



# PCARA Update



Volume 9, Issue 5

Peekskill / Cortlandt Amateur Radio Association Inc.

May 2008

## Hunt the hertz

Now's a good time to practice those Spring cleaning skills by dusting off those Yagis, attenuators, compasses, maps and GPS units for the PCARA Foxhunt on Saturday May 10, 2008! This time 'round Malcolm, NM9J will be the fox, so expect some creative hide-and-seek tactics. Registration begins at 2:30 p.m. on May 10<sup>th</sup> in the Beach Shopping Center parking lot on Dayton Lane (sounds appropriate for some reason) between Routes 6 and 202, near CVS and Radio Shack. As always, participation is open to members, non-members, the general public, and to anyone who has an interest in RDF. ALL ARE WELCOME! The hunt will kick-off at 3:00 p.m. and should last about an hour and a half. At the conclusion of the activities we'll meet at a local watering hole of the fox's choosing for supper, conversation, and the awarding of certificates. Hope to see you all there!

Field Day 2008 is on the weekend of June 28-29<sup>th</sup>. We're planning on operating at the same location as last year, which is Walter Panas High School at 300 Croton Avenue in Cortlandt Manor, NY. Joe, WA2MCR is in the process of finalizing the paperwork to obtain all the necessary permissions. Watch the club homepage for finalized details ([www.geocities.com/pcara2000](http://www.geocities.com/pcara2000)).

For a third time the *PCARA Update* been chosen as Newsletter of the Month for the ARRL Hudson Division



*Mike N2EAB and Karl N2KZ check out offerings at the Orange County ARC hamfest on April 26.*

in March 2008, for the February 2008 edition. This is all due to the tireless efforts of the PCARA Update Editor-in-Chief Malcolm, NM9J. Kudos Malcolm! *Per ardua ad astra!* On behalf of the PCARA membership, I offer a heartfelt Thank You and Well Done!

Our next meeting is Sunday May 4, 2008 at 3:00 p.m. at Hudson Valley Hospital Center. Come join us and share your thoughts, ideas, and fellowship in this wonderful hobby.

- 73 de Greg, KB2CQE



*Greg KB2CQE welcomes visitors to PCARA's club table at Mt Beacon ARC Hamfest, April 13.*

## PCARA Officers

President:

Greg Appleyard, KB2CQE, [kb2cq at arrl.net](mailto:kb2cq@arrl.net)

Vice President:

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# Adventures in DXing

- N2KZ

## W1EES (SK)

It is with deep regret I announce the passing of Harold Chase, Jr., W1EES, of West Suffield, Connecticut. Harold was 91 years old and had held the same callsign since 1932 completing 76 years as a radio amateur. An extra class operator in every sense, Harold served on the Board of Directors of the Quarter Century



Harold, W1EES

Wireless Association from 1998 through 2005 and was active in the QCWA's Yankee, Nutmeg and Pioneer Chapters in New England. The QCWA requires that you complete 25 years as an amateur radio operator to be eligible to join. Harold had enough experience to qualify three times over!

He also enjoyed checking in to the Green Mountain Net on 75 meters. Many remember him by his salutation "Gee gang, you're all

looking swell!" (The Green Mountain Net is a very popular 'phone net that meets daily, except Sunday, on 3933 kHz LSB.)

Electrical engineer was his profession for most of his adult life. For example, during his career he worked on the development and installation of a missile and satellite tracking station and the Trident submarine program. Harold was married for 53 years to his wife Gladys who passed away in 1998. He was known as a helpful Elmer with a great sense of humor. A finer friend you could not meet.

He is survived by his son Hal, N1URW and his daughter Cynthia. On a personal note, Harold was the first person I ever worked as an amateur radio operator. We QSOed on January 1, 2000 on 3700 kHz 80 meter CW. He encouraged me to continue as a CW op. I took his advice. May he rest in peace.

## WNWL: Africa!

Another edition of 'Work Now Worry Later': On the evening of April 14<sup>th</sup>, I turned on my little 30 meter QRP rig, an Oak Hills Research OHR-100A, and the band was just loaded with activity as if a popular contest was going on. The first station I encountered was being hammered with requests. 6W1SJ was working station after station and sending them all 5-9-9 reports. I listened for a couple of minutes waiting for a

reasonable pause. I jumped in and registered with the station immediately. But what had I worked? It was Senegal. It was my very first contact with Africa and I made it with five watts and a homebrew dipole.



QSL card from 6W1SJ

The fun had just begun. I rode the waves as long as I could. During the opening I also caught IT9MUO Italy, GI0KVQ Northern Ireland, EA1VOX Spain and IK2DJV Italy. Not bad for five watts on a WARC band! Later on, I worked KP4DX in California. My transmitter? A Small Wonder Labs SW+20 at one measly watt on 20 meters. What a night!

Conditions must have been pretty good. Just two days before, on April 12th, John W9SE in Normal, Illinois caught my attention on 30 meters answering my CQ. I heard his distant call to me which sounded far, far away. It took about four attempts, but we managed to touch base. The band improved and we had an interesting conversation. At five watts, I was beyond QRO. John embarrassed me! I was running way too much power being received in Illinois with a 579. Using a 40 meter delta loop up about 25 feet, John was running 200 milliwatts, just one fifth of one watt! It was quite a handshake, indeed!

## Silencing Eve

Canada's CBC recently silenced their powerhouse on 1070 kHz: radio station CBA in Moncton, New Brunswick. Living up to my reputation as a medium wave DXer, I was compelled to listen to the frequency after the final closedown to see what might come in. Predictably, the country and western sounds of CHOK in Sarnia, Ontario cut through, but there was another station in there, as well. Initially, I thought the station was IDing as E-1070, but later learned that it was actually WTWK 'Eve 1070' from Plattsburgh, New York. I heard them consistently every morning before dawn.



It didn't make sense to me that there would be a fulltime station authorized between the coverage areas of CBA and CHOK. There just wasn't enough room! Maybe this was an old pre-sunrise authority grandfathered from long ago...but wait...PSAs should begin at 6 am not earlier. Eve 1070's programming could not be considered an engineering test. They were running the syndicated Joey Reynolds show until 5:30 am and then switching to their morning show, 'Weekday Warmup,' complete with advertising and station

promos. They were on the air quite formally with a purpose. What was going on?

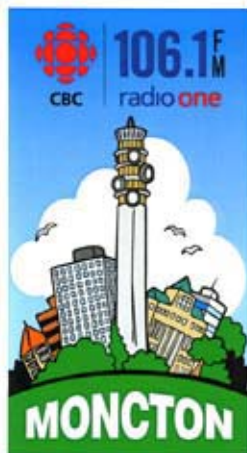
I went to the FCC's on-line AM Query database and looked up WTWK. It was listed as a one tower non-directional 5 kilowatt station with daytime only authority. They shouldn't be on the air before local sunrise. Is there something I'm missing? I looked at their website and sent an e-mail to the station seeking clarity. I heard from their Chief Engineer Mike Raymond: "Good to hear from DX'ers like you. WTWK has daytime authority only. WTWK transmits 5kW daytime and goes off the air during nighttime hours. The time schedule varies month to month and daylight savings shifts the hours of operation too. If you heard WTWK during the month of April, our turn on time would be 0730 hrs EST (DST corrected.)" What was he trying to tell me?

I had to shake my head. My original e-mail specifically mentioned that I heard them just after 5 in the morning, not after 7:30. I wrote back and asked what their pre-sunrise power was. I explained that they seemed to be getting out very well and that I was interested in low power operation as an amateur radio operator. Needless to say, I never heard back from Mike. I also never heard Eve 1070 again before sunrise!

I don't know how long WTWK had been broadcasting overnight, but a sudden rash of reports from distant listeners must have had quite an effect on them! Canada's CBA was permanently off the air and now, suddenly, listeners outside of the Plattsburgh area could easily hear Eve 1070. WTWK no longer had a huge co-channel station to limit its reach. Their silence is now deafening! CHOK Sarnia can now be heard all alone overnight. You have to laugh!

I was pleased to receive a QSL

card and refrigerator magnet from Stacey Foster in Audience Relations at CBA. I had been listening to CBA since the 1960s and had never sent for a QSL. It's still hard to believe that the final switch has been thrown. Here's a picture of the closedown with (left to right) CBA engineer Jean Babineau, retired morning host Brent Taylor and radio journalist Vanessa Blanch. More pictures and details of the closedown can be found at: <http://www.cbc.ca/informationmorningmoncton/events.html>.



April 7 switch off at CBA.

### CW Lore

File under the category: You will always learn something new... I recently came across a couple of tidbits concerning the history of CW operations. Many of us have heard the origin of CQ as being a part of the original maritime distress call CQD meaning 'Come Quickly Distress.' How about QSB? Originally, this did not equate to propagation fading. It actually meant 'Spark Bad' going back to the primitive early days of radio transmission with a spark gap. Another one was shared with me by an old Navy op. I worked a couple of weeks ago: TUSU. TU is often used as an exiting salutation for Thank You. SU truncates phrases like CUAGN into 'See yoU.' This reminds me of another Navy trick. Instead of sending dit-dah-dit-dah-dit-dah as a period, resort to the old telegram break of X: dah-dit-dit-dah. It's short and sent with a sassy quick swing, it gets the point across! My operating has always enjoyed adopting these slick shortcuts. If you have any others to share, I'd love to hear about them!

### Weekly Net

Please join us for The Old Goats Net every Thursday at 8:00 pm on the PCARA 2 meter repeater on 146.67 MHz, -600 offset and a 156.7 PL. All licensed amateurs are invited to join in! Not licensed yet? Tune in and listen to the fun. We talk about everything that comes to mind! Trade DX tips, set up skeds with distant stations, discuss the upcoming DTV switchover and talk about everybody who *didn't* check in! Sometimes that net moves to different bands for reception reports, signal trials or meeting other club's members for more chat. We have even traded slow scan TV pictures on the air! It's simply a lot of fun! Mark your calendars! Don't forget! See you there! and see you next month...

Happy trails de N2KZ - Karl.



# Jetstream switch mode power supply

You may remember from the March issue that I have been thinking about ways to improve power consumption in my radio shack. One thought was to install switch mode power supplies as a more efficient alternative to the linear regulated power supplies that have been supplying 12 volts DC in my shack for decades.

At the Mount Beacon hamfest I saw a selection of “Jetstream” switch mode power supplies. These units, made in Taiwan, appear to be a house brand of R&L Electronics, Hamilton, Ohio. The JTPS14BCM model I chose has an extra feature – it has connectors for an external back-up battery.

The JTPS14BCM is rated at 4-12 volts adjustable output with a maximum current of 12 amp continuous, 14 amp surge. I tried it out with an Icom IC-207H

transceiver, which it powered quite successfully. As you will see from the photo, the size of the Jetstream unit — just 6" wide — is low compared with a conventional power supply. The same applies to the 2.7 pound weight. The strong steel case is finished in



*Jetstream JTPS14BCM switch mode power supply. External backup battery is also pictured.*

metallic gray paint, with side vents and a variable speed fan in the middle of the lid.

The front panel has illuminated twin meters displaying output voltage and current. The voltmeter was accurate, but the ammeter reads low, even on the top 0-40A scale. There is also a voltage adjustment control, with a center detent position that provides 13.8 volts.

With no current draw from the power supply, the variable-speed fan just ticks over. However, when the Icom IC-207 was switched on, the receiver’s 0.5A current draw speeds up the fan so it becomes quite noisy. When the transceiver transmits, it draws an



*Internal view of Jetstream JTPS14BCM power supply with top cover removed. Note the fan and large heat sink.*

increased current and the fan noise becomes even more noticeable.

I tried connecting an external 12 volt gel-cell to the battery terminals. With the Jetstream powered, the battery charges at around 1 amp, then settles down to a trickle charge of 10-20 mA. I noticed that the battery charging voltage depends on the setting of the variable output voltage — so be careful if using a voltage other than 13.8 volts.

If the Jetstream loses its 120 volts AC supply, the external battery takes over and continues to supply power to the load. One point to note — there is a voltage drop between the battery and the Jetstream’s DC output— for example, I measured a battery voltage of 12.58 volts and a radio voltage of 12.16 volts.

So far, the Jetstream battery-backup power supply brings a bunch of positive features, but I did find a couple of drawbacks. First, there is the question of radio frequency interference. I have a requirement that equipment in the radio room should not increase the local level of electrical noise. The reason is that I have a couple of test antennas for scanners and HF receivers that are in close proximity to the equipment. This can also be representative of Field Day and special event stations, where wire antennas may be very close to the radio equipment.

Sadly, the Jetstream power supply did not pass my close-in noise test. While monitoring the HF bands on 14.300 MHz, background noise jumped from S-1 to S-7 as the JetStream was switched on, completely masking a QSO on the frequency. For comparison, my Alinco DM-330MV switching power supply did not increase the noise level on 14.300 MHz at all.

I found that the JetStream’s RFI could be quietened down by substituting a *shielded* IEC power cord (the type supplied with better PC power supplies) and plugging the cord into a TrippLite Isobar Ultra 4 power strip with RF suppression. In my opinion, it

would be far better if similar RF suppression of the power leads was built-in to the Jetstream unit.

My other cause for concern is differences between the specification published on Jetstream's web site (<http://www.jetstream-usa.com>) and the model I purchased. The three points in question are:

- Quiet internal cooling fan with auto/on fan switch
- Switchable AC input voltage, 115 or 230 Vac
- AC line fuse (3 amps for 230V, 6 amps for 115V)

First, the internal cooling fan on my JTPS14BCM does *not* have an auto/on fan switch to change from continuous to automatic running – though some of the other JetStream models are shown with such a switch on the rear panel. Second, the AC input voltage is *not* switchable from 115 to 230 Volts AC — instead a sticky label on the side gives the rating of my unit as:

INPUT: AC 100--120V  
FUSE: 110V/6A

The photo on the web site shows a fuse holder mounted on the rear panel, but in my model the fuseholder has been moved inside, onto the circuit board. The sticker on the cardboard box says "AC line fuse 3 amps for 230V, 6 amps for 115V, preset for 115V" but I could not see any internal switch to permit changeover from 115 to 230 volts AC. It's possible that the unit changes voltage automatically but I'm doubtful. Would anybody like to test this? One point worth mentioning — there is a prominent "CE" mark on the rear panel which should mean the unit meets all requirements of the relevant *European Directives*, including electrical safety and EM compatibility.

With a price of \$60 - \$70, the Jetstream JTPS14BCM is quite good value — but before you splash your money out, I would make sure you can live with the fan noise and the level of RF interference produced on the HF bands in nearby antennas.

- NM9J

## PCARA Foxhunt Rules

**Saturday May 10, 2008**

1. Transmission – FM simplex on 146.565 MHz, horizontally polarized.
2. Transmissions start at 3:00 p.m. for 5 minutes, followed by 5 minutes off. Second transmission com-



*TS-430 S-meter shows noise level on 14 MHz generated by the JTPS14BCM PSU running nearby.*

mences at 3:10 p.m. 3 minutes on, 7 minutes off. The fox will not move during this time. This cycle repeats at 10 minute intervals until the last transmission ends at 4:30 p.m. when the fox will announce its location.

3. The opening transmission will include a time check for watch synchronization.

4. All contestants who wish to be eligible for a prize must book in at the **Beach Shopping Center car park**, in Peekskill before the start. Contestants will count as one team if more than one person occupies a car. (i.e. if three in a car, they don't get first, second and third prize.)

5. No contestant is allowed to move his/her car until the end of the first transmission, so take your time with the first bearing and make it a good one. The transmission will be audible from the start without a super-sensitive receiver.

6. Radio silence will be maintained by all contestants on all frequencies from the first to the last transmission.

7. No excess mileage penalty will be incurred but all contestants are reminded at all times to stay within the law and observe speed limits, parking restrictions etc.

8. The fox will be hidden not more than 5 miles from the start. The location of the fox will not be on property which is inaccessible by car.

9. Upon a contestant finding the fox, please do not shout or in any way give the location away to other contestants. Report your name/callsign to the fox and retire to the place of refreshment immediately. This will ensure that other contestants do not "discover" the fox because a group of people is hanging around nearby. It is requested that you maintain radio silence even though the fox has been found and the fact that you have found the fox should not be revealed to anyone until the place of refreshment has been reached.

10. The first competitor to locate the fox and positively identify him/her will be presented with a certificate. This competitor will be invited to assume the role of fox for the next foxhunt event.

11. Competitors should convene from 4:30 p.m. at the place of refreshment, which will be announced on-air by the fox.

Rules adapted from Bury Radio Society Fox Hunt, Malcolm, NM9J



*The PCARA fox will be hiding once more on Saturday May 10.*

# The State of the States

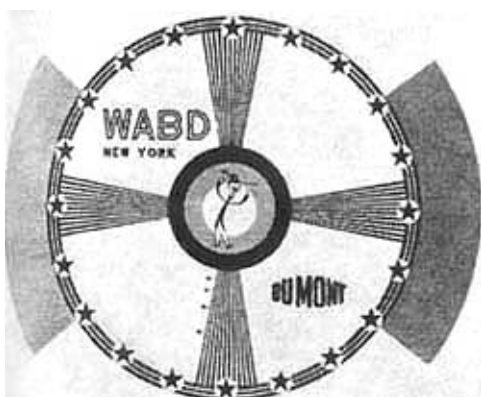
## 2008

by Karl Zuk N2KZ,  
<http://karlzuk.blogspot.com/>

*Karl describes what has happened to the 'vast wasteland' of U.S. broadcasting — for an international audience.*

### Television

During the first two decades of television broadcasting in America there was only a handful of stations on the air, usually broadcasting from dusk to nearly midnight. In the 1960s, schedules became more developed and eventually grew to operating from about 6 am through midnight or slightly later. It wasn't until the 1970s that full 24 hour broadcasting became fashionable.



*WABD, the DuMont Network's New York station, was on-air from 1944.*

Two networks were available from the very beginning: NBC and CBS. ABC followed in the early 1950s as a spin-off of NBC's Blue Radio Network. Another contender was the DuMont network underwritten by a television manufacturer. DuMont became extinct in 1956 leaving only

three networks as near monopolies.

Great change came in the early 1970s. Master antenna systems serving rural areas began to carry a network, distributed by satellite or microwave, known as Home Box Office. Its popularity grew quickly by airing second-run uncut movies and exclusive TV specials. There was one catch: you were charged a small fee. This was the beginning of cable TV. This was also the beginning of the end of the big-three's network dominance.

As more and more channels came on the air, the major television networks' audiences eroded proportionately. During the 1980s, most cable television systems were offering about 40 channels. With improved technology, home entertainment delivery systems now offer as many as 180 channels or more. The amount of choices is mind-boggling.

Quantity does not equate to quality. Technically, the increase in channels has caused the decrease of channel bandwidth. Pictures may be received without ghosting or excessive noise, but in many cases they are getting fuzzier all the time due to poor overall resolution. The more channels you push down a pipe, the less room each one has to exist. Program quality suffers from the same effect. It sometimes seems that every TV program that has ever been produced is broadcast over and over again just to



keep all the channels running. Very often you'll hear the remark that "there is nothing on."

The lethal injection to television is greed. Quality is only a memory. As the audiences of the major networks drifted away to dozens of other choices, desperate measures had to be taken. An industry that once suspended a popular talk show host from performing, after he used the term 'water closet' on the air (how rude!), now serves up nightly barrages of graphic violence and sex. Families with children really can't put their televisions on at night. Shows that are intended for "general audiences" are often peppered with lewd promos for adult shows that are the cornerstone of today's networks. Many entities depend on "infomercials," 30 or 60 minute shows pleading with viewers to buy a product, to raise money to stay afloat. It is a sad commentary. Television was once considered a family medium.

Even cable television providers have had to diversify to keep their businesses solvent. During the 70s, 80s and 90s, cable TV distribution companies had a lock on providing programming in many areas. Subscribing to their service was the only way to view television. The advent of satellite-delivered television, DirecTV and Dish Network, has forced cable TV companies to also provide telephone and Internet service to remain solvent.

Greed has changed television forever. It has become very difficult to pull it out of its tail-spin. People now resort to pre-recorded programming on DVDs, the Internet or home video disk recorders (such as Tivos) for entertainment. Even books are making a comeback! One network, CBS, has recently been discussing farming out their once prestigious news gathering operation to CNN which used to be a minor upstart network. How the cards have changed!

The final straw for television may be close at hand. Next February, all of America's analog television transmitters will be turned off leaving viewers to become dependent on all-digital broadcasting. This action will send millions of analog TV sets to neighborhood landfills. The United States government has gone to great lengths to promote the change to digital. Specially-designed DTV-to-analog 'granny boxes' are being offered at enormous governmental discounts to help those still watching with antennas to convert before the switch. If one event served as a turning point into 21st century technology, this is it!

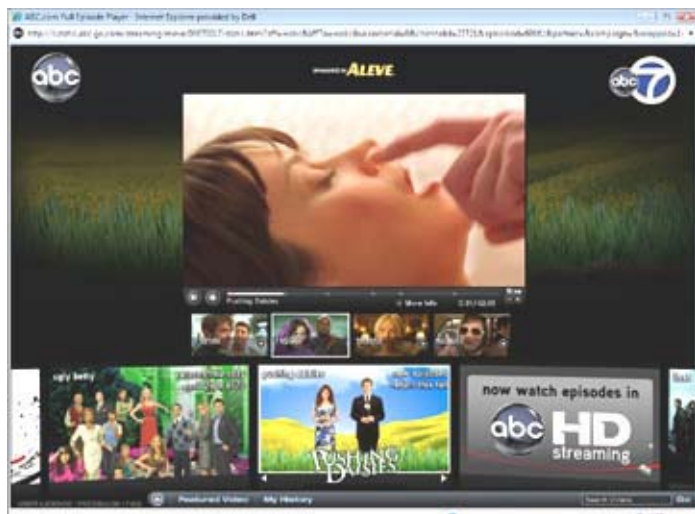
A secondary casualty to the conversion to over-the-air digital television will be hundreds of TV DXers nationwide. Nearly every station that uses the low VHF TV spectrum, from 56 to 88 megahertz, will be migrating to UHF frequencies. E-skip reception will be limited to trying to log the very few remaining digital broadcasters using Low VHF and, hopefully, whatever foreign DX that might arrive now that these frequencies are in the clear. We live in interesting times.

Will digital over-the-air TV work? Maybe. There is no forgiveness. In areas where reception was marginal, satellite subscriptions may be the only cure. If you are used to watching tentative snowy analog pictures, you have little hope of pulling in a digital signal. Miracles do

happen. I now can pull in three digital channels from a city over 100 miles away perfectly (when the wind is blowing the right way and the weather isn't blocking the signal.) One new obstacle is tree leaves. The attenuation they inflict on UHF frequencies sometimes restricts signals from reaching their destinations. You can watch these distant stations 6 months a year when the trees are bare and not in the way!

I wonder how long television will exist as a separate independent appliance. A couple of nights ago, I wanted to watch election results of the Pennsylvania primary elections for presidential candidates. Over-the-air television took the path of greatest revenue. All four national commercial networks aired their regular Tuesday night programming. Cable news networks, like CNN, MSNBC and Fox News Channel covered most of the events in Pennsylvania. If you wanted to see a campaign speech in its entirety, you could hop between networks and catch most of the content. My best bet was a link through a local newspaper, The New York Times that offered free internet coverage via The Associated Press' TV Network feeds. Using this link, I could view the speeches as if I were watching a raw backhaul transmission from the event. It was the only way to go!

America's ABC Television Network is offering an on-line on-demand service of their prime time offerings over the Web in MPEG 4 format at no charge. Presented with a HDTV-like 16 X 9 perspective, the quality is simply superb. ABC's servers match your computer's I/P address to your location, then insert branding graphics to match your locale. Link in from Los Angeles and you'll see station logos and other mentions with local content. Link in from



*ABC full episode web player*

Detroit and the presentation changes to match that specific area. It is quite clever and effective. It's also called the future of TV!

## Radio

When I think of American radio, I think of a messy garage. Every once in awhile you find something that is interesting and worthwhile, but for the most part, it really

is just a big pile of junk. Radio began around 1920 in America. In the beginning, radio was a formal medium of entertainment and news and was taken very seriously. Live broadcasts from radio studios were usually filled with entertainers and announcers dressed in black tie. Not anymore!

Medium Wave "AM" radio was the only game in town until the late 1960s when FM began to catch on with the American public. FM was the place to catch classical and jazz music and the first "progressive rock" stations playing psychedelic hippie music. 40 years later, FM is the monotonous mainstream of heavy advertising and inane talk.

I think the cumulative play list of all American radio stations contains no more than about 500 rock and pop standards that are played over and over and over again. Nearly every station has a "Morning Zoo" program typically featuring, at least, a jovial self-interested man and woman making rude comments about nearly everything to fill up time between adverts. Very little music is played. It simply takes too long!

America's largest radio audiences are during "drive times," 6 to 10 in the morning and 4 to 7 in the evening. This is when people are a captive audience driving to and from work in their cars. This is also when you will hear no music! Some people are simply numb to this routine and listen anyway.

The cerebral minority tune to a listener supported network called National Public Radio that provides long-version news and talk during drive-times and a host of variety programs during the rest of the day and night. To this day, America maintains an FM sub-band, from 88 to 92 MHz, devoted entirely for non-commercial broadcasters. Chances are your local NPR station will be found here. College radio stations and religious organizations use this allocation to experiment and train future broadcasters. It can be an interesting place to be. In general, American commercial radio is a brown lawn. It serves a purpose, but it isn't pretty.

There is hope: The last moments of the 20th century brought America the advent of satellite radio. Currently, two companies offer subscription services of over 150 channels of programming serving everywhere the sun will shine: XM and Sirius. At this writing, they are trying to merge into one company but they have not yet been granted complete federal approval to complete the deal. In its first decade, satellite radio has been a breath of fresh air.

XM Satellite Radio claims to be "Everything All the Time" and lives up to its slogan. Music plays continuously without commercials. The play lists are simply endless. The presenters are knowledgeable and entertaining. Every genre of music is embraced. Huge amounts of sports coverage is offered from cities all over the country and the world. It is our savior! With satellite radio, listening is fun again.

Very little is censored. Both services bank on several channels of bawdy obscenity and humor. Sirius Satellite Radio literally rivets its entire existence around one ribald



presenter named Howard Stern. His signature is alluring naked women and telling potty jokes. He has two complete channels devoted to him on Sirius. What an interesting commentary on American culture this makes!



XM is quite superior to Sirius in one important aspect. Its delivery system relies on two geosynchronous satellites (named Rhythm and Blues) that follow the rotation of the earth. If you receive XM's signals well where you are it won't change! Sirius uses three low earth orbit satellites (LEOs) that continually travel back and forth across the North American continent. You never quite know when or how you will encounter a good Sirius signal.

One weird artifact: XM signals can die an awful death. Lose the signal rapidly and it will make a sound reminiscent of kicking an old spring reverb unit. XM receivers also have a silly feature: a white noise generator. Instead of the programming dropping off and on dramatically when a signal is interrupted or is weak, the receiver will turn on a little white noise to emulate the sound of an old fashioned radio fade to ease the blow.

XM's ability to hold a signal is actually quite good. It receives data, collects it in an intelligent bucket brigade processor and provides the resolved audio about five seconds later. This allows your car to briefly pass under a bridge or past rocks and trees without interruption. Both XM and Sirius augment their satellite signals with complex networks of terrestrial repeaters producing strong signals to fill in holes in metropolitan areas. Your receiver automatically selects the best signal stream. Walk in-between the skyscrapers of Manhattan with a portable XM MyFi Walkman-like receiver and you'll never miss a note.

Another attribute of satellite radio has really poked at "real radio." Nearly all satellite radios offered by XM and Sirius include built-in RF modulators. In America, radio is considered primarily a mobile medium. For consumers to reach under their car's dashboard to directly connect to a vehicle's already installed AM/FM radio isn't viable. The simple solution to this problem was to build miniature FM transmitters into the small satellite receivers. The program you tune in via satellite gets transmitted onto an "unused" FM frequency. (The default frequency is 88.1 MHz. You can select other frequencies, but end-users rarely do.) It even switches from mono to stereo transmission automatically! A great solution, don't you think?

The results can be considered either infuriating or comical. 88.1 FM is the first frequency of America's non-commercial FM sub-band. Tune to this frequency and you would expect to hear light classical music or National Public Radio's news and information. Thoughtful, intellectual and dignified.

Imagine riding down a highway, listening to Chopin, and suddenly being over-ridden by the sounds of a ribald "shock jock" (like Sirius' mainstay Howard Stern) making lewd jokes about women's anatomy! Needless to say, The National Association of Broadcasters attacked the satellite companies with all their might about this but little could be done. No attempts at a satellite radio recall were ever

made! Too many people already had purchased and installed the units. Replacing all of them was not a viable option.

The very latest generation of satellite radios now incorporates lower power FM transmitters and updated wiring schemes to minimize radiation. With millions of satellite radios already installed, the damage has already been irretrievably done! I would estimate the range of a typical satellite radio FM transmitter to be about 250 feet. This can create quite an interesting cacophony sitting in an urban traffic jam!

Hand-held satellite receivers have been a challenge for both services. The incorporation of an effective integrated antenna for satellite reception is difficult given the dimensions of a portable radio. XM leads the pack in this respect. The Samsung Helix and the Pioneer Inno (very similar designs and packaging) are the state-of-the-art for satellite reception on-the-go. Sirius has never really marketed a product that can compete with these XM portables. Their inferior satellite delivery system hinders this concept further.

XM reception is actually quite robust broadcasting on a swatch of spectrum space centered at 2339 MHz. Its microwave signals behave very much like light. In theory, XM antennas should see the southern or southwestern sky without obstruction. In actuality, reception is quite forgiving. I have two XM receivers inside my house using miniature antennas about the size of a large postage stamp. It's a wood frame house and I have no trouble pulling in XM just by carefully searching around for a hot spot where the antenna sees their signal.

XM's transmission system is truly miraculous. Using a tiny antenna, about one inch square, you can drive along a highway moving at 120 km/h and consistently pick up signals from over 22,000 miles away producing perfect reception of about 170 program streams. If this is not a magical miracle, what is? XM programming is also available on multiple channels of the DirecTV satellite service and via the Internet at [xmradio.com](http://xmradio.com). It can also be heard on portable wireless devices like Blackberries.

In reaction to the onslaught of digital television, satellite radio, iPods and the Internet, good old terrestrial radio has devised a last-ditch effort to stay alive and stay dominant. In a burst of marketing genius, a consortium of broadcasting companies formed a developmental firm called iBiquity to create a new mode of broadcasting confusingly called HD Radio. Without a proper amount of RF spectrum for a new individual radio service, their plan was to squeeze (crowbar?) digital signals onto the existing broadcast bands. They call it "In Band - On Carrier" or simply IBOC.



Do you remember making mud pies in your backyard when you were little? This is the radio equivalent. In theory, IBOC sneaks the digital signal into the ether when you are not looking. In reality, it has the stomp of an elephant, especially on medium wave. Consider this example: 50,000 watt WFAN 660 kHz in New York puts on their IBOC encoder. The audio quality of the analog signal



of WFAN must decrease significantly to coexist with the digital "mask." Tune to 630, 640, 650 or 670, 680 and 690 and you'll hear a raucous digital buzz saw produced by WFAN's HD Radio signal. It approximates the Doppler sound of several trains passing each other. Many broadcasters consider digital broadcasts as legal jamming. Not friendly to the ears!

At night, a new kind of symphony exists. Sky wave propagation delivers signals from hundreds of miles away to your set. Consider the racket that ensues. On the east coast of The United States we have witnessed the blending of digital IBOC stations on 750, 760, 770 and 780 all at once. Not only does the noise combine; it beats due to propagation phasing causing a phenomenal noise. Many stations have ceased using IBOC at night voluntarily. Others hold on dearly: WOR 710 New York, WTIC 1080 Hartford and WBZ 1030 Boston, to name a few. If you come to The States to DX, bring your own mop!

There is a taste of arrogance to IBOC, especially on medium wave. iBiquity licenses their technology to both the receiver and transmitter manufacturers. Broadcasters must pay an on-going fee, periodically, to continue using the technology. The cost of digital transmission gear is quite dear, as well. Small, independently owned station owners cannot afford to invest in the system, yet they must endure the barrage of noise created by larger adjacent stations' transmitters who can afford IBOC. Intended or not, it has become a David and Goliath battle on the airwaves. Will it ever stop?

FM is somewhat better. DXers experience masking of more distant in-between stations, but the effects are not quite as bad. IBOC is a half-baked solution for presenting a technology that really requires its own dedicated RF

spectrum. It may survive on FM until something more logical is designed. It is pure disaster on medium wave "AM" and should be illegal!

What does HD Radio offer? In theory, better fidelity and (only on FM) more channels to listen to.

Of course, since it is a digital medium, reception is tentative. You either can resolve it perfectly or not at all. There is no noise or fading, but it simply does not travel well. On FM, you can squeeze as many as three audio streams onto one frequency. Broadcasters really haven't taken these additional channels seriously yet. You'll hear less popular formats like disco, country and western music or ethnic content on the -2s and -3s or time-shifted reruns of primary station programming. Adding insult to injury is a new trend to not only air advertising on secondary FM channels, but to charge a subscription fee to listen to them.

HD Radio's biggest problem is adoption by the public. Few HD-capable radios are offered and fewer are sold. I can't say I have ever seen a HD radio that actually worked. My local Radio Shack stores have offered them, but the sensitivity of the receivers has been poor and,

without a sufficient outdoor antenna connected, these sets just can't resolve tentative digital signals. I only know of one person, a British ex-patriate and fellow ham, who has actually made this system work in his home!



*Radio Shack Accurian HD Radio receiver.*

## Internet

Want a really good fight? See the radio war being battled on America's Internet! Huge conglomerate corporations, like Clear Channel, pay tens of millions of dollars for one broadcast station serving a large metropolitan market. Heavy-handed industry guilds, especially The National Association of Broadcasters, represent and defend these leviathans in court and in legislature. Bring in high-speed Internet service and, suddenly, in walk thousands of computer and music enthusiasts who are looking for a way to broadcast the masses legally without huge investments. You don't think big corporations want to compete with average people who did not pay millions of dollars to monopolize the air, do you?

How do you keep the masses at bay? Taxes! Everyone in the old-school establishment has their hands out for a pay-off! Large corporations can't just throw their economic foundation away, can they? Recording artists, their distributors and their recording companies all want a fee. Some want to tax Internet access. Additional fees arise if your server (or server provider) can feed over a certain amount of clients simultaneously. You also have to be alert for copyright limitations and rights to specific events. Certainly, you can't rebroadcast another's content! There have been many annoying attempts to squelch independent Internet webcasters. No matter what has been thrown in their way, most independent program producers have been able to dodge their roadblocks.

Terrestrial broadcasters should be running for cover. Just as soon as wireless Internet becomes as commonplace as cellular telephone service what we call 'radio' will have a completely new meaning. Yahoo, AOL, MySpace are all experimenting with streams. New services like Slacker and Flytunes are creating a listening experience combining automatic caching with Internet reception. If you lose the live wireless signal the cache takes over. You'll always have your tunes! XM now broadcasts to Blackberries and other wireless devices. Refresh my memory: What is AM and FM again?

Regardless of all these new efforts in multiplicity, domination in this new generation of broadcasting depends on content. AOL has shown serious effort for creating exclusive music and encouraging lesser known artists. Those services that primarily serve their listeners more than their greed will not alienate audiences. It will be fascinating to see how such a plethora of players will evolve into the new medium of 21<sup>st</sup> century: E-radio. Just watch: Coming soon is a brand new audio-visual world all on the master stream! How will we DX that?

- Karl, N2KZ



*JVC car receiver with HD Radio*

# Peekskill / Cortlandt Amateur Radio Association

**Mail:** PCARA, PO Box 146, Crompond, NY 10517

**E-Mail:** w2nyw@arrl.net

**Web site:** <http://www.pcara.org>

(Alternate address: <http://www.geocities.com/pcara2000>)

**PCARA Update Editor:** Malcolm Pritchard, NM9J

E-mail: NM9J @ arrl.net

*Newsletter contributions are always very welcome!*

Archive: <http://home.computer.net/~pcara/newslett.htm>

## 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. \*Apart from holidays.

## 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 May 4:** PCARA meeting, Hudson Valley Hospital Center, 3:00 p.m.

**Sat May 10:** PCARA Foxhunt. Starts 3:00 p.m. from the Beach Shopping Center.

**June 28-29:** Field Day.

## Hamfests

**Sat May 10:** East Greenbush ARA Hamfest, East Greenbush Fire Company, 68 Phillips Road, East Greenbush, NY, 8:00 a.m.

**Sat May 24:** Natchaug ARC - Hartford Hamfest, Tolland Agricultural Center, Vernon CT, 8:00 a.m.

**Sat May 31:** Bergen ARA Spring Hamfest, Westwood Regional HS, 701 Ridgewood Rd, Washington Twnshp, NJ. 8:00 a.m.

**Sun Jun 1 2008:** LIMARC outdoor Hamfest, Briarcliffe College, 1055 Stewart Ave, Bethpage NY.

## VE Test Sessions

**May 4:** Yonkers ARC, Yonkers PD, 1st Precinct, E Grassy Sprain Rd, 8:30 a.m. Contact D. Calabrese, (914) 667-0587.

**May 8:** WECA, Westchester Co Fire Trg Center, 4 Dana Rd, Valhalla NY. 7:00 p.m. Cntct: Stanley Rothman, (914) 831-3258.

**May 19:** Columbia University, 2960 Broadway, 115 Havemeyer Hall, New York. 6:30 p.m. Contact Alan Crosswell (212)854-3754



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