



PCARA Update



Volume 27, Issue 2 Peekskill/Cortlandt Amateur Radio Association Inc. February 2026

Brought and bought again

The 2026 Annual PCARA **Bring and Buy Auction** was held on Sunday January 4 at 3:00 p.m. at the Town of Cortlandt CUE Room behind the Cortlandt Town Center. Since our last visit, the soft drinks bar had been removed, making more space for the auction tables. We had 18 members and friends in attendance, with some excellent bargains for connoisseurs of slightly-used electronics. One of the welcome visitors who brought a variety of equipment was PCARA charter member Bob “Radar” Casino, previous call sign **N2GDY** and now **N2WZ**. Plenty of equipment changed hands, with generous contributions from members to the club’s coffers as tallied by David **KD2EVI** — with donuts contributed by Zee **KE2FRX**.

At the January 4 meeting, Lou **KD2ITZ** mentioned an approach from ARRL to sponsor the upcoming book “Digital Networking for Ham Radio” by Glen Popiel **KW5GP**. Members approved the request and further details are inside the newsletter.

January’s **PCARA Breakfast** took place on Saturday January 17 at Uncle Giuseppe’s Marketplace. This date was just three years since the *first* PCARA Breakfast at Uncle Giuseppe’s *new* location in Downing Drive, Yorktown. There were eight members present — the low number was the result of snowy conditions on January 17.



Eight members braved a snowy Saturday to attend the PCARA Breakfast at Uncle Giuseppe’s on January 17.

There were two **VE Test Sessions** held in January. On Thursday January 15 an ARRL VEC Test Session was arranged at Lakeland High School for students encouraged by Jasper **NK2Y**. Three young candidates qualified for Technician licenses. Despite snowy weather, a further session scheduled for Saturday January 17 at Putnam Valley Library saw one more young person qualify for Technician.

Incidentally, Putnam Valley Library’s President has sent a thank you letter for PCARA’s recent donation to the library funds.

Please make a note of the following events scheduled for the coming months:

- **Saturday February 7:** Monthly meeting, 10:15 a.m. at Putnam Valley Free Library, 30 Oscawana Lake Road, Putnam Valley NY. (Conference Room).
- **Saturday February 7:** PCARA ARRL-VEC Test Session, 11:30 a.m., *Continued on page 2* ⇨



Members enjoyed bidding for a variety of equipment old and new at the Bring and Buy Auction. [Pic by KB2CQE.]

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Putnam Valley Free Library, Putnam Valley, NY. Candidates should contact Lou KD2ITZ or follow information on the pcara.org web site.

- **Saturday February 21**, PCARA Breakfast, 9:00 a.m. Uncle Giuseppe's Marketplace, 327 Downing Drive, Yorktown Heights, NY.
- **Saturday March 7**, PCARA Meeting, 10:15 a.m. Putnam Valley Library. **Guest speaker** - Andy Stewart KB1IOQ, of Andy's Ham Radio Linux.
- **Saturday April 4**: PCARA Meeting, 10:15 a.m. Putnam Valley Library.

Remember that our next scheduled **PCARA Membership meeting** is scheduled for Saturday February 7, 10:15 a.m. at Putnam Valley Library in Putnam Valley, NY.

PCARA Board

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Vice President Emeritus: Joe Calabrese, WA2MCR.

Net night

Peekskill/Cortlandt Amateur Radio Association holds a roundtable net on Tuesday evenings at 8:00 p.m. and a directed 'Old Goats' net on Thursday evenings at 8:00 p.m. Both events take place on the 146.67 MHz W2NYW repeater, offset -0.600, PL 156.7 Hz.

Join the roundtable to find out what members have been doing or join the Old Goats with net control Karl N2KZ for news and neighborly information.

VE Test report

PCARA's first Volunteer Examiner Test Session of 2026 took place on Thursday January 15. Lou KD2ITZ had arranged a special ARRL-VEC Session with Jasper NK2Y for students at Lakeland High School in Shrub Oak. The session took place in the classroom designated for club station KI2C. Three of the four students were successful in passing Element 2 and qualified for Technician licenses. They were Jeffrey Gomez and Ay-



January 15 VE Test Session took place at Lakeland High School, Shrub Oak, NY.

den Sankar both of Mohegan Lake and Karl Essel of Yorktown Heights. Karl was granted call sign KE2HMR on January 17, Jeffrey was granted KE2HNB on January 22 and Ayden was granted KE2HNT on January 27. Testing made use of the ExamTools system on school-supplied Dell Chromebooks. The three VEs were Lou KD2ITZ, Rob AD2CT and NM9J.

A second VE Test Session took place on Saturday January 17 at Putnam Valley Library. The session was located in the "Fireplace Room" as the library community room was undergoing renovation. There was one candidate, Wyatt Chaboty of Neversink, NY, accompanied by his father, Eric KB2VKO. Wyatt passed Element 2 and qualified for Technician. He was assigned call sign KE2HMW on January 21. The ARRL-VEC test session employed ExamTools' system on a mixture of tablet, smart phones and notebook PC. VEs taking part were Lou KD2ITZ, Rob AD2CT, Verle W2VJ (welcome back!) and NM9J. Some 2-3 inches of snow fell during the session, making for a slow drive home.



January 17 VE Test Session was located in the 'Fireplace Room' at Putnam Valley Library.

PCARA's next VE Test Session is scheduled for Saturday February 7, 11:30 a.m. at Putnam Valley Library, 30 Oscawana Lake Road, Putnam Valley, NY. Candidates should contact Lou KD2ITZ using e-mail: radiocassetta'at'gmail.com.

Your own power station

- KD2EVI

Some time ago Karl N2KZ asked what other PCARA members were doing to protect their stand-by

home generator during a storm. Several members, including myself, use small portable generators for back-up power — some of you may recall the Homelite® inverter generator that I have brought to recent Field Days. If you



Bob N2CBH carries out a safety check on the Homelite generator used at Field Day 2025.

set the generator up during a storm, you are faced with wind, rain, snow, or other adverse conditions while you fuel the generator, run extensions cords, etc. So how do you protect the generator and yourself while getting it into service?

I thought about this, and supposed that I can rig a tarp with bungee cords to the railings on my patio. If you have carpentry skills (which I do not have) you could build a small “dog house” to protect the generator. At recent Field Days we have re-purposed items which the school was throwing out along with a tarp to protect the generator from rain and sun. There is a product called GenTent® (<https://www.gentent.com/>) available on the Internet that will fit over portable generators and provide protection from the elements.



GenTent Inverter Generator kit. [Credit GenTent].

All of these ideas will work, but you still have to be outside in adverse weather.

My solution was to purchase a **portable power station**, similar to the one Ray W2CH and



EcoFlow RIVER 2 Pro from Ray W2CH as used at PCARA's 25th Anniversary.

Marylyn KC2NKU brought to our 25th anniversary event at FDR Park this past spring.

I purchased an Anker Solix C2000 power station. This advertises 2,048 watt-hours of capacity and can supply 2,400 watts of rated power and up to 4,000 starting watts. It weighs about 42 pounds so it is portable for short distances and I can move it to where it is needed.



Anker SOLIX C2000 Gen 2 Portable Power Station. [Credit: Anker].

My thinking is that if I need power either to run my heating system or refrigerator, the power station can do so for several hours. A few years ago, I had a manual transfer switch (<https://ezgeneratorswitch.com/>) installed to isolate my oil burner from utility power during generator use. If the outage looks to be of longer duration, I will use my portable generator which will also recharge the power station. Hopefully any stormy weather will have passed by the time I need to start the generator. I have been away and have not tested the power station with any of my radios, so I do not know how much electrical noise is produced by the Anker and if it is usable on HF frequencies.



David's Anker Solix C2000 can power appliances with 2,400W rated power and up to 4,000W peak power. [KD2EVI pic.]

Perhaps I have not answered Karl's question exactly, but I think that I have come up with a solution.

For more information on the Anker SOLIX see: <https://www.ankersolix.com/products/c2000-gen2>

- 73 de David KD2EVI

NE2Q Taiwan tales

The May 2023 issue of *PCARA Update* contains an engaging article —“Member profile: Jay Kolinsky NE2Q”. Written by Jim KD2WSU with Lou KD2ITZ, the article describes how Jay NE2Q became interested in amateur radio while still at school and saved up to purchase an Allied Radio “Ocean Hopper” regenerative receiver. Jay took his Novice Test, administered by Les K2YZX in 1958 while staying at his parents’ summer home in Mohegan Lake. His first station consisted of a home-built Heathkit AR-3 receiver and Heathkit DX-35 transmitter.

Jay entered the electronics manufacturing business at age 19, when he set up **Kolin Engineering Company** to build noise limiters for HF receivers. The circuits were assembled in his bedroom then sold through advertisements in *QST* and later through the stores and catalogs of Lafayette Electronics.

A significant development came about when Jay’s automo-

mobile was stolen and he decided to install an alarm. Car alarms of the time (1969) employed a mechanical siren driven by an electric motor that drew a heavy current until the vehicle battery was discharged. Switches had to be installed in every door, hood and trunk. **Kolin Industries, Inc.** introduced a new design featuring a



‘Junior Earsplitter’ car alarm from 1971.

solid-state power oscillator triggered by monitoring the battery voltage. An automatic cut-off timer shut off the sound after 10 minutes. Current draw was only

¾ amp, 1/50th of the old mechanical siren. The subsequent development of Jay’s electronic alarms was described by Jim KD2WSU in *PCARA Update*, May 2023:

“Realizing that his product would soon be copied, Jay unsuccessfully sought to patent his power oscillator siren

circuit. That cost him over \$5,000 (\$50,000 in today’s dollars.) Spurred on by his lack of protection, Jay realized that overseas markets with cheap labor would soon be undercutting him with low priced copies of his designs. Jay’s surprising solution to this dilemma was to beat the competition to the punch by traveling to Japan and setting up his own factories.

Beginning in Japan, and then expanding into Taiwan, Jay copied his own products and had them produced in these cheap labor countries. He offered a variety of sizes and prices.



“He marketed three lines of products. USA, Japan, and Taiwan with a full range of pricing from high to ‘basement’ low. Nobody dared to compete. There were always corporate customers, such as Westinghouse, that demanded USA-made quality. For customers interested in the lowest prices, East Asian production filled the demand. For 14 years, Jay had no competition in the alarm market. It is hard for most of us to fully comprehend the business success that ensued. It is worth noting that five of his original electronic sirens are now on display at the Smithsonian Museum in Washington D.C.”



Circuit board for Jay’s alarm.

In March 1972 Jay had to visit an electronics factory in Taiwan that manufactured circuit boards for his sirens. The boards were shipped to another facility in Taiwan to be fitted in a molded plastic housing. Jay was investigating a quality control issue affecting 2,000 boards that were not working correctly.



Jay had to visit a Taiwan electronics supplier to solve a quality control problem in March 1972. [NE2Q pics.]

Jay decided to visit the board manufacturer in person because his local agent was unable to resolve the quality control issue. The boards had not been fitted



Kolin Mini Earsplitter Model ES-250 from 1975 emitted an 85 dB yelping sound when supplied with 6 - 12 volts DC. It was completely transistorized, with no moving parts.

board mounted in a housing to fit the trumpet-shaped speaker. In celebration of the first batch of satisfactory products, the owner lined up his 40 employees — Jay recorded a video of them letting off firecrackers.

Jay recalled development of an even smaller alarm with a 2" diameter 32 Ω speaker, suitable for mounting in a panel as a warning device — for example in a subway car to warn the motorman. Jay was concerned that his latest design might be copied so he asked the Taiwan supplier to mark the 32 Ω speakers as 8 Ω. Jay predicted that a low impedance 8 Ω speaker would cause the output transistors to overheat, failing after a minute or so. Later, after someone *did* make a copy, Jay obtained samples and this was exactly how the unit failed when 12 volts was applied!

A short video from Ralph Sevinor of 'Wayne Alarm' de-



Kolin Industries warning decal.

scribes how Jay's designs fit into the history of alarms old and new — from dome bells to cow bells to sirens. See: <https://youtu.be/ckveKkvPLJk?list=-PLLaWjluJAjHyjRjCdhNyFAd-hqmoRd6wEG>

with the correct transistors. Fortunately, Jay was able to arrange replacement of the faulty boards by new ones.

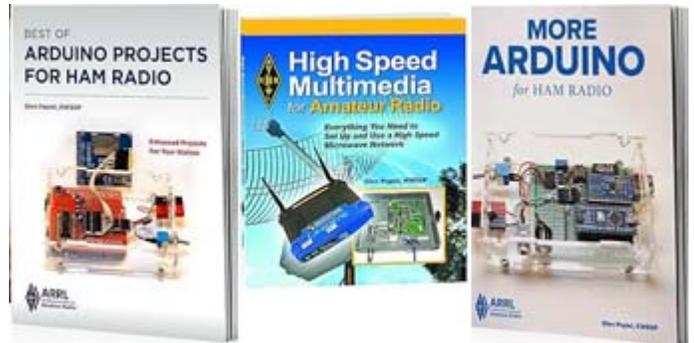
Jay had previous experience with Taiwan manufacturers who would quote unbelievably low prices, then deliver sub-standard products. He found another supplier who could manufacture complete alarms with the circuit

Miniature alarm as advertised in Electronic Design, 1976.

Networking book

As reported by Lou KD2ITZ at the January 4 PCARA meeting, Steve Bossert, K2GOG has approached ARRL-affiliated clubs regarding sponsorship of a new book entitled "Digital Networking for Ham Radio" by Glen Popiel KW5GP

Glen Popiel, KW5GP is a network engineer, consultant and author of multiple ARRL publications including "Arduino for Ham Radio", "More Arduino for Ham Radio", "More Arduino Projects for Ham Radio" and "High Speed Multimedia for Amateur Radio".



Some of the books by Glen Popiel KW5GP published by ARRL.

Steve Bossert is a wireless technology enthusiast who has worked with semiconductor, network infrastructure and mobile operators in corporate strategy, market research and go-to-market assistance. As an amateur radio operator Steve, K2GOG is founder of the Hudson Valley Digital Network (<https://hvdn.org/index.html>), sponsor of 2021's Hudson River Radio Relay with special event stations located up and down the Hudson, from N2H to PCARA's N2N. (See *PCARA Update*, July 2021, pp 6-8.) Recently hired as ARRL's Advertising Sales Manager, Steve is busy building relationships with League advertisers.

The new book by Glen Popiel will highlight the amateur radio community's engagement with UHF and microwave frequencies and why we must "use or lose" those bands to avoid commercial encroachment. Clubs like PCARA who sponsor the book would be demonstrating that topics such as networking and microwave communications are important to the growth and future of the hobby. Sponsoring organizations would have club name, club call sign and web address listed in the first printing of the book.

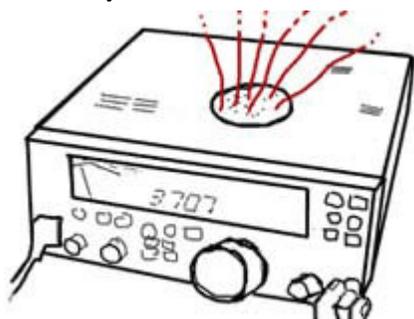
PCARA has contributed to the publication so — as well as being listed — the club has an option to purchase one print copy at 50% discount. Club members are encouraged to purchase the book themselves, from a retailer or directly from ARRL when it becomes available in Spring 2026.

- NM9J

Speak-er out

What's wrong with this picture?

Imagine a recent Field Day. Two stations are both making SSB contacts using the small, built-in speakers in their HF transceivers. Station "A" is having trouble hearing the audio and turns the AF gain control up. Station "B" now has its own receive audio drowned out and turns *its* AF gain up. Soon both radios are running at full audio output and nobody can hear anything clearly.



Here's another picture. A mobile operator is trying to make contact using a transceiver mounted under a shelf, under the dash or pressed up against the center console. The small, internal loudspeaker on the radio's top cover is obstructed, so the received audio is low and muffled, especially in the noisy environment.

External solution

The fix for both situations is to employ an **external loudspeaker**. Most amateur radio transceivers have provision for an external speaker. The same applies to receivers and scanners. Connection is usually through a 1/8 inch mono mini-jack socket, ready for an external speaker fitted with a 1/8 inch male jack plug.

When the external speaker is plugged in, the transceiver's internal speaker is disconnected and audio is routed to the external device. Now you are free to locate the loudspeaker in the best position, with output pointed toward *your* ears and nothing between to absorb or reflect the sound.

Most loudspeakers are directional, especially at higher frequencies. To demonstrate this, tune in some white noise (open squelch on an FM radio) and tilt the external speaker toward your ears then away from your ears. You should hear the volume reduce *and* you should hear the high frequency response change as you listen "off-axis" from the speaker cone.

Speaker choice

You will find a wide choice of external speakers when you carry out a search at amateur radio dealer



Many radios have a 1/8 inch jack socket for an external speaker.

sites like DX Engineering or HRO. My suggestion — avoid desktop speakers that match the style of a particular HF transceiver, for example the Icom SP-38, Yaesu SP-30 or Kenwood SP-890W. While visually attractive, they are expensive at \$180 - \$300 and feature a small 2½" - 3" diameter speaker mounted in a long steel cabinet, with little attention to bracing or damping of resonances. The only advantage over a transceiver's built-in speaker may be that it faces forward rather than upward.

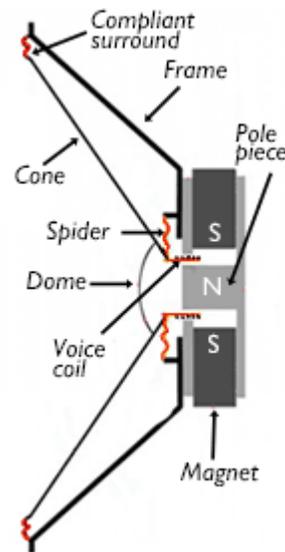


Icom SP-38 external speaker matches the IC-7300 and IC-9700.

Other choices are available — including used items from hamfests and eBay. Selection of the best design for a given situation is part of the fascination of loudspeakers. Bear in mind that **used** speakers may have led a rough life, exposed to high volume, dust and grit.

Speaker theory

Most loudspeakers employ a moving coil mechanism where a paper or plastic cone is moved to-and-fro by an alternating current. The current passes through an attached coil of wire suspended between the poles of a powerful permanent magnet. The paper cone is maintained in position by a flexible surround attached to its outer edge and by a flexible spider attached to the center.

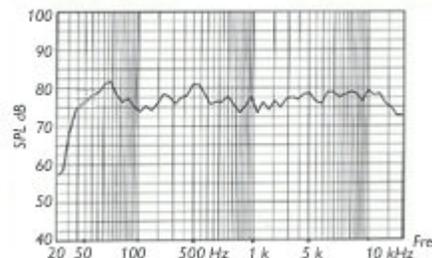


Cross-section of a moving-coil loudspeaker.

Frequent response

One way to illustrate speaker performance is with a **frequency response chart**

that plots relative sound pressure level (in dB) across the audio frequency range from 50 Hz to 15 kHz. This illustrates how well the speaker handles bass, middle and

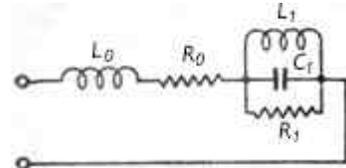


Frequency response chart for a loudspeaker rated from 60 Hz - 10 kHz.

treble. Unfortunately, acquiring all the data for this type of graph requires a carefully calibrated microphone and an anechoic chamber or echo-free room.

Bass resonance

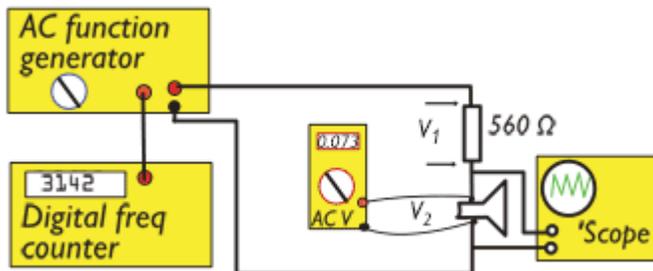
A simple approach to assessing speaker performance is by measurement of the loudspeaker's **bass-resonance frequency** and its **impedance** at that frequency. Bass resonance occurs when the mass of the speaker's moving parts (cone and coil) is balanced by the force of the suspension system (surround and spider), resulting in maximum vibration at a low frequency. This resonance frequency *decreases* as the cone mass increases and as the compliance (inverse of stiffness) increases. The loudspeaker acts like a parallel-tuned L-C circuit, with maximum voltage occurring when the applied audio frequency reaches resonance.



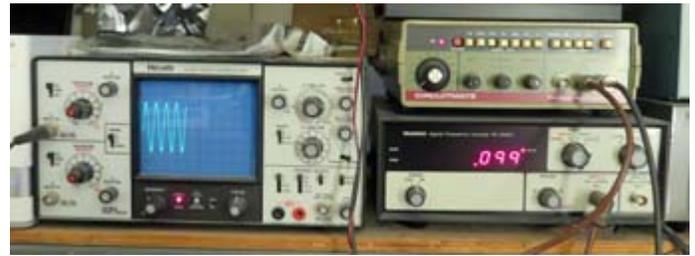
Equivalent electrical circuit of moving coil loudspeaker. Bass-resonant frequency is at the parallel resonance of L_1 & C_1 .

Shack testing

The setup I used for measuring bass resonance employs an audio function generator, a digital frequency counter, analog oscilloscope and digital multimeter. Sine-wave output from the function generator is fed through a 560 Ω resistor to the loudspeaker for near-constant current. The oscilloscope is connected across



Block diagram of equipment to measure bass resonance frequency and impedance.



Test shelf equipment used to measure bass resonance frequency and impedance. (AC meter is out of shot.)

the loudspeaker to monitor peak voltage as the audio frequency is adjusted. The digital multimeter is switched to its AC voltage range to measure voltage V_1 across the 560 ohm resistor (R) followed by voltage V_2 across the loudspeaker. A simple calculation provides the impedance Z of the loudspeaker at resonance:

$$\text{Current } I = V_1 / R$$

$$\text{Impedance } Z = V_2 / I$$

The **table below** shows the measured bass resonance frequency and impedance for a wide range of enclosed speakers, from miniature models to full-size Hi-Fi enclosures.

The table is arranged in order of *decreasing* bass resonance frequency and demonstrates the importance of speaker size.

At the top of the list, tiny 2" - 3" diameter speakers — similar in size to a radio's built-in speaker — have bass resonance frequencies that lie *above* 500 Hz. The audio response falls off rapidly below resonance, so these speakers have a poor bass and sound "tinny" when used for voice reproduction.

For good intelligibility of the human voice the required audio frequency range is from **300 Hz to 3 kHz**. This can be achieved with loudspeakers whose bass resonance frequency lies between 150 Hz and 300 Hz (green tint). Five models in the table meet this require-

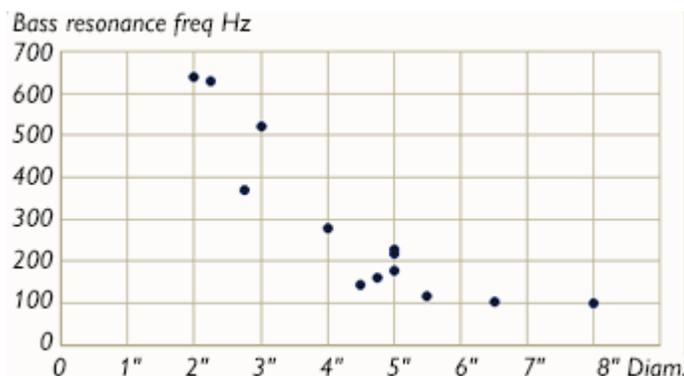
Model	Speaker diameter inches	Specified Impedance Ω	Specified freq. range Hz / kHz	Max power watts	Bass resonance freq. Hz	Bass resonance impedance Ω
RS Comms Speaker 19-318A	2"	8 Ω	700 Hz – 10 kHz	3 W	639 Hz	21.1 Ω
Astatic Classic Ext Speaker	2¼"	8 Ω		5 W	630 Hz	9.4 Ω
MFJ-281 Cleartone Speaker	3"	8 Ω	600 Hz – 4 kHz	8 W	522 Hz	8.4 Ω
Kenwood KES-3	2"×3½"	4 Ω	300 Hz – 9 kHz	5 W	370 Hz	9.6 Ω
RS CB Ham Extension 21-549	4"	8 Ω	300 Hz – 3 kHz	5 W	280 Hz	18.9 Ω
RCA 40-5000 bookshelf	5"	8 Ω	80 Hz – 25 kHz	75 W	228 Hz	19.8 Ω
Motorola HSN4038A	5"	8 Ω		7.5W	218 Hz	9.0 Ω
Motorola HSN4018B	5"	8 Ω		13 W	178 Hz	10.7 Ω
Kenwood KES-4	4¾"	4 Ω	100 Hz – 5 kHz	20 W	159 Hz	7.0 Ω
Boston Acoustics 404V	4½"	8 Ω	80 Hz – 20 kHz	125 W	145 Hz	15.4 Ω
Solavox 50	5½"	6 Ω		50 W	116 Hz	19.7 Ω
Bose 201 Series III	6½"	8 Ω		60 W	104 Hz	52.0 Ω
Wharfedale Linton 3XP	8"	6 Ω	60 Hz – 20 kHz	30 W	101 Hz	21.9 Ω



Communication speakers from the table. Top row: Radio Shack 19-318A, Astatic Classic, Kenwood KES-3. Second row: Kenwood KES-4, Motorola HSN4018B, HSN4038A.

ment and have sufficient bass response for good voice reproduction.

Speakers with bass resonance *below* 150 Hz are more suitable for music than voice. Their physical size is probably too large for a radio room shelf or a mobile installation.



Graph of bass resonance frequency versus speaker diameter.

Personal choice

My favorite speaker choice from that desirable 150 – 300 Hz range is the **Motorola HSN4018B** and its variants (HSN4005A , HSN4018A, HSN4020B, HSN9326A etc). These rugged mobile speakers are built into a solid, plastic housing, with sufficient power rating to overcome background noise in a loud vehicle. They are equally suitable for narrow-band FM or SSB reception.

If your radio listening extends beyond SSB and



View inside a Motorola HSN4018B mobile loudspeaker.

NBFM to SW/MW AM or wideband FM broadcasting, you may prefer a loudspeaker with a *wider* frequency response, to match the full frequency range of broadcast speech and music.

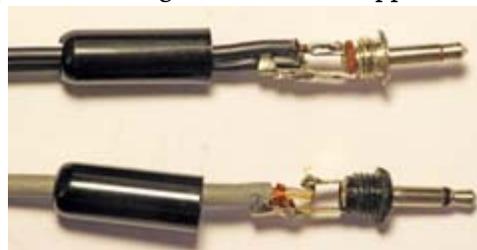
Keep an eye on the value of the speaker’s **impedance** at its bass resonance frequency. A value below 20 Ω indicates a well-damped design with natural bass quality. A higher value such as 50 Ω suggests that resonance is insufficiently damped and the speaker will sound “boomy” when reproducing bass notes.

One disadvantage of a loudspeaker with wide audio bandwidth is that some receivers and transceivers do a poor job of filtering out 60 Hz hum and 67 Hz – 254 Hz CTCSS tones (PL Tones™) that can accompany FM transmissions. Limiting the low frequency response of the loudspeaker can be helpful in suppressing these unwanted signals.

Speakers in practice

The Motorola HSN4018B is just one in a range of mobile speakers supplied by Motorola. Earlier models had a metal case and bracket, but the HSN4000 series and later are all plastic. You may come across black or cream-colored cases. The impedance might be 8 Ω or 4 Ω, power handling could be 5, 7.5 or 13 watts, and some models had a built-in amplifier. The connecting cable could be 8 to 25 feet long and might be equipped with a proprietary connector for a particular Motorola radio.

If you have one of these speakers, you will probably need to cut off the original connector at the end of the twin lead and solder a 1/8 inch (3.5 mm) mono male jack plug in its place. The original twin lead supplied with the speaker can be a tight fit for the screw-on cover of a mini jack. It can be replaced with a length of single-conductor shielded microphone cable which will fit the jack plug better. The usual convention is to connect the tip of the jack plug to the inner conductor of the shielded cable and to the speaker connector marked “+”.



Top: twin lead soldered to 1/8" mono jack plug. Below: shielded microphone cable soldered to 1/8" mono jack. Make sure conductors cannot touch when the cover is screwed on.

fit the jack plug better. The usual convention is to connect the tip of the jack plug to the inner conductor of the shielded cable and to the speaker connector marked “+”.

Dual-band VHF/UHF radios with simultaneous reception on different frequencies may have *two* 1/8 inch jack sockets for external speakers. Go ahead and connect two loudspeakers — if you space them apart, your ears can tell which receiver is active when the squelch opens.

- NM9J

How old are you?

One of the responsibilities of ARRL-VEC's Volunteer Examiner teams is checking the age of younger candidates. Candidates under 18 are eligible for ARRL's **reduced \$5.00 test fee** and — if the candidate is successful — for a **refund** of their initial FCC license application fee. (See <https://www.arrl.org/youth-licensing-grant-program>).

At a recent PCARA test session, Lou KD2ITZ drew the team's attention to a candidate whose date of birth was in the year 2010. **2010!** Not so very long ago.

I wondered how many items of technology are now in the history books for someone born in that year of the 21st century. Someone born in 2010 would probably not have experienced any of the following...

- **Analog television** (digital switchover took place 2008 – 2009.)

- **Cathode ray tube** television set (Last manufactured ~2005.)

- **Cassette tapes**, pre-recorded (faded out around 2009.)



Deutsche Grammophon pre-recorded compact cassette with CrO₂ tape.

- **Cassette player** (Sony stopped cassette player manufacture in 2010.)

- **CD-ROMs** and **CD-ROM drives** in computers (phased out 2011-2015.)

- **Dial-up modem** (Phased out in early 2010s.)

- **Fax machines** (mostly replaced today by e-mailing pdf documents — though faxes are still in use in doctors' offices for privacy reasons.)



3 1/2" floppy disk.

- **Film camera** (last manufactured by Nikon in 2006; by Canon in 2018.)

- **Floppy disks** (last manufactured by Sony 2011.)

- **Hybrid vacuum tube transceivers** (Kenwood TS-830S manufactured 1980-1988; Yaesu FT-102: 1982-1984.)

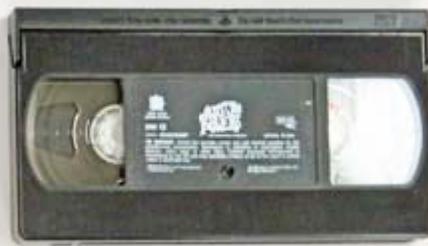


Kenwood TS-830S had 6146B vacuum tubes.

- **Movies on 35mm film.** (Most cinemas converted to digital projection between 2011 and 2016.)

- **Pagers** (major decline since 2001.)
- **Pay phone** (NY City removed last public pay phone in 2016.)
- **Rotary dial phones** (phased out in the 1990s.)
- **Telegram** (last Western Union telegram 2006.)
- **Typewriter** (The last manufacturer, Godrej and Boyce in India closed in 2011.)

- **VHS tapes** (The last movies on VHS were released in 2006; the last VHS recorder was manufactured in 2016.)



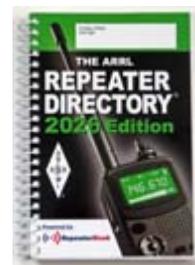
Pre-recorded VHS video-tape of 'Austin Powers' (1997 movie).

- **Vinyl disks** for the mass market (The last major pressing plants closed in 1989. There has been a revival of vinyl in recent years for classic albums and some new album releases.)
- A world before **smartphones** (Apple iPhone was introduced in 2007, Samsung Galaxy was introduced 2009.)

- NM9J

Repeater Directory 2026

The latest ARRL Repeater Directory® was published in late January 2026. As with the 2025 Edition, contents of the Directory are now based on the database maintained by "Repeater Book". See *PCARA Update* for May 2025, pp 9-10 for a short history of past editions and the switch to <https://www.repeaterbook.com>.



There are a couple of changes in the 2026 Repeater Directory. The data is still grouped by state, then county within each state, then by location within each county. In case you are not sure *where* to look for a given location, there is now a "City Quick Find Index" showing State and County listed in order of "City". For example, looking up City = "Lake Peekskill" shows it can be found under New York / Putnam County.

In the main repeater listing, the "Offset" column has disappeared. The offset (+, -, s) is now shown after the "Downlink" (output) frequency. The Appendix from the 2025 Directory has been removed — it contained a short section on message handling with station log pages.

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 on Facebook: <https://www.facebook.com/pcararadio>

YouTube Channel: <https://www.youtube.com/@peekskillcortlandtamateur7670>

PCARA Update Editor: Malcolm Pritchard, NM9J

E-mail: NM9J 'at' arrl.net

Newsletter contributions are always very welcome!

Archive: <http://nm9j.com/pcara/newslett.htm>

PCARA Information

PCARA is a **Non-Profit Community Service**

Organization. PCARA meetings take place every month (apart from July/August break). See <http://www.pcara.org> for current details.

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

Sat Feb 7: PCARA Monthly Meeting, 10:15 a.m., Putnam Valley Library, 30 Oscawana Lake Rd., Putnam Valley, NY.

Sat Feb 7: PCARA V.E. Test Session, 11:30 a.m., Putnam Valley Library, see below.

Sat Feb 21: PCARA Breakfast, 9:00 a.m., Uncle Giuseppe's, 380 Downing Dr, Yorktown Heights, NY.

Hamfests

Check with organizers before leaving.

Sun Feb 22: Long Island Hamfest and Electronics Fair, Levittown Hall, 201 Levittown Pkwy, Hicksville, NY 9:00 a.m.

Sat Feb 28: New Providence ARC Auction and Flea Market, Salt Brook School Cafeteria, 40 Maple Street, New Providence, NJ. 1:00 p.m.

VE Test Sessions

Check with the contact before leaving.

Feb 7: PCARA, 11:30 a.m., Putnam Valley Library, 30 Oscawana Lake Rd., Putnam Valley NY. Must contact VE Lou KD2ITZ, radiocassetta'at'gmail.com.

Feb 12: WECA, Westch Cnty Fire Trg Center, 4 Dana Rd Valhalla NY. 7:00 p.m. Contact VE, rcasino48'at'gmail.com.

Feb 20: Orange County ARC, Munger Cottage, 40 Munger Dr., Cornwall NY. 6:00 p.m. Contact VE: joed99'at'verizon.net.



Peekskill / Cortlandt Amateur Radio Association Inc.
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