October 2024 Volume 10-2024

Nacogdoches Amateur Radio Club

2024 CLUB OFFICERS

Pres: Mark Phillips – KI5POH

Vice Pres: Darrell Thornton – KI5PYQ

Sec/Treas: Army Curtis - AE5P

Visit our web site at

https://w5nac.com/

MISSION STATEMENT

The Mission of the Nacogdoches Amateur Radio Club is to support and promote Amateur Radio by public service, offering training to unlicensed interested parties and licensed Amateurs, mutual support of other Amateurs, engaging events that promote Amateur radio to the general public and other Amateur radio operators, and continuing fellowship by regularly scheduled organized meetings and events and having fun.

SEPTEMBER MINUTES

President Mark KI5POH called the meeting to order at 7:00 in the EOC. Self-introductions were made by everyone in attendance. The August meeting minutes were approved as published. The Treasurer's report was read.

Many thanks to Jim N5JGE for bringing 3 books and donating them for the monthly free raffles.

With the current historic high in the club treasury, there was a short discussion in possible programs or uses. Rusty KD5GEN suggested considering using some of it to subsidize all or a portion of the annual Christmas Party.

Jim N5JGE announced that DETARC is planning a POTA event at Ratcliff Lake on October 5th. NARC members are invited to participate.

Darrell KI5PYQ announced our next Fox hunt will be September 28 from 10:00 until noon. Aaron KI5FIQ will be hiding the fox.

Robert KD5FEE announced the comet Nishimura may be visible to the naked eye later this month.

The free book raffle was won by John KC5MIB. John won the book "Understanding

Your Antenna Analyzer" donated by Jim N5JGE.
Meeting closed.
Program: Steve Bartlett WB5IDY presented a most interesting program on portable generators used for back-up power at your home. Steve shared many of his expensive mistakes with us so we don't have to pay for them again.
Everything finished at 7:51 P.M.

SUPPORT YOUR CLUB

Are you a member of NARC? Do you check into one or more of the weekly nets on 2M? If not, why not? Do you participate in the club Fox Hunts? If not, why not? Do you participate in the club Special Events K5C and K5T? If not, why not? Do you participate in Field Day with the club? If not, why not?
Participation in the various club events usually involves only a tiny few of our membership. Why is that? If you are a member, are you part of the problem or are you part of the solution? Is there something we can change that would make it easier for you to participate?
Let the club officers hear from you. **You are the club and without you we don't have a club.**

FROM THE PRESIDENT

Hopefully cooler weather is not too far off. ARRL has announced a partnership with

Grouper. Grouper provides benefits to ARRL members aged 65+ for staying active in

their communities and these benefits include covering costs associated with your social

activity. For ARRL members with an eligible Medicare Advantage or Medicare

Supplement plan, you'll receive a $50 check from Grouper. In addition, if you continue to

stay active in ARRL activities -- such as attending ARRL Affiliated Club meetings,

getting on the air with friends, going to hamfests, or even just socializing with other

members at the coffee shop -- Grouper will send you a $20 social wellness incentive

every three months. To redeem your benefit, visit https://hellogrouper.com /arrl.

We have a few club t-shirts available, and I will have them at the October Club meeting.

Come get your t-shirt if you don't have one.

I am thankful for each of you for being a Ham and being part of our club!

73, Mark KI5POH

KI5POH21@gmail.com

FROM THE VP CHAIR

The fall semester is in full swing at my house. My youngest son is back in school for his senior year. Brooks is getting used to college life. This is

his first year at SFA. Lianna is in her junior year still going strong with her mechanical engineering degree. However, she doesn't live with us. Allison and I are getting used to having another kid (Brooks) fade from our household. This, of course, is all a part of life. We are getting a glimpse of an empty nest.

October's program will be led by Mark KI5POH. He will be going over the club's emergency boxes. I imagine he will show us the contents, how to hook the components up, and what frequencies the radios are programmed for. Reminder, Zoom will be available upon request.

September's fox hunt will be on Saturday the 28th. Aaron KI5FIQ will be hiding the fox for us this round. After the fox hunt, we will enjoy good food at CC Smokehouse and great stories about finding the fox. I hope you will join us. I bet you would have a great time.

73, KI5PYQ

Darrell Thornton

NOTES FROM OUR EC

WHAT DO THEY ALL HAVE IN COMMON

I'm social media friendly. Over the last few months, I have seen a number of advertisements for hand held radio devices to be used in emergency situations. All the ads, save 2 have espoused nationwide coverage, security, no monthly fees and LTE/4G connectivity. The other 2 were ham radio and GMRS. As I was reading them, something just didn't seem right. If it doesn't pass the sniff test, maybe it isn't right.

Nationwide connectivity. Out of a handheld? Well maybe, if it was connected to something else, interconnected repeaters, our router at home, a nationwide system, like cellular. Digging through the ads brings up LTE/4G, some frequency bands, even PoC LTE (press to talk LTE) In other words, push to talk cellular. You have to dig well into the ad before they get into that. Consider them much like the Nextel cell phone units that had person to person or group push to talk. We had them at the news station and they worked well enough in and around San Antoinio.

Let's go one more layer into connectivity-configuring. As hams and here lately with the growing digital environment, we have configured more than a few radios. The digital does take a little more time.

Professionally, I have configured more than a few radios in the Motorola LMR trunking environment. Not a lot of fun. There is no user interface, and the provider has to configure your radio.

No monthly fees, well yes, but I queried one of the providers there is an annual $50 fee to use them. On one of the other websites, the information was buried deep in the FAQs. I'm guessing to pay for their omnibus connectivity. There is still an additional fiscal requirement for their use.

The other 2 ads proposed "professional quality" ham radios programmed for your area or GMRS. This programming covers local ham radio repeaters and local public service frequencies. They played the it's not illegal to listen, true. But a person can use those frequencies in the case of emergency or threat to life (meaning a national emergency, their definition). All well and good but how are they going to check them to see if they work? Key down some Monday or Thursday evening and find out. One company suggested GMRS. FCC licensing is fairly easy, and vehicles can run up to 50 watts and some repeaters have been established. I have no difficulty with GMRS. I'm awkward with the "emergency" status for the ham programmed radios.

I'll touch on security. Digital in and of itself is reasonably secure. If you don't have the encoding mode, you won't hear anything. AES, Advanced Encryption Standard, has been incorporated into many devices. It's a good standard with various levels of security. If your web URL says https, you are probably using a variant of the standard.

Many of the items I read about just don't pass the gut check. If it's too good to be true, it probably is and there ain't no free lunch.

To answer the opening question, what do they all have in common, exaggerated advertising.

ADDENDUM: One of the companies has announced the annual service charge and says it is for their OMNIBUS service through the various cell phone providers.

The opinions expressed in this article are mine and mine alone and to my knowledge do not reflect the opinions of the club.

73 and see you on the air,
de John Chapman KC5MIB
Jlchapman2@gmail.com

VE TESTING

We had one applicant for a new license this month. Jimmy James from Lufkin passed his Technician exam and is now KJ5IBG. Congratulations to Jimmy.

Many thanks also to our VE team this month: Ralph N6RH, Bernice KN6VDH, Army AE5P, Mike AA5HH, and John KN6VDG.

Remember that we give in-person VE tests the third Wednesday of **EVERY** month promptly at 7:00 PM. Doors open at 6:30 PM. For the latest information always check the club website at:

https://w5nac.com/ve-testing/

73 de AE5P.

email: ae5p@arrl.net

TWO METER CLUB NETS

Please join us each week for the two-meter nets sponsored by NARC. All stations are welcome to check into the nets.

Each **MONDAY** is the **NARC ARES/RACES** net, at 8:00 p.m. on the club's 146.84 repeater (PL 141.3).

Second, on **THURSDAY** evenings at 8:00 p.m. is the **Deep East Texas Skywarn Emergency Weather Net** on the 147.32 repeater (PL 141.3).

Please join us for one or both.

HAMLIST

Are you on Hamlist? Check it out and join at: https://w5nac.com/about/email-reflectors/

NEXT MEETING

The next regular NARC meeting will be Wednesday October 2nd at the Nacogdoches City/County EOC. Meeting begins at 7:00; doors open at 6:30. Come early for socializing before the meeting.

The program will be about NARC's orange boxes. Mark, KI5POH, will be showing us the contents, how to hook them up, and what frequencies the radios are programmed for.

Remember that the meeting will be available via Zoom if requested. Email Darrell KI5PYQ @ dalbcthornton@gmail.com for the Zoom information.

Hope to see y'all there.

New Members

We are very pleased to welcome Albert Lasater KJ5HRN and John Hartley WB5GNO as new members to NARC. Answer them if you hear them on the repeaters. Make a point of speaking to them when you see them.

FOX HUNT

Next fox hunt will be in September 28 10:00AM to 12:00PM. After the fox hunt, we will enjoy lunch at CC's Smokehouse. Be the first to find the fox and your lunch will be on the club. How long will it take you to find it?

UPCOMING EVENTS OF NOTE

Mark your calendars for the following events coming up in the next few months. Full information on these events and much more can be found at https://www.contestcalendar.com/contestcal.html You will need to scroll to find the correct month.

Link to ARRL Contest Calendar
https://www.arrl.org/contest-calendar

Club Meeting Dates

October 2nd 7:00 PM
November 6th 7:00 PM
December TBD (Christmas Party)

Notes of Interest

How would you feel if we moved the club meetings to the first Tuesday of the month? The reason I ask this question is there are many club members that are active in their church. Most churches have events on Wednesday nights. We will plan on discussing this at the Oct 2nd meeting.

NanoVNA Evaluation of Inexpensive HF Bandpass Filters

Jim Edmondson, N5JGE

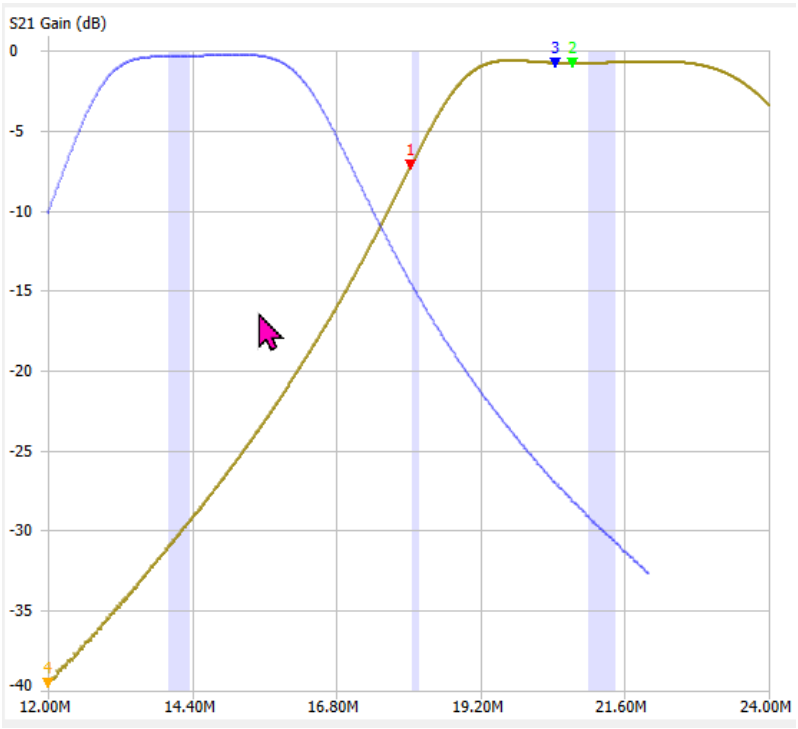
The DETARC Club has two upcoming POTA outings planned in October and Winter Field Day is in January of 2025. At all these events, multiple HF rigs will be operating with antennas in close proximity. While each rig will be on a different band, interference from strong out-of-band signals has been observed at other, similar DETARC and NARC operations. At DETARC WFD 2024, interference was mostly prevented by placing the antennas such that the large metal shielded them from one another. However, this method cannot be relied on in most situations.

In an attempt to solve this problem especially in POTA operations, I purchased several inexpensive band pass filters (photo below). Three of these made-in-China filters cost $124.24 delivered. The filters are rated for 200W, however the mode or duty-cycle are not specified. I assume that the power rating is for ~20% duty (SSB). The bandwidth, insertion loss and SWR specs are also provided (see table below). I learned about these filters from a YouTube video published by K8MRD. His test and operational results were very promising.

Frequency, MHz	Bandwith, MHz	SWR	Insertion Loss., dB
7	1.2	<1.5:1	<0.5
14	2.4	<1.5:1	<0.5
21	3.6	<1.5:1	<0.5

I set out to verify the performance of 7MHz, 14MHz and 21MHz filters using a NanoVNA and nanovna-saver software. The NanoVNA was calibrated for the frequency range of 5MHz to 25MHz using the typical method. The NanoVNA is limited to 101 points per scan. However, the software can divide a scan into "segments" each with 101 points. This results in much better resolution than for the NanoVNA alone. The software also provides detailed data tables for the markers and does specific analyses, like filters – very helpful my objective. I will not go into detail on how to use the NanoVNA but will focus on the filters' performance.

The figure below shows the frequency responses for the 14MHz (blue curve) and 21 MHz (gold curve) filters. The NanoVNA outputs a small signal from port S1 into the filter. The output from the filter is input to port S2. This known as an S21 or "through" measurement. The curve shows the how much signal gets through the filter. The "hump" shape is characteristic of a bandpass filter. The flat area is called the passband where the signal is attenuated very little. On either side, the signal "rolls off" sharply with a large amount of attenuation.



From these curves, we can see that the insertion loss is very small because the passband is very close to the 0dB line (no attenuation). Also, we can see that a 14MHz signal is attenuated by almost 30dB (or 1000 times lower) at 21 MHz. Likewise, a 21MHz signal is attenuated by about the same amount at 14MHz. This means that a 100W transmitter at 14MHz would be received as about 0.1W through the 21MHz by a receiver tuned to 21MHz. This assumes that the antennas have no gain, are omnidirectional and have no obstacles between them. A comparison of the curves for the 7 MHz and 14 MHz filters shows an even larger attenuation of about 45dB. This means that a 100W, 7MHz transmitter would be attenuated by 32,000 times by the 14 MHz filter and vice versa. From the curves, the measure specification values for the filters that I purchased are shown in the table below. The SWR and insertion loss specs are as stated by the manufacturer. My measured bandwidths however, are significantly larger than those stated by the manufacturer.

Frequency, MHz	Bandwith, MHz	SWR	Insertion Loss., dB
7	1.9	<1.2:1	~0.0
14	3.8	<1.2:1	~0.1
21	5.5	<1.4:1	~0.5

The nanovna-saver software bandpass filter analysis is shown in the figure below. As is typical, the analysis shows the bandwidth at a specific value of attenuation (3 dB down). By looking at the curves, it appears that the manufacturer, simply used the pass band (~0 dB down) to specify the bandwidth. This explains the difference with the manufacturer using a nonstandard way of stating bandwidth to make the filter look better. The nano-saver software also provides other technical values for the filter such quality factor, -6 and -60 dB points, roll-off rates, etc.

My overall assessment is that the attenuation of out-of-band signals is impressive. It seems that these filters will be effective for reducing out-of-band interference. I will report the results of the DETARC October 5th POTA outing at the November NARC meeting.