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# NARS NEWS

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**JANUARY 2023**

Northwest Amateur Radio Society  
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[w5nc.net](http://w5nc.net)

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**NARS News** is published monthly by the Northwest Amateur Radio Society (NARS). Northwest Amateur Radio Society is a Special Services Club affiliated with the American Radio Relay League, ARRL Club No. 2120.

If you would like to contribute to the newsletter by publishing an article, adding calendar events, or any other contribution, please send all submissions before the end of the month to the newsletter editor:

Brandon Rogers (K5BLR), Newsletter Editor

[k5blr@arrl.net](mailto:k5blr@arrl.net)

# President's Message

BY RON MATUSEK, WA6TQH

## A New Year a New Beginning

I trust everyone had a Merry Christmas and a Happy New Year! It's a wonderful time of the year to gather with family and friends to celebrate all the accomplishments of the past year and just reconnect with family. Every year brings about new opportunities, challenges, and new friendships.



We will start off the new year with our annual "Awards Banquet" January 20th. This will be a time of fellowship and recognition of those NARS Officers and Members that have provided exceptional contributions and leadership throughout this past year. We will also introduce the new Officers for 2023 who will lead us forward through the challenges and established goals set forth in our Constitution.

As NARS continues to grow expect to see us relocate to a larger facility for our meetings along with an expansion of repeater coverage. Several plans in place for making improvements to our network of communications with multimode links. Your input to this expansion plan is needed and appreciated. Let us hear from you as to what you would like to see in our network expansion plan.

Welcome to all the new members and especially those returning from past membership. We look forward to taking advantage of all the expertise coming forward to help us keep up with technology. I would encourage all members to take advantage of the weekly VHF, UHF and DMR net operations. This is a good place to contact others who can provide technical assistance.

To all our NARS members who may also be belonging to other clubs, we still want to say that this journey we cannot make alone as leaders, but it is through your support, critics, and encouragements that we shall have something to do together because together we shall continue to build upon past experiences and make it better. Thank you all, God bless you!

I want to conclude by saying, ***we are going to have fun!*** I sincerely hope that that will be the case this coming year. Our goal is to make NARS the number one service club in Houston dedicated to providing the best and most reliable in emergency communications.

See you at the AWARDS BANQUET!!

Ron Matusek  
President NARS

# Exam Practice

Are you new to the hobby and looking to pass your Technician exam? Are you preparing to level up your license by taking the next level exam? Check out the questions below to test your knowledge!

## Technician (Element 2)

### T8A07

What is a characteristic of single sideband (SSB) compared to FM?

- A. SSB signals are less susceptible to interference
- B. SSB signals have narrower bandwidth
- C. All these choices are correct
- D. SSB signals are easier to tune in correctly

## General (Element 3)

### G7C09

What is the phase difference between the I and Q signals that software-defined radio (SDR) equipment uses for modulation and demodulation?

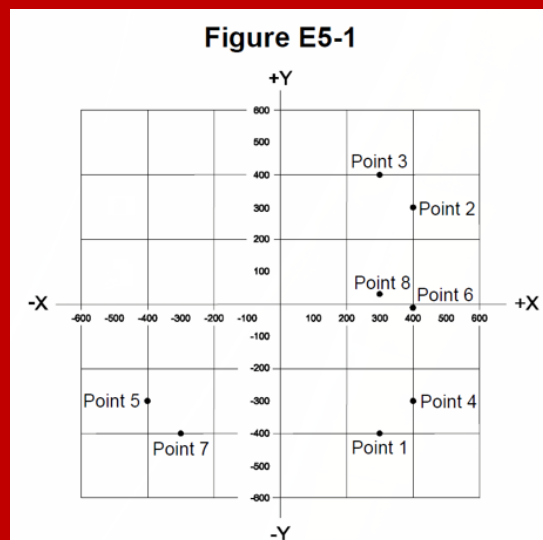
- A. 90 degrees
- B. Zero
- C. 180 degrees
- D. 45 degrees

## Amateur Extra (Element 4)

### E5C10

Which point on Figure E5-1 best represents the impedance of a series circuit consisting of a 400-ohm resistor and a 38-picofarad capacitor at 14 MHz?

- A. Point 5
- B. Point 4
- C. Point 2
- D. Point 6



See the answers on [Page 27](#).



## The ARRL Letter

An excerpt from the weekly ARRL Letter

### Nova Scotia Students Contact Astronaut Via Ham Radio

Students at Five Bridges Junior High School in Stillwater Lake, Nova Scotia, Canada, finally had an opportunity to talk with an astronaut onboard the International Space Station (ISS) via ham radio.

On Wednesday, November 23, 2022, the students were able to talk with Astronaut Josh Cassada, KI5CRH, for about 11 minutes as the ISS passed over northern Europe.



The students were anxious to ask questions ranging from curiosities about the astronauts' work schedules to concerns about radiation in outer space. Astronaut Cassada was asked about his favorite part of training for his ISS mission, and he replied, "All of it!"

The contact was made possible with amateur radio volunteers at the Amateur Radio on the International Space Station (ARISS) ground station in Casale Monferrato, Italy, using the call sign IK1SLD, and was the 1,495 contact made since the ARISS program began.



### Did you know...

that the ARRL sends a weekly letter describing some of the current events, activities, and policies that are taking shape in the Amateur Radio world? The following is an excerpt from these letters in January. View all the ARRL letters at <http://www.arrl.org/arrlletter>

In the US, [ARISS](#) includes support from [ARRL](#), AMSAT, NASA, NASA's Space Communication and Navigation (SCaN) organization and the Center for the Advancement of Science in Space (CASIS).

### Amateur Radio Club Provides Communications Support for Thanksgiving Day Race

The BEARS of Manchester Amateur Radio Club in Manchester, Connecticut, spent Thanksgiving Day providing amateur radio communications support for the 86th Manchester Road Race.

The race, a 4.748-mile course that begins and ends on Main Street in downtown Manchester, has been a Thanksgiving Day tradition since 1927. This is the 30th consecutive year the BEARS of Manchester Amateur Radio Club has provided communications support, with more than 10,000 runners participating and over 30,000 spectators lining the course.

Radio operators began arriving at 6:00 AM on Thanksgiving morning. Fifty-five operators staffed 39 positions around the course and were stationed every quarter mile to provide safety communications and report the lead male and female runners to the public address announcer.

Shadow operators helped 10 race officials stay in communications. Operators also started and ran four clocks around the course to help pace runners, and a station operated in the public safety Emergency Operations Center (EOC) to relay safety-

related information to representatives of various agencies. Ham radio operators also provided communication for a shuttle bus operation that brought runners and spectators from a remote parking area to Main Street and then returned them at the end of the race. Check-in and check-out were accomplished through a net control station to maintain accountability.

Communication for the event was made on six repeater and simplex frequencies, and three cross-band repeaters were used for signal quality to avoid interference.

The BEARS of Manchester Amateur Radio Club is an ARRL Affiliated Club.

*Thanks to Phil Crombie, Jr., K1XFC, Race Communications Coordinator, for providing information for this story.*

## Youth on the Air Camp 2023 Application Period Now Open

Applications are now being accepted for campers interested in attending Youth on the Air (YOTA) Camp 2023.

Licensed amateur radio operators ages 15 through 25 are encouraged to apply online at [YouthOnTheAir.org](https://YouthOnTheAir.org).

The Radio Amateurs of Canada will be the local host for the 2023 YOTA Camp. It is scheduled to take place July 16 - 21, 2023, at the Carleton University campus in Ottawa, Ontario, Canada.

Applications will be accepted through May 31, 2023, but for the best chance at being selected, applications should be submitted by 2359 UTC on January 15, 2023.



The application process is free. However, a \$100 deposit is required upon acceptance. If a camper is unable to pay the deposit, they may be able to apply for a scholarship or waiver. Camp Director, Neil Rapp, WB9VPG, said campers are responsible for their transportation to the camp location, though some assistance may be available. Travel during camp events is provided.

Campers will be selected by the working group and notified by February 1. To encourage attendance from across the Americas, allocations for campers are being held open for various areas of North, Central, and South America. If countries do not use their allocation, or should someone within an allocation decline acceptance, those positions will be filled from the remaining pool of applicants. As this will be an ongoing process, everyone will not receive notification of acceptance at the same time. Preference will be given to first-time attendees.

COVID-19 guidelines are still in effect and may have an impact on offering the camp. Currently, the outlook on offering the camp in July 2023 is positive. If the camp cannot be hosted, or would need to reschedule, all applicants will be notified as soon as possible. Appropriate requirements on masking and vaccination statuses will be announced as needed.

A [YouTube](#) video is now available about the 2023 YOTA Camp. For details and additional information, contact the Camp Director Neil Rapp, WB9VPG, at [director@youthontheair.org](mailto:director@youthontheair.org).

## Amateur Radio Operators and National Weather Service Mark SKYWARN Alliance

Saturday December 3, 2022 was SKYWARN® Recognition Day (SRD), an event that recognizes SKYWARN volunteers for their contribution to public safety. SRD was observed by several National Weather Service (NWS) locations across the United States. Amateur radio volunteers

set up temporary operations from forecasting headquarters to make contacts with other stations to demonstrate their readiness to operate in emergency conditions and to act as observers for the NWS. As of the last count there were over 4,700 SKYWARN spotters taking part in SRD.

Near Los Angeles, California, at the NWS office located in Oxnard, volunteers set up six stations on different radio frequencies and



*SKYWARN event coordinator Rick Tate, KQ6NO, operates from the Ventura County, California Sheriff's Emergency Operations trailer. Photo courtesy of Jeff Reinhardt, AA6JR.*

operated through the day under simulated emergency conditions. Several members of the general public visited the NWS office during the exercise.

ARRL Headquarters, participating as WX1AW, was activated by ARRL Emergency Management Assistant Ken Bailey, K1FUG, during SRD. WX1AW was active on 40 - 10 meters using SSB and FT8 modes and monitored local VHF and UHF repeaters.

Radio amateurs participating as SKYWARN volunteers assist the NWS with real-time observations of adverse weather conditions that pose an imminent threat to life and property. Those alerts may include tornadoes, waterspouts, damaging hail, blizzard conditions, sleet, strong winds, heavy rainfalls and flooding, dust storms, damage assessment, and other significant anomalies. NWS personnel can utilize information from ham radio operators to issue alerts or assess threat levels to areas that may be affected by abnormal conditions.

The 2022 NWS Spotter of the Year Award was given to Bryan Loper, WX5CSS, of Atlanta, Texas. The award noted that Loper is very active with the amateur radio network and weather community within the Ark-La-Tex region, and is always reliable in providing weather reports. Loper is also an ARRL member.

*Thanks to Jeff Reinhardt, AA6JR, Public Information Coordinator - ARRL Santa Barbara Section for contributing to this story.*

### **New Section Managers Appointed -- Incumbent Section Managers to Continue New Terms in April 2023**

Betsey Doane, K1EIC, has been appointed by ARRL Headquarters as the Connecticut Section Manager, as of November 23, 2022, to fulfill the role on a limited basis, while the search continues for a full-time Section Manager. Doane, of Shelton, was previously the Connecticut Section Manager for 25 years, from 1991 to 2016.

Chuck Motes, K1DFS, of Plainville, has served as ARRL Connecticut Section Manager for the last 6 years. He decided not to run for a new term of office when his third term concluded on September 30, 2022.

Ralph Fettig, NØRDF, will become the ARRL North Dakota Section Manager on January 1, 2023.

Fettig, of Minot, was the only nominee to submit a petition to run for office when the re-solicited nomination period closed on December 9, 2022. As the sole nominee, he has been declared elected. Although his elected 18-month term of office starts on April 1, 2023, Fettig has been officially appointed by ARRL Field Services Manager Mike Walters, W8ZY, to start early on New Year's Day.

North Dakota Section Manager Richard Budd, WØTF, of York, decided not to run for a another 2-year term of office that began on October 1. Budd,

however, voluntarily extended his service as Section Manager until a new Section Manager could be installed.

Charles O'Neal, KE4AIE, of Glasgow, Kentucky, has been appointed as the ARRL Kentucky Section Manager, starting January 1, 2023, after



*Charles O'Neal, KE4AIE will begin his term as ARRL Kentucky Section Manager on January 1, 2023.*

he was the only nominee for the position when the nomination deadline passed on December 9, 2022. Although O'Neal's elected 2-year term of office officially begins on April 1, 2023, Field Services Manager Mike Walters, W8ZY, appointed him to start on New Year's Day because the position has been open for the past few months.

Kentucky Section Manager Steve Morgan, W4NHO, decided to step down this past July, before the current term of office concludes on March 31, 2023. Morgan, of Owensboro, has served as Section Manager since 2017. He has been serving simultaneously as the Section Traffic Manager and Affiliated Club Coordinator. Morgan was also the ARRL Kentucky Section Manager from 1991 to 1997.

For the winter season Section Manager election cycle, there will not be balloted elections. The following incumbent ARRL Section Managers ran unopposed, and they have been declared re-elected and will begin their new 2-year terms of office on April 1, 2023: Rick Paquette, W7RAP (Arizona); James Ferguson, N5LKE (Arkansas); Lelia Garner, WAØUIG (Iowa); Malcolm Keown, W5XX

(Mississippi); Steven Lott Smith, KG5VK (North Texas); Bob Turner, W6RHK (Orange), and Garth Crowe, WY7GC (Wyoming).

There were no Section Manager nominees from Montana for the next term of office. ARRL Montana Section Manager Paul Stiles, KF7SOJ, of Billings, decided not to run for a new term of office. Since no nominations from Montana were submitted, a re-solicitation for nominees will appear in the April and May 2023 issues of QST.

*Thanks to Steve Ewald, WV1X, ARRL Field Organization Supervisor, for information contained in this story.*

### **Colonel Jerry Wellman, W7SAR, Former ARRL Utah SEC and Life Member, Receives Top Honors**

Colonel Jerry Wellman, W7SAR, former ARRL Utah Section Emergency Coordinator (SEC), was recently named the National Volunteer Emergency Manager of the Year, the highest honor given to a volunteer emergency manager, by the International Association of Emergency Managers (IAEM).



Wellman served as the Utah Wing Civil Air Patrol commander from September 2009 to May 2013. He served as the emergency services training officer for the Salt Lake Senior Squadron, and currently serves as the Phoenix Cadet Squadron's assistant officer for communication and for education and training.

At the award ceremony on November 14, 2022, Wellman was cited for being "active in enhancing his own emergency management professional development, while relentlessly contributing to his community." He taught emergency management



communications classes in Arizona, Utah, and Colorado, and chaired the Kearns, Utah, Metro Township Emergency Planning Commission.

He also served on the Utah State Emergency Response Team and volunteered in the state Emergency Operations Center, contributing more than 150 days during the COVID-19 response and during floods, fires, and winter storms. He also served as an air operations coordinator on three search and rescue missions.

Wellman was licensed in 1972 and holds an Amateur Extra-class license. He is an ARRL Life Member and a Life Member of REACT International.

## When All Else Fails: Amateur Radio Helps Rescue Lost Hiker

*Editor's note: The following event took place on Sunday afternoon, December 11, 2022, and was told to ARRL News by Raul "Skip" Camejo, AC1LC, Public Information Coordinator for the ARRL New Hampshire Section.*

A New Hampshire man and his dog went out for a day hike yesterday in the Belmont area of central New Hampshire. Things went well until his cell phone battery died. With darkness near and a prediction of snow, a leisurely day hike was quickly turning into a serious health and safety issue for the hiker.



*The amateur radio repeater on the summit of Gunstock Mountain helped connect the lost hiker in a remote area of New Hampshire. The repeater is affiliated with New England Digital Emergency Communications Network, NEDECN.*

Fortunately for him, he is also an amateur radio operator and brought along his digital mobile radio (DMR) handheld radio with him. With no cell phone

capability, he made a call on the DMR New Hampshire statewide channel through the Gunstock (Mountain) DMR repeater, seeking assistance. His call was answered by Bill Barber, NE1B, who was monitoring the channel. The hiker asked Barber to call his wife, because he could not text or get "pinged" with his dead cell phone. Barber contacted the hiker's wife, and she was glad to hear that someone was in contact with him. Unfortunately, he did not know exactly where he was and believed he would have to walk through brush for an hour or more to get to a road.

His wife called the local police department, who began a search with their local fire department. Amateur radio was the only communication from about 4:30 to 6:30 PM. Barber was able to make contact with Rick Zach, K1RJZ, who lives closer to the search area, and was familiar with the area's snowmobile trails and roads. Zach coordinated communication between the responding police units and the lost radio operator on the New Hampshire Statewide talkgroup.

Police and fire units attempted to assist in the search by activating their sirens in different locations to try to obtain a location on the ham operator, but he was not able to hear them.

Another amateur radio operator, Chuck Cunningham, K1MIZ, was monitoring the events on Net Watch and noticed that the lost ham had accidentally changed channels. This information was passed along, and 2-meter DMR communication continued until the lost ham walked out to a road and was able to advise searchers of his location. The search and checkout ended successfully at 6:30 PM.

Thanks to the efforts of Bill Barber, NE1B (ARRL Life Member); Rick Zach, K1RJZ (ARRL member), and Chuck Cunningham, K1MIZ.

Barber listed some very important lessons learned from the incident:

Radio batteries last longer on DMR radios than on analog mode.

Even his wife had trouble with her cell phone coverage at home.

Monitor your local state DMR channel to help others nearby.

You may want to program 146.52 FM next to your state channel for signal strength direction finding if and when you're out of repeater range. Some hams still monitor 146.52 MHz simplex.

Stay on the primary channel until you know more hams are nearby to direction find your signal.

Hike with DMR. Network sites cover many areas of New England that do not have any cell service.

Hike with a flashlight.

And I would like to add one more item to the list. My son is one of the leaders of Pemigewasset Valley (New Hampshire) Search & Rescue Team and unfortunately responds to too many calls for lost hikers. One very important item that he stresses is that hikers file a "flight plan." Let someone who is not going on the hike know where you are going, how long you expect to be gone, and what communication equipment or capability you have with you. This also applies if you are going out hunting, fishing, or boating.

Raul "Skip" Camejo, AC1LC  
Public Information Coordinator  
ARRL New Hampshire Section  
[ac1lc@arrl.net](mailto:ac1lc@arrl.net)

## NASA "Decodes" Secret Messages Onboard the Orion Spacecraft

NASA has a long history of hiding secret messages in its spacecraft and that tradition continued with the launch of the Orion crew capsule in November on top of the Artemis I rocket.

Five hidden messages were placed in the Orion capsule ranging from Morse Code to musical notes.

On the right side of the capsule below a window and next to the pilot's seat were the letters "C, B, A, G, F" - five musical notes for the first words in Frank Sinatra's song, "Fly Me to the Moon."

In the middle of the capsule, above the cockpit control console, was a Morse Code message that spelled out the name "Charlie" in remembrance of former Orion Deputy Program Manager Charlie Lundquist, who died in 2020.

Other messages included a picture image of a cardinal to the right of the pilot seat as a tribute to former Orion Program manager, Johnson Space Center director, and St. Louis Cardinals fan Mark Geyer, who died in 2021.

The other two messages were on top of the pilot's seat including Binary code representing 18. This is in honor of NASA's history of travel to the moon with the Apollo Program and to celebrate a spacecraft's return to the Moon after Apollo 17 for the Artemis Generation. The final message was in front of the pilot's seat, the country codes of each country with the European Space Agency (ESA) that participated



*A Morse code symbol for "Charlie" commemorates the life of former Orion Deputy Program Manager Charlie Lundquist, who died in 2020. Photo courtesy of NASA.*

in developing and building the spacecraft's European Service Module.

## Marines To Gain Radio Op Experience Via Amateur Radio

On Wednesday, December 7, 2022, 22 Communication Officers at the Marine Corps Communication-Electronics School (MCCES) in Twentynine Palms, California, became amateur radio operators. W6BA, the [Morongo Basin Amateur Radio Club](#) (MARC) administered the exams and 21 candidates passed their Technician exam, and one passed their General exam. 14-year-old Kalynn Cossette, KN6WVD, was the youngest candidate who passed her Technician exam.



Retired Marine Corps Warrant Officer 4 Robert Cloutier, WO4ROB, and MARC President says it was a great event and he is excited to see so many new amateur radio operators. So, what drove the officers to want amateur radio licenses? Cloutier pointed out that all of the candidates already have a background in radio administration but not operating experience.

"Chief Warrant Officer (CWO3) Kalem Cossette, KK4KC, one of the training officers at MCCES, introduced amateur radio to the Communication Officers," said Cloutier. "Most of the students were curious on how to get their license, so CWO3 Cossette contacted the MARC to schedule an exam session."

Cloutier said that all new license holders were offered a free club membership but many of them will be deployed to other locations around the world and will be able to join other amateur radio

clubs. He said they hope to conduct exams every three months.

The Morongo Basin Amateur Radio Club is an ARRL Affiliated Club.

## More US Schools Selected for Ham Radio Contacts with the International Space Station in 2023

Amateur Radio on the International Space Station ([ARISS](#)) has announced a list of seven schools/host organizations selected to host scheduled amateur radio contacts with the astronaut crew on the International Space Station (ISS) from July to December 2023.



Earlier this year, nine schools and organizations were selected for contacts that will take place from January to June 2023 with the ISS.

The primary goal of the ARISS program is to engage young people in science, technology, engineering, arts, and math (STEAM) activities that raise their awareness of space communications, radio communications, space exploration, and related areas of study and career possibilities. ARISS does this by organizing scheduled contacts via amateur radio between crew members aboard the ISS and students. Before and during these radio contacts, students, educators, parents, and communities take part in hands-on learning activities tied to space, space technologies, and amateur radio.

ARISS anticipates that NASA will be able to provide scheduling opportunities for these host organizations in the US between July - December 2023:

Organization	Location
A.L. Burruss Elementary School	Marietta, GA
Augusta Preparatory Day School	Augusta, GA
Bowman Middle School	Bakersville, NC
Camp William B. Snyder	Haymarket, VA
Covenant Christian Academy	West Peabody, MA
Orangeburg Christian Academy	Orangeburg, SC
Webb Bridge Middle School	Alpharetta, GA

The 16 schools and organizations selected for 2023 are now working to complete an acceptable plan that demonstrates their ability to execute a ham radio contact with the ISS. Once their equipment plan is approved by the ARISS Technical Mentors, the final selected schools/organizations will be scheduled as their availability and flexibility match up with the scheduling opportunities offered by NASA.

ARRL is a cooperative venture of international amateur radio societies and the space agencies that support the ISS. In the US, participating organizations include [ARRL](#) The National Association for Amateur Radio®, and the Radio Amateur Satellite Corporation (AMSAT). Sponsors are NASA's Space Communications and Navigation program (SCaN), and the Center for the Advancement of Science in Space (CASIS).

## Preparing the Nation for Space Weather Events

The FEMA Emergency Management Institute (EMI) has released a new online study course and exam on [Preparing the Nation for Space Weather Events](#). The course identifier is IS-66. ARRL Director of Emergency Management (DEM) Josh Johnston, KE5MHV, took the course and passed the exam. Johnston said: "This course provides some interesting insight to the Federal Government's role and response to space weather events." It also "explains the levels of response the government uses in regard to space weather events." Johnston concluded: "This course would be a good training course for any ham to gain a better understanding of how space weather affects communications here on Earth." "This is a useful course and only takes about 2 hours to take online," Johnston said. A FEMA student ID is required and is free from the Emergency Management Institute online.

*Provided by:*





## ARRL Podcasts Schedule

The latest episode of the ARRL [On the Air](#) podcast (Episode 28) features a discussion of digital multimeters with practical usage examples and shopping tips.



The latest edition (Episode 58) of the ARRL [Eclectic Tech](#) podcast features a discussion with author Nick Tusa, K5EF, about his new book Wes Schum - Amateur Radio's Unsung Hero.

The On the Air and Eclectic Tech podcasts are sponsored by Icom. Both podcasts are available on iTunes (iOS) and Stitcher (Android) as well as on Blubrry -- [On the Air](#) | [Eclectic Tech](#).

## Amateur Radio in the News

ARRL Public Information Officers, Coordinators, and many other member-volunteers help keep amateur radio and ARRL in the news.

["Amateur radio donation impacts local food center during time of need"](#) / The Portager (Ohio), December 12, 2022 -- The Portage County Amateur Radio Service (PCARS) is an ARRL Affiliated Club.

["Radio club recognizes members for running nightly ham system"](#) / Houston Herald (Missouri), December 19, 2022 -- The Ozark Mountain Amateur Radio Club is an ARRL Affiliated Club.

["Goderich Air Cadets speak with astronaut aboard the International Space Station"](#) / Goderich Signal-Star (Canada), December 19, 2022 - Thanks to the 532nd Royal Air Cadet Squadron for their help in preparation for this event.

["New Ham radio antenna placed on tower high above Mattoon"](#) / Journal Gazette & Times-Courier (Illinois), December 9, 2022. - The Moultrie Amateur Radio Klub is an ARRL Affiliated Club.

["Amateur radio operators sworn in by Nevada County OES"](#) / The Union (California), December 9, 2022. -Thanks to the Nevada County Amateur Radio Emergency Service®.

["Amateur Radio Club works to provide radio communication for local community"](#) / LaGrange Daily News (Georgia), December 9, 2022. -- The LaGrange Amateur Radio Club is an ARRL Affiliated Club.

["Ham radio repeater connects lost hiker with help"](#) / The Laconia Daily Sun (New Hampshire), December 13, 2022. -- Thanks to the New England Digital Emergency Communications Network, NEDECN.

["Redding veterans use HAM radio to connect to people across the globe on Veterans Day"](#) / KRCR TV (California), November 11, 2022 -- Thanks to the CalVet Redding, California Veterans Home and the Redding Veterans Amateur Radio Club special event station, W6VET.

["Amateur radio-aided rescue highlights useful hobby"](#) / Green River Star (Wyoming), November 23, 2022 -- The Buffalo Amateur Radio Klub is an ARRL Affiliated Club.

["Pearl Harbor commemoration events to be hosted on the Battleship North Carolina"](#) / WECT-TV (North Carolina), December 6, 2022 -- The Azalea Coast Amateur Radio Club is an ARRL Affiliated Club.

["Amateur radio club joins county for emergency communications exercise"](#) / The Kerrville Daily Times (Texas), November 25, 2022. -- The Hill Country Amateur Radio Club is an ARRL Affiliated Club.

*Arrl.org. 2022. ARRL Letter. [online] Available at: <http://www.arrl.org/arrlletter?issue=current> [Accessed 1 January 2023]*

# NARS Monthly Club Meeting

## December's Monthly Meeting

During November's monthly meeting, the club members gave presentations around many of their projects. Club members shared projects about antennas they built, work in establishing computer networks over radio, and other projects.

We are always excited to see and hear about the projects you build! We'd love to hear more detail in the newsletter! Write up the steps to your projects and send them to [k5blr@arrl.net](mailto:k5blr@arrl.net) to be included in an upcoming newsletter.

## Next Club Meeting

Our next club meeting will be January 20th at the [Valley Ranch BBQ](#) (at the corner of SH 249 and Spring Cypress). Club members can start arriving around 6pm to purchase their meal at the restaurant and eat together in the reserved room. A welcome will begin at 7pm and awards will be presented starting at approximately 7:30pm.

The club will pick up the regularly scheduled meetings in February. See the details below for club meetings throughout the year.

## NARS General Club Meetings

NARS holds monthly club meetings where a variety of topics are presented from a number of guests. Come learn anything from antenna design, phasing, emergency response, and more!

Who: All club members, friends, or anyone interested in the Amateur Radio hobby

When: The Third Friday of the Month at 7:30pm

Where: Klein Fire Station #3, [9755 Landry Blvd, Spring, TX 77379](#)  
Zoom Conference Call, Meeting ID: 2815436502, Passcode: 123456

# Ham Radio on TV

## Amateur Radio Featured on Montana Public Television

On Thursday, November 24, 2022, Thanksgiving evening, MontanaPBS aired a documentary about amateur radio that was appropriately titled, HAM. The 25-minute program was produced by students, in cooperation with the Greater Montana Foundation, as well as the School of Journalism and the School of Visual & Media Arts at the University of Montana (UM) in Missoula. Several local amateur radio operators were featured in the program, including Lance Collister, W7GJ; Dennis Lane, KR7Q; Mike Leary, K7MSO, and Keith Graves, NE7R. Together, they talked about how amateur radio has evolved and their experiences as active hams.



The program is available to watch on the MontanaPBS website, at [www.montanapbs.org/programs/ham](http://www.montanapbs.org/programs/ham).

"I was happy to agree to the interview," said ARRL member Dennis Lane, KR7Q, who was among a handful of hams featured in the video, such as Lane and his wife, Debi; Lance Collister, W7GJ; Karen Orzech; Mike Leary, K7MSO; Keith Graves, NE7R, and Lois Graves, W7LAG. "The students visited my home and ham shack in early March of 2022. They seemed to be interested in the human-interest aspect of ham radio," Lane continued. "I tried to emphasize the relationships and lifelong friendships that I have enjoyed over my 45 years in the hobby."



*ARRL member Lance Collister, W7GJ, of Frenchtown, Montana, was among the hams featured in the student-produced documentary.*

Lane also shared, "When I told the students about Parks on the Air®, they asked if they could come with me on my next POTA activation. I was happy to have them join me at Lee Metcalf National Wildlife Refuge in Stevensville." During the activation, Lane made radio contacts on both VHF and shortwave, using an end-fed half-wave antenna. "One of the first contacts I made was in Alaska. They seemed very excited about that."

The UM student film crew included Grace Wolcott, Kal Bailey, Jared Bengel, Karter Bernhardt, Julien Dousset, Maiya Fleck, Marcia Heydt, Natalie Verploegen, and Ryan Weibush. Lane published these personal videos from the filming:

<https://www.montanaartqwerks.com/My-Ham-Radio-Page-de-KR7Q/Mpbs/i-wqc9jJz/A>

[https://youtu.be/S\\_UBc-b-Nek](https://youtu.be/S_UBc-b-Nek) (YouTube)

# Greater Houston HamFest

# Greater Houston HamFest

## ARRL TEXAS STATE CONVENTION







**Tickets:**  
 Online - \$10  
 At the Door - \$15  
 Children 12 & Under,  
 Scouts, Military,  
 & First Reponders  
 In Uniform - FREE  
 Tables - \$25  
 Tailgate - \$5

**Sponsors/Vendors**

- Ham Radio Outlet
- Radioddity
- Signal Stuff
- EPO
- River Oaks Car Stereo
- ABR Industries
- The SignMan of  
Batton Rouge





**When:**  
 Friday March 3, 2023  
 2PM - 8PM  
 Saturday March 4, 2023  
 8AM - 3PM



**Where:**  
 Fort Bend County Fairgrounds  
 4310 TX- 36 S, Rosenberg, TX 77471  
29°31'12"N 95°48'38"W



**Contact:**  
 Chairman: Mike Hardwick - N5VCX  
 713-826-6917  
 Co-Chair: Eddie Runner - NU5K  
 713-569-8799

 [FB.com/groups/HoustonHamFest](https://www.facebook.com/groups/HoustonHamFest)  
 [Twitter.com/HoustonHamFest](https://twitter.com/HoustonHamFest)

[www.HoustonHamfest.org](http://www.HoustonHamfest.org)



# HF, Satellites and Meteor Scatter

## KC5TT, KI5QMY and N5EKO EL08 and POTA Activation

BY JERRY DAVIS, N5EKO

### Choke Canyon State Park

It all started with a desire to activate a Maidenhead Grid for the Fred Fish Memorial Award. We found that EL08 was ranked at #15 on the most wanted list and fairly close by. There are 488 Grids in the Continental US and EL08 is highly sought. I mentioned this to Terry Myers, KQ5U and he said that he needed the EL08 grid. Terry is sitting at 440 of 488 Grids and encouraged me to go. I looked for a place to activate the grid and found that Choke Canyon State Park is in EL08 and mentioned this to Jeff McMillian, KC5TT. Jeff had his cabin booked before I could open the web page. Jeff is a prolific POTA operator and is often found in parks around the country. If it wasn't for the risk of spending time in a Mexican prison, Jeff would have a park activation in Mexico. Russ Green, KI5QMY, was invited and was eager to go. Russ has been a ham for a little over a year and has become a great operator in the realm of POTA, satellites, and contesting. Russ is elevating his game by learning CW. Russ is infamous for putting up a 6-meter antenna and promptly shutting down 6 Meter propagation for 4 months.

After getting permission from our wives, Jeff (KC5TT), Jeff's Wife Kristin, Russ (KI5QMY) and I (N5EKO) headed to Choke Canyon State Park. Choke Canyon is about 80 miles south of San Antonio and was a 3 ½ to 4-hour trip for each us. The drive to the park was pretty uneventful. The most exciting part of the drive was the stop at Buccee's for fuel and refreshment.



*Jeff KC5TT Working it in the cold*



*Russ KI5QMY Working the Sat Antenna*

Arriving at the park, I found that the park personnel to be very accommodating and cheerful. Lots of wildlife were seen on the drive through the park. I just wished I could have gotten a picture of the "Alligators in Park" sign with the Javelina standing underneath it.

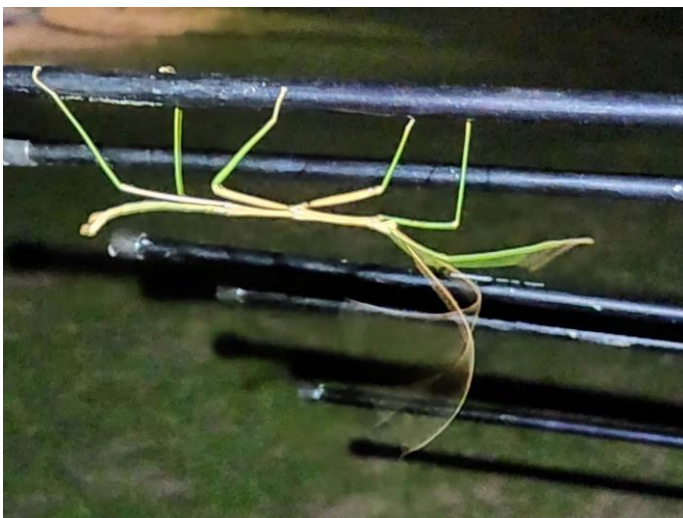
With Jeff and his wife in Cabin #11 and Russ and I in Cabin #10, we started setting up our gear. We had a friendly visit from a Park Ranger who was curious as to what we were doing. During our stay we had visits from deer, javelina, turkey, a walking stick, and a beautiful bird called Yellow Jay. I noticed that there were a lot of boats, which kind of makes sense since the park is on a lake, but doesn't make sense with the temperature in the mid-40s.



*Jerry N5EKO with Audience*

After setting up the 6-meter equipment, I made an FT8 call and was promptly answered by Tim Lee, W5TRL, who was about 170 miles away. I turned the beam to the south and quickly worked David Pederson, N7BHC, with Q65, 190 miles away. I switched over to MSK-144 for meteor scatter and was pleasantly surprised to see and hear a few rocks hitting the E-Layer.

I woke up at 3:30 in the morning for the meteors. There was a constant barrage of loud boats leaving the launch between 4:30 and 5:30 AM. At 6:31 AM, I figured out that it was "duck season". It sounded like a war zone. With a wildlife management area across the lake from the park, I finally put 2 and 2 together.



We activated 6 satellite passes through the weekend. Seven scheduled passes were cancelled due to rain and equipment malfunctions.

Jeff and Russ were ardently working POTA. The POTA designation was K-2997 and contacts were made into 45 states and 37 countries.

The equipment used were 2 FT-897's, FT-857, IC-7100, IC-7300 and an IC-9700. The antennas used were beams for 6m and 2m, Elk Antenna, and two MFJ-1979 17 feet telescopic whips.





The weather was pretty dismal with rain and temperatures in the 40s. The cabins were sure nice.

**Results:**

- 12 Bands Worked 160 Meters thru 70 CM
- 45 States
- 37 Countries
- 22 Contacts on 6 Meter
- 18 Meteor Scatter contacts
- 24 Satellite contacts
- 937 Total Contacts made for the POTA activation

This was a great trip and got to spend time with great friends. I am planning, and looking forward to, my next grid activation. The highlight of the trip was Terry (KQ5U) getting Grid #441. He also got DM91 over the weekend and has 442 of 488 grids for FFMA. Go Terry!



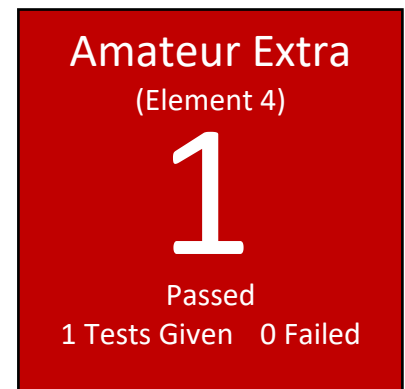
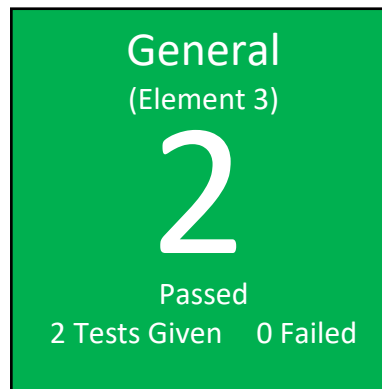
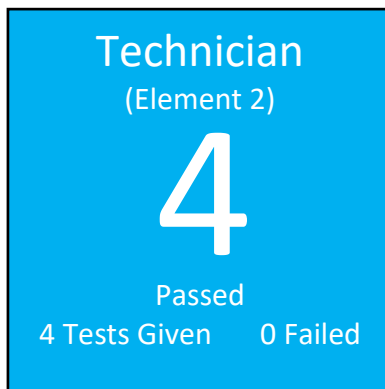
*Satellite Equipment 1*

# VE Sessions and Results

PROVIDED BY SHEREE HORTON, WM5N

## Attendees

On Saturday, December 17, 2022, a VE Test Session was held at Klein Fire Station #3 in Spring, Texas. During the testing session 7 candidates took 7 tests.



## Congratulations!

Congratulations to the following for passing their new license exams<sup>1</sup>:

- Michael P Molina – Technician
- Scott Steiner – Technician
- William J Walker – Technician
- Carl J Watson – Technician

Congratulations to the following for passing their upgrade exams:

- Jahangir Huseynov KI5YXI – Upgrade to General
- Jesus Martos KI5YOE – Upgrade to General
- August J Canik KI5YPD – Upgrade to Extra

## Pre-registration for Testing Sessions

To pre-register for an upcoming testing session, you can use one of the following links:

HamStudy.org page link: <https://hamstudy.org/sessions/arri/77070/inperson>

The next session will be January 21, 2023. Please visit [www.w5nc.net](http://www.w5nc.net) for the announcement.

<sup>1</sup> Successful candidates will only receive their **NEW** licenses if they pay the \$35 fee to the FCC within 10 days of receipt of their notification emails. They will have to request the ARRL VEC to resubmit their paperwork if they miss the 10-day deadline. They do **NOT** have to retest.



## Thanks and Gratitude

Thanks to the Exam VE's in attendance:

- Ed Messman KT5EM
- Rob Nixon KD5BXZ
- Bob Ewers K9HOU
- Paul R Owen N5NXS
- Marvin J Wilken KT4W
- Vicki Owen AC5EW
- Michael Robinson KI0DE

## VE Session Guidelines

If you have a temperature or feel ill – DO NOT attend.

- Tables and chairs will be arranged to meet social distancing. DO NOT MOVE THEM.
- Wear masks if you are not fully vaccinated or feel the need to wear them.

Please send an email to either of the following if you plan on attending the test session:

Sheree Horton - [wm5n@arrl.net](mailto:wm5n@arrl.net) or [vec@w5nc.net](mailto:vec@w5nc.net)

## Volunteering and Becoming a Volunteer Examiner

Anyone who wants to observe and/or participate in a session is always welcome. Please let Sheree Horton know if you want to learn more about becoming a volunteer examiner.

## Did you know...

NARS now has the ability to run computer-aided tests through [Ham.Study](#). Computer-aided tests provides many benefits, including the ability to make the tests easier to administer, quicker to get results, easier for many test-takers, and many more!

## New Club Members

Welcome to the following new members of NARS!

- Thomas Estes, K5WHI
- Golden George, KM7Y
- Milton Samuels, KI5YIB
- William Walker, KI5ZDD

## Renewing Club Members

Thank you to all the members who renewed their NARS membership this past month:

- Samuel Barnes, NE5IE
- Bill Bierman, N5RDO
- Rick Braddy, W5FCX
- Luke Bugler, K0LTB
- Bill Buoy, N5BIA
- Thomas Estes, K5WHI
- Golden George, KM7Y
- Terry Myers, KQ5U
- Milton Samuels, KI5YIB
- William Walker, KI5ZDD

## New General Question Pool Released for Ham Radio Licensing Effective July 1, 2023

The National Conference of Volunteer Examiner Coordinators' (NCVEC) Question Pool Committee (QPC) has released the 2023 - 2027 General Class FCC Element 3 Syllabus and Question Pool to the public. The new General Question Pool is effective July 1, 2023, through June 30, 2027.

The new pool incorporates some significant changes compared to the 2019 - 2023 version. Its 432 questions were modified slightly to improve wording and to replace distractors; 51 new questions were generated, and 73 questions were eliminated. This resulted in a reduction of 22 questions, bringing the total number of questions in the pool down from 454. The level of difficulty of questions is more balanced, and the techniques and practices addressed have been updated.

The pool is available as a Microsoft Word document and PDF. The single graphic required for the new General Question Pool is available within the documents, or separately as PDF and JPG file formats.

The newly revised pool must be used for General-class license exams starting July 1, 2023," said ARRL VEC Manager Maria Somma, AB1FM, who is a member of the NCVEC Question Pool Committee. "New test designs will be available to ARRL Volunteer Examiners on that date. The ARRL VEC will supply its officially appointed, field-stocked VE teams with new General exam booklet designs around mid-June."

General class examination candidates preparing for their exams using the 9th edition of The General Class License Manual, and/or the 6th edition of ARRL's General Q & A are encouraged to test by, or before, June 30, 2023. New editions of ARRL licensing publications will be available in May, for exams taken on, or after, July 1, 2023.

## Training and Education

### NARS

NARS Member Articles and Tutorials - <http://w5nc.net/index.php/2014-03-31-00-54-20>

### ARRL

ARRL Online Course Catalog - <http://www.arrl.org/online-course-catalog>

ARRL Emergency Communications Training -  
<http://www.arrl.org/emergency-communications-training>

ARRL Webinars - <http://www.arrl.org/ARRL-Learning-Network#schedule>

Exam Review for Ham Radio - <http://www.arrl.org/examreview>

Find an Amateur Radio License Class -  
<http://www.arrl.org/find-an-amateur-radio-license-class>



## Free Study Guides

A [study guide](#) for Technician license preparation, Dan Romanchik, KB6NU

A [study guide](#) for Technician license preparation on the Inland Empire VHF Radio Club website, Jack Tiley, AD7FO (Click on "Training Links" and go to the Technician training link)

## Online Video/Audio Courses

[Online Technician license exam self-study course](#), Fred Benson, NC4FB - The purpose of the resources developed for this course is to provide candidates in geographical areas that do not provide classes and candidates who cannot attend a class with the means to prepare for the Technician license exam. The materials cover all questions in the question pool with explanations, sub element tests, and sample license exams. Help is available upon request via email.

Benson also offers a ["kid friendly" self-study course](#) and a self-study program especially designed for [emergency services personnel](#).

"The Ham Whisperer" [Video Course](#), Andy Vallenga, KE4GKP – This course is based on the FCC question pool sequence to assist with Technician license preparation.

[A Self-Study Video Course](#), Dave Casler, KE0OG – This course provides a guided self-study [video course](#) based on ARRL's Ham Radio License Manual curriculum.

[Online Technician License Preparation Course](#) – Chris Johnson, N1IR

## Study Tools

[HamStudy.org: Cutting edge amateur radio study tools](#) - Free ham radio flash cards, practice tests, and question pools as well as introduction to ham radio and explanations for questions.

[HamTestOnline](#) – Study Tips for the Ham Radio License Exams

[HamExam.org](#) - Free Amateur Radio Practice Tests with Flash Cards

[eHam.net Ham Radio Practice Exams](#)

## Paid Resources

[W5YI Group](#) - Your Resource for Ham Radio and Commercial Radio Licensing

[HamRadioPrep](#) - Enroll in Ham Radio Prep, the industry's #1 online test prep and training program, and pass your FCC Amateur Radio License exam on the first try - or your money back.

[HamTestOnline](#) - Study for your Ham Radio License Exam!

## Of Interest to the Club

### Houston Local Traffic Net

The Houston Local Traffic Net meets each Monday night at from 6:30 – 7:30pm on the 146.940 repeater with a PL tone of 167.9 Hz. The backup repeater for Monday night is the NARS repeater 146.660/100.0. The Thursday night edition of the Houston Local Traffic Net meets on Thursday evenings at 6:30pm on the 146.660 repeater with a PL tone of 100.0 Hz. This repeater is linked to the 70cm repeater on 444.375 also with a PL tone of 100 Hz. You can access the two linked repeaters via EchoLink node W5NC-R. The Thursday night backup repeater is 147.000 with a PL tone of 103.5 Hz. The purpose of both nets is to pass National Traffic System (NTS) radiogram messages into and out of the Houston area. The Monday edition of the Net also provides traffic handling instruction/training.

Anyone with questions about the Houston Local Traffic Nets, radiograms and or message handling can call or email Sheree Horton WM5N for more information.

### GHSN monthly Simplex Propagation Net

Beginning January 2022, the [Greater Houston Simplex Network](#) will return to its regular schedule of the 4<sup>th</sup> Thursday evening of the month, with 6:15pm for the Zoom meeting and 7:00pm for the beginning of the net. Simplex frequencies are 146.540 MHz.

I would also like to restart the relay nets for the 2nd week of each month, so I need volunteer(s) to help out as Net Control Operator. I am just swamped with developing our cool new propagation application. Please contact me if you can help with this. The script is fully developed, and can be found on [the website](#).

Contact Mark - [N5PRD@yahoo.com](mailto:N5PRD@yahoo.com)

### Local Events

February 18 - CERT Rodeo - <https://volunteerhouston.org/certrodeo/>

March 4 - Pedaling the Prairie - <http://www.pedalingtheprairie.org/>

March 11 - Buffalo Bayou Regatta



# Calendar

## Club Activities and Events

Annual Club Banquet – January 20, 2023 - [Valley Ranch BBQ](#)

VE Test Session – January 21, 2023 – [Klein Fire Station #3](#) - Check-in will start at 8:30am with testing lasting from 9:00am - 11:30am. All testing activities will be completed by noon.

## Social Events

### Lunch Break – North

Take a break with fellow radio operators and enjoy a lunch together!

Locations are announced weekly on the NARS email reflector!

### Lunch Break – Medical Center

Near the Medical Center and want to take a break with fellow radio operators and enjoy a lunch together?

Watch the NARS email reflector for details!

### Saturday Breakfast

Saturdays at 7 am Broken Yolk Café, 16803 Stuebner Airline Road, Spring, TX 77379

### Monday Lunch (Taildraggers Lunch)

Mondays at 11 am; Aviator's Grill at Hooks Airport Terminal

## Did you know...

NARS has a social media presence! Thanks to Sam Labarbera, N6HB, we have a Facebook page for those who would like to follow us there. Visit the [W5NC Facebook page](#) and join! It is open to ham radio operators, so there is a short quiz to qualify new members.

We also have a Twitter feed. Follow us on [https://twitter.com/nars\\_w5nc](https://twitter.com/nars_w5nc)

## ARRL Contests & Activities

<p><b>January 2023</b>            1: Straight Key Night            7: Kids Day            7-8: RTTY Roundup            21-23: January VHF            TBD: Winter Field Day</p>	<p><b>February 2023</b>            13-17: School Club Roundup            18-19: International DX – CW</p>	<p><b>March 2023</b>            4-5: International DX– Phone</p>
<p><b>April 2023</b>            16: Rookie Roundup – Phone</p>	<p><b>May 2023</b></p>	<p><b>June 2023</b>            3-4: International Digital Contest            10-12: June VHF            17: Kids Day  <b>24-25: Field Day</b></p>
<p><b>July 2023</b>            8-9: IARU HF World Champ</p>	<p><b>August 2023</b>            5-6: 222 MHz and Up Distance            19-20: 10 GHz &amp; Up – Round 1            20: Rookie Roundup – RTTY            12-13: EME - 2.3 GHz &amp; Up #1</p>	<p><b>September 2023</b>            9-11: September VHF            16-17: 10 GHz &amp; Up - Round 2            9-10: EME - 2.3 GHz &amp; Up #2</p>
<p><b>October 2023</b>            16-20: School Club Roundup            28-29: EME - 2.3 GHz &amp; Up #3</p>	<p><b>November 2023</b>            4-6: Nov. Sweepstakes – CW            18-20: Nov. Sweeps. – Phone            25-26: EME-50 to 1296 MHz #4</p>	<p><b>December 2023</b>            2-4: 160 Meter            10-11: 10 Meter            18: Rookie Roundup–CW</p>

## Hamfests and Conventions

January 7 | [Ham Radio University](#), hosting the ARRL New York City-Long Island Section Convention, an online event

January 20 - 21 | [Southwest Florida Regional Hamfest](#), hosting the ARRL Southern Florida Section Convention, Fort Myers, Florida

January 20 - 21 | [Cowtown Hamfest](#), hosting the ARRL North Texas Section Convention, Forest Hill, Texas

January 27 - 28 | [Capital City Hamfest 2023](#), hosting the ARRL Mississippi State Convention, Jackson, Mississippi

January 28 | [Winterfest](#), hosting the ARRL Midwest Division Convention, Collinsville, Illinois

February 10 - 12 | [Orlando HamCation](#), hosting the ARRL Southeastern Division Convention, Orlando, Florida

February 17 - 18 | [LCARC Winter-Fest](#), ARRL Arkansas State Convention, Hoxie, Arkansas

February 25 | [HAM-CON](#), hosting the ARRL Vermont State Convention, Colchester, Vermont

March 3 - 4 | [BirmingHamfest](#), hosting the ARRL Alabama Section Convention, Trussville, Alabama

March 3 - 4 | [Greater Houston HamFest](#), hosting the ARRL Texas State Convention, Rosenberg, Texas

## Contests and Radiosport

January 5 - 6 -- Walk for the Bacon QRP Contest (CW)

January 6 -- QRP Fox Hunt (CW)

January 6 -- K1USN Slow Speed Test (CW)

January 7 -- PODXS 070 Club PSKFest (digital)

January 7 - 8 -- WW PMC Contest (CW, phone)

January 7 - 8 -- SKCC Weekend Sprintathon (CW)

January 7 -- RSGB AFS Contest (CW)

January 7 - 8 -- Original QRP Contest (CW, phone)

January 7 -- ARRL Kids Day (phone)

January 7 - 8 -- ARRL RTTY Roundup (digital)

January 7 - 8 -- EUCW 160-Meter Contest (CW)

January 8 -- NRAU-Baltic Contest, SSB (phone)

January 8 -- DARC 10-Meter Contest (CW, phone)

January 8 -- NRAU-Baltic Contest (CW)

January 9 -- 4 States QRP Group Second Sunday Sprint (CW, phone)

January 11 - 17 -- VHF-UHF FT8 Activity Contest (FT8)

### Exam Practice Answers

**Technician:** T8A07 – B, SSB signals have narrower bandwidth

**General:** G7C09 – A, 90 degrees

**Amateur Extra:** E5C10 – B, Point 4

# NARS Club Officers and Information

## Board Officers with Voting Privileges

President: Ron Matussek, WA6TQH, 713-825-9606, [officers@w5nc.net](mailto:officers@w5nc.net)

Vice President: Paul Kent, KI5FJS, [officers@w5nc.net](mailto:officers@w5nc.net)

Treasurer: Tom Hoherd, KK5YU, 281-370-2941, [treasurer@w5nc.net](mailto:treasurer@w5nc.net)

Secretary: Brandon Rogers, K5BLR, 713-294-6630, [officers@w5nc.net](mailto:officers@w5nc.net)

Director: Rich Jones, W5VEK, [officers@w5nc.net](mailto:officers@w5nc.net)

Director: Sam Labarbera, N6HB, [officers@w5nc.net](mailto:officers@w5nc.net)

## Board Non-Voting Associate Members

Administrative Secretary: Neal Naumann, N5EN

Social Media Liaison: Sam Labarbera, N6HB

Newsletter Editor: Brandon Rogers, K5BLR

Public Information Liaison: Sheree Horton, WM5N

ARRL/VEC Liaison: Sheree Horton, WM5N

Repeater Team Lead: Marty Fitzgerald, W5MF

Webmaster: Bill Buoy, N5BIA, [webmaster@w5nc.net](mailto:webmaster@w5nc.net)

Trustee: Paul Owen, N5NXS

## Club Nets

**DMR Weekly Net** – Every Tuesday at 7pm. Tune in on Talkgroup 3146211 for information on configuring codeplugs, see the DMR pages on the Club website (<http://w5nc.net>) or contact a club Elmer. Sam Labarbera, N6HB, coordinates this Net.

**The Weekly Wednesday Evening Net** - Every Wednesday at 8:00 pm. Join us on one of the W5NC repeaters: 146.660 MHz, -600kHz offset, PL 100.0 - wide area centered on downtown Houston and/or 444.375, + 5 MHz offset, PL 100 best in the Spring / Klein area. You can also join from anywhere in the world by connecting to EchoLink node W5NC-R. Neal Naumann, N5EN, coordinates this Net.

## Repeaters

For information on NARS-managed repeaters, please see the club website at <http://w5nc.net/index.php/club-info/repeaters>

### Did you know...

that NARS has an messaging service, called groups.io, that allows you to connect with a giant group of experts, club members, and resources. Get more information on our club website at <http://w5nc.net/index.php/club-info/email-reflector-groups>