



PCARA Update



Volume 18, Issue 1 Peekskill/Cortlandt Amateur Radio Association Inc. January 2017

Radio recycling

The 2016 PCARA Holiday Dinner on December 4th was VERY well attended to say the least! A record 19 people were present and we filled the room to capacity. Regardless, a wonderful time was had by all — excellent company, conversation, and cuisine. Once again the Cortlandt Colonial Restaurant staff provided marvelous service. I feel that I can safely predict that next year's Holiday Dinner will be held at the same venue.



Members enjoyed themselves at the PCARA Holiday Dinner, Cortlandt Colonial Restaurant, December 4, 2016.

We start the New Year as in years past, with the Annual PCARA Bring and Buy Auction. There are still a couple of weeks remaining for you to rummage through your shack and gather together all the things you no longer use or want, and get them ready to bring

to the January meeting. In addition to turning your no-longer-used treasures into cash, you just might find a few things that you might want to bring home.

Our next regularly scheduled meeting is on

January 8, 2017 at 3:00 p.m. at New York-Presbyterian/Hudson Valley Hospital. I look forward to seeing each of you there. **HAPPY NEW YEAR!**

- 73 de Greg, KB2CQE



David KD2EVI and Greg KB2CQE supervise vehicles arriving at the Church of the Holy Spirit in Cortlandt Manor on the afternoon of December 24. (See report on page 12.)

PCARA Officers

President:

Greg Appleyard, KB2CQE; kb2cqe at arrl.net

Vice President:

Joe Calabrese, WA2MCR; wa2mcr at arrl.net

Contents

Radio recycling - KB2CQE	1
Adventures in DXing - N2KZ	2
Dual band 'boom box' - N2CKD	6
Sangean HDT-20 tuner - NM9J	7
Bring and Buy reminder	11
License exam classes	11
ThumbNet SDR	11
Church support Dec 24	12
ENY ARRL Affiliated Clubs	13

Net night

Peekskill/Cortlandt Amateur Radio Association holds a weekly net on the 146.67 MHz W2NYW repeater on Thursdays at 8:00 p.m. Join net control Karl, N2KZ for news and neighborly information.

Adventures in DXing

-N2KZ

Cut the Cord!

Is one of your New Year's resolutions 'end our enormous cable bills?' You *can* 'cut the cord' and move on to more attractive alternatives.



It's easy! What can I watch without cable or satellite TV? More than you could ever imagine. Take a look at over-the-air TV and the Internet. C'mon! It's easy!

Lots of free programming can still be seen using an **antenna**. The antenna you installed in your attic in 1965 may still work great in 2017... (just make sure it has little UHF elements available for channels 14 through 51!) There are no mysteries behind digital television. A signal is still a signal! There is plenty to see if you can grab it out of the air. Yes, antennas still work and they can be quite cost effective. Install an antenna, connect it to your set and sit back and watch digital HDTV. There are no fees and no strings attached!

Remarkably, an antenna can bring you programming featuring the highest technical quality possible. Over-the-air broadcasts are the whole enchilada. These signals come directly from the source. No cable or satellite company has processed or altered the signal or reduced its bandwidth. The pictures and sound can be simply spectacular... and it's all free!

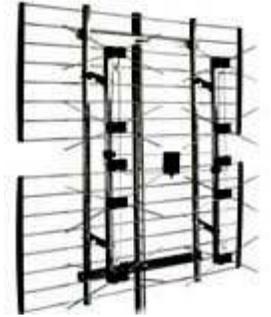
Can you get the signal? Your first step in determining your local TV reception is a visit to a remarkable web site called *TV Fool* at <http://tvfool.com/>. Look for the home page link called 'Check Your Address for Free TV' and 'Click Here.' Enter your home address and click 'Find Local Channels.' You'll instantly see your results.

Call	Sign	Real (Virt)	Netwk	Signal NM(dB)	Pwr(dBm)	Path	Dist miles	Azimuth True (Mag)
WTBY-TV	27	(54.1)	Ind	26.4	-64.5	2Edge	14.0	347° (0°)
WRNN-DT	48	(48.1)	Ind	22.8	-68.1	1Edge	14.0	347° (360°)
WABC-TV	7		ABC	18.2	-72.6	2Edge	40.4	189° (202°)
WJLP	3	(33.1)		17.6	-73.2	2Edge	37.3	188° (201°)
WMBC-TV	18	(63.1)	Ind	10.4	-80.5	2Edge	33.7	209° (222°)
WNET	13		PBS	9.9	-81.0	2Edge	40.4	189° (202°)
WPXN	11	(11.1)	CW	7.2	-83.6	2Edge	40.5	189° (202°)
WNJU	36	(47.1)	TEL	3.2	-87.6	2Edge	37.8	188° (201°)
WPXO-LD	4	(34.1)		2.0	-87.8	2Edge	37.8	188° (201°)
WXTV-DT	40	(41.1)	Uni	2.4	-88.4	2Edge	37.8	188° (201°)
WRGB	6	(6.1)	CBS	2.3	-88.5	2Edge	92.3	356° (9°)
WEOW	49		PBS	1.7	-89.1	2Edge	36.6	91° (104°)
WCBS-DT	33	(2.1)	CBS	1.7	-89.1	2Edge	37.8	188° (201°)
WFUT-DT	30	(68.1)	TeI	0.7	-90.1	2Edge	37.8	188° (201°)
WQOB-LD	2	(42.1)		0.2	-90.7	2Edge	37.4	186° (198°)
WNYZ-LP	6	(6.1)		-0.9	-91.7	2Edge	37.7	185° (198°)
WPXN-TV	38	(31.1)	IGN	-1.4	-91.7	2Edge	37.8	188° (201°)
WPOR-TV	38	(9.1)	MyN	-1.5	-92.3	2Edge	37.8	188° (201°)
WNYE-DT	24	(25.1)	Ind	-1.7	-92.5	2Edge	37.3	188° (201°)
WNBC	28	(4.1)	NBC	-1.8	-92.7	2Edge	37.8	188° (201°)
WNH-DT	10	(8.1)	ABC	-1.9	-92.8	2Edge	49.5	79° (92°)
WNYW-DT	44	(5.1)	Fox	-2.0	-92.9	2Edge	37.8	188° (201°)

Sample TV Fool report shows TV channels available from Cortlandt Manor. Yellow tint = strongest signals.

Take a look at the resultant chart especially the column 'Signal NM(dB)'. Translated, this is the noise margin of the TV signal — how strong the signal is above noise. As a rule of thumb, any signal that is in the teens or better has a pretty good chance of delivering pictures to your TV set.

If your location looks good for over-the-air reception, I would recommend a couple of antennas for your use. In the New York metropolitan area most major stations broadcast on either high-VHF or UHF frequencies. The Channel Master CM4228HD is an excellent choice. Now marketed as the *EXTREMEtenna 80*, it's an 8-bay bow-tie antenna primarily designed for UHF reception. I can tell you, from personal experience, that it really pulls in signals down to VHF channel 7. This covers all but one TV New York Metro broadcaster (on low-VHF channel 3) in a neat easy-to-handle package.



Channel Master CM4228HD antenna for 174 to 216 and 470 to 700 MHz.



Channel Master Advantage 60.

Unlike traditional TV antennas, the CM4228HD resembles a large vertical rectangle. It is 41 (wide) by 33 inches (tall) and is light and easy to install. If you don't have room (in an attic) and need a more horizontal design, Channel Master's Advantage series is a good choice. Their Advantage 60 model would probably be all you need for most of PCARA-land. Look for all the details at:

http://www.channelmaster.com/TV_Antennas_s/35.htm .

Kindred advice: Please stay away from low profile indoor antennas that hide behind flat screen TVs — and — any model that has a built-in amplifier. Unless you are very, very close to a TV transmitter site and your nearby window faces precisely in the right direction, you will be very disappointed in your results.

If you mount your antenna outdoors, make a mental note to weatherproof all electrical connections and hardware. This includes the complete length of the threads of mounting bolts and especially the antenna connections. The more weather-proofing you apply, the longer your antenna will survive the outside elements. If you protect the bolt threads, you will be able to remove the antenna for service and replacement when the time comes. An application of lithium or silicone grease are good choices for protecting threaded rod, screws and nuts and bolts. [HINT: keep silicone grease away from any metal-to-metal contacts such as switches, relays and electrical connectors in order to avoid future problems due to contamination of the metal surface. -Ed.]

One more thing: Make sure you secure the antenna balun (that allows you to connect your co-ax via an F connector) to the boom of the antenna. One or



Secure the balun to the antenna boom with one or two cable ties.

two Ty-Rap[®] cable ties do the job nicely. Letting a balun wave in the breeze is asking for premature failure! Don't

forget to seal and weatherproof the F connector before you walk away.

Waterproofing is really worth the effort. I like to use clear GE indoor/outdoor RTV silicone sealant. It applies like a jelly and self-cures into an enduring pliable rubber. Another favorite is Scotch 2228 moisture sealing tape which almost resembles putty. It consists of an ethylene propylene rubber (EPR) backing coated with a temper-



GE Silicone II clear glue/sealant. (For sealing antenna connections, choose a non-corrosive product like GE280 that does **not** generate acetic acid fumes while curing.)

ature-stable mastic adhesive. After you apply this as a primary layer, you can protect it further with a layer of standard Scotch Super 33+ or Super 88 black vinyl electrical tape for a permanent UV and weatherproof seal.



Scotch 2228 self-fusing tape.

A word about preamplifiers: You may or may not need a mast-mounted antenna preamplifier to bolster weak signals reaching your home. Please try your antenna solo before you mount it aloft in an attic or roof. If you get reasonable results, permanently mount it without a preamp. Signals in the VHF and especially the UHF range can resemble what you experience when you see light.

It is often hard to predict where bright rays of light may appear out of the sky. TV signals can be very similar!

Experiment walking your antenna



This brand-new TV antenna is catching the sunlight as well as the signals.

around your roof or around your yard. It helps to have a friend to watch while you parade around with your antenna. Here is the phrase to remember: "How is it now?" Seriously, if you are patient, you may find a sweet spot or two where reception just leaps in strength. I'm really not kidding... This does happen! In any case, it is worth it to walk around until you find the best place to mount your antenna.

If your results are marginal (reception is choppy or non-existent,) a pre-amp may be necessary. A weather-sealed preamp mounts directly below the antenna. A power supply sits by your TV set using the coaxial cable to send voltage above to the preamp. It makes sense to always click on the built-in FM trap on these pre-amps. High-VHF TV channels (in our area 7, 11 and 13) can be tormented by ingress of strong FM signals.

For instance, the harmonic of WHUD 100.7 FM is 201.4 MHz which sits right in the middle of Channel 11 (198 - 204 MHz.) If Channel 11 does not come in, you might be getting blasted by FM! I know. I had this problem and I live on the other side of the county near Ridgefield, Connecticut! Channel 13 sits on 210-216 MHz vulnerable to FM signals from 105 to 108 MHz. Another strong Westchester FM, WXPX 'The Peak' operates on 107.1 FM. Like I said, it is a good idea to switch on the FM trap!

Some of the very latest preamplifiers also include filtering for LTE (Long Term Evolution) transmissions. LTE is a term that covers all data transmissions, especially ones that meet or exceed 4G standards. Now that data transmissions are inching closer and closer to television broadcast frequencies, strong LTE transmitters can de-sense what your in-home television can receive. As technology marches on we have to adapt to co-exist with old technologies like television! See:



Channel Master 'Amplify'[™] adjustable-gain preamp covers 54 - 88 MHz and 125 - 700 MHz. Includes an FM trap for 88 - 108 MHz and a filter for LTE signals in the range 770 - 1000 MHz.

http://www.channelmaster.com/Amplifiers_s/23.htm for details.

Hopefully, you can receive all the major broadcasters from New York City. As an added plus, most broadcasters now transmit more than one channel of programming. CBS offers *Decades* on virtual channel 2-2. NBC has *Cozi TV* on channel 4-2. Fox offers *Movies!* on channel 5-2. It goes on and on! Make sure you perform an 'auto-scan' of channels with your TV's remote when you first hook up so you don't miss anything out there. If all goes well, your results may provide somewhere between 50 and 70 channels.

One last thought: There are some areas in the Peekskill/Cortlandt area where TV reception from New York City stations is difficult if not impossible. You might think that the only direction to point your antenna may be somewhere to the south towards the city. Don't stop there! Try just slightly west of north for the Albany / Schenectady / Troy stations —or— nearly due east for stations in the Hartford, CT market. You just never know. Make sure you re-scan your TV each time you re-point your antenna. Get fancy and actually use the signal meter bar available on some sets to peak your signal before a re-scan. "How does it look now?"

To the Web

Antennas are just one method of seeing shows but they don't work for everybody. Another major source of programming is delivered via **The Internet**. Up-to-date televisions include 'smart' features allowing various levels of Internet access. Outboard devices can bring in even more sources. You can literally see TV from all over the world.

The choices are almost endless. There are many varieties of streaming video players: Roku, Apple TV, Amazon Fire Stick, Google Chromecast and many others. Some TVs and Blu-Ray players also include streaming



Amazon Fire TV Stick plugs into your TV's HDMI port.

video access. Not all 'Smart' TVs, 'smart' disc players and streaming video players are alike. Do your research and discover exactly what each streaming box offers. I have seen many allegedly 'smart' devices that offer very, very few choices for Internet access and streaming sources. Some late model TVs incorporate a full suite for streaming like Roku TVs. Choose wisely!

In my humble opinion, Roku is the leader of the streamers. It is fluid and constantly updating. Roku offers the most programming with simply endless diversity. Roku-casting is available to big broadcasting conglomerates, private videographers like you and I — and everything in-between! You'll find it all on Roku!



Roku Ultra media player is 4K capable, with Ethernet or Wi-Fi connection to the Internet and HDMI video output to your TV, plus optical output for sound.

Regardless of which streamer you decide is best, remember they all have a lot to offer beyond

what is immediately obvious. Visit your device's web site and resources to discover all about the new world you now have access to.

Take Roku for example... The very first thing to do is sign on to a web site called RokuGuide.com (<https://www.rokuguide.com/>) and subscribe to their newsletter. They are independent from Roku itself but provide a weekly update to all the new channels that appear constantly. They also feature an online listing of everything that is already offered.



Sites like RokuGuide are essential to your survival. Think of the world of streaming as a completely random and disorganized garage of a television programming mogul. You just never know what you might find if you search in yet another box! It becomes an endless quest for chestnuts. Don't worry. You will find a lot of them if you try!

Be patient as you comb through RokuGuide. There are hundreds of channels to choose from. Lots and lots of them offer very old public domain movies and shows. You will only wonder "Where do they get all of this stuff?" You never know. There may be something out there that you really like.

Another choice vehicle to discover programming is the very well written New York Times feature called *Watching at*: <http://www.nytimes.com/watching>. Subscribe to this column and you will often find great suggestions in search of that next great movie.

Also learn the Roku nomenclature. There are 'public' channels that are blessed and sanctioned by Roku directly. There are also 'private' channels that anyone can put up in no time with whatever they like. Yes, you can become a Roku-caster in no time! See: <http://www.instanttvchannel.com/>.



Here is a quick list of all the channels I have found useful:

Netflix is the movie standard bearer. This subscription channel is a microcosm of Roku itself. Netflix offers thousands of movies and shows, yet it is very difficult to find things you don't already know about. You can search by title name but you need to know the exact spelling. It is not smart enough to interpolate an incorrect entry. Netflix also provides a panel listing of their most popular shows in groups of up to 50 shows per panel for your searching pleasure derived from your past viewing habits. Keep looking!

Netflix has a lot of competition. You can also subscribe to Amazon Video, GooglePlay and many others. **Hulu**, a binge-watcher favorite, is the Netflix of episodic TV shows. It is an endless abyss of everything you can imagine. Hulu has many exclusive shows that can be seen nowhere else. Amazon Video often has the very

latest movies that everyone wants to see.

Nearly every over-the-air channel, network or show has a Roku mirror image channel filled with on-demand content. I often view the Roku channels from three major news services: ABC News, CBS News and

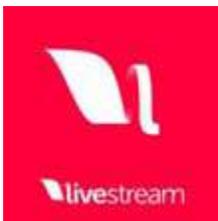


NBC News. CBS News has a free gift for all that visit called **CBSN**. It is a 24 hour news service that is a continuous cycle of all the current news stories CBS News has to offer combined with convenient

re-runs of CBS This Morning, CBS Evening News and 60 Minutes features. Consider it the news home of all Roku watchers.

Other worthwhile free programmers: PBS, WeatherNation, OnFilm, BloombergTV, Sky News, Livestream, Nowhere TV, Nowhere CNN, YouTube, Crackle, WNET, KCET and France 24. **OnFilm** has a huge collection of oddball little channels from all over the world. **Crackle** offers select Seinfeld episodes free — and other well-worn shows. You can see the nightly PBS Newshour one hour earlier than local WNET Channel 13 broadcast live via the YouTube channel on your streamer at 6:00 pm Eastern. Yes, you can now view all there is to see on YouTube on your big screen via most streamers available today.

Livestream is a channel run by a company that provides over-the-web content distribution to business and private users worldwide. If you can discover the precise name of a Livestream channel you can reveal a lot of fun stuff to watch. For example, the big local TV station in



Central Michigan, WNEM, is on Livestream but they don't advertise it. Enter company and business names and you might reveal a gold nugget or two. Experiment with Livestream and you may reveal all sorts of interesting programming. All you have to do is find it!

Nowhere TV is the gem of the ocean. You'll find an endless collection of news, sports and technology sources here from all over the world. The entire group of Cablevision 'News 12' channels are seen here from Long Island to Connecticut and everything in between. On another 'Nowhere' channel you can access Kahn Academy educational lessons. Visit:

<http://www.thenowhereman.com/roku/> for a tutorial on their offerings and all the 'Nowhere' channels.

If you already subscribe to cable, you can get the entry codes for their Roku mirror channels. Most all channels available on cable have mirror channels for streaming, but they all require codes verifying that you are a cable or satellite subscriber before you can gain access. HBO can be seen on HBOGo. CNN is seen on CNNGo and so on.

First, download the channel shortcut from Roku's Streaming Channels list. Launch the shortcut and follow the directions. You will see an alpha-numeric code specific to your streamer and a URL. Enter the URL on a computer and then enter the on-screen code. Another screen pops up making the association between your e-mail address and your cable or satellite account. Complete these fields and *voilà!* You'll be authorized for streaming. It's that simple <hi hi>.

A cable TV substitute, **Sling TV**, offers a grab of channels for a very low monthly subscription price if you don't already have a current cable or satellite account.



It is a great cost-effective alternative to reunite with ESPN or CNN and many other popular channels after you have cut the cord. See <https://www.sling.com/>. Also remember that almost every channel that requires a subscription offers free trials. If you are curious about a channel you can't get for free, give it a shot. It may be worth it to you!

Beyond television, streamers often offer many radio stations and other audio sources to listen to. It's just like having an Internet radio inside your TV! You'll find free Roku channels to access TuneIn, iHeart Radio, Radio.com, Pandora, Spotify, Slacker and many others. Some radio stations have established their own Roku channels sometimes featuring replays or even videos of their morning shows. There is so much to discover!

If you want to go to the dark side, you can also venture past geo-locking and legality by using a virtual VPN and/or a program called Kodi. Kodi is a popular add-on especially used on Amazon FireSticks that can bring you nearly every movie released, including most current content, for free. You'll see odd Chinese subtitles and other 'funny' stuff, but if you like getting away with technological murder, this is your avenue. Did I say it was technically legal? No. Needless to say, Kodi is very popular these days. Use at your own risk!

Secure your TV!

Always be safe with your flat-screen TVs. Even if you have secured your screen to a wall or a sturdy floor mount, it is a great idea to consider a secondary tether to act as a safety if the main mount fails or becomes unbalanced. This is especially true if your flat screen relies on a pedestal or small feet to stand on a piece of furniture. One quick move, like a sudden pull on a cord, can topple a TV and bring it smashing to the ground. A



simple solution for this problem can be found at <http://www.command.com> where you can discover an entire product line of convenient hanging accessories from 3M. Be safe — not smashed! Now go have fun!

Old Goats

This is a momentous year for PCARA's Old Goats Net. This coming October, we celebrate ten years on the air! Look for us Thursday evenings at 8:00 pm on the PCARA 2 meter repeater: 146.67 MHz. See our Facebook page, as well! Have a happy new year! 73 de N2KZ 'The Old Goat'.



Dual band 'boom box'

- N2CKD

I have a dual band 2 meter/70 cm Baojie mobile transceiver which I lug around for mobile and home-base operation. However, moving it around becomes a chore due to plugging and unplugging various wires, adapters, power supply, external speaker, antenna etc. So I decided to build a mini "boom box" (Go-Box) by mounting the various components inside small plastic mini-crates available at the local Walmart store or Dollar Stores for about \$1.25. These mini-crates are intended for storing DVDs, CDs and photo-albums. They measure approximately 9¼" wide × 7¾" deep × 6¼" high and are a perfect fit for my transceiver and power supply, with room to spare for a rechargeable battery if required.



Stackable mini crates by Frem Corp (left) and Sterilite (rgt).

I initially used just one storage crate to mount both transceiver and power supply and it was a nice, compact fit. Later, I decided to mount the transceiver



Plastic mini crate has hole cut for front panel of Lovji's Baojie BJ-UV55 dual band mobile transceiver. Loudspeaker is above.

and power supply in two separate mini-crates to minimize any RF interference or hum. I could then stack the two crates for easy travel.

Construction was straightforward. I used a

jigsaw to cut the bottom portion of one of the storage crates just enough for the face of the transceiver to be accessible for operation — see the photo. I then drilled holes for cable access at the rear. I cut and placed wooden shims to prevent the transceiver and power supply from moving around. The excess cabling was wrapped on the side using reusable "Cable Cuff" cable clamps, available at Home Depot. The transceiver is plugged into the power supply and the power supply is connected to 120V AC mains. I added a cigarette plug accessory outlet to the power supply since I



Small Cable Cuff[®] is an adjustable, reusable cable tie replacement.

had one lying around. I also connected a dual band mag-mount antenna to the transceiver. That's it!

The "boom box" is ready to travel. No setup is required, just plug the cable



Second plastic mini crate contains Pyramid PS-8KX 12V DC power supply, with 12V DC accessory outlet attached.

into AC mains or into the car cigar lighter socket for mobile operation. The photo below shows the finished box. I use a 21" kitchen baking tray as the base for my mag-mounted antenna for base station use — the tray creates a perfect quarter wave ground plane for 2 meters. I use my "boom box" setup for the Thursday night Old Goats net on 2 meters. If you have a similar small transceiver and power supply you can employ inexpensive mini-crates to improvise your own Go-Box.

- Lovji, N2CKD



Lovji's Go-Box, with metal tray and mag-mount antenna.

Sangean HDT-20 tuner

A ten-year tale

HD Radio® is the technology authorized by the FCC for digital sound broadcasting in the USA. It first came to our area in 2002 when WOR 710 kHz began using iBiquity's IBOC (In-band on-channel) system.

In the July 2006 *PCARA Update*, pp 2-5, Bob N2CBH described how the IBOC system works and how his company installed equipment at two upstate FM stations to upgrade transmission from analog to HD Radio. At the time, receivers for the new mode were scarce and expensive, but the December 2006 issue of *PCARA Update* included a review of Radio Shack's Accurian HD Table Radio. There have been additional technology updates from Karl N2KZ (May 2008, p 8; July 2016, p 2) and reviews of Insignia HD radios (Jan 2009, p 4; Feb 2014, p 7).

In place of a table-top radio, my own preference is for a **component tuner** that can be plugged into a stereo receiver with a pair of good outboard speakers attached. For the past ten years, I have been using HD Radio tuners from Taiwan manufacturer Sangean, starting with a Sangean HDT-1 (see *PCARA Update* for February 2007). The Sangean HDT-1 and the improved HDT-1X model have given good results for HD Radio transmissions in the 88-108 MHz FM band, though performance on weak signal AM was not so good.

Scarce component

During the past few years, *no* new component tuners for HD Radio have been available from *any* manufacturer — apart from DaySequerra, whose M4.2Si Broadcast Receiver will cost you an eye-watering \$1,200 list. The only place to find a tuner at a reasonable price was 'new-old-stock' models through Internet vendors, with designs that are now 10 years old.

In April 2016, Sangean announced three, new upcoming products for HD Radio — the HDR-16 portable receiver, the HDR-18 wood cabinet table-top radio and the **HDT-20 component tuner**. It would be several months before the HDT-20 shipped — in October 2016, with a list price of \$199.00. In mid-November,



after the first positive reviews appeared on Amazon and the price dropped, I decided to order one.

A few days later, my HDT-20 arrived in an attractive cardboard box. I unpacked the tuner and found it was the same size as previous Sangean units, 16 7/8" wide × 10" deep × 3" high. It would stack nicely with my existing audio equipment. The appearance of the HDT-20 was an improvement over earlier models HDT-1 and HDT-1X, thanks to a black aluminum front panel over the usual front plastic molding.



Sangean HDT-20 component tuner. Plastic bags on top contain the various accessories.

Several accessories accompanied the tuner, including an AM loop antenna, an FM folded dipole with 300Ω/75Ω adapter, RC-P27 remote control and a 32-page "Operating Instruction" booklet.

Connecting the bits

I brought the new tuner into the radio room for initial assessment. I have a stereo amplifier, external speakers and FM antenna cable conveniently available at the workbench for this type of test. The HDT-20 tuner can be connected to a stereo amplifier in three different ways — through dual RCA phono sockets for analog Line Out, through a TOSLINK fiber optic connector for SPDIF digital output or through a single phono socket for coaxial digital output. (SPDIF = Sony/Philips Digital Interconnect Format. TOSLINK = TOSHIBA-LINK.) For initial testing, I chose the analog 'Line Out' sockets, then later tried the SPDIF coaxial output as well.



Rear panel connections, L to R: F-type coaxial FM antenna socket, AM loop, RCA phonos for right and left analog Line Out, Optical SPDIF and coaxial SPDIF digital outputs.

The rear panel has a female F-Type connector for attachment of coaxial feeder from a suitable FM antenna. In our part of the world, I believe an external FM antenna is a necessity. Unless you live on top of a hill, substitution of the supplied wire dipole antenna will be a disappointment. A pair of spring-clip connectors are also available on the rear panel, where I connected the supplied AM loop antenna.



DaySequerra M4.2si — a snip at...



New HD Radio models from Sangean.

Dim bulb

I applied power to the radio and tried to locate a signal using the rotary tuning dial. I soon found a major problem — shortly after tuning in a station or pressing a control, the backlight for the liquid crystal display would go completely out, so the display was almost unreadable! This was quite disconcerting.



The backlight for the liquid crystal display (left) would switch itself off after a few seconds (right).

I checked in the Instruction Manual and found little help until I reached page 12 where there is information about the “Dimmer” setting and how to adjust it using front panel controls. This is quite complicated. I later found a much easier way to adjust the backlight using the remote control’s “Dimmer” button, which is labeled with a light-bulb symbol. You can choose settings of “Off” (the default), 1, 2 or 3 (brightest). With settings 1 or 2 the LCD backlight dims shortly after adjusting a control, but at least the light stays on.

There are other areas where the Instruction Manual is less than helpful. I suspect it may have been written before the tuner design was completely finished.



HDT-20 Operating Instructions.

Display highlights

With the liquid crystal display now visible, I explored some of its capabilities. Top right there is a five-bar signal strength indicator which is always available on-screen. This is an improvement over the earlier HDT-1 tuner, which only shows a six-bar signal indicator after an HD-station is tuned in. However, the



Typical display on HDT-20 LCD for an analog FM station with stereo and RDS.

HDT-1 has an 18-segment linear “signal strength indicator” available by pressing the “Info” button. There is nothing similar on the HDT-20. The HDT-20 display also indicates “RDS” (Radio Data System for RDBS data), “ST” (stereo), “HD1” (HD broadcast), Frequency, M# (memory channel) — plus callsign, artist and title — if available via RDS or HD.

As with earlier radios, reception of an HD radio station involves a delay. The HDT-20 first detects the analog FM audio while flashing the “HD1” indicator. Meanwhile the digital signal is being buffered, error-checked and decoded so that roughly eight seconds later, the HD1 (or HD1+) indicator becomes steady and reception changes over from analog to digital. The HD1 stream always carries the same programming as the analog FM signal. The ‘plus’ sign in HD1+ means additional multicasts are available.



On the left, the steady ‘HD1+’ indicator shows that the first (HD1) multicast is being received, with additional multicasts available. On the right, ‘HD2+’ indicates that a second multicast has been tuned in — in this case WCBS-AM 880.

On the Sangean HDT-20 tuner, the “Info” button can display information about additional multicasts. If you tune in to an FM HD transmission, pressing ‘Info’ shows a *Station list* with up to three multicast stations. These are identified as HD1, HD2, HD3 etc. or by the artist/title or other station data. Pressing “Info” a second time brings up the clock display.



For HD Radio, the ‘Info’ button brings up a Station List showing available multicasts.

The tuner’s clock can be set manually, or you can tune to an FM station with RDS that includes clock time (CT) data. One example is WEPN-FM (ESPN) on 98.7 MHz.

Tuning-in

There are only a limited number of buttons on the HDT-20 front panel. The number buttons, 1-9 and 0 all have multiple functions depending on what you need to do. This a step backward from the older HDT-1 which had a separate numeric pad.

If you press one of the number buttons on the

HDT-20, the default action is to carry out the function indicated *above* the button — for example “Info”, “Menu”, “Alarm-1” or “HD Seek”. In order to select one of the stored memory channels you must first press the “Preset” button at lower left. This has to be followed by one of the number buttons 1-9 or 0. Don’t delay — you only have ten seconds to make a choice! An easier approach is to use the number buttons on the Remote Control, which give *direct* access to the stored memories on AM or FM.



Front panel buttons on the HDT-20. In order to recall a stored memory channel you must first press “Preset”.

If you need to tune *directly* to a frequency, first press the “Freq” button at bottom right, then press the appropriate number buttons — there is no decimal point. Don’t delay or your numeric entry will be cut off!

Changing mode

The HDT-20 tuner has a button labeled “Mode” which changes from FM to AM and back again. There is a delay of 4 seconds before the receiver is ready for each new mode. The FM and AM selections only have 10 memories each, half the number of the older HDT-1.

Exploring the **AM band** (520-1710 kHz) with the supplied loop antenna was disappointing. Signals were weak and HD signals impossible to find. I had slightly better results with a large tunable loop antenna (RS #15-1853) and was *just* able to receive two remaining HD Radio stations from New York City — WCBS AM on 880 kHz and WINS 1010. (WRCR 1700 in Rockland County recently dropped HD. For a list of AM stations still using or not using HD see <http://topazdesigns.com/iboc/station-list.html>.)

It is important to keep the loop antenna away from noise sources, including the HDT-20 itself. I noticed that the signal strength meter takes a few seconds to react to antenna adjustments... so take your time rotating and tuning the antenna. The meter delay also applies to FM.



Radio Shack tunable loop antenna for the AM band.

Another observation about AM reception — the response of the receiver *changes* depending on signal strength. With a strong signal (4 bars or higher) the higher audio frequencies are reproduced well, but with weaker signals the response becomes much more narrow. I suspect this is part of the digital signal processing (DSP) employed to recover modulation from AM signals and is similar to the bandwidth change that takes place in better-quality AM car radios.

Another clue that the HDT-20 is based on car radio technology is that clock settings are lost whenever external power is switched off. In a vehicle, 12V DC is always available, even with the engine stopped.

Unfortunately, my impression of HD Radio performance in the AM band is no better than with earlier HD tuners. There is a small improvement in the high audio frequencies when changing to HD — plus stereo capability — but the overall quality is still **poor** when compared to an FM station.

In my humble opinion, HD Radio for AM stations must now be considered a **failure**. The IBOC equipment is expensive, many broadcasters have switched it off, the improvement in audio quality is marginal, there are no multicast capabilities and the digital sidebands squirt interference all over the adjacent channels. *Is anybody listening?*



Is anybody listening?

Back to FM

Switching the HDT-20 back to FM mode, I discovered a significant problem compared with the original HDT-1 tuner. Reception on the HDT-20 is quite acceptable for *strong* analog FM stations and for HD Radio stations — but the situation changes drastically for *less strong* analog-only FM stations. When the signal strength meter shows only ~3 bars or less, stereo disappears, the audio bandwidth is limited and the audio becomes quite distorted. This is especially noticeable on speech sibilants such as the letter “S”. *My impression* is that in order to keep background noise down, analog FM bandwidth is being reduced, similar to the AM mode — but on FM the reduction goes too far.

I sent a message to Sangean about this analog FM problem, which has also been reported in some reviews of the HDT-20 on Amazon. All that Sangean could recommend was purchase of a wire-dipole antenna. (Don’t they know that a wire dipole is already supplied with the HDT-20 tuner?)

I wondered whether there were any internal adjustments that might improve the HDT-20’s performance. However, with the cover off, the metal case is almost empty. One circuit board mounted to the case is concerned with power supply and the various I/O connections. All the RF circuitry seems to be confined to a small, shielded section attached to the rear of the front



The Sangean HDT-20 case is almost empty.

panel circuit board. Nothing at all is adjustable!

Oddly, when the HDT-20 restricts bandwidth for a less-strong analog FM signal, HD Radio can *still* provide good reception. This may be a result of the Report and Order issued by the FCC in January 2010 that permits FM stations to raise their digital sideband power from the earlier 1% of authorized analog ERP. Most stations were permitted a blanket digital power increase of up to 6dB (from 1% to 4% of analog ERP) with a 10dB increase also available, subject to a request to the FCC and limits on interference to the adjacent analog FM stations.

Here is a list of the stronger HD Radio stations and their multicasts as received on the HDT-20 using an FM Yagi antenna, pointing south from Cortlandt Manor.

Freq MHz	Call	HD1	HD2	HD3	HD4
89.1	WFDU-FM	FD Uni	Jazz	Classical	-
90.7	WFUV-FM	Frdm U	Music mix	-	-
92.3	WBMP-FM	Amp R	K-Rock	R Disney	-
93.1	WPAT-FM	Amor	-	-	-
93.5	WVIP-FM	Ethnic	wVOX-1460	MusUrLife	Hope R.
93.9	WNYC-FM	Public R	WQXR	WNYC-820	-
94.7	WNSH-FM	Country	-	-	The Bridge (HD4)
95.5	WPLJ-FM	PLJ	FAS	WABC-770	-
97.1	WQHT-FM	Hot 97	R Zindagi	-	-
98.3	WDAQ-FM	98Q	RockAlt.	The Bull (Danbury)	-
99.9	WEZN-FM	Star 99.9	-	-	-
100.3	WHTZ-FM	Z100	Nick R.	-	-
101.1	WCBS-FM	Clssc Hits	News R 880	CBS Sports R	CBS Sports R
101.5	WPDH	Clssc Rock	(Poughkeepsie)	-	-
102.7	WNEW-FM	Fresh	SmthJazz	WINS-1010	Russkaya Reklama
103.5	WKTU-FM	KTU	Pride R	-	-
104.3	WAXQ-FM	Q104.3	WOR-710	-	-
105.1	WWPR-FM	Power	RUSA (Russian American R)	-	-
105.9	WQXR-FM	Classical	Q2 Music	-	-
106.7	WLTW-FM	Lite FM	iHeart 80s R	-	-
107.5	WBLS	BLS	WLIB-1190	-	-

That list of 21 HD Radio stations receivable on the Yagi was reduced to only 7 stations when using the supplied wire dipole.

Is HD Radio making progress?

With 21 HD stations available, you might conclude that VHF-FM HD Radio is more successful than AM. But HD Radio sets have all but disappeared from High Street stores. According to the Pew Research Center, in

2012 only 2% of radio listeners were tuned to HD Radio in their cars. Digital radio is becoming more popular nowadays — by 2016, 57% of Americans were making use of digital radio — but this figure is mostly for **online** listening using Internet-connected phones and tablets, rather than broadcast HD Radio.

In October 2015 Ibbiquity and its HD Radio Technology were purchased by **DTS Inc.**, so HD Radio is now part of



DTS' digital audio surround sound systems. DTS is concentrating on vehicle audio — on November 30th 2016 they announced that 34 new model year 2017 cars would feature HD Radio receivers. See <http://hdradio.com/> for vehicle models where HD Radio is now an option.

So — the most likely way for the general public to be exposed to HD Radio today is through the factory-supplied entertainment system in a new, high-end vehicle. But in our part of the world, where mobile HD reception is

not very reliable, and the 'blend' from analog to digital is unsettling, the most important setting for the car radio is probably the one that turns



The most important option on a car radio, check or uncheck for HD Radio Reception.

HD Radio off and on!

Pluses, minuses and overall conclusions

The new Sangean HDT-20 has a few advantages over the original HDT-1 and HDT-1X tuners produced by Sangean around ten years ago. For example, the HDT-20 has a stereo headphone jack, rotary tuning knob and information display about the available FM multicasts. Listening to HD Radio on the HDT-20 can be an improvement over analog FM in terms of signal to noise ratio and availability of multicasts. But there are quite a few disadvantages to the HDT-20. The main step backward is inferior performance on less-strong analog-only FM stations.

So — if you only want reception of FM HD Radio, Sangean's new HDT-20 could be a good buy. But if you also require good reception of **analog** FM stations, the HDT-20 may not be the best choice. I would suggest looking for a previously-owned Sangean HDT-1 or HDT-1X tuner on eBay.

- NM9J

Bring and Buy reminder

Here's a reminder that the first PCARA meeting of the New Year — on Sunday January 8, 2017 — will include the annual **Bring and Buy Auction**.

One reason for holding the annual auction at this time of year is the lack of local Hamfests. We usually have to wait until April for Orange County ARC to start the cycle.



In order to fill the void, the PCARA Bring and Buy Auction is held at the January meeting. Members and friends can bring radio-related items along then have them sold by the PCARA auctioneer. Items

which you might have no further use for can still hold significant value for members and friends of PCARA.

To keep the wheel turning, please pay a visit to your own basement or attic and pick out a few pieces that have not been used in a while. Bring them along to the January meeting to see if someone else can provide a good home where they will be well looked after and brought back to electronic life.

And if you are successful in selling one or more of your desirable items, a donation to PCARA funds will be much appreciated by the treasury, to keep club services running.

License Exam classes

Two license classes are being organized by neighboring clubs early in the New Year (2017). If you know of someone who might benefit or you might like to attend yourself, brief details are given below, along with web links to the full story.

Mt Beacon ARC & QSY Society free 2-day Technician class

Dates: Saturday and Sunday 28th-29th January, 2017.

Location: Dutchess County Office of Emergency Management, 392 Creek Road, Poughkeepsie NY.

Time: 8:00 am to 5:00 p.m.

License exam: Sun Jan 29th 1:00 p.m. (\$15 test fee.)

Textbook: ARRL Ham Radio License Manual 3rd Edn.

Pre-register with William Baxter, KC2LIX'at'hvc.rr.com, (845) 235-2048

More details: <http://wr2abb.org/home/> and <http://www.arrl.org/courses/poughkeepsie-ny-12601-1>

WECA free 10-week Extra License class

Dates: Wed Jan 4th, Tues Jan 10th, Wed Jan 18th 2017, then subsequent Tuesdays.

Location: Westchester Fire Training Center, 4 Dana Rd, Valhalla NY. (See ARRL exam site for entry instructions.)

Time: 7:00 p.m. – 9:15 p.m.

License exam: Thur Mar 9th, 7:00 p.m. (\$15 test fee.)

Textbooks: ARRL Extra Class License Manual, 11th Edition (with ARRL's Exam Review for Ham Radio); ARRL Extra Q&A 4th Edition.

Contact: Larrie Sutliff W2UL, W2UL'at'WECA.org

More details: <http://www.arrl.org/courses/valhalla-ny-10595-16>. WECA web site: <http://www.weca.org/>

ThumbNet SDR

Greg KB2CQE recently received a message from Wade VanLandingham, W4VNO about availability of **Thumbnet** software defined radios (SDRs) at an economical price. These 'radios' usually take the form of a USB device with its own antenna connector. When plugged into the USB socket of a suitable computer, the dongle feeds a raw digital stream describing the amplitude and phase (I/Q data) of incoming signals over a range of frequencies. These I/Q signals are then subjected to digital signal processing by the computer.

Wade W4VNO writes:

"I manage a non-profit organization called ThumbNet (<http://www.thumbsat.com/thumbnet>). To quote part of our own page: ThumbNet was born to encourage students around the world to look up at the stars and to give them a chance to feel that they are part of something larger. The hardware to track and monitor radio signals from satellites in orbit is donated to the schools by ThumbNet, and with over 240 volunteer groups in more than 72 countries, we're having an immediate and positive effect on the lives of hundreds of students around the globe."

"ThumbNet's N3 SDR receiver is unique in its

design and it is competitive in cost with the majority of the SDR dongles on Amazon or eBay. We design and produce

updates of the receiver to meet the needs of the ThumbNet network, (this is the third generation.) but due to minimum order quantities from the manufacturer, we end up with several hundred more than we need each time we do so. In order to not have thousands of SDR radios laying around, I try to offer them to others that share our education efforts (like Girl Scouts) or simply may have an interest in working with them (like Ham clubs). The small proceeds that remain go right back into the project to support its continued outreach and growth, and not into someone's retirement fund."



ThumbNet N3 SDR receiver without RFI shield or custom aluminum case.

“Visit the page here: <http://www.thumbnet.com/thumbnet> and <http://www.nongles.com> to learn more and consider supporting ThumbNet. Reviews are beginning to appear on various SDR blogs such as <http://www.rtl-sdr.com>.”

Frequency range of the N3 (which uses the R820T2 tuner IC) is 24 MHz to 1766 MHz. Cost of the



ThumbNet N3 SDR is available in this custom aluminum case. External power and mini-B USB connectors visible at left.

ThumbNet N3 SDR receiver ranges from \$25.75 for the bare circuit board to \$33.50 for the board in a custom aluminum case with RFI screen.

One word of warning — when using the option to connect the N3

to an external low-noise power supply, rather than the noisy 5V from the computer’s USB connector, be sure to maintain correct polarity, otherwise you might damage the USB circuitry of the connected computer.

— . . . — . . . —

More on low-cost SDR

The web site <http://www.rtl-sdr.com> sells its own dongle-based SDR, available via Amazon for \$19.95 or \$24.95 with two telescopic antennas. The RTL-SDR is an inexpensive software-defined radio that uses a modified TV tuner dongle, based on the RTL2832U chipset. David, KD2IRA brought one of these to the October 2016 PCARA meeting. For more details see: <http://www.rtl-sdr.com/buy-rtl-sdr-dvb-t-dongles/>



RTL-SDR.COM low-cost USB dongle as shown by David KD2IRA at the October PCARA meeting.

Another dongle is available as part of the FunCube project. FUNcube-1, is an educational CubeSat satellite intended by AMSAT-UK to educate youngsters about space, satellites, radio and electronics. For reception of the satellite’s 2 meter downlink signals, Howard Long, G6LVB developed a USB-connected receiver which he called the FUNcube Dongle.

The latest version, the FUNcube Dongle Pro+, has superior filtering, covers 150 kHz - 240 MHz plus 420 MHz - 1.9 GHz, and has a price of £124.99. See: <http://www.funcubedongle.com/>



FUNcube Dongle Pro Plus.

Church support Dec 24

PCARA had been asked to provide radio support for the 4:00 p.m. Christmas Eve Mass at the Church of the Holy Spirit on Route 202. This would be similar to the Golden Jubilee events during 2015-2016.

Greg KB2CQE, Bob N2CBH, David KD2EVI and NM9J arrived at the Church car park at 3:00 p.m. to survey the area. Fortunately the rain experienced earlier in the day had stopped, the sun had appeared and temperature was around 44°F. Fr. John explained that the grassy area by the upper parking lot could not be used for overflow parking this time as access was blocked by piles of snow and the ground was saturated.

Greg positioned himself near the vehicle entrance, Bob was on the circular approach road, while David and NM9J were watching the upper parking lot. Radio contact was successfully maintained using 2 meter simplex. Vehicles began to arrive and parking spaces began to fill. Priority was given to vehicles with handicap placards to park near the Church. There was a rush of vehicles around 3:40 p.m. and the parking lots all filled, including extra spaces previously indicated by Fr. John. Several vehicles stopped on the narrow section of the circular approach road, blocking the inward route. At that point, the PCARA team had to walk down to the main entrance and — with the exception of passenger drop-offs — prevent any further vehicles from entering the grounds. Bob and Greg then supervised pedestrians crossing busy Route 202 from the nearby parking lots.



Greg KB2CQE and Bob N2CBH, surrounded by the sea of vehicles parked at the Church of the Holy Spirit on Dec 24.

ENY ARRL Affiliated Clubs

ARRL's Eastern New York Affiliated Club Coordinator **Ron Fish, KX1W**

recently sent out a list of Affiliated Clubs in the ENY Section of the Hudson Division. For members who might want to attend a meeting at a nearby club, here is a list of ENY clubs within easy driving distance of Peekskill / Cortlandt.



Crystal Radio Club – W2DMC: Meets 1st Wednesday at 1930 (except July/August) in Rockland County Fire Training Center, Pomona, NY. Contact: Paul Horenstein, K2PH, prh'at'aol.com, (845) 510-2998.

Hudson Valley Contesters & DX – K2UG: Meets 2nd Monday at 1930 in Hurley Reformed Church, Hurley, NY (date and place vary). Contact: James Janack, N2JJ, n2jj'at'ix.netcom.com, (518) 882-9216.

Mount Beacon ARC – WR2ABB: Meets Monday at 2000 on the air, KC2DAA repeater, 146.97 (-), optional PL 100Hz. Contact: Andrew Dana Schmidt, W2BOS, W2BOS'at'arrl.net, (845) 462-7539.

Orange County ARC, Inc. – W2HO, (SSC): Meets 3rd Friday at 1930 in Munger Cottage, Cornwall, NY. Contact: Tom Ray, W2TRR, w2trr'at'ocarc-ny.org, (845) 391 3620.

Peekskill/Cortlandt ARA – W2NYW. Meets 1st Sunday at 1500 in Hudson Valley Hospital Center, Dining Room B, Cortlandt Manor, NY. Contact: Gregory Appleyard, KB2CQE, kb2cqe'at'optonline.net, (914) 737-4210.

Putnam Emergency and Amateur Repeater League – K2PUT: Meets 3rd Wednesday at 1900 in TOPS Center, 112 Old Route 6, Carmel, NY. Contact: Laurretta Glatz, KC2VMH, kc2vmh'at'gmail.com, (845) 661-7991.

QSY Society – K2QS: Meets 1st Saturday (Jan-Feb) at 1000, 1st Tuesday (March-November) at 1900 in East Fishkill Community Library, 348 Route 376, Hopewell Junction, NY. Contact: Shirley Dahlgren, N2SKP, shirleyjean'at'optonline.net, (914) 582-3744.

R.E.C.W.A./Metro 70 Communications – WR2MSN: Meets 1st Monday Sept/Dec/Mar/Jun at 1900, 28 Wells Avenue, Bldg 5, 5th Fl, Yonkers OEM, Yonkers, NY. Contact: Carl Everts, N2VQP, ceve914'at'aol.com, (914) 760 1984.

Rip Van Winkle ARS – K2RVW: Meets 3rd Monday at 1900 in Churchtown Firehouse, Hudson, NY. Contact: Barry Thompson, WA2KLP, bct'at'nsdata.com, (518) 755 5606.

Rockland Satellite and DX Association: Meets Last Friday on the air at 2000, 443.200 (+), PL 114.8 Hz. Contact: Larry Berkowitz, W2LGB, lberk26'at'gmail.com, (845) 521-1317.

RZS Amateur Radio Club – W2RZS: Meets Mondays at 1700, 40 Saw Mill River Road, Hawthorne, NY, Contact: Robert Schaps, WB2NVR, wb2nvr'at'optonline.net, (914) 262-3535.

United States Military Academy ARC – W2KGY [School Club]: Meets Tuesdays at 1930 in Thayer Hall, TH1126, West Point, NY. Contact: Matthew Sherburne, KF4WZB, matthew.sherburne'at'usma.edu, (703) 881-2934.

Westchester Amateur Radio Club – N2PAL/WE2OEM, (SSC): Meets Saturdays at 1200 in Radio Barn, 4 LedgeWood Place, Armonk, NY. Contact: Michael Rapp, KA2FBL, WestchesterARC'at'live.com, (914) 907-6482.

Westchester Emergency Communications Association – WB2ZII, (SSC): Meets 2nd Monday at 1900 in Westchester County Center, White Plains, NY. Contact: R. E. Stevenson, N2AMP, n2amp'at'weca.org, (914) 725-2376.

Yonkers ARC – W2YRC, (SSC): Meets 2nd Sunday (except July/August) at 1200, 1500 Central Park Avenue, Yonkers, NY. Contact: Efrem Acosta, W2CZ, w2cz'at'optonline.net, (914) 751-2390.

Note: (SSC) = ARRL Special Service Club, meaning a club that provides active training classes, publicity programs and actively pursues technical projects and operating activities.

KX1W advises that information in the list is subject to change, so check with the Club Contact indicated in the listing. Please send updates and corrections to Ron Fish, KX1W, kx1w'at'arrl.net. You can find further details of ARRL Affiliated Clubs at: <http://www.arrl.org/find-a-club>.



Peekskill / Cortlandt Amateur Radio Association

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

E-Mail: mail 'at' pcara.org

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

PCARA Update Editor: Malcolm Pritchard, NM9J

E-mail: NM9J 'at' arrl.net

Newsletter contributions are always very welcome!

Archive: <http://home.lanline.com/~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 NewYork-Presbyterian/Hudson Valley Hospital, Rt. 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 and July/August break.

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 Jan 8, 2017: PCARA January Meeting and Annual Bring and Buy Auction. New York Presbyterian - Hudson Valley Hospital, 3:00 p.m.

Hamfests

Sun Jan 8, 2017: Ham Radio University and ARRL New York City/Long Island Section Convention. Briarcliffe College, 1055 Stewart Ave., Bethpage, NY.

VE Test Sessions

Jan 7, 14, 21, 28: Westchester ARC Radio Barn, 4 Ledge-wood Pl, Armonk, NY. 12:00. Pre-reg M. Rapp, (914) 907-6482.

Jan 8: Yonkers ARC, Will Library, 1500 Central Ave, Yonkers, NY. 1:00 p.m. Pre-reg John Costa, WB2AUL, 914-969-6548.

Jan 9: Columbia Univ ARC, 531 Studebaker Bldg, 622 W 132nd St, New York. 6:30 pm, Alan Crosswell (212) 854-3754.

Jan 12: WECA, Westchester Co Fire Trg Cen, 4 Dana Rd., Valhalla, NY. 7:00 p.m. S. Rothman, (914) 949-1463.

Jan 20: Orange County ARC, Munger Cottage 183 Main Street, Cornwall NY. 6:00 PM. Joseph J. DeLorenzo (845) 534-3146.

Jan 29: Mt. Beacon ARC, Dutchess Cty Office Emer Mgmt, 392 Creek Rd, Poughkeepsie NY. Pre-reg Andrew Schmidt (845) 462-7539.



Peekskill / Cortlandt Amateur Radio Association Inc.
PO Box 146
Crompond, NY 10517