland Amateur Wireless Association Newsletter

Portland Amateur Wireless Association Repeaters

Falmouth: 146.730MHz (-600KHz) (T 100.0Hz)

Scarborough: 444.100MHz (+5MHz) (T 82.5Hz)

Portland Amateur Wireless Association Board of Directors

| | | | |
|-----------------|----------------|--------|--|
| President | Bryce Rumery | K1GAX | K1GAX@juno.com |
| Vice President | John Bogner | W1JLB | JBogner1@maine.rr.com |
| Secretary | Tim Mitchell | KB1YBS | mitchell@smoms.com |
| Treasurer | Jack Ney | KC1UX | KC1UX@maine.rr.com |
| Chief Operator | Ross Drivas | KB1OND | rmdkb1ond@yahoo.com |
| Member at Large | Steve Mitchell | KB1YBT | SJMitchell@maine.rr.com |
| Member at Large | Jason Cote | W1WDW | W1WDW@jcwebdesign.com |

Club Birthdays

Peter Eastman, N1AKP - 1st

Bryce Rumery, K1GAX - 13th

Jason Cote, W1WDW - 17th

On The Web

Please visit us on the web! We have pages on Twitter, Facebook and the world wide web. Check out our addresses at the top of the newsletter's first page, follow us on Twitter, and like our page on Facebook to stay up to date on club activities



Any Feedback?

Let us know how we're doing!



Coming Soon!

A new communications vehicle



Upcoming Events

Check out our upcoming events calendar!

President's Message

We're now in February! Next thing you know we will be complaining about the heat.

Now down to meeting programs. It's not the President's job to line up the programs. Face it, I'm not a mind reader. I depend on the membership to let me know what they like to see presented at a meeting. Myself or someone else in the club might be able to line it up or perhaps even present it. If we don't get some inputs from the membership, we may just have a social hour after the business meetings. We have a lot of talent in the club membership and perhaps one or more of you might want to talk about your favorite part of amateur radio! Don't be afraid to step up and present something! It doesn't have to be long and involved. It might be a simple 15 minute presentation. I will be looking forward to some participation from the membership!

Believe it or not, we are getting fairly close to the public service event season. On Saturday, April 22nd we have the MS Walk in Portland. About a week later we have the March of Dimes walk. On July 4th we have the L. L. Bean 10k run in Freeport. That is a very fast event which usually ends around 9:30 AM which leaves most of the rest of the day open for the BBQs fireworks and other 4th of July activities. The ending event for the season is the Beach to Beacon 10K run in Cape Elizabeth. That takes place on Saturday,



August 5th. It takes quite a few communicators for the event and we can sure use the help. Hope to see a load of club members out for any or all of the events this year!

73, Bryce, K1GAX

President

Treasurer's Report

| January 2017 | |
|-------------------|-----------|
| Beginning Balance | \$1767.21 |
| Income | \$337.50 |
| Expenses | \$300.00 |
| Ending Balance | \$1829.71 |

Thanks,

73, Jack KC1UX

UPCOMING EVENTS:

✱ **Next meeting:**

Wednesday, February 1st 2017 - 7pm
Stuart Morrill American Legion Post #35

✱ **February ARRL Contests:**

13th-17th - School Club Roundup
 18th-19th - International DX - CW



Secretary's Report

PAWA Meeting

Wednesday, January 4, 2017

There was no Board of Directors meeting due to the lack of a quorum.

The General membership was called to order at 7:00 PM. There was a quorum present when KB1OND arrived.

It was moved and seconded that the Secretary's report for December 2016 as published in the newsletter be accepted. The motion was passed by the membership.

It was moved and seconded that the Treasurer's report for December 2016 as published in the newsletter be accepted. The motion was passed by the membership.

It was moved and seconded that the Chief Operator's report for December 2016 as published in the newsletter be accepted. The motion was passed by the membership.

There was a discussion concerning the tower trailer and the cost of repairing it. It was decided to get an estimate and form a committee to decide what is to be done.

A motion was moved and seconded to adjourn the meeting. The motion was passed by the membership.

Jason, W1WDW presented an excellent program on APRS

Report submitted by K1GAX

Exam Session Report

Thursday, January 19, 2017

We had a very successful exam session!

We passed two new Technicians and three new Generals. No one failed an exam!

Theodore Moreau and Gregory Staoff passed their Technician exams.

Paul Eros and David Webster passed both their Technician and General exams.

Frederic Bowers, KC1GOU passed his General.

It's nice to see all the candidates coming away with a new license or upgrade!

Thanks to the attending VEs for their efforts. John, W1JLB, Bryce, K1GAX, Don, KA1WAL, Jason, W1WDW, Mike, N1GRO and Jack, KC1UX!

73, Bryce, K1GAX

Assistant VE Liaison

Chief Operator Report

Ham radio has many avenues for the hobbyist, some more expensive than others. I have always been fascinated by the earlier days of the hobby when an amateur would cobble together a rig from parts gleaned from old TV sets or radios. For a novice class licensee crystal control was a requirement. With crystal control you were parked at the frequency of that crystal. This helped minimize out of band transmissions since aside from any "splatter", provided you had the right crystal for your license privilege's - that was the frequency you transmitted on. The downside? That was the frequency you transmitted on, unless you changed the crystal out.

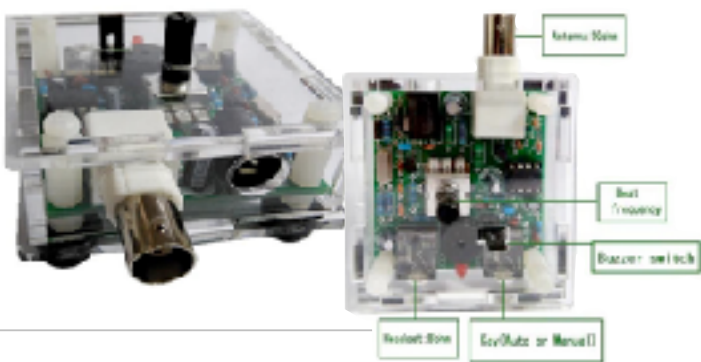
There are many kits out there for the would-be radio builder, some simpler than others. Crystal controlled QRP CW kits are the simplest of all.

The Pixie transceiver is one such kit. It is about as minimalist as you can get. Its origins go back to the Great Britain QRP club in the 90's where it featured 6 transistors. As time went on the component count dropped. One such current design is here.



And kits are available at Ebay, Amazon and various sites on the web. The price has dropped so depending on where you look, the assembled kit can be had for the same price as an unassembled one. Since I didn't have time to put one together, and in consideration of my rusty soldering skills I opted for the assembled model, as did Tim KB1YBS.

My 40 meter S-Pixie cost me \$7.99, assembled, with the case, and a crystal for 7.023 kHz shipped to my house.



As you can see the component count has gone up, compared to the Pixie 2 board pictured above. In the original designs of this rig, it featured just 2 transistors. The S-Pixie now features the LM386 chip, an amplifier chip very popular in the 70's, which easily handles 9-12 volts. (I think its spec's are even wider than that.)

There is a jack for headphone, key and power. The Pixie can run from 9-12 volts, the power and run time dependent on the battery. The output of the rig is around 400 milliwatts at 9 volts and 700 or so at 12 volts, according to various sources. I bought a 9 volt connector, just to see how the rig sounded.

All of the Pixies are a direct conversion design and if you are attempting a QSO on the exact same frequency as your contact you may not hear them as you have "zero beat" on to their frequency the solution for this is to have some sort of receiver frequency offset, either built in or with a RIT control. The Pixie has a limited version of this - see the trimmer capacitor labelled BFO in the diagram. It will "pull" the received signal a few Khz to either side of the crystal's resonant frequency.

Another "feature" of direct conversion is you will hear two signals images one on either side of the center carrier. The one to use is the upper one. People with DC type receivers tune from high to low so the first signal they catch is the one they want to use for a contact. I am not sure how this plays out using the Pixie as you are transmitting on a fixed frequency, you are not tuning down through the band, at least when transmitting. Also the BFO control only "pulls" the received signal a few khz, it seems.

CW rigs usually generate a side tone so that you can hear the sound of your rig transmitting in your headphones. While some Pixie's have an additional board for this feature that would drive the part count up. Instead these kits have a small piezo electric buzzer, which sounds as you key the rig (To my ears it sounded more like a speaker than a buzzer). If you are using an electronic keyer, the buzzer is not needed, so they have a removable jumper which silences the buzzer and extends the battery life.

One of the downsides for the Pixie is it is shipped with a crystal for 7.023 kHz. This is in the Extra

class portion of the band. This can be remedied by swapping out the crystal. It looks like my kit has the crystal hardwired in, so a bit of modification will be needed in order to add a crystal holder. This will allow a quick frequency change within the 40 meter band as desired. 7.030 is a typical QRP calling frequency and 7.050 is the start of where many of the slower CW operators congregate. Crystals are available for both.

What's it like?

Because of the minimal part count and it's clever design - using the same transistor for different functions, depending on whether it is being keyed or not - the receiver is wide, some folks say 10 khz on either side of the operating frequency. This means you will hear multiple QSO's going on. I heard about 3 or 4 going on, each distinguishable by pitch. The trimmer capacitor (BFO) allowed me to tune to some extent. But the other contacts were still there. This is a known "feature" of this rig.

Broadcast interference or BCI. Living in an urban area I was hearing an AM sports broadcast station in the background. The LM386 chip mentioned earlier, is known to act as a product detector in its own right, especially in the presence of strong out of band signals.. Several mods are suggested- some involving other pins on the chip, clipping ferrites to all the external leads i.e. battery, keyer, antenna and headphone. It is highly encouraged to use a resonant dipole and an antenna tuner. In my case I was using a 40 meter vertical antenna with about 100 feet of coax. The ferrites I was using didn't seem to make a difference, but they may not have been the right size.

However when I took this rig out to a rural area where the broadcasters are FM, and there is no AM transmitter for probably 100 miles, there was no BCI. In that case I was also using a 40 meter dipole as opposed to the vertical antenna.

So there is room for improvement, but that is what the hobby is all about. And the cost of experimentation comes at a very inexpensive price point. If we have a few members with these rigs with the same frequency crystals we should be able to contact each other - especially if we can get the QRM issues resolved for those that experience them.

Experimenting and working on that may prove to be half the fun.

73

Ross, KB1OND

We Need Your Support!

Jason Cote - W1WDW

Back in May and June a small group of PAWA members including George NX1C, Ross KB1OND, Jack KC1UX, Mike N1GRO, Steve KB1YBT, Ariel KC1CCB and myself went out to the farm and got the trailer ready for field day. We noted some problems with the trailer that should really be corrected, including the condition on the hoist cables, trailer lights, wiring, tires and some other things. I compiled a list of needed items and the approximate costs associated with the work. We have not yet identified the costs specific to the tires and suspension as they are very old parts and replacements are not readily available. I would like to ask members of the club to see what they can contribute to offset the costs of supplies in a "trailer maintenance fund". The PAWA antenna trailer is a valuable club asset and we as a group are lucky to have it. It is in the club's best interest to continue to maintain the trailer especially as it is stored outdoor in the elements. Can you help us? Do you have ideas to contribute? Let us know! Thank you very much for your support.

Coming Soon - ARES 1

Jason Cote - W1WDW

Late last year, I learned of an opportunity to purchase a valuable TV station asset to be used in amateur radio and community service. That asset was a 1994 Chevrolet Suburban K2500 4x4 ENG truck. Late this month, we finally retired the truck in preparations to receive its replacement, and I negotiated with the station to purchase the vehicle. I finally purchased the truck and brought it home where I am currently preparing it for amateur radio use. The truck has 245,000 miles on it but still runs nicely, it is equipped with a generator capable of providing over 15 amps of 120VAC electrical power, a 45' pneumatic telescoping mast and air compressor to raise it which is perfect for flying a dipole or beam antenna. The top of the mast is equipped with a pan and tilt unit capable of tilting over 90° and rotating 360°, there is also a "nycoil" or cable path that brings wiring from the interior of the truck to



the top of the mast. The truck is also equipped with exterior area lights, two 19" equipment racks, a power distribution center inside that can easily handle the power requirements of a communications vehicle, 9 NMO-style antenna mounts and a canopy awning which will provide shelter. I am excited to own this truck and happy to make it available for club use especially during field day and other club activities. This truck while not currently equipped, will be fitted with a trailer

hitch so that we can more easily tow the club's antenna trailer. I will be bringing the truck to the February club meeting and would be happy to show it off to the membership. More to come soon, stay tuned!!

Noise floor report does not inspire confidence

Dan Romanchik - KB6NU

Last June, the FCC's Technical Advisory Committee asked licensed and unlicensed users of the electromagnetic spectrum to answer some questions about the noise they were experiencing and whether or not it was affecting their services. Specifically, they asked:

- * Is there a noise floor problem?
- * Where does the problem exist? Spectrally? Spatially? Temporally?
- * Is there quantitative evidence of the overall increase in the total integrated noise floor across various segments of the radio frequency spectrum?
- * How should a noise study be performed?

Well, the results are in, and Radio World recently published a summary of the responses that the FCC received (<http://www.radioworld.com/business-and-law/0009/noise-floor-where-do-we-go-from-here/338242>). The FCC received 93 replies from 73 (great number, eh?) different people or organizations, including:

- * 23 companies/industry organizations
- * 39 RF professionals (broadcast and wireless)
- * 31 licensed radio amateurs
- * 9 responders did not reply to the questions asked

Respondents included the ARRL, the Society of Broadcast Engineers, the National Association of Broadcasters, the National Public Safety Telecommunications Council, ATT, and the National Electrical Manufacturers Association. I

found especially interesting comments from the Society of Broadcast Engineers. They include:

- * Increased cooperation is needed between manufacturers of Part 15 devices and users of radio spectrum to identify noise sources and take appropriate remedial action.

- * Radiated emission limits below 30 MHz in the FCC Part 15 rules for unintentional emitters should be enacted. There are presently no radiated emission limits below 30 MHz for most unintentional emitters.

- * Reduced Part 15 limits for LED lights should be enacted to be harmonized with the Part 18 lower limits for fluorescent bulbs.

- * Better labeling on packaging for Part 18 fluorescent bulbs and ballasts to better inform consumers of potential interference to radio, TV and cellphone reception in the residential environment.

- * Specific radiated and/or conducted emission limits for incidental emitters, such as motors or power lines, should be enacted.

- * Conducted emission limits on pulse-width motor controllers used in appliances should be enacted.

- * Substantially increase the visibility of enforcement in power line interference cases.

Other organizations made similar comments.

While the report is encouraging, it won't mean a thing if no action is taken on these issues. Given that the FCC is cutting back on its field offices, and our president-elect has said that he plans to reduce the number of governmental regulations, I'm not optimistic that we'll see the noise situation get better before it gets worse. What do you all think?

When he's not battling the noise floor at his QTH, Dan blogs about amateur radio at KB6NU.Com, writes the "No Nonsense" amateur radio study guides and teaches ham classes. You can contact him by e-mailing cwgeek@kb6nu.com.