



PCARA Update



Volume 5, Issue 9

Peekskill / Cortlandt Amateur Radio Association Inc.

September 2004

Preparedness – KB2CQE

As we approach the third anniversary of one of the most heinous series of events in our nation's history, it is once again time for resolute remembrance and reflection. **Let us never forget.** We must again ask ourselves, "Are we better prepared today than we were three years ago to deal with emergencies, be they man-made or natural in origin?"

As amateur radio operators we are licensed and permitted to use spectrum with the understanding that one of our primary functions is to provide emergency communications in situations where conventional means become compromised. Are you ready to help provide emergency communications if needed?

I hope to see each of you at the September 12th meeting at Hudson Valley Hospital Center.

– 73 de Greg, KB2CQE

Preparedness reminder

Here's a flashback to the September 2002 PCARA meeting, when Jeff Schneller, N2HPO came to explain the operation of **SATERN**, the Salvation Army Team Emergency Radio Network. SATERN's main purpose is

to provide emergency communication support for Salvation Army operations.

Jeff described how 9/11 had shown beyond doubt that cell phones are not reliable in an emergency and how amateur radio and GMRS had filled the gaps. Jeff showed the "Field Kit" radio boxes employed by SATERN members, based on weatherproof sportsmen's boxes, containing a dual-band mobile radio, Alinco power supply, Repeater Directory and instruction manual for the radio.

For further details of SATERN see: <http://www.satern.org>. For the sportsmen's boxes see: <http://www.westmarine.com> (look for "Deep dry storage marine box").

Several PCARA members subsequently constructed their own versions of the "Field Kit" radio box, for emergency use at short notice.

Don't forget!

To avoid the Labor Day weekend, September's PCARA meeting takes place one week later than usual on **Sunday September 12**, at HVHC.

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Jeff, N2HPO and junior op Evan demonstrate SATERN's field kit radio boxes

Adventures in DXing

— N2KZ

Getting to Know 30 Meters

It's a little bit forty and a little bit twenty. You can't run more than 200 watts. Very few beams are big enough to cover this low band. Not one word is ever spoken. The band is exclusively digital with active



Welcome to 30 meters!

communities in Packet, PSK31, RTTY, AMTOR, Clover and good old CW. Many operators use QRP power. I was one of them!

I met the 30 meter band for the first time in the town of Port Austin, Michigan. If you look at a map of Michigan, it resembles a mitten. Port Austin is at the very tip of the thumb. I used a recently assembled Oak Hills Research OHR-100A single band transceiver, a MFJ mini-paddle key and a home brew 30 meter dipole strung between two trees. Power was provided by 8 D cell flashlight batteries. It was an encore of Field Day!

During three weeks of very casual operating in July and August, I worked 37 QSOs covering 20 states and three countries on 5 watts and a lot of prayer. The most memorable were Paul, F2YT in France; Gianni, I8SAT in Italy and DXpedition station FP/K9OT on the island of Miquelon located off Maritime Canada. I also skeded with old friends Bob, K2TV using the powerful CBS TV ham shack in New York City; and Gil, NN4CW (love that call!) worked me on QRP from South Carolina. A great time was had by all!

30 meters is an interesting neighborhood to visit. This 50 kHz slice of spectrum is equally divided, by mutual agreement, into the CW half and the digital half. CW reigns from 10.100 MHz to 10.125 MHz. The more complex digital modes occupy the range from 10.125 MHz to 10.150 MHz.

Amateur radio is a secondary user. FCC rules demand that you must not interfere with commercial users of this spectrum who have the right of way.

In the daytime, 30 meters is a lot like 40 meters. It sounds quiet, sometimes with some QRN, and

rather dead. Don't let this fool you! Many, many people listen to 30 meters casually waiting for the next CQ to appear. Several times I called CQ around high noon and received nearly instant replies from some very interesting stations. Daytime propagation could carry my signal 1000 miles or more, but usually found respondents around 500 miles away in no particular direction. I worked primarily all of the East Coast, South, and Midwest.



Gil, NN4CW worked N2KZ on 30 meters.

Propagation begins to shift a couple of hours before dusk. My QTH was relatively high in latitude, so sunset occurred just a few minutes before 9 o'clock every night. Full darkness did not occur until almost 11 pm! I made full advantage of grayline sunrise and sunset skip! Lots of unusual stations appeared during the barely lit hours. After about 9:30 pm, the band was very active. 30 meters would become loaded with CW stations with a great variety of sending speeds. It differs from most

other bands where the first 25 kHz is dominated by very fast and proficient fists using keyers or computers to send CW. 30 meters is a meeting place for all brass pounders!



Oak Hills Research OHR-100A single band CW transceiver as used by N2KZ from Michigan.

For no apparent reason, a lot of activity centered around 10.108 MHz. The Fists CW calling frequency of 10.118 MHz was another good place to hunt for a contact. Nighttime activity included stations from every corner of the universe. My Italian contact was made exactly at his moment of local sunrise grayline. I was all alone answering his CQ. Needless to say, Gianni was very pleased to bag a QRP station from Central Michigan! Around midnight, the band logically shifts to the west after everyone back east has gone to sleep. South Dakota and Iowa are easy catches late at night.

Three frequencies were dominated at night by high speed telegraphy. I presume these were commercial transmitters since they never stopped! You will find these relentless woodpeckers nightly on 10.100, 10.110 and a very powerful station on 10.130 MHz. I did not hear one 30 meter amateur radio beacon station during all my listening.



Port Austin is located at the very tip of Michigan's Thumb.



The eight element M² log periodic used by Bob, K2TV at the CBS Broadcast Center in New York City to contact Karl N2KZ on 30 meters. This antenna covers the seven amateur bands from 40 to 10 meters. Rig is a Kenwood TS-940S.

Mornings were actually pretty quiet. Domestic stations would start to appear around 9 am. I can't say I spent much time on 30 meters at dawn. This would be my area of concentration for next summer.

30 meters is a wonderful place to introduce yourself to the world of CW and advanced digital modes of operation. All amateurs with General, Advanced or Extra Class licenses are cordially invited! The party is going on right now!

Fun at Home

The fun did not stay in Michigan! Great times occurred here at home, too! On Field Day weekend, Adam, KC2JNW, enjoyed his first CW QSO with N2KZ mobile 2. On my way to PCARA's Field Day celebration on Bear Mountain, I car pooled with Adam. As I approached his house, we met on 28.020 MHz 10 Meter CW and had a great time! I was sending from my car with a straight key on my passenger seat!

During a power blackout on the morning of June 20th, I worked Ellis, KT8N in West Virginia and Don, AB8EL, in Ohio using my 35 year old Heath HW-7 on battery power on 40 meter CW. Not bad for three watts!

My best contact was an amazing grayline QSO with John, VK4TJ, in Australia on 7147 kHz. My RST report was 229, but we touched base and got our messages through! I felt like I was cheating. I was using my Heath HW-16 I built back in 1968. It runs QRO at 90 watts!

So, that's what I did on my summer vacation. How about you?



— 73 de N2KZ The Old Goat.

Weather report

One aspect of 2004's damp summer — apart from all the green grass and the excellent ground conductivity — is that several local hamfests took place on weekends when the weather was less than perfect. The Tristate ARA Hamfest at Matamoras, PA on August 15 coincided with Hurricane Charley's passage through the north east, after it had ravaged southwest Florida. One week later, the Ramapo Mountain ARC Ham Radio flea market in Oakland, NJ took place on a weekend of heavy downpours.

PCARA had intended to have club tables at both Matamoras and Oakland, but in view of the adverse weather, late decisions were made not to travel. Apologies if you turned up at these events and were disappointed to find PCARA absent.

Two PCARA members who did attend hamfests in August are Ray, W2CH and Marylyn. Here is Ray's account of their adventures.

“During Hurricane Charley, we were away at the New England Division Boxboro, MA Convention and luckily the weather was good for the flea market there. We did go to the Oakland Hamfest after the morning rain eased off. We got there about 8:30 AM and there were very few outdoor vendors. Inside there was KJI and a few others.”

“We did win a couple of items at the Boxboro Dinner Banquet. I won a year's subscription to *CQ*, and Marylyn won an ARRL Handbook. We had a good time there and some other hams we know from White Plains and Hartsdale attended too. Unfortunately, Bob Heil K9EID could not make it and there was no Wouff Hong Ceremony at midnight — though we did attend the ceremony two years ago at the last New England Division Convention. There seemed to be less vendors than last time in the main convention hall at the Holiday Inn.”

Useful links

Boxboro Convention: <http://www.boxboro.org>.

NOAA: <http://www.noaa.gov>

National Hurricane Center:

<http://www.nhc.noaa.gov>

National Weather Service

forecast, N. Westchester:

<http://www.srh.noaa.gov/data/forecasts/NYZ070.php>



Radio H₂O on 33 cm.

The Town of Cortlandt began upgrading water meters in March and a few weeks ago a technician from National Metering Services arrived to install a new meter in my basement. An interesting aspect of the upgrade is the way the new meters are to be read – from a remote vehicle driving past.

The new water meter is a Neptune T10. The T10 reads water flow with a “nutating” (wobbling) disc inside a brass chamber.

Rotation is coupled out of the measuring chamber via magnetic drive, to eliminate leaks, into the register where the reading is displayed on a rotary dial and mechanical odometer.



Neptune T10 water meter. The gray cable carries meter readings to the nearby Neptune R900 Meter Interface Unit.

In order to transfer the meter reading to the outside world, a 3-conductor wire runs from the meter’s encoder register to a Neptune R900 Meter Interface Unit. The MIU has the job of transmitting data out of the basement or out of the meter pit. In the past, the town would collect meter readings by having an employee walk the route every three months, noting the readings manually. With the new equipment, the meter reading is transmitted by radio to a computer-equipped vehicle as it is driven down the street.



Neptune R900 Meter Interface Unit transmits the meter reading to a passing vehicle using the 910-920 MHz frequency range. This is the wall-mount model.

According to Neptune Technology Group’s web site, <http://www.neptunetg.com>, the R900 Meter Interface Unit transmits its information in the “unlicensed 902 – 928 MHz band”. That also happens to be the 33 cm amateur band! The R900 uses a frequency-hopping spread spectrum technique on 50 channels in the range 910-920 MHz. Output power meets the requirements of FCC Part 15.247 – which

specifies a maximum peak output power of 1 watt in the 902-928 MHz band for systems employing at least 50 hopping channels.

You might think that the mobile unit would interrogate each meter interface unit as it drives by. This technique would certainly minimize transmission and conserve the battery life. However, Neptune states that the R900 is a one-way device — it reads the meter every hour then transmits the data along with its ID number once every 10 seconds. The R900 is powered by a “long-life lithium battery”, with an estimated life of 10 years, so the MIU transmitter must have a very short duty cycle.

Test results available on the FCC’s web site reveal the pattern of the R900 transmissions. The transmitter turns on for a brief 7.05 milliseconds, followed by a 10 second off period during which time the transmitter hops to another channel according to its pseudorandom frequency table. It then transmits another 7.05 mS burst. The peak output power while the transmitter is on is 18dBm or 63mW. This RF power is fed into an internal loop antenna for the wall-mounted MIU or into a small external patch antenna for the pit mounted MIU. The 20dB bandwidth of the transmitted signal was measured as 91.7 kHz and adjacent channels are separated by ~133 kHz.

I was concerned about having a 911 MHz transmitter squirting bursts of data out of my basement. Close inspection with a hand held scanner covering 911 MHz showed nothing untoward and a second check with my 900 MHz cordless phone in operation showed no noticeable interference. This is hardly surprising considering the short transmit period and the channel hopping scheme, which prevents a second transmission on the same frequency for more than 8 minutes.

The Town of Cortlandt, <http://www.townofcortlandt.com>, has a special FAQ web page concerned with the “Radio Water Meter”. One question asked is:

“Will the low-frequency (*sic*) radio signal interfere with my cellular telephone, TV, personal computer or any other equipment?” The Town replies “No. The radio signal is very low powered and weaker than the signal from a cell phone. The AMR (*automatic meter reading*) radio signal will not disrupt any other radio signals.”

Another question that comes to mind is — how does the mobile computer-controlled receiving equipment track the MIU transmitters as it is driven past each house? This is a situation where the MIU is probably receiving several signals simultaneously. The channel hopping scheme should keep the transmissions separated – but how does the receiver find the transmission? I imagine it scans the 50 available channels at high speed, then has the ability to monitor multiple signals simultaneously as they hop from channel to channel.

- Malcolm, NM9J

Happy birthday IRLP

September 6 marks a highlight in the short history of PCARA. That was the date of the very first contact via PCARA's IRLP node # 4214. For the record, the node at the other end of the link was G4EID in Southport, England, node # 5220.

Those first few contacts in 2003 took place on a simplex frequency of 445.000 MHz with PL 179.9, using a Yaesu FT-7100 transceiver and Diamond X-200 dual-band collinear antenna on my roof. This arrangement gave good simplex coverage around my immediate location, but



PCARA IRLP node # 4214 now makes use of a Yaesu FT-8000 transceiver. The small 12 volt cooling fan on top is run from 9.4 volts for low noise.

not so good further away. On September 24 2003 the node changed frequency to Greg KB2CQE's repeater on 449.925 MHz, also with 179.9 Hz PL. Changing to the 440 repeater increased coverage and the result was improved activity for several months.

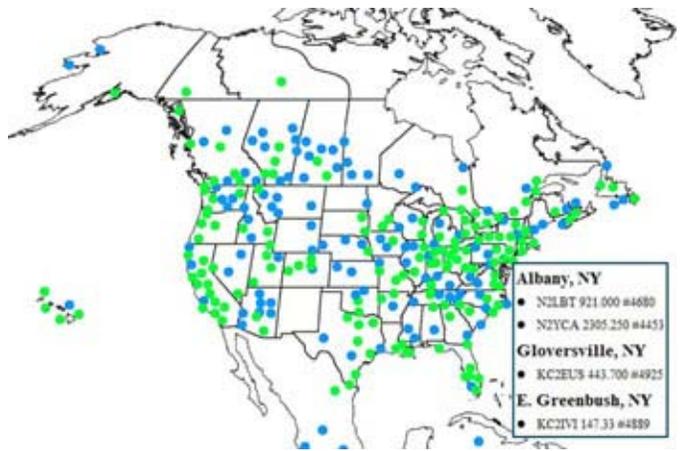
Perhaps you would like to make some IRLP contacts? You will need a 440 FM transceiver with touch-tone pad. Here are brief instructions:

- Set your transceiver to 449.925 MHz, repeater offset -5.00 MHz, transmit PL 179.9 Hz. (These are exactly the same settings you would use for standard repeater operation.)
- Find the 4-digit number of the node you would like to connect to. There is a list available at <http://status.irlp.net>. If you would like to carry out a test beforehand, select the echo-reflector, node number 9990.
- Transmit on the repeater input and identify with your call sign. Key the 4-digit node number on your touch-tone pad, then release the PTT.
- If you made a successful connection, you should hear an announcement identifying the distant node. (If you hear nothing, then the local node may not have decoded the number correctly. Move to a better position and try again.)

- Transmit once more and wait a couple of seconds to allow the IRLP nodes to begin carrying your audio via the Internet. Identify for the benefit of people listening to the distant node... you might want to include your location.
- If somebody at the distant node replies, have a contact as usual. Be patient as you wait for their reply. Remember the 2 second delay at the beginning of each transmission before you begin talking, and try not to time-out.
- When the contact is complete, transmit and key "73" on your touch-tone pad to de-link the two nodes. After you release the press-to-talk, you should hear a 'goodbye' announcement from the distant node.

With the present repeater controller, it is not possible to suppress the repeater call sign and tail from the IRLP audio fed to the Internet. As a result, operation on the busy IRLP reflectors is not recommended.

If you are looking for a node in a particular area, it is now possible to see locations in map form at <http://maps.irlp.net>. Take a look at the nodes in Newburgh, New York, New England or New Zealand! One interesting point is the very large number of nodes in northwest England – perhaps G4EID's influence?



IRLP nodes as displayed by WW4M via <http://maps.irlp.net>

If signals on the KB2CQE repeater input are not too strong, they can be crackly. Try to arrange a good strong signal into the repeater for successful IRLP contacts. If you have more than one radio available, you can try "listening through" — simultaneously monitoring the repeater output while you transmit on the input. This may help you find the best spot... or you could try a conventional repeater contact to check signal strength before attempting IRLP. I'm often monitoring!

— 73 de Malcolm, NM9J

Peekskill / Cortlandt Amateur Radio Association

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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. * *September meeting delayed one week.*

PCARA Repeaters

W2NYW: 146.67 MHz -0.6, PL 156.7Hz

KB2CQE: 449.925MHz -5.0, PL 179.9Hz
(IRLP node: **4214**)

N2CBH: 448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

Sun Sept 12: September meeting, HVHC, 3:00 p.m.

Hamfests

Sat Sep 11: Saratoga County R.A.C.E.S. Association Hamfest, Saratoga County Fairgrounds, Ballston Spa, NY, 7:00 a.m.

Sun Sep 12: LIMARC Hamfair, Briarcliffe College, 1055 Stewart Ave., Bethpage, NY. 9:00 a.m.

Sun Sep 12: Candlewood ARA Hamfest, Edmond Town Hall, Rt 6, Newtown CT, 8:30 a.m.

Sat Oct 9: Bergen ARA Fall Hamfest, Westwood Regional HS, 701 Ridgewood Road, Washington Township, NJ. 8:00 a.m.

Sun Oct 10: Hall of Science ARC Hamfest, 47-01 111 Street, Flushing Meadows Corona Park, Queens. 9:00 a.m.

Sun Oct 10: Nutmeg Hamfest and ARRL CT State Convention, High Hill Rd., Wallingford CT, 9:00 a.m.

VE Test Sessions

Sep 5: Yonkers ARC, Yonkers Police Dept., 1st Precinct, E Grassy Sprain Rd, 8:30 A.M. Contact: D. Calabrese, 914 667-0587.

Sep 9: WECA, Fire Training Center, 2 Dana Rd., off Rt 9A, Valhalla NY 10595. 7:00 p.m. Preregister with Sanford Fried, (914)273-2741.

Sep 20: Columbia Univ ARC, Watson Labs, 612 W 115th St. New York, NY, 6:30 p.m. Contact Alan Crosswell, 212 854-3754.

Sep 21: W5YI VEC Pel Hams, Pelham Doronco Town House 20 5th Ave, Pelham NY 10801. 7:30 p.m. Preregister with Michael Ciferri (914)738-5775.

Sep 25: PEARL, Bureau of Emergency Services, 112 Old Rt 6, Donald Smith Campus, Training & Ops Facility, Carmel, NY 10512. 9:00 a.m. Contact NM9J.



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