PCARA Update

Volume 3, Issue 2 Peekskill / Cortlandt Amateur Radio Association Inc. February 2002

Tally-Ho! – Greg, KB2CQE

Let loose the hounds! The hunt is on! Unlike the controversy surrounding the sport of the same name, **Fox Hunting** in the amateur radio community is an event enjoyed by all. At January's meeting there was interest expressed in having a PCARA Fox Hunt. We are now in the process of organizing just such an adventure, for sometime in the late summer or early fall. As usual, anyone interested in helping to organize and plan for this adventure should contact one of the officers.

At this time I would like to thank all of the instructors who are teaching the Technician class at HVHC. There are approximately twenty students! This is just another demonstration of how amateurs unselfishly give of themselves to help others and their communities, without expecting anything in return. This is what the hobby is all about! Once again, thank you for making us proud! – 73 de Greg, KB2CQE.

Coordination

PCARA's three repeaters, located in Putnam County, are now coordinated by **UNYREPCO**. Here is UNYREPCO's February 13 press release.

"The Upper New York Repeater Council, Inc. (UNYREPCO) wishes to announce the adoption of UNYREPCO, by a majority of the repeater/link/packet trustees in Orange, Putnam, and Sullivan Counties in New York State, to provide frequency coordination services. This adoption process was completed, after review of the existing emitters by the established and recognized adjacent frequency coordination councils, and becomes effective February 13, 2002.

"The service territory changes are reflected in the 2002-2003 Repeater Directory submission and are available on http://www.unyrepco.org/.

"Any questions, comments, or requests for services can be e-mailed to info@unyrepco.org .

"The Upper New York Repeater Council (UNYREPCO) is a service organization which provides frequency coordination services for all or most of 43 counties in the State of New York including the cities of Rochester, Syracuse, Elmira/Corning, Binghamton, Watertown, Albany, and Poughkeepsie, and has continuously provided these services since 1976. UNYREPCO is a charter member of and certified by the National Frequency Coordinators' Council, the national association of amateur radio service frequency coordinators."

Tech Class

PCARA is currently holding Technician License classes on Tuesday evenings, 7:00 P.M. to 9:00 P.M. at Hudson Valley Hospital Center. Those sharing the teaching duties so far have included Joe, KR2V; Malcolm, NM9J; Bob N2CBH and Karl N2KZ. Several PCARA members have come along to support the students and share their experiences of amateur radio.

Joe, KR2V explains FCC rules and regulations to the well-attended PCARA Tech Class on February 5th.

Karl, N2KZ distributed CW materials at the first class and has been presenting on-air CW tuition every Monday, Wednesday and Friday evening at 8:45 P.M. on the 146.67 MHz W2NYW repeater.

Test Session: The final class, scheduled for Tuesday March 26, will take the form of a V.E. Test Session, under the auspices of the ARRL-VEC. This session is open for walk-in candidates, including PCARA members and members of the public. Tests will be available for all amateur license classes. Remember to bring two forms of identification (one Photo ID), your current FCC amateur license plus photocopy, any CSCEs from test sessions held in the past twelve months as well as the $10.00 test fee.

Receiver specs and why they are important to understand – Part I – N2CBH

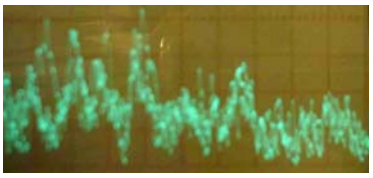
There are three critical factors in the design of receivers that will determine in large part whether or not you will be able to hear a given signal. These are gain, sensitivity, and noise figure. The interesting part is that they are all interrelated.

Gain is the amount by which the receiver is able to amplify a weak signal without distorting it.

Sensitivity often quoted in microvolts (μV) is the weakest signal a receiver is able to receive with a 10 or 12 dB margin of signal to noise. For example, if a receiver's performance is quoted at 0.5 μV for 10 dB signal to noise ratio, this means that the receiver is able to demodulate a signal with a strength of at least 0.5 μV. The audio signal coming through the speaker will then be at least 10 dB above the noise present.

For HF work and FM two-way communications this is considered the minimum quality of signal for good communications. A good example of this is when you are listening to a weak signal into a repeater and the station just breaks squelch. This is a signal that is just above the noise floor of the system and can be heard. Certainly not full quieting but adequate.

Noise is a little more involved. First of all there are all kinds! We have all experienced natural and man made noise that plagues our ability to hear signals on HF. This is noise that we can do very little about in the design of a receiver except for certain kinds of noise where noise blankers have proven effective. These noise sources include ignition noise and some types of repetitive static.



Noise plagues our ability to hear signals (panoramic adaptor view of 160 meter band).

A problem in receiver design is that if you design a receiver with lots of gain you will likely amplify the incoming noise along with the weak signal you are trying to hear. Modern receivers often incorporate RF gain controls on the front panel. You can use this control to reduce the gain of the receiver when maximum gain isn't necessary to hear a desired station. In noisy locations this has the effect of reducing the noise while still allowing enough gain to hear the desired station. Receivers also have automatic gain controls that do this as the name implies, automatically. This isn't always desirable and this is why most amateur transceivers offer both manual and automatic gain controls.

Yaesu RF gain control

Receiver designers have to concern themselves with the internal noise that is generated by the circuits they are designing into a receiver. The transistors that are used to amplify the signals coming from the antenna generate this internal noise. Transistors exhibit a type of noise known as shot noise. This is the noise that the carriers within the transistor make when they move through a semiconductor barrier. Older receivers with vacuum tube front ends also suffered from similar noise problems although often worse.

Do you remember that earlier I talked about gain? Gain is limited by the internal noise of the RF amplifier and IF amps in your receiver. If the gain is too high, it will amplify this noise along with the incoming signal. Designers strive to make the internal noise of the receiver as low as practical. The internal noise of the receiver directly limits its ability to hear weak signals. The higher the internal noise is, the higher the incoming signal strength has to be to be heard over it. Thus the poorer the sensitivity will be. This is the interrelationship I indicated at the start of this article.

Modern receivers have front ends that contribute as little as 1 dB of noise to the incoming signal. Older receivers had noise figures ranging anywhere from 3 to 10dB! So much for vacuum tubes! 3 dB is still pretty respectable. If you are a casual DXer you might be all right with a receiver with this kind of noise. If you are chasing the rare DX you are better off with a modern solid state receiver with a 1 to 1.5 dB internal noise floor.

When you are checking out specs for a new transceiver you probably won't see gain or noise quoted in the receiver section but you will see sensitivity. Remember, in this case less is more. That is to say the lower the sensitivity number is in μV for a given signal to noise ratio, the better the receiver. Next time I will discuss another important aspect of receiver specs, the magic of selectivity.

73 de N2CBH, Bob

Back issues

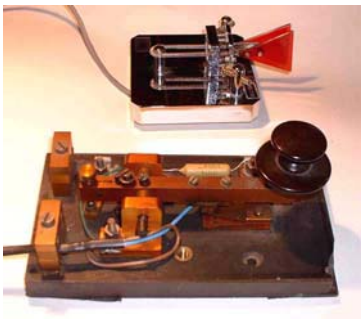
Back issues of the *PCARA Update* are now available online in PDF format via the PCARA web site, thanks to webmaster Greg KB2CQE and Mike, N2HTT. Point your browser to http://www.pcara.org then follow the links to the PCARA Update.

Try a new mode today!

Or, maybe one you haven't used in a while – N2CBH

Ham radio can be a rewarding hobby and at times challenging. Like most things in life we tend to gravitate toward things that are familiar. In Ham radio this might be SSB operation on HF or FM operation on 2 meters. Or, perhaps if your passion is CW only, operating this mode.

It's a big world out there with lots of things to try. The same goes for our beloved hobby. I was talking to a friend about CW the other day and he made mention of the various CW nets that operate today. With shock and surprise I asked, "do people still operate nets on CW?" This friend who operates exclusively CW reassured me that "yes, there were" – and I should check in to one some day.



Dust off that old key or paddle.

Here is just one example of doing something a little different. Dust off that old key or paddle and plug it into your rig. Don't be intimidated by fast code that you can barely copy. You can go up to the old novice sub bands rumored to be populated by CW tech class operators and call a slow CQ. Send only as fast as you are capable of receiving. I think you might be surprised to hear your call sign come back with an answer from – who knows – someone just like you, trying something new and unfamiliar.

If you have trouble copying, ask the other station to send slower. Most operators are considerate and understanding enough to oblige. Before you know it, you will be clipping along at 10 or 15 words a minute. How do I know? I'll confess. I am a closet CW operator, strictly straight key. Looking through my logbook a while back I noticed I hadn't routinely operated CW for almost 20 years! Little by little I have managed to get my proficiency up to where I was way back in those dark days of the early 1980's! Try the N2KZ Show Monday, Wednesday, and Friday nights at 8:45 PM on 146.670/R for some practice.

I can hear it now, "but I hate CW!" Well, try something else. Most modern HF rigs allow for operation on AM and FM. AM is neat on the low bands and FM is kind of cool on 10 meters for local rag chewing. There, you don't have to do anything but push the right buttons on your rig. There are some activities that don't even require getting on the air. Recently, I purchased an HF rig that tunes clear down to 30 kHz. So I gave it a listen down there. There is some really interesting stuff to listen to down below the AM broadcast band. You can practice copying slow CW from about 250 to 450 kHz. If your rig tunes down there and has an AM position, try tuning in some of the aircraft non-directional beacons that are in this area. They are easily tuned in and you can copy the CW identifier which amplitude modulates the carrier. These are usually two or three letter calls sent really slowly so that pilots can pick out the CW characters easily. Make a list of all the ones that you can hear. Then, if you are really ambitious go to a map store and purchase for a few dollars a New York sectional aero map and pin point all the "rare DX" beacons you have heard.

These are a couple of ideas for operating. You probably have better ones! If you do, email them to me at N2CBH@arrl.net and we will publish them for all to try or laugh at! Well, this is N2CBH signing clear asking, have you tried something new today?

- de N2CBH, Bob

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Second Anniversary

Peekskill/Cortlandt Amateur Radio Association will be celebrating its second anniversary with a **QRP Special Event Station.** The callsign will be a one by one, **W2Q** and the event will run from 11:00 A.M. to 5:00 P.M. EDT on Saturday May 4. Suggested frequencies for calling stations will be 28.350, 21.350, 14.280 and 7.240 MHz. A certificate will be available via PCARA, W2NYW, PO Box 32, Crompond, NY 10517.

Details of the PCARA Special Event Station will appear in the May edition of *QST*. For additional information contact Joe, KR2V.

Plans are being made for a QRP contest for club members on the same day. Details nearer the time!

One Day Extra Course

Long Island Mobile Amateur Radio Club is holding a One-Day Extra Class License Study Course on Sunday, March 24, 2002. The class will be held in Hicksville, NY, from 8:30 A.M. to 5:00 P.M. There is a $10 fee to offset material costs. Students are expected to obtain an Extra class study guide and begin reading it. Students may register by sending their name, callsign, address, city, state, zip, phone number and e-mail address and check for $10 made payable to "LIMARC" to LIMARC Extra Class course, PO Box 392, Levittown NY 11756. Contact: George Tranos N2GA, n2ga@limarc.org, or 631-286-756. (Tnx *Hudson Division Beacon.*)

Peekskill / Cortlandt Amateur Radio Association

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PCARA Update Editor: Malcolm Pritchard, NM9J
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Newsletter contributions are always very welcome!

PCARA Information

PCARA is a **Non-Profit Community Service Organization.** PCARA meetings take place the first Sunday of each month at 3:00 p.m. in Dining Room B of the Hudson Valley Hospital Center, Route 202, Cortlandt Manor, NY 10567. Drive round behind the main hospital building and enter from the rear (look for the oxygen tanks). Talk-in is available on the 146.67 repeater. Meetings are suspended during July and August.

PCARA Repeaters

W2NYW:	146.67 MHz -0.6, PL 156.7Hz
KB2CQE:	449.925MHz -5.0, PL 179.9Hz
N2CBH:	448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

Sun Mar 3: March meeting, 3:00 P.M. HVHC.
Tuesdays Feb - Mar 26: PCARA Tech class, 7:00 P.M.
Mon/Wed/Fri: PCARA on-air CW practice**:** 8:45 P.M. on 146.67 repeater.
Sat May 4: PCARA 2nd Anniversary QRP Special Event Station and Contest.

Hamfests

Feb 24: LIMARC, Hicksville NY.
Mar 2: Splitrock ARA, Parsippany NJ.
Apr 13: Roseland ARC, West Orange NJ.
Apr 14: Southington ARA, Southington CT.
Apr 21: Mt Beacon ARC, Poughkeepsie NY.
Jun 1: Bergen ARA, Washington Township NJ.

VE Test Sessions

Mar 2: Splitrock ARA Hamfest, 9:00 A.M.
Mar 2: Candlewood ARA, Brookfield CT, 11:30 A.M.
Mar 3, Apr 7: Yonkers ARC, Yonkers Police Dept., 1st Precinct, East Grassy Sprain Rd, 9:00 A.M. Contact: Daniel Calabrese, 914 667-0587.
Mar 18, Apr 15: Columbia Univ ARC, Watson Labs, 612 W 115th St. New York, NY 10025, 6:30 P.M. Contact Alan Croswell, 212 854-3754.
Mar 19: W5YI VEC Pel Hams, 20 5th Ave, Pelham NY 10801, 7:30 P.M. Contact Michael Ciferri 914 738-5775.
Mar 26: PCARA (Final session of Tech Class), HVHC, 7:30 p.m. Contact NM9J, 736-0368.
Apr 11: WECA, Fire Training Center, Dana Rd., Valhalla, 7:00 P.M. Pre-registration required, contact: Sanford Fried 914 273-2741

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