



CrossTalk

Happy New Year!

January 2024

65 Years Of Service To Amateur Radio & Our Community

Issue 65 : 01

A

2024 Club Officers

President :	Jonathan Pearce, WB2MNF	Trustees - 4 Year Term	
Vice President :	Ronald Block, NR2B	Carl Wittig, N2CRW	(2021-2024)
Treasurer :	John O'Connell, K2QA	Charles Lanard, KD2EIB	(2022-2025)
Recording Secretary :	John Zaruba Jr, K2ZA	Sheldon Parker, K2MEN	(2023-2026)
Corresponding Secretary :	Frank Romeo, N3PUU	Len Rust, W2LJR	(2024-2027)

Directors - 3 Year Term

James Clark Sr, KA2OSV	(2022-2024)	James Wright, N2GXJ	(2023-2025)
Jeffrey Garth, WB2ZBN	(2022-2024)	Al Arrison, KB2AYU	(2024-2026)
Chris Prioli, AD2CS	(2023-2025)	Bill Price, NJ2S	(2024-2026)

General Membership Meeting

Wednesday, January 3, 2024 @ 1930 Hours
In-Person & **ZOOM : 943 0211 9674, 843147**

Tech Saturday Forum

Saturday, January 6, 2024 @ 0900 Hours
W2MMD Clubhouse

GCARC TechNet ZOOM Forum

Monday, January 8, 2024 @ 1930 Hours
ZOOM Meeting ID : 960 8543 6644, 964974

License Testing Session

Thursday, January 11, 2024 @ 1900 Hours
W2MMD Clubhouse

Board of Directors Meeting

Wednesday, January 17, 2024 @ 1900 Hours
W2MMD Clubhouse

Dinner @ The W2MMD Clubhouse

Wednesday, January 24, 2024 @ 1800 Hours

Tuesday AfterNoon 2M Net @ 1200 Hours

Tuesday & Thursday 10 Meter Net @ 1930 Hours

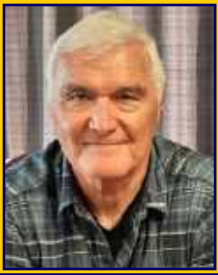
Thursday 2M Net @ 2000 Hours

Inside This Issue...

<i>President's Letter.....</i>	<i>Page 3</i>
<i>Membership Renewals</i>	<i>Page 5</i>
<i>January 3rd General Membership.....</i>	<i>Page 7</i>
<i>January 6th Tech Saturday Forum</i>	<i>Page 8</i>
<i>Welcome New Members</i>	<i>Page 9</i>
<i>Monthly VE Session Summary</i>	<i>Page 11</i>
<i>DA's & DIT's.....</i>	<i>Page 12</i>
<i>Is The Run Done?</i>	<i>Page 14</i>
<i>Regional Hamfest & Events.....</i>	<i>Page 16</i>
<i>The Education Connection</i>	<i>Page 17</i>
<i>Tech Saturday - HamClock Edition</i>	<i>Page 20</i>
<i>Busted Callsigns</i>	<i>Page 21</i>
<i>At The Repair Bench.....</i>	<i>Page 25</i>
<i>DMR Page.....</i>	<i>Page 27</i>
<i>SNJ ARES Update.....</i>	<i>Page 28</i>
<i>NG3K DX Operations.....</i>	<i>Page 30</i>
<i>KB6NU's Ham Radio Blog.....</i>	<i>Page 31</i>
<i>Element 4 Question Quiz</i>	<i>Page 34</i>
<i>AD2CS PCB Fabrication - Part 2.....</i>	<i>Page 37</i>
<i>General Membership Meeting Minutes....</i>	<i>Page 43</i>
<i>Board of Directors Meeting Minutes.....</i>	<i>Page 47</i>
<i>Electronic Tool Tip #3.....</i>	<i>Page 53</i>
<i>DXCC Honor Roll</i>	<i>Page 55</i>
<i>January Birthdays</i>	<i>Page 56</i>
<i>January Contest Calendar</i>	<i>Page 57</i>
<i>2024 Club Committees.....</i>	<i>Page 59</i>
<i>Last Page Calendar</i>	<i>Page 60</i>



*For more info on renewing your dues,
Call Jenny @ 867-5309*



President's Letter

Jon Pearce, WB2MNF



January 2024

GCARC had many successes in 2023 and moving into 2024 will hopefully bring the same level of member involvement in the broad group of activities that the Club offers. We're looking forward to continuing high attendance counts at the Wednesday Night General Membership Meetings and we're planning a new slate of Tech Saturday Forum sessions to provide a broad spectrum of hands-on projects in many areas of Amateur Radio. The Monday Night TechNet ZOOM Forum sessions will focus on collaboration among participants on technical topics with early discussions on interfacing radios, computers and external devices and other similar areas.

But 2024 won't be without its challenges. A significant source of member growth has been through our licensing classes but demand has diminished (possibly because we've already helped all of the candidates become licensed) which may create challenges to bringing in the constant stream of new members that we need to maintain the Club's financial viability. Costs continue to increase for electricity, insurance, internet access, and other expenses. Several long-time Club activity leaders have indicated their plans to step down from those positions, requiring new leaders to take their places.

All of this can create opportunities for members to find new places to participate in Club activities, especially some who have joined recently. With almost 20 percent of our membership having joined within the past two years many new members likely have skills and interests in participating in or managing significant projects and activities within the Club. In particular, someone with project management experience could fill a significant role by understudying the management of the hamfest this year with the goal of taking over its operations next year. Other less visible but no less important tasks involve working with the presentation, technical and education committees to come up with topics and speakers for meetings, Tech Saturdays and several other initiatives. So don't hesitate to raise our hand or to speak to one of the Club leaders if you're interested in taking on some new function within the organization. There are opportunities for ALL of our members to be involved in some way in this Club!

Holiday Dinner

The Holiday Dinner took place in November after the President's letter was submitted so it's important to acknowledge its success and all of the hard work that went into creating it. More than 50 members and guests attended with food prepared by **Kathy Romeo**, **Mary Jane Block** and delicious desserts by **Phyllis Martin**. A humorous musical interlude on the accordion was given by **Karl Frank W2KBF** and Volunteer Appreciation Awards were presented to **Anthony Cerami N2OAC**, **Gary Mirkin WA3SVW**, **Carl Wittig N2CRW**, **John Zaruba Jr K2ZA** and a special non-member award to **Kathy Romeo** for her repeated efforts at feeding the Club at the dinner, multiple Field Day occasions and other times. That event also created a significant financial contribution towards the VHF tower fund.

President's Letter - Continued on page 4

“Got My License – Now What?” Session

This session was presented to about a dozen hams who had become licensed within the past year or so, and was quite well received. Interestingly we found that most participants were already more familiar with some of the material than we had anticipated - many had already operated on HF bands and everyone had used an HT - but some topics like POTA, SDR radios, and satellite communications were unfamiliar. Feedback from the participants was quite useful, asking for more information on topics like antenna building, logging, and others that may be helpful subjects for Tech Saturdays or TechNets. We'll repeat this session periodically as new licensees emerge.

Meteor Scatter Operations

Once again we fired up the Flex 3000 with the Elecraft amp on 6 meters attempting to bang signals off of meteors during the Geminid shower a couple of weeks ago. It was dark and cold and there were a lot of competing stations that made reception difficult in the two time slices that the MSK144 uses for this mode but K2QA and I made two genuine contacts before packing it in around 11 PM. Meteor scatter is pretty interesting the first few times but like some other modes gets boring once you've achieved success so future organized efforts, at least by me, are uncertain unless others are interested in working with this mode. There's another meteor shower in January so let me know if you'd like to try it.

Tech Saturday with Raspberry Pi computers

The Tech Saturday session covering Raspberry Pi ham applications was well attended and included members with a wide range of experience with these devices. Given the interest we're going to devote a few of the Monday Night TechNet sessions to various aspects of these devices as well as interfacing other computers including PCs to radios and other station components. Check out the **GCARC TechNet ZOOM Forum on Monday, January 8, 2024** (<https://gloucestercountyarcs.weebly.com/gcarc-technet.html>) if you're a Pi user or want to become one.

Holiday Wishes

Since this message will probably reach you after Christmas I hope that Santa (or HRO or MicroCenter or Amazon) brought you many new devices that will create hours of enjoyment of our hobby, that you'll share your newfound knowledge with our great community of hams, and that we'll see you many times at GCARC activities in 2024.

Have a safe holiday, stay grounded and we'll all get together in the new year.

**73 de Jon Pearce WB2MNF
GCARC President**

Membership Renewals - It's That Time Again

By Jon Pearce, WB2MNF

All GCARC memberships renew in January except for Life Members and anyone who first joined at the 2023 hamfest or in the last quarter of the year. As was noted at the December meeting and elsewhere in this CrossTalk issue the base membership dues level of \$30 is barely sufficient to keep the lights on in the Clubhouse and relies on good Hamfest weather and a strong turnout to create a balanced budget. While \$30 is typical for radio club dues, few other clubs have a resource comparable to our Clubhouse along with its associated costs that account for almost 70% of our annual budget. Member dues only account for about 60% of Club revenue with the remaining revenue arising from hamfest income and donations, neither of which are certain to occur.

With dues of:	We could:
\$30	Hopefully keep the Clubhouse lights on
\$40	Don't have to be lucky (hamfest weather)
\$50	Build for the future (new gear, ramp, etc.)

We want everyone to be able to be a member of the GCARC so the basic Club dues are \$30 per year, in line with those of other local clubs. However, we also know that many hams could and would pay more if asked - so we're asking. Last year additional dues payments raised more than \$900 - funds that were critical to cover the lost revenue from our rainy hamfest - and this year we're hopeful to exceed that amount to cover expenses that we know will increase and to potentially allow for some additional Club projects and activities. As you renew this year please consider selecting a dues level that you believe is appropriate for you.

We want everyone to be able to be a member of the GCARC so the basic Club dues are \$30 per year, in line with those of other local clubs. However, we also know that many hams could and would pay more if asked - so we're asking. Last year additional dues payments raised more than \$900 - funds that were critical to cover the lost revenue from our rainy hamfest - and this year we're hopeful to exceed that amount to cover expenses that we know will increase and to potentially allow for some additional Club projects and activities. As you renew this year please consider selecting a dues level that you believe is appropriate for you.

Dues payments can be made at the January meeting, or in February if you're not there in January. Cash, checks and credit cards can be accepted. They can also be made any Saturday at the Clubhouse or on the GCARC website by PayPal. Checks can also be mailed to Gloucester County Amateur Radio Club, PO Box 370, Pitman, NJ 08071.



**KEEP
CALM
AND
RENEW YOUR
MEMBERSHIP**

You Can Pay Your Membership Dues Using Cash, Check, Credit Card :

- Pay your dues using our Pay Dues Here webpage
- Bring your money to a General Membership Meeting
- Bring your money to a Tech Saturday Forum
- Bring your money to any Saturday @ the W2MMD Clubhouse
- Send your check in to our PO Box 370

**Gloucester County Amateur Radio Club
PO Box 370, Pitman, NJ 08071**

The membership dues are :

- \$30.00 - Full Membership (Plus an Optional Donation)
- \$15.00 - Family Membership
- \$25.00 - Associate Membership (Plus an Optional Donation)

March 31, 2024 is the deadline to renew your membership dues



HAPPY NEW YEAR

Tape-Measure Yagi & Offset Attenuator Building Class

Starting Monday, January 15, 2024 @ 1830 Hours - W2MMD Clubhouse

For More Information & To Register, Go To :

<https://gloucestercountvarc.weebly.com/yagi-building-class.html>

GCARC TechNet ZOOM Forum

Monday, January 8, 2023 @ 1930 Hours

Forum Topic : Interfacing Computers To Ham Radio Equipment

Go to : <https://gloucestercountvarc.weebly.com/gcarc-tech.net.html>

for TechNet Information Resources and ZOOM Instructions

Meeting ID : 960 8543 6644 ; Passcode : 964974

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](mailto:GCARC@MAILMAN.QTH.NET)

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

General Membership Meeting

Wednesday, January 3, 2024 @ 1930 Hours

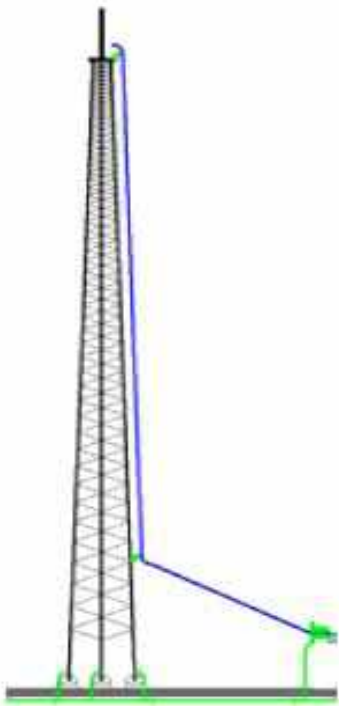
Ron Block, NR2B : Antenna Placement & Vulnerability

Pfeiffer Community Center

Simulcast Live Via ZOOM

Meeting ID : 943 0211 9674; Passcode : 843147

Go to : www.w2mmd.org to download the ZOOM log-on instructions PDF



Antenna Placement and Vulnerability

Ron Block, NR2B, will be exploring your lightning strike vulnerability based on the location of your antenna. With the help of a computer program called the **Basic Lightning Event Simulator**, he will explore the probability of a lightning strike based on the height of the antenna and show the probable amount of energy that will be delivered to your radio equipment. This simulator allows you to experiment with the physical placement of the antenna or tower with respect to the shack, observe the effect of adding, deleting, or changing the size and/or quantity of the coax cables, adjust the tower-coax take-off point height, and adjust the radio equipment ground conductor type, size, and length, as well as the severity of the lightning surge as delivered by Mother Nature.

Each of these independently adjustable parameters will affect the amount of surge energy (voltage and current) delivered to your radio equipment and its protectors. This software gives you the opportunity to experiment with various tradeoffs and establish a level of self-confidence before committing to a project.

Some of the answers are counterintuitive.



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>



Happy 9th Anniversary!

**Tech Saturday Forum
January 6, 2024 @ 0900 Hours
W2MMD Clubhouse**

***Forum Topic :
Chris Prioli, AD2CS :
Repairing The Yaesu Satellite Rotator***

**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.



**Gloucester County Amateur Radio Club
YouTube Channel**

<https://www.youtube.com/@W2MMD>

***"Dinner @ The Clubhouse"*
Wednesday, January 24, 2024 @ 1800 Hours
W2MMD Clubhouse**

Welcome New Club Members :

Ronald Jackson, KE2CJB, an General Class who lives in Palmyra, NJ.

Calvin Keller, N2YMS, an Amateur Extra Class who lives in Mantua, NJ.

John Murrow, KD2NHK, a Technician Class who lives in Somerdale, NJ

We are glad to have you as members of the Club and hope to see you regularly at Club meetings, events, and activities. Hope to see you at the January 3rd General Membership Meeting , either in-person or on ZOOM, the January 6th Tech Saturday Forum, the January 8th GCARC TechNet ZOOM Forum, and the Dinner @ The Clubhouse on January 24th.

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.
- Tuesday Afternoon Net @ 1200 Hours.
- Tuesday & Thursday Night 10M Rag Chew Nets @ 1930 Hours on 28.465 or 28.475 MHz.
- Thursday Night Rag Chew Net @ 2000 Hours.

All 2 Meter nets are on our 147.180 MHz (PL 131.8) 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, POTA, SOTA
- 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 Wittig, 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

Introducing Your 2024 Club Officers!

All the votes were tabulated by the accounting firm
Charles Ponzi and Associates, SEC, Esq.



President
Jon Pearce
WB2MNF



Vice President
Ron Block
NR2B



Recording Secretary
John Zaruba Jr, K2ZA



Treasurer
John O'Connell
K2QA



Director
Al Arrison,
KB2AYU



Corresponding Secretary
Frank Romeo
N3PUU



Director
Bill Price, NJ2S

Trustee
Len Rust,
W2LJR

DMR
DIGITAL MOBILE RADIO

Trustee
Carl Wittig,
N2CRW



AUTODESK
AutoCAD



Trustee
Sheldon Parker,
K2MEN



GCARC Monthly VE Exam Testing Summary - December 14, 2023

Gary Reed, N2QEE, Reports : There were three candidates at the session. One new Technician who also passed his General, one Amateur Extra upgrade and a paper General upgrade. The paper upgrade candidate had passed his Technician license prior to 1987 so he had to pay the session fee and was upgraded to General with no FCC fee. The candidates were :

- **Ronald Jackson, KE2CJB, General Class of Palmyra, NJ**
- **Calvin Keller, N2YMS, Amateur Extra Class of Mantua, NJ**
- **Stephen Fabiani, KA3NWK, General Class of Philadelphia, PA**

The upgrades were posted on the FCC ULS on Friday.

The participating VE's were :

- **Chris AD2CS**
- **Earl KC2NCH**
- **Mike KG4JYA**
- **Mike N2WOQ**
- **Court KC2SPJ**
- **Greg W5DO**
- **Rich W2RHS**
- **Mike N2MHO**
- **Gary N2QEE**

A BIG thank you to the VE's who have helped with the sessions in the passed year. This past year the VE group held 17 sessions and served 65 candidates. We had 23 new Technicians, 21 upgrades to General, and 12 upgrades to Amateur Extra. The Club VE sessions for 2024 have been posted on the ARRL website.

The next monthly VE session will be on **January 11, 2024 @ 1900 Hours at the W2MMD Clubhouse.**

**United States Air Force
Military Auxiliary Radio System
75 Years**

This certifies that
W2SEF
participated in the on-air amateur radio
celebration of 75 years of
Air Force Military Auxiliary Radio Service
supporting United States Armed Forces.
NOVEMBER 5 - 11, 2023

Logos shown include:

- W1A
- K4AF Pentagon
- W1K
- W1B
- W1C
- W1D
- W1E
- W1F
- W1G

DAs and DITs

>> **Congratulations** to the following Club Members :

- **Marylou Ciraula, KE2CEF** : ARRL Member
- **Todd Foster, W2TEF** (ex. KE2CAH) : New vanity callsign, ARRL Member
- **Robert Jensen, KC3WWL** : ARRL Member
- **Aimee Ortiz, K9RVT** (ex. KE2BPJ) : New vanity callsign, ARRL Member

>> Get well to **Gary Reed, N2QEE** on his upcoming medical procedure.

>> Get well to **Mary Delemarre, W2TDS** and **Steve Farney, W2SEF**, on their recent foot surgeries.

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)

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

W2MMD



www.facebook.com/W2MMD



twitter.com/w2mmd_gcarc

Facebook

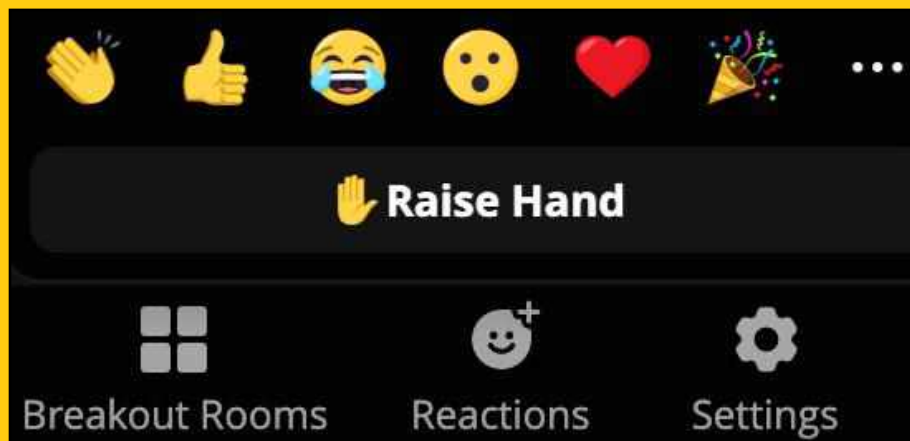


ZOOM Protocols For GCARC Meetings

To provide for a more pleasant and efficient ZOOM experience for our Club members, several protocols have been established for use at these meetings.

- All participants will be MUTED by the administrator.
- If you wish to comment, please use the ZOOM “Raise Hand” feature. (See Below)
 - In the meeting controls, click “Reactions”, then click “Raise Hand”.
 - Users can also raise or lower their hand with the Alt+Y (Windows) or Option+Y (macOS) keyboard shortcuts.
- The administrator will then un-mute you so you can join the conversation. You will not be able to un-mute yourself.
- If you are going to use your camera, please be attired as you would be if physically coming to the meeting. Otherwise, please turn off your video.

Thanks for following these points to help our meetings run smoothly.



ADIF Logs Wanted When Operating As W2MMD @ The Clubhouse

By Jim Wright, N2GXJ - jim.n2gxj@gmail.com

It is a common courtesy in ham radio to be able to QSL 2-way contacts made with other hams. We're pretty good about doing this for our field day contacts made each year, but are falling behind in this for contacts we make from the Clubhouse as W2MMD.

So here is the ask :

If you operate from the Clubhouse as W2MMD (e.g. on HF, UHF/VHF, or on Satellite, at Tech Saturday, or during contests or other), please email me the electronic log entries in ADIF format from the logger program you used for those contacts?

That way, just like I do following field day each year, I can get them uploaded to LOTW and to eQSL to offer the courtesy of an electronic QSL to those who make contact with us as W2MMD here in NJ.

Thank you



Is The Run Done?

By Jim Wright, N2GXJ

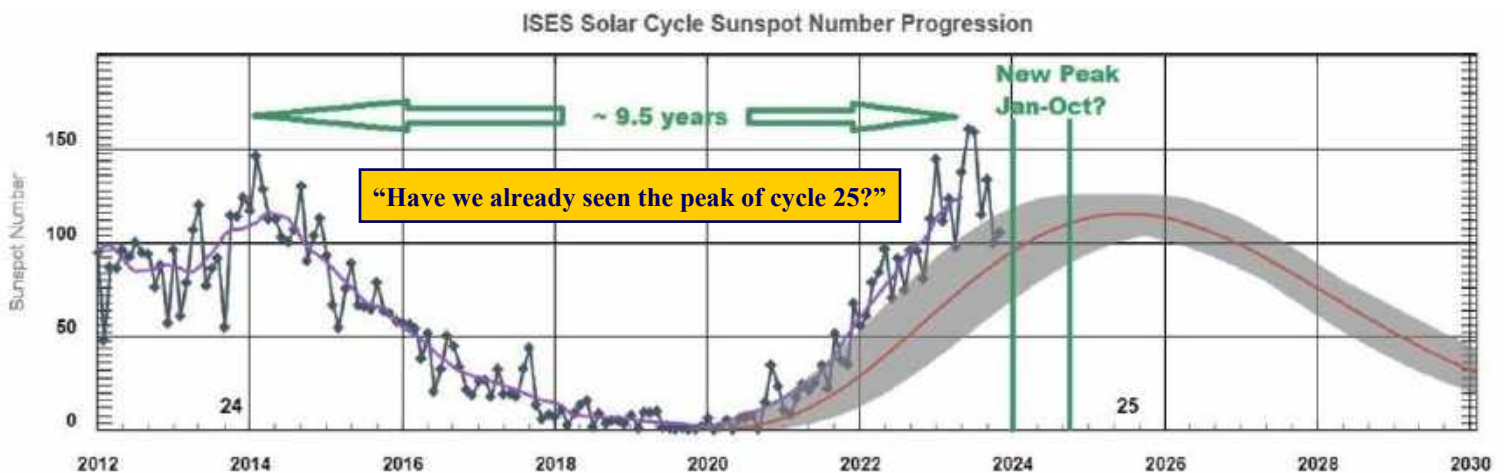
The “experts” seem to be having a real difficult time with solar cycle 25. As you read about in the **August 2020 CrossTalk**, and then in an update titled “**10 Meters Is Back!**” in the **April 2023 CrossTalk** (<https://bit.ly/3vckzSh>), predictions of cycle 25 have been consistently wrong. And it might be happening again. Though some experts have been saying the peak is yet to come later in this year 2024, or early 2025, the contrarian view is that the peak may have already happened. Have we already peaked, or are there are more fun times ahead?

Anybody want to offer their own prediction?

As a reminder of the original predictions, we can go back to what NOAA had published, saying “The Prediction Panel predicted Cycle 25 to reach a maximum of 115 occurring in July, 2025. The error bars on this prediction mean the panel expects the cycle maximum could be between 105-125 with the peak occurring between November 2024 and March 2026”. Well, we already saw a peak of 160 and it came early, in June of 2023. So “oops” on that prediction.

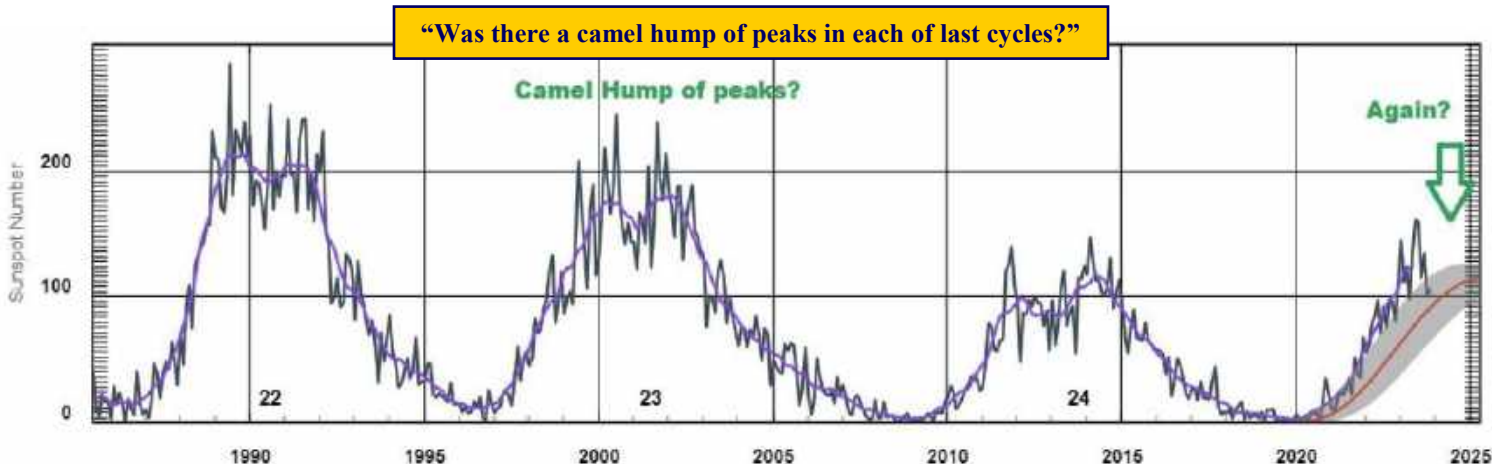
More recently, we can see an article at **Sky & Telescope** (<https://bit.ly/3GVidtw>) published in November suggesting there is a new updated prediction from NOAA (<https://bit.ly/41zyjT9>) that now calls for Solar Cycle 25 to peak between January and October 2024, with a maximum sunspot number between 137 and 173. Well if the first prediction was clearly wrong, what about the updated one?

To help with your own prediction, let’s look at the historical and current data. What does the data show? As we did back in 2020, and again earlier in 2023, let’s look at the data shown at <https://bit.ly/48k0nMu>. What do we see here?



Looking at the current data, we see the run up to a first peak happened much quicker than the experts predicted (shown by the trend line with the grey confidence bands around it). Then things kind of retreated during the month of December. Will it peak again, or is the run done?

Is The Run Done? - Continued on page 15



Though past performance is no guarantee, historically it kind of looks to me like each of the last 3 cycles have what looks like a “camel hump”, where there is a first peak followed by a lull of a few months, and then a second peak before tailing off. Maybe I’m just seeing what I want to see. But if you are optimistic, like I want to be, we can hope that we’ll have a second fun run up here in 2024 towards a second peak to give us an awesome field day and some great fall DX before the run is really done. But is that what is going to happen? Your thoughts?



Volunteer Monitor Program Report - September 2023

The Volunteer Monitor (VM) Program is a joint initiative between ARRL and the FCC to enhance compliance in the Amateur Radio Service. This is the September 2023 activity report of the VM Program.

- An advisory notice was sent to an operator in Nebraska concerning lack of control of his transmitter making FT8 contacts unattended. Transmitters must be under the control of the licensee at all times.
- Advisory notices were issued to two Technician-class operators in Michigan and one in Florida for FT8 operation on 20 meters. Technicians have no privileges on 20 meters.
- An advisory notice was issued to a Technician-class operator in California for voice operation on 15 and 20 meters. Technicians have no voice privileges on 15 meters and no privileges on 20 meters.
- Advisory notices were issued to operators in North and South Carolina for long periods of operation without identification on 40 meters.
- An operator in South Carolina received an advisory notice regarding operation on an expired license, and a licensee in Alabama received an advisory notice for using an invalid call sign, which was his former call sign.
- A General-class licensee in Florida received an advisory notice for operation in the extra portion of 40 meters.
- A commendation was issued to a licensee in West Virginia for excellent and courteous assistance to new licensees in setting up their equipment.
- The VM Program Administrator participated in one meeting with the FCC.

The totals for VM monitoring during August 2023 were 1,679 hours on HF frequencies, and 2,138 hours on VHF frequencies and above, for a total of 3,817 hours.

Thanks to Volunteer Monitor Program Administrator Riley Hollingsworth, K4ZDH

Regional (Atlantic & Hudson Divisions) Hamfests & Events

January 6, 2024 : Ham Radio University Amateur Radio & Radio Central ARC, HRU 2024, LIU-Post, Hillwood Commons Student Center, 720 Northern Boulevard, Brookville, NY. www.hamradiouniversity.org

January 13, 2024 : Skyline Amateur Radio Club, Marathon Winter Hamfest, Marathon Civic Center, 11 Brink Street, Marathon, NY. www.skylinehamradioclub.org

January 13, 2024 : Harrisburg Radio Amateurs Club, HRAC 2024 Winterfest Electronic Expo & Hamfest, Vietnam Veterans of America, 8000 Derry Street, Harrisburg, PA. www.w3uu.org

January 28, 2024 : Long Island Mobile Amateur Radio Club, Virtual Hamfest. www.limarc.org for sign-ups.

So you find our website confusing, can't find anything, Well So Do I!!

I have created a page (*What, Not Another Page!!*) called “Quick Links”

**On this page you will find “Buttons” to some the most popular pages
I will add more as time goes on, but I hope this helps your journey navigating
through your Club Website!**

<https://gloucestercountyarv.weebly.com/quick-links.html>

Straight Key Night

Every day is a good day to send CW, but January 1 is reserved for Straight Key Night. Enjoy CW as it has been sent and enjoyed since the earliest days of Amateur Radio.



Straight Key Night is held every January 1 from 0000 UTC through 2359 UTC. This 24-hour event is not a contest; rather it is a day dedicated to celebrating our CW heritage. Participants are encouraged to get on the air and simply make enjoyable, conversational CW QSOs. The use of straight keys or bugs to send CW is preferred. There are no points scored and all who participate are winners.

<http://www.arrl.org/straight-key-night>



The Education Connection

By Chris Prioli, AD2CS - chris@ad2cs.com
www.ad2cs.com



January 2024

By the time that you read this, many of the seats - but not all of them - will have been reserved for the GCARC Fox Hunt Antenna Build Class. The class will start on **Monday 15 January 2024** and will run for four consecutive Monday evenings. In this class, we will build two separate components, and then we will marry and test those units, all in preparation for the historic **GCARC FOX HUNT XXX**. That is correct - the **30th Fox Hunt** to be sponsored by our Club will most likely be held sometime in March!

The intent of this class is to help prepare some additional members for the challenge of the Fox Hunt by providing those folks with a high-quality known-performing directional three-element antenna coupled with a 4MHz offset attenuator.

While all of the antennas will be built the same, there will be one important difference that makes each antenna unique and specific to its owner - the connection at the radio end of the coaxial cable that serves as the feedline between the antenna and the radio. That connector will be chosen from the available types so that it will directly fit the user's radio of choice for the Fox Hunt. By so doing, the user will not need to use an adapter to connect to his/her radio.

While many of us have Baofeng radios, and while they can certainly be used for fox hunting, by and large the Baofengs do not play well with the offset attenuator as has been shown by some published testing. As a result, it is my recommendation that each fox hunter who will use the antennas that we are going to build should select a non-Baofeng radio for the job if possible.

Don't get me wrong - it is definitely possible to fox hunt with a Baofeng... it is just that there are some better options, and if you have one of those better options, why not use it?

As to the class itself, I would like to further extend the invitation to participate in this event. The cost is fifty dollars per seat, for which you will receive a working antenna and attenuator combination. The antenna will be comprised of PVC conduit for the boom, 3-D printed attachment fittings and safety caps, and tape measure tape strips as the elements. All parts and components will be provided. Payment for the class is to be made as soon as possible, but without exception before the class starts, and should be submitted via PayPal to education@w2mmd.org. There are three seats remaining available as of this writing.

On a different subject, the **Ham Exam Preparation Class Session VII** originally scheduled for startup in mid-January has been postponed until mid-April so as to gather up some additional registrants, sufficient to support running the classes. That session is slated to start the week of **22 April 2024**. I apologize if anyone was counting on attending the January session, but there is simply not enough enrollment to support the classes at this point in time.

In the meanwhile, I will attempt to identify other educational events in which Club members may take an interest, and will do my best to bring such interesting events to you frequently.

See you next month!



*Celebrating 65 Years Of
Service To Amateur Radio
& Our Community*

*ARRL Affiliated & Special
Services Club*

W2MMD Clubhouse Event

Tape-Measure Yagi & Offset Attenuator Building Class

***Monday, January 15, 2024
@ 1830 Hours***

This class is about building and testing a directional two-meter antenna and attenuator unit that is perfectly suitable for fox hunting and other 2-meter RDF exercises. I know that we have offered both of these topics before, individually. However, we have not offered the two units together as a combined class topic. I believe that we would get enough enrollment in this program to make it worthwhile to run the class. Here is how it would work :

The class would run for a series of four evenings starting Monday, January 15, 2024 @ 1830 Hours.

- ♦ A fixed price of **\$50.00** will include all materials necessary to complete the build

The specific units built would be :

- ♦ A tape-measure three-element Yagi-type directional antenna built on a PVC pipe boom with a rubber hand grip, a capped tube, and 3D-printed plastic fitments for element attachment and element end capping
- ♦ A KC9ON 4 MHz Offset Attenuator with BNC connectors and a thirty-inch connecting cable for attachment to a hand-held radio

The student would develop certain skills, as was already mentioned, during this class. Those skills would include :

- ♦ Electronic Kit Assembly - Parts identification, following directions, and PCB soldering
- ♦ Electronics Testing - Use of oscilloscope to check operation of oscillator in attenuator
- ♦ Coaxial Cable Handling - Stripping and prepping coax, installing terminals to coaxial cable
- ♦ Antenna Physical Layout - Measuring element length, measuring driven element position, and parasitic element spacing
- ♦ Antenna Physical Construction - Assembling the component parts into a whole unit
- ♦ Antenna Testing - Use of NanoVNA or other antenna analyzer to test the assembled antenna for frequency response

Interested students, please contact Chris Prioli, AD2CS at chris@ad2cs.com

Gloucester County Amateur Radio Clubhouse • www.w2mmd.org

Gloucester County 4-H Fairgrounds • 235 Bridgeton Pike (Route 77) • Mullica Hill, NJ 08062

Rev 2023-12-28



Tuesday Afternoon Net @ 1200 Hours



Net Control Stations :

Steve Farney, W2SEF; Chris Prioli, AD2CS; Mike Thompson
KG4JYA; Greg Ciraula, W5DO; & Jeff Garth, WB2ZBN

147.180 MHz (+) (131.8) Repeater & EchoLink W2MMD-R

Here is the schedule for the upcoming weeks

Greg Ciraula, W5DO : January 2, 2024
Chris Prioli, AD2CS : January 9, 2024
Mike Thompson, KG4JYA : January 16, 2024
Steve Farney, W2SEF : January 23, 2024
Jeff Garth, WB2ZBN : January 30, 2024

Greg Ciraula, W5DO : February 6, 2024
Chris Prioli, AD2CS : February 13, 2024
Mike Thompson, KG4JYA : February 20, 2024
Steve Farney, W2SEF : February 27, 2024

Greg Ciraula, W5DO : March 5, 2024
Chris Prioli, AD2CS : March 12, 2024
Mike Thompson, KG4JYA : March 19, 2024
Steve Farney, W2SEF : March 26, 2024

Greg Ciraula, W5DO : April 2, 2024
Chris Prioli, AD2CS : April 9, 2024
Mike Thompson, KG4JYA : April 16, 2024
Steve Farney, W2SEF : April 23, 2024
Jeff Garth, WB2ZBN : April 30, 2024

If you would like to be a Net Control Station for this net, please contact Steve Farney, W2SEF



Thursday Night Rag Chew Net @ 2000 Hours



Net Control Stations :

Chris Prioli, AD2CS; Mary Delemarre, W2TDS; Gary Mirkin,
WA3SVW; Steve Farney, W2SEF; Greg Ciraula, W5DO; & Jeff
Garth, WB2ZBN

147.180 MHz (+) (131.8) Repeater & EchoLink W2MMD-R

Here is the schedule for the upcoming weeks

Chris Prioli, AD2CS : January 4, 2024
Mary Delemarre, W2TDS : January 11, 2024
Gary Mirkin, WA3SVW : January 18, 2024
Steve Farney, W2SEF : January 25, 2024

Chris Prioli, AD2CS : February 1, 2024
Mary Delemarre, W2TDS : February 8, 2024
Gary Mirkin, WA3SVW : February 15, 2024
Steve Farney, W2SEF : February 22, 2024
Greg Ciraula, W5DO : February 29, 2024

Chris Prioli, AD2CS : March 7, 2024
Mary Delemarre, W2TDS : March 14, 2024
Gary Mirkin, WA3SVW : March 21, 2024
Steve Farney, W2SEF : March 28, 2024

Chris Prioli, AD2CS : April 4, 2024
Mary Delemarre, W2TDS : April 11, 2024
Gary Mirkin, WA3SVW : April 18, 2024
Steve Farney, W2SEF : April 25, 2024

If you would like to be a Net Control Station for this net, please contact Jeff Garth, WB2ZBN

“Tech Saturday - Hamclock Edition”

By Jon Pearce, WB2MNF

The December 9, 2023 Tech Saturday Forum session was focused on getting started with the Raspberry Pi series of small computers and getting the “Hamclock” application running. Attendees had a broad range of experience with these devices from complete beginners to relative experts so a wealth of assistance was available at all levels to everyone. The session reviewed the different models of the Pi and the broad range of applications, including many for ham radio, and described the process for installing different types of software.

Interest was sufficient that the next several Monday Night GCARC TechNet ZOOM Forum sessions will cover interfacing these and other computers to ham radio equipment. This topic seems to have the potential for a sub-group of users to create some type of informal collaboration group, so let me know if you’re interested and we’ll figure out a forum for supporting that effort.



Gloucester County ARES Net

The Gloucester County ARES Net is held every Sunday @ 2000 Hours on the 147.180 MHz (+) (131.8) Repeater & EchoLink W2MMD-R

All are welcome to participate

Net Control Stations : Steve Farney W2SEF, Greg Ciraula W5DO, Bob Keogh KD2NEC, Karl Frank W2KBF, Al Arrison KB2AYU, Gary Mirkin WA3SVW, Todd Woodward KD2ESH, & Jim Wright N2GXJ

Busted Callsigns From A Talk By Anthony Luscre, N8ZT

Contributed By Bill Mollenhauer, N2FZ

When the other station gets your callsign wrong, we refer to it as a Busted Callsign. With the many issues in radio communication (QRM, QRN, Fading Signals, etc.), this has been an ongoing issue since the beginning of Amateur Radio. These problems can be compounded by poorly configured radios (mic gain, compression, etc.) and poor operator practices (improperly sent CW, over-driving mic, poor choices of phonetics, etc.). The following charts are from - "Accurately Copying Callsigns Can Make a Difference in Contest Outcomes" - Tim Shoppa, N3QE, February 2022 CQ Magazine.

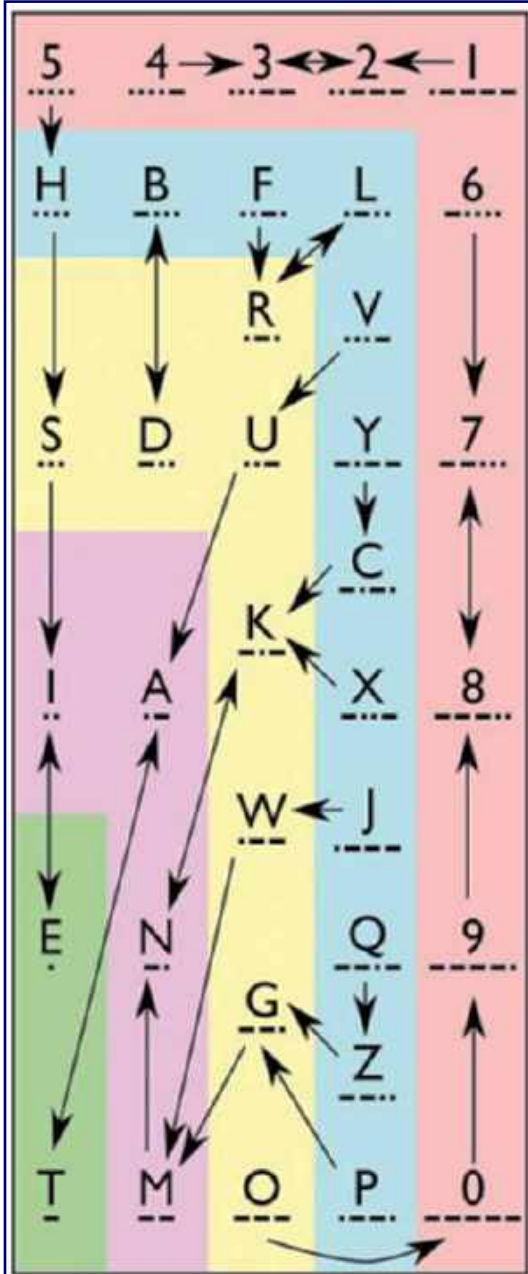
Busted Rate CW (Morse Code) Characters in Callsigns - Data from ARRL DX CW 2020 public logs.

Bust Rate	Correct	Most often busted to	Bust Rate	Correct	Most often busted to
0.72%	H	S ...	0.23%	4-	3-
0.49%	B	D ...	0.17%	L-	R ...
0.49%	8-	7-	0.16%	C-	K ...
0.42%	S ...	I ..	0.16%	Q-	Z-
0.37%	0-	9-	0.15%	J-	W ...
0.33%	V-	U ...	0.15%	Y-	C-
0.32%	7-	8-	0.15%	O-	0-
0.32%	U ...	A ..	0.14%	1-	2-
0.31%	D ...	B	0.14%	X-	K ...
0.28%	F-	R ...	0.14%	M ...	N ..
0.28%	Z-	G ...	0.13%	W ...	M ...
0.28%	I ..	E .	0.12%	P-	G ...
0.26%	R ...	L-	0.12%	N ..	K ...
0.25%	9-	8-	0.11%	K ...	N ..
0.25%	6-	7-	0.10%	A ..	T =
0.24%	2-	3-	0.10%	T =	A ..
0.24%	G ...	M ...	0.05%	E .	I ..
0.24%	5-	H			
0.24%	3-	2-			

Busted Callsigns - Continued on page 22

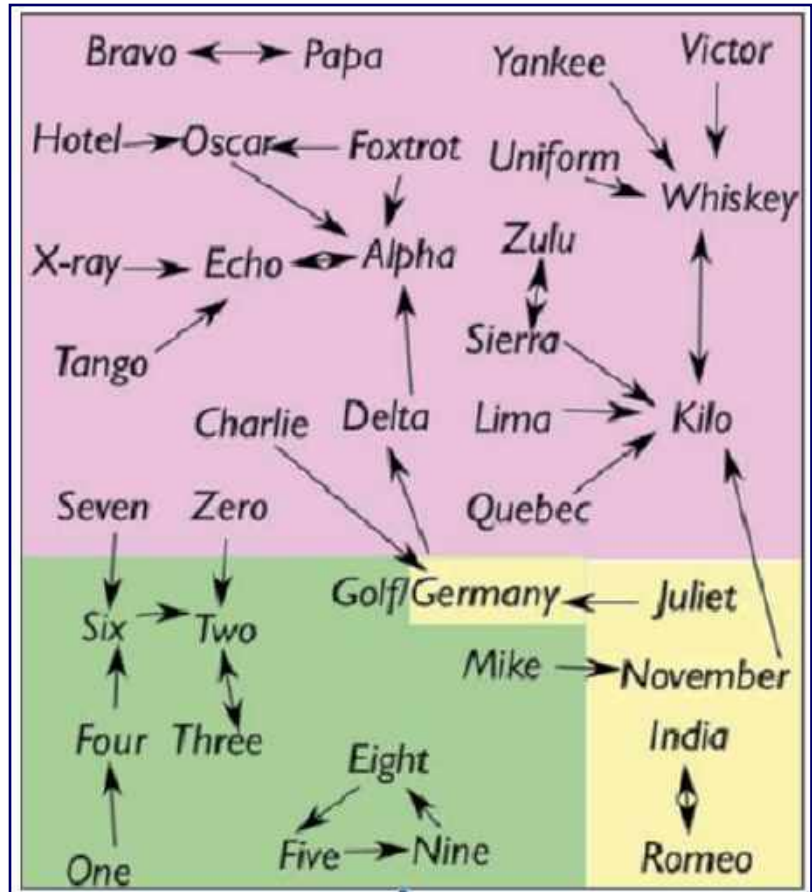
CW

Arrows show the most common busts for CW characters. Background colors indicate the differing number of Morse code elements (count of dits or dahs).



SSB

Arrows show the most common busts for SSB letter phonetic Background colors indicate the number of syllables in each phonetic letter.



Number of Characters or Syllables

1. Green
2. Violet
3. Yellow
4. Blue
5. Pink

SSB - Bust rates for characters in SSB callsigns - Data from ARRL DX SSB 2020 public logs.

Bust Rate	Correct	Most often busted to	Bust Rate	Correct	Most often busted to
0.43%	8 Eight	5 Five	0.17%	E Echo	A Alpha
0.36%	0 Oscar	A Alpha	0.17%	9 Nine	8 Eight
0.36%	2 Two	3 Three	0.17%	H Hotel	0 Oscar
0.34%	3 Three	2 Two	0.16%	4 Four	2 Two
0.28%	G Golf	D Delta	0.15%	R Romeo	I India
0.27%	Q Quebec	K Kilo	0.15%	F Foxtrot	0 Oscar
0.25%	0 Zero	2 Two	0.13%	A Alpha	E Echo
0.21%	I India	R Romeo	0.13%	U Uniform	Y Yankee
0.21%	6 Six	2 Two	0.12%	C Charlie	G Golf
0.20%	S Sierra	K Kilo	0.12%	N November	K Kilo
0.20%	D Delta	A Alpha	0.12%	K Kilo	W Whiskey
0.19%	Y Yankee	W Whiskey	0.11%	B Bravo	P Papa
0.19%	T Tango	E Echo	0.11%	W Whiskey	K Kilo
0.18%	X X-ray	E Echo	0.10%	7 Seven	6 Six
0.18%	J Juliet	G Golf	0.09%	M Mike	N November
0.18%	V Victor	W Whiskey	0.09%	1 One	4 Four
0.18%	5 Five	9 Nine	0.09%	L Lima	K Kilo
0.18%	Z Zulu	S Sierra	0.07%	P Papa	B Bravo

These results were for standard NATO/ITU Phonetics. On-air observations suggest the rates are much higher when using many nonstandard phonetics, especially with non-English language-speaking operators.

WORD TO THE WISE

Auroral Flutter

Rapid changes in the ionosphere influence the radio signals using it as a medium. On HF, signals traversing the polar regions may experience flutter in slightly disturbed geomagnetic conditions. In the northern hemisphere, when strong Aurora Borealis is present (along with a high Kp index) HF polar paths are likely shut down, while North American VHF and UHF operators can beam north and use the aurora itself as an imperfect reflector to make contacts. Signals have a distinctive sound, both on SSB and CW.



Gloucester County Skywarn Net

The Gloucester County Skywarn Net is held every Sunday @ 1930 Hours on the
147.180 MHz (+) (131.8) Repeater & EchoLink W2MMD-R

All Are Welcome To Participate

Net Control Stations : Steve Bromhead KB2RTZ, Greg Ciraula W5DO,
Bob Keogh KD2NEC, & Jeff Garth WB2ZBN

January 7, 2024

NCS : Steve Bromhead KB2RTZ

Weather Report Recorder & Weather Forecast : Bob Keogh KD2NEC

ARRL Membership Commission Program

By Chris Prioli, AD2CS - chris@ad2cs.com - www.ad2cs.com

As some of you may already know, the ARRL has upped the ante on one of their long-standing programs, the Affiliated Club Membership Commission program. What this means to us is that we as an Affiliated Club have access to an improved revenue stream that costs us nothing but a little bit of paperwork and cooperation. The Membership Committee will handle the paperwork, but we do need the cooperation of all Club members to make this a reality.

Here is how it works. The ARRL will pay a commission to the GCARC for every new ARRL membership and for every ARRL membership renewal that is processed through the Membership Commission program. The payments are at a rate of five dollars for each renewal and fifteen dollars for each new membership application submitted. This could equate to a sizable income for our Club if everyone cooperates.

All that you have to, as an existing ARRL member, is to renew your League membership via a renewal form that the GCARC Membership Committee will provide to you, completing the form and returning the form with the renewal payment to our Membership Committee. We will then bundle all of the applications received in a given month and submit them to the ARRL together with a special cover form completed by the Membership Committee. The ARRL will then send a check for the agreed commission amount to our Club. Renewals can be submitted as much as sixty days before expiration. If you are unsure of your expiration date, drop me an email and I can tell you when your ARRL membership expires.

As a tentative new member... and 34% of our membership does not currently belong to the ARRL... the process is similar. Our Membership Committee will provide you with a League membership application, which you will then complete and return to us together with your payment. We will then submit those applications together with the required cover form to the ARRL, who will again send a check for the commission to our Club.

If you are not currently an ARRL member, I strongly recommend that you join the League. The ARRL is our - Amateur Radio's - ONLY voice in Washington when it comes to lobbying for the hobby and protection of Amateur Radio against encroachment by other interests. We NEED to support the ARRL in order to protect our chosen hobby, and they are quite effective and successful in their efforts to protect and promote Amateur Radio.

Many of you will be renewing your ARRL memberships anyway, so why not do it through this program and let GCARC benefit a little bit from your renewal?



At The Repair Bench...

A monthly column describing a recent repair bench event.

By Chris Prioli, AD2CS - chris@ad2cs.com - www.ad2cs.com

MFJ-259B - January 2024

I just (at the time of writing this, in early August of 2023) completed the repair of an MFJ-259B SWR Analyzer. The item belongs to one of the GCARC Club members, but had been donated for long-term use to the W2MMD Clubhouse. I came across the unit when it was discovered that it would sometimes operate from an AC power adapter, but would not operate at all from its internal battery. What specifically would happen is that the meters came alive, but the LCD panel did not.

The AC power supply for this unit is a 12VDC 1000mA wall-wart type supply. The internal battery is a bank of ten 1.5VDC “AA” cells. The unit is designed to use either regular disposable alkaline cells, or it can use rechargeable Ni-Cad cells. If the Ni-Cad cells are used, a jumper on the MJ-259B main circuit board must be moved to the “CHARGER ON” position; otherwise, the jumper should remain in the “CHARGER OFF” position. Of course, this is necessary so that the integrated battery charger can recharge the Ni-Cad cells when AC power is provided.

What I found when I opened up the case was a mess. The alkaline cells that had been installed were obviously flat, and had leaked considerably inside the unit. I spent about an hour cleaning the corrosion out of the battery box and the surrounding area. I then replaced the “AA” cells with fresh alkaline cells and tried the unit, to no avail. It would not operate from the battery. Interestingly enough, it also would no longer operate from the external power supply. The same behavior - active meters but dead LCD panel - was exhibited.

This unit was made to the RoHS Directive standard, using lead-free solder throughout. This was evident by the appearance of the solder joints, with their characteristic flat grey appearance so indicative of lead-free solder use. Lead-free solder joints are prone to early failure due to stresses placed on the board and joints, and I also noted several cold joints in various spots on the main board. I went over the board carefully, re-flowing every joint and removing the solder from any that were suspect in appearance. I re-soldered those joints, and again tested the unit. No luck - it was still inoperative in the same manner as before.

This unit has two five-volt DC supplies internally, one of which is used for the oscillator circuit, and the other of which is used for the logic and display circuits. I was getting intermittent five-volt power to the microprocessor and the LCD panel. One of the areas that had cold joints was the power switch on the main board, which is a DPDT latching push-button switch. The two separate sides of this switch provide current to each of the two five-volt supplies. I wanted to validate the power switch, so I removed the switch and tested it out of circuit, where it tested fine. However, after re-installing the switch, the five-volt supply to the microprocessor and the LCD panel came alive. Progress, but not enough. The LCD panel was still dead.

I next took a look at the ground side of the LCD panel. Pin #1 of the LCD harness is the ground wire, while Pin #2 is the +5VDC lead. When I measure the voltage between these two points, I got no voltage reading at all. When I measured Pin #2 to chassis ground, the +5VDC was present.



At The Repair Bench - Continued on page 26

I next placed a temporary jumper wire from Pin #1 of the LCD panel to chassis ground, and the panel came alive and worked normally.

OK - was there an open in the harness to the LCD panel? Or was the problem elsewhere? I moved the jumper wire from the LCD panel to the Pin #1 wire connect point on the main board, and the panel remained operational. This told me that the wire harness was OK, but that the connection point on the main board had lost its ground connection somehow. I re-flowed that joint again, but that still did not solve the problem.

Ultimately, I resolved the issue by soldering in a jumper wire from the Pin #1 connection on the main board to another chassis ground point on the main board. Problem solved.

The mystery still remains as to how and why that particular pad on the PCB lost its connection to the ground plane, but it was not worth digging any further. The intent was to make the unit operational, which I did. The stresses that contribute to the early failure of lead-free solder joints can be thermal stresses, electrical stresses, or physical stresses. It is for this reason that lead-free solder use is prohibited in mission-critical applications like aerospace, military, or medical applications.

What is interesting about this unit, and something that I believe led to the failure of the PCB connection, is the fact that the battery holder for this unit is mounted directly to the PCB, at two points that span the area of the LCD panel connection to the main board. It is likely that the stresses imposed by removing and re-securing the battery compartment caused some flexing of the printed circuit board, resulting in the failure.

Whereas I am not a big proponent of willy-nilly soldering in jumper wires, in this case it was the best solution to the problem at hand. I do not recommend this approach for every open-circuit problem, as there may be another underlying problem that could worsen if not tracked down. In this case, though, I am fairly confident that the problem is related to the lead-free stress failures, possibly internal in the circuit board. So, in this case I used the jumper wire solution to the problem.

See you next month!



Happy Birthday, Ben!
January 17, 1706



**Law Enforcement
Appreciation Day**

Friday, January 9, 2024

Club Member	DMR ID
W2MMD Clubhouse	3198604
Henry Ammon IV, KD2YZS	3190004
Vincent Antonelli Sr, KA2APD	3186826
Lance Appel, KE2UC	3200487
Alex Calabrese, WA2ADS	3100583
Chuck Capasso, WB2PGE	3169781
Todd Cecilio, KA2YNT	3169458
Anthony Cerami, N2OAC	3202759
Mark Clark, N3QMJ	3102110
Holden Correia-Fisher, KD2JPV	3104911
Mike Covalleski, N2MMC	3134855
Bob Demola, KD2GFL	3134319
Doug Dersch, KD2VQA	3193630
Thomas Distelcamp Sr, KC2GYC	3110869
Glenn Dougherty, N2YIO	3161836
Keith Dreyer, KD2ZRB	3192630
Adam Duncan, W3DUN	3202691
Herb Dyer, KT2Y	3134907
Harry Elwell, AD5TT (K2ATX)	3128498
James Foster, W3JNF	3142117
Karl Frank, W2KBF	3146716
Glen Guenther, KE2BUO	3202079
Melissa Guenther, KE2BWZ	3202496
Gary Mirkin, WA3SVW	3165494
John Murrow, KD2NHK	1134122
Phil Nunzio, WA3RGY	3134336
John O'Connell, K2QA	3110610
Jon Pearce, WB2MNF	3163415
Mike Pecorini, K2MRP	3132996
John Price III, KD2QYC	3123583
Chris Prioli, AD2CS	3195449
Len Rust III, W2LJR	3186225
Len Rust IV, K2LJR	3196243
Dave Sheppard, W2PAX	3112666
Cory Sickles, WA3UVV	1142052
Court Smith, KD2SPJ	3186243
Brett Waller, K2BKW (KC2UXQ)	3134261
Bill Wood, KD2OSJ	3197459
John Zaruba Jr, K2ZA	3134331

DMR Configuration Sequence

1. Obtain and Configure DMR ID :

- <https://www.radioid.net>

2. Download Contact List :

- <http://www.dmrcontacts.com>

3. Identify Repeater or Hotspot :

- <https://www.repeaterbook.com>

4. Define Talk Groups

- Numerical ID
- Text Name

<https://brandmeister.network/?page=talkgroups>

5. Create Channel

- Select Number
- Assign Name
- Select DMR ID
- Assign Frequency
 - ♦ Transmit
 - ♦ Receive
 - ♦ Bandwidth
 - ♦ Power
 - ♦ DMR Mode (Simplex/Repeater)
 - ♦ TX Permit (Channel Free)
- Assign Talk Group
- Assign Color Code
 - ♦ Agreed Upon with Other Users
- Assign Time Slot
 - ♦ Agreed Upon with Other Users

6. Create Zone

7. Add Channels to Zones

8. Configure Features

9. Upload Code Plug

10. Upload Contact List

For more information, DMR links, and W2LJR's DMR presentations, go to :
<https://gloucestercountync.weebly.com/dmr.html>



Amateur Radio Emergency Services - January 2024

Resources - News - Updates

By Bob Keogh, KD2NEC - kd2nec@qsl.net
Gloucester County Emergency Coordinator



Digital Mode Training

The Eastern Pennsylvania Section of the ARRL is sponsoring a series of Digital Mode, Zoom Training Sessions. These classes will be held on the first Saturday of each month at 10 AM, beginning in February 2024.

The classes are designed for people who are looking to begin using Sound Card Digital Modes or desire a refresher course. You do not have to live in Eastern Pennsylvania to attend these courses. All licensed Radio Amateurs are welcome.

To register for this training, send an email to **Barry Feierman K3EUI** at k3eui@barry.com. Provide Barry with your full name, call sign, email, city and state, HF rig and sound card (if any). It would help if you let him know if you have any experience with HF sound card modes.

Barry will be using a 40M frequency of 7068 kHz on USB for practice. That band should cover a wide region within 400 miles of Philadelphia with propagation predictions for 2024.

Topics will cover :

- Fundamentals of modulation with a sound card : AM, FM, PM
- Your choice of sound cards : Signalinks, Rigblasters, DigiRigs, DRA, etc.
- How to accomplish sending and receiving messages with a sound card
- Note : new HF SSB rigs with built-in sound cards make this easy

A look at the software :

- FLDIGI - FLMSG - FLAMP
- Winlink Express and VARA HF and VARA FM (VHF/UHF)
- WSJT-X (FT8 and variations)
- Sound Card Oscilloscopes
- SDR radios and Spectrum Analyzers

Barry will cover each topic in a one hour ZOOM session on a Saturday morning and practice on 7068 kHz.

SNJ ARES Update - Continued on page 29



ARRL Learning Center

<https://learn.arrl.org>

Discover how to make Amateur Radio your own.

Online courses from the ARRL Learning Center provide ARRL members with additional instruction and training for getting on the air, emergency communications, and electronics and technology.

FEMA 2023 Recorded Webinars For Emergency Management :
<https://bit.ly/489xLWp>



The above link to **Region 2 Preparedness and Resilience Webinars 2023 Webinar Catalog.PDF** is a complete list of all the FEMA 2023 Recorded Webinars. There are several that are of interest to Emergency Communications. Such as:

- Amateur Radio for Emergency Managers (Page 9)
- Digital Accessibility (Page 12)
- Until Help Arrives (Page 12)
- How to Create Accessible Emails (Page 14)
- Radiological Preparedness 101 (Page 15)
- Information and Communications Before, During and After Disasters (Page 15)
- Cybersecurity Preparedness (Page 17)
- Hurricane Preparedness for the Whole Community (Page 20)
- NOAA Flood Preparedness (Page 22)
- And many more to broaden your perspective of the big picture

Merry Christmas and a Very Happy 2024!

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

The Clubhouse Report (A Parody)

The Clubhouse is Fine but the Shed needs some Paint, But I don't have much to report!

The Electric Bill came and it made me faint, It looks like our Budget is Short!

Then a Contractor came and replace our Roof, For Free, which we can afford!

Then the Echolink failed, the Compute went Poof, But I don't have much to report!

First Frank replaced the toilet, Then Chris replaced the door!

I think I saw the Groundhog, That lives beneath our floor!

Then a Tornado came, our Antennas are Down, One Tower broke and is short!

But the Clubhouse is fine since it didn't burn down, And this concludes my report!

Karl Frank, W2KBF

Announced DX Operations

www.ng3k.com/Misc/adxo.html

From The Shack of Bill Feidt, NG3K : www.ng3k.com

2024 Jan01	2024 Jan05	Svalbard	JW	SP7DPJ	DXW.Net 20231207	By M0PLX fm Spitsbergen; 160-10m; SSB
2024 Jan03	2024 Jan10	Honduras	HR9	LoTW	TDDX 20231201	By K6VHF as K6VHF/HR9 fm Sandy Bay, Roatan I (IOTA NA-057); 80-6m; CW SSB FT8 RTTY; 100w; QSL via K6VHF direct
2024 Jan11	2024 Jan24	Barbados	8P9CB	LoTW	TDDX 20231102	By WA7RAR; 20-10m; CW SSB; 100w; 1/4 wave vertical; QSL to WA7RAR direct
2024 Jan11	2024 Jan25	St Kitts & Nevis	V4	LoTW	TDDX 20231203	By N4RF as V4/N4RF; @V7JA; HF; CW FT8, some SSB; 100w; holiday style operation; QSL via N4RF direct w/ SASE
2024 Jan11	2024 Jan30	Montserrat	VP2MDX	LoTW	DXW.Net 20230807	By W2APF; HF; operation to continue until Apr 11 2024
2024 Jan12	2024 Jan18	Palau	T8	See Info	DXW.Net 20230922	By JH6WDG as T88AQ, JA6KYU as T88HS, JR6DRH as T88RH, JA6EGL as T88SM fm Koror; 160-10m; CW SSB FT8; QSL per operator's instructions
2024 Jan12	2024 Jan20	Ethiopia	ET3AA	N2OO	DXW.Net 20231129	By W9XY K4ZW; HF
2024 Jan16	2024 Feb04	St Helena	ZD7Z	LoTW	DXW.Net 20231201	By IV3FSG fm Jamestown (IOTA AF-022 IH74ga); 160-6m, incl 60m; SSB CW RTTY FT8 FT4; vertical, inverted L; QSL via IK2DUW
2024 Jan17	2024 Jan24	Dominica	J79	Club Log OQRS	FM5BH 20230908	By FM5BH as J79BH and F8AAN as J79AN; HF; CW SSB FT8
2024 Jan18	2024 Feb01	Clipperton I	TX5S	LoTW	DXW.Net 20230321	By team fm IOTA NA-011 (DK50jh); 160-6m, incl 60m; SSB CW RTTY FT8; dates subject to change; see Web for full QSL details
2024 Jan19	2024 Jan31	Aruba	P4	Club Log OQRS	DL4MM 20231024	By DL4MM as P4/DL4MM and P40AA; 160-10m; CW FT8 FT4 SSB; SOA in CQ 160m CW Contest
2024 Jan20	2024 Jan27	Chatham I	ZL7D	EA3FLW	DXW.Net 20231212	By ZL1CAP, ZL1LDP, ZL1OV ZL3SSB; HF; hex beams; amps
2024 Jan21	2024 Jan28	African Italy	IG9	S57DX	S59A 20231212	By S51V S52OT S54W S56N S57DX S57UN S59A fm Lampedusa I (IOTA AF-109); QRV for CQ 160m CW Contest
2024 Jan22	2024 Feb01	Indonesia	YB9	LoTW	TDDX 20231219	By F5LIT as YB9/F5LIT; 40-10m; SSB; QSL via Club Log OQRS
2024 Jan24	2024 Feb06	Maldives	8Q7WR	See Info	TDDX 20231213	By G3WRO fm Kuredo I; 40-10m, perhaps 80m; SSB; QSL via G3WRO w/ SASE only
2024 Jan25	2024 Feb12	Yemen	7O2WX	IZ8CCW	DXW.Net 20231111	By OK2WX fm Socotra I; HF w/ focus on low bands; monoband verticals for 160 80 40m; QRV for CQ 160m CW
2024 Jan28	2024 Jan28	Pitcairn I	VP6		DXW.Net 20231220	By G3YBO as VP6/G3YBO fm 1800z onward; @VP6MW; 17-10m; SSB; 100w; 33ft vertical; operation tentative due to wx

Also for your convenience, there is a direct link to NG3K of our website.

Click on the NG3K DX Page.



Will AI Help Us Have More Fun With Amateur Radio?

by Dan Romanchik, KB6NU

In this morning's email was a message from Inc. magazine with links to some articles in the magazine. At the top of the list was, "**4 Unimaginable Ways A.I. Will Change Your Life Within the Next 5 Years, According to Bill Gates**" (<https://www.inc.com/minda-zetlin/4-unimaginable-ways-ai-will-change-your-life-within-next-5-years-according-to-bill-gates.html>) Gates says that in the next five years, you will have your own artificial intelligence assistant, or agent, that will be a frequent voice in your ear and will help you with everything from deciding where to go on vacation to managing your friendships and more. Let's think for a minute about Gates' 4 Ways and how they might help us enjoy amateur radio more.



1. You won't bother with software or operating systems anymore.

How cool would this be. You could simply tell your AI amateur radio assistant, *"Hey, HAL. Let's operate 20-meter FT8 this afternoon,"* and the agent would set up the radio and begin looking for contacts. If the band wasn't open, it would come back and tell you, *"I'm sorry, Dave, but propagation on 20 meters is terrible this afternoon. May I suggest 30 meters instead?"*

2. Your agent will be a frequent voice in your ear.

Gates believes that most of us will wear at least one ear bud most of the time so that our agents can talk to us whenever they need to. So, for example, it might be monitoring the activity on 6 meters and notify you when the band is open. Or, you might want it to notify you when a particular contest or operating event is coming up so that you don't miss it. *"Dave,"* it might say, *"remember that the 2-meter club net is at 8 pm tonight."*

3. Your agent will get involved in your personal relationships.

We often don't think of Amateur Radio as having a personal aspect, but it really does. For example, don't we enjoy talking to some people more than others? Your personal agent could monitor your club's 2-meter repeater or 40-meter CW and notify you when your friends are on the air.

Gates also notes that you could have your AI assistant talk to your friends' assistants and set up lunch for you. If those friends are also radio amateurs, you could also use that capability to set up an on-air sked.

4. It might even help you solve personal problems.

The article notes, "One of the most intriguing predictions Gates made is that your agent could also become your therapist" While many hams probably do need therapy, I'm not so sure how applicable this will be to Amateur Radio.

KB6NU's Ham Radio Blog - Continued on page 32

What I could see happening is using an AI assistant to help you choose your next rig or maybe help you troubleshoot a problem. Here are some scenarios :

- You ask your AI assistant what rig you should buy next. Since it already knows what bands you like to operate - and the state of your finances - it can analyze all the options and find a radio that meets your operating needs and fits into your budget.
- You might describe your backyard and the bands that you want to operate, and your AI Assistant could come back with antenna suggestions.
- You ask your AI assistant about a problem that you're having with your rig. It comes back with, ***"Dave, if you would just RTFM, you will find the answer on page 67 of the operating manual."*** Or, after scanning the appropriate online forums, it would tell you, ***"Dave, several other owners seem to be having a similar problem. Here 's what they 've done...."***

All of this sounds kind of fun to me, but I can understand some of you having reservations. What do you think? Can you think of other ways an AI assistant would make amateur radio more fun for you?

Dan Romanchik, KB6NU, is the author of the KB6NU amateur radio blog (KB6NU.Com), the "No Non-sense" amateur radio license study guides (<https://KB6NU.Com/study-guides>), and often appears on the IC-QPodcast (<https://icqpodcast.com>). When he's not trying to decide if artificial intelligence will help us have more fun with ham radio - or destroy humanity - he tinkers with electronics projects and works CW on the HF bands. You can email your AI comments to Dan at cwgeek@kb6nu.com.



What is it with AI! He likes to climb towers!

This is him the other day, just looking for his *lost car keys!* ...Really!

Be A Club Volunteer!

Club Technical Volunteer Projects :

- Processing monthly membership meeting and Tech Saturday videos for the YouTube channel
- Assisting the AV team at the Wednesday night General Membership Meetings
- Assisting in the inventory of Clubhouse assets and keeping that inventory current
- For the more technically inclined, managing the SatNOGS station, reviewing observations, and adding new satellites to the list of those being tracked
- Reviewing new technologies for presentation at meetings or write-ups in CrossTalk.

For example, the VarAC HF digital communications program has recently been updated, it is installed on the HF station at the Clubhouse, and might provide an opportunity for an interesting short article or presentation

If you would like to volunteer for any of these projects, please contact Jon WB2MNF, Ron NR2B, or Chris AD2CS

Clubhouse Construction Volunteer Projects :

Shed : Build Ramp

Replace Back Steps

Clubhouse :

- Build Ramp
- Replace Interior Front Door

Install 2 New VHF Towers

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

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.



2020-2024 Element 4 Amateur Extra Class License Question Quiz

**This month we continue with Subelement E4 Amateur Practices (5 exam questions out of 5 groups)
(Answers on 'Last Page Calendar')**

E4D01

What is meant by the blocking dynamic range of a receiver?

- A. The difference in dB between the noise floor and the level of an incoming signal that will cause 1 dB of gain compression
- B. The minimum difference in dB between the levels of two FM signals that will cause one signal to block the other
- C. The difference in dB between the noise floor and the third-order intercept point
- D. The minimum difference in dB between two signals which produce third-order intermodulation products greater than the noise floor

E4D02

Which of the following describes problems caused by poor dynamic range in a receiver?

- A. Spurious signals caused by cross-modulation and desensitization from strong adjacent signals
- B. Oscillator instability requiring frequent retuning and loss of ability to recover the opposite sideband
- C. Cross-modulation of the desired signal and insufficient audio power to operate the speaker
- D. Oscillator instability and severe audio distortion of all but the strongest received signals

E4D03

How can intermodulation interference between two repeaters occur?

- A. When the repeaters are in close proximity and the signals cause feedback in the final amplifier of one or both transmitters
- B. When the repeaters are in close proximity and the signals mix in the final amplifier of one or both transmitters
- C. When the signals from the transmitters are reflected out of phase from airplanes passing overhead
- D. When the signals from the transmitters are reflected in phase from airplanes passing overhead

E4D04

Which of the following may reduce or eliminate intermodulation interference in a repeater caused by another transmitter operating in close proximity?

- A. A band-pass filter in the feed line between the transmitter and receiver
- B. A properly terminated circulator at the output of the repeater's transmitter
- C. Utilizing a Class C final amplifier
- D. Utilizing a Class D final amplifier

E4D05

What transmitter frequencies would cause an intermodulation-product signal in a receiver tuned to 146.70 MHz when a nearby station transmits on 146.52 MHz?

- A. 146.34 MHz and 146.61 MHz
- B. 146.88 MHz and 146.34 MHz
- C. 146.10 MHz and 147.30 MHz
- D. 173.35 MHz and 139.40 MHz

Element 4 Amateur Extra Class Quiz - Continued on page 35

E4D06

What is the term for spurious signals generated by the combination of two or more signals in a non-linear device or circuit?

- A. Amplifier desensitization
- B. Neutralization
- C. Adjacent channel interference
- D. Intermodulation

E4D07

Which of the following reduces the likelihood of receiver desensitization?

- A. Decrease the RF bandwidth of the receiver
- B. Raise the receiver IF frequency
- C. Increase the receiver front end gain
- D. Switch from fast AGC to slow AGC

E4D08

What causes intermodulation in an electronic circuit?

- A. Too little gain
- B. Lack of neutralization
- C. Nonlinear circuits or devices
- D. Positive feedback

E4D09

What is the purpose of the preselect or in a communications receiver?

- A. To store often-used frequencies
- B. To provide a range of AGC time constants
- C. To increase rejection of signals outside the desired band
- D. To allow selection of the optimum RF amplifier device

E4D10

What does a third-order intercept level of 40 dBm mean with respect to receiver performance?

- A. Signals less than 40 dBm will not generate audible third-order intermodulation products
- B. The receiver can tolerate signals up to 40 dB above the noise floor without producing third-order intermodulation products
- C. A pair of 40 dBm input signals will theoretically generate a third-order intermodulation product that has the same output amplitude as either of the input signals
- D. A pair of 1 mW input signals will produce a third-order intermodulation product that is 40 dB stronger than the input signal

E4D11

Why are odd-order intermodulation products, created within a receiver, of particular interest compared to other products?

- A. Odd-order products of two signals in the band of interest are also likely to be within the band
- B. Odd-order products overload the IF filters
- C. Odd-order products are an indication of poor image rejection
- D. Odd-order intermodulation produces three products for every input signal within the band of interest

E4D12

What is the term for the reduction in receiver sensitivity caused by a strong signal near the received frequency?

- A. Desensitization
- B. Quieting
- C. Cross-modulation interference
- D. Squelch gain rollback



“My POTA Rig!”

**Compliments of
Sam Powers, K8USA**

**Thank You,
Bill Szkromiuk, W4WCS**

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 February 2024 issue : Saturday, January 20, 2024

Club Website www.w2mmd.org

Club E-Mail Reflector: GCARC <at> Mailman <dot> QTH <dot> net

Printed Circuit Board Fabrication For The Hobbyist - Part 2

By Chris Prioli, AD2CS : chris@ad2cs.com : www.ad2cs.com

At this point, the board can be drilled and the remaining developed photo-resist can be removed afterwards if so desired. However, I preferred to remove the photo-resist before drilling so that I could do a thorough inspection of the board. The photo-resist can easily be removed at this point with acetone, which can then be used to give the board a thorough cleaning. After inspection, lightly center punch the drill locations and drill the requisite holes for component leads as before.

The next method that we will discuss today will be the dry toner transfer method. This method involves the same etching process) as those already described, so that part of the process will not be described again. Nor will the board preparation, as that part of the process is also the same. What is different is how we cover and protect the desired areas of copper, separating them from the waste areas which we want to be removed from the board.

Of primary importance is the fact that this method requires the use of a laser printer or photocopier that uses dry toner. This process will not work with ink-printed images such as those from an ink-jet printer. However, an image may be ink-jet printed and then photo-copied onto the proper paper, but the image may bloom some as the ink is absorbed into the paper, and there may be some scaling or size issues that crop up as a result of the print-and-photocopy process.

The difference is that with ink-jet printing, the ink is absorbed *into* the paper, while with laser printing, the print is adhered *on top of* the paper, and can be peeled off under the right circumstances. Anyone who has ever had a laser-printed sheet of paper stick to a vinyl binder and then leave its print behind will readily understand this.

Starting again with a computer image of the PCB design in its mirrored form, we want to print this design onto single-sided glossy paper having a weight of **130 GSM**. The term **GSM** refers to **grams per square meter** and is a specification of the paper's thickness by weight for a sheet of a given area of one square meter. 130 GSM glossy paper is approximately equivalent to a thickness of 110 microns, which in turn is equal to approximately 0.004", or the thickness of an 80-lb glossy text paper stock.

After we print the mirrored image on the proper paper, the toner is heat-transferred to the prepared copper-clad board. This can be done using either one of two common methods - the "iron" method or the "laminator" method. Both methods work, and both methods take some trial-and-error practice to get nailed down to a successful system.

The "iron" method involves using a standard clothes iron set at its highest temperature and *without steam* - in fact, pour any water that is in the tank out, just in case the valve doesn't quite work properly - to press the printed image onto the prepared copper side of the board. Using steady and even pressure, and keeping the iron moving so as not to char the paper, heat the print until the toner is softened and adheres to the copper. *Do not attempt* to peel the paper off the board; doing so will invariably pull the toner back off the board at least in spots. Just let the paper and the board cool for a few minutes, until the toner is fully set. We will pick up on this in a minute or so.

Meanwhile, let's talk about the "laminator" method. This method involves the use of a **roller-platen type of laminating press (Figure 11)**, through which the



Figure 11 : Personal Laminator

Printed Circuit Board Fabrication - Continued on page 38

board and the print are fed together, with the print aligned to the board with the toner towards the copper. Once the process has been perfected, a single pass may be adequate. Initially, at least, two or more passes through the laminator may be required. The variables here are the pressure, set by adjusting roller platen spacing, and temperature, adjusted via a thermostat on the laminator. These laminators typically cost about \$70 USD and up, depending upon features and size. They are available from many online sources. I generally used a laminating pouch or folder to contain the board and the print when feeding it through the laminator. This is a necessity for smaller boards, which are not well handled by the rollers directly. Again, do not attempt to peel the paper from the board, as it will most likely pull the toner off the board, at least in spots.

Another alternative is the **Press 'n' Peel** system sold by **Techniks of Ringoes, NJ**. This is a blue emulsion-coated sheet onto which the mirrored image of the PCB design is laser-printed, and then heat transferred as above. However, in this case, the blue sheet readily peels away, leaving the toner on the copper surface. Go to <https://www.techniks.com> to learn more about the PCB manufacturing supplies offered by this company.

Once the heat transfer has been accomplished, immerse the board and paper fully into some cool water, and let it soak for a few minutes. Of course, this step is not necessary with the **Press 'n' Peel** system. The paper, once fully saturated, will come right off the board, leaving the toner behind on the copper. The board is now ready for etching, as described previously. After etching is complete, the toner protectant can generally be removed from the board with a paper towel wet with some *99% isopropyl alcohol*.

One advantage of the toner transfer method is that you can put small holes in the pad masks to locate the drill centers. When the paper is soaked off the board and the board is still in the water, a *soft-bristled toothbrush* can be used to very lightly scrub the paper out of these hole locations, thus allowing the etchant to remove the copper at those points, making built-in drill centers for the eventual drilling process.

Another advantage of the toner transfer method is the ability to easily include text (**bold works best**) into the design and thus have it reproduced in copper on the board. Don't get carried away here. It is not nearly as capable as screen printing is, but it will support some basic text.

So how about the whole topic of screen printing? How can we get some semblance of that professional touch on our home-made boards? One easy method should already be evident - simply print a mirrored image of the desired text, in location on the PCB design, and heat-transfer that print to the completed board. Yes, the print will be black instead of white or yellow, and yes, it may wear off in time if the board is handled. But it *will work* at least enough to facilitate assembly of the PCB. Align the print carefully, and remove the paper from the board in the same manner as above.

Some other pointers for the amateur PCB maker...

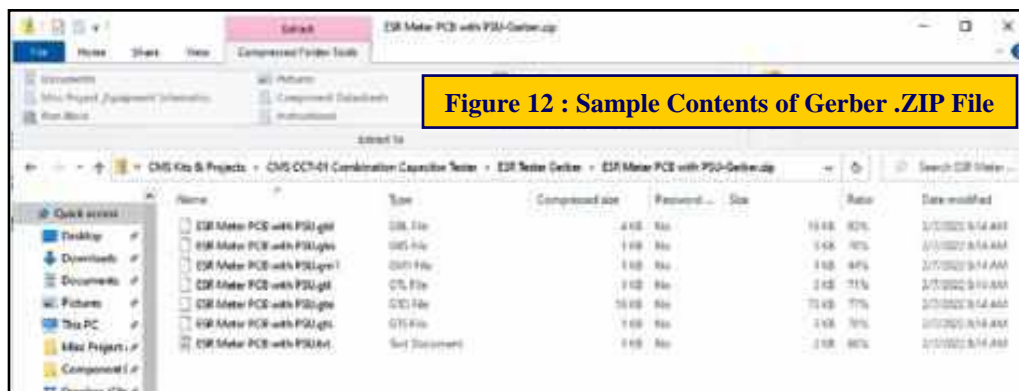
1. When making the final drawing from which your resist mask for the toner transfer method will be printed, be sure to include corner markers at the proper locations. These are used to align the pre-cut and sized board exactly to the drawing
2. When two-sided boards are being made, there are some other considerations to bear in mind
 - a. The foil side of the board must be printed as a mirror image, but the component side print is printed without mirroring
 - b. A duplicated stack of glass and print must be placed under the board when using the photo-resist method, and then both sides must be exposed while maintaining proper alignment
 - c. When using the toner transfer method, again a stack of two prints and the double-sided board but be heat pressed, one print per side. Depending upon the heating method used, this can be done one sheet at a time (iron method) or all at once (laminator method)

3. When voids show up in your traces because of aggressive etching or etchant leakage under the mask, repair any such weak traces by laying fine wire over the trace and soldering it in place, using rosin-core solder
4. Small defects in a trace or pad can generally be repaired simply by tinning the area with some rosin-core solder and allowing the solder to bridge the gap
5. Practice! Practice! Practice!

OK... so much for rolling your own. How about having boards made professionally? It couldn't really be any easier than it is. While there are several PCB houses out there (**PCB house** is just another way of saying "**PCB manufacturer**"), there is really only one that I even consider using anymore. I have tried several different companies over the years, but nobody beats the speed, the cost, or the quality of the work done by **JLCPCB** (www.jlcpcb.com).

I am getting just a little bit ahead of myself here. Let's start at the beginning. In order to get PCB's made professionally, you will need to have a set of **Gerber files** for each different board ordered.

A Gerber file set is a group or related files (**Figure 12**), traditionally assembled into a single **.ZIP file**, that describe the board being ordered. The group is a set of files, most of which are numerically-coded text files, that lay out the specifics of the board in every way, shape, and form. There will be files for each layer of the board, including the copper layer, the solder mask layer, the silk screen layer, and so forth for each side of the board as well as any intermediary levels on multi-layer boards. Finally, there will be a drill file that specifies the location and size of each and every hole to be placed in the board. The filenames of each of these files within the **.ZIP file** is pre-determined by the Gerber file standard, and those standard filenames are understood by the board maker.



Many - but not all - of the PCB design software packages out there will directly produce the Gerber file set as an output of the software. While the package that I use, **ExpressPCB**, does not output the Gerber file set, there is a company out there on the web who will take the **.PCB file** from the version of ExpressPCB that I use and convert it to a Gerber file set for a minimal fee. In addition, if you were to order your boards from ExpressPCB, they will provide you with the Gerber file set as a part of the purchase price of the boards ordered.

It should be said that ExpressPCB is available in two versions, the so-called "Classic" version and the newer **ExpressPCB Plus**. The Classic version tops out at version 7.9 and has been "sunsetting" with support ending in 2024, though board ordering and production will be available as long as permitted by Microsoft. That's right... I said Microsoft. It has something to do with Windows support and security conditions. ExpressPCB, which is actually more capable, is up to version 3.2. Unfortunately, even that version does not output the Gerber file set, and my online source cannot yet convert the ExpressPCB Plus design files. As a result, I am sticking with the Classic version at least for whatever time I can still get files converted.

I am also experimenting with a Perl script that will convert a series of selective .PDF prints of the board design into the standard set of Gerber files. It is claimed that this method works for both the Classic ExpressPCB designs and the newer ExpressPCB Plus designs, which makes perfect sense as the script is converting .PDF files, *not the actual design files*. The trick is in getting the correct aspects of the design printed successfully into the .PDF files that the script will read. Of course, a Perl environment will also be required in which to run the script. I use **Strawberry Perl** for Windows right now, though I am only beginning my experimentation with this process. I may write another short article about the process once I have it working satisfactorily.

I believe that the ExpressPCB board cost is way out of line compared to the prices that I pay, and have paid, elsewhere. A 2" x 3" 2-sided PCB set ordered from JLCPCB starts at just \$2 USD plus shipping (about \$18 USD for DHL Express) as compared to about \$71 USD plus shipping for the same board set ordered from ExpressPCB, with another difference. The \$2 JLCPCB price is for five (5) copies of a board, while the \$71 ExpressPCB price is for only three (3) copies of the same board. Most hobbyists cannot afford to pay the ExpressPCB prices for their boards, especially since in most cases, only one copy of the board is actually needed.

The **Classic ExpressPCB v7.9 .PCB** files that I get converted to Gerber file sets are converted by a company by the name of Stewart Instruments for an \$11 (USD) fee for a double-sided board. Go to their web page (<http://stewartinstrumentsinc.com>) set up for this purpose and complete the form found there. Then simply follow the instructions on the form to submit your .PCB file for conversion. Shortly thereafter, usually within thirty minutes, you will receive an email with the Gerber file set attached.

To order the PCB's from JLCPCB, navigate to their website (www.jlcpb.com) and sign in as a user. I sign in with my Google account, which works well. Then, upload the Gerber file set as a .ZIP or .RAR file, fill out the order form on the landing page, and save it to your cart. When you have ordered all of the boards that you want in that order, go to your cart and check out, paying for the job. It usually takes three days for the boards to be completed, and then up to another possible week for the package to arrive via DHL Express, depending upon Customs activity. The boards are shipped in a carton, shrink-sealed in heavy plastic with a silica gel packet inside to protect the boards from moisture.

I have never had any problems at all with this system, and I have ordered a total of forty-two different board designs through them to date, plus some re-orders of certain boards, bringing the total order count closer to fifty orders, all trouble free. The most I have ever paid for a board order there is \$11.80 plus shipping, for some fairly large boards. Price is determined by the size and type of the board, not by its complexity. They are a great company with which to do business. An example of their board quality is shown in **Figure 13**.

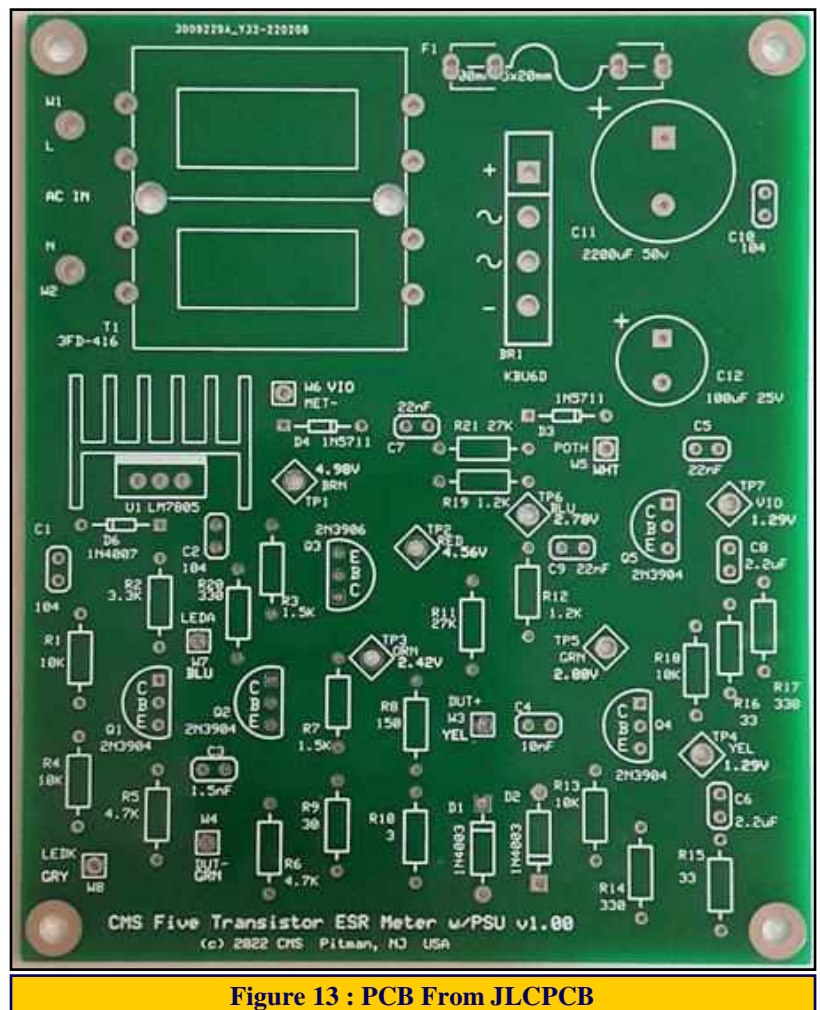


Figure 13 : PCB From JLCPCB

This board was designed by me in ExpressPCB and produced by JLCPCB.

So, what is the bottom line here? The bottom line is that no matter how you choose to produce your printed circuit boards, do not be afraid to try. It is extremely rewarding when you have a professional-looking PCB at the heart of your project. It goes a long way to lending credence to your status as a serious electronics hobbyist or technician rather than just being a dabbler. Sure, there will be some mis-steps along the way.

For example, I once, early on in my design days of having boards made outside, designed a board of which I was especially proud, as it was the first time that I used a ground plane and thermals for ground connections to that plane. I took great care to ensure that no ground points were isolated in islands, even adding vias and top-side traces to join segments of the ground plane as necessary. Thus, I was understandably upset when I assembled the project and found that my five-volt supply did not work, because the +5V voltage regulator did not work. I finally tracked the problem down to a minor but important problem with my board design, in that I had forgotten to connect the ground pin of the LM7805 +5V voltage regulator to the ground plane. In production, the problem was solved by laying a jumper wire from that pin pad on the board to a grounded point and soldering it in place. The point here is that you *will* make mistakes. Do not let them discourage you.

Check your schematics carefully before going into board design. I never go from schematic design directly to board design. Instead, I wait at least overnight for the circuit design to percolate in my brain, going over each aspect of the design for correctness before committing it to a PCB. I do the same thing with my PCB designs. I never rush them to production now. Instead, I again wait at least overnight, allowing the PCB design to penetrate my brain, checking it for errors before committing it to production. Even then, errors will happen, even when there is nothing wrong!

I recently built a power supply having both positive and negative 12VDC outputs. The circuit design went well, as did the PCB design. By the time that the PCB's came in, I had already completed the entire remainder of the power supply assembly. All that was left to do was to stuff the PCB, solder everything in place, and install it into the enclosure. I did all that quite happily, and then powered the supply up for the first time. As it turned out, the -12VDC output was right on target, but the +12VDC output was not. I started investigating the problem, and it did not take me too long to notice that I had installed the +12-volt voltage regulator backwards, despite the clear markings on the PCB. A simple fix - desolder the v/reg, reverse it, and reinstall it. Problem solved. Again, my point is that even the best technicians will occasionally make mistakes, and I am not in any way among the best technicians out there. Therefore, I should make more than the occasional mistake. This was one of them.

Colorado QSO Party 2023
September 2, 2023

Call : WB2PJH
Operator (s) : WB2PJH
Station : WB2PJH

Class : SOCW LP
QTH :
Operating Time (hrs) : 2
Location : Out of State/Province

Summary :

Band	CW Qs	PH Qs	Dig Qs
------	-------	-------	--------

20 :	7		
------	---	--	--

Total :	7	0	0	CW Mults : 6
---------	---	---	---	--------------

Total Score :	84
---------------	----

Club : Frankford Radio Club

48

Club Membership Stats - 2023 Year In Review

We now have 212 members.

136 members used PayPal to renew or join.

We had 50 members join the Club in 2023

A Big THANK YOU to the new and returning members of the class of 2023!

We have 182 Full, 9 Family, 4 Associate, 1 Honorary, and 16 Life Members.

137 of our flock are ARRL members, 19 of which are ARRL Life Members.

38 members have DMR IDs.

We have 32 Technician Class, 70 General Class, 11 Advanced Class, and 93 Amateur Extra Class licensees in our Club.

The average age of our membership is 57 years old. Our youngest is 21 and our oldest 95.

Location Stats :

- The grid square with the most members is tied with 11 from FM29kr and 11 from FM29kt.
- Sewell leads the way as the home of 23 members, Vineland has 9, Bridgeton has 8, Williamstown, Mullica Hill, and Mantua each have 6, and Elmer, Swedesboro, Pittsgrove, West Deptford Township, and Woodbury, each have 5 members.
- 30 members live out of state :
 - 10 in Pennsylvania
 - 6 in Florida
 - 5 in Delaware
 - 2 in South Carolina
 - 1 each in Washington DC, Georgia, Maryland, New Hampshire, New York, Ohio, and Texas.

Alabama QSO Party 2023
September 9, 2023

Call : WB2PJH
Operator (s) : WB2PJH
Station : WB2PJH

Class : SOCW LP
QTH :
Operating Time (hrs) : 2
Location : Out of State/Province

Summary :

Band CW Qs PH Qs

40 : 4

Total : 4 0 CW Mults : 4 PH Mults : 0
Total Score : 32

Club : Frankford Radio Club

49

Gloucester County Amateur Radio Club

General Membership Meeting Minutes

Wednesday, December 6, 2023



President Jonathan Pearce WB2MNF opened the General Membership Meeting @ 1930 Hours with the Pledge of Allegiance to the Flag.

ATTENDANCE :

- **30 In Person**
- **20 Zoom**

VISITORS : John Murrow, KD2NHK of Somerdale

NEW MEMBERS IN ATTENDANCE : Todd Foster W2TEF (formerly KE2CAH) from Glassboro, NJ.

ANNOUNCEMENTS :

Jonathan Pearce WB2MNF noted that Club members have been receiving spam messages that purport to originate from him but did not. So ignore and delete these messages. **Greg Ciraula W5DO** and Jonathan made 11 QSOs from the W2MMD Clubhouse station during the recent Leonid Meteor Shower (the Geminid shower will occur December 13 - 16). The "Got My License - Now What?" session on November 27 at the Clubhouse was well attended. Thanks to presenters **Tony Starr K3TS**, **Ron Block NR2B**, **Mike Thompson KG4JYA**, **John Zaruba Jr K2ZA** and **Jonathan Pearce WB2MNF**. The November 29 Holiday Party/Fundraiser at the Pfeiffer Community Center was a great success and was attended by 55 persons. Thanks go to the volunteers who made it possible, particularly **Phyllis Martin W2PDB**, **Kathy Romeo (XYL of Frank Romeo N3PUU)** and **Mary Jane Block (XYL of Ron Block NR2B)**.

Upcoming events are :

- December 9 : Tech Saturday Forum, beginning 9 AM at the Clubhouse, will concern "Raspberry Pi - From Zero to Hamclock" and other things that can be done with a Raspberry Pi
- December 9 -10 : ARRL 10 Meter Contest
- December 13 - 16 : Geminid Meteor Shower
- December 20 : GCARC Board of Directors Meeting at the Clubhouse, 7 PM
- December 27 : Dinner at the Clubhouse

There is no increase in annual Club dues for 2024. Dues remain at \$30/year but this just keeps the Club afloat. Members are asked to consider voluntary contributions when renewing membership. An extra \$10 will help the Club survive a year in which the annual Hamfest does not raise much money and an extra \$20 can help with the purchase of new equipment. Similarly, we can make donations to the RCA Museum in appreciation of the recent tours. These donations can be received by **Anthony Cerami N2OAC** or **John O'Connell K2QA**.

Jonathan Pearce WB2MNF asked Club members about their recent activities :

- **Alan Arrison KB2AYU** struggled with high noise levels to make one contact with the Czech Republic during the recent EME contest.
- **Karl Frank W2KBF** cautioned the membership that slingshots are illegal in New Jersey, so we must consider this when looking for ways to hang wire antennas.
- **John Zaruba Jr K2ZA** recommends the course offered by the CW Innovations group for increasing code speed up to 30 to 40 WPM.

December 2023 General Membership Meeting Minutes - Continued on page 44

Jonathan Pearce WB2MNF reviewed the GCARC accomplishments in 2023, including :

- Licensing Classes, with 12 new licensees and 22 upgrades
- A new 160 Meter Loop Antenna
- Two New HF Towers
- DMR and Fusion Hotspots
- New VHF Gear from the ARDC Grant
- Overhaul of the Project Work Area to become a Maker Space
- Rebuilding of the VHF Room and installation of a Mini-Split Air Conditioner
- Meteor Scatter Contacts
- Upgrade of Winlink and EchoLink stations
- A profitable Hamfest, despite bad weather
- RCA Museum Tours
- Digging of trenches and installation of station grounds

One sad note was the passing of long-time Club member Chuck Colabrese WA2TML.

Volunteer Appreciation Awards :

The GCARC Board of Directors has decided to issue Certificates of Appreciation to members who have made significant efforts to improve the Club over the past 1 - 2 years. These awards will be made quarterly (Club Officers and Directors are not eligible). The first five certificates (prepared by **Chris Prioli AD2CS**) were presented at the November 29 Holiday Party to :

- **Anthony Cerami N2OAC** for work on the Club generator, tower lift mechanism and arranging tours of the RCA museum
- **Gary Mirkin WA3SVW** for his role in hosting the DigiNet and Thursday Night Ragchew Net
- **John Zaruba Jr K2ZA** for his support of the Yaesu Repeaters and Licensing Classes
- **Carl Wittig N2CRW** for providing drawings of electrical, plumbing etc. work done/planned at the Clubhouse
- **Kathy Romeo (XYL of Frank Romeo N3PUU)** for providing food at Field Day and the Holiday Party

Additional Certificates are being awarded to :

- **John Hill W2HUV** for providing training of Club members and support for the Remote Station
- **Chris Kelly KC2PC** for performing critical welding work on the new HF towers
- **Earl Moore KC2NCH** for hours spent performing Clubhouse upkeep, installations, lawn mowing, etc.
- **Mike Thompson KG2JYA** for reconfiguring the Winlink Station, GOES station and frequent presentations at meetings and Club events

BUSINESS MEETING

The minutes of the November 1st General Membership Meeting, as published in Crosstalk, were approved.

TREASURER : John O'Connell K2QA reported YTD Budgeted items :

- **Income : \$12,152**
- **Expenses : \$10,547**
- **Net Gain : \$1,604**

Use of \$7,784 is restricted leaving \$16,393 unrestricted. Between profit from the Holiday Party and donations from fifteen people, for a total of \$3,200, we are almost half way to the \$7,000 needed for the VHF Tower Fund. The Treasurer's Report was approved.

GLOUCESTER COUNTY AMATEUR RADIO FOUNDATION :

The GCARF is a 501(c)3 public charity and contributions are tax-deductible. **John O'Connell K2QA** reports that, so far, the GCARF has paid for the air conditioner in the VHF room and supplies for the soldering class.

CLUBHOUSE REPORT : **Alan Arrison KB2AYU** reported that the satellite antennas are back up, with new rotators, so they are "good to go". **Jonathan Pearce WB2MNF** noted that tower bolts have arrived for the VHF towers, some work remains to be done on the tower bases and more donations are needed to fund the VHF towers.

FUTURE PROGRAMS : **Ron Block NR2B** provided a slide summarizing topics for the upcoming General Membership Meetings :

- **Tonight : Sheldon Parker K2MEN on Radio Controlled Model Aircraft**
- **January 3 : Open at the moment**
- **February 7 : Edward Efczak WX2R on the 2024 Solar Eclipse QSO Party**
- **March 6 : Ron Fish KX1W on everything you always wanted to know about ARRL Affiliation**
- **July 3 : Pizza Night**
- **August 7 : Robert Nelson Jr K2QPN on the NJ QSO Party**

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

- **December 9 - 10: ARRL 10 Meter Contest**
- **December 16 - 17: Croatian DX Contest**
- **December 23 - 24: Many Special Event Stations over Christmas Weekend**
- **December 30 - 31: Stew Perry Top Band DX Challenge**

PUBLIC SERVICE : **Bob Keogh KD2NEC** addressed the importance of understanding the expectations of our "served agencies", e.g. the American Red Cross. We must be prepared to support Disaster Relief Operations by taking appropriate training, participate in exercises and check into nets. It is necessary for us to become familiar with use of Winlink and the form templates available in Winlink. Also, Bob would like to know if GCARC members would be interested in a tour of the Battleship New Jersey some time in the future.

EDUCATION COMMITTEE :

Chris Prioli AD2CS has not had many people sign up for the next round of licensing classes that begin January 8 (Mondays) for Technicians, January 9 (Tuesdays) for Generals and January 12 (Fridays) for Extras. Sessions are planned in mid-January for building Fox Hunt Offset Attenuators and Tape Measure Beams.

CONSTITUTION COMMITTEE : **Ron Block NR2B** provided the second reading of the new draft of the GCARC Constitution, which had been circulated previously to the membership. The new constitution was adopted by a unanimous vote.

ANNUAL ELECTION :

An Election Committee was formed, consisting of **Greg Ciraula W5DO**, **Marylu Ciraula KE2CEF** and **Gary Hewitt N2WHV**. Since all candidates were running unopposed, the Election Committee instructed the **Recording Secretary Karl Frank W2KBF** to cast a single vote for each of the candidates. The official outcome, taking effect on January 1, 2024, is :

- **President : Jonathan Pearce WB2MNF**
- **Vice President : Ron Block NR2B**
- **Treasurer : John O'Connell K2QA**
- **Recording Secretary : John Zaruba Jr K2ZA**
- **Corresponding Secretary : Frank Romeo N3PUU**
- **Director : Alan Arrison KB2AYU**
- **Director : Bill Price NJ2S**
- **Trustee : Carl Wittig N2CRW**
- **Trustee : Sheldon Parker K2MEN**
- **Trustee : Leonard Rust W2LJR**

OLD BUSINESS : None

NEW BUSINESS : None

CLOSING REMARKS :

President Jonathan Pearce WB2MNF noted that the Club does NOT have a Capital Budget but relies upon generous donations. This was illustrated by summarizing the many things that were NOT paid from Club Dues :

- **VHF Room cabling, fixtures, insulation, and wallboard**
- **Air conditioning for the VHF Room**
- **Upgrade to the Winlink Station including antenna, diplexer, radios, and computer**
- **Upgraded computer for EchoLink**
- **A new modem, switches, cabinets, and Network Attached Storage**
- **TV for main room**
- **Long-term loan of towers**
- **Satellite rotators and antennas**
- **FLEX 3000 radio**
- **Computers in all 3 rooms plus UPS and screens**
- **Satellite Station (many items)**
- **DMR and System Fusion hotspots**
- **160 Meter loop antenna**
- **Test Bench Equipment and Supplies**
- **All grounding copper and lightning protectors**
- **VHF antenna repairs**

In summary, donations are needed in order for the Club to keep doing "new stuff".

The Business Meeting concluded @ 2047 Hours and was followed by a presentation from **Sheldon Parker K2MEN** on Radio-Controlled Model Aircraft.

Karl Frank W2KBF,
GCARC Recording Secretary

Gloucester County Amateur Radio Club

Board of Directors Meeting Minutes

Wednesday December 20, 2023



Meeting opened @ 1901 Hours by President Jonathan Pearce WB2MNF

ATTENDANCE :

- **President Jonathan Pearce WB2MNF**
- **Vice President Ron Block NR2B**
- **Treasurer John O'Connell K2QA**
- **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 Alan Arrison KB2AYU**
- **Member Bruce Canino KD2LBU**
- **Member Len Rust W2LJR**
- **Member Vinnie Sallustio N4NYY**

The minutes of the November BoD Meeting were approved.

NEW MEMBER APPLICATIONS : The following three applications were approved :

- **Ronald Jackson KE2CJB, new General Class from Palmyra, NJ**
- **Calvin Keller N2YMS, Amateur Extra Class from Mantua, NJ**
- **John Murrow KD2NHK, Technician Class from Somerdale, NJ**

TREASURER : John O'Connell K2QA reported YTD totals :

- **Income : \$12,301**
- **Expenses : \$12,008**
- **Net gain : \$293**

Total in all accounts with \$7,705 restricted (i.e. committed), leaving \$15,156 unrestricted. Total unrestricted funds at year end is projected to be \$14,739. The Treasurer's report was accepted.

CLUBHOUSE : Alan Arrison KB2AYU reports that the Clubhouse is in good shape.

THE TOWER PROJECT : Frank Romeo N3PUU noted that it is time for the ground to be marked for the VHF tower foundations and that some work remains to be done on the tower bases. Utility poles will be installed for lighting, antenna supports, etc. Approximately \$3,900 has been raised for this project from donations and the recent Holiday Party. An additional \$4,000 will be needed to complete the project.

REPEATERS : Frank Romeo N3PUU said that John Zaruba Jr K2ZA plans to service the repeaters sometime between Christmas and New Year's Day. The AMS (Automatic Mode Selection) is not working and we expect that a software update will fix the problem.

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

TECHNICAL COMMITTEE : Jonathan Pearce WB2MNF reported that the "Got My License - Now What?" session went well and that attendees expressed an interest in building things, particularly antennas.

PROGRAMS : Ron Block NR2B has speakers lined up for the next few meetings.

EDUCATION COMMITTEE : Chris Prioli AD2CS reported that twelve persons have signed up for the Fox-hunt antenna-making sessions and that up to fifteen can be accommodated. These sessions will run over four consecutive Mondays, beginning January 15. **Jim Wright N2GXJ** said the next Foxhunt probably will be scheduled in March in order to allow the new antennas to be built and tested.

CLUB NETS : Jim Clark KA2OSV reported that the 10 Meter Nets have been "very quiet". For the Tuesday and Thursday Net check-ins, **Jeff Garth WB2ZBN** reports an average of 10 in October, 10 in November and 11 in December.

CONSTITUTION COMMITTEE : Ron Block NR2B will be distributing the newly approved constitution to club members. Then work will begin to update the By-Laws.

OLD BUSINESS : None

NEW BUSINESS : The date of **Sunday, September 8, 2024** was selected for our **2024 Hamfest**. **John O'Connell K2QA** will notify the 4H and pay the reservation fee. At the suggestion of **Jim Clark KA2OSV** we decided to keep prices the same as in 2023, i.e. \$10 admission plus \$10 for tailgaters or \$15 for pavilion spaces. Hamfest chairman **Sheldon Parker K2MEN** will be notified to contact the ARRL to update their hamfest calendar.

A Budget Committee will be formed in order to prepare the 2024 budget. It will consist of the GCARC President, Treasurer and three non-BoD members (**Len Rust W2LJR**, **Sheldon Parker K2MEN** and a third person TBD). It will meet during the first week of January in order to have a budget ready for presentation at the February General Membership Meeting.

Jonathan Pearce WB2MNF noted that a GCARF Zoom meeting must be held before year-end.

MISCELLANEOUS :

John O'Connell K2QA lead a discussion regarding the need to increase insurance coverage on our equipment and noted that the club general liability policy does not protect the Officers and Directors. We may seek advice from **ARRL Atlantic Division Director Robert Famiglio K3RF** regarding this issue.

The BoD meeting was closed @ 2019 Hours.

Karl Frank W2KBF,
GCARC Recording Secretary

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

WAE DX Contest, CW
August 12, 2023

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

Class : Single Op HP
QTH : SNJ
Operating Time (hrs) : 13
Location : USA

Summary :

Band	QSOs	QTCs	Mults
------	------	------	-------

80 :	1	0	4
40 :	32	29	48
20 :	285	291	80
15 :	282	281	74
10 :	3	0	4

Total : 620 584 210
Total Score : 252,840

Club : Frankford Radio Club 35

Comments :

Rig : Elecraft K4D/KPA-1500
N1MM+ Logger
Antennas :
80m dipole @ 95ft
40m dipole @ 85ft
20m/15m/10m C3S Force 12 Tribander @ 52ft

Great contest. Condx were generally very good the times I was on (13 hours scattered through the weekend). Low bands dead Fri night, 40 marginal on Sat, but made some good mults. This is my best score for this contest.
73 and thanks for the QSOs,
Darrell AB2E

Contest : WAECW

Band	Q/QTC	QSOs	Pts	Mlt	Pt/Q
3.5	QSO	1	1	4	1.0
7	QSO	32	32	48	1.0
7	SQTC	29	29	0	1.0
14	QSO	285	285	80	1.0
14	SQTC	291	291	0	1.0
21	QSO	282	282	74	1.0
21	SQTC	281	281	0	1.0
28	QSO	3	3	4	1.0
Total	All	1204	1204	210	1.0

Score : 252,840
1 Mult = 5.7 Q's

North American QSO Party, SSB
August 20, 2023

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

Class : Single Op Assisted LP
QTH : SNJ
Operating Time (hrs) : 4
Location : USA

Summary :

Band	QSOs	Mults
------	------	-------

160 :	7	5
80 :	90	33
40 :	37	29
20 :	38	23
15 :	8	7

Total : 180 97
Total Score : 17,460

Club : Frankford Radio Club 38

Team : FRC Team Compressor

Comments :

Elecraft K3 - 100W
Antennas :
160m inverted L
80m dipole @ 95ft
40m dipole @ 90ft
10m/15m/20m C3S Force 12 tribander @ 52ft on AB-577 military mast

Thanks to all for the QSOs. 10m dead, 15 not much better when I was able to start around 1900Z. Even 20 seemed down. Some family things up and did not get back in until around 0200Z. Had a great run on 80 since I was basically a new station. S&P on 40 yielded good results, but could not get a good run going from CQing.

See you next weekend in the WWDIGI test!

73 Darrell AB2E

Contest : NAQPSSB

Band	QSOs	Pts	Sec	Mt2	Pt/Q
1.8	7	7	5	0	1.0
3.5	90	90	31	2	1.0
7	37	37	26	3	1.0
14	38	38	20	3	1.0
21	8	8	3	4	1.0
Total	180	180	85	12	1.0

Score : 17,460
1 Mult = 1.9 Q's

North American QSO Party, SSB
August 20, 2023

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

Class : Single Op Assisted LP
QTH : SNJ
Operating Time (hrs) : 3:00
Location : USA

Summary :

Band	QSOs	Mults
------	------	-------

40 :	32	31
20 :	177	39

Total : 209 70
Total Score : 14,630

Club : Frankford Radio Club 39

Team : FRC Team Synthesizer

Comments :

A very limited part-time effort, as I just had too much to do, and the weather was just too nice to spend the day indoors. Still, a fast paced and fun contest, as always. Thanks to all who called in and kept things lively, if only for a few hours. See you next time, and 73.

de K3TS

World Wide Digi DX Contest
August 26, 2023

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

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

Summary :

Band	QSOs	Mults
------	------	-------

160 :	3	3
80 :	19	10
40 :	113	26
20 :	93	33
15 :	97	41

Total : 325 113
Total Score : 80,004

Club : Frankford Radio Club 41

Comments :

Rig : FTDX-9000D/OM Power 2000A+

Antennas :

160m Inverted L over 100ft tree

80m Dipole @ 95ft

40m Dipole @ 90ft

20m/15m/10m C3S F12 Tribander @ 52ft

16 Hours op time

Still learning the ins/outs of digital contesting. Most QSOs made on FT4, where it seemed most of those actually in the contest were operating. Highlight was working VP8YLJ in the Falklands. Good activity from AS and OC. N1MM+/WSJT-X loggers. SO1V

Nice

My score increased 400% over last year's score.

73 Darrell AB2E

Contest : WWDIGI

Band	Mode	QSOs	Pts	Mlt	Pt/Q
1.8	FT8	3	3	3	1.0
3.5	FT4	6	6	2	1.0
3.5	FT8	13	26	8	2.0
7	FT4	95	194	20	2.0
7	FT8	18	27	6	1.5
14	FT4	93	216	33	2.3
21	FT4	85	205	35	2.4
21	FT8	12	31	6	2.6
Total	Both	325	708	113	2.2

Score : 80,004

1 Mult = 2.9 Q's

North American QSO Party, SSB
August 20, 2023

Call : WB2PJH
Operator (s) : WB2PJH
Station : WB2PJH

Class : Single Op LP
QTH :
Operating Time (hrs) : 1.5
Location : USA

Summary :

Band	QSOs	Mults
------	------	-------

80 :	14	10
40 :	31	20
20 :	3	2

Total : 48 32
Total Score : 1,536

Club : Frankford Radio Club 40

<div>Hawaii QSO Party August 26, 2023</div> <div>Call : WB2PJH Operator (s) : WB2PJH Station : WB2PJH</div> <div>Class : SOAB LP QTH : Operating Time (hrs) : 3 Location : Out of State/Province</div> <div>Summary :<table><tr><th>Band</th><th>CW Qs</th><th>Ph Qs</th><th>Dig Qs</th><th>Mults</th></tr><tr><td colspan="5"><div>20 : 1</div><div>15 : 3</div><div>10 : 3</div></td></tr></table></div> <tr><td colspan="5"><div>Total : 7005</div><div>Total Score : 105</div></td></tr>	Band	CW Qs	Ph Qs	Dig Qs	Mults	<div>20 : 1</div> <div>15 : 3</div> <div>10 : 3</div>					<div>Total : 7005</div> <div>Total Score : 105</div>				
Band	CW Qs	Ph Qs	Dig Qs	Mults											
<div>20 : 1</div> <div>15 : 3</div> <div>10 : 3</div>															
<div>Total : 7005</div> <div>Total Score : 105</div>															

Club : Frankford Radio Club42

 CWops CW Open 2023 0000Z-0359Z September 3, 2023 Call : WB2PJH Operator (s) : WB2PJH Station : WB2PJH Class : Single Op LP QTH : Operating Time (hrs) : 2 Location : USA Summary : | Band | QSOs | Mults | |---|------|-------| | <div>40 : 3231</div> <div>20 : 66</div> | | | | Total : 3837 Total Score : 1,406 Club : Frankford Radio Club45 | | | | Kansas QSO Party August 26, 2023 Call : WB2PJH Operator (s) : WB2PJH Station : WB2PJH Class : Single Op LP QTH : Operating Time (hrs) : 8 Location : Out of State/Province Summary : | Band | CW Qs | Ph Qs | Dig Qs | Mults | |---|-------|-------|--------|-------| | <div>40 : 15</div> <div>20 : 36</div> <div>15 : 4</div> | | | | | | Total : 55031 Total Score : 5,215 Club : Frankford Radio Club43 | | | | | CWops CW Open 2023 1200Z-1559Z September 3, 2023 Call : WB2PJH Operator (s) : WB2PJH Station : WB2PJH Class : Single Op LP QTH : Operating Time (hrs) : 3 Location : USA Summary : | Band | QSOs | Mults | |--|------|-------| | <div>40 : 1010</div> <div>20 : 4847</div> <div>15 : 32</div> | | | | Total : 6159 Total Score : 3,599 Club : Frankford Radio Club46 | | | | CWops CW Open 2023 2000Z-2359Z September 3, 2023 Call : WB2PJH Operator (s) : WB2PJH Station : WB2PJH Class : Single Op LP QTH : Operating Time (hrs) : 3 Location : USA | Summary : | Band | QSOs | Mults | |---|------|-------| | <div>40 : 3835</div> <div>20 : 3434</div> | | | | Total : 7269 Total Score : 4,968 Club : Frankford Radio Club47 | | | | | | |

W2MMD Clubhouse Test & Repair Bench Equipment and Supplies



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

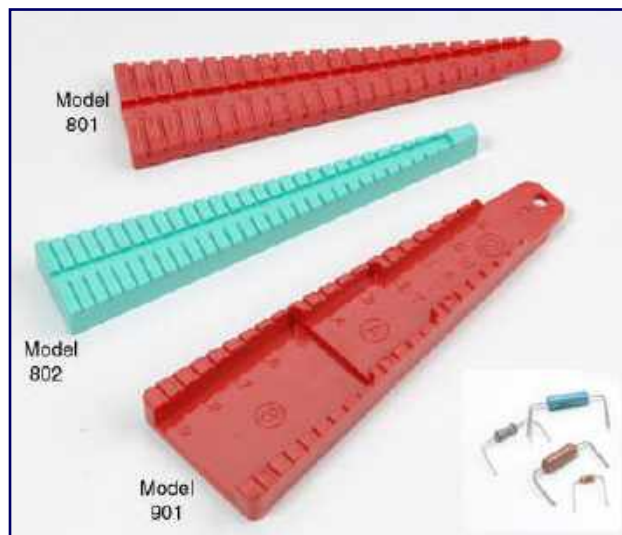
- | | |
|--|--|
| <ul style="list-style-type: none">• YiHua 948 11-in-1 Solder Station• Universal Screwdriver Set• PanaVise PCB vise with full tilt and rotate on parts bin base• 500 Watt Dummy Load• 100 Watt Dummy Load• Heathkit HD-1234 6-position Coax Switch with RG-213 jumpers• Hook-up Wire :<ul style="list-style-type: none">♦ 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 | <ul style="list-style-type: none">• 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 |
|--|--|

Electronic Tool Tip #3 - Lead Bending Jigs

By Chris Prioli, AD2CS

Doing even the little things neatly and precisely is the hallmark of a craftsman, in any field or discipline. That extends to a simple thing like bending the leads of electronic components to fit properly into printed circuit board (PCB) locations designated for those components.

It is not unusual for hobbyists or even professional electronics technicians to bend component leads freehand. Another option is to grab a pair of needle-nose pliers and use them to bend the component leads. While both of these methods work, and while both of these methods are widely used, I prefer to size and form the leads properly for the PCB hole spacing in use. To that end, I have long used devices similar to those illustrated above. In fact, some of the jigs in my assortment are the same ones as those depicted in the illustration. Others? Well, I have had some of them for so long that I have completely forgotten when, where, or from whom I purchased them.



I have a total of six bending jigs in my assortment, each of them sized differently either for the component body sizes that they will handle, or for the spacing distances offered, with those distances being either metric or English dimensions. These things are handy! Can the job be done without using these jigs? Sure... but it is not as good a job as when the jigs are used. Components bent with the jig just fit! In addition, the contours of the jigs cause the bend radius of each component lead bent in the jig to be precise and in line with the standard bend radius limits typically defined by the component manufacturers. Further, there is no risk of nicking or damaging the component leads as is possible when using pliers to bend the leads.

The set shown above is available at \$12.50 (USD) as a set, or individually at \$4.80 each. They can be ordered directly from the manufacturer, **Production Devices** via their website, where they also offer telephone ordering of their products. The tools are USA made and the company is located in El Cajon, California.

Go to <http://productiondevices.com/leadformingtools.html> to investigate this tool for yourself.

Greetings All!

By Glenn Dougherty, N2YIO

By the time you see this, the **2024 Live Casino Philadelphia Mummers Parade** may be history and I hope the band will have finished better than our 15th place.

The Band has been working very hard on our theme for this year. As of today December 14, 2023, we have five more rehearsals till the parade. If anyone is interested you can watch the parade three ways :

- New Years Day from 9AM to 5PM on the MeTV2
- On WFMZ.com
- On The WFMZ+ app.

The band will be marching 11th and are scheduled to be on TV at 3:10PM.

Well that is it! I hope all the GCARC Members have a great Happy New Year!



CHERRY VALLEY MODEL RAILROAD CLUB

Fall Open House!

Grace Church • 7 East Maple Ave.
Merchantville, NJ 08109

Open 12 - 3 pm on January 6, 7, 13, 14, 2024

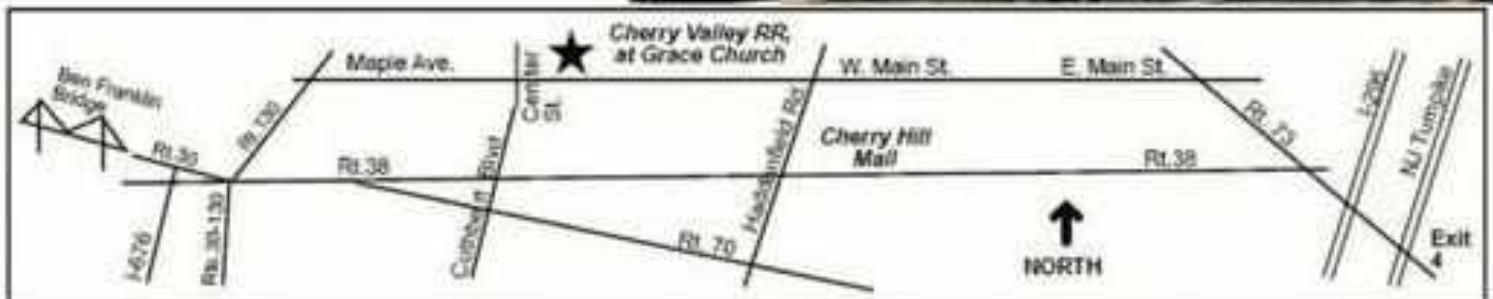
Free admission! Bring the Family.

For information, please contact: John Dunn Sr.
609-432-2871 • jdunn8888@comcast.net



Follow us on Facebook:

**Cherry Valley
Model Railroad**
for photos, videos,
events & news!



To Be Added To The DX HONOR ROLL,
Please contact Ernest Kraus, KD2EAV
meanddelcanotc@verizon.net



New Jersey QSO Party
September 16, 2023

Call : WB2GUK
Operator (s) : WB2GUK
Station : WB2GUK

All CW - WB2GUK

Summary :

Band	QSOs	Pts	Mult	Pt/Q
7	111	222	24	2.0
14	55	110	23	2.0
21	2	4	1	2.0

Total : 168 336 48 2.0
Total Score : 32,256
1 Mult = 3.5 Q's

Club : Gloucester County Amateur Radio Club 52

Name/Callsign	DXCC
Bill Grim, W0MHK	352
Edward De Fonzo, W2DE	339
Darrell Neron, AB2E	332
John Hill, W2HUV	270
Vinnie Sallustio, N4NYY	253
Ken Denson, WB2P	248
Jim Wright, N2GXJ	232
Tony Starr, K3TS	226
Sheldon Parker, K2MEN	218
Dennis Sandole, K2SE	204
Matt Wilson, K2MFW	201
Howard Marder, WA2IBZ	148
Eric Morris, N2BRJ	137
Phil Nunzio, WA3RGY	134
Rich Subers, W2RHS	124
Marc Federici, WM2Y	116
Steve Farney, W2SEF	111
Bart Kleczynski, AC2PT	106
Chuck Capasso, WB2PGE	103
Harry Strahlendorf Jr, W3DNQ	87
Jim Clark, KA2OSV	71
Lee Marino, N2LAM	62
Updated As Of 12/20/2023	

*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!)



January Birthdays

*Congratulations To Our Members Who Are
Celebrating A Birthday This Month*

James Alston, AC2BY
Al Arrison, KB2AYU (President 1998, 2010, 2011)
Beth Barnish, KB2EAL (President 1990)
Robert Caruso, KC3TZQ
Chris Ciraula, KD2SBR
Mark Clark, N3QMJ
John Czuba, K2AEN
Robert DeBord, N2AFK
Louis Di Franco Jr, KA3LUX
Joseph DiNovi, WA2GFK (President 1986)
Steve Farney, W2SEF
Susan Frank, W6SKT
Derrick Hollis, KC3UEE
Ronald Jackson,
Beth Kraus, KE2BPE
Ella Lee, K2BNJ
Darrin Malone, KD2ALQ
Harry Maloney III, KE2ALG
Evan McCormick III, KD2NEB
John Murrow, KD2NHK
Gary Reed, N2QEE
Len Rust III, W2LJR
Robert Shannon, KB2GTQ
Mike Thompson, KG4JYA
David Wade, KD2NZS
Matt Wilson, K2MFW
Ethan Yost, KE2AVA

In Memoriam : January Birthdays

Jesse Bieberman, W3KT
John Bokoles, W2KI
Sidney Bozarth, WB2YHX
Richard Carter, WA2OLS
Sandra Deluca, KG2MM
Howard Dodson, K2HJD
Vincent Eckert Jr
John Fahey, WB2ONY
Ernest Fox, K2JWN
Robert Gibison Sr, KB2YBQ
William Hunsinger, KB2YJB
Louis Joseph, W2LYL
Rev. Stanley Kloskowski, WA2IPX
Miriam Kravitz, KB2EUA
Robert Layton, KB2COB
John Mullens Jr, N2WSI
Charles Naylor, W2CAN
Steven Pakyz, W2PZX
Leonard Rosen, N2LR
Emmett Ross, WA2ZND
Jack Sheppard, N2OMD
Martin Stankard Jr, WA2TZJ
Vernon Van Meter, WD4IVU
Henry Vandenberg, N2SBV
Gene Wallace Jr, N2IMK
Wayne Wood, W2SUA (President 1973, Charter
Member)



Frank Van Turner, K3JM
Ex. W2KE, 3JM
Club Co-Founder
President 1959
Club Charter Member

January 18, 1902 - February 1, 1977



Full Wolf Moon - January 25, 2024

January's full Wolf Moon reaches peak illumination on Thursday, January 25, 2024 @ 1254 Hours. At a full Moon, the Moon is located on the opposite side of the Earth to the Sun so the face of the Moon facing towards the Earth will be completely illuminated by the Sun's rays. Look for the Moon to rise from the northeastern horizon around sunset that evening.

Old Farmer's Almanac - www.almanac.com

January 2024 Contest Calendar - WA7BNM Contest Calendar : www.contestcalendar.com

January 2024	
+ AGB New Year Snowball Contest	0000Z-0100Z, Jan 1
+ K1USN Slow Speed Test	0000Z-0100Z, Jan 1
+ SARTG New Year RTTY Contest	0800Z-1100Z, Jan 1
+ AGCW Happy New Year Contest	0900Z-1200Z, Jan 1
+ ICWC Medium Speed Test	1300Z-1400Z, Jan 1
+ AGCW VHF/UHF Contest	1400Z-1700Z, Jan 1 (144) and 1700Z-1800Z, Jan 1 (432)
+ OK1WC Memorial	1630Z-1729Z, Jan 1
+ ICWC Medium Speed Test	1900Z-2000Z, Jan 1
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Jan 2
+ ARS Spartan Sprint	0200Z-0400Z, Jan 2
+ ICWC Medium Speed Test	0300Z-0400Z, Jan 2
+ QRP Fox Hunt	0200Z-0330Z, Jan 3
+ Phone Weekly Test	0230Z-0300Z, Jan 3
+ A1Club AWT	1200Z-1300Z, Jan 3
+ CWops Test	1300Z-1400Z, Jan 3
+ Mini-Test 40	1700Z-1759Z, Jan 3
+ VHF-UHF FT8 Activity Contest	1700Z-2100Z, Jan 3
+ Mini-Test 80	1800Z-1859Z, Jan 3
+ CWops Test	1900Z-2000Z, Jan 3
+ UKEICC 80m Contest	2000Z-2100Z, Jan 3
+ Walk for the Bacon QRP Contest	0000Z-0100Z, Jan 4 and 0200Z-0300Z, Jan 5
+ CWops Test	0300Z-0400Z, Jan 4
+ CWops Test	0700Z-0800Z, Jan 4
+ NRAU 10m Activity Contest	1800Z-1900Z, Jan 4 (CW) and 1900Z-2000Z, Jan 4 (SSB) and 2000Z-2100Z, Jan 4 (FM) and 2100Z-2200Z, Jan 4 (Dig)
+ SKCC Sprint Europe	2000Z-2200Z, Jan 4
+ NCCC FT4 Sprint	0100Z-0130Z, Jan 5
+ QRP Fox Hunt	0200Z-0330Z, Jan 5
+ NCCC Sprint	0230Z-0300Z, Jan 5
+ K1USN Slow Speed Test	2000Z-2100Z, Jan 5
+ PODXS 070 Club PSKFest	0000Z-2400Z, Jan 6
+ Marconi Club ARI Loano QSO Party Day	0700Z-2100Z, Jan 6
+ WW PMC Contest	1200Z, Jan 6 to 1200Z, Jan 7
+ RSGB AFS Contest, CW	1300Z-1700Z, Jan 6
+ ARRL Kids Day	1800Z-2359Z, Jan 6
+ ARRL RTTY Roundup	1800Z, Jan 6 to 2400Z, Jan 7
+ EUCW 160m Contest	2000Z-2300Z, Jan 6 and 0400Z-0700Z, Jan 7
+ K1USN Slow Speed Test	0000Z-0100Z, Jan 8
+ ICWC Medium Speed Test	1300Z-1400Z, Jan 8
+ OK1WC Memorial	1630Z-1729Z, Jan 8
+ ICWC Medium Speed Test	1900Z-2000Z, Jan 8
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Jan 9
+ ICWC Medium Speed Test	0300Z-0400Z, Jan 9
+ DARC RTTY Sprint	1800Z-1929Z, Jan 9
+ QRP Fox Hunt	0200Z-0330Z, Jan 10
+ Phone Weekly Test	0230Z-0300Z, Jan 10
+ A1Club AWT	1200Z-1300Z, Jan 10
+ CWops Test	1300Z-1400Z, Jan 10
+ Mini-Test 40	1700Z-1759Z, Jan 10
+ VHF-UHF FT8 Activity Contest	1700Z-2100Z, Jan 10
+ Mini-Test 80	1800Z-1859Z, Jan 10
+ CWops Test	1900Z-2000Z, Jan 10
+ CWops Test	0300Z-0400Z, Jan 11
+ CWops Test	0700Z-0800Z, Jan 11
+ EACW Meeting	1900Z-2000Z, Jan 11
+ NCCC FT4 Sprint	0100Z-0130Z, Jan 12
+ QRP Fox Hunt	0200Z-0330Z, Jan 12
+ NCCC Sprint	0230Z-0300Z, Jan 12
+ K1USN Slow Speed Test	2000Z-2100Z, Jan 12
+ YB DX Contest	0000Z-2359Z, Jan 13
+ UBA PSK63 Prefix Contest	1200Z, Jan 14 to 1200Z, Jan 15
+ SKCC Weekend Sprintathon	1200Z, Jan 13 to 2400Z, Jan 14
+ North American QSO Party, CW	1800Z, Jan 13 to 0559Z, Jan 14
+ WAB 1.8 MHz Phone	1900Z-2300Z, Jan 13
+ NRAU-Baltic Contest, SSB	0630Z-0830Z, Jan 14
+ DARC 10-Meter Contest	0900Z-1059Z, Jan 14
+ NRAU-Baltic Contest, CW	0900Z-1100Z, Jan 14
+ RSGB AFS Contest, Data	1300Z-1700Z, Jan 14
+ K1USN Slow Speed Test	0000Z-0100Z, Jan 15
+ 4 States QRP Group Second Sunday Sprint	0100Z-0300Z, Jan 15

January 2024 Contest Calendar - Continued on page 58

January 2024 Contest Calendar - WA7BNM Contest Calendar : www.contestcalendar.com

January 2024 Contest Calendar - Continued from page 57

+ ICWC Medium Speed Test	1300Z-1400Z, Jan 15
+ OK1WC Memorial	1630Z-1729Z, Jan 15
+ ICWC Medium Speed Test	1900Z-2000Z, Jan 15
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Jan 16
+ ICWC Medium Speed Test	0300Z-0400Z, Jan 16
+ QRP Fox Hunt	0200Z-0330Z, Jan 17
+ Phone Weekly Test	0230Z-0300Z, Jan 17
+ A1Club AWT	1200Z-1300Z, Jan 17
+ CWops Test	1300Z-1400Z, Jan 17
+ Mini-Test 40	1700Z-1759Z, Jan 17
+ VHF-UHF FT8 Activity Contest	1700Z-2100Z, Jan 17
+ Mini-Test 80	1800Z-1859Z, Jan 17
+ CWops Test	1900Z-2000Z, Jan 17
+ Walk for the Bacon QRP Contest	0000Z-0100Z, Jan 18 and 0200Z-0300Z, Jan 19
+ NAQCC CW Sprint	0130Z-0330Z, Jan 18
+ CWops Test	0300Z-0400Z, Jan 18
+ CWops Test	0700Z-0800Z, Jan 18
+ NTC QSO Party	1900Z-2000Z, Jan 18
+ NCCC FT4 Sprint	0100Z-0130Z, Jan 19
+ QRP Fox Hunt	0200Z-0330Z, Jan 19
+ NCCC Sprint	0230Z-0300Z, Jan 19
+ K1USN Slow Speed Test	2000Z-2100Z, Jan 19
+ PRO Digi Contest	1200Z, Jan 20 to 1159Z, Jan 21
+ Hungarian DX Contest	1200Z, Jan 20 to 1159Z, Jan 21
+ RSGB AFS Contest, SSB	1300Z-1700Z, Jan 20
+ North American QSO Party, SSB	1800Z, Jan 20 to 0559Z, Jan 21
+ NA Collegiate Championship, SSB	1800Z, Jan 20 to 0559Z, Jan 21
+ ARRL January VHF Contest	1900Z, Jan 20 to 0359Z, Jan 22
+ Feld Hell Sprint	2000Z, Jan 20 to 0559Z, Jan 21
+ Run for the Bacon QRP Contest	2300Z, Jan 21 to 0100Z, Jan 22
+ K1USN Slow Speed Test	0000Z-0100Z, Jan 22
+ ICWC Medium Speed Test	1300Z-1400Z, Jan 22
+ OK1WC Memorial	1630Z-1729Z, Jan 22
+ ICWC Medium Speed Test	1900Z-2000Z, Jan 22
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Jan 23
+ ICWC Medium Speed Test	0300Z-0400Z, Jan 23
+ SKCC Sprint	0000Z-0200Z, Jan 24
+ QRP Fox Hunt	0200Z-0330Z, Jan 24
+ Phone Weekly Test	0230Z-0300Z, Jan 24
+ A1Club AWT	1200Z-1300Z, Jan 24
+ CWops Test	1300Z-1400Z, Jan 24
+ Mini-Test 40	1700Z-1759Z, Jan 24
+ Mini-Test 80	1800Z-1859Z, Jan 24
+ CWops Test	1900Z-2000Z, Jan 24
+ NAQCC CW Sprint	0130Z-0330Z, Jan 25
+ CWops Test	0300Z-0400Z, Jan 25
+ CWops Test	0700Z-0800Z, Jan 25
+ Australia Day Contest	2200Z, Jan 25 to 1000Z, Jan 26
+ NCCC FT4 Sprint	0100Z-0130Z, Jan 26
+ QRP Fox Hunt	0200Z-0330Z, Jan 26
+ NCCC Sprint	0230Z-0300Z, Jan 26
+ K1USN Slow Speed Test	2000Z-2100Z, Jan 26
+ CQ 160-Meter Contest, CW	2200Z, Jan 26 to 2200Z, Jan 28
+ REF Contest, CW	0600Z, Jan 27 to 1800Z, Jan 28
+ BARTG RTTY Sprint	1200Z, Jan 27 to 1200Z, Jan 28
+ UBA DX Contest, SSB	1300Z, Jan 27 to 1300Z, Jan 28
+ Winter Field Day	1900Z, Jan 27 to 1900Z, Jan 28
+ K1USN Slow Speed Test	0000Z-0100Z, Jan 29
+ ICWC Medium Speed Test	1300Z-1400Z, Jan 29
+ QCX Challenge	1300Z-1400Z, Jan 29
+ OK1WC Memorial	1630Z-1729Z, Jan 29
+ QCX Challenge	1900Z-2000Z, Jan 29
+ ICWC Medium Speed Test	1900Z-2000Z, Jan 29
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Jan 30
+ ICWC Medium Speed Test	0300Z-0400Z, Jan 30
+ QCX Challenge	0300Z-0400Z, Jan 30
+ QRP Fox Hunt	0200Z-0330Z, Jan 31
+ Phone Weekly Test	0230Z-0300Z, Jan 31
+ A1Club AWT	1200Z-1300Z, Jan 31
+ CWops Test	1300Z-1400Z, Jan 31
+ Mini-Test 40	1700Z-1759Z, Jan 31
+ Mini-Test 80	1800Z-1859Z, Jan 31
+ CWops Test	1900Z-2000Z, Jan 31
+ UKEICC 80m Contest	2000Z-2100Z, Jan 31

2024 Club Committees

Standing Committees

Budget
 Constitution & By-Laws
 Education
 Field Day
 Hamfest
 Health, Welfare, & Silent Keys
 Hospitality
 Membership
 Membership Badges
 Nominations
 Publicity
Repeaters
 W2MMD Clubhouse Site

Committee Chairs

John O'Connell, K2QA
 Ron Block, NR2B
 Chris Prioli, AD2CS
 Tony Starr, K3TS
 Sheldon Parker, K2MEN and Bill Price, NJ2S
 Bill Price, NJ2S
 Jeff Garth, WB2ZBN
 Chris Prioli, AD2CS
 Chris Prioli, AD2CS
 Jon Pearce, WB2MNF
 Tony Starr, K3TS
Open Chair
 Al Arrison, KB2AYU

Activity Committees

Awards & Certificates
 Club Photographer
 Club Publications & Historian
 Contests
DX
GCARC Family Picnic
 GCARC Foxhunts
 GC-ARES Emergency Coordinator
 Holiday Dinner Party
 License Testing/VEC Liaison
 Membership Roster Database
 Programs : General Membership Meetings
 Radio Nets
 Technical & Tech Saturday Programs
 W2MMD License Trustee
 W2MMD Special Event Station

Committee Chairs

GCARC Board of Directors
 Phil Nunzio, WA3RGY
 Jeff Garth, WB2ZBN
 Tony Starr, K3TS
Open Chair
Open Chair
 Jim Wright, N2GXJ
 Bob Keogh, KD2NEC
 Frank Romeo, N3PUU & Kathy Romeo
 Gary Reed, N2QEE
 Jeff Garth, WB2ZBN
 Ron Block, NR2B
 Jim Clark, KA2OSV
 Jon Pearce, WB2MNF
 Darrell Neron, AB2E
 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 Forum

2nd Monday of Every Month @ 1930 Hours

Tuesday Afternoon 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 Rag Chew Net

Every Thursday @ 2000 Hours

Meeting Calendar

General Membership Meeting

Wednesday, January 3, 2024

1930 Hours

Pfeiffer Community Center

Simulcast Live on ZOOM

Meeting ID : 943 0211 9674

Passcode : 843147

Board of Directors Meeting

Wednesday, January 17, 2024

1900 Hours

W2MMD Clubhouse

***“There’s More To Ham Radio Than
You Can Possibly Do!”
- K3TS***

***“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 Badge Man”**

**Chris Prioli, AD2CS
chris@ad2cs.com**

Question Pool Answers : E4D01:A; E4D02:A; E4D03:B; E4D04:B; E4D05:A; E4D06:D; E4D07:A; E4D08:C; E4D09:C; E4D10:C; E4D11:A; E4D12:A