



NARS NEWS

FEBRUARY 2025

Northwest Amateur Radio Society

P.O. Box 11483

Klein, TX 77391

w5nc.club

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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:

Vicki & Paul Owen (AC5EW/N5NXS), Newsletter Editors

President's Message

BY PAUL OWEN, N5NXS

NARS Beginnings

This year is a big deal for Northwest Amateur Radio Society because it is our 40th anniversary. Most of the following is from an article by Paul Frantz, W5PF, done in 2005 which was the 20th anniversary of NARS.

"In the spring of 1985, several hams in the northwest area were concerned by the lack of an active ham radio club in this part of Houston. The Houston Amateur Ham Radio Club virtually ceased to exist. There was a new club in the Southwest (BVARC) and a club at NASA, but there was nothing within a reasonable distance in our part of town.

In those days BC - before computers- (not to mention before the internet), it was difficult to determine how many hams were in your area and how to get hold of them. Dee Logan, W1HEO, managed to get the ARRL to send us a set of mailing labels by ZIP code.

In mid-1985, the first steering committee meeting was held at Dee's QTH in Memorial Northwest. The makeup of the committee was Dee Logan and the following hams, Bob Jahn WA4JBV, Ken Edinborgh W5BKK, Ken Harlan KA5AKG, Dan Wells N5IDE, Henry Freedenberg N5HF, Bob Welch KE5IC, Paul Frantz KF5SB (now W5PF), Mike Pfeiffer K5WIM, Dick Rousseau KA4MFS, Dick Combs N5DRM, Kirby Van Horn K7WOC and Jerry Smith W5NKZ. At this meeting a decision was made to proceed with the formation of NARS. Information was sent out using the mailing labels provided by the ARRL and a general meeting was scheduled at the HealthKit store on FM1960. Not many hams didn't know that one even existed, and many hams today don't even know what kind of store it was and what they sold there."

I will be sharing some of the other founding members' thoughts that they expressed in letters to the club from the past NARS News

Winter Field Day

I am glad I asked a few members in October if anyone would be interested in participating in Winter Field Day, since I had the experience with doing the summer Field Day, I thought I would do WFD the same. See my article with pictures later in the News.

February General Meeting –

"Parks on The Air – POTA" and "Summits on The Air – SOTA"

The presentation by Dan Romanchik, KB6NU, at the general meeting will be on POTA and some on SOTA to compare the two. He is the author of the [No Nonsense amateur radio license study guides, 21 Things to Do After You Get Your Amateur Radio License](#), and [The CW Geek's Guide to Having Fun with Morse Code](#). He also has the #1 ham radio blog according to Google. He's been at it for more than ten years now, and the blog now has nearly 2,000 posts. Please visit him at KB6NU.Com.

By-the-way, we are always looking for new or updated subject matter for our general meetings, if anyone is interested in making a presentation. Please let members of the Board know. Let's get some new presenters and new subject content.

Repeater Status and Weekly Net Operations

The NARS Repeater Team has a lot on the menu going forward, to get the latest Repeater Status check out W5NC.club.

Repeater update from Rich Jones, Jan 2025

LBT Repeater (Downtown). After the last visit the repeater output was deemed inadequate, so it was put into standby mode.

Galleria Repeater – UHF machine is operational as a standalone machine. The VHF machine is operational as a standalone machine.

Klein Repeater – Fully operational

W5NC HUB (Node 5987) – Allstar and Echo links are operational. DMR repeater (K5MAP) is connected, however it is experiencing some intermittent losses.

Short Term Projects – The repeater team committee is developing a repeater radio link via UHF, connecting W5NC Node 5987 to the UHF repeater in the Galleria. The radio link would utilize resources located at the HC ESD 16 HAM radio station.

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)

T7B05

How can fundamental overload of a non-amateur radio or TV receiver by an amateur signal be reduced or eliminated?

- A. Block the amateur signal with a filter at the antenna input of the affected receiver
- B. Block the interfering signal with a filter on the amateur transmitter
- C. Switch the transmitter to a narrow-band mode
- D. Switch the transmitter from FM to SSB

General (Element 3)

G8A08

Which of the following is an effect of overmodulation?

- A. Excessive bandwidth
- B. Frequency drift
- C. Insufficient bandwidth
- D. Insufficient audio

Amateur Extra (Element 4)

E4B05

What three test loads are used to calibrate an RF vector network analyzer?

- A. 50 ohms, 75 ohms and 90 ohms
- B. Short circuit, open circuit and resonant circuit
- C. Short circuit, open circuit and 50 ohms
- D. 50 ohms through $1/8$ wavelength, $1/4$ wavelength and $1/2$ wavelength

See the answers on [Page 19](#).

NARS Membership – Due Dates and More

DID YOU
KNOW



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!

Amateur Radio News

An excerpt from the ARRL News

Ham Radio Operators Serve During CA Fires

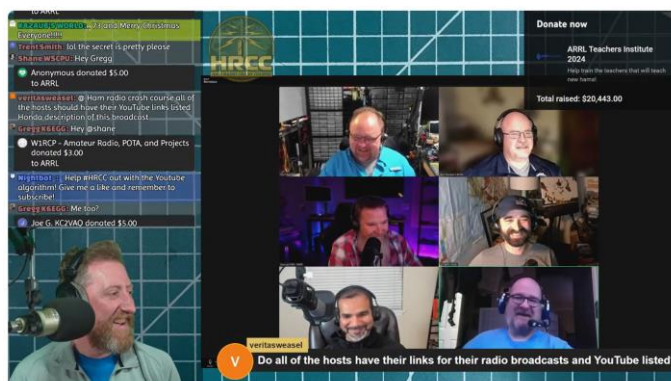
The firestorms across Southern California have brought out trained amateur radio operators to serve critical volunteer roles to help spot fires before they get out of control. Dry conditions and wind gusts of 100 mph have fueled days of devastating wildfires. Volunteers go to preassigned locations within parks and open spaces to report conditions. Many of them are hams, using the amateur radio bands to fill in mobile network weak zones. Members of ARRL Headquarters staff have been in touch with ARRL volunteers and other ham radio groups around the affected area and are offering material support for any activations. Efforts are being coordinated locally by Emergency Network Los Angeles (ENLA), the Voluntary Organizations Active in Disaster (VOAD) group in Southern California.

Get Ready for “Ham Radio Open House”

ARRL is inviting radio clubs and schools to organize a Ham Radio Open House in April, built around World Amateur Radio Day (WARD) on April 18. The focus will be on scientific advancement and demonstrating cutting-edge technology. ARRL has teamed up with HamSCI – Ham Radio Science Citizen Investigation – and the science community organization SciStarter to invite the public to participate in One Million Acts of Science during April, which is Citizen Science Month. Clubs are encouraged to showcase the latest weak-signal modes, such as FT8 using WSJT-X, or other digital modes. Look for resources to help organize and promote the event soon. Find details at www.arrl.org/world-amateur-radio-day.

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>



2025 Youth on the Air Camp Application Period Open

Applications are now being accepted for campers interested in attending the 2025 Youth on the Air Camp. Licensed amateur radio operators, ages 15 through 25, who want to attend are encouraged to apply online at YouthOnTheAir.org. The camp is scheduled to take place June 15 - 20, 2025, in Thornton (Denver), Colorado and the [Denver Radio Club](#), an ARRL Affiliated Club, is the local host.



The current application period is for the fifth camp for young amateur radio operators in North, Central, and South America. For the best chance at being selected, applications should be submitted by 2359Z on January 15, 2025. 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.

Applications will continue to be accepted through May 1 and up to 50 campers will be accepted. The application process is free, but a \$100 USD deposit is required upon acceptance. Should a potential camper be unable to pay the \$100 deposit, they may apply for a scholarship or waiver. Campers are also responsible for their own arrival and departure transportation to the camp location. Travel assistance may also be available, especially for those traveling from outside of the USA and Canada. Travel during camp events is provided.

For details about the camp, visit the camp web page at YouthOnTheAir.org or email Camp Director Neil Rapp, WB9VPG, at director@youthontheair.org.

Ham Radio Demo Helps Survivors of Violence

Camp Family Justice serves pediatric survivors of violence in Contra Costa County, California, providing them with an opportunity to enjoy the outdoors in a safe environment surrounded by support services, including a medical clinic. Also contributing to the Camp is Spencer Holmes, KM6SJO, a science teacher at Heritage High School in Brentwood and adviser for the school's amateur radio club, W6HHS. Holmes brought a box full of radios to the camp and the kids were excited. They had a lot of questions. Holmes also set up a mini HF station. He was able to make contact with several stations and allowed the youth to talk, on a first name basis, with other amateur radio operators.

Grimes County ARES Seeks Donations for Communication Trailer

The Grimes County Amateur Radio Emergency Service (ARES) is calling on the community to help fund a new trailer for their emergency communication equipment. ARES members, who are licensed and trained radio communicators, play a crucial role in maintaining communication during disasters when traditional systems fail.

Currently, the group operates under tents during field exercises, which is not sustainable for extended emergencies. The new trailer will provide a more reliable and weather-resistant solution for their operations.

ARES is applying for federal grants and seeking local contributions to make this purchase possible. They also plan to train community members to assist in emergency communication efforts.

For more information or to contribute, visit the Grimes County ARES [Facebook page](#) or [website](#).

NARS is also working to build a communication trailer in a similar manner. If you are interested in contributing to the NARS trailer project, please contact the NARS on groups.io at officers@W5NC.groups.io.

Schaumburg Amateur Radio Club Offers Free Ham Radio Classes

The Schaumburg Amateur Radio Club is offering a free Entry Level Amateur Radio course starting January 11. This 10-week course will prepare participants for the FCC Amateur Radio Technician Class license test. Classes will be held on Saturdays from 10:30 a.m. to 12:30 p.m. at the Hoffman Estates Branch of Schaumburg Township District Library.

Participants will use the ARRL Ham Radio License Manual (Fifth Edition) as a study guide. The club also offers FCC License testing on the first Saturday of each month at the Schaumburg Park District Community Recreation Center.

For more information or to register, visit the [Schaumburg Amateur Radio Club's website](#).

Extra Class Zoom Licensing Course

A free, weekly, live Amateur Extra Class Licensing course will begin on January 16 and run through March 27, for a total of 11 sessions. The 3-hour sessions will start at 6:30 pm Eastern Time. Sessions will be recorded. Those attending should hold (or be studying for) the General Class license. The classes are sponsored by the National Electronics Museum. Those wishing to sign up should e-mail roland.anders@comcast.net.

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](#).



NARS Monthly Club Meeting

January Annual Banquet

The Northwest Amateur Radio Club (NARS) met for their annual banquet at Spring Creek Barbecue on Hwy 249 @ Rogers Rd. As part of the meeting, recognitions for service in various activities were given. About 30 club members attended the banquet to partake of some good food and social engagement.

Award for the Ham of the Year was given at the end of the banquet, a recognition voted on by the club members and chosen by the recipient's peers. **Congratulations are extended to Michael Lizzo, WA2TOP.**



Next Club Meeting

Our next General Meeting will be held on February 21, 2025, at the HCESD 16 Admin Building – 18606 Stuebner Airline Rd, Spring, TX 77379. We hope to see everyone there!

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, Klein, TX 77379](#)
Zoom Conference Call, Meeting ID: 2815436502, Passcode: 123456

New Radio for New Hams: Jumpstart Program



QRZ, RT Systems and GigaParts have teamed up to offer a sustainable program that is available, while supplies last, to amateur radio operators licensed in the USA for 6 months or less. The program offers a coupon code to the new ham that gives them a QRZ-1 radio, programming cable, RT Systems programming software, New Ham Welcome Kit, and a QRZ membership for only **\$21.99 (+tax & + S&H)**.

What's Included:

- Explorer QRZ-1 Handheld Radio
- Programming cable
- RT Systems Programming Software
- Premium QRZ Subscription

How it Works:

1. Apply at <https://www.qrz.com/jumpstart>
2. Receive your unique discount code from QRZ via email
3. Add a QRZ-1 to your cart.
4. Add any accessories you may want to purchase.
5. At checkout, enter your unique discount code

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.

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.



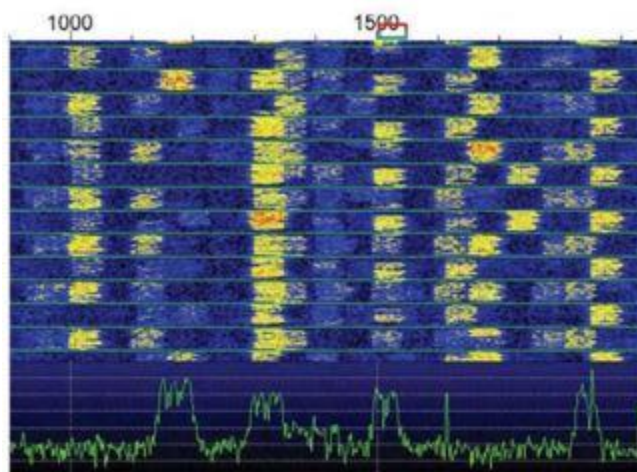


Figure 1 — The standard WSJT FT8 waterfall display.

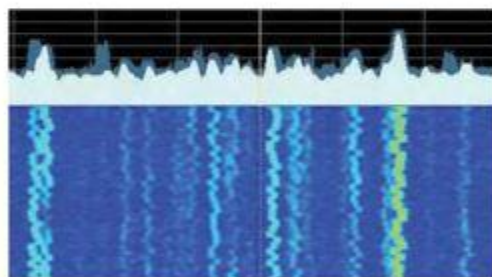


Figure 2 — An Icom IC-7610 waterfall display. This shows what the yellow blocks of data in Figure 1 look like when vertically spread.

2				2				2	3			2	1	3	4
		2				2		4		2		4	3	2	1
3	4		2	3	4	1	2	3	4	1	2	3	4	1	2
	2		3	1	2	4	3	1	2	4	3	1	2	4	3

Figure 3 — A simple 4 × 4 sudoku puzzle.

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.

FT8 Visualized by Thomas W. Brooks KE1R

Data streams are nothing new, and neither is error correction. We stream data all the time with our cell phones, computers, and other devices. CW is a data stream, as are RTTY and PSK31. In this article, I will explore the general makeup of FT8 and explain the basics of error correction. A list of references that I consulted for this article is provided at www.arrl.org/qst-in-depth.

In 2001, Joe Taylor, K1JT, released WSJT; this changed the ease with which hams could interface transceivers with computers and experiment with weak signal modes. Next came the release of WSJT-X in 2012, followed by FT8 in 2017. FT8, which limits messages to 13 characters, uses a 15 second cycle with a 50 Hz bandwidth. FT8 was initially created by Joe Taylor and Steve Franke, K9AN, for 6-meter E-skip propagation. In 2019 FT4 was added, with a 7.5 second cycle and a 90 Hz bandwidth.

I was curious about FT8 waterfall data streams and how they are structured (Figures 1 and 2). Without delving too far into data communication theory and error correction techniques, I will offer some knowledge to help hams visualize such data streams and learn how they are generated and used.

You can look at a simple sudoku puzzle to understand error correction (Figure 3). For those who are unfamiliar with sudoku puzzle rules, each of the four small 2x2 matrixes must contain 1,2,3 and 4. Additionally, each column and row of the larger 4x4 matrix must also contain 1,2,3 and 4. This structure is similar to how low-density parity check (LDPC) coding works. That is, it enables you to find and correct errors when you look at a completed matrix.

Costas Arrays, DT, and CRC

Costas arrays were developed by electrical engineer John P. Costas in 1965 for use in sonar and radar systems. All FT8 transmissions contain an identical 7x7 Costas array at their beginning, middle and end. Like sudoku, each digit (0-7) can be used only once. If you draw a line from each number square to all the other numbers, no two lines can have the same length at the same angle. In a 7x7 Costas array, there are 5,040 possible combinations (because $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 5040$), but only 200 of these combinations meet the Costas requirements. All FT8 transmissions use 3,1,4,0,6,5 and 2, which is a valid Costas array (figure 4). Your computer looks for FT8 waveforms that start with the 3,1,4,0,6,5 and 2 array. All other Costas arrays or data are rejected.

The base frequencies for the eight tones of the FT8 are shown in Table 1; each tone creates three binary bits. Computers are binary devices that process 0s and 1s. Table 2 also shows Gray code, whereby each increasing number can change only one digit at a time.

In the WSJT-X data window, you will see a delta time (DT) column header. This shows the timing of each received FT8 message relative to your computer, and it should be correct within ± 1 second if your computer is synchronized to an internet accurate UTC time base. FT8 messages with excessive DT are difficult to decode (figure 5).

The basic cyclic redundancy check (CRC) concept was created by mathematician and computer scientist W. Wesley Peterson in 1961. It is a check code used in digital communication networks to detect data errors by dividing one polynomial by another, and then evaluating the remainder, or check value. This is done as part of the encoding process (transmission) and the decode process at the receiver's end. It provides some degree of confidence that the received data is correct compared to what was transmitted, but it does not provide information about where any errors might be.

Consider this simplified example: $110111 / 101 = 1011$ remainder 0. Both the sender and receiver use the same CRC code, 101, with a remainder of 0 to indicate valid data. If the remainder is not 0, you will not be able to find the errors. For that you need low density parity check (LDPC) error correction. Refer to Figure 6 for another simplified example. The five circles (D1, D2, D3, D4 and D5) represent data bits. The four intersections (P6, P7, P8 and P9) represent parity bits. The data and parity bits in each circle must sum to 0, ie – $0+0=0$, $1+0=1$ and $1+1=0$ (no carryover).

Table 1 — Base Frequencies for the Eight Tones of FT8	
Tone	Frequency (Hz)
0	6.25
1	12.50
2	18.75
3	25.00
4	31.25
5	37.50
6	43.75
7	50.00

Table 2 — Decimal, Binary, and Gray Code Equivalents to the Eight Tones of FT8		
Decimal	Binary	Gray Code
0	000	000
1	001	001
2	010	011
3	011	010
4	100	110
5	101	111
6	110	101
7	111	100

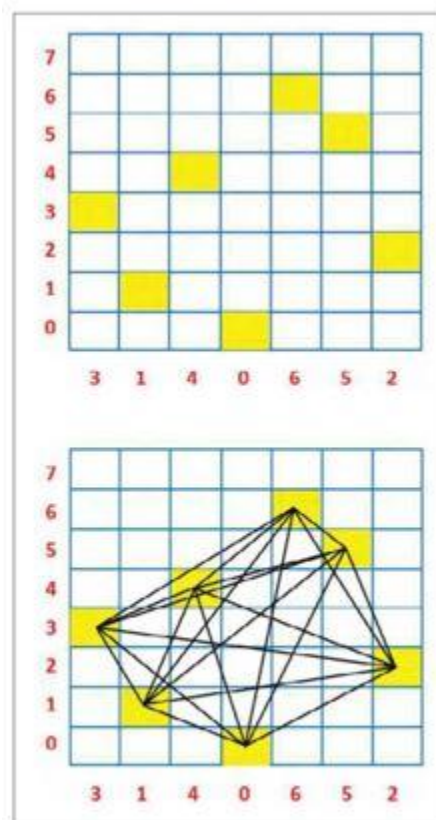


Figure 4 — The top Costas array shows FT8 values 3, 1, 4, 0, 6, 5, and 2. The bottom image shows that it is a valid Costas array.

This illustrates how data and parity bits can be used to show error location, and with some limits, what those errors likely are. Of course, LDPC is far more complex than Figure 6. Forms of LDPC are used in many digital communication protocols, including cellular 5G.

FT8 transmissions have 77 information bits, 14 CRC bits and 83 parity bits for a total of 174 bits. These are converted to Gray code and assembled in groups of three to get 58 symbols/tones. Add the three Costas arrays of seven bits each (21 bits in total) to determine that an FT8 message is 79 symbols/tones, or the equivalent of 237 binary bits. Visit www.arrl.org/qst-in-depth for the process used to observe tone patterns (figure 7) in an FT8 signal.

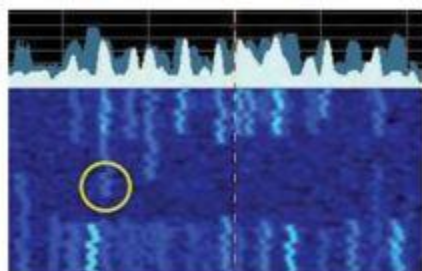


Figure 5 — FT8 messages with excessive delta time (DT). One such message is circled in yellow.

Not enough can be said about the contributions to communications theory and impact to amateur radio that Joe Taylor, Steve Franke, Bill Somerville, G4WJS (SK) and Nick Palermo, IV3NWV, have provided, all under GNU Operating System free worldwide software licenses. Others

continue to make helpful tools and resources for FT8. Gary Hinson, ZL2IFB, created the “FT8 Operating Guide” (see www.sp2pby.pl/pdf/ft8_hinson_tips_for_hf_dxers.pdf), and Steve Ford, WB8IMY, wrote *Get on the Air with HF Digital*. Laurie Cowcher, VK3AMA, wrote *JTAlert*, which supplements WSJT.

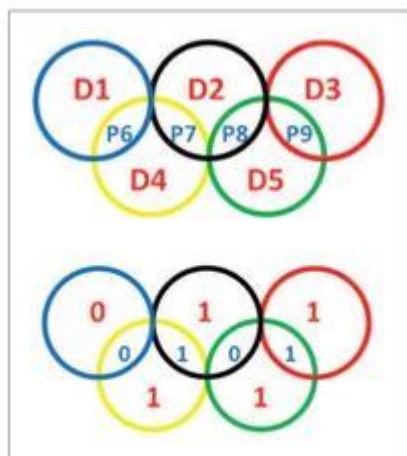


Figure 6 — An illustration of basic low-density parity check (LDPC) concepts.

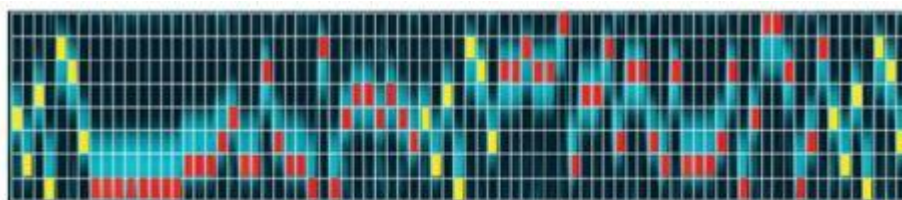


Figure 7 — A decoded bitstream, showing the 0 – 7 tones that can be translated into binary coding. For more about how this was accomplished, see www.arrl.org/qst-in-depth.

Winter Field Day

NARS Members Work the Radios!

The event started out on Saturday morning, just like any other club Saturday Breakfast at the Broken Yolk Café. Afterwards, it was off to the Administration Building where the setup crew got out the equipment needed and set up in the secure part of the building – the EOC room and Radio room. The three radio stations were connected to the beam using the triplexer. There were 2 band pass filters inline to each radio station. The plan was to use the beam antenna, just like we did at summer Field Day, and used the 10m, 15m and 20m bands to make our contacts using Phone (PH), CW and Digital (DIG) modes.

New hams who attended the NARS VE sessions over the past year were invited by e-mail to attend. Of that group, 9 showed up to operate or observe the activities. There were 20 club members to guide and operate with the new hams. Jeffery Walters, ARRL ARES Section Emergency Coordinator was also invited to come. The club made 325 contacts and completed 3 of the Objective Multipliers, for a total of 7 multipliers. Total Points earned for the club's first Winter Field Day was 3,038 points. There were a total of 30 hams who attended the WFD. Overall, a success!



Group Picture



Mitchell KJ5GZR and Paul N5NXS



Glen K5GLN



Mitchell KJ5GZR

VE Sessions and Results

PROVIDED BY SYNOMEN HEBERT, KG5IRS

Attendees

On Saturday, January 18, 2025, a VE Test Session was held at HCESD 16 Admin, 18606 Stuebner Airline Rd, Klein, TX 77379. During the testing session, 3 candidates took 5 tests.

Technician
(Element 2)
2
Passed
2 Tests Given 0 Failed

General
(Element 3)
1
Passed
3 Tests Given 2 Failed

Amateur Extra
(Element 4)
0
Passed
0 Tests Given 0 Failed

Congratulations!

Congratulations to the following for passing their new license exams¹:

- Larry Blanton – new Technician
- Trojan Gannod – new Technician

Congratulations to the following for their successful upgrade:

- Joseph Janica KI5YVS – upgrade to General

Pre-registration for Testing Sessions

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

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

The next session will be February 15, 2025 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:

- Brett Hebert KG5IQU – session manager
- Synomen Hebert KG5IRS
- Bob Ewers K9HOU
- Kyle Vann K5KNV
- Dale Schmirler KN5DS
- Paul Pacior KA5PUD
- Vicki Owen AC5EW
- August Canik KI5YPD
- Benjamin Springs KR1BBR
- Keith Dutson NM5G
- Logan Hebert KG5LLM (newly accredited VE)

VE Session Guidelines

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

Wear a mask 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@arri.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 Brett or Synomen Hebert know if you want to learn more about becoming a volunteer examiner.

New & Renewing Club Members

New Club Members

Welcome to the following new members of NARS!

- Glen Freeland, K5GLN
- Sonja Robinson, KJ5HXA
- Joseph Janica, KI5YVS
- Mitchell Boughter, KJ5GZR

Renewing Club Members

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

- | | |
|--------------------------|--------------------------|
| • Paul Pacior, KA5PUD | • Marty Fitzgerald, W5MF |
| • Tom Moore, N5RIV | • Randy Handley, KC6WYH |
| • Terry Meyers, KQ5U | • Tom Hoherd, KK5YU |
| • Jerry Davis, N5EKO | • Mark Tyler, K5GQ |
| • Greg Ham, N5QMW | • Michael Panico, KG5BBJ |
| • Kevin Milazzo, K1KIK | • James Lovett, KI5NVD |
| • James Blackburn, WB5AW | • Paul Owen, N5NXS |
| • Jorge Gutierrez, WK5J | • Vicki Owen, AC5EW |

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!

NARS Club Documents and Minutes

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](http://www.w5nc.club/doc_repos/) at http://www.w5nc.club/doc_repos/?

Exam Practice Answers

Technician: T7B05 - A. Block the amateur signal with a filter at the antenna input of the affected receiver

General: G8A08 – A. Excessive bandwidth

Amateur Extra: E4B05 – C. Short circuit, open circuit and 50 ohms

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: 147.190 PL 123.0

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

NARS General Meeting – February 21, 2025 - HCESD 16 Admin – [18606 Stuebner Airline Rd, Klein, TX 77379](#)

VE Test Session – February 15, 2025 – [18606 Stuebner Airline Rd, Klein, TX 77379](#) - Check-in will start at 8:30am with testing lasting from 9:00am - 11:00am. All testing activities will be completed by noon.

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

Buffalo Bayou Regatta – March 22, 2025

Social Events

Wed 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

February 7 - 9, 2025 | Orlando HamCation, ARRL Southeastern Division Convention, Orlando, Florida

February 21-22, 2025 | Orange (Texas) Hamfest 2025

March 7-8 | Greater Houston Hamfest at Ft Bend County Fairgrounds

Contests and Radiosport

ARRL Contest Corral

February 2025 - <https://www.arrl.org/files/file/Contest%20Corral/2025/February%202025%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>.

For a list of Special Event Stations, please see <https://www.arrl.org/special-event-stations>

NARS Club Officers and Information

Board Officers with Voting Privileges

President: Paul Owen, N5NXS, officers@w5nc.net

Vice President: Robert Ewers, K9HOU, officers@w5nc.net

Treasurer: Tom Hoherd, KK5YU, treasurer@w5nc.net

Secretary: Brandon Rogers, K5BLR, officers@w5nc.net

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

Director: Jorge Gutierrez, WK5J, officers@w5nc.net

Committee Team Members

Administrative Secretary: Neal Naumann, N5EN

Social Media Liaison: Sam Labarbera, N6HB

Newsletter Editors: Vicki & Paul Owen, AC5EW /N5NXS

Public Information Liaison: TBD

ARRL/VEC Liaison: Brett Hebert, KG5IQU

Repeater Team Lead: Rich Jones, W5VEK

Lead Net Control Operator: Mike Lizzio, WA2TOP

Webmaster: Bill Buoy, N5BIA, webmaster@w5nc.net

Trustee: Paul Owen, N5NXS

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>

Club Nets

The Weekly Tuesday Evening Net - Every Tuesday at 7:00 pm. Join us on one of the W5NC DMR access points:

- Hotspot: Brandmeister NARS Talk Group 3146211 CC 1 Slot 2
- Klein: 440.3000 DMR Repeater CC3 Slot 1
- Droidstar/Dudestar Apps: CC1 Slot 2

The Weekly Wednesday Evening Net - Every Wednesday at 8:00 pm. Join us on one of the W5NC Analog access points:

- NARS Analog Access
- Klein: UHF Analog Repeater 444.3750 Tone 100
- Access points:
 - ALLSTAR: 59847
 - Echolink: W5NC-R

Please be on the lookout for a weekly message from Mike WA2TOP on w5nc.groups.io/g/main for more information.