



The Greensboro Amateur Radio Association

Feed Line

Providing Amateur Radio News for the Triad



Julia Toth, Editor

www.w4gso.orginfo@w4gso.org

This Month's Program

I have to confess that I have missed going to hamfests because of the COVID-19, but for this month's program I will be sharing with you my experience at the QSO Today Virtual Hamfest. It was held in a modern virtual event center with the backdrop of a beautiful Arizona desert. Over 14,000 Hams participated in this event from around the world. To learn more about the QSO Today Virtual Ham Expo, be sure to see pp. 9-10 of this month's edition of the Feedline.

The QSO Today Virtual Ham Expo live event is over, but all speaker webinars and exhibit booth content is now available for anybody to view until September 9, 2020. So if you did not attend or you missed a particular speaker or want to visit another booth, just go back to the Expo at <https://qsotoday.vfairs.com>. Use only your email address to login, but you must register at <https://qsotoday.vfairs.com/en/registration> to attend this virtual hamfest.

At the Expo, there will be so much for you to do including:

- Learn from a packed line-up of 60 renowned ham radio speakers
- Visit with over 40 exhibitors of the latest ham radio equipment from the world's top equipment companies; many have videos and product documentation
- Play our "Leader Board" game for a chance to compete to win over 170 prizes worth thousands of dollars.

The Expo is an ARRL-sanctioned Hamfest. Icom is the Expo's Platinum Sponsor, along with Gold Sponsors Elecraft, GigaParts, RT Systems, FlexRadio, RFinder, DX Engineering, RigExpert, and NCG Company.

The next QSO Today Virtual Ham Expo is scheduled for March 13-14, 2021. I hope you will attend the next live event.

Respectfully,
Carl Fenske, KC4WGA

INSIDE THIS EDITION

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Monthly Meeting

Monday, August 24 at 7:15pm

Join us on the 145.15MHz W4GSO repeater with Carl Fenske, KC4WGA, to discuss the QSO Today Virtual Hamfest

GARA Meeting Minutes

Started at 7:15pm on Monday, July 27 on W4GSO 145.15MHz repeater

- Board Check-Ins
- Board Reports
 - Scott, ND4L
 - Carl, KC4WGA- in
 - David, AC4A- in
 - Matt, KX4GG- in
 - Drew, WB4IHY- in
- General Check-Ins
 - N4BYU, Roy
 - W1GY, Bill
 - N4CNX, John
 - KT4TS, Don
 - N2LGH, Dan
 - KE4KKG, Phil
 - W4JLH, Jim
 - KN4YFL, Charlie
 - W4VU, Dave
 - N2WOB, Melinda
 - KJ4ADX, Chan
 - KN4NBH, Jim
 - K4GWJ, Wayne
 - KM4QPR, Jim
- Presentation on Field Day Results by Dave McLin, AC4A

Ended at 7:50pm

GARA Board Meeting Minutes

August 11, 2020

- GARA Website has been updated
- GARA indoor personal meeting moves probably to October – January
- In club “Work All States “contest (Digital, CW, Phone)
- GARA repeater parts repair and issue resolving
- Donated HAM equipment for sale
- Park on the Air (Carl Fenske) proposal

From the President's Shack

The summer is slowly coming to a close and the heat seems to have subsided (at least for now!). Unfortunately there has been quite a bit of rain, so getting outdoors has been a little challenging. I guess that makes for more radio time indoors! My personal HF time has been reduced because my dipole antenna ropes broke, but that doesn't mean that working distant stations hasn't been possible. I recently received an Arrow VHF/UHF handheld Yagi antenna as a gift, and that has allowed me to start working stateside stations via amateur satellite. I have also been able to bounce an APRS packet or two off of the International Space Station's digipeter- quite a thrill! Hearing and working other stations through a satellite is a lot of fun and requires new skills that are also enjoyable to learn. We will try to have a future presentation around amateur satellites and share some experiences that club members have had so that more of you can join in the fun!

We are obviously still under restrictions due to the COVID situation which means our monthly meeting will be held on the repeater again for August. Since fall is arriving, it may be nice to have a general meeting in an outdoor location so that we can all see each other but stay safe. Be on the lookout for information about that and for other plans as we near the end of the year.

Please also consider running for the GARA board if you have any interest in guiding the direction of the club. Many of us on the current board have been members in one capacity or another for quite some time and would love to get new perspectives from fresh eyes. Our elections are coming up in November, so if you have any questions about what a particular position entails (or want to know what the elected positions are), please shoot me an e-mail and I'll be happy to explain. We definitely want to make GARA a dynamic and vibrant organization that provides for its members.

Thanks for your continued support of GARA through this unprecedented time. We strive to provide great repeater service, interesting meeting topics and help for members in various ways. I hope you and your family have a great Labor Day, and I also hope to hear you at our meeting on the repeater on Monday!

Best,
Scott, ND4L

The Greensboro Amateur Radio Association

President Scott Toth ND4L | **Vice President** Carl Fenske KC4WGA | **Treasurer** Dave McLin AC4A | **Secretary** Yakov Rokhlin KN4RBN
Financial Committee Chair John Strandberg W4DX | **Engineering Chair** Matt Trull KX4GG | **Operations Chair** Open
Members-at-Large Drew Paschal WB4IHY and Jesse Lindley K4AX
Appointed Positions: Public Information Officer/Newsletter Editor Julia Toth

The Feed Line is ©2020 by the Greensboro Amateur Radio Association and published monthly. Our address is P.O. Box 39829, Greensboro, NC 27438. The purpose of the newsletter is to provide the club and prospective members information about the club and amateur radio in general. Material and information should reach the editor by the first Friday of the month for the next edition of the newsletter. Opinions expressed in "The Feed Line" do not necessarily represent the views of the officers, directors, editor or members of the Greensboro Amateur Radio Association. Material may be reproduced, provided proper credit is given to GARA.

From AARL...

New Contest for Portable Stations to Debut in October

<http://www.arrl.org/news/new-contest-for-portable-stations-to-debut-in-october>



08/18/2020

A new amateur radio contest for portable operators — the Fox Mike Hotel Portable Operations Challenge (POC) — will debut October 3 – 4. The event is aimed at leveling the competitive playing field between fixed stations and portable stations. Scoring for the POC, based upon a kilometers-per-watt metric, will be handicapped in favor of the portables. The contest is the brainchild of Frank Howell, K4FMH. Sponsors include National Contest Journal (NCJ) — an ARRL publication — but the POC will not be an official NCJ or ARRL contest.

“NCJ’s role is to encourage hams who don’t contest to give it a try,” NCJ Editor Dr. Scott Wright, K0MD, said. “It will encourage activity by operators who are limited by real estate and do not have a full-blown contest station. Events like this stimulate more interest in contesting, and this will have an international scope to give chances to snare some new DXCC entities.”

Other sponsors include the UK DX Foundation (CDXC), the Hellenic Amateur Radio Association of Australia (HARAOA), and the South African Radio League (SARL).

“I think the [POC] steering committee, consisting of both veteran DX contest participants and some of the best portable operators in the world, has come up with something worth giving a go,” Howell said. “With this scoring metric, it’s more about radiosport than radio gear.”

According to the contest rules, scoring will be calculated using the distance between stations (Maidenhead grid squares) in kilometers divided by power output in watts. Fixed (QTH) stations will compete against portable (P) stations on 80, 40, 20, 15, and 10 meters. Allowable modes include phone, CW, and digital. For the 2020 event, the number of transmitters concurrently in use will be restricted to two.

Portable stations may not make use of permanently installed amateur radio equipment or facilities but may use AC mains power. The exchange is call sign, station class (P or Q), consecutive serial number, and four-character grid square.

For ARRL News Regarding COVID-19

Please visit www.arrl.org/coronavirus or www.arrl.org/COVID-19

Engineering Report

Just this week I received word from Yaesu that our DR-1X repeater is being repaired under warranty! This is great news to the club since it will save us the repair costs. As you may be aware, we have had some recent difficulties with the echolink node. This is an RF link, with a Yaesu mobile radio connected via Signalink to a laptop. From Scott's troubleshooting efforts, it has been determined that the mobile radio is not putting out any power. In the interim Scott has set up the Echolink node at his QTH. For a more permanent solution we will be looking at repairing or replacing the mobile radio, or changing over to a Raspberry Pi based solution that we can connect directly to the repeater controller at the repeater site.

73,
Matt Trull KX4GG

GARA Merchandise



Interested in buying GARA-themed merchandise?

Visit the GARA shop at:

<https://shop.spreadshirt.com/gara>

A portion of every sale is donated back to the club.



**Support
Greensboro Amateur
Radio Association.**

When you shop at **smile.amazon.com**,
Amazon donates.

[Go to smile.amazon.com](https://smile.amazon.com)

amazonsmile

Treasurer's Report

Our account balances as of the end of July 2020 are:

Checking:

Beginning Balance:	\$287.62	
Deposits:	\$0	
Withdrawals:	-\$21.29	PowerPole connectors for VHF amp
	-\$148.00	Annual Post Office box rental
	-\$104.98	Repeater internet connection payment
	-\$15.00	Bank Maintenance Fee
Ending Balance:	<u>\$1.65</u>	

Money Market:

Beginning Balance:	\$9047.31	
Deposits:	\$0.08	Interest
Withdrawals:	- \$0.00	
Ending Balance:	<u>\$9047.39</u>	

PayPal:

Beginning Balance:	\$3680.59	
Deposits:	\$72.00	Membership Dues
	\$50.00	Donation
Withdrawals:	-\$97.06	DR1X shipping to Yaesu for repair
	-\$3.00	Paypal Fees
Ending Balance:	<u>\$3702.53</u>	

Totals: **\$12,751.57**

Dave
AC4A

Special Note: The Radio Amateur's Code

<http://www.arrl.org/amateur-code>

Given the polarizing events taking place, we ask everyone to be cognizant of how they represent the ham radio community when on the air, especially when using local repeaters. Conversations that may be taking place between a couple of folks, or a small group of individuals, are broadcast for anyone to hear. There are a lot of people who listen much more than they transmit. New hams and those working towards being licensed are often listening in, anxious to make a QSO, but also nervous and trying to gauge the climate and etiquette of those conversations. We can all agree that preserving the rights we are granted as amateur radio operators depends on sustaining the hobby in a healthy way, and that means fostering an environment that is welcoming to anyone and everyone. The Radio Amateur's Code was written in 1928 and the first line speaks directly to this.

"The Radio Amateur is CONSIDERATE...He/[She] never knowingly operates in such a way as to lessen the pleasure of others."

GARA Monthly Program Survey



**Let Us Know
What You
Think!**

In an effort to serve our membership better, we would like to get your input into which presentations and programs you'd like to see. Please complete the form at

<https://www.w4gso.org/news/gara-monthly-program-survey/>
to let us know!

For Sale!

GARA is selling gear that was donated by local hams. All proceeds go into the club's general account to be used for club activities. Click the link below to see all of the gear we have for sale!

https://drive.google.com/file/d/1h8foiMA6fguciv-NBI4qXOIAmtoHNIbD/view?usp=drive_web

From ARRL...

IARU Announces HF Digital Mode Band Plan Review

<http://www.arrl.org/news/iaru-announces-hf-digital-mode-band-plan-review>

08/14/2020



An International Amateur Radio Union (IARU) working group has been formed to develop solutions to reduce congestion within very popular mode segments while preventing mutual interference between “incompatible modes” as much as possible. The working group includes representatives of the three regional band-planning committees, marking the first time the IARU three regions have joined together to directly coordinate band planning efforts.

“Because frequency allocations and amateur radio operating interests vary in different parts of the world, the development of band plans — voluntary guidelines on the use of the spectrum that is available to radio amateurs — is a responsibility of the three IARU regional organizations,” the IARU explained in announcing the working group. “Each of the three regions has a band-planning committee to focus on this work.”

The IARU says this approach to band planning has generally kept pace with the evolution of amateur radio operating, but the explosive growth in HF digital modes, particularly FT8, has led to perceived overcrowding of HF digital-mode band segments.

The new working group has already had fruitful discussions with the WSJT Development Group led by Joe Taylor, K1JT. Additional discussions, including with other HF stakeholders, will be held as part of a fundamental review of the different HF digital modes, and how they can be best categorized and arranged to share the limited spectrum available.

In recent years, moves have been made to bring the regional band plans into alignment wherever possible. Final approval of any band plan revisions typically occurs during regional conferences of IARU member-societies, held every 3 years on a rotating basis.

While the proposed band plan revisions will have to be approved by member-societies in each region, recent administrative changes mean that revisions can be implemented without having to wait for the regional conferences.

Amateurs can follow the working group’s progress through their IARU member-societies and their respective IARU websites (all are accessible via the main IARU page).

From ARRL...

QSO Today Virtual Ham Expo to Become Twice-Yearly Event

<http://www.arrl.org/news/qso-today-virtual-ham-expo-to-become-twice-yearly-event>



08/13/2020

The QSO Today Virtual Ham Expo over the August 8–9 weekend appears to have been an unmitigated success, so much so that another virtual event will be held next March.

“It was far better than we expected,” Virtual Ham Expo chair Eric Guth, 4Z1UG/WA6IGR, told ARRL. “We had over 26,000 registered and over 14,000 on the platform both days.”

Guth said event sponsors and exhibitors that he’s heard from so far “are thrilled with the turnout, engagement, and responses that they received.” He said they’re also enthusiastic about the second QSO Today Virtual Ham Expo, set for March 13–14, 2021. “Our plan is to offer this twice a year,” Guth added.

The show, an ARRL-sanctioned event, was developed on the vFairs virtual conference platform, and cleverly re-created the atmosphere of a typical large hamfest, with several tracks of forum sessions on a wide array of topics. Those who had registered but did not log into the live event can see it all on demand until September 9.

“All of the services, except the chat, are running,” Guth noted. “The doors are still open.”

Dozens of video presentations are available to replay, including the keynote given by ARRL Maxim Society Member Dr. Scott Wright, K0MD, “COVID-19: Amateur Radio’s Impact on Problem Solving to Create a Global Response to the Pandemic.” Presentations from other ARRL member-volunteers span technical and operating interests, including “Everything you need to know about Lithium Batteries” with Marcel Stieber, AI6MS, and an introduction to creating Arduino-based projects for home and ham radio, with Glen Popiel, KW5GP. Presentations highlighting young ham involvement and development include “Youth in Ham Radio,” moderated by Carole Perry, WB2MGP, with six youth presenters.



Guth said a poll would be sent to determine what visitors enjoyed most. “However, my guess will be that the speakers were fantastic, along with the moderators for the live Q&A afterwards,” he

said. Exhibitors will also be polled for their post-show impressions.

Icom, a principal sponsor of the event, had team members from around the globe staff their exhibits. Icom America Senior Sales Manager Ray Novak, N9JA, said the event supported their new product launches including Icom's new IC-705 HF – 430 MHz all-mode 10-W transceiver, which just received FCC certification.

"We really enjoyed the virtual event," said Novak. "It is our goal to see this grow and to have hams from the various countries attend in anticipation of this becoming a multilingual event as we all are starving for ham radio events during this pandemic."

Kevin Zanjani, KI6DHQ, of Bioenno Power, also gave the virtual event high marks. The show, he said, "was quite exciting and a great platform to interact with customers and the entire ham radio community during these times." Bioenno Power, based in Southern California, is a provider of Lithium-Polymer (LiPo) batteries and solar-power devices. Zanjani said the chatroom was very effective to engage with customers. "Many also dropped by to say hello as well, so we found that nice."



Product Development Manager Bob Inderbitzen, NQ1R, was among the ARRL representatives engaging with event attendees using text and video chat. He described the experience as having some similarities and some difference from an in-person convention.

"Our team answered questions about ARRL membership programs and services, amateur radio licensing, and even had some fun challenging visitors to our booth with ham radio

trivia," he said. Physically located at ARRL Headquarters in Newington, Connecticut, Inderbitzen treated more than 500 visitors to live, online tours from inside Hiram Maxim Memorial Station W1AW.

"It was fun to see a screen full of smiling faces, and to answer questions in real time. The experience had an on-air feel. I should have kept track of all of the US states and countries I connected with," he said. A short welcome video greeted visitors at the ARRL booth.

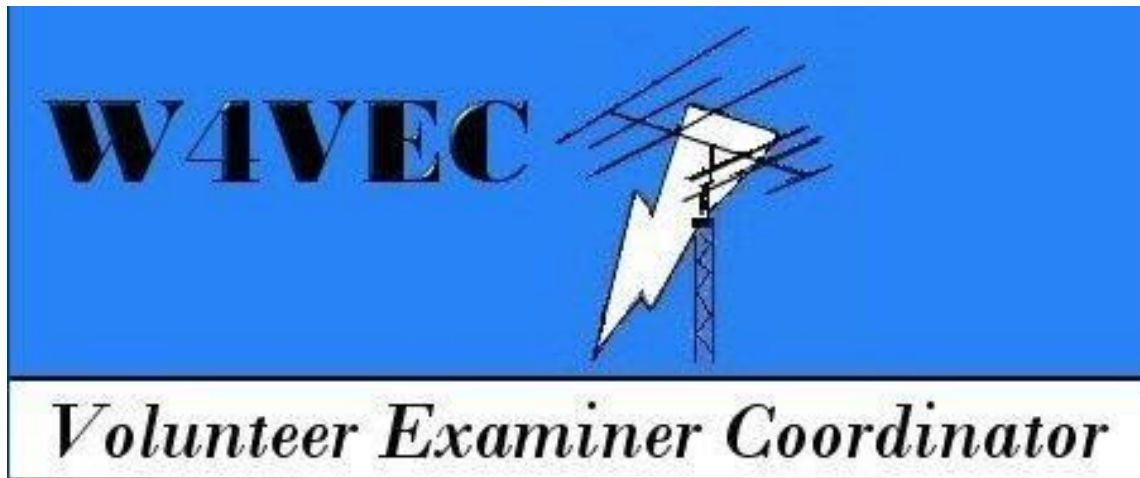
Guth said the organizers' challenge going forward is to reduce the workflow in putting the show together. "But all in all, it was a lot of work, I have a great team, the volunteer speakers and moderators were out of this world, and I am grateful to our sponsors and exhibitors for footing the bill," he added.

Guth said that the main complaint he heard about was the show's use of a leaderboard for awarding prizes. "We used it because the sponsors and exhibitors paid for their booths and donated the prizes," he said. "The Leaderboard rewarded those who visited exhibitors, chatted with them, watched their videos, and downloaded their documents."

"We will evaluate other games for March that also increase engagement," he added.

VE Testing

When you're ready to take your exam, the local volunteer examiner organization, W4VEC, offers local (Greensboro and High Point) testing every month most months on Saturday mornings. See this link for detailed schedules and information: <http://www.w4vec.org/ar.html>



In Greensboro, exams are held the 2nd Saturday of each month (except March) at Hinshaw United Methodist Church, 4501 Gate City Blvd (High Point Road) Greensboro, NC at 9:00 AM. For more information contact: David Macchiarolo AJ4TF at aj4tf@arrl.net, 336-420-9424. Walk-ins allowed; but pre-registration is preferred.

In High Point, exams are held on the last Saturday of the month (except June, November, and December) at Hickory Chapel Wesleyan Church, 301 Hickory Chapel Road, High Point, NC, at 10:00am. Pre-registration is required at least 3 days before the exam date. For more information contact: David Macchiarolo AJ4TF at aj4tf@arrl.net, 336-420-9424.

Please continue to check the W4VEC website for updates. <http://www.w4vec.org>

FCC Extra Class Question Pool was revised as of July 1, 2020

Download or print Question Pools at <http://www.arrl.org/question-pools>
For free exam practice, visit <http://www.arrl.org/exam-practice>

Upgrading?:

<http://www.arrl.org/upgrading-to-a-general-license>
<http://www.arrl.org/upgrading-to-an-extra-license>

New Hams

High Point- July 25, 2020

Daugherty, Austin M.
Hillsborough, NC
Earned Technician

Davis, Craig M.
Greensboro, NC
Earned Technician

Jaggers, Gary M.
Liberty, NC
Earned Technician

Jenkins, David G.
Reidsville, NC
Earned Technician

Lamay, Keith L.
Burlington, NC
Earned Technician

Sayres, Justin A.
KN4SML
Burlington, NC
Earned General

Greensboro- August 8, 2020

Allen, Eric D.
KO4GCB
Greensboro, NC
Earned General

Langley, Ricky L.
KI4FKJ
Mebane, NC
Earned General

Pittman, Royce G.
KO4GBY
Jamestown, NC
Earned Technician

Sparks, Richard K.
KO4GBZ
Burlington, NC
Earned Technician

Trump Jr., Donald R. ("Rick")
KO4GCA
Greensboro, NC
Earned Technician

From ARRL...

Arecibo Observatory Reflector Dish Damaged after Cable Snaps

<http://www.arrl.org/news/arecibo-observatory-reflector-dish-damaged-after-cable-snaps>



08/12/2020

An auxiliary cable that helps to support a metal platform above the Arecibo Observatory radio telescope's reflector dish in Puerto Rico snapped in the early morning hours of August 10, causing a 100-foot gash in the reflector dish. Operations at the world-famous observatory, managed by the University of Central Florida (UCF) have been halted until repairs can be made. When the 3-inch cable fell, it also damaged about a half-dozen panels in the Gregorian Dome above the dish and twisted the platform used to access the dome. The cause of the cable break is not yet clear.

"We have a team of experts assessing the situation," observatory director Francisco Cordova said. "Our focus is assuring the safety of our staff, protecting the facilities and equipment, and restoring the facility to full operations as soon as possible, so it can continue to assist scientists around the world."

UCF manages the National Science Foundation (NSF) facility under a cooperative agreement with Universidad Ana G. Méndez and Yang Enterprises Inc. Home to one of the most powerful telescopes on the planet, the facility is used by scientists around the world to conduct research in the areas of atmospheric sciences, planetary sciences, radio astronomy, and radar astronomy. Arecibo is also home to a team that runs the Planetary Radar Project supported by NASA's Near-Earth Object Observations Program in NASA's Planetary Defense Coordination Office, through a grant awarded to UCF.

The facility has endured many hurricanes, tropical storms, and earthquakes since it was built 50 years ago. Repairs from Hurricane Maria in 2017 are ongoing. Through it all, the facility has continued to contribute to significant breakthroughs in space research in the area of gravitational waves, asteroid characterization, planetary exploration, and more.

The largest single-dish radio telescope in the world for decades, Arecibo was bumped into second place in 2016 by the Five hundred-meter Aperture Spherical Telescope (FAST) in China.

The Arecibo Observatory Radio Club operates KP4AO at the site, mostly on special occasions. — Thanks to UCF and other sources

Calendar of Events

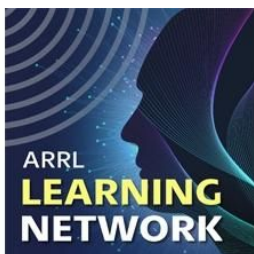
Please check Hamfest websites for possible cancellations.

GARA Meetings will be held on the repeater until further notice.

Info about ARRL contests can be found on <http://www.arrl.org/contest-calendar>

Aug. 24	GARA General Meeting
Aug. 29	VE Testing, High Point, Hickory Chapel Wesleyan Church
Sept. 12	VE Testing, Greensboro, Hinshaw Memorial United Methodist Church
Sept. 12-13	ARRL EME - 2.3 GHz & Up Contest
Sept. 12-14	ARRL September VHF Contest
Sept. 19-20	ARRL 10 GHz & Up Contest- Round 2
Sept. 26	VE Testing, High Point, Hickory Chapel Wesleyan Church
Oct. 10	VE Testing, Greensboro, Hinshaw Memorial United Methodist Church
Oct. 10-11	ARRL EME - 50 to 1296 MHz Contest
Oct. 19-23	ARRL School Club Roundup Contest
Oct. 31	VE Testing, High Point, Hickory Chapel Wesleyan Church
Nov. 7-9	ARRL Nov. Sweepstakes - CW
Nov. 14	VE Testing, Greensboro, Hinshaw Memorial United Methodist Church
Nov. 21-23	ARRL Nov. Sweepstakes - Phone
Nov. 28-29	ARRL EME 50 to 1296 MHz Contest
Dec. 12	VE Testing, Greensboro, Hinshaw Memorial United Methodist Church

The purpose of this calendar is to provide information on events in and around our area that might be of interest to our readers. As you might expect, there are many more events (public service, hamfests, flea markets, etc.) taking place in North Carolina and around the Greater Greensboro Area. If you know of an event that would be of interest to our readers, please contact the Board of Directors at info@w4gso.org.



The ARRL Learning Network is a webinar series featuring live online presentations from member-volunteers who want to help you become more active, involved, and engaged in ham radio. For a schedule of upcoming Webinars for ARRL members or to access recordings of previous Webinars, please visit <http://www.arrl.org/arrl-learning-network>

FEEDLINE

FOURTH MONDAY – at 6:30 p.m., the Greensboro Amateur Radio Association has a regular monthly meeting at Sarah's Kabob Shop, 5340 W. Market., Greensboro, NC 27409. Please plan to gather at 6:30 p.m. for dinner. The meeting is scheduled to start at 7:15 p.m. **(Due to COVID-19, moved to the repeater until further notice)**

CLUB NETS:

SUNDAYS – at 8:30 p.m., the GARA Sunday evening net. This features a rag chew followed by News and Information including Amateur Radio Newsline. It is on the 145.150, W4GSO repeater. Scott Toth, ND4L is always looking for net controls.

TUESDAYS – at 8:30 p.m. The Triad SkyWarn Net meets on the 147.225, K4ITL repeater, no tone required

TUESDAYS – at 9 p.m., the D-Star Net meets on 442.8625 (W4GSO B and Reflector 54C)

WEDNESDAYS – at 8:45 p.m., The Guilford Amateur Society Rag Chew Net holds their weekly net on the 145.250 W4GG repeater. Jim Hightower, W4JLH is the net control.

THURSDAYS – at 9 p.m., The Guilford County ARES Net meets on the 145.150 repeater (100 Hz tone)

OTHER ACTIVITIES:

FIRST MONDAY – The Guilford County ARES monthly meeting is held at 1002 Meadowood St. off W. Wendover Ave, in the EMS building, beginning at 7 p.m.

THIRD MONDAY – The Guilford Amateur Society is currently looking for a new venue for their meetings. When found, that information will be posted here.

THURSDAY – at 11:15 a.m., Greensboro Hams get together for lunch. Thursday lunch group is meeting at the K&W Cafeteria, 300 Forum VI Mall at Friendly Shopping Center. Talk-in is on the 145.150, W4GSO repeater with a 100 Hz tone.

EVERY FRIDAY – at 8 p.m. (approximately) Greensboro Hams get together for coffee at Starbucks at Edney Ridge Rd.

The GSO W4VEC Testing Schedule 2020

August 29 in High Point

September 12 in Greensboro

**Check the W4VEC website
for updates.**

<http://www.w4vec.org>

GARA REPEATERS

145.150 MHz - offset, 100 Hz tone, FM and Fusion

442.8625 MHz + offset, D-Star and Fusion



Greensboro Amateur Radio Association

P.O. Box 39829

Greensboro, NC 27438

www.w4gso.org

FIRST CLASS MAIL

The Official Publication of GARA