CrossTalk

July 2023 64 Years Of Service To Our Community Issue 64:07

2023 Club Officers

President :	**Jonathan Pearce, WB2MNF**
Vice President :	**Ronald Block, NR2B**
Treasurer :	**Alan Arrison, KB2AYU**
Recording Secretary :	**Karl Frank, W2KBF**
Corresponding Secretary :	**Frank Romeo, N3PUU**

Trustees - 4 Year Term

Mark Gottlieb, KK2L	***(2020-2023)***
Carl Wittig, N2CRW	***(2021-2024)***
Charles Lanard, KD2EIB	***(2022-2025)***
John O'Connell, K2QA	***(2023-2026)***

Directors - 3 Year Term

Charles Colabrese, WA2TML	***(2021-2023)***	**Jeffrey Garth, WB2ZBN**	***(2022-2024)***
William Price, NJ2S	***(2021-2023)***	**Chris Prioli, AD2CS**	***(2023-2025)***
James Clark Sr, KA2OSV	***(2022-2024)***	**James Wright, N2GXJ**	***(2023-2025)***

General Membership Meeting
Wednesday, July 5, 2023 @ 1930 Hours
In-Person & ZOOM

Tech Saturday Forum
Saturday, July 8, 2023 @ 0900 Hours
W2MMD Clubhouse

License Testing Session
Thursday, July13, 2023 @ 1900 Hours
W2MMD Clubhouse

Soldering Seminar : Learn To Solder
July 15 and July 22, 2023 @ 0900 Hours
W2MMD Clubhouse

Board of Directors Meeting
Wednesday, July 19, 2023 @ 1900 Hours
W2MMD Clubhouse

Dinner @ The W2MMD Clubhouse
Wednesday, July 26, 2023 @ 1800 Hours

Tuesday Noon Day 2 Meter Net
Every Tuesday @ 1200 Hours

Tuesday & Thursday Night 10 Meter Net
1930 Hours - 28.465 or 28.475 MHz

Thursday Night 2 Meter Net
Every Thursday @ 2000 Hours

Inside This Issue…

HAPPY FOURTH OF JULY

15th Annual 13 Colonies Special Event

JULY 1ST - 7TH 2023

SIGNERS OF THE DECLARATION OF INDEPENDENCE

K2A/NY	*Wm. Floyd			*John Adams	K2H/MA
K2B/VA	*Thos. Jefferson			*John Hart	K2I/NJ
K2C/RI	*Wm. Ellery			*John Penn	K2J/NC
K2D/CT	*Wm. Williams			*Wm. Whipple	K2K/NH
K2E/DE	*Caesar Rodney			*Thos. Lynch	K2L/SC
K2F/MD	*Wm. Paca			*Ben. Franklin	K2M/PA
K2G/GA	*Geo. Walton				

HRM King George 3rd — Marquis De Lafayette

CLEAN SWEEP

THIS CERTIFICATE CERTIFIES THAT ARS: KU2US HAS PARTICIPATED IN THIS ON - AIR AMATEUR RADIO EVENT HONORING THE ORIGINAL THIRTEEN COLONY STATES, OUR INDEPENDENCE, & OUR ACTIVE MILITARY /VETERANS.

13 CONTACTS

Sample

73'

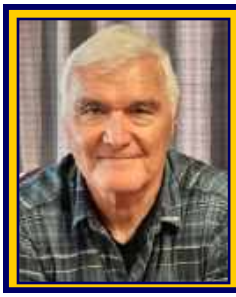
WM3PEN

Ben. Franklin

http://www.13colonies.us

QSL GB1 3COL

QSL TM1 3COL



President's Letter
Jon Pearce, WB2MNF

July 2023

I got special permission from Crosstalk editor **Jeff WB2ZBN** to submit this article later than usual so that I can include Field Day experiences - and what a great Field Day we had! Despite predicted thunderstorms and some heavy downpours on Saturday afternoon we had a record turnout of participants and visitors including family members, many of whom hung around to help with the logistics of the event. The new antenna configuration created by **Jim N2GXJ** appeared to work well, and Field Day chairman **Tony K3TS** reports that there were plenty of operators to staff the seven stations that comprised our 7A participation status. Although it's been an active event for many decades, Field Day just seems to be getting better and better for the GCARC.

Since I'm the satellite station operator my Field Day experience is different from those of most others so I'll talk about some unique experiences that I encountered after I worked the critical Field Day satellite contact at 3:30 AM on Sunday morning. This schedule was necessary because I couldn't get my laptop to run the PST Rotator program needed to rotate the antennas to track the satellites and had to reload everything onto a different computer, after which all of the earlier passes were over. Satellite contacts can only occur when satellites are overhead, and the ISS takes 90 minutes to the circle of the earth (and ended up being the only satellite that we could use), so I had plenty of time to wander around the Field Day site in the middle of the night in between passes. It was mostly quiet although one intrepid CW operator was softly pounding out QSO after QSO in a dimly-lighted tent. Around 4:00 AM I ran into **Jim KA2OSV** who couldn't sleep and who shortly went back to operate the 20 meter phone station, apparently successfully. Then **Herb KT2Y** showed up in the Clubhouse about 5:00 AM and we chatted briefly before he went back to his trailer. I racked up a couple more satellite contacts over the next few hours at 90 minute intervals until the breakfast crew comprised of **Jeff WB2ZBN** showed up and started preparing breakfast. I also took some overnight pictures of the site that will be shown at the General Membership meeting. "Field Night" is an interesting time…

Tech Saturday Covers Hamlib and Node-Red

On the **July 8, 2023 Tech Saturday Forum**, I'll be talking about two programs that together have captured my imagination for the last couple of months. These are the programs contained in the "hamlib" library that control radios, rotators, amplifiers, and other station components, and the "Node-Red" graphical programming language that can be used to build dashboards that control this type of equipment. There are countless YouTube videos on this topic **(see https://bit.ly/3JEdVsb)** so you can see how to set up a dashboard for your equipment configuration and individual operating pursuits. I used these programs to replace the hardware-based satellite antenna switcher that had multiple cables connected to the computer with a single Raspberry Pi device that connects wirelessly and whose only external connections are 12VDC power and the antenna relays. We've also built applications that monitor the Clubhouse power meter and display it graphically on the dashboard, and also monitor network speed. Both of these programs work on either Windows or Linux and are free. So if you're interested come on out on Saturday, July 8th and see if you're as fascinated as I am.

President's Letter - Continued on page 4

President's Letter - Continued from page 3

Tower News

Progress on the installation of the two VHF towers is slowly continuing. With help from **Stan WA2JRZ**, **Ron NR2B,** and **Frank N3PUU** we prepared and submitted the zoning application to Harrison Township which amazingly was approved within a couple of days. Meanwhile Frank obtained the tower specifications and installation drawings from the manufacturer which will be included in the building permit application, to be submitted sometime this week. Hopefully that process will be relatively painless after which we can begin the excavation for the tower bases and complete installation before cold weather begins.

Clubhouse Ramp Project

The project to build a ramp for the front of the Clubhouse has made some slow progress with **Bill NJ2S** having researched and printed the ADA requirements for such a ramp and **Carl N2CRW** having prepared a CAD drawing of the ramp and its connection to the Clubhouse. Still remaining are the time-consuming tasks of developing a bill of materials for the project and costing out each of the components. **Frank N3PUU** has volunteered to help with some of the design in his "spare time", but the project still needs someone to take overall ownership and get it done. Piece meal approaches to projects without anyone taking overall responsibility generally have a low success rate since progress ends when no one is willing to take the next step so we're again reaching out for someone willing to take on this project, gather the resources necessary, and see it through to its conclusion. Please contact me if you're interested in taking on this important task.

Clubhouse Front Door Lock Code Change

The combination to the lock on the front door of the Clubhouse will be changed on Saturday, July 1st for security purposes. If you already have Clubhouse access come to the Clubhouse on a Saturday to get the new code, or contact **Chris Prioli, AD2CS**. We'll make a general announcement when the lock code has actually been changed.

Note that all licensed members have access to the Clubhouse and its resources so if you'd like to take advantage of this wonderful Club asset come down to the Clubhouse some Saturday morning or contact me or one of the Club leaders to arrange a time to get checked out on operating the alarm system and equipment.

Car Show On July 29 - NO Clubhouse Parking!

On Saturday, July 29, 2023 a car show will take place on the 4H fairgrounds during the **Gloucester County 4H Fair, July 27 - 30, 2023**. The cars in the show will be using the "front yard" of the Clubhouse as a result of a trade that we made with 4H to gain additional area for Field Day. Therefore there will be NO PARKING in front of the Clubhouse for GCARC members on that day. To access the Clubhouse you'll need to pay the entry fee for the car show and park in their designated areas across the road. That's what I'm gonna do - I'm interested in both cars and ham radio!

This month we welcome the following new member :
John Peterson, KD2ODE, who has a General Class license and lives in Westampton, NJ

73 de Jon WB2MNF
President, GCARC

General Membership Meeting

Wednesday, July 5, 2023 @ 1930 Hours

Pfeiffer Community Center

Simulcast Live Via ZOOM

Go to : www.w2mmd.org to download the ZOOM log-on instruction PDF for this meeting

***** W2MMD Clubhouse Front Door Lock Access Code To Be Changed *****

On Saturday, July 1, 2023, we will be making a change to the Clubhouse front door access combination. Our plan is to make this type of change annually, after the cutoff date for dues payment, at which time non-renewing members will be removed from the Club roster. Changing the door code is the only means of ensuring that former members cannot access the Club facility.

If you are a member who frequently accesses the Clubhouse via your assigned door and alarm code, please reach out to Chris Prioli AD2CS for the new code or with any questions. Your issued alarm codes will remain the same, only the front door access code will be changed.

We apologize in advance for any inconvenience that this change may cause, but we feel that the change is a necessary and prudent requirement to protect the Club's assets.

Need a ride to a Club meeting, event, or activity?

Just send a message to the Club's e-mail reflector asking if a member can pick you up

GCARC <*at*> MAILMAN <*dot*> QTH <*dot*> NET

All Club members have access to this FREE e-mail service

Tech Saturday Forum
July 8, 2023 @ 0900 Hours
W2MMD Clubhouse

Forum Presentation :
Jon Pearce, WB2MNF : Using Hamlib & Node-Red for Rig & Rotator Control

Q & A Session About All Things Ham Radio and Socializing
The HF Station Will Be Available For Local Operation

Tech Saturday sessions are held at the W2MMD Clubhouse on the first Saturday of the month following the Wednesday Night General Membership Meeting and are designed to be hands-on collaborative events focused on using the Clubhouse resources to demonstrate various aspects of Amateur Radio and related technical areas. Previous sessions have covered USB software-defined radios, Raspberry Pi and Arduino devices, satellite operations and other similar topics.

We would like to invite all of our new members as well as our veteran members to our Tech Saturday Forums to help answer any questions and discuss any and all issues the new members have come across as they progress through the ***Amateur Radio Experience.***

The Discussion Theme is a QSO starting point - a way to initiate a conversation. All Tech Saturdays are an open QSO of all subjects of Amateur Radio interest. All questions are welcome as well as a venue for hams to show off their latest ham radio projects or gadgets. Have a problem programming that HT, we can help! Not sure what radio or antenna to buy, we can help!

All Club Members who would like Clubhouse access to use its radio equipment would have to have some brief "Elmering" on the Clubhouse rules, such as using the alarm system, the A/C and heaters, the antenna system, and the radio equipment. The Club's HF station is reserved for local use on Tech Saturday.

All are welcome - Hams and Non-Hams - Club Members and Non-Club Members.

Tuesday & Thursday Nights 10M Rag Chew Net @ 1930 Hours
Net Control Host : Jim Clark, KA2OSV
28.465 MHz or 28.475 MHz

Current Website Updates : Go to this page to find out the latest changes & updates on our W2MMD Website
https://gloucestercountyarc.weebly.com/current-website-updates.html

Gloucester County Amateur Radio Club
YouTube Channel
https://www.youtube.com/@W2MMD

Raspberry Pi Computers To Become Available

By Jon Pearce, WB2MNF

Many ham radio projects utilize the small Raspberry Pi computers for a variety of purposes including SDR applications, radio control apps, the "Hamclock" application, satellite predictions, and many more. Fortunately the Raspberry Pi Foundation has announced that they've finally overcome their supply chain issues and expects to be able to start shipping large quantities of these devices within the next month or so.

So expect to see a plethora of Pi projects emerge from the Clubhouse in the second half of this year, almost assuredly one that YOU will be interested in building. Start looking for Pi project designs now - we'll let you know when they are available again. **https://bit.ly/3XvwmFc**

https://www.facebook.com/AmeritechServices

Welcome New Club Member :

John Peterson, KD2ODE, who has a General Class license and lives in Westampton, NJ.

We are glad to have you as a member of the Club and hope to see you regularly at Club meetings, events, and activities. Hope to see you at the July 5th General Membership Meeting , either in-person or on ZOOM, the July 8th Tech Saturday Forum, and the Dinner @ The Clubhouse on the July 26th.

We also hope to ***"SEE"*** you on the ***"AIR"*** on the following nets :

- Sunday Night Skywarn Net @ 1930 Hours and the Sunday Night ARES Net @ 2000 Hours.
- The TechNet ZOOM Monday Net held semi-monthly - Summer Hiatus
- The HelpNet ZOOM Net, a sporadic Monday meeting @ 1930 Hours.
- Tuesday Noon Day 2M Rag Chew Net @ 1200 Hours.
- Tuesday & Thursday Night 10M Rag Chew Nets on 28.465 or 28.475 MHz.
- Thursday Night 2M Rag Chew Net @ 2000 Hours.

All 2 Meter nets are on our 147.180 MHz repeater or on EchoLink W2MMD-R.

Gloucester County Amateur Radio Club Elmers

We are still looking for some more Club Elmers. If you would to add your name to the Elmer's List, send your specialty to w2mmdgcarc@gmail.com. Here is what we have so far :

- **Tony Starr, K3TS : Antenna Construction; Contesting; CW Help and Training**
- **Ken Bozarth, KN2U : Antennas**
- **Jeff Welsh, KD2AZI : Boat Anchor Repair & Operation; Raspberry Pi; Arduino; Python; POTA; Mobile Installation & Operating**
- **Karl Frank, W2KBF : Digital Messaging (FLDIGI, WinLink)**
- **Lenny Rust, W2LJR : DMR Radios & Programming**
- **Ron Block, NR2B : Lightning protection & grounding**
- **Chris Prioli, AD2CS : Kit Building; Antenna Building; Radio Programming; PC and Electronic Troubleshooting; ham radio licensing & studying**
- **John Zaruba Jr, K2ZA : Yaesu System Fusion Radio Programming**
- **Jerry Barnish, K2EAB : Radio Astronomy**
- **Mike Thompson, KG4JYA : Radio Astronomy; VARA (HF and FM); WinLink**
- **Steve Farney, W2SEF : WSJT-X; FT-8; LoTW; TQSL; Grid Square**
- **Carl Witting, N2CRW : Audacity® Audio Editor**
- **Gary Mirkin, WA3SVW : FLDIGI; MMSSTV**
- **Jon Pearce, WB2MNF : Satellite Communications**
- **Frank Romeo, N3PUU : Toilet Installer; Jack-Of-All Trades - Master Of None**
- **John Hill, W2HUV : Local & Remote W2MMD HF Station Operation, Training & Support**

GCARC Monthly VE Exam Testing Summary - June 8, 2023

Gary Reed, N2QEE reports : The GCARC monthly VE session was held on June 8th.

There were two candidates at the session with an upgrade to Amateur Extra and an upgrade to General.

- **Konstantin Reznitsky KE2BDR (Amateur Extra) of Voorhees, NJ**
- **Tim Searl KC3VHU (General) of Chester Heights, PA**

These candidates were upgraded by noon on Friday the 9th. At 1 PM, the FCC ULS server went down for "maintenance" so the candidates wouldn't be able to see their upgrades in the FCC database. Theoretically their licenses would be in limbo since they can't be seen in the FCC database. The FCC hasn't given a time when the ULS will be back so no new license filing can take place. But the FCC CORES site is available to pay the fees.

The VE's who assisted with the session were :

- **Chris AD2CS**
- **Court KD2SPJ**
- **Mike KG4JYA**
- **Earl KC2NCH**
- **Lee N2LAM**
- **Rich W2RHS**
- **Mike N2WOQ**
- **Mike N2MHO**
- **Gary N2QEE**

Thank you to the participating VE'S. Congratulations to the candidates on their upgrades. The next monthly VE session will be held on July 13, 2023 @ 1900 Hours at the W2MMD Clubhouse.

W2MMD

Facebook

www.facebook.com/W2MMD

twitter.com/w2mmd_gcarc

Element 2 : 22 May meeting well under way. From left and going around the table are Rick Nicholas, Dan Goulianos, Gary Reed N2QEE (Instructor), Beth Kraus, Charles White, and Aimee Ortiz. None of the students are Club members as yet.

Element 3 : 23 May meeting well under way. From left and going around the table are Jim Wright N2GXJ (Instructor), Jacques Latoison KC3VYU, Bert Espanol N3PKH, Ethan Yost KE2AVA, and Melissa Seidner KE2BEK. All of the students are Club members.

The Education Connection
By Chris Prioli, AD2CS : AD2CS.COM

July 2023

Summer is here, and that means a slow-down in Educational Committee activities. Not a complete halt, mind you, but yes… a slow-down.

I want to start out by extending my heartfelt thanks and congratulations to all of those students who recently took - and passed - their FCC license exams. We had a total of nine students who tested, and a total of nine students who earned their licenses or their upgrades. There were five Element 2 (Technician) candidates :

- **Beth Kraus, KE2BPE, from Vineland, NJ**
- **Charles White, KE2BPD, from Sewell, NJ**
- **Dan Goulianos, from Wenonah, NJ**
- **Rick Nicholas, from Swarthmore, PA**
- **Aimee Ortiz, from Clementon, NJ**

While only a few of these licenses are active in the FCC ULS Database as of this writing, these individuals have all none the less worked for and earned their licenses, regardless how slow the FCC process is right now.

Similarly, we had four Element 3 (General) candidates :

- **Melissa Seidner, KE2BEK (Club member from Burlington, NJ)**
- **Ethan Yost, KE2AVA (Club member from Burlington, NJ)**
- **Bert Espanol, N3PKH, Club member from Swedesboro, NJ**
- **Jacques Latoison, KC3VYU (Club member from Chester, PA)**

As with the new licenses, these upgrades are not yet posted in the ULS Database, but the great news is that the lack of a posting does not prohibit use of the new privileges, so long as the licensee appends the string /AG to his/her call sign when exercising the new General class privileges.

The efforts put forth by these students were matched only by the efforts of the assisting instructors. We can easily understand what the students get out of it - a new license or license privileges… but what do the instructors get out of this whole process? I can answer that quite simply… SATISFACTION! Satisfaction at seeing the neophyte operators go from zero knowledge on the subject to a level of understanding that is sufficient to pass the FCC exams. Satisfaction at doing a job and doing it well, and for no other reason than just that satisfaction.

I could not possibly operate all of these classes without the assistance of these other instructors. This past session, Session V, those assisting instructors were **Gary Reed N2QEE** and **Jim Wright N2GXJ**. My hat is off to both of these gentlemen; they have my undying gratitude. You see, this past session, I had decided to give the assisting instructors a break and because the class sizes were as small as they were, I had planned to handle the classes by myself. But that is not at all what happened. Without being asked, both of these gentlemen showed up to teach the classes that they have helped with before. That level of commitment certainly deserves recognition, above and beyond the simple certificate that the ARRL offers.

Education Connection - Continued on page 12

Education Connection - Continued from page 11

Classes will resume in the fall, shortly after Labor Day. In the meantime, don't forget the **Soldering Seminar : Learn To Solder** classes to be held on the 15th and 22nd of July at the W2MMD Clubhouse. Be sure to reach out to me if you are interested in participating in these classes.

That's it for now… see you next month!

Todd Woodward, KD2ESH :

Found this on our Military Hall of Fame at Washington Township High School

2023 Field Day @ Night

Happenings In Our Atlantic Division
By Bob Famiglio, K3RF

The Dayton Hamvention has come and gone and was a great experience for me. I hope many of you have the opportunity to attend someday if you have not been there. I did get to meet up with many of you on the show floor and during or after the several forums I attended or presented. Some of you left notes at the ARRL booth to meet up and I did get them. Sorry that I did not have time enough to meet up with all of you, but as always call me to chat if you have questions or concerns you would like to share.

I am pleased to inform our Atlantic Division members that our Division website is up and running. While the address URL has been around for some time, the information available on the original site was limited. Thanks to our new Vice Director, Marty Pittinger KB3MXM, we now have a site that may be more useful to you and will collect information for each section in our division. Point your web browser to **www.atldiv.org**. The site is a work in progress, so feel free to suggest functions and features you think would be useful for our Division and let us know. Also, please understand that a few of the links may not be entirely operational yet, but will be soon. If you have some ideas for services on the site and/or would like to help, let us know. Our goal is to integrate our Division website pointing upward to our National League site and downward to each of our Atlantic Division sections. My thanks to our Vice Director for his work on this project.

And to be sure, let's remember our veterans this Memorial Day. All of them gave some, and some gave all. Enjoy the Memorial day Weekend but also please keep in mind our troops as well. Many of you are or know veterans that are or were also ham radio operators, bringing their skills to the service of our country in times of war, conflict and all other times where their service demonstrated the best in us.

Let's also remember the purpose of ham radio's existence. In the end, it is service to our country, to the public and each other in terms of our knowledge and skills as radio operators. See the definitions of the amateur radio service in FCC Rule 97.1. Our League, which is comprised of all of you, is "Of, By, and For the Radio Amateur". Enjoy the Memorial day weekend but remember our veterans and our troops this holiday. It exists for them.

73 and I will see you on the radio.

Bob Famiglio, K3RF
ARRL Atlantic Division Director
610-359-7300
k3rf@arrl.org

2023 Field Day @ Night

Regional (Atlantic & Hudson Divisions) Hamfests & Events

July 1, 2023 : Harrisburg Radio Amateurs' Club, Firecracker Electronics Expo & Hamfest, Harrisburg Postal Employees Picnic Grounds, 1500 Roberts Valley Road, Harrisburg, PA. **www.w3uu.org**

July 2, 2023 : Murgas Amateur Radio Club, Hamfest & Computerfest, Polish American Veterans, 2 South Oak Street, Plains, PA. **www.murgasarc.org**

July 8, 2023 : Wattsburg Wireless Association, 2023 NW PA Hamfest, Greene Township Municipal Building, 9333 Tate Road, Erie, PA. **www.wattsburg-wireless.us**

July 8, 2023 : Radio Amateurs of Greater Syracuse, Rodger's RAGS Hamfest, Camillus Elks Lodge, 6117 Newport Road, Camillus, NY. **www.ragsclub.org**

July 9, 2023 : Somerset County Amateur Radio Club, Somerset County PA Hamfest, Somerset County Technology Center, 281 Technology Drive, Somerset, PA. **www.k3smt.org**

July 15, 2023 : Lancaster Amateur Radio Club, Batavia Hamfest, Alexander Firemen Grounds, 10708 Alexander Road, Alexander, NY. **www.w2so.org**

July 16, 2023 : Sussex County Amateur Radio Club, 44th Annual SCARC Hamfest, Sussex County Farm & Horse Show Fairgrounds, 37 Plains Road, Augusta, NJ. **www.scarcnj.org**

July 22, 2023 : New Jersey Antique Radio Club, Summer Tailgate Swap Meet & Ham Fest, InfoAge Science History Learning Center & Museum, 2201 Marconi Road, Wall, NJ. **www.njarc.org**

July 29, 2023 : Utica Amateur Radio Club, RadioCom 2023 Hamfest, Clark Mills Firehouse Grounds, 7705 County Road 19, Clark Mills, NY. **www.uticaarc.org**

July 29, 2023 : Cumberland Valley Amateur Radio Club, Pennsylvania State Convention, Cumberland Valley 2023 Hamfest, Cumberland Valley Engine & Machinery Association Show Grounds, 1501 Criders Church Road, Chambersburg, PA. **www.w3ach.com**

July 30, 2023 : Washington Amateur Communications, WACOM Hamfest, Washington Crowne Center Mall, 1500 West Chestnut Street, Washington, PA. **www.wa3com.com**

Mary W2TDS & Jim KA2OSV : 20M Phone

Soldering Seminar : Learn To Solder

Presented By Professors :
Chris Prioli, AD2CS
John Zaruba Jr, K2ZA

W2MMD Clubhouse @ 0900 Hours

- **Saturday, July 15, 2023 : Basic Soldering Training**
- **Saturday, July 22, 2023 : Building something useful such as a code oscillator, RF attenuator, dummy load, etc.**

Go to : https://gloucestercountyarc.weebly.com/soldering-seminar.html for more information and to register

The Fox Hunt crew @ Field Day

Tuesday Noon Day 2M Rag Chew Net
@ 1200 Hours
Net Control Hosts : Steve W2SEF, Chris AD2CS, & Mike KG4JYA
147.180 MHz Repeater
EchoLink - W2MMD-R

Here is the schedule for the upcoming weeks

Independence Day - No Net : July 4, 2023
Steve Farney, W2SEF : July 11, 2023
Chris Prioli, AD2CS : July 18, 2023
Mike Thompson, KG4JYA : July 25, 2023

Steve Farney, W2SEF : August 1, 2023
Chris Prioli, AD2CS : August 8, 2023
Mike Thompson, KG4JYA : August 15, 2023
Steve Farney, W2SEF : August 22, 2023
Chris Prioli, AD2CS : August 29, 2023

If you would like to be a control operator for this net, please contact Steve, W2SEF

Thursday Night 2 Meter Rag Chew Net
147.180 MHz Repeater
EchoLink : W2MMD-R
Every Thursday @ 2000 Hours

Here is the schedule for the upcoming weeks

Steve Farney, W2SEF : July 6, 2023
Mary Delemarre, W2TDS : July 13, 2023
Gary Mirkin, WA3SVW : July 20, 2023
Chris Prioli, AD2CS : July 27, 2023

Steve Farney, W2SEF : August 3, 2023
Mary Delemarre, W2TDS : August 10, 2023
Gary Mirkin, WA3SVW : August 17, 2023
Chris Prioli, AD2CS : August 24, 2023
Steve Farney, W2SEF : August 31, 2023

If anyone would like to be a net control operator, please contact Jeff, WB2ZBN

At The Repair Bench…

A monthly column describing a recent repair bench event.
By Chris Prioli AD2CS : AD2CS.COM

Icom IC-3210 - July 2023

This month's repair tale involves an **Icom IC-3210 dual-band mobile radio (Figure 1)**, which came in for two separate problems. First of all, the front panel backlighting was inoperative, making it almost impossible to read the display without the use of a flashlight. The second problem was that the radio would not lock in properly on the UHF band most of the time, though occasionally it would work normally. That problem is one of a type that is normally quite difficult to locate – an intermittent problem.

Figure 2 : Original Lamps With Boots

The backlight problem was one that was to be expected with a radio of the age of this particular unit. The front panel on this model is backlit by a set of three T-1 12VDC incandescent lamps that are soldered in place on the front panel printed circuit board (PCB), called the logic board by Icom. Each of these lamps is covered with a yellow plastic boot **(Figure 2)** that provides the desired color to the illumination provided. The lamps sit down into holes in the **PCB (Figure 3 & Figure 4)** and have their wire leads soldered to pads on the PCB. The PCB holes index with recesses in the front panel carrier housing, directing the provided light into the rear area of the panel. All three of the lamps were burned out.

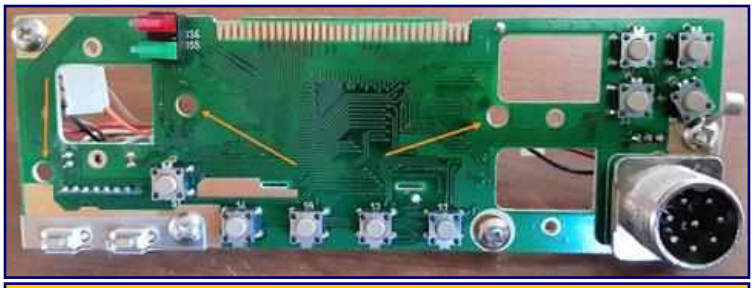


Figure 3 : Logic PCB Foil Side With Lamp Holes Indicated

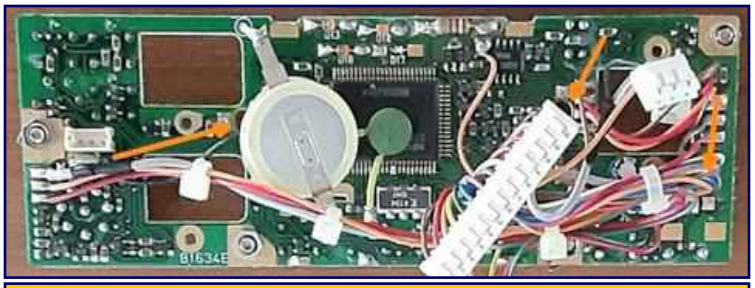


Figure 4 : Logic PCB With Lamp Holes Indicated

While replacements for the original lamps are readily available from standard component sources. I decided to replace them with LED's instead, so as to preclude the probability of a repeat failure of the backlight system. In order to access the PCB and remove the failed lamps, the front panel subassembly must first be removed from the radio chassis, and then further disassembled. This involves removal of the steel frame and the plastic front cover, followed by removal of the three rotary controls. Finally, the LCD panel and its insulator can be removed by twisting the locking tabs to align them with the slots in the PCB. Once the tabs are aligned with the slots, the LCD panel can be pulled straight out from the PCB. After the LCD panel is removed, the plastic front panel carrier housing can be removed from the PCB by removing the small screws that secure the PCB to the carrier. Finally, some of the wiring harnesses can be gotten out of the way by unplugging them. As always, this is the time for some photos of the harness connections to be taken, against the future reconnection of these plugs to the main PCB.

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At The Repair Bench - Continued from page 17

Once the PCB is stripped down as far as is possible, removal of the lamps was a simple matter of heating their soldered lead connections and lifting the lamps out of their holes. I then cleaned the excess solder off the pads using a soldering iron and some flux-impregnated braided solder wick.

As mentioned above, I had decided to use LED's instead of the OEM incandescent type of lamps for the replacements. I chose cool white LED's in the 3mm (T-1) size, and I paired each LED with a 1kΩ resistor for current-limiting purposes. I removed the yellow plastic boots from the original lamps and installed them onto the LED's. I then placed the LED's in the lamp holes of the PCB, soldering the cathode leads to the appropriate pads. Next, I added a resistor to each of the LED anode leads, and then soldered the opposite end of the resistors to the appropriate PCB pads. Application of 12VDC from a power supply to the PCB showed that all three LED's worked perfectly. It was time to move on to the other problem that the radio's owner had reported.

Figure 5 : Tantalum Capacitors Removed

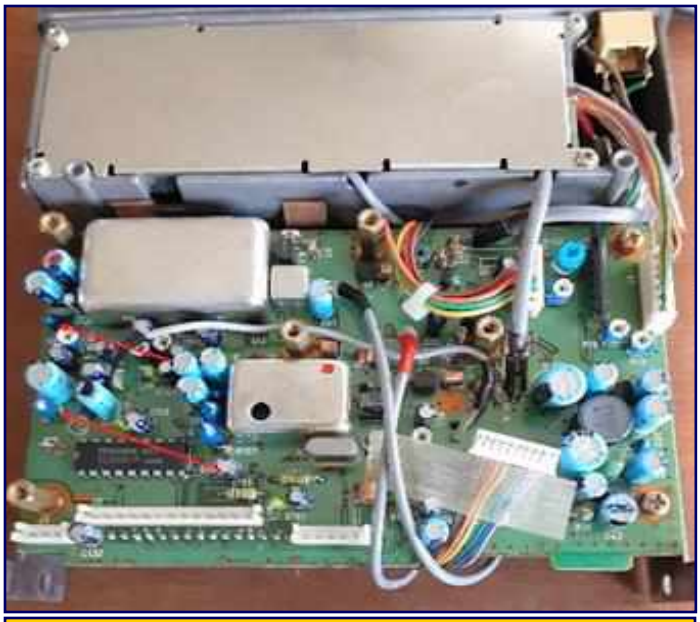

Figure 6 : Locations Of Failed Capacitors

I chose to tackle this problem while the front panel was still disassembled due to the fact that the most likely problem was the switch that is used to switch between bands. That switch is a 6mm x 6mm normally-open (NO) tactile pushbutton switch. When tested, the switch would make only when pressed very firmly. A normal pressing action on the switch would have no effect on the band selection. This one turned out to be a simple replacement of the switch. I desoldered the original switch, and installed the replacement, which I had on hand as it is a standard switch. Easy peasy, right? Not so much as you might think. It turned out that there was also a known problem with this radio model in that two capacitors on the main PCB are known to fail together with this switch. What happens is that two tantalum capacitors, **C87 (0.22µF/35V)** and **C97 (4.7µF/35V) (Figure 5 & 6)** have a tendency to fail with high leakage, causing the UHF phase-locked loop circuit to lose phase lock. The user causes the switch damage by repeatedly working the switch, often aggressively, in an attempt to get the radio to lock onto the UHF band. This action causes the switch to become fatigued internally, leading to the switch failure found on this unit. As a result, the switch merited replacement, as did the two tantalum capacitors. On testing of the removed capacitors, they both had extremely high DC leakage values, and had ESR readings of 14.6Ω for C97 and 9.3Ω for C87.

I next checked the memory keep-alive battery, a BR-2032 coin cell. Yes, that is correct and not a typographical error. It turns out that the BR-series of coin cells are designed for low current drain over an extended period of time. Whereas I had CR-2032 cells in stock with the right welded tabs, I did not want to change the life expectancy of the coin cell in the radio by installing a CR-2032 cell.

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The radio dates back to the late 1980's - its production was discontinued in 1990. The cell in place in the radio had the Icom part number on it, so it was either an original part or a replacement installed by an authorized service center (or someone who bought the cell from Icom). While it is possible that this was the factory cell, it is equally unlikely that it was still original after all of these intervening years. I disconnected it from the circuit for testing, and found that the open-circuit voltage was reading right about 3 volts (3.04V to be exact), which is the nominal voltage of the cell. However, when tested under load, the voltage dropped down to just over 1 volt (1.156V to be exact). Load testing of these cells is best done by installing a 100Ω resistor between the voltmeter leads when measuring the cell voltage. The resistor provides the requisite load, which really tells the story.

I keep a couple of resistors of different values, soldered between small alligator clips, on hand for just this purpose. To use them, I simply select the one with the load value that I want to use, and connect the alligator clips to the voltmeter probes. Then, whenever I measure a battery or cell with the voltmeter with the resistor clipped in place, it is automatically providing a load test for the battery or cell. You can develop a list of desired resistor values for this task by perusing the various battery or cell datasheets. The datasheet will usually provide testing information which includes the load placed on the DUT during testing.

Anyway, I ordered in the correct BR-2032 with the necessary welded tabs for this application, and when it came in, I installed it. However, I did do a load test on the new cell before installation. This one started out at 3.49V open circuit, and only dropped to 3.15V under the 100Ω load test.

After the installation of the coin cell, it was time to re-assemble the radio. Re-assembly went without a hitch, with the only point of note being that the contact fingers along the edge of the PCB where the rubberized contact pad for the LCD panel mates with the PCB need to be clean. I scrubbed them with a pencil eraser, and then removed any skin oil using 99% isopropyl alcohol (IPA) on a cotton swab. This provides for trouble-free connection to the LCD panel after handling the PCB as much as I had done. If you had inadvertently touched the business edge of the rubberized contact pad, that too should be cleaned of skin oil with some 99% IPA on a cotton swab.

Assembly is otherwise the reverse of the disassembly operation. Take care to properly tighten the control nuts on the three rotary controls, and to tighten the PCB to plastic carrier screws without over tightening and stripping them. A quick word about screwdrivers, which maybe should have been mentioned earlier. This radio was manufactured in Japan and therefore uses JIS screws throughout. As a result, JIS screwdrivers are needed to loosen any tight screws without stripping the drive recess in the screw head. Standard Phillips screwdrivers or any variation thereof will certainly cause damage to the screw heads. During disassembly, I found that one of the screws that secured the shield plate and the front panel metal frame to the radio chassis had been stripped in that manner, telling me that someone had been into this radio before and most likely had not realized at first that the screws were JIS screws. I used a specialized extractor to remove the screw, and I replaced that screw upon reassembly with a new JIS 3mm-0.5mm x 6mm flat head machine screw from my inventory.

Remember that in screw dimensioning, the first part (before the hyphen) is the nominal thread diameter, while the second part (after the hyphen) is the thread pitch reference (more about that later). The number after the "x" is the fastener length. Metric fasteners and Imperial fasteners utilize different thread pitch designation methods. With a metric threaded fastener, the pitch information is reported as the distance from the peak of one thread to the peak of the adjacent thread. Thus, a machine screw with a pitch designation of 0.5mm will have a measured distance of one-half of a millimeter from one thread peak to the next. Imperial fasteners use a system that reports the number of thread peaks in an inch of fastener length. Thus, a machine screw with a pitch designation of 32 will have 32 thread peaks in an inch of screw length. Keep in mind also that while most headed fasteners are length-measured from the underside of the head, flat-head fasteners are length-measured for overall length, including the head length.

At The Repair Bench - Continued on page 20

At The Repair Bench - Continued from page 19

Reconnecting of the various wire harness plugs to the main PCB is pretty much a straight-forward matter of matching the plug size to the socket size. The is only one possible mix-up, and that is with the squelch control harness plug and the speaker harness plug. This can be resolved easily if the photos recommended earlier were taken. If not, refer to the schematic diagram found in the IC-3210 service manual to determine that the squelch control harness plug goes to connector J6 on the main PCB, while the speaker harness plug goes to connector J9.

Once the reassembly is complete, it is time for a functional test of the repairs. As luck would have it, another problem became evident quite quickly. It turned out that the rotary control used as the main up/down control signal source was inoperative. As a result, frequency could not be adjusted within each band, although the radio was otherwise fully functional on each of its two bands. In a similar manner, none of the radio's optional settings that require an up/down selection normally made via that control were operational. Thus, the tuning step intervals, the CTCSS tones, and several other functions could not be changed. The problem gets worse… it turns out that the microphone Up/Down controls were also inoperable. This would seem to point to some circuit or component that is common to both control methods. In this case, I worked through the block diagram, the unit schematic, and the X-Ray views of the printed circuit boards in an effort to try to isolate the cause of this problem. Unfortunately, all of this testing and probing led to the inescapable conclusion that the problem lies within the logic board CPU integrated circuit, a µPD75308GF-101-3B9 device that is no longer available. So… while the relatively minor faults for which the radio came in were all corrected, the radio is nonetheless still inoperable, as the VFO frequencies cannot be changed. When powered on, the radio comes up on the designated calling frequencies of 146.520 MHz for VHF and 446.000 MHz for UHF.

Continued testing showed that one of the four output strobe lines from the CPU to the control matrices was extremely low in voltage as compared to the other three strobe lines, though its signal waveform was of the correct shape - just lower in amplitude than it should have been. I also noted that when exercising any of the switches on that particular strobe line, there was no response in the CPU, as those lines were not brought to a deep low with the switch activation - they were already low, so the CPU did not see the switch activations as changes of state on those lines. Unfortunately, no ready repair was available for this problem, as the CPU integrated circuit is obsolete and is therefore currently unavailable.

Sometimes, due to the so-called "planned obsolescence" so prevalent in the output of many of today's manufacturing plants, an otherwise great little dual-band radio is relegated to the junk pile. I will keep my eyes and ears open on the lookout for another IC-3210 that I can pick up for parts, but I imagine that to be a rather futile effort. There are surprisingly few hits on Google when searching for that model number. I cannot in good conscience charge this radio owner a penny for my time spent and for the repairs that were made, as the end result was not a working radio.

See you next month!

Regional Skywarn Websites For On-Line And In-Person Training Classes

Philadelphia/Mt Holly Skywarn : www.weather.gov/phi/skywarn
State College, PA Skywarn : www.weather.gov/ctp/skywarn
Pittsburgh, PA Skywarn : www.weather.gov/pbz/skywarn

Skywarn Forum : Skywarn Storm Spotter and Weather Discussions : https://www.skywarnforum.com

2023 Clubhouse Projects

Shed : Build Ramp

Replace Back Steps

Clubhouse :

- **Build Ramp**
- **Replace Interior Front Door**

Lightning Protection Project :

- **Install copper strapping in Library Room**
- **Install copper strapping in VHF/UHF Room**
- **Complete grounding rod installation around Clubhouse and Towers**

Install New Light Pole

ARES Resources

Download the ARES Manual [PDF] : https://bit.ly/3iUhJLQ
ARES Field Resources Manual [PDF] : https://bit.ly/3QT4PtY
ARES Standardized Training Plan Task Book [Fillable PDF] : https://bit.ly/3wg5kVt
ARES Standardized Training Plan Task Book [Word] : https://bit.ly/3ZTNDbR
ARES Plan : https://bit.ly/3XLokXH
ARES Group Registration : http://bit.ly/3XodGpX
Emergency Communications Training : http://bit.ly/3J2gMMf
2022 National Preparedness Report : https://bit.ly/3EnvcTW
Southern New Jersey Section EOP 2022.PDF : https://bit.ly/3SbrXol

The Amateur Radio Emergency Service® (ARES) consists of licensed amateurs who have voluntarily registered their qualifications and equipment, with their local ARES leadership, for communications duty in the public service when disaster strikes. Every licensed amateur, regardless of membership in ARRL or any other local or national organization is eligible to apply for membership in ARES. Training may be required or desired to participate fully in ARES. Please inquire at the local level for specific information. Because ARES is an amateur radio program, only licensed radio amateurs are eligible for membership. The possession of emergency-powered equipment is desirable but is not a requirement for membership.

If you are interested in learning more about the Gloucester County ARES Program or becoming an ARES member, please contact Bob Keogh (KD2NEC@QSL.NET)

A *Club* that goes *above* and *beyond* for their communities and for Amateur Radio, is what defines a *Special Service Club (SSC)*.

They are the leaders in their Amateur Radio communities who provide active training classes, publicity programs, and actively pursue technical projects and operating activities.

GCARC has been an ARRL Affiliated Club since February 1960 and an SSC since April 2010.

W2MMD Clubhouse Test & Repair Bench Equipment and Supplies

A Special Thank You to Chris AD2CS for donating the equipment and organizing these test benches

- YiHua 948 11-in-1 Solder Station
- Universal Screwdriver Set
- PanaVise PCB vise with full tilt and rotate on parts bin base
- 500 Watt Dummy Load
- 100 Watt Dummy Load
- Heathkit HD-1234 6-position Coax Switch with RG-213 jumpers
- Hook-up Wire :
  - 18 AWG stranded
  - 22 AWG solid and stranded
  - 24 AWG solid and stranded
- Bird 4304A Thruline Directional Wattmeter
- CMS BE-01 Battery Eliminator 1A/1.5-15V Power Supply
- 12 AWG Red/Black Dual Stranded ZIP Wire
- Simpson 260 Series 5 Analog Multimeter
- CMS ESR-01 Equivalent Series Resistance Meter
- Elenco DT-100 Diode & Transistor Tester
- TekPower TP50SW 50A/13.8V Power Supply
- Elenco XP-720 12.6VAC/5VDC/1.5-15VDC 3A/1A Power Supply
- RSR Electronix Express RSR-3040 15VAC/5VD/1.5-15VDC 3A/1A Power Supply
- BK Precision 1803D Frequency Counter
- KKmoon MHS-5225 Digital Arbitrary Waveform Signal Generator
- Exact 121 Analog Signal Generator
- Greenlee DM-510A Handheld Digital Multimeter
- HP 34410A Benchtop Digital Multimeter
- BK Precision 1655 Variable isolated AC Supply
- CMS Dim Bulb Current Limiter - 100 Watt
- CMS BDST-01 Signal Tracer
- CMS CRTT-01 Gas-charged Voltage Regulator Tube Tester
- Conar 224 Tube Tester
- GW LCR-814 LCR Meter
- Siglent SDS-1102CML+ Digital Storage Oscilloscope
- DX Engineering Coaxial Cable Gripper and Stripper (RG-8U / RG-213)
- DX Engineering Coaxial Cable Cutter, Trimmer, and Crimper (RG-8U / RG-213)
- DX Engineering RG-8X Die Set for Coaxial Cable Crimper
- Adjustable Wrench Set for Slotted/Recessed Round Nuts
- Speedwox Miniature Box Wrench Sets, Metric and SAE
- 69238 Nut Driver Set, Metric
- 69239 Nut Driver Set, SAE
- Velleman K-8115 Universal Component Tester
- Anderson Powerpole® Connector Assortment
- Anderson Powerpole® Crimping Tool
- Heat Shrink Tube Assortment, cut lengths
- Ring Terminal Assortment
- Alignment Tool Set
- Craftsman Wire Cutter/Crimper
- Craftsman 6-piece Pliers Set
- Laptop PC
- Programming Cable Sets (2)
- Test Lead Set
- Oscilloscope Probe Set

1.25M Homebrew J-Pole Antenna : Part 2

By Chris Prioli, AD2CS : AD2CS.COM

Apart from the feed point connector and center feed wire, this is what the antenna will look like when it is complete. Make sure that all of the parts are positioned so that the assembly lies flat and square on the work surface **(*Figure 9*)**. When sweating the pipes and fittings, it is important to maintain the positions of all of these parts in one single plane.

Figure 9 : Dry-Fitted Assembly Before Sweating

After you are satisfied with the fit and form of the antenna, it is time to start sweating fittings onto the pipes. The sequence of assembly is not important. What is of paramount importance is the proper positioning of the elbow and tee, so that the assembly is all in a single plane and that the two longest pipes are parallel to each other. Be sure to sweat the caps onto the two longest pipes only. The appearance of the sweated joint can be improved greatly by wiping the joint with a rag soaked with cold water while the joint is still hot.

When all of the sweating is completed, allow the assembly to cool, and then clean it thoroughly with water inside and out, using some mild dish soap if necessary to remove all traces of the solder flux that may remain on the copper. After a thorough final rinse, shake out as much water as possible from inside the pipes, and towel dry the outside of the pipes.

Now, working quickly, using rosin core solder and applying the heat carefully so as not to loosen the pipe caps, solder each of the brass nuts on the outside of the pipe caps directly to the pipe caps themselves, taking care not to get any solder on the threads. After soldering the nuts in place, allow the assembly to cool completely, and then remove the plated screws from the soldered brass nuts, allowing the screws to drop into the pipes. A pair of pliers will start the screws turning, and then the tip of a jeweler's screwdriver or an awl can be used to continue turning the screws **(*Figure 10*)**. If the screws are stubborn, a hand drill with a small twist drill can also be used to spin the screws out. Start the twist drill into the center of the screw, and then run the drill slowly. As the twist drill bites into the screw, the screw will be spun out. Move the assembly as necessary to get both screws to travel through and out of the pipes.

Figure 10 : Cap with Nut

Once the plated screws have fallen out of the antenna, install a 6-32 brass hex nut to each of the 6-32 x 1-1/2" brass machine screws, and then thread one of these brass screws into the brass nut soldered to each of the antenna's copper pipe caps. Snug the upper nuts down against the soldered nuts to lock the brass screws in position. The brass screws are used to adjust the SWR of the antenna by changing the electrical length of the antenna's elements.

It is now time to talk about installation of the feed point connector. I chose to install an SO-239 flange-mount panel jack. This jack has a square mounting flange with a screw hole in each corner **(*Figure 11*)**. We are going to use only one of these mounting holes, but before we can mount the SO-239 to the pipe, we have to drill a hole in the pipe. The placement of this hole is important, so measure carefully.

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1.25M J-Pole Antenna - Continued from page 23

Figure 11 : SO-239

Position the assembly in your v-block with the 12-1/2” pipe down and the 38-1/4” pipe up. Clamp the assembly in that position, so that the longest pipe is at the top and towards the drill spindle. Measure and mark a point on the 38-1/4” pipe 1-1/4” from the end of the pipe tee. Center punch that point, and then drill a 1/8” hole in the pipe’s upper surface only.

Position the assembly flat on the work surface with the newly-drilled hole towards you. Place the SO-239 flange over the drilled hole with the body of the SO-239 above the pipe and one corner hole aligned over the drilled hole in the pipe. Secure the SO-239 to the pipe with a 1/8’ pop rivet having a grip range of about 3/16” to 1/4". Next, using either the propane torch or a high-wattage soldering gun, solder the flange of the SO-239 to the copper pipe **(*Figure 12*)**, using rosin core solder only. Work quickly and carefully so as not to melt the center insulator of the SO-239 connector. This is not a real issue if the SO-239 is Teflon®-insulated.

Figure 12 : SO-239 Installed

Next, we have to drill another hole, this one in the 12-1/2” pipe but on the side of the pipe that would be at the top if the antenna assembly was to be laid flat on the work surface with the flange of the SO-239 in a vertical orientation. This hole will be 1/8” and is to be on the 12-1/2” pipe directly across from the center terminal solder cup of the ***SO-239 jack*** **(*Figure 13*)**. This hole should then fall at a distance of 1-1/4” from the end of the elbow that supports the 12-1/2” pipe.

Figure 13 : Hole for Wire Drilled

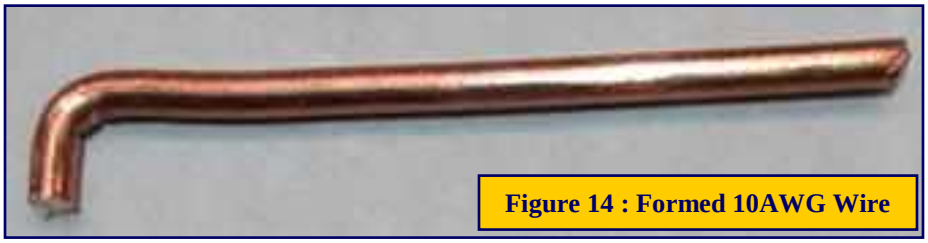


Figure 14 : Formed 10AWG Wire

After drilling the 1/8” hole in the 12-1/2” pipe, locate the 2” length of bare 10 AWG solid copper wire. Make a 90° bend in this wire at approximately 1/4" from one end **(*Figure 14*)**. The idea is to bend this wire in such a manner that it will just fit between the center terminal solder cup of the SO-239 while the bent end fits into the 1/8” hole in the 12-1/2” pipe. Once you have the wire bent to fit properly **(*Figure 15*)**, insert it into place and solder it there, again using only rosin core solder. If necessary, trim the long end of the wire until it fits properly between the drilled hole and the SO-239 center conductor solder cup.

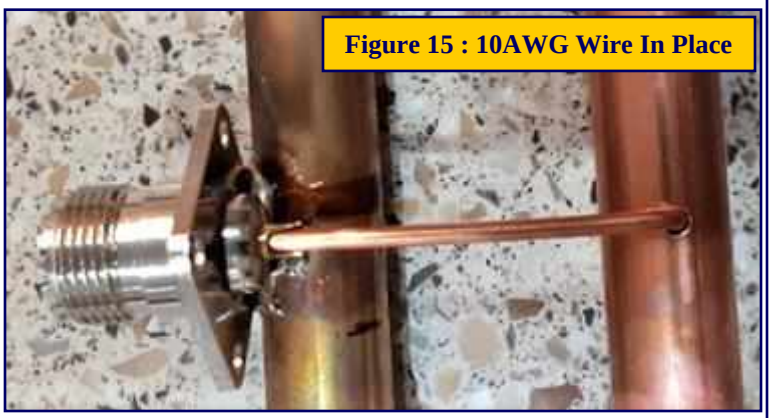


Figure 15 : 10AWG Wire In Place

1.25M J-Pole Antenna - Continued on page 25

Now it is time to install some protective coating to the SO-239 center terminal solder cup. This can easily be done using a liquid electrical tape product such as Gardner Bender LTB-400 Liquid Tape. This product is available in other colors besides the standard black, though the black variety has always worked well for me.

Another excellent choice is to make a flowable sealant from some 100% silicon sealant such as the **GE Advanced Silicone 2® (*Figure 16*)** and a small amount of mineral spirits. Here is the process for making this sealant into a flowable, self-leveling mixture :

1. Squirt a small amount, about the size of a large marble, into a suitable disposable mixing container such as a cut-down Solo™ cup.
2. Add a quantity of mineral spirits that would make about a ten-to-one ratio of silicone sealant to mineral spirits.
3. Thoroughly mix the two ingredients together until fully blended, adding small amounts of mineral spirits as required to achieve a flowable consistency.

Apply this mixture to the area to be sealed, using a disposable acid brush as the spreading tool. The mixture will seek its own level and smooth itself over as it flows into place. Note that this mixture will cure much more rapidly than will the unadulterated silicone sealant, so work quickly to get it applied where and as desired. This mixture was introduced to me by **Frank N3PUU**, so I thank him for his contribution.

At this point, the antenna is ready for testing and adjustment, and then for installation and use. I tested mine with three different pieces of test equipment - my **NanoVNA H4**, my **MFJ-259D SWR Analyzer**, and my **RigExpert® AA-650 ZOOM Antenna Analyzer**. I got somewhat similar results from all three tests, and the data obtained was quite informative. Due to the differences in testing algorithms and methodologies, the obtained results were bound to show some differences. The funny thing is that for many of us (ham operators), we only have one piece of antenna test equipment, therefore, we would take a reading with that tester and call it a day. Our antennas are behaving like the tester that we have available says they are behaving, right? So what happens when we do have multiple testers? Which one is the correct reading? The answer is that they all are right, each in its own way. What is being said by each tester is that the antenna, when tested under the conditions existing at the time of the test, and under the specific testing methodology used for the test, and taking into consideration any inherent error in the tester and/or its methods when the test was performed, behaved as reported in the test results.

In the case of this newly-built antenna, the ***NanoVNA H4* (*Figure 17*)**, newly calibrated and set for a frequency sweep range of 200MHz to 230MHz and measuring 301 data points, reported the following results when set for SWR and a Smith Chart :

- An SWR of 1.324:1 at 225MHz
- A complex impedance of 55.02+j123.9?

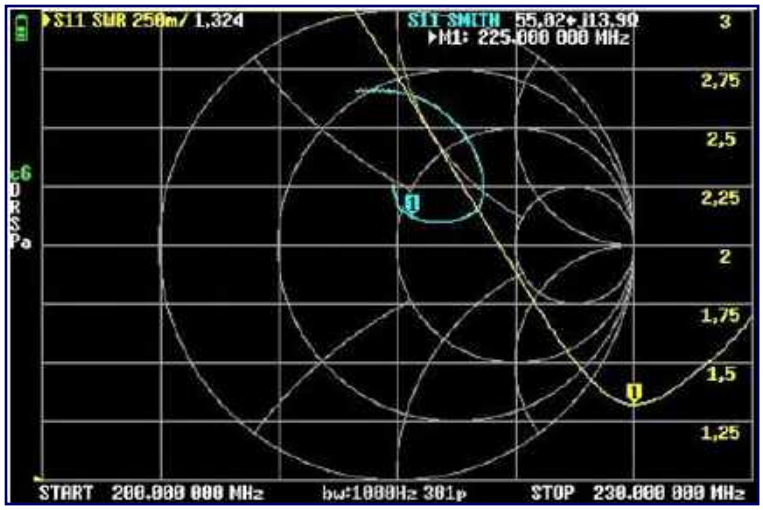


Figure 17 : NanoVNA Screen Capture

1.25M J-Pole Antenna - Continued on page 26

1.25M J-Pole Antenna - Continued from page 25

The same antenna, with the same length of RG-213 coaxial cable now connected to the ***MFJ-259D*** **(*Figure 18*)**, came up with a 1.0:1 SWR, resistance of 50? and reactance of 0?, all at 221.86MHz.

When tested with the ***RigExpert AA-650*** **(*Figure 19*)**, it came up as 1.08:1 SWR and 53.1? impedance, but at 222.5MHz. This test further showed the complex impedance to be 53-j2.6?, with an inductive reactance component of -1.9nH and a capacitive reactance component of 275.6pF. Similar data is available from the NanoVNA if those options are selected.

This antenna was a very easy build, with the most difficult part for me being the sweating of the pipe and fittings, as I am not very proficient with a plumber's torch. As was mentioned earlier, the basic antenna design can be adapted to virtually any band, while it is best suited for the short-wavelength bands. It is a simple matter of plugging in the design frequency into the formulas provided in the graphic in ***Figure 5***.

Time will tell what the actual performance is like, when I get it installed and operational. I can make final SWR adjustments at that point, thanks to the adjustment screws on the pipe caps. The only question is, which tester will I use?

Figure 18 : MFJ-259D Display

Figure 19 : RigExpert AA-650 Display

Go to : https://gloucestercountyarc.weebly.com/220-j-pole-antenna.html for a downloadable PDF.

BBQ Crew : Melissa KE2BEK & Ethan KE2AVA

TDRO-1 Time Delay Reflectometry Oscillator

By Chris Prioli. AD2CS : AD2CS.COM

A few months ago, I had cause to look for another means of measuring the length of an unknown section of coaxial cable. This was prompted by the fact that I was getting questionable results from both my RigExpert AA-650 Zoom and my NanoVNA H4. At the time, I was not sure which one, if either, was correct, and I was concerned as to why I was getting such widely differing results as I was seeing.

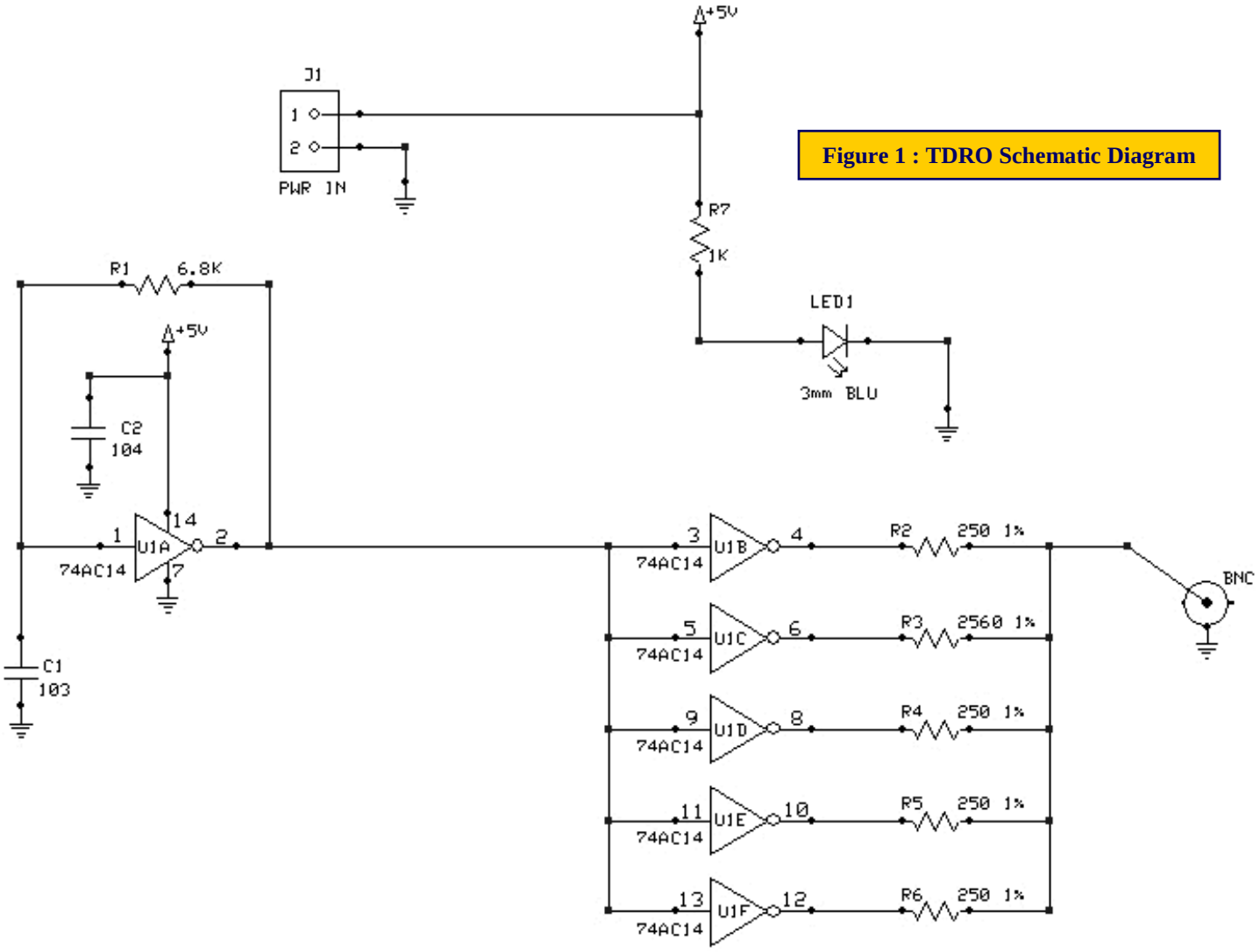


Figure 1 : TDRO Schematic Diagram

Doing some research online, I came up with a **design idea (Figure 1)** for a basic time delay reflectometry oscillator that is extremely simple, uses a minimal parts count, and can be tailored to the characteristic impedance of the designer's choice. In the design stages, the selection of certain components will control the oscillator output frequency. The printed circuit board layout for this circuit is shown in **Figure 2**.

The oscillator output frequency is controlled by the resistor and capacitor in the oscillator loop. I chose the pairing of a 0.01µF (10nF) capacitor and a 6.8k? resistor, which produced an output of 12.680kHz. The actual formula is $F_{OUT} = k / RC$ where k is a specific factor (discussed below), R is the oscillator loop resistance in ohms, and C is the oscillator loop capacitance in farads.

AD2CS TDRO-1 - Continued on page 28

AD2CS TDRO-1 - Continued from page 27

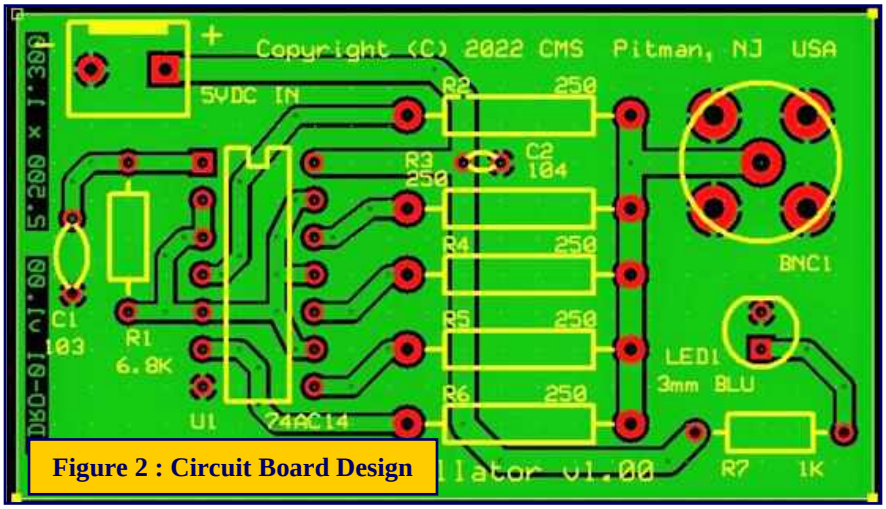


Figure 2 : Circuit Board Design

The specific factor referenced above is a fixed value typically between 0 and 2 which is based on the exact type of the device chosen as the active component in the oscillator, the supply voltage, and the rise/fall time of that active device. This specific factor is known as the "***constant value of the Schmitt Trigger***". I started out with a base constant of .85, which produces a predicted frequency of 12500 hertz (.85 / 0.000068). The value 0.000068 is derived by multiplying the nominal resistor value of 6800 ohms by the nominal capacitor value of 0.00000001 farads. Upon assembly and testing, the actual oscillation frequency turned out to be 12680 hertz or 12.680kHz as stated above. Assuming that I selected an accurate constant value, the difference between the prediction and the produced frequency would likely be due to component tolerances. If I were to accurately measure and use the true component values, I could in turn calculate the actual constant value for this particular IC and power supply configuration.

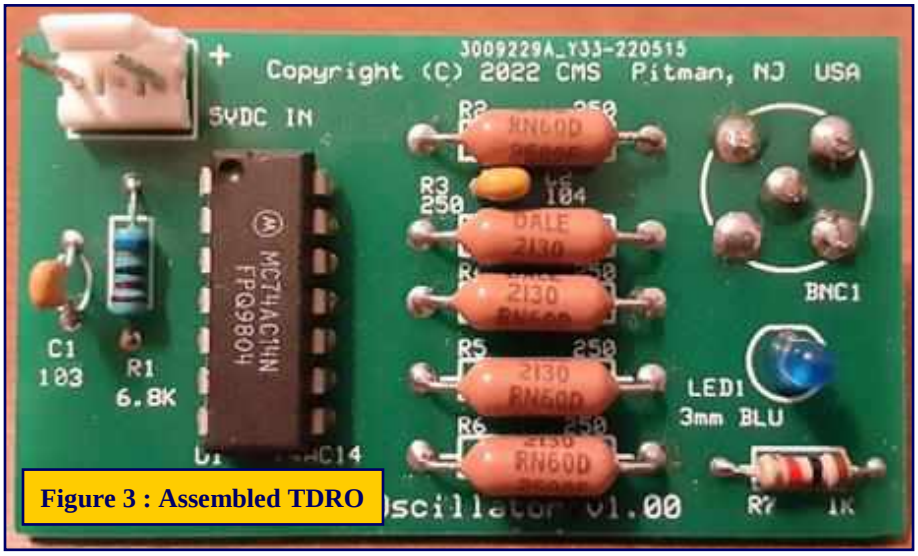


Figure 3 : Assembled TDRO

The heart of the oscillator is the 74AC14 hex Schmitt inverter IC. One of the inverter sections is used as a square wave generator with very fast rise and fall times - approximately 2nS - on the verticals of the square wave. The generated square wave is then simultaneously fed into the remaining five inverter sections, and through a parallel set of five 250? 0.1% 250mW precision resistors. The output signals from the parallel resistors are then combined into a single 50? impedance signal to the BNC output jack. The whole shooting match is built up on a **2.5" x 1.3" printed circuit board (Figure 3)**.

The theory behind using this oscillator to measure an unknown cable length is that the output pulse train from the oscillator is imposed upon the cable, where it travels to the opposite end of the cable. If that opposite cable end is open, the signal will be reflected back to the source. The travel time of the pulse train out and back on the cable can be measured and used to calculate the cable length.

A couple of factors must be known in order to covert the pulse travel time into cable length. We must know the speed of light, ***c***, in terms of inches per nanosecond. This is a simple matter of arithmetic, as shown below :

c = 186,000 miles per second… x 5,280 gives us
c = 982,080,000 feet per second… x 12 gives us
c = 11,784,960,000 inches per second… move the decimal point nine places left to get
c = 11.78496 inches per nanosecond

AD2CS TDRO-1 - Continued on page 29

AD2CS TDRO-1 - Continued from page 28

Next, we have to apply the correct velocity factor (VF) for the cable being measured. Typical coaxial cable would be about 66%, which in turn makes the pulse speed 7.778 inches per nanosecond **(11.78496 X 0.66 = 7.7780736)**.

The final step of the calculation involves taking the measured pulse travel time, which we will discuss shortly, and factoring that into the equation, remembering that the pulse travel time is a two-way trip, meaning we need to halve the result to get our final answer in inches of length :

$$LENGTH_{CABLE} = TIME_{MEASURED} \times 7.778 \times 0.5 \text{ inches}$$

where $LENGTH_{CABLE}$ is the calculated length in inches, $TIME_{MEASURED}$ is the pulse travel time in nanoseconds, ***7.778*** is the pulse speed in inches per nanosecond, and ***0.5*** is the halving factor.

Obtaining the $TIME_{MEASURED}$ value is accomplished through the use of an oscilloscope. The TDR oscillator is connected to the oscilloscope input through a BNC tee, with the oscillator on the stem of the tee. One branch of the tee is connected to the oscilloscope with a BNC adapter, and the oscilloscope is adjusted to display a waveform of the oscillator output pulse. The unknown length of coaxial cable is then connected to the open branch of the tee and the new waveform that appears is analyzed.

The **original waveform (Figure 4)** will show a steep rise to a ringing horizontal. The **second waveform (Figure 5)**, with the cable connected, will show a step in the vertical. The time offset between the peak of the step and the peak of the overall waveform will be the value of interest. If the oscilloscope offers cursors, the time interval can be calculated by the oscilloscope with a great degree of accuracy. Without cursors, the user will need to analyze the pattern with regard to the graticule to determine the time interval.

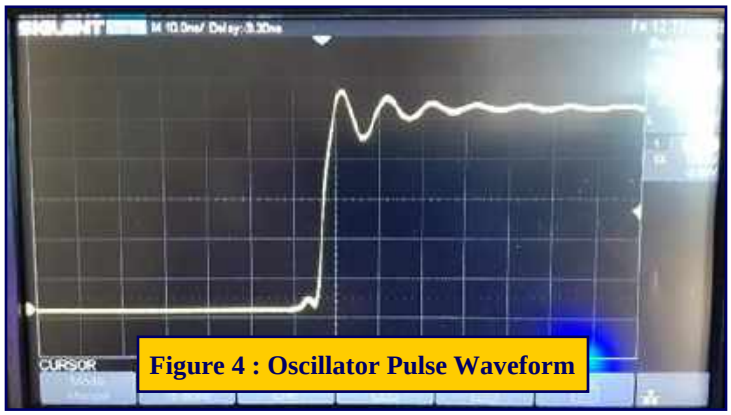


Figure 4 : Oscillator Pulse Waveform

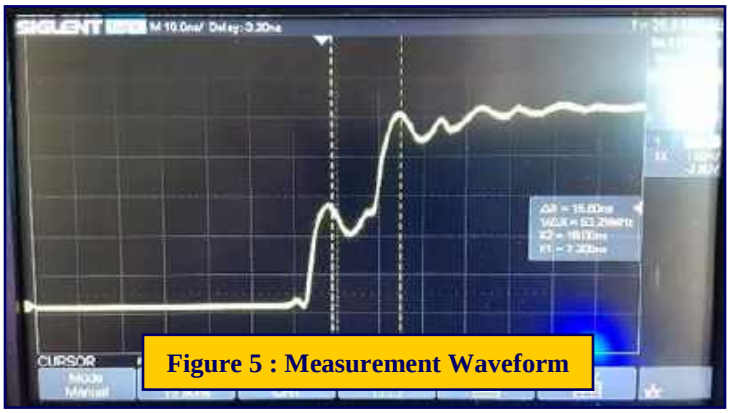


Figure 5 : Measurement Waveform

In my initial test, the $TIME_{MEASURED}$ interval was 15.80nS. Now it is time to plug that value into the equation discussed above :

$$LENGTH_{CABLE} = TIME_{MEASURED} \times 7.778 \times 0.5 \text{ inches}$$
$$LENGTH_{CABLE} = 15.80 \times 7.778 \times 0.5 \text{ inches}$$
$$LENGTH_{CABLE} = 122.8924 \times 0.5 \text{ inches}$$
$$LENGTH_{CABLE} = 61.4462 \text{ inches}$$

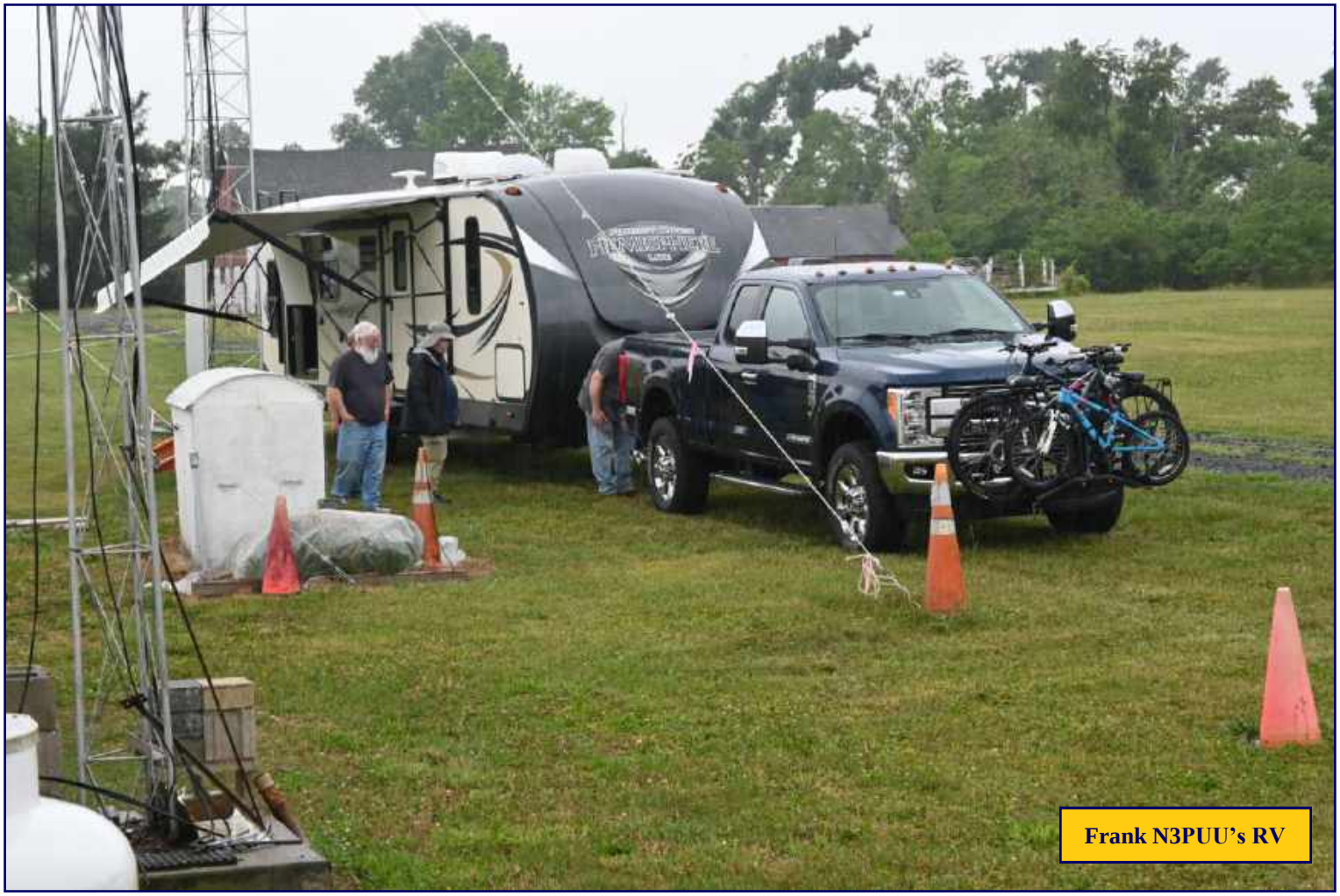
The actual test cable length, measured with a tape measure for validation of the method, turned out to be 59.5 inches. It can be assumed that the difference is due to the length of the adapter set used to make the connection to the oscilloscope. End result? This method works quite well. As a result, I felt safe in using this method to measure the original problem cable. As it turned out, the NanoVNA's reported length was much closer to the TDR Oscillator measurement than was the RigExpert's reading.

AD2CS TDRO-1 - Continued on page 30

AD2CS TDRO-1 - Continued from page 29

The result of all of this is that for just a few bucks' worth of parts, it is possible to build a very accurate time domain reflectometry oscillator that will work with any oscilloscope to give you good accuracy in the measurement of unknown cable lengths. It will work for coaxial cable, zip wire, open wire line (window line, ladder line, etc.), and even twisted pair wire. All that you need to make it work is the velocity factor of the wire at hand.

I have a limited number of these devices available in kit form for those who may want to build one but do not want to go through the work of laying out the circuit on a board, even though a small piece of project perf board will work well for this task. Drop me an email at ***chris@ad2cs.com*** for more information about purchasing a kit.



Frank N3PUU's RV

The Rooster Net : For Whom the Rooster QSOs!

On May 26, 2023, The Rooster Net will celebrate 24,000 daily sessions on 3.990 MHz.

Doug Frothingham, K2IZI (SK), founded the Rooster Net on September 10, 1957. The net has met at 6:00 AM Eastern time every day without any interruptions since, possibly making it the longest-running amateur radio net.

Besides its more than 65-year existence, the Rooster Net operates without any rules or a traditional club structure. It depends upon the goodness of the amateur radio operators that make up the group and traditions they have established over the years.

Chief Rooster Roy Hook, W8REH, in his "rooster shack". Photo courtesy of the Rooster Net.

Roy Hook, W8REH, is the Chief Rooster, and he says the flock is unique. "Unlike most ham groups that focus on specific areas of interest, the Rooster's members are interested in not only every individual ham, but also everything ham radio," said Hook. The net opens every day of the week with a different net control team and a brief description of the net by the control operator, "open to all properly licensed amateurs; everyone wants to hear what you have to say," even if your work schedule or other circumstances don't allow you to stay and listen for the whole duration of the net.

Hook says there is one common question he answers frequently about the net : where does the net operate from? "I describe it as an area bounded by the Atlantic Ocean on the east and wherever 75-meter propagation permits at 6:00 AM," said Hook.

A typical morning check-in list has 50 to 60 Roosters from all over the globe, from Canada to Florida, west to Tennessee, Ohio, Michigan, and beyond. Occasionally, Roosters in Puerto Rico, South America, Arizona, and Montana have checked in. Roosters flock to many national ham radio events and attend an annual picnic of their own to meet their friends.

During a time when rapidly changing interests, technologies, and diversity in amateur radio seem to divide organizations, the Roosters welcome all interests and personalities in order to bring the community closer together. Even more diverse than their geography is the backgrounds of the group.

Rooster Net - Continued on page 32

Rooster Net - Continued from page 31

School teachers, aerospace engineers, telecommunication engineers, mechanical engineers and highway workers only begin to define more than 1,500 official Roosters. Hook says members like to say that celebrating traditions is the key to longevity.

The Rooster Net is certainly not for everyone, especially if some good-natured joking among friends bothers you, but on any day, you will likely hear an educational discussion on something from an infinite list of Rooster interests: DX, CW, repeaters, digital operating, contesting, astronomy, antique ham equipment, cooking, golf, antique and modern cars, remote station control, pro sports, fishing, gardening, railroading, airplanes, operating and building model railroads and airplanes, hunting, and military history and experiences.

To become an official Rooster, there is a "Crow-in Procedure" on-the-air initiation once you have checked in 20 times within 90 days between 6 and 7 AM. You have to convince a group of judges that you can follow instructions and really crow like a Rooster. Whether an official Rooster or not, everyone is always welcome to participate by visiting **www.rooster-net.org**. Hook notes, "I guarantee tomorrow at 6:00 AM the rooster will crow on 3.990 MHz."

If you missed the 24,000 celebration, don't worry. The 25,000 celebration will be on February 19, 2026.

Article Credit : The ARRL Letter for May 4, 2023 - www.arrl.org

QST de W1AW
Special Bulletin 5 ARLX005
From ARRL Headquarters
Newington CT June 5, 2023
To all radio amateurs

SB SPCL ARL ARLX005 Licensee Hit With $24,000 Fine for Jamming Net, Failure to ID: FCC

An investigation by the Federal Communications Commission (FCC) results in a large fine against a California amateur radio license holder.

A Notice of Apparent Liability Forfeiture (NALF) for $24,000 has been filed against Phillip J. Beaudet, N6PJB, of Burney, California.

According to the filing, the penalty is for Beaudet "willfully and repeatedly interfering with the radio communications of the Western Amateur Radio Friendship Association (WARFA) while it was attempting to hold a regularly scheduled net and for failing to provide station identification on amateur radio frequencies."

FCC agents used direction finding techniques during November and December of 2022 to track the interfering signals to Beaudet's home station. Agents "heard him playing recordings on 3.908 MHz that caused interference to the ongoing WARFA net while failing to provide his assigned amateur call sign," the document stated.

Ohio's Rooster Net Has Good Company

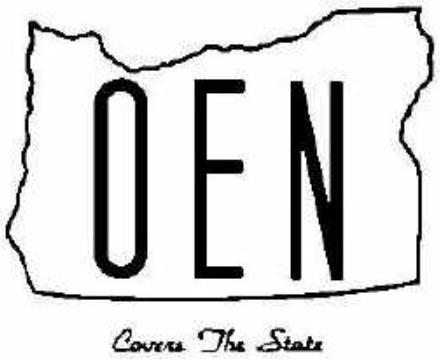
Last week's **Ohio Rooster Net story (http://www.arrl.org/arrlletter?issue=2023-05-04#toc050)** in the May 4, 2023, issue of The ARRL Letter brought in two immediate responses regarding some of the longest-running nets.

First, Larry Wheeler, W9QR, reminded us that the Indiana Section Level Traffic Net, formally the Indiana Phone Net, has been active every day with a morning and evening session on the 80-meter band since January 19, 1947.

The ITN started out as an AM net that switched to SSB in the 1960s. The sessions now begin at 0830 AM EST on 3912 kHz and on 3910 kHz for the evening sessions at 2030 PM EST. A typical session may have five to ten pieces of formal traffic, after which a roll call of about 50 stations is called.

Wheeler said all of this is accomplished in about 18 minutes, and then the net is closed. Operators who hear the net for the first time are amazed at its efficiency. Before the days of long-distance telephone service, it was commonplace for the net to handle more than 1,000 messages each month.

Then, Harold Lines, W7DPS, checked in to alert us that on the evening of December 20, 1948, the **Oregon Emergency Net (OEN - http://w7oen.net)** held its very first official session. "By my calculations, that makes 27,163 daily sessions, including the one we just held tonight. Session number 28,000 should happen on August 18, 2025," said Lines.



The OEN got its start in May 1948, when a combination of melting snow and heavy rains caused unprecedented flooding in the Pacific Northwest. Along with damage throughout the area, the community of Vanport, in the Portland, Oregon metropolitan area was completely destroyed. The incident left about 18,000 people homeless. As a result of the massive amount of health and welfare traffic generated by the flooding, Oregon amateurs decided to form an "organized statewide amateur emergency communications network," according to the OEN's history provided on their website.

Chief Rooster Roy Hook, W8REH, congratulated the OEN in advance for its 75th anniversary coming up in December 2023, and thanked both clubs for their accomplishments. Hook concluded that, "celebrating traditions is key to longevity."

Article Credit : The ARRL Letter for May 11, 2023 - www.arrl.org

Clubs Working Together

The **West Palm Beach Amateur Radio Group (WPBARG)** and the **Fair Lawn (NJ) Amateur Radio Club (FLARC)** have agreed to a unique partnership in sharing ideas, activities, and best practices to better encourage the growth and development of each other's amateur radio club. "This relationship, while informal, has the potential to address a number of issues and ideas that we as a club could not do alone," noted Nomar Vizcarrondo, NP4H, FLARC Past President. "There are local issues that we face that are no different than all amateur radio clubs - promoting amateur radio in our communities, [and] finding and retaining new members while keeping them engaged. We hope that this experiment will enable us to learn from each and help to address these issues so that we can both benefit as a result. WPBARG also operates from a location (a science center) that brings exposure to amateur radio that we can learn more about," Vizcarrondo added. Michael Mathias, K1WX, speaking on behalf of the WPBARG Board of Directors, said, "As amateur radio operators, each of us has a responsibility to the hobby and our community, and to be good ambassadors of both. We see this venture as a wonderful way to leverage that and to grow this unique fellowship of amateur radio. As this is uncharted territory for our organization, we welcome input on how to reach these goals. Whatever fruit this may or may not bear, we are grateful for the opportunity."

WPBARG (www.wpbarg.com) currently has approximately 80 members and meets regularly at the Cox Science Center and Aquarium in West Palm Beach. **FLARC (www.fairlawnarc.org)** has approximately 175 members and has a clubhouse as part of its association with the Borough of Fair Lawn. Both clubs are visible within their communities, and each brings its own set of diverse assets to the experiment. WPBARG recently shared a program on radio balloons built by local students, with the assistance of WPBARG club members and the FLARC. The first planned steps are to increase overall contact with each other on a regular basis via meetings, exchanges of communication, and the development of a potential joint program or project. The informal agreement will last for 1 year. Local clubs, of course, get together to do projects, but this is believed to be the first planned experiment in mutual development between clubs separated geographically.

By Ed Efchak, WX2R, and Michael Mathias, K1WX

Article Credit : The ARRL Club News for May 23, 2023 - www.arrl.org

Tony K3TS's RV

QST de W1AW
ARRL Bulletin 8 ARLB008
From ARRL Headquarters
Newington CT June 2, 2023
To all radio amateurs

SB QST ARL ARLB008 ARRL Elected to Serve on SAFECOM

ARRL, The National Association for Amateur Radio has been elected to serve on SAFECOM. SAFECOM is a group of national thought leaders and officials within the emergency communications and response space that works to set standards used at every level. The program is managed by the Cybersecurity and Infrastructure Security Agency (CISA), an agency of the US Department of Homeland Security.

SAFECOM sets the standards of interoperability procedures, and ARRL being a part of the group solidifies the Amateur Radio Service as a robust resource before and during times of crisis.

In a letter from SAFECOM Chair, Chief Gerald R Reardon said "On behalf of the SAFECOM Executive Board, it is with great pleasure that I inform you of our offer to join SAFECOM as a member association. SAFECOM aims to improve multi-jurisdictional and intergovernmental communications interoperability through collaboration with emergency responders and policymakers across federal, state, local, tribal, territorial, and international partners. SAFECOM recognizes the organization's dedication to emergency communications and interoperability, and therefore is pleased to extend a membership offer."

ARRL Director of Emergency Management Josh Johnston, KE5MHV, said "Gaining a seat at the table is a major step in strengthening the role and capability of Amateur Radio with emergency communication agencies. This will give us the sounding board and resources we need to set standards and create training for our Amateur Radio Emergency Service (ARES) volunteers that will better suit AHJ's (Agencies Having Jurisdiction) and partner organizations." The opportunity for ARRL to provide a more comprehensive Emergency Communications program is part of the goal the Board and ARRL leadership has begun to emphasize over the past few years, and this is one more example of the commitment to do so. ARRL will provide premier resources for the served agencies to support them in all phases of Emergency Management.

Johnston will serve as the Representative for ARRL on SAFECOM and will be meeting with that leadership over the coming days to begin the process of better understanding all the roles and responsibilities that come with being a member association. "I look forward to working with the SAFECOM leadership as we move forward and with the ARRL Leadership to better serve the Ham community and our Served Agencies and Partners." Johnston said.

For more information about ARES and other ARRL Emergency Programs and training visit our web page at : http://arrl.org/public-service

For more information about SAFECOM go to : https://www.cisa.gov/safecom

Bike MS : City To Shore Ride 2023

September 30, 2023 & October 1, 2023

https://bit.ly/3CRIXZS

QST de W1AW
ARRL Bulletin 11 ARLB011
From ARRL Headquarters
Newington CT June 14, 2023
To all radio amateurs

SB QST ARL ARLB011 Legislation to Remove Private Land Use Restrictions on Amateur Radio Introduced in Congress

Congressmen Bill Johnson (OH-06) and Joe Courtney (CT-02) reintroduced a bill in the US House of Representatives on June 12 -H.R.4006 - to remove private land use restrictions that prohibit, restrict, or impair the ability of Amateur Radio operators from operating and installing reasonable antennas on property that they own or control. Similar legislation, H.R. 9670, was introduced by Congressman Johnson in 2022.

The full text of the bill can be found in PDF format at : **https://bit.ly/3NbEi9U**

"I reintroduced the Amateur Radio Emergency Preparedness Act to remove barriers to disaster and emergency communications and training, and to promote education in STEM subjects related to critically needed wireless technology," Congressman Johnson said in a release. "Passage of this bill will promote developing and sustaining our nation's wireless future and facilitate and encourage amateur radio operations as a public benefit."

"As their actions during recent natural disasters such as Hurricane Sandy proved, amateur radio operators in Connecticut can be a critical component of disaster response and emergency management. It is in our communities' best interest that we give them the capabilities to operate at the highest level, and with the re-introduction of this bill, we've taken a strong step in that direction," said Congressman Courtney.

The exponential growth of communities bound by private land use restrictions that prohibit both the operation of Amateur Radio and the installation of amateur station antennas has significantly restricted the growth of the Amateur Radio Service.

The ARRL continues its multi-year efforts to eliminate private land use restrictions that prevent Amateur Radio operations and has pledged to strongly support Congressman Johnson and Congressman Courtney in their efforts on behalf of Amateur Radio.

Rick Roderick, K5UR, President of ARRL, on behalf its Members and America's Amateur Radio community extended his thanks and appreciation for the leadership of Congressman Johnson and Congressman Courtney in their tireless efforts to support and protect the rights of all Amateur Radio Operators and to further STEM education and the advancement of American expertise in wireless technology.

WORD TO THE WISE
Reverse Beacon Network

Reverse Beacon Network (RBN) is an internet-based network of dedicated wide-band receivers around the world that decode CW signals in real time and generate "spots" that contain frequency, signal strength, and other information. The effect is that of a traditional beacon in reverse - instead of checking propagation by tuning one's receiver to a transmitting beacon at a particular frequency, one merely transmits (usually by calling CQ on CW) while connected to a RBN to see which of the receivers on the network hears you.- thanks to Patrick Barkey, N9RV

QST de W1AW
Special Bulletin 3 ARLX003
From ARRL Headquarters
Newington CT May 26, 2023
To all radio amateurs

SB SPCL ARL ARLX003 ARRL and FEMA Sign Agreement : Ham Radio is as Relevant as Ever

The agreement emphasizes the importance of skilled Amateur Radio Operators in times of crisis and the role of ARES leadership within the emergency communications space.

ARES (see the ARES fact sheet at : www.arrl.org/ares) is a network of trained Amateur Radio Service licensees organized across the country to provide communications and other support to served agencies, such as local governments, hospitals, and disaster response charities. More than 20,000 ARES volunteers actively participate in the ARRL program. In 2022, they provided more than 420,000 labor hours of service saving local officials $13.4 million in personnel costs.

Each member of ARES has specialized training in emergency communications. Many have also completed training in the National Incident Management System (NIMS) in order to integrate with local officials during an emergency response.

In March 2023, FEMA released the final version of the NIMS Information and Communications Technology (ICT) Functional Guidance, which includes radio amateurs in the response ecosystem and national emergency preparedness.

"The agreement is representative of the continued commitment and cooperation between FEMA and ARRL," said ARRL Director of Emergency Management Josh Johnston, KE5MHV. "Serving our country during emergencies is an important service provided by ARES volunteers and a principal purpose of our Amateur Radio Service. Our well-equipped volunteers bring their training, use of innovative technologies, and community partnerships together to serve before and during disasters."

FEMA announced the new agreement on Twitter stating, "We recently signed a new MOA with ARRL -- establishing our partnership with licensed, voluntary amateur radio operators to support response (and) recovery efforts. We're honored to work side-by-side to meet the needs of millions in the wake of disasters."

Former FEMA Administrator and ARRL member Craig Fugate, KK4INZ, led the agency when the previous MOA with ARRL was signed in 2014. Fugate said the agreement underscores the importance of ham radio. "By incorporating amateur radio into their emergency plans, FEMA ensures that they have access to a network of trained operators who can establish and maintain communication links when traditional infrastructure fails. This collaboration between FEMA and Amateur Radio Operators allows for more robust and resilient emergency communication capabilities, ultimately contributing to effective disaster response and recovery," said Fugate.

"The ARRL Board and the Emergency Communications and Field Services Committee are committed to strengthening our resourcefulness to the EmComm (emergency communications) community," said ARRL President Rick Roderick, K5UR. "Our partnership with FEMA helps further ARRL's work to better serve our volunteers, partner agencies, and the country."

QST de W1AW
Special Bulletin 4 ARLX004
From ARRL Headquarters
Newington CT May 26, 2023
To all radio amateurs

SB SPCL ARL ARLX004 Gomez Nominated for Vacant FCC Seat, Two Commissioners Re-nominated

President Joe Biden announced three nominees for the Federal Communications Commission (FCC) on May 22, 2023. The President will nominate Anna M. Gomez for a vacant FCC seat. Two sitting Commissioners, Geoffrey Starks and Brendan Carr, will be nominated for new terms at the same time.

Gomez is an attorney with decades of experience in domestic and international communications law and policy. Gomez currently serves as a Senior Advisor for International Information and Communications Policy in the State Department's
Bureau of Cyberspace and Digital Policy, where she has been leading US preparations for the month long WRC-23 conference that will commence on November 20 in Dubai. ARRL The National Association for Amateur Radio has represented the interests of US radio amateurs in preparation for the conference, and ARRL Technical Relations Specialist Jon Siverling, WB3ERA, has been appointed to the US delegation to WRC-23. ARRL also actively supports the work of the International Amateur Radio Union (IARU), which, as a member of the ITU Radiocommunication Sector, participates in conference preparatory work and whose representatives will also attend WRC-23 by invitation as observers in an advisory capacity.

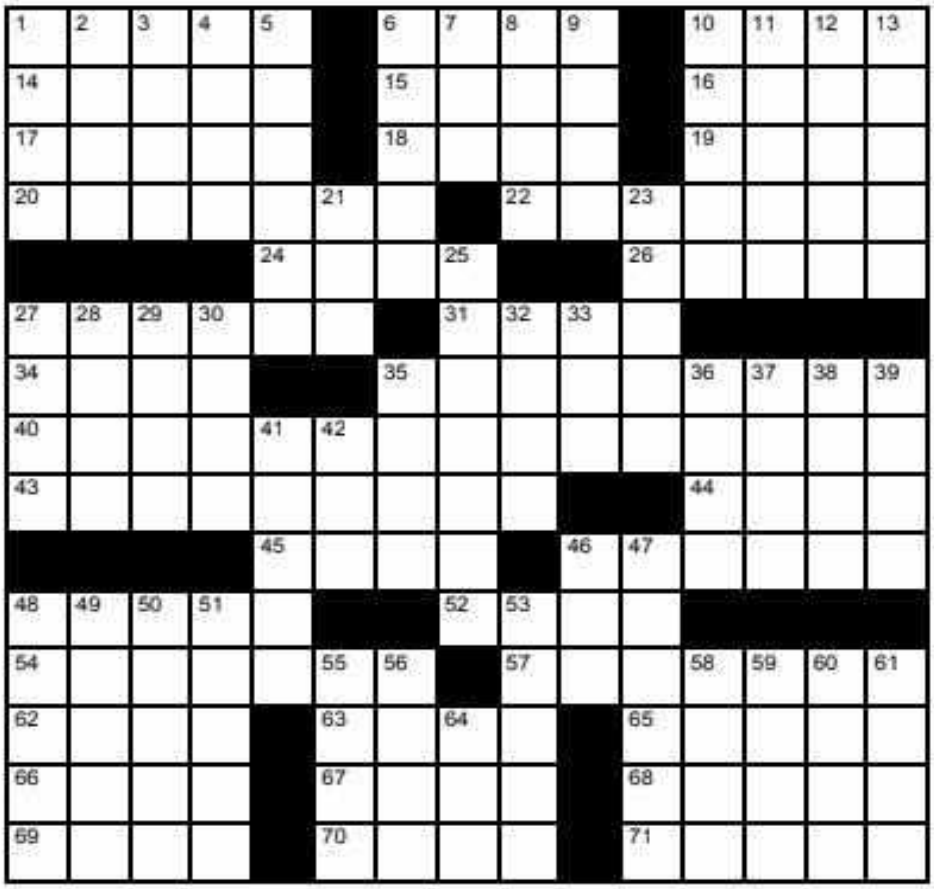
Earlier in her career, Gomez served for 12 years in various positions at the FCC, including Deputy Chief of the International Bureau and Senior Legal Advisor to then-Chairman William E. Kennard. From 2009 to 2013, she served as the National Telecommunications and Information Administration Deputy Administrator. Gomez also briefly served as Counsel on the Senate Committee on Commerce, Science, and Transportation Subcommittee on Communications, as well as Deputy Chief of Staff of the National Economic Council during the Clinton Administration. Prior to joining the State Department in 2023, Gomez was a partner in the Washington, D.C. law firm Wiley LLP. Gomez also was Vice President for Federal and State Government Affairs at Sprint Nextel and an Associate at the Arnold (AND) Porter law firm.

Senate hearings on all three nominees are expected to be held in June.

Public Information Table : Lee N2LAM & Lee WA2LH

by Chris Codella, W2PA 12/22/2008

Vintage Beginnings



Crossword Puzzle courtesy of https://www.w2pa.com/Home/articles/crossword-puzzles

Across

1. Diploma word
6. Tiny PCB parts
10. Junkbox item, say
14. Like a nerd
15. Grid ____ resistor
16. All over again
17. Irish prefix
18. ____-VOX
19. '60s Novice transmitter maker
20. Heathkit Novice rig
22. VU4 island
24. Azimuth 90
26. What a lid is, for example
27. Best Yagi spacing
31. Pick up, on the bands, say
34. OE peaks
35. 4S7 group
40. This puzzle's theme
43. "Get lost!"
44. What a poor CW filter does
45. SU river
46. Beams, towers, amplifier - to a DXer, say
48. You feed an ant. with it, very generally speaking
52. VU royal YL
54. ER land
57. Popular Novice rig (and tube) of the 50's
62. Like Darth Vader
63. 2006 contest held in PY
65. Label on a wattmeter
66. Give up
67. Unlucky number, in Rome
68. Plantain lily
69. New Englander hams
70. ____-Uda
71. Hex

Down

1. Took to court
2. Windows alternative
3. Amps per Volt
4. Cooper maker
5. High points
6. Kills, as a dragon
7. Restroom sign
8. Packet payload
9. RF effect
10. Song of praise
11. JA cartoon art
12. Restore a PS, say
13. Drake Novice transmitter
21. Tit for ___
23. Physicist Paul
25. Ponderous one
27. Drift, as an odor
28. Hip bones
29. P5-land (abbr.)
30. To be, in old Rome
32. Duck: (in DL)
33. "Got it!"
35. Natural ground system
36. FIGS partner
37. VE3 lake
38. PJ title
39. Ceramic insulators, say
41. Sierra follower
42. Phi follower
46. Preceeds a 'J'
47. Halves of thirds
48. AC-1 maker
49. Group of 13
50. Trombone part
51. What an amplifier in standby does
53. Char. code
55. Z lead-ins
56. Opera solo
58. Quad element
59. QSL mgr's expectation
60. Part of IARU (abbr.)
61. Controlled a Novice's freq., once
64. Welding type - was heliarc, once

Answers on Page 58

2020-2024 Element 4 Amateur Extra Class License Question Quiz

This month we start with Subelement E3 Radio Wave Propagation (3 exam questions out of 3 groups) (Answers on 'Last Page Calendar')

E3A01
What is the approximate maximum separation measured along the surface of the Earth between two stations communicating by EME?
A. 500 miles, if the moon is at perigee
B. 2000 miles, if the moon is at apogee
C. 5000 miles, if the moon is at perigee
D. 12,000 miles, if the moon is visible by both stations

E3A02
What characterizes libration fading of an EME signal?
A. A slow change in the pitch of the CW signal
B. A fluttery irregular fading
C. A gradual loss of signal as the sun rises
D. The returning echo is several hertz lower in frequency than the transmitted signal

E3A03
When scheduling EME contacts, which of these conditions will generally result in the least path loss?
A. When the moon is at perigee
B. When the moon is full
C. When the moon is at apogee
D. When the MUF is above 30 MHz

E3A04
What do Hepburn maps predict?
A. Sporadic E propagation
B. Locations of auroral reflecting zones
C. Likelihood of rain scatter along cold or warm fronts
D. Probability of tropospheric propagation

E3A05
Tropospheric propagation of microwave signals often occurs in association with what phenomenon?
A. Grayline
B. Lightning discharges
C. Warm and cold fronts
D. Sprites and jets

E3A06
What might help to restore contact when DX signals become too weak to copy across an entire HF band a few hours after sunset?
A. Switch to a higher frequency HF band
B. Switch to a lower frequency HF band
C. Wait 90 minutes or so for the signal degradation to pass
D. Wait 24 hours before attempting another communication on the band

Element 4 Amateur Extra Class Quiz - Continued on page 41

Element 4 Amateur Extra Class Quiz - Continued from page 40

E3A07
Atmospheric ducts capable of propagating microwave signals often form over what geographic feature?
A. Mountain ranges
B. Forests
C. Bodies of water
D. Urban areas

E3A08
When a meteor strikes the Earth's atmosphere, a cylindrical region of free electrons is formed at what layer of the ionosphere?
A. The E layer
B. The F1 layer
C. The F2 layer
D. The D layer

E3A09
Which of the following frequency ranges is most suited for meteor scatter communications?
A. 1.8 MHz - 1.9 MHz
B. 10 MHz - 14 MHz
C. 28 MHz - 148 MHz
D. 220 MHz - 450 MHz

E3A10
Which type of atmospheric structure can create a path for microwave propagation?
A. The jet stream
B. Temperature inversion
C. Wind shear
D. Dust devil

E3A11
What is a typical range for tropospheric propagation of microwave signals?
A. 10 miles to 50 miles
B. 100 miles to 300 miles
C. 1200 miles
D. 2500 miles

E3A12
What is the cause of auroral activity?
A. The interaction in the F2 layer between the solar wind and the Van Allen belt
B. An extreme low-pressure area in the polar regions
C. The interaction in the E layer of charged particles from the Sun with the Earth's magnetic field
D. Meteor showers concentrated in the extreme northern and southern latitudes

E3A13
Which of these emission modes is best for auroral propagation?
A. CW
B. SSB
C. FM
D. RTTY

Element 4 Amateur Extra Class Quiz - Continued on page 42

Element 4 Amateur Extra Class Quiz - Continued from page 41

E3A14
What is meant by circularly polarized electromagnetic waves?
A. Waves with an electric field bent into a circular shape
B. Waves with a rotating electric field
C. Waves that circle the Earth
D. Waves produced by a loop antenna

2023 Field Day

Gourmet Delights for the Hungry Palate

Gloucester County Amateur Radio Club
General Membership Meeting Minutes
Wednesday, June 7, 2023

President Jonathan Pearce WB2MNF opened the General Membership Meeting @ 1930 Hours. The Pfeiffer Community Center in Williamstown was not available due to the need to secure voting machines, so the meeting was held via Zoom (28 Zoom participants) and with 8 BoD members present at the W2MMD Clubhouse in Mullica Hill.

ANNOUNCEMENTS : The next Tech Saturday Forum will be conducted by **John Zaruba Jr K2ZA** concerning the assembly of Pi-Star hotspots. Raspberry Pi 3 and Raspberry Pi 4 are expected to become available again at the end of July. Two hotspots are now running at the Clubhouse.

The minutes of the May General Membership Meeting were approved.

TREASURER : Alan Arrison KB2AYU thanked all who have included donations with membership renewals.

YTD Budgeted items :

- **Income : $6,698**
- **Expenses : $2,952**
- **Net Gain : $3,745.**

Approximately $4,000 of the total account is from the rebuilding fund and $2,500 will be used for VHF/UHF room furniture. The Treasurer's Report was approved.

CLUBHOUSE : Alan Arrison KB2AYU thanked **Frank Romeo N3PUU** and **Earl Moore KC2NCH** for work recently done in the shed and Clubhouse. **Jonathan Pearce WB2MNF** noted that a permit application for the new radio towers has been submitted.

Jim Wright N2GXJ wants us to keep better track of contacts made using the Club call W2MMD so that these records can be uploaded to eQSL or LOTW. Jim asks that ADIF logs be sent to him for uploading.

FUTURE PROGRAMS : Ron Block NR2B reviewed the programs for the upcoming General Membership Meetings :

- **July 5 : Pizza Night (no program)**
- **August 2 : Tony Starr K3TS on Mobile Radio Installation**
- **September 6 : Chuck Colabrese WA2TML on Radio Propagation**
- **October 4 : Jim Wright N2GXJ on design of the Club's 160-meter loop antenna**
- **November 1 : Mike Thompson KG4JYA on Radio Astronomy**
- **December 6 : Len Rust W2LJR on logging.**

DX and CONTESTS : Tony Starr K3TS noted the following contests :

- **June 10 - 12 : ARRL VHF Contest**
- **June 17 - 18 : All Asian CW Contest**
- **June 24 - 25 : ARRL Field Day**

FIELD DAY : Tony Starr K3TS showed the Field Day antenna plans using wire antennas, oriented N/S in order to favor E/W propagation.

June 2023 General Membership Meeting Minutes - Continued on page 44

June 2023 General Membership Meeting Minutes - Continued from page 43

Band pass filters for 80, 40 and 20 meters have been received and Tony has cut stubs to help minimize cross-band interference. We will do a stake out of the site on the Thursday just prior to the start of Field Day starting at 7 or 7:30 PM. Early setup will begin around 3 PM on Friday and proceed until dark. All are invited to join in. Final set up will be on Saturday morning and sandwiches will be provided for lunch. We will go on-air at 2 PM.

Saturday night dinner will be potluck and **Jeff Garth WB2ZBN** has sent out a request for food donations. Tony reviewed the list of volunteer operators and the need for volunteers to help score bonus points. Contact Tony if you can help out. We will use **147.540 MHz Simplex** as the talk-around frequency for assistance, notifications, and announcements, so bring your HT.

Jim Wright N2GXJ will conduct a formal Radio Direction Finding session around 4 PM on Saturday, followed by an actual hidden transmitter hunt (this is another reason to bring your HT or RDF equipment). Also, if you bring a guest or family member that is 18 years old or younger, they can help the Club score more bonus points by making contacts. **Jonathan Pearce WB2MNF** will try to post scheduled satellite passes on the TV monitor in the Clubhouse during Field Day, since we had success making satellite contacts last year.

PUBLIC SERVICE : Gloucester County ARES Coordinator Bob Keogh KD2NEC has received the American Red Cross (ARC) Emergency Communications Operation Plan which involves training, drills, and exercises. This will be forwarded to the 14 GCARC members who have signed up to assist the ARC. A representative from ARC will visit our site during Field Day. Gloucester County ARES will set up a Winlink station during Field Day to send/receive messages in order to score bonus points. All are invited to use this station. Finally, the annual ARES Simulated Emergency Test will take place on Saturday, October 7, 2023, with participation from ARC members.

TECHNICAL COMMITTEE : Jonathan Pearce WB2MNF showed photos that he took at the ARISS booth in Dayton. The ARISS has a FM repeater that uses a modified Kenwood radio, with an uplink frequency of 145.990 MHz (PL 67.0) and downlink of 437.800 MHz. Jon also showed photos of a SatNOGS kit ($500) that is used to track satellites. It uses a Raspberry Pi and RTL SDR dongle that is housed inside a waterproof enclosure and works with a turnstile antenna.

EDUCATION : Chris Prioli AD2CS will partner with **John Zaruba Jr K2ZA** to conduct a 2-part Tech Saturday "Learn to Solder" course. The first part, covering basic soldering, will take place on Saturday, July 15, 2023. The second part, to be held on Saturday, July 22, 2023, will involve building something useful such as a code oscillator, RF attenuator, dummy load, etc. Contact Chris for more information or to register.

CLUB NETS : Chris Prioli AD2CS reports an average of 8 check-ins to the 2 Meter nets, with a range of 5 to 13. **Jim Clark KA2OSV** reports 3 to 5 check-ins to 10 Meter sessions.

CONSTITUTION COMMITTEE : Ron Block NR2B said work is ongoing to revise the GCARC Constitution. The next meeting of this working group will take place on Wednesday, June 14, 2023 at 7 PM via Zoom.

Gloucester County Amateur Radio Foundation (GCARF) : Frank Romeo N3PUU reported that a mini-split air conditioning unit has been purchased for the VHF room.

OLD BUSINESS : Ron Block NR2B learned from **Jennifer Coles (from 4H)** that Comcast will be taking measurements for the purpose of extending internet service farther into the fairgrounds. Previously, GCARC had offered to help 4H obtain internet access for their buildings.

June 2023 General Membership Meeting Minutes - Continued on page 45

June 2023 General Membership Meeting Minutes - Continued from page 44

NEW BUSINESS : The membership approved payment of $300 for repair of the Clubhouse alarm. **Jonathan Pearce WB2MNF** reviewed a recent suggestion that access to the Clubhouse could be improved with an ADA-compliant access ramp. However, construction of a ramp will require someone to step forward and lead this project, which will involve locating an ADA-compliant design, creating a bill of materials, providing cost estimates, assembling a work crew, etc.

MISCELLANEOUS :

Alan Arrison KB2AYU will participate in ARRL VHF contest this weekend with another group, but noted that the Club station is available for operation on 6 Meters.

The meeting concluded @ 2026 Hours.

Respectfully Submitted,
Karl Frank W2KBF,
GCARC Recording Secretary

Rainy Saturday Afternoon

Gloucester County Amateur Radio Club
Board of Directors Meeting Minutes
Wednesday, June 21, 2023

Meeting opened @ 1901 Hours by Vice President Ron Block, NR2B.

ATTENDANCE :

- **President Jonathan Pearce WB2MNF (ZOOM)**
- **Vice President Ron Block NR2B**
- **Treasurer Alan Arrison KB2AYU**
- **Recording Secretary Karl Frank W2KBF**
- **Corresponding Secretary Frank Romeo N3PUU**
- **Director Jeff Garth WB2ZBN**
- **Director Jim Clark KA2OSV**
- **Director Chris Prioli AD2CS**
- **Director Jim Wright N2GXJ**
- **Director Bill Price NJ2S**
- **Trustee John O'Connell K2QA**
- **Member Tony Starr, K3TS**

The minutes of the May BoD Meeting were approved.

TREASURER : Alan Arrison KB2AYU reported YTD Budgeted Items :

- Income : $6,746
- Expenses: $2,952
- Net Gain of $3,793

The Treasurer's report was accepted.

CLUBHOUSE : The front door lock has been repaired by **Frank Romeo N3PUU** and the mini-split air conditioner will be installed shortly. It was decided to change the lock code for the door (but NOT the alarm) on an annual basis. This will be announced in the CrossTalk prior to the change and a notice will be posted on the Clubhouse door. At the suggestion of **Jonathan Pearce WB2MNF**, people will be instructed to contact **Chris Prioli AD2CS** if they wish to obtain the new code.

Ron Block NR2B said that Harrison Township has approved our Zoning Permit for the new towers. In order to proceed with the Building Permit Application, **Frank Romeo N3PUU** asked if we should now pay U.S. Tower for drawings at an estimated cost of $1,500 or if we should try filing with the documents that we have already. Jonathan thought we should try filing with the documents at hand and this will be discussed at a later time.

NEW MEMBER APPLICATIONS :
The following New Member Application was received and approved :

- **John Peterson KD2ODE, General Class license from Westhampton, NJ.**

June 2023 Board of Directors Meeting Minutes - Continued on page 47

FIELD DAY : Tony Starr K3TS said everything is looking good (except perhaps the weather forecast). He will be back on site tomorrow to drive stakes into the ground, marking antenna locations. Tony will begin setup around 3 PM on Friday. His advice for maximizing QSOs is to sit and run a frequency rather than searching and pouncing. **Herb Dyer KT2Y** will be the Safety Officer but all are requested to pay attention to the weather and watch for approaching thunderstorms. All stations are encouraged to bring HTs and monitor **147.540 MHz** simplex for announcements.

Ron Block NR2B is our point of contact for any issues with the 4H or the Wine Festival. **Jeff Garth WB2ZBN** said he has been receiving donations of both food and cash for Field Day meals.

HAMFEST : Bill Price NJ2S received verbal confirmation that the Boy Scouts will handle the food concession again this year. The scouts plan to camp out overnight on the Fairgrounds.

FUTURE PROGRAMS : Ron Block NR2B reviewed the speakers for the upcoming General Membership Meetings :

- **July 5 : Pizza Night (no program)**
- **August 2 : Tony Starr K3TS on Mobile Radio Installation**
- **September 6 : Chuck Colabrese WA2TML on Radio Propagation**
- **October 4 : Jim Wright N2GXJ on design of the Club's 160-meter loop antenna**
- **November 1 : Mike Thompson KG4JYA on Radio Astronomy**
- **December 6 : Len Rust W2LJR on logging**
- **January 3 : Robert Welsh N3RW on Astronomy and Amateur Radio**

CLUB NETS : Jim Clark KA2OSV reports 4 to 5 check-ins to the 10 Meter Nets. **Alan Arrison KB2AYU** said the 2 Meter Nets are going well.

EDUCATION COMMITTEE : Chris Prioli AD2CS reports the latest round of licensing classes are about to finish and that VE testing will occur Tuesday, June 27, 2023.

CONSTITUTION COMMITTEE : Ron Block NR2B said the committee meets again next week to continue its work.

FOX HUNT : Jim Wright N2GXJ reminded us of the Radio Direction Finding (RDF) Educational Activity that will be held during Field Day, followed by a hidden transmitter hunt.

OTHER COMMITTEES : There were no reports from the Repeater, DX/Contesting, Technical, Public Service, or GCAR Foundation Committees.

OLD BUSINESS : Jim Clark KA2OSV checked with Home Depot regarding their program that assists with construction of handicapped access ramps. In brief, GCARC does not qualify for assistance. **Bill Price NJ2S** will contact **Carl Wittig N2CRW** to ask if he could help with drawings for such a ramp.

Chris Prioli AD2CS presented the BoD with a draft of new GCARC Clubhouse Rules for consideration.

NEW BUSINESS : None

June 2023 Board of Directors Meeting Minutes - Continued on page 48

June 2023 Board of Directors Meeting Minutes - Continued from page 47

MISCELLANEOUS :

Regarding Internet access for the 4H buildings, **Ron Block NR2B** reported that Comcast had visited the site and would charge about $9,000 to extend cable further into the fairgrounds. This cost may be too high for the 4H so they may request our assistance in obtaining Wi-Fi access. **John O'Connell K2QA** commented that bandwidth to our Clubhouse would not be affected since 4H would have their own commercial account and connection. A potential problem is that Comcast would require the 4H to use Comcast equipment, which is not designed for outdoor use, so a way must be found to mount and protect this equipment.

Regarding the July 5 Pizza Night : The plan is for **Jonathan Pearce WB2MNF** to obtain a headcount then **Chris Prioli AD2CS** will pick up the pizzas. **Frank Romeo N3PUU** will not be able to run the ZOOM session for the General Membership Meeting on July 5 and suggested that **Carl Wittig N2CRW** may be able to fill in. **Ron Block NR2B** will follow up with Carl.

The BoD meeting was adjourned @ 2005 Hours.

Respectfully Submitted,
Karl Frank W2KBF,
GCARC Recording Secretary

Tony K3TS's Antenna

Safety Officer : Herb KT2Y

ARRL DX Contest, SSB
March 4, 2023

Call : AB2E
Operator (s) : AB2E
Station : AB2E

Class : SOUAB HP
QTH : SNJ
Operating Time (hrs) : 17
Location : USA

Summary :

Band	QSOs	Mults
160 :	0	0
80 :	70	41
40 :	99	55
20 :	235	80
15 :	224	86
10 :	418	95
Total :	1,046	357

Total Score : 1,117,053

Club : Frankford Radio Club

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Comments :
Rig : FTDX-9000D/OM Power 2000A+ amp
Antennas :
75m - dipole @ 90ft
40m - dipole @ 80ft
20m/15m/10m - Force 12 C3S tribander @ 52ft on AB-577 military mast
RX antenna : HiZ4 rx 4-square 160/80/40

Worked most of the mults I could hear. Made my goal of 1meg, and 1000 QSOs. Limited time for this one, but was able to get on Sat morning for some nice runs. Partial Sun morning. Many family things going on so in and out of the contest when I could. 20 over 9 noise on 160, could not hear anything, even Caribbean, either on the Inverted-L or the HiZ4 array. Great to work many friends.

73 to all, Darrell AB2E

Contest : ARRLDXSSB

Band	QSOs	Pts	Cty	Pt/Q
3.5	70	210	41	3.0
7	99	297	55	3.0
14	235	696	80	3.0
21	224	666	86	3.0
28	418	1,245	93	3.0
Total	1,046	3,129	357	3.0

Score : 1,117,053
1 Mult = 2.9 Q's

ARRL DX Contest, SSB
March 4, 2023

Call : K3TS
Operator (s) : K3TS
Station : K3TS

Class : SOUAB HP
QTH : SNJ
Operating Time (hrs) : 33
Location : USA

Summary :

Band	QSOs	Mults
160 :	1	1
80 :	47	26
40 :	93	49
20 :	249	75
15 :	259	80
10 :	767	100
Total :	1,416	331

Total Score : 1,406,088

Club : Frankford Radio Club

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Comments :
Beat last year's score by 450k, a nice margin for sure, and first time over a meg for this contest on phone, so a great success all around. Conditions were great on 10 meters, so I spent much of my time on that band, logging more than half of all my QSOs there. My usual high noise levels were off and on, so I had a lot of opportunities to hear some weaker signals, including a number of QRP stations. Thanks to all of the DX stations for working us, and I hope to see you all again soon. Until then, 73 for now.

de K3TS

ARRL DX Contest, SSB
March 4, 2023

Call : W2YC
Operator (s) : W2YC
Station : W2YC

Class : SOAB HP
QTH : NJ
Operating Time (hrs) : 16
Location : USA

Summary :

Band	QSOs	Mults
160 :	15	14
80 :	64	42
40 :	115	64
20 :	135	78
15 :	199	88
10 :	172	92
Total :	700	378

Total Score : 793,800

Club : Frankford Radio Club **17**

Comments :
Put in 16 hours in between fence post hole digging. 'Twas fun this year.

Stew Perry Topband Challenge 2023 Spring
March 12, 2023

Call : K3TS
Operator (s) : K3TS
Station : K3TS

Class : Single Op HP
QTH : SNJ
Operating Time (hrs) : 3:43
Location : USA

Summary :
Total : QSOs : 155
Total Score : 279

Club : Frankford Radio Club **18**

Comments :
This odd and quirky little contest always seems to fall on a weekend when I have nothing else to do, so I wind up in it again, despite not being very fond of, nor well equipped for, 160m operation. I did not work any real DX, and without the use of the cluster, I really have no idea whether anyone else did either. If nothing else, it was a chance to work some CW after frying my voice in last week's SSB DX contest. And working some CW is always worth the time! 73 for now.

de K3TS

CQWW WPX Contest, SSB
March 25, 2023

Call : AB2E
Operator (s) : AB2E
Station : AB2E

Class : SOAB HP
Class Overlay : TB-Wires
QTH : SNJ
Operating Time (hrs) : 11
Location : USA

Summary :

Band	QSOs
80 :	26
40 :	360
20 :	198
15 :	185
10 :	98
Total :	867

Prefixes : 483
Total Score : 969,381

Club : Frankford Radio Club **19**

Comments :
Rig : FTDX-9000D/Acom 2000A
Antennas :
75m Dipole @ 90ft
40m dipole @ 80ft
10m/15m/20m Force 12 C3S @ 52ft on AB-577 military mast

Op time 11hours. WPX SSB & CW are 2 of my favorite contests. Incredible amount of activity this time, and condx were great, if I only had more time to operate (so many family activities happening this weekend). Had some really great runs on 10m on Sun, and 40,80 on Sat night. Great to get CY0S on 3 bands. I really just planned to get on a couple hours and give out mults, but wound up having a few hours to play on Sun, so got in 11 hours total. The rates were so high, and mults so plentiful, I almost broke a 1meg by the end, but fell just a little short.

73 Darrell AB2E

Contest : CQWPXSSB

Band	QSOs	Pts	WPX	Pt/Q
3.5	26	58	11	2.2
7	360	759	216	2.1
14	198	442	82	2.2
21	185	489	112	2.6
28	98	259	62	2.6
Total	867	2,007	483	2.3

Score : 969,381
1 Mult = 1.8 Q's

RUTGERS

Gloucester County 4-H Fair

Join us for an Old Tyme Country Celebration!

July 27-30, 2023

Gloucester County Fairgrounds 275 Bridgeton Pike (RT 77), Mullica Hill, NJ

Stay in the know! Visit us on Facebook.

856-224-8040 x3

$10 per carload- Good FOR ALL 4 DAYS!

- 4-H Shows & Exhibits
- Kid Activities & Day at the Farm
- Live Entertainment
- Car Show (Sat. 9am-2pm)
- Tractor Pulls (Sat. night)
- Livestock Auction
- Draft Horse Pulls (Sat. night)
- Vendors & Food Trucks
- Rode's BBQ (Thurs.-Sat.)
- Jersey Fresh Produce

Safe Family-Friendly Entertainment!

CAR SHOW

JULY 29, 2023

SATURDAY

9AM-2PM

at the Gloucester County 4-H Fair!

FEATURING: HOT RODS, CUSTOM CARS, CLASSIC CARS & TRUCKS

100% of the proceeds are being donated to the fairgrounds

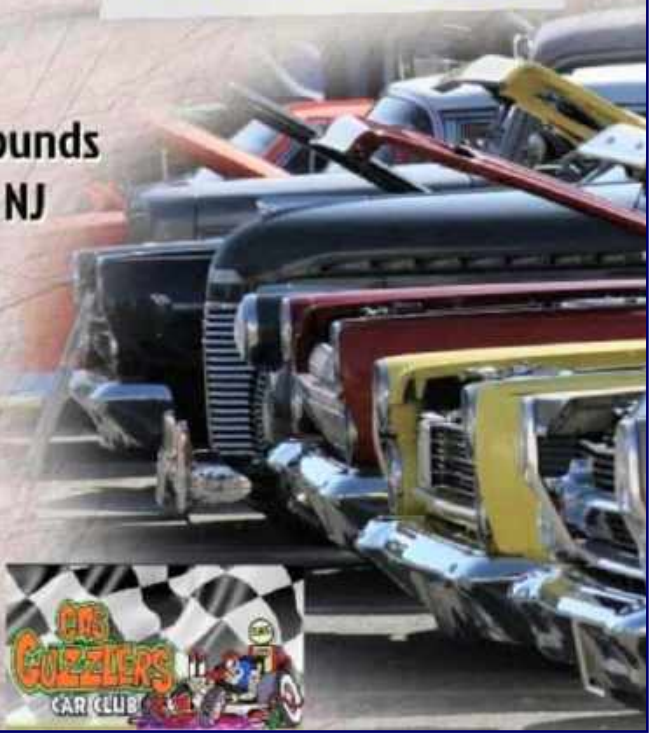
TROPHIES FOR WINNERS!

LOCATION: Gloucester County 4-H Fairgrounds
275 Bridgeton Pk, Mullica Hill, NJ

TIME: Registration opens at 8am

PRICE: $20 Entry for Participants
$10 Public Parking (Good for all 4 days of Fair)

CONTACT: Bill Dixon 267.909.1755
Jersey George 856.304.3734



To be added to the DX HONOR ROLL,
Please contact Ernest Kraus, KD2EAV
meanddelcanotc@verizon.net

Name/Callsign	DXCC
Bill Grim, W0MHK	352
Dave Strout W2YC	249
Darrell Neron, AB2E	330
John Hill, W2HUV	263
Ken Denson, WB2P	248
Vinnie Sallustio, N4NYY	246
Tony Starr, K3TS	223
Jim Wright, N2GXJ	213
Dennis Sandole, K2SE	204
Sheldon Parker, K2MEN	202
Matt Wilson, K2MFW	201
Howard Marder, WA2IBZ	144
Christopher Wawak KC2IEB	141
Phil Nunzio, WA3RGY	129
Eric Morris, N2BRJ	127
Rich Subers, W2RHS	119
Steve Farney, W2SEF	111
Bart Kleczynski, AC2PT	106
Chuck Capasso, WB2PGE	103
Curt Myers, K2CWM	91
Harry Strahlendorf Jr, W3DNQ	87
Jim Clark, KA2OSV	71
Lee Marino, N2LAM	62
Updated As Of 06/28/2023	

Sunday Morning Breakfast

Gene AA2YO & Sheldon K2MEN : 40M CW

ARRL SNJ Section Convention and Hamfest

Presented By The

Gloucester County Amateur Radio Club

W2MMD

Celebrating Our 64th Year

www.w2mmd.org

Open to the public at 8:00 AM : *Rain or Shine*

45th Annual Hamfest : September 10, 2023

Hmm...It's Saturday and you want to know if someone is at the Clubhouse? Why not call and find out! What!!!

W2MMD Clubhouse : (856) 244-6914

(Please, no car warranty calls!)

July Birthdays

Congratulations to our members who are celebrating a birthday this month

Vincent Antonelli Sr, KA2APD
John Borelli Jr, KD2ZXP
Todd Buirch
Alex Calabrese, WA2ADS
Chris Chamberlain, N2IVN
Herb Dyer, KT2Y
Bert Espanol, N3PHK
Gary Hewitt, N2WHV
Jerry Jacobus, WB2QEF
Chris Kelly Sr, KC2PC
Lee Marino, N2LAM
Don Martel Sr, KE2AIB
Phyllis Martin, W2PDB
Charles Olinda, N2SRQ (President 1994)
Mike Pecorini, K2MRP
Ed Scheidts, KC2QFB
Mark Schlageter, WA2WOV
Charlie Wahl Jr, KC2STO
Jeff Welsh, KD2AZI
Rolf Wurmbach, KD2VQG

In Memoriam - July Birthdays

Silent Keys :
Francis Applegate Jr, N3DOM
William Bachman, WA2VEE (President 1969)
Alfred Bestwick, N2BTN
Paul Carr, KB2TKV
Mary Kate Coursey, WA2VRR
Richard Dean Sr, KA2BNJ
Ralph Ditore, N2KIT
Paul Fredricks, N2FI
Wesley Gosbin Jr, KB2IRK
Leon Jones, KC2AAA
John Kull, WB2GKH
John Logan Jr, KB2VSE
Harold Vaughn Lowther, N2EJN
Alfred Russell Marcy, W4ID
Albert Miller, KB2YDK
Masayoshi (Iggy) Nishina, KD2MGU
Tadeusz Niziol, N2BDC
Haywood Pelley, WA2EVK
Goldie Rosenberg, N2YNB
Conrad Salati, N2HTS
Edward Sumek, W2GSN (President 1989)
James Swyler, WB2ELG
Alan Trueblood, N2FJQ
Wallace Utley, W2CB

Full Buck Moon : July 3, 2023 @ 0740 Hours.

At this time, the antlers of bucks (male deer) are in full growth mode. This Native American name was noted by Captain Jonathan Carver during his travels in the 1760s. Other animal-related names include Feather Moulting Moon (Cree) and Salmon Moon, a Tlingit term indicating when fish returned to the area and were harvested. As far as the plant world, there was Berry Moon (Anishinaabe), Moon When the Chokecherries are Ripe (Dakota), Month of the Ripe Corn Moon (Cherokee), and Raspberry Moon (Algonquin, Ojibwe), among others. Thunder Moon (Western Abenaki) and Halfway Summer Moon (Anishinaabe) are other variants.

Old Farmer's Almanac - www.almanac.com

"Dinner @ The Clubhouse"
Wednesday, July 26, 2023 @ 1800 Hours
W2MMD Clubhouse

July 2023 Contest Calendar

WA7BNM Contest Calendar : www.contestcalendar.com

July 2023	
RAC Canada Day Contest	0000Z-2359Z, Jul 1
Venezuelan Ind. Day Contest	0000Z-2359Z, Jul 1
NZART Memorial Contest	0800Z-1100Z, Jul 1 and 0800Z-1100Z, Jul 2
DL-DX RTTY Contest	1100Z, Jul 1 to 1059Z, Jul 2
Marconi Memorial HF Contest	1400Z, Jul 1 to 1400Z, Jul 2
Original QRP Contest	1500Z, Jul 1 to 1500Z, Jul 2
K1USN Slow Speed Test	0000Z-0100Z, Jul 3
ICWC Medium Speed Test	1300Z-1400Z, Jul 3
OK1WC Memorial	1630Z-1729Z, Jul 3
RSGB 80m Club Championship, CW	1900Z-2030Z, Jul 3
ICWC Medium Speed Test	1900Z-2000Z, Jul 3
ARS Spartan Sprint	0100Z-0300Z, Jul 4
Worldwide Sideband Activity Contest	0100Z-0159Z, Jul 4
ICWC Medium Speed Test	0300Z-0400Z, Jul 4
Phone Weekly Test	0230Z-0300Z, Jul 5
A1Club AWT	1200Z-1300Z, Jul 5
CWops Test	1300Z-1400Z, Jul 5
Mini-Test 40	1700Z-1759Z, Jul 5
VHF-UHF FT8 Activity Contest	1700Z-2100Z, Jul 5
Mini-Test 80	1800Z-1859Z, Jul 5
CWops Test	1900Z-2000Z, Jul 5
Walk for the Bacon QRP Contest	0000Z-0100Z, Jul 6 and 0200Z-0300Z, Jul 7
QRP Fox Hunt	0100Z-0230Z, Jul 6
CWops Test	0300Z-0400Z, Jul 6
CWops Test	0700Z-0800Z, Jul 6
NRAU 10m Activity Contest	1700Z-1800Z, Jul 6 (CW) and 1800Z-1900Z, Jul 6 (SSB) and 1900Z-2000Z, Jul 6 (FM) and 2000Z-2100Z, Jul 6 (Dig)
SKCC Sprint Europe	2000Z-2200Z, Jul 6
NCCC FT4 Sprint	0100Z-0130Z, Jul 7
NCCC RTTY Sprint	0145Z-0215Z, Jul 7
NCCC Sprint	0230Z-0300Z, Jul 7
K1USN Slow Speed Test	2000Z-2100Z, Jul 7
SKCC Weekend Sprintathon	1200Z, Jul 8 to 2400Z, Jul 9
IARU HF World Championship	1200Z, Jul 8 to 1200Z, Jul 9
PODXS 070 Club 40m Firecracker Sprint	2000Z, Jul 8 to 2000Z, Jul 9
QRP ARCI Summer Homebrew Sprint	2000Z-2300Z, Jul 9
K1USN Slow Speed Test	0000Z-0100Z, Jul 10
4 States QRP Group Second Sunday Sprint	0000Z-0200Z, Jul 10
ICWC Medium Speed Test	1300Z-1400Z, Jul 10
OK1WC Memorial	1630Z-1729Z, Jul 10
ICWC Medium Speed Test	1900Z-2000Z, Jul 10
Worldwide Sideband Activity Contest	0100Z-0159Z, Jul 11
ICWC Medium Speed Test	0300Z-0400Z, Jul 11
Phone Weekly Test	0230Z-0300Z, Jul 12
A1Club AWT	1200Z-1300Z, Jul 12
CWops Test	1300Z-1400Z, Jul 12
VHF-UHF FT8 Activity Contest	1700Z-2100Z, Jul 12
Mini-Test 40	1700Z-1759Z, Jul 12
Mini-Test 80	1800Z-1859Z, Jul 12
CWops Test	1900Z-2000Z, Jul 12
RSGB 80m Club Championship, SSB	1900Z-2030Z, Jul 12
QRP Fox Hunt	0100Z-0230Z, Jul 13
CWops Test	0300Z-0400Z, Jul 13
CWops Test	0700Z-0800Z, Jul 13
EACW Meeting	1900Z-2000Z, Jul 13
NCCC FT4 Sprint	0100Z-0130Z, Jul 14
NCCC RTTY Sprint	0145Z-0215Z, Jul 14
NCCC Sprint	0230Z-0300Z, Jul 14
K1USN Slow Speed Test	2000Z-2100Z, Jul 14
Russian Radio Team Championship	0700Z-1459Z, Jul 15
Trans-Tasman Low-Bands Challenge	0800Z-1400Z, Jul 15
Feld Hell Sprint	1200Z-1359Z, Jul 15

July 2023 Contest Calendar - Continued on page 57

July 2023 Contest Calendar

WA7BNM Contest Calendar : www.contestcalendar.com

July 2023 Contest Calendar - Continued from page 56

IARU Region 1 70 MHz Contest	1400Z, Jul 15 to 1400Z, Jul 16
North American QSO Party, RTTY	1800Z, Jul 15 to 0559Z, Jul 16
CQ Worldwide VHF Contest	1800Z, Jul 15 to 2100Z, Jul 16
RSGB International Low Power Contest	0900Z-1200Z and 1300Z-1600Z, Jul 16
CQC Great Colorado Gold Rush	2000Z-2159Z, Jul 16
Run for the Bacon QRP Contest	2300Z, Jul 16 to 0100Z, Jul 17
K1USN Slow Speed Test	0000Z-0100Z, Jul 17
ICWC Medium Speed Test	1300Z-1400Z, Jul 17
OK1WC Memorial	1630Z-1729Z, Jul 17
ICWC Medium Speed Test	1900Z-2000Z, Jul 17
RSGB FT4 Contest	1900Z-2030Z, Jul 17
Worldwide Sideband Activity Contest	0100Z-0159Z, Jul 18
ICWC Medium Speed Test	0300Z-0400Z, Jul 18
Phone Weekly Test	0230Z-0300Z, Jul 19
A1Club AWT	1200Z-1300Z, Jul 19
CWops Test	1300Z-1400Z, Jul 19
Mini-Test 40	1700Z-1759Z, Jul 19
VHF-UHF FT8 Activity Contest	1700Z-2100Z, Jul 19
Mini-Test 80	1800Z-1859Z, Jul 19
CWops Test	1900Z-2000Z, Jul 19
Walk for the Bacon QRP Contest	0000Z-0100Z, Jul 20 and 0200Z-0300Z, Jul 21
NAQCC CW Sprint	0030Z-0230Z, Jul 20
QRP Fox Hunt	0100Z-0230Z, Jul 20
CWops Test	0300Z-0400Z, Jul 20
CWops Test	0700Z-0800Z, Jul 20
NTC QSO Party	1900Z-2000Z, Jul 20
NCCC FT4 Sprint	0100Z-0130Z, Jul 21
NCCC RTTY Sprint	0145Z-0215Z, Jul 21
NCCC Sprint	0230Z-0300Z, Jul 21
K1USN Slow Speed Test	2000Z-2100Z, Jul 21
Maidenhead Mayhem Contest	0000Z, Jul 22 to 2359Z, Jul 30
ARAM 50 MHz Contest	0000Z-2359Z, Jul 22
YOTA Contest	1000Z-2159Z, Jul 22
K1USN Slow Speed Test	0000Z-0100Z, Jul 24
ICWC Medium Speed Test	1300Z-1400Z, Jul 24
OK1WC Memorial	1630Z-1729Z, Jul 24
ICWC Medium Speed Test	1900Z-2000Z, Jul 24
Worldwide Sideband Activity Contest	0100Z-0159Z, Jul 25
ICWC Medium Speed Test	0300Z-0400Z, Jul 25
SKCC Sprint	0000Z-0200Z, Jul 26
Phone Weekly Test	0230Z-0300Z, Jul 26
A1Club AWT	1200Z-1300Z, Jul 26
CWops Test	1300Z-1400Z, Jul 26
Mini-Test 40	1700Z-1759Z, Jul 26
Mini-Test 80	1800Z-1859Z, Jul 26
CWops Test	1900Z-2000Z, Jul 26
QRP Fox Hunt	0100Z-0230Z, Jul 27
CWops Test	0300Z-0400Z, Jul 27
CWops Test	0700Z-0800Z, Jul 27
RSGB 80m Club Championship, Data	1900Z-2030Z, Jul 27
NCCC FT4 Sprint	0100Z-0130Z, Jul 28
NCCC RTTY Sprint	0145Z-0215Z, Jul 28
NCCC Sprint	0230Z-0300Z, Jul 28
K1USN Slow Speed Test	2000Z-2100Z, Jul 28
Feld Hell Sprint	0000Z-2359Z, Jul 29
MARAC US Counties QSO Party	0000Z, Jul 29 to 2400Z, Jul 30
RSGB IOTA Contest	1200Z, Jul 29 to 1200Z, Jul 30
WAB 144 MHz Low Power Phone	1400Z-1800Z, Jul 29
ARS Flight of the Bumblebees	1700Z-2100Z, Jul 30
K1USN Slow Speed Test	0000Z-0100Z, Jul 31
QCX Challenge	1300Z-1400Z, Jul 31
ICWC Medium Speed Test	1300Z-1400Z, Jul 31
OK1WC Memorial	1630Z-1729Z, Jul 31
QCX Challenge	1900Z-2000Z, Jul 31
ICWC Medium Speed Test	1900Z-2000Z, Jul 31

Crossword Puzzle Answers From Page 39

For more information about Field Day Rules, call Jenny at 867-5309

CrossTalk Submissions

This is your Club Magazine. Make use of it.

If you have stories or photos of your hobby that you would like to share with the Club, please do so!

We will keep covering all of the GCARC events, but it is also nice to get those personal perspectives to include in every issue. Connecting through experiences is what makes the Gloucester County Amateur Radio Club a *REAL* Club.

All submissions, queries, comments, and editorials should be addressed to :
Jeff Garth, WB2ZBN at djgrath1 <*at*> gmail <*dot*> com

Submission deadline for the August 2023 issue : Thursday, July 20, 2023

Club Website www.w2mmd.org
Club E-Mail Reflector: GCARC <*at*> Mailman <*dot*> QTH <*dot*> Net

2023 Club Committees

Standing Committees	Committee Chairs
Budget	**Al Arrison, KB2AYU**
Constitution & By-Laws	**Ron Block, NR2B**
Education	**Chris Prioli, AD2CS**
Field Day	**Tony Starr, K3TS**
Hamfest	**Sheldon Parker, K2MEN and Bill Price, NJ2S**
Health, Welfare, & Silent Keys	**Bill Price, NJ2S**
Hospitality	**Jeff Garth, WB2ZBN**
Membership	**Chris Prioli, AD2CS**
Membership Badges	**Chuck Colabrese, WA2TML**
Nominations	**Jon Pearce, WB2MNF**
Publicity	**Tony Starr, K3TS**
Repeaters	***Open Chair***
W2MMD Clubhouse Site	**Al Arrison, KB2AYU**

Activity Committees	Committee Chairs
Awards & Certificates	***Open Chair***
Club Publications & Historian	**Jeff Garth, WB2ZBN**
Contests	**Tony Starr, K3TS**
DX	***Open Chair***
GCARC Family Picnic	***Open Chair***
GCARC Foxhunts	**Jim Wright, N2GXJ**
GC-ARES Emergency Coordinator	**Bob Keogh, KD2NEC**
Holiday Dinner Party	***Open Chair***
License Testing/VEC Liaison	**Gary Reed, N2QEE**
Membership Roster Database	**Jeff Garth, WB2ZBN**
Programs : General Membership Meetings	**Ron Block, NR2B**
Radio Nets	**Jim Clark, KA2OSV**
Technical & Tech Saturday Programs	**Jon Pearce, WB2MNF**
W2MMD License Trustee	**Darrell Neron, AB2E**
W2MMD Special Event Station	**Mark Gottlieb, KK2L**

GCARC <*at*> Mailman <*dot*> QTH <*dot*> Net e-mail reflector guidelines

1. **No attachments** (e.g. pictures, files) are allowed on the reflector.
2. If you have Club-related pictures that you would like to share, you can send them to the webmaster, he will put them on the website and will send out a general e-mail to all the members.
3. Otherwise, the pictures will have to be sent to the members' addresses.
4. URLs/Hyperlinks are acceptable on the reflector.
5. Do not send any messages with e-mail addresses in the **BCC** (**Blind Carbon Copy**) field. The message will be rejected. Use only the **To:** or **CC:** fields.
6. Members are subscribed to the reflector using the member's e-mail address from the roster database. You must use that address when sending an e-mail via the reflector.
7. If you use another address on the reflector, the message will get rejected or "*bounced*", because the reflector does not recognize that address. Whenever a message sent to reflector is rejected or *"bounced"* for various reasons, the administrator has to log-in to the Mailman.QTH website and approve the message.

The W2MMD Repeaters

2 Meter Repeater
Output : 147.180 MHz
Input : 147.780 MHz
Offset : +600 kHz - PL : 131.8 Hz
(Conventional FM plus C4FM Capability)
EchoLink : W2MMD-R

70 cm Repeater
Output : 442.100 MHz
Input : 447.100 MHz
Offset : +5 MHz - PL : 131.8 Hz
(Conventional FM plus C4FM Capability)

The above repeaters are both
located in Pitman, NJ
GPS : 39.728481°, -75.131088°

1.25 Meter Repeater
Output : 224.660 MHz
Input : 223.060 MHz
Offset : -1.6 MHz - PL : 131.8 Hz
Location : Sewell, NJ
GPS : 39.746738°, -75.077094°

SKYWARN™ Net
Sunday @ 1930 : 147.180 MHz Repeater

Gloucester County ARES Net
Sunday @ 2000 : 147.180 MHz Repeater

GCARC TechNet ZOOM Meeting
1st & 3rd Mondays Every Month @ 2000 Hours

GCARC HelpNet ZOOM Meeting
Sporadic Mondays @ 1930 Hours

Tuesday Noon Day 2M Net
Every Tuesday @ 1200 Hours

Tuesday & Thursday Night 10M Net
Every Tuesday & Thursday @ 1930 Hours
Tune in on 28.465 MHz or 28.475 MHz

Thursday Night 2M Net
Every Thursday @ 2000 Hours

Meeting Calendar

General Membership Meeting
Wednesday, July 5, 2023
1930 Hours
Live & In-Person
Pfeiffer Community Center
Simulcast Live on ZOOM

Board of Directors Meeting
Wednesday, July 19, 2023
1900 Hours
W2MMD Clubhouse

"Ask not what your Club can do for you, Ask what you can do for your Club"
- KA2OSV

"The big thing about being in a club and being a "Ham" is to help each other when there is a need "
- W2SEF

*** Badges ***

Need a new or replacement badge
Contact "The BadgeMan"

Chuck Colabrese, WA2TML
colabrese <*at*> comcast <*dot*> net

Question Pool Answers : E3A01:D; E3A02:B; E3A03:A; E3A04:D; E3A05:C; E3A06:B; E3A07:C; E3A08:A; E3A09:C; E3A10:B; E3A11:B; E3A12:C; E3A13:A; E3A14:B