



W5NC

Houston, Texas

Northwest Amateur Radio Society

A 501(c)(3) Organization
An ARRL Affiliated Club

NARS NEWS

JANUARY 2024

Northwest Amateur Radio Society

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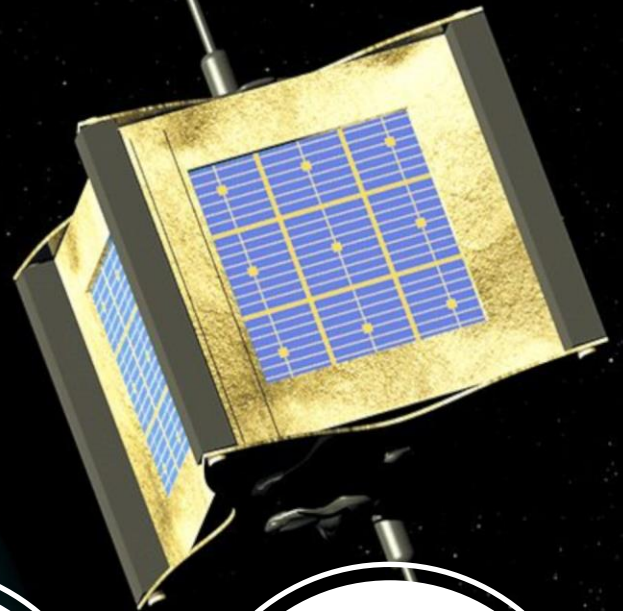
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NARS News is published monthly by the Northwest Amateur Radio Society (NARS). Northwest Amateur Radio Society is a Special Services Club affiliated with the American Radio Relay League, ARRL Club No. 2120.

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

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! Did Santa bring you all the new Ham Gear you hoped for? It is 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. It is time to forget the past and celebrate a fresh start!

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 which are held on Tuesdays and Wednesdays. This is a good place to contact others who can provide technical assistance.

We will start off the new year with our annual "Awards Banquet" on January 19th. More information will be sent out to the membership via groups.io. 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 2024 who will lead us forward through the challenges and established goals set forth in our Constitution. The person voted to be "Ham of the Year!" will be announced and the name added to the Club Plaque. There are a couple of leadership positions open so if you possess the people skills and the time and fervent desire to help others then please contact one of our Officers for more information. Let us toast to yesterday's achievements and tomorrow's bright future!

Wishing you 12 months of success, 52 weeks of laughter, 365 days of fun, 8760 hours of joy, 525600 minutes of good luck, and 31536000 seconds of happiness. Happy New Year!

See you at the AWARDS BANQUET!!

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)

T6C09

What is component 4 in figure T-2?

- A. Double-pole switch
- B. Transformer
- C. Variable inductor
- D. Potentiometer

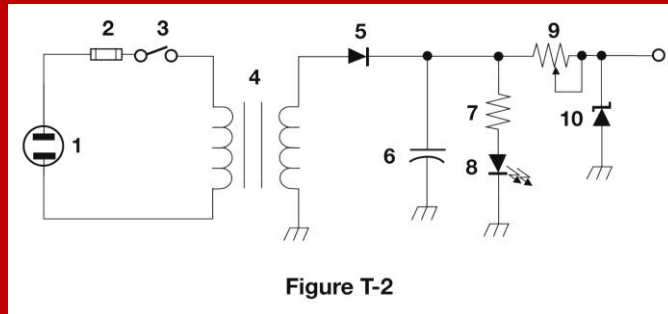


Figure T-2

General (Element 3)

G4B02

Which of the following is an advantage of an oscilloscope versus a digital voltmeter?

- A. Greater precision
- B. Complex waveforms can be measured
- C. Complex impedances can be easily measured
- D. An oscilloscope uses less power

Amateur Extra (Element 4)

E5D15

What is the power factor of an RL circuit having a 45-degree phase angle between the voltage and the current?

- A. 0.866
- B. 0.707
- C. 0.5
- D. 1.0

See the answers on [Page 24](#).

The ARRL Letter

An excerpt from the weekly ARRL Letter

ARRL's Year of the Volunteers Success

2023 has been a remarkable year for amateur radio. There were many noteworthy opportunities for hams to use their license privileges for the greater good. An annular solar eclipse saw [radio amateurs engaging in projects of scientific research](#) about our ionosphere, devastating firestorms gutted entire cities and [saw Amateur Radio Emergency Service member-volunteers rise to activate, hurricanes threatened life and property](#), bicycle races [spread across the desert](#) necessitating robust communications provided by hams, and high school students [led and executed contacts with the International Space Station](#). Many amateur radio operators stood to serve in ways that made headlines, and all of them were volunteers.

Still, tens of thousands of others did work that never made the pages of [QST](#), didn't become the lead story on the local news, and didn't become fodder for online forums. Perhaps it was the ARRL VE who administered tests, welcoming the next generation of hams into the hobby, or the National Traffic



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>

System net manager who handled traffic from hams checking in. It could've even been the mentor who took the time to show a learner how to solder. These are the unsung heroes of the Amateur Radio Service -- these are the volunteers.

ARRL has nearly 60,000 volunteers within its membership, without whom it could not function. They are the lifeblood of this hobby. ARRL designated 2023 as the [Year of the Volunteers](#) to recognize their efforts, encourage new prospective volunteers to follow their lead, and call existing volunteers to reach one rung higher on the ladder of service. The [Volunteers On the Air \(VOTA\)](#) operating event has been popular among hams, with some operators making nearly 30,000 QSOs throughout the yearlong activation.

A young man from north Texas emerged as a leader.

Sam Lovett, KI5RSV, is just a teenager but has been awarded the 2023 Hiram Percy Maxim Memorial Award for his success with developing interest in amateur radio among his peers. He leads a youth net and has been instrumental in building a strong ham culture in his Trail Life USA troop. A video interview with Sam will be featured in the February 2023 digital edition of QST.



Sam Lovett, KI5RSV, was awarded the 2023 Hiram Percy Maxim Memorial Award. [ARRL, photo.]

Lyn Alfman, N8IMW, of Norwich, Ohio, was honored for her volunteer work in the public information space.

She received the 2023 ARRL Philip J. McGan Memorial Silver Antenna Award. The proclamation issued by the ARRL Board of Directors says that Lyn "exemplifies the skills and depth of understanding [needed] to convey to media outlets the fascinating world of amateur radio."

ARRL's George Hart Distinguished Service Award honors the work member-volunteers put in to use their license privileges to serve others. Jo Ann Keith, KA5AZK, of Diana, Texas, is the 2023 recipient.

Jo Ann is the net manager of the 7290 Traffic Net, a public service traffic net that has been in operation since 1953. She has a long history of volunteer work, dating back to her youth when she served as a candy striper. Like tens of thousands of others, Jo Ann uses amateur radio in the spirit of service.

These are just a few stories that can be told from the Year of the

Volunteers. There are so many other stories out there, and we encourage you to tell your own.

While the Volunteers on the Air event closes on December 31, 2023 at 2359 UTC, the spirit of this year will continue as long as there are hams standing to serve others through amateur radio.

From all of us at ARRL, thank you!

VOTA Leaderboard

There are no more W1AW/ portable operations scheduled for the year (2023), but operators at ARRL Headquarters have the [Hiram Percy Maxim Memorial Station](#) active on weekdays, so there is still a chance to earn 100 points per band-mode for contacting ham radio's most famous call sign. Plus, listen for W1AW during VOTA: Badges on the Air, as it will be active in the event. Remember to download your certificate after the event is over. The link to generate it can be found [here](#).



Lyn Alfman, N8IMW, on the right, is presented with the 2023 ARRL Philip J. McGan Memorial Silver Antenna Award by ARRL Great Lakes Division Director Dale Williams, WA8EFK.



Jo Ann Keith, KA5AZK (in the center), is presented with the 2023 ARRL George Hart Distinguished Service Award by ARRL West Gulf Division Director John Robert Stratton, N5AUS (on the left), and Section Manager of the ARRL North Texas Section Steven Lott Smith, KG5VK (on the right.)

The [VOTA leaderboard](#) is quite impressive. As of December 21, 2023, the top-20 scores were as follows:

Overall Rank	Call Sign	Country Rank	State Rank	QSOs	Points
1	K1RH	1 (USA)	1 (MD)	23981	183641
2	PJ2T			28435	178939
3	W1AW/0			27552	169065
4	W1AW/4			24324	155209
5	ZF1A			23542	149860
6	W1AW/1			22444	146662
7	W1AW/7			21562	139277
8	N8HRZ	2 (USA)	1 (OH)	18354	136396
9	NF3R	3 (USA)	1 (PA)	22609	132402
10	TN8K			23171	129226
11	W6MSU	4 (USA)	1 (CA)	26687	128631
12	N6PE	5 (USA)	2 (CA)	18980	125682
13	8P5A			20083	125556
14	UB3PEP			25914	123901
15	AI0Y	6 (USA)	1 (ND)	13446	120434
16	KC5TT	7 (USA)	1 (TX)	16020	120024
17	K8JH	8 (USA)	1 (MI)	6644	118466
18	K8BL	9 (USA)	2 (OH)	20426	118047
19	AC0W	10 (USA)	1 (MN)	14256	114453
20	K7BG	11 (USA)	1 (SD)	12741	114403

Status of CQ Magazine

ARRL has heard from many members concerned about their print subscriptions to CQ magazine. CQ magazine is not an ARRL publication, however ARRL members enjoy the ability to pursue earning the CQ Worked All Zones (WAZ) and Worked All Prefixes (WPX) awards through Logbook of The World (LoTW).

CQ Editor Rich Moseson, W2VU, acknowledged the delays in delivering CQ magazine. He indicated that the November and December issues are delayed but plans are to get them out to the readership as soon as circumstances permit.

WRC-23 Reaches Acceptable Conclusion on 23-centimeter Issue

The International Telecommunication Union (ITU) World Radiocommunication Conference 2023

(WRC-23) continues through December 15, 2023, in Dubai, United Arab Emirates (UAE).



The International Amateur Radio Union (IARU)'s primary effort focused on Agenda Item 9.1 topic b to address amateur use of the 23-centimeter band and co-frequency use by several radionavigation satellite service (RNSS) systems in the 1240 - 1300 MHz band.

IARU's work that began 4 years ago with a preparatory study in the ITU Radiocommunication Sector (ITU-R) to address this agenda item has finally come to a close. Our concerted engagement in the ITU-R working parties, study groups, and WRC preparatory meetings ensured that the amateur services were properly represented during the development of two published ITU-R reports: M.2513 and M.2532. An ITU-R Recommendation, M.2164, followed these, which formed the basis for the discussions at WRC-23.

During the WRC-23 deliberations, strong positions were expressed by all parties involved.

The result is a well-supported compromise for a footnote in the Radio Regulations regarding amateur and amateur satellite service operation in the 1240 - 1300 MHz range. The footnote reminds administrations and amateurs of the need to protect the primary RNSS from interference, and it provides guidance for administrations to allow both services to continue to operate in this portion of the spectrum.



IARU President Tim Ellam, VE6SH, offers thanks to Barry Lewis, G4SJH, for his success in leading IARU's work on Agenda Item 9.1 topic b. From left to right: WRC-23 SWG4B7 Chair Dale Hughes, VK1DSH; IARU Vice President Ole Garpestad, LA2RR; Tim Ellam, VE6SH; Barry Lewis, G4SJH, and IARU Secretary Joel Harrison, W5ZN.

Administrations are the bodies that govern amateur radio in their respective countries, such as the Federal Communications Commission (FCC) in the United States.

The Conference Plenary compromise was formally adopted on December 8 and is not subject to further consideration during the final week of WRC-23. The IARU team continues its work on other WRC issues, including developing agendas for future conferences.

IARU President Tim Ellam, VE6SH, noted, "This is a very good result for the amateur services. The decision reached at WRC-23 on this agenda item makes no change to the table of allocations nor incorporates by reference M.2164 into the Radio Regulations. The addition of a footnote that provides guidance to administrations in the event of interference to the RNSS is a good regulatory outcome for amateurs and the primary users of this band."

The WRC also agreed to suppress Resolution 774, which closes the issue and satisfies the agenda item. [Read more in ARRL News](#)



[WRC-23 began on November 20, 2023.](#) The IARU team includes: ARRL Technical Relations Specialist Jon Siverling, WB3ERA; Paul Cloverdale, VE3ICV, for Radio Amateurs of Canada; Barry Lewis, G4SJH (IARU AI 9.1b Lead), Flavio Archangelo, PY2ZX, for Liga de Amadores Brasileiros de Rádio Emissão / IARU Region 2; Bernd Mischlewski, DF2ZC, for Deutscher Amateur Radio Club; IARU President Tim Ellam, VE6SH; Murray Niman, G6JYB, for the Radio Society of Great Britain; IARU Vice President Ole Garpestad, LA2RR; IARU Secretary Joel Harrison, W5ZN; Wahyudi Hasbi, YB1PR, for Organisasi Amatir Radio Indonesia; Peter Pokorny, VK2EMR, for the Wireless Institute of Australia; Dale Hughes, VK1DSH, for the Wireless Institute of Australia (SWG4B7 Chair), Roland Turner, 9V1RT, for Singapore Amateur Radio Transmitting Society (IARU), and Ken Yamamoto, JA1CJP, for the Japan Amateur Radio League.

Student-Led ARISS Contact a Success

A student-led contact with astronauts through the Amateur Radio on the International Space Station (ARISS) program was a great success that earned significant media attention. On Monday, December 11, students at Harbor Creek High School in Harborcreek, Pennsylvania, used amateur radio to talk with Astronaut Andreas Mogensen, KG5GCZ.



The students are part of the Advanced Technologies Group, KC3SGV, an after-school club at Harbor Creek. Fifteen of the students are licensed radio amateurs. As [ARRL News reported last week](#), their faculty advisor, Assistant Principal Drew Mortensen, AC3DS, is a graduate of the ARRL Teachers Institute on Wireless Technology. He utilized what he learned in the program and brought it back to the school. The ARISS contact is just one of the many successes the program has had.



Student-members of the Advanced Technology Group at Harbor Creek High School handled all aspects of the ARISS contact.

ARRL Education and Learning Manager Steve Goodgame, K5ATA, was on hand for the contact, and he was impressed by the skills demonstrated by the students.

Goodgame recalled, "From antenna assembly and installation to the actual control operator function of the radio during the contact itself, students were at the helm. Every student who asked a question of Commander Mogensen was a licensed amateur radio operator. When I asked what they had planned next, the response was, 'Well, the logical step would be to build and get a CubeSat launched.' This is exactly the type of program we hope to help create as an outcome of the Teachers Institute," said Goodgame.



ARRL Education and Learning Manager Steve Goodgame, K5ATA, speaks with a TV reporter at the ARISS contact.

Local, regional, and national media took note of the students' success. Local television newscasts (see [Amateur Radio in the News](#) below) featured the event, and NBC Journalist Harry Smith and a crew from NBC's TODAY were at the event to tell the story about the young hams.



Harry Smith and a crew from NBC's TODAY interview a group of student hams.

This type of exposure for amateur radio is key to growing the hobby, according to ARRL Public

Relations and Outreach Manager Sierra Harrop, W5DX. "The passion of these teenage operators led to this success story. Who doesn't love the story of young minds doing extraordinary things in STEM through amateur radio?" she exclaimed. ARRL Director of Development Kevin Beal, K8EAL, mentioned that the media coverage demonstrates the impact that the donors who have funded the Teachers Institute have on the future of amateur radio. Beal said, "The reach goes far beyond the one-week training institute and ripples out farther than we can see."

The ARRL Teachers Institute on Wireless Technology is funded by the ARRL Education and Technology Fund. If you are interested in supporting STEM education through the Teachers Institute on Wireless Technology, visit www.arrl.org/GiveToSTEM.

ARISS is a cooperative venture of international amateur radio societies and the space agencies that support the ISS. In the US, participating organizations include NASA's Space Communications and Navigation (SCaN) program, the ISS National Laboratory -- Space Station Explorers, [ARRL](http://www.arrl.org), and AMSAT.

2024 ARRL National Convention to be at Hamvention

ARRL and Hamvention® have announced that Hamvention will host the 2024 ARRL National Convention, May 17, 18, and 19 at the Greene County Fairgrounds in Xenia, Ohio. Hamvention is the world's largest annual gathering of radio amateurs and has been sponsored by the Dayton Amateur Radio Association (DARA) since 1952.



"We are pleased to unveil our 2024 logo and theme," announced 2024 Hamvention General Chair

Jim Storms, AB8YK, and the Hamvention team. "The theme is 'Expanding our Community'. This is in support of the growth of amateur radio worldwide."

Hamvention Awards Chair Michael Kalter, W8CI, also shared a reminder that the nomination period is open to submit nominations for 2024 Hamvention Awards, including the Amateur of the Year, Technical Achievement, Special Achievement, and Club of the Year awards. More information about the awards can found on the Hamvention website, and nominations will close on February 15, 2024.

ARRL is building a program for its National Convention that will include presentations and forums, more than a dozen exhibits, and activities for young hams. Once finalized, the National Convention program will be published at www.arrl.org/expo.

Hamvention urged "everyone to purchase their tickets and make their room reservations early to avoid the rush." Visit the Hamvention website for more information and to order tickets at www.hamvention.org.

ARDC and ARRL Announce \$2.1 Million for the Next Generation of Amateur Radio

[Amateur Radio Digital Communications \(ARDC\)](http://www.ardc.org) and [The ARRL Foundation](http://www.arrl.org) announced a three-year commitment with over \$2.1 million in combined funding to support scholarships for radio amateurs, radio technology for classroom teachers, and amateur radio club grants. This commitment reinforces a strong shared vision between ARRL The National Association for Amateur Radio® and ARDC to invest in the future of amateur radio through programs supporting the next generation of radio amateurs.



"ARRL and ARDC share a common vision for the future of Amateur Radio," says The ARRL Foundation



President David Norris, K5UZ. "The Foundation exists to support the next generation of radio amateurs, and we are so proud to collaborate with ARDC to make these programs possible."

The ARDC Scholarship at The ARRL Foundation has supported nearly 100 amateur radio operators in pursuit of their educational goals since its inception in 2020. The renewed commitment will result in over 200 total scholarships, awarded over the next three years, for radio amateurs pursuing higher education, with scholarships ranging from \$5,000 to \$25,000. This competitive scholarship program is run through The ARRL Foundation Scholarship Program, and recipients who demonstrate academic excellence and financial need can use this funding for tuition, room & board, books, and other fees essential to advance their education. More information on eligibility and application deadlines may be found online at The ARRL Foundation website at www.arrl.org/scholarship-program.

The ARRL Club Grants program was introduced in 2022 with initial funding from ARDC. Thanks to this next round of collaboration, the ARRL Club Grants Program will continue in 2024. Beginning with significant funding from ARDC in 2022, the ARRL Club Grants program is administered by The ARRL Foundation, together with the ARRL Field Organization. These club grants are critical to the future of amateur radio because of the importance of mentoring and helping licensees become active in Amateur Radio. ARRL encourages clubs to revitalize this critical aspect of their role by applying for funding to support programs in one of the available categories, including ham skills development, STEAM learning and education, or club station improvement, among others. This transformational program will launch in the Spring of 2024. More

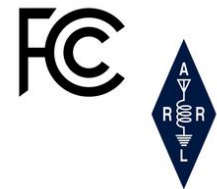
details will be provided through upcoming informational sessions and on The ARRL Foundation website at www.arrl.org/club-grant-program.

Additional funding from ARDC will extend the effectiveness of ARRL outreach programs to teachers and schools, including the ARRL Teachers Institute for Wireless Technology. Monies will be used to purchase equipment to allow students to get hands-on STEM experiences through radio communications and radio technology.

Read more about the exciting announcement on [ARRL News](#).

Bandwidth Limits Replace Symbol Rates on the HF Bands, Other Bands Open for Comment

The Federal Communications Commission (FCC) [published new rules](#) adopted last month that replace the symbol rate restrictions on the HF bands with a bandwidth limit of 2.8 kHz. The new rules go into effect January 8, 2024.



The bands and band segments affected by the rules change are those authorized for data transmission between 160 and 10 meters, exclusive of 60 meters (where no change was made).

In adopting a bandwidth limit in place of the baud rate limit the FCC agreed with ARRL that some limitation is necessary because "without a baud rate or bandwidth limit, data stations using a large amount of spectrum for a single emission could do so to the detriment of simultaneous use by other stations using narrowband emission modes."

ARRL has advocated for this change for a long time. The move opens amateur data communications to faster and more modern modes and restores the incentive for amateurs to experiment with and

develop faster and more efficient data methods. Previously, ARRL obtained waivers to the symbol rate rules on a case-by-case basis to facilitate communications during situations like hurricane responses. These delays will now be removed, permitting drills to be conducted with the faster modes and more timely responses when needed.

The FCC also requested comment on removing similar symbol rate restrictions in the rules governing 135.7 - 137.8 kHz (2200-meter band), 472 - 479 kHz (630-meter band), and the very high-frequency (VHF) and ultra-high frequency (UHF) bands.

The VHF bands with baud rates are the 6-meter band, 2-meter band, and the 1.25-meter band. The single UHF band with a baud rate is the 70-centimeter band (420 - 450 MHz). The [Further Notice of Proposed Rule Making](#) (FNPRM) proposes to maintain the existing bandwidth limits in the Commission's rules for these VHF and UHF bands but seeks comment on whether they should be kept, and if so, whether the bandwidths should be changed. The Commission also sought comment on whether bandwidth limits should be adopted for application to the 2200 and 630-meter bands, and if so, what an appropriate bandwidth limit would be.

Public comments on these additional issues are sought in the FNPRM. The comment period is open until January 8, 2024. Replies to comments are due no later than January 22, 2024. If changes are later adopted, the rules will go into effect in the same manner as they did for the other bands -- after notice and publication in the Federal Register.

IARU and ARRL Attending WRC-23 in Dubai, UAE

The International Telecommunication Union (ITU) World Radiocommunication Conference 2023 (WRC-23) began November 20 in Dubai, United Arab Emirates, and will continue through December 15,

2023. During WRC-23, the ITU's 193 sovereign Member States, each with one equal vote, will address items on a formal agenda in an effort to reach consensus on revisions to the ITU Radio Regulations, the international treaty governing the global use of radio-frequency spectrum and satellite orbits.



WRC's are held every 3 to 4 years and include the Amateur and Amateur Satellite Service allocations.

The International Amateur Radio Union (IARU) is a Sector Member of the ITU and globally represents the interests of amateur radio. A contingent of representatives from IARU and ARRL in the US are attending the meetings. ARRL serves as the International Secretariat of the IARU.



IARU Vice President Ole Garpestad, LA2RR (on the left), and IARU Secretary Joel Harrison, W5ZN (on the right) met with Mario Maniewicz, (in the center), Director of the ITU Radiocommunication Bureau during, WRC-23.

The agenda of items to be reviewed for WRC-23 was established at the completion of the last conference in 2019. Of primary importance to the Amateur and Amateur Satellite Services is Agenda Item 9.1 topic b, which addresses the amateur use of the 23 - centimeter band and the co-frequency use by several radio navigation satellite service (RNSS) systems in the 1240 - 1300 MHz band.



IARU President Tim Ellam, VE6SH, (on the left), and IARU Vice President Ole Garpestad, LA2RR (on the right) met with ITU Secretary-General Doreen Bogdan-Martin, KD2JTX, (in the center) during WRC-23.

The work at WRC-23 involves several committees, working groups, and sub - working groups that negotiate spectrum matters in an effort to reach consensus on the conference agenda items to subsequently be presented and formally adopted during the final plenary session.

A report on items of interest to amateur radio from WRC-23 will be reported at its conclusion.

ARRL Teachers Institute Grad Prepares Students for Ham Radio Contact with Astronaut

ARRL celebrates the success of an [ARRL Teachers Institute on Wireless Technology](#) graduate. The skills learned in the Teachers Institute (TI) have led to a school having an amazing opportunity using amateur radio.

On Monday, December 11, 2023, students at Harbor Creek Senior High School in Harborcreek, Pennsylvania, will host an [Amateur Radio on the International Space Station \(ARISS\)](#) contact. Assistant Principal Drew Mortensen, AC3DS, completed the ARRL TI-1: Introduction to Wireless Technology program. Mortensen; Allen Lombardozi, KC3TGY, and Elaine LaFuria, KC3SFY, have led the development of a robust amateur radio program at the school.



Teachers downlink images from an NOAA GOES satellite during the ARRL Teachers Institute for Wireless Technology. [Sierra Harrop, W5DX, photo]

After attending the ARRL Teachers Institute, their students prepared and launched their own high-altitude balloon, capturing the interest and passion of other students, teachers, and the community.

Fifteen Harbor Creek students participating in the ARISS contact are licensed amateur radio operators. Since applying for the contact in November 2022, Harbor Creek has seen 16 students earn their amateur radio licenses, with three going on to earn their General-class licenses and three more going on to earn their Amateur Extra-class licenses. Mortensen expressed gratitude for the [ARRL Youth Licensing Grant Program](#), which reimburses the \$35 amateur radio licensing fee to those younger than 18, for helping to lower the barrier of entry for students.

Students at the Harbor Creek School District Advanced Technologies Group, KC3SGV, meet regularly and fill the meeting space to maximum capacity. The students of the group will livestream the event on their YouTube channel at youtube.com/@advancedtechnologiesgroup. This livestream will be run and managed by students.

ARRL Education and Learning Manager Steve Goodgame, K5ATA, is excited about the school's success, stating, "The program at Harbor Creek Senior High School is a shining example of the impact the ARRL Teachers Institute on Wireless Technology can have on students."

If you are interested in supporting STEM education through the Teachers Institute on Wireless Technology, visit www.arrl.org/GiveToSTEM.

December ARISS Contact with South Carolina School

On Tuesday, December 5, students at Orangeburg Christian Academy (OCA) in Orangeburg, South Carolina, had the opportunity to speak with Astronaut Jasmin Moghbeli, KI5WSL, onboard the International Space Station (ISS).

OCA is a small school of about 250 students in grades K-12. The faculty includes space science, space travel, science on the ISS, electronics, amateur radio, and more astronomy in various STEM studies.

The event lasted just more than 10 minutes, and Moghbeli answered 20 questions ranging from safety in space to what astronauts drink in space and what it is like to shower in space.

The contact was arranged by Amateur Radio on the International Space Station (ARISS). Each year, ARISS conducts 60 - 80 of these special amateur radio contacts between students around the globe and crew members with ham radio licenses aboard the ISS.



*NASA Astronaut
Jasmin Moghbeli,
KI5WSL. [NASA
photo]*

Phillip Shreves, N7GZT, assisted with the ARISS contact by operating the link to the radio ground station to establish and maintain the ISS connection.

40 Years of Amateur Radio in Space

Melissa Gaskill, a science author from Austin, Texas, has written a comprehensive review about the 40-year history of amateur radio in space. In her article, "[Ham Radio in Space: Engaging with Students Worldwide for 40 Years](#)," Gaskill explores the Shuttle Amateur Radio Experiment (SAREX), which is now known as Amateur Radio on the International Space Station (ARISS).

Gaskill said that while she wrote the article, she is not an expert on the subject but there are many who are including Kenneth Ransom, N5VHO, International Space Station (ISS) Ham Project Coordinator since 2004.



Ransom said that amateur radio in space was a possibility even before 1983, when Astronaut Owen Garriott, W5LFL (SK), made history during the STS-9 Space Shuttle Columbia mission with the first amateur radio contact from space. NASA had been looking for ways to bring amateur radio to Skylab (a space station designed as an orbiting workshop for scientific research) and even the moon.

"Having amateur radio in space has added a heightened level of interest, not only for hams, but for the overall program as well," said Ransom. "Just being able to talk to a crew member on board a spacecraft is an amazing accomplishment."

Garriott's son, Richard Garriott, who operated amateur radio during a short-term mission on the ISS in 2008, will present a special webinar on December 7, 2023, at 1800 UTC to discuss his father's first historic mission. The presentation will be available to watch on [ARISS - YouTube](#). The event

is hosted by ARISS International Chair Frank Bauer, KA3HDO.

ARISS is a cooperative venture of international amateur radio societies and the space agencies that support the ISS. In the US, participating organizations include NASA's Space Communications and Navigation (SCaN) program, the ISS National Laboratory -- Space Station Explorers, [ARRL](#), and AMSAT.

ARRL Podcasts Schedule

[The December 2023 episode of the On the Air podcast](#) ties into a

feature in the

November/December issue

called "Bits and Baud," which

discussed important elements of

digital communication, namely the quantity of information a transmission delivers -- known as bit rate -- and the rate of speed at which the

information is delivered, which is known as baud rate. In this podcast episode, we're joined by the

article's author, former QST Editor Steve Ford, WB8IMY, who explains more about the differences

between bit rate and baud rate, as well as why hams are concerned with these measurements in the first place.



ARRL Audio News

Listen to [ARRL Audio News](#), available every Friday. ARRL Audio News is a summary of the week's top news stories in the world of amateur radio and ARRL, along with interviews and other features.



The On the Air podcast and ARRL Audio News are available on blubrry, iTunes, and Apple Podcasts - [On the Air](#) | [ARRL Audio News](#).

Amateur Radio in the News

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

["Carbon radio club celebrates 75 years"](#) / tnonline.com (Pennsylvania) December 18, 2023 -
- The Carbon Amateur Radio Club is an ARRL Affiliated Club.

["Local students build antennas, communicate with astronaut aboard the International Space Station via radio"](#) / WJET (Pennsylvania) December 11, 2023

["Harborcreek Students Chat with International Space Station"](#) / Erie News Now (Pennsylvania) December 11, 2023

["Dialed in: Harbor Creek Students complete years-long task of livestreaming with space station"](#) / Erie News-Times (Pennsylvania) December 14, 2023

["Ham Radio in Space: Engaging with Students Worldwide for 40 Years"](#) / NASA November 29, 2023

["CERTs from across the region will hold emergency rescue training in Eugene this Saturday"](#) / KLCC (Oregon) November 30, 2023 -- Community Emergency Response Teams (CERTs).

["All hands on deck for Emergency Alert and Ham Radio teams"](#) / Vashon-Maury Island Beachcomber (Washington) December 6, 2023 -- Voice of Vashon Emergency Alert Team.

Arrl.org. 2023. ARRL Letter. [online] Available at: <http://www.arrl.org/arrlletter?issue=current> [Accessed 01 Jan 2024]

NARS Monthly Club Meeting

December's Monthly Meeting

The December meeting buzzed with excitement as members of our ham radio club showcased a diverse array of Show and Tell projects. Enthusiastically sharing their latest innovations and accomplishments, our club members demonstrated the vibrant spirit of the community. From homemade gadgets to innovative communication setups, the event highlighted the creativity and technical prowess within our ranks. Thanks to all those that shared and presented at the December meeting!

Next Club Meeting

Our next club meeting will be the annual banquet on January 19th at [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: HCESD 16 Admin, [18606 Stuebner Airline Rd, Spring, TX 77379](#)
Zoom Conference Call, Meeting ID: 2815436502, Passcode: 123456

NARS Club Documents and Minutes

DID YOU
KNOW



Did you know that you can find all of the club's public documents, including board meeting minutes, financial statements, and newsletters on the [club website](#) at http://www.w5nc.club/doc_repos/?

NARS Name Badges: Get Yours Today!

Cindy (KM4YGG) and Art (KM4YGH) Grant are offering the club a deal for the NARS club on getting membership name badges. Each badge costs \$10 and can be delivered at the next NARS meeting (if ordered two weeks or more before the next meeting).



To order, go to <https://badgesunlimitedllc.com/#!/4-2-NARS-CLUB-MEMBERS-ONLY/p/104217140/category=13635038> and pay the fees using the checkout capability on the website.

NARS Announces a Dues Increase

NARS has made the difficult decision to increase its annual membership dues for the first time in its history. While this was a difficult choice for the Board, it has become necessary to sustain the provision of our numerous services to the community. Over the years, prices on goods and services have risen, and we have faced these increases while maintaining our membership fees, despite enhancing our repeater system and other services to our members.

Effective January 2024, the dues will increase by \$5.00 across the board. The new dues structure will be as follows:

- Individual Membership \$25.00
- Family Membership \$30.00
- Student Membership \$17.50

We will continue to offer new licensees a \$5.00 discount upon their initial sign-up.

Members who need to renew their membership before January 1 will pay the current dues, while those renewing after January 1 will see the increase. Membership terms run for one year from the day of joining, so many members will not experience the increase until sometime next year.

Amateur Radio Activities

The “Amateur Radio Activities” feature of NARS News highlights various activities related to ham radio. Each issue provides a quick overview for those who may be interested in the learning new aspects of the amateur radio hobby.

A Guide to Parks on the Air (POTA)

For radio operators who are seeking to meld their love for radio communication with a deep appreciation for the great outdoors, the world of Parks on the Air (POTA) beckons. POTA involves the activation or pursuit of amateur radio stations within state and national parks, offering a unique fusion of technical prowess and immersive outdoor exploration.

Parks on the Air stands as an amateur radio program designed to stimulate radio activity within various parks and protected natural areas. Activators, armed with portable radio stations, set up shop in these designated zones, making contact with fellow operators, known as hunters. The hunters, in turn, strive to establish connections with as many activated parks as possible.

For those eager to dive into the world of POTA, the following steps provide a detailed roadmap to kickstart your journey:

Mastering the Basics

Immerse yourself in the nuances of the [POTA program rules and guidelines](#). The [POTA website](#) also has several guides and “How to” tutorials for POTA activators and hunters. [Review the basics for exchanging information during a contact](#), including park reference numbers, signal reports, and operator details.

Setting Up Your Gear

As a POTA activator, a sophisticated setup is not mandatory. A portable transceiver, a reliable antenna, and a power source constitute the essentials. Many operators prefer lightweight and easily deployable equipment for seamless on-the-go activations.

Leveraging POTA Apps and Websites

Become familiar with <https://pota.app/>, which is a dedicated apps to scout upcoming park activations, monitor currently active parks, and strategize your hunting approach. Real-time information ensures you're always in the loop regarding active parks and their corresponding frequencies.

Listening and Learning

Dedicate time to listening across various bands, attuning yourself to propagation conditions, and observing the operating styles of seasoned POTA operators. This preliminary research aids in developing effective techniques and honing radio etiquette.

Skill Refinement

Sharpen your operating skills, especially in terms of efficient logging and swift information exchanges. POTA hunting often involves rapidly changing conditions, demanding nimble communication to maximize your contact count.

There are many benefits to getting involved with Parks on the Air, including:

- **Embracing Exploration and Adventure** - POTA activity becomes a gateway to various parks, enticing you to explore diverse outdoor environments. This fusion of radio communication and adventure promises a wholesome experience.
- **Fostering Community and Camaraderie** - Engaging with the POTA community establishes connections with kindred spirits who share a profound passion for both amateur radio and the great outdoors. Sharing experiences, tips, and anecdotes enriches the social fabric of this captivating hobby.
- **Cultivating Technical Proficiency** - POTA challenges and refines your radio operating skills, from adeptly tuning into stations to meticulously logging contacts. The dynamic nature of POTA activations enhances your adaptability as an operator, fostering continuous technical growth.

In conclusion, Parks on the Air hunting stands as a captivating intersection of amateur radio and outdoor exploration, offering enthusiasts a distinctive avenue to weave their technological prowess with the wonders of nature. Whether activating a park or chasing contacts from the comforts of home, POTA provides a sense of adventure and camaraderie that elevates the overall amateur radio experience. So, gather your gear, immerse yourself in a natural setting, and let the thrill of POTA propel you into a realm where technology and the wilderness harmoniously coalesce.

NARS Membership – Due Dates and More



Did you know that you can find your membership expiration date on the club website? Simply click the “Membership Reports” link on the home page or visit this link: <http://www.w5nc.club/nars/index.php/2014-03-30-18-23-31/membership-reports/club-roster>. Find your name in the list and look at the “Expires” column of the table!

New Amateur Extra-Class Question Pool Released Effective July 1, 2024

The [National Conference of Volunteer Examiner Coordinators](#) (NCVEC) [Question Pool Committee](#) (QPC) has released the 2024 - 2028 Extra-Class FCC Element 4 Question Pool and Syllabus to the public. The new [Extra-Class Question Pool is effective from July 1, 2024, through June 30, 2028](#).

The 2024 - 2028 pool is available as a Microsoft Word document and as a PDF. The 10 graphics required for the new Extra-Class Question Pool are available within the documents or separately in PDF and JPG file formats.

ARRL VEC Manager Maria Somma, AB1FM, and member of the NCVEC QPC, said, "The new pool incorporates significant changes compared to the 2020 - 2024 version. We carefully went over the pool for technical accuracy, relevancy to today's amateur radio practices, syntax, grammar, style, format, and clarity and redundancy within and between the pools. With these goals in mind, 82 new questions were created, and 101 questions were eliminated, resulting in a reduction [of] the number of questions from 622 to 603. Over 350 questions were modified. We considered a question modified when the knowledge being tested was not changed but wording was improved, or answers or distractors were replaced."

Somma advised that "the newly revised pool must be used for Extra-class license exams starting July 1, 2024. New test designs will be available to [ARRL Volunteer Examiners](#) (VEs) on that date. The ARRL VEC will supply its officially appointed, field-stocked VE teams with new Extra-class [exam booklet designs](#) around mid-June."

Extra-class examination candidates preparing for their exams using the 12th edition of [The ARRL Extra Class License Manual](#) or the 5th edition of [ARRL's Extra Q & A](#) are encouraged to test on or before June 30, 2024. New editions of ARRL licensing publications will be available in May for exams taken on or after July 1, 2024.

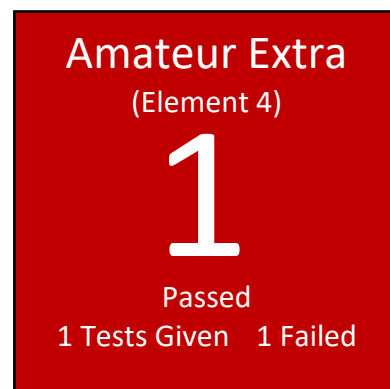
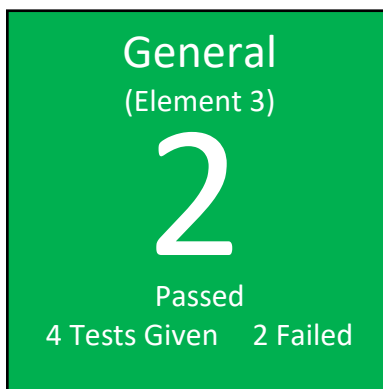
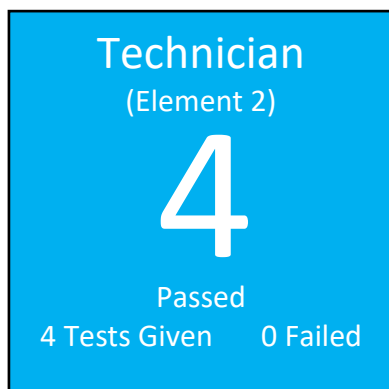
Notice provided by the ARRL at <https://www.arrl.org/news/new-amateur-extra-class-question-pool-released-effective-july-1-2024>, Accessed on January 1, 2024

VE Sessions and Results

PROVIDED BY SHEREE HORTON, WM5N

Attendees

On Saturday December 16, 2023, a VE Test Session was held at HCESD 16 Admin, 18606 Stuebner Airline Rd, Spring, TX 77379. During the testing session, 5 candidates took 9 tests.



Congratulations!

Congratulations to the following for passing their new license exams¹:

- Keith R Miller – Technician
- Jose M Tijerina – Technician
- Christopher A Chamberlain – General
- Ivan W Collins – General

Congratulations to the following for passing their upgrade exams:

- Phillip A Pappano Jr KI5VPF – 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/arrrl/77070/inperson>

The next session will be January 20, 2024 at the HCESD 16 Admin Building. Please visit www.w5nc.club for the announcement.

¹ 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:

- Michael Robinson KI0DE – acting Session Manager
- Synomen Hebert KG5IRS
- Brett Hebert KG5IQU
- Brynn Hebert KG5KRV
- Robert Ewers K9HOU
- Dale Schmirler KN5DS

VE Session Guidelines

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

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 or 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.

Renewing Club Members

New Club Members

Welcome to the following new members of NARS!

- Robert Bernardini, KJ5DKB
- Marcus Garcia, AI5LM
- Linda Golden, KK2C

Renewing Club Members

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

- Rick Braddy, W5FCX
- Jay Close, K0GEO
- Lloyd Coker, KI5OYC
- Keith Dutson, NM5G
- Thomas B (Ben) Gillis, K5TBN
- George Golden, KK3R
- Tom Hoherd, KK5YU
- Paul Pacior, KA5PUD
- Raul Pavon, AK5KK
- Paul Protas, WA5ABR
- Stephen Stepinoff, KG5VUG
- Thomas Stokes, KD5MER
- Nora Stovall, KB5FYJ
- Mark Thompson, NO2U

Training and Education

NARS

NARS Meeting Presentations - <http://w5nc.club/nars/index.php/club-info/technical-presentations>

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!

Exam Practice Answers

Technician: T6C09 - B. Transformer

General: G4B02 - B. Complex waveforms can be measured

Amateur Extra: E5D15 - B. 0.707

Of Interest to the Club

Houston Local Traffic Net

The Houston Local Traffic Net (HLTN) was formed July 14, 2020 in preparation for ARRL Field Day 2020. Originally called the Fort Bend County Traffic Net, the HLTN has been in continuous operation since then.

The nets ran on Monday nights for one hour with training sessions during the net. Because of the volume and interest in the Traffic Net, on April 15, 2021 an additional session was added on Thursday nights for 30 minutes and in 2020 the time was increased for up to an hour to also accommodate training.

The Houston Local Traffic Net currently meets from 6:30pm – 7:30pm twice a week handling National Traffic System (NTS) traffic (Radiograms) into and around the Houston Metro area and also includes, time permitted, traffic handling/training.

Monday's net: 146.940 (-) PL 167.9

Thursday's Net: 147.000 (+) PL 103.5

Backup repeater for both:

- 146.660 (-) PL 100.0,
- 444.375 (+) PL 100.0
- Echolink Node W5NC-R (all linked)

A complete schedule of Area Traffic Nets is located on the HLTN.org 'Nets' web tab with the times and frequencies. Visitors are welcome and encouraged to check-in to listen and learn this important Amateur Radio skill.

Direct any questions, via phone or email, about the Houston Local Traffic Net, Radiograms, and Traffic handling to: Sheree Horton WM5N, ARRL South Texas Section Traffic Manager

GHSN monthly Simplex Propagation Net

Beginning January 2022, the [Greater Houston Simplex Network](#) will return to its regular schedule of the 4th 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

Calendar

Club Activities and Events

Monthly Club Meeting – December 15, 2023 - HCESD 16 Admin – [18606 Stuebner Airline Rd, Spring, TX 77379](#)

VE Test Session – December 16, 2023 – [18606 Stuebner Airline Rd, Spring, TX 77379](#) - Check-in will start at 8:30am with testing lasting from 9:00am - 11:30am. All testing activities will be completed by noon.

The full NARS calendar can be viewed at: <https://w5nc.groups.io/g/main/calendar>

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.

Hamfests and Conventions

January 27 | [Winterfest](#), ARRL Midwest Division Convention, Collinsville, Illinois

February 9 - 11 | [Orlando Hamcation](#), ARRL Florida State Convention, Orlando, Florida

March 1 - 2 | [Greater Houston HamFest](#), ARRL West Gulf Division Convention, Rosenberg, Texas

Contests and Radiosport

ARRL Contest Corral

January 2024 - <http://www.arrl.org/files/file/Contest%20Corral/2024/January%202024%20Corral.pdf>

For a calendar of ARRL contests, please see <http://www.arrl.org/contest-calendar>.

For resources and results for all ARRL contests, please see <https://contests.arrl.org>.

NARS Club Officers and Information

Board Officers with Voting Privileges

President: Ron Matussek, WA6TQH, 713-825-9606, officers@w5nc.net

Vice President: Paul Kent, KI5FJS, officers@w5nc.net

Treasurer: Tom Hoherd, KK5YU, 713-828-8630, treasurer@w5nc.net

Secretary: Brandon Rogers, K5BLR, 713-294-6630, officers@w5nc.net

Director: Rich Jones, W5VEK, officers@w5nc.net

Director: TBN

Board Non-Voting Associate Members

Administrative Secretary: Neal Naumann, N5EN

Social Media Liaison: Sam Labarbera, N6HB

Newsletter Editor: Brandon Rogers, K5BLR

Public Information Liaison: TBN

ARRL/VEC Liaison: Sheree Horton, WM5N

Repeater Team Lead: Mike Pate, K5MAP

Webmaster: Bill Buoy, N5BIA, 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.clubs>) 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. Kirc Breden, N5XJB, coordinates this Net.

Repeaters

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

Did you know...

that NARS has a 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.club/nars/index.php/social-media/email-reflector-groups>