



## Q5er – The Official Newsletter of the Skyview Radio Society

### DQRM

Most of you know story of the 2023 Bouvet Island - 3Y0J DXpedition. Years of planning and permitting; hundreds of thousands of dollars raised and spent gathering and shipping equipment and supplies; finding a boat and daring crew willing to take them there; a great deal of manual labor; getting to and making a life threatening landing on a cold, windy, and inhospitable unoccupied rock rising out of the sea; living in a difficult and uncomfortably cold environment for days with only a small portion of their planned accommodations on shore; operating with only a fraction of their planned equipment, antennas and staffing; and then cutting it short and evacuating because of generator fuel running out and the expectation a new severe storm on the way.

It was all about putting a very rare piece of solid earth "on the air" as a unique DXCC Country. I'm sure that many of you pursue DX enthusiastically. Being high on the list of unique countries worked and confirmed is no small accomplishment. Sadly, many needed, but were unable to log 3Y0J. The only real location on the tiny island that was available to utilize did not favor the US, and their low wire antennas and low power did not help us. I read where they managed to make made around 90,000 QSOs.

But, I also read that they felt that they could have doubled that QSO count without the DQRM. I thought at first that meant Digital QRM, which is beginning to be an issue in the CW portions of the bands. Reading further I found out that "DQRM" meant "Deliberate QRM". That deliberate interference resulted in time wasted by having to ask for call sign repeats. Since they were operating split and listening UP, one or more people were making a real effort to move around and try to cover up the callers who were operating UP. I was very saddened after I read that.

It would be a better world if I never heard "DQRM" mentioned again. I guess every tree has some bad apples. But it sure would be a better world without so many bad apples. I guess that is just wishful thinking on my part.

Everyone is not like this gentleman from the past who feels that is a privilege to be a ham.

*de Jody — K3JZD*



June 1, 2023

- K3WWP In QRP HOF
- Breezeshooters Hamfest
- Bouvet Island Recap Film
- The Middle Child
- What About 60 Meters?
- Tale of Chasing DX Again
- Coaxial Cable Woes
- Shave and a Haircut
- WACOM Hamfest
- Surrounded by RF
- And More

**The Sunspot Numbers are Rising !!!**

**Time to exercise the 10-12-15-17-20 Meter bands**

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**2023 is Skyview's 63rd Anniversary !!**



**The Skyview Radio Society Clubhouse is the “Every Tuesday Place” . . .**

Something is going on at ‘the joint’ each and every Tuesday evening, from about 1900 hours to whenever.

See the general schedule of Tuesday events on the Skyview Web Page: <http://www.skyviewradio.net>

For the latest up-to-date plan, check the Groups.io Reflector at : <https://groups.io/g/K3MJW>

Directions are on: <http://www.skyviewradio.net>

Guests are always welcome !!

### From the Editor

Regarding my offer to let someone else publish this newsletter and reset the focus, the masses have spoken. Actually only one person from the masses has spoken. And that was not to volunteer to take over publishing this newsletter.

So, if you read it, then you are stuck with whatever content I decide to publish. For as long as it keeps me entertained. No guarantees on how long that will be. If you don't read it, then you are not seeing this and really don't care either way.

Jody - K3JZD

Remember: The number of people older than you never increases., it only decreases

### From the Treasurer

It is now time to round up your contributions for the **Skyview Table** that is at every Skyview Swap and Shop.

The proceeds from selling the items that were donated to the **Skyview Table** make up a significant portion of the money that we make by holding our Swap & Shop.

Everyone has some ham related or other electronic items that are just collecting dust. Now is the time to do some Summer Cleaning, and donate those items to a good cause.

I know that every year I seem to come up with several items that I was sure that I would use some day, but was surprised whenever I found them while looking for something else.

Bring your items up to the club at any time.

Jody - K3JZD

**Ham Radio is a Contact Sport**

**Continue Use the Skyview Facilities At Your Own Risk - It is Not Really History Yet.**

Follow <https://groups.io/g/K3MJW> for COVID updates.

**Skyview Radio Society is recognized by the Internal Revenue Service as a charitable non-profit organization under Section 501(c)(3) of the IRS Code. Donations to Skyview are tax deductible to the extent permitted by law.**

Space For Rent

**If you can't explain it to a six year old, you don't understand it yourself. Albert Einstein**

## May Business Meeting Minutes

de Don - WA3HGW

### Skyview Radio Society Monthly Business Meeting – May 2, 2023

**Call to Order:** 7:30 PM by President Paul Krystosek, AC3IE.

**Attending** – 35 Members: WA3HGW, NJ3R, W3YNI, K3STL, K3ES, K3FAZ, ACØKK, AG3I, KC3TTK, AC3IE, G4NFS, K3JZD, N3DRB, W3ZVX, W3UY, WC3O, N3WMC, W3BUW, KE3Z, AJ3O, N3TIN, KG4JBB, K3JASS, AB3ER, WA3KFS, W3IU, KC3CBQ, AB3GY, K3CLT, KC3PXQ, WQ3Q, K4PDF, AC3GB, KQ3S and N2MA.

**Prior Meeting Minutes:** The minutes of the April 4, 2023 were distributed for member review. A motion to accept the minutes as presented was made by W3BUW and seconded by KG4JBB. The motion passed without objection. Don, WA3HGW also read two letters of appreciation to W4HYZ for his HAARP presentation to the club and also to W8AAS who did a presentation on the radios on the International Space Station. The letters were [assed around for the membership present to sign. They will be mailed to the presenters along with one of our K3MJW/W3GH QSL cards.

**Treasurer's Report:** Treasurer Jody, K3JZD reviewed the Financial Report of 30 April 2023 (Attached). Income included 50/50 drawing and from the VE session. Expenses were only for routine recurring bills, a RTTY contest sponsorship plaque and the radio room UPS battery. A motion to accept the Treasurer's Report as presented was made by K3FAZ and seconded by KG3JBB. The motion passed without objection.

**Membership Report:** Tom, AB3GY, advised there is one new membership application. AB3GY made a motion to open the membership rolls, which was seconded by KC3PXQ. The application is from: Douglas Wing, N3OEX, an extra class licensee from Export, PA. Doug was a Skyview member in the past. A motion to accept the nomination was made by AG3I and seconded by KC3PXQ. The motion passed without exception. AB3GY made a motion to close the membership rolls, which was seconded by K3CLT. The motion passed without exception. Membership now stands at 151.

**Radio Officer Report:** All radios and systems are working well. One side of the high 80 meter dipole off the top of the tall tower is broken. This is the second time that wire has failed. The dipole wire will be replaced when time and weather permits.

**Kitchen Report:** Bob, WC3O, noted the kitchen balance is \$150. The refrigerator was cleaned and restocked.

**VE Report:** There were 2 candidates in April. One new Technician and one upgrading to General class. There are two candidates so far for May.

**Newsletter:** The April issue of the *Q5er* is out. Jody is looking for newsletter submissions by May 15 for the June issue.

**Facilities:** A Simplysafe smoke detector was installed in the radio room. It is working well so far. AC3GB reported that 20 new folding chairs were ordered for the meeting room. These are steel chairs with nice padding.

**Building Committee:** Ed, KC3FWD will donate driveway landscape fabric to stabilize the drive and help avoid the stone eventually sinking into the ground. New stone will be delivered with enough to cover the driveway plus an additional amount needed for the Phase 1 building addition.

#### Calendar of Events:

May 7 – Pittsburgh Marathon.

May 8 – Gordon West live courtesy of the Indiana club. Information to be posted on the club groups.io.

May 18 – Contest University.

May 19 to 21 – Dayton Hamvention.

June 3 – Setup for Breezeshooters Hamfest.

June 4 – Breezeshooters Hamfest.

July 18 – Ice cream social at the Joint.

July 20 to 22 – Train trip to ARRL Headquarters.

July 30 – Wacom Hamfest

August 15 – Korn Roast at the Joint.

**Old Business:** Bob, WC3O reviewed information for signing up for the ARRL train trip July 20 through 22. Travel to CT on July 20, visit ARRL Hq. July 21 and return on July 22. That is Thursday through Saturday. Bob posted how to navigate the Amtrack complex Amtrack reservation system in the club group.io page. He advised making reservations ASAP as the cost increases as the departure date approaches.

#### New Business:

It was pointed out that the July regular business meeting will fall on July 4<sup>th</sup>. We will decide next month if we will re-schedule or skip the July business meeting.

John, WA3KFS, is looking for prize sponsors for the club Swap & Shop. Vendors can display their banners at the Swap & Shop.

**Weather Night:**

May – Advanced Skywarn training

June – Hail board construction.

July – Lightning.

August – Radiosondes and weather balloons.

September – One year review of the Skyview weather group activities.

October – Making snow boards.

**Elmer Night:** Nothing scheduled at this time.

**Net Report:** The check-in numbers averaged 43.75 in April. If you want to volunteer for net control, contact K3STL or WC3O.

**50/50 Drawing:** The total collected was \$54. The winner of \$27 was Jan, KG4JBB. Jan donated her proceeds to the kitchen fund.

**Meeting Adjourned:** A motion to adjourn was made by KC3GB and seconded by N2MA. The motion passed without objection. The meeting was adjourned at 8:11 PM.

Respectfully Submitted,

Don Stewart – WA3HGW  
Secretary; Skyview Radio Society, Inc.



**Misc Items**

**2023 Bouvet Island - 3Y0J  
DXpedition Summary Video :**

<https://www.youtube.com/watch?v=VbD0xmsk75U>

**Congratulation to  
Skyview Member  
K3WWP**

John Shannon K3WWP was inducted into the QRP Hall of Fame at this year's Four Days in May event at the 2023 Hamvention.

John, co-founder and past Vice President of the North American QRP CW Club (NAQCC), was honored by the QRP-ARCI for his long daily QRP contact streaks, super informative blog, his daily "diary", and for all his efforts to show how QRP, CW, and simple antennas really and truly can get the job done.

<https://k3wwp.com/>

Tnx Larry W2LJ

John - K3WWP, Mike - KC2EGL, and Tom - WB3FAE are usually demonstrating QRP in the clubhouse during the Skyview Swap & Shop. Stop in and visit them.

***Note: This is an Editorial. I am not targeting any individual. Some of it could be inaccurate. It is simply as I see it. Several things are based on organizations and/or tools that I am not intimately involved with and thus cannot be an expert on. You may not agree with some of this. I will be happy to publish other opinions. Other opinions are healthy.***

Long ago, in a land not far away, I and other members of the Irwin Area Amateur Radio Association (IAARA) participated in a Public Service Simulated Disaster Drill being staged by the Westmoreland County Municipality of Penn Township. All of the Penn Township (PT) public service organizations were participating: All five PT Volunteer Fire Companies, the PT Ambulance Service, the PT Public Works Department, and the PT Police Department.

This was a widespread simulated response, with live vehicle movements and feet on the ground. The scenario was based on a hazardous vehicle accident on the PA Turnpike, which splits Penn Township. Hazardous fumes were slowly spreading over the Township.

A closely held script of problematic events that would occur was used. Some new twists were thrown out at the event unfolded. Those twists were introduced to the event to stir the pot. The various players were not aware of the script or the unexpected problems that would get introduced. They had to react and determine appropriate responses and actions on the fly.

This practice drill occurred back in the day when each individual service had its own radio system. Each system was on its own dedicated frequency. No cross-talk was possible. During this drill, an IAARA member setup a 2 Meter mobile radio at the temporary field EOC. Other IAARA members shadowed the leaders of each of the participating organizations and provided them with cross-service communications.

Long story short, movement of vehicles and utilization of the people from all the different participating organizations was well coordinated. The Penn Township officials and the participants declared this joint operation with the hams providing the cross-service communication to be a success. So the IAARA members looked forward to

being able to support the future Penn Township Simulated Drills.

But, it turns out that we did too much good. About 6 months after that joint practice drill, I was asked to review bid proposals from EF Johnson and Motorola. Penn Township had asked each of them to propose what was needed for a new 'Penn Township Inter-Communication System'.

I did as requested. I did some good by turning down both of those proposals. One offered Low Band Single Channel Simplex Radios. The other offered VHF Band Single Channel Simplex Radios. I had them rebid it as a UHF Repeater System, with Two Channel Mobiles and HTs. The first channel would go through the repeater. The second channel would be simplex on the Repeater Output frequency (a talk around channel).

The Township bought that repeater system, and had those Township Inter-Communication System mobile radios installed in every fire company vehicle, every township ambulance, every public service vehicle, and every police vehicle, as well as putting one in the police station. Penn Township no longer needed us to provide them with cross-service communications.

As time went on, other things in the world changed. The Westmoreland County-Wide Central 911 Dispatching System came on-line. That system communicated on all of the county's various fire frequencies, ambulance frequencies, and police frequencies. That 911 system was able to cross connect the working frequencies of each of the services within the entire county. That technology took away more of any need to provide cross-service communications between any Westmoreland County emergency services.

After the 9-11-2001 attack on the World Trade Center, the lack of inter-service communications at the federal level was well highlighted. The Department of Homeland security was established in 2002 and was tasked with safeguarding the country from terrorism. That effort was to improve inter-organization interactions and improve inter-organization communications during disasters.

FEMA created concept of the National Incident Management System (NIMS) in 2004. But it was immature as far as the wireless communications goes whenever Hurricane Katrina struck in 2005. Since FEMA did not really have control, plenty of hams were involved in the Katrina response. But as I recall, there was no singular authority for the hams to align with.

After Katrina, the development of the NIMS Incident Command System (ICS) was accelerated. After several iterations we have what we have today: a very thorough and complete template for establishing a control infrastructure for handling incidents and disasters.

Within the NIMS and the ICS documents, you will see that ham radio has been relegated to only being required for 'Auxiliary Communications'. That is kind of a politically correct way of saying "we don't really need you ham radio folks anymore". Ham radio is lumped in with CB, FRS, GMRS, and any other private Auxiliary Communications means. And only hams trained and certified within the ICS structure are welcome. That was a bit of a blow to the ego of most hams. Hams had been functioning under organizations like ARES and RACES, and had just expected to continue to be prime players.

But wait, there is always the "when all else fails, then you will come to us." After all, a number of cell phone towers may get taken out, the cell phone system always gets overloaded, other communications systems used by the Emergency Services may fail, and the cabled Internet is probably down everywhere in the disaster area. They will need us then, right?

Well, I really don't think so. Not anymore. Homeland Security paid the cell phone providers fill tractor trailers up with portable rapidly deployable temporary cell towers, generators, and cell phones that were programmed to use those temporary cell towers. No other cell phones could access those temporary towers, so they would not get overloaded. These trailer loads were supposedly put into storage at locations all around the country.

Then, in 2018, the AT&T FirstNet went online. "FirstNet is a nationwide wireless broadband network for first responders deployed through a first-of-its-kind public-private partnership between the federal government and AT&T. FirstNet offers public safety a communications network built to their operational and technical

needs that helps them save lives and protect our communities." FirstNet uses dedicated cell phone frequencies not available to the public.

FirstNet is prepared to deploy mobile equipment as needed to provide guaranteed uptime during disasters. It is kind of hard to compete with that professional system that puts that level of real time hardened communications capability into the hands of the people who need it.

Maybe that helps to explain why ham are relegated to providing Auxiliary Communications. The downside to FirstNet is that it is run by a for-profit corporation (AT&T) and is not free to all municipal authorities. It is a subscription service. So, it may not be in use everywhere. If FirstNet is not currently in use where it is now needed, with Homeland Security funding, AT&T can be directed to roll it in from their storage facilities and provide that service in the disaster area.

So, if you have read through this, you have seen that the last 20 years have been a journey from 'the way we were' to 'the way we are now'.

This brings me to the Western PA (WPA) Spring SET (Simulated Emergency Test) that was held on 01APR23. Paperwork was pre-distributed. I was happy to see that there was an ICS 205 Communications Plan. I saw that this SET was titled as "Operation Last Mile". The WPA ham radio Skywarn Net was included in this SET, although this plan did not say that this was a response to a specific weather disaster. This SET supposedly included local American Red Cross (ARC) participation. But I did not see any integration with the ARC mentioned anywhere in the ICS 205 Plan.

I monitored this SET at the Skyview location for a couple of hours. I guess Skyview was simulating a comfortable indoor communications center that was located well outside of the disaster area. In keeping with the situation, the Internet was 'not available to use' and no cell phones were used. However, there was commercial power and HVAC. It appeared that all other participants were also housed in similar comfortable facilities, which I guess were also located well outside of the disaster area, wherever that was.

According to the ICS 205 Plan, the Skyview location was tasked with handling HF Radiogram Traffic on 80 meters. I did not see what I expected to see. It seemed like it

was 'Back to the 50's' with all of the disaster messages being passed with voice and handwritten on ARRL Radiogram forms. However SSB and FM were being used rather than AM, so I guess it really was 2023. But, "Analog Operation" and ARRL Radiograms is what the organizers had pre-planned for the Skyview location.

I do not think that more than ten messages were passed through Skyview during the three hour long SET. One seemingly important message addressed to an American Red Cross person of seemingly some importance, sub-tagged with verbal 'Hand Deliver' outside of the body of the message, seemed to go round and round in this ham managed communication network. I had to leave before the event ended, so I'm not sure if a confirmation of that sub-tagged 'hand delivery' message ever happened. Looking over the content of the other messages that I saw, and the scope of the message recipients, I'm not sure what this drill had to do with "Last Mile".

The Salvation Army has SATERN, which is its own self cultivated communications support network. As they put it: "SATERN (Salvation Army Team Emergency Radio Network) program is a globally recognized, international fellowship of ham radio operators that provides necessary communication to and from disaster sites around the world." SATERN has been around for 30 years. Pittsburgh has a SATERN group. Their offices are on the wrong side of town for me, so I have never joined SATERN.

I have read a fair number of articles in QST and CQ about various locales that have embraced this new 'Auxiliary Communication' role that we now have. In each case, it seemed like they had managed to establish a tight integration with American Red Cross (ARC) and have done joint participation drills, and/or have worked well together with the ARC during one or more actual local disasters.

So, I guess if US hams want to align themselves with someone else other than SATERN and 'get into the Auxiliary Communication game', then it looks like the ARC is about the only game in town. From the articles that I have read, the ARC does not seem to be as 'open' to including ham communications as The Salvation Army is. We probably have to work harder to show value and become aligned.

The Salvation Army seems to be more of a feet on the ground operation that is closer to the action and is mostly supporting the responders on the ground. The ARC seems to be more of an off to the side provider of shelter for displaced people. The Salvation Army is more visible, but just seem to quietly get the job done. The ARC is not real visible, but always seems to get a lot of publicity. But I digress.

Let's get back to what seems to be the mission of the ARC: the provider of shelter for displaced people. If we are to become their communications support team during disasters where normal communications infrastructure is wiped out or useless due to overload, then we need to be cognizant of what kind of communications we will be handling for them.

It will be a whole lot of lists. Lists of names and other characteristics about the people who are at or are heading for a shelter. Lists of ARC Support Staff that is at a shelter. Lists of ARC Support Staff that is needed as a shelter. Lists of Supplies needed at a shelter. Lists of Maintenance Medications needed at a shelter. Lists of people being moved to some other location. Lists of statuses of the progress with the other lists. You get the idea : Lists.

Guess what? We are not going to be able to do Lists with "Analog Operation" and ARRL Radiograms. We are going to have up our game and use some current technology.

FCC gets in the way by limiting what we can do (which is not allowing us to incorporate today's fast wireless networking technology). However, there have been some 'as good as we can do' solutions created. The two popular solutions that I see mentioned frequently are Winlink and NBEMS (Narrow Band Emergency Messaging System). Some others have surfaced over the years, but they do not seem to have gained enough traction to persevere.

The day before the April SET, I did not know anything about either Winlink or NBEMS. I arbitrarily chose to see if I could get Winlink setup and functional. I dug in and got Winlink setup and working by that evening. While working with Winlink I learned that the ARC has created ACS-213, which is their version of the ICS-213 General Message Format. I sent a few long ACS-231 free form text messages wirelessly from my radio to my email ad-

dress. And I acknowledged the receipt of those messages from my email. I also saw six other ACS specific message formats, with each one suiting one of their specific needs. (Lots of Lists).

During the April SET, I sent an ACS-213 message to the Pittsburgh ARC Office, using the message content suggested in the packet that NU3Q had distributed. While that distributed sheet said that it was for use in EPA, I tried it anyway. I used the W1AW Winlink Gateway to send my ACS-213 formatted message on 40 meters. W1AW was well outside of the simulated disaster area, so it was available to forward messages via both RF and normal Internet email. My message was received and acknowledged by the Pittsburgh ARC Office.

I have not looked into NBEMS yet. I read a forward thinking article from the August 2009 QST that was authored by Harry – W3YJ and Dave – KB3FXI that discussed using NBEMS. Harry was the ARRL Assistant SEC at the time. During the 2008 SET, Harry used NBEMS to send an Excel Spreadsheet from his temporary simulated disaster location in the parking lot of the St Margaret Hospital to the simulated EOC at Skyview.

Harry and Dave reported that it NBEMS worked very well. Harry then setup the <http://www.wpanbems.org/> web site to get to it moving and to facilitate NBEMS training. Sadly, that early effort did not seem to take hold. That web site is gone. Fourteen years later WPA is using “Analog Operation” and ARRL Radiograms.

Winlink and NBEMS will probably both accomplish the same job. I’m sure each has its Pros and Cons. it would probably make sense for the WPA groups to publically favor one of them to facilitate setup instructions and training. But, more importantly, WPA should get tuned in to today’s needs. Get going on getting one or both of these messaging system integrated into the training and practice sessions in order to be prepared to be useful to the ARC during disasters.

OK – how about the other stuff? The feet on the ground communications and the health and welfare communications? Those will still need to be covered, won’t they?

My guess is that most of the feet on the ground communications will now be handled by FirstNet. Whenever FirstNet is not available, ham radio may quite often be the fallback. But I would bet that most of the feet on the ground communication will be handled like we did with

Penn Township: with hams shadowing the leaders and handing the microphone over to them whenever they need to do real time coordinating communication. I do not see this kind of real-time communications being handled with any kind of forwarded Radiogram messages.

And, my guess is that most all of health and welfare messaging will be done using Winlink or NBEMS. I think that 99% of the initial health and welfare messages are originating from inside the disaster area because outside communication is not possible by normal means. I think that these messages are all are variations of “I’m OK”.

I think that these health and welfare messages will be created in Winlink or NBEMS templates and will be using email address of the recipient in the “To” field. The text in the message body will probably be input very quickly by utilizing cut and paste from a stash of commonly used message body text. Lots of possibilities exist to make this a very efficient high volume operation at the originating location.

These Winlink or NBEMS health and welfare messages will then be transmitted from the disaster area via RF, received at one of the Winlink or NBEMS Gateways, and then forwarded to the recipients via Internet email. No more trying to pass them along verbally by a voice phone call. Of course each message will also say ‘transmitted via ham radio’ so that the recipients know who provided them (we still have to beat our own drum).

After things in the disaster area calm down a little, I guess that an outgoing health and welfare message could have instructions in the message body telling the recipient that they could now send a reply message back to the sender. Volume on the Winlink network would dictate when it made sense to announce that as being available.

So, how’s would that work? With Winlink anyway, each ham station has a unique Internet email address (mine is [K3JZD@Winlink.org](mailto:K3JZD@Winlink.org)). Anyone can use regular Internet email to send me a message at that address. I would receive that message the next time that I log on to any Winlink Gateway from my radio. So, ham sending stations in the disaster area would have that same ability to receive messages from outside.

So, I really see voice passed ARRL Radiograms health and welfare messages being becoming history.

Wait, all of this means needing computers in the disaster area. Yep, it does. You have to gear up some more to play in this game. But today's small basic laptop computers are cheap. There are 12vdc chargers available for every laptop - you do not need 120VAC to keep them going. And there are very small cheap basic USB sound card interfaces available. So, you not have to make a huge investment to get into the game.

## Summary

The times have changed. The rules have changed. The needs have changed. We have to change.

We say we want to make our hobby more interesting to young people to keep our hobby alive. Well, adding computers to support our Auxiliary Communications role talks their language.

Let's bury the old ways and let's move on. I briefly touched on the 'what'. The devil is in the details - that's where the 'how' is. So, let's integrate with those who will need us, gear up, and train for today' reality . . .

*de Jody - K3JZD*



**American  
Red Cross**



## The Middle Child

Things are looking up at Skyview. Seriously. Looking up.

### The middle child:

We have three permanent HF stations set up at the clubhouse. Years ago Rich, K3RWN gave each station a color. We have been using those color codes ever since! The station on the left is called the Green station. The middle station is the Yellow station and the station on the right is the Blue station. Past the Blue station to the right is where we have our VHF/UHF, DMR, D-STAR radios. We refer to this one as the EMCOM station.

All stations are good to go on any mode from SSB to CW to RTTY to FT8 and more. During contests we have been temporarily putting a fourth HF station at the EMCOM position to work mults and the upper bands. With all of these stations, we have run out of room. The radio room is only so big.

### Back to the middle child:

The two end stations, Green and Blue, have two computer monitors. We need the screen real estate for RTTY contesting. There are a lot of things going on and windows that need to be open!

But the middle station, Yellow, has no room for a second monitor on either side of the main monitor. When we do our RTTY contests there is very little screen room, just having the minimum amount of windows open.

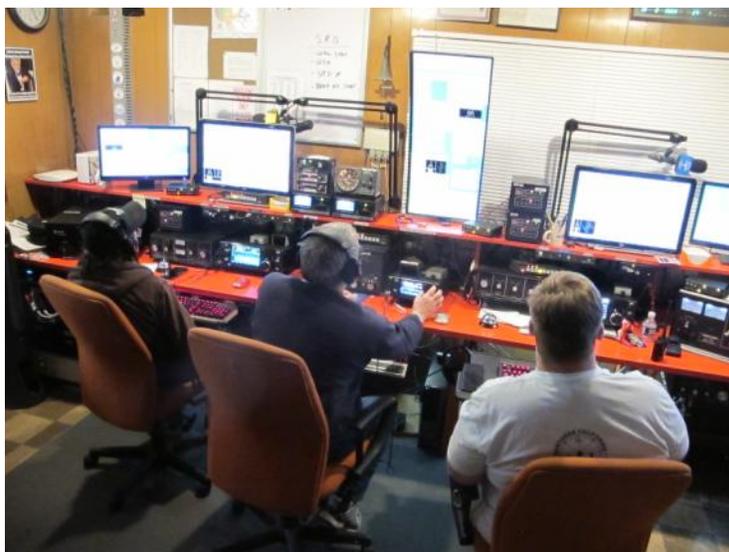
I have thought long and hard as to what we can do about this. I looked and I stared. I stared and I stared. No dice. There are some solutions, but none of them are good. There are antenna rotor controls in the way. There are antenna switches in the way. There are bandpass filters in the way. These can all be moved to different locations, but only to cause other problems elsewhere.

Then it hit me that we could go UP! Up is not a great solution. During long hours of contesting you want to design your station so that you are not holding your head in uncomfortable positions.

Everything should be line of sight, straight ahead. However, with the monitors stacked vertically we can leave the important windows line of sight and put the less important windows upward! It's as good as it gets.

## de Cooky - WC3O

One of the thoughts I had was to use an extra-wide curved monitor and mount it vertically. This was a great idea in theory, but the reality was that it sucked.



Mounted vertically, the extra wide monitor was too narrow and didn't afford enough room to open many windows at the bottom half of the display. In a way it was kind of cool that the monitor curved out as it went up and was slightly immersive. In the end, everyone thought it was a crappy solution. It was.



So, I decided to go with two monitors. I brought the extra wide monitor home and I am using it for my radio computer at home. I brought in my two monitors that I was using at home and we used those for our vertical Yellow station!

NEXT:

For the other outer stations that already have two monitors, I used a PCI dual monitor card that fed the two monitors with DVI video. I was going to do the same with the Yellow station when I had a moment of clarity! The Dell computers already have two DisplayPort video outputs. The two monitors are older and will take either VGA or DVI video. So why don't I just get two cables that go from DisplayPort to DVI? They are cheap, and most of all it's EASY! So that's what we did.

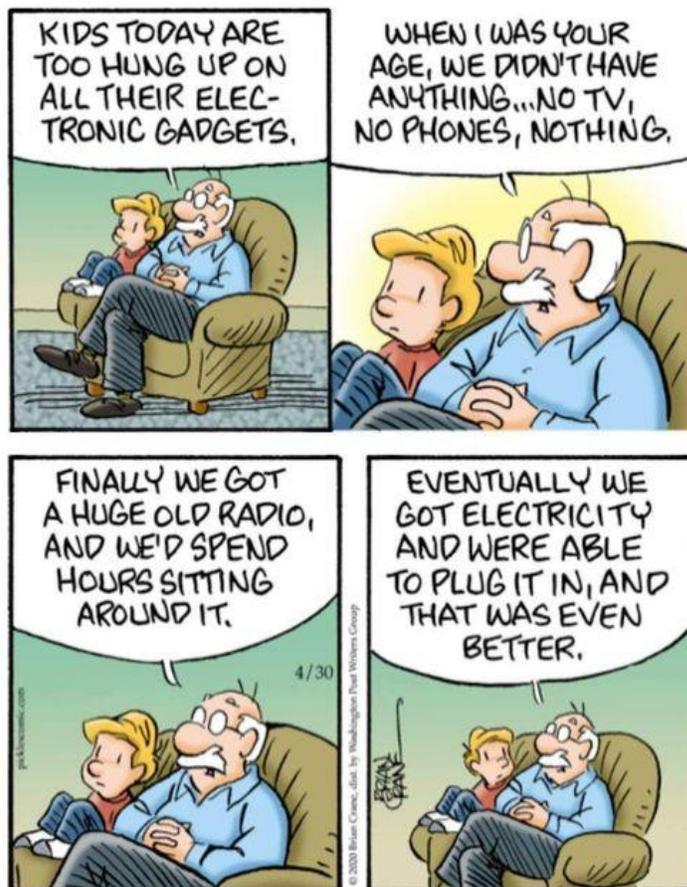


Now the Yellow station sports the same screen real estate as the other two stations. Looking forward to the next RTTY contest!

So that's the story there

Look up !

*Cooky - WC30  
Radio Officer*



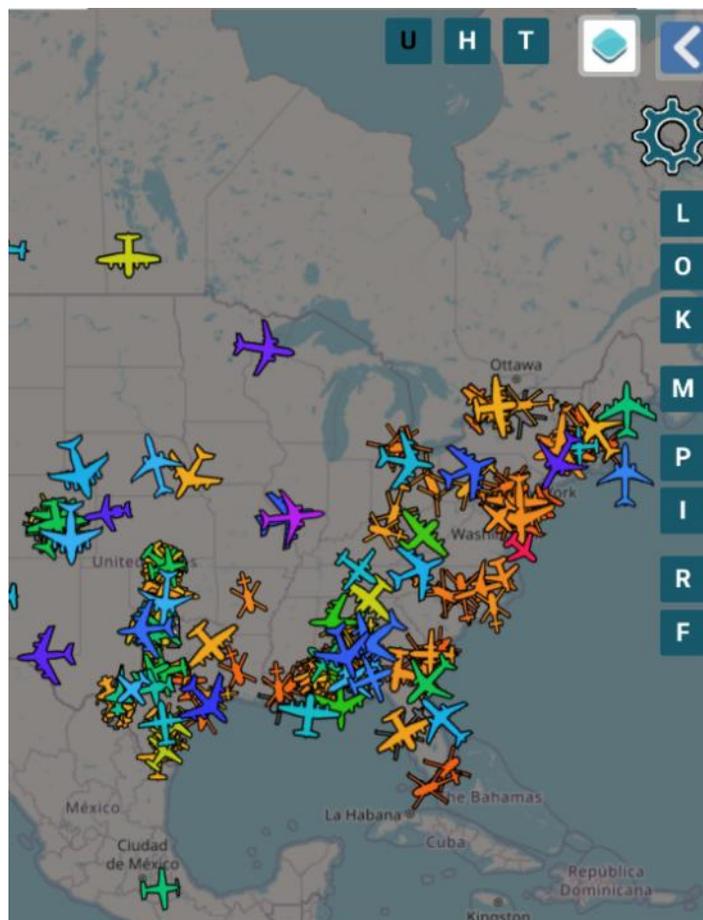
## Listening to the USAF HF GCS

de Chaz – KC3TTK

“.....Mainsail Out” What I just heard was an EAM or an “Emergency Action Message” broadcast by the United States Air Force on the HFGCS or High Frequency Global Communications System. It is one of the last reliable Numbers Stations that can be heard on a regular basis that I am aware of, and it is one of the gems that got me interested in Amateur Radio to being with.

Ham Radio is not just for having good conversation and meeting new people. There is some OSINT that can be gathered as well; Open-Source INTelligence.

Combine the HFGCS with an online flight tracker like ADSBExchange set it to show only military planes and it gives a slight glimpse into a picture of some of the military operations taking place in the skies.



At the onset of the Ukraine Russian conflict these frequencies were busy with chatter.

Since I am new to this hobby, I am not sure what everyone knows, and I am no means trying to be patronizing if this is common knowledge. But for those that may not know Numbers Stations were mystery stations that periodically broadcast on HF throughout the cold war and some even today. It is assumed that (though no nation has confirmed or denied) these cryptic radio broadcasts sent coded messages to spies in other nations giving them orders or updates.

There are volumes of writings and videos discussing the meaning of these Numbers Stations. Various recordings of some of these stations from the 80's and 90's exist on YouTube. One of the most well known from this era was the Lincolnshire Poacher, which is thought to have been run by the British Secret Intelligence Service. Real life James Bond type stuff. However, I digress. This is not an article on all Numbers Stations. Just one.

So, while not as exciting as espionage activities, The HFGCS broadcasts cryptic periodic messages that anyone can hear. There are several types of messages. Some radio checks and status updates. It can even be used for aircraft talk to someone on the ground in the event of a mechanical problem in flight. Though I have not heard any of these as a listener.

There is speculation as to the purpose of these messages. Are these the messages that would be sent in the event of a nuclear war? Is this just a backup system since most planes have Satellite phones?

None of us civilians are for sure.

But one thing that is for sure, when there is a lot of Military aircraft aloft, there is a lot of traffic on HFGCS.

There are some advantages to using HF Communications over satellite communications. It is exceedingly difficult for an adversary to jam HF frequencies making it robust and reliable to broadcast a message to many people at once. HF requires less infrastructure as opposed to satellites, and satellites are easier to jam or interfere with in some instances. In the case of National Security – redundancies are important.

The advantages of HF are even being noticed by Wall Street traders. Some HF transmitters have been set up by traders to broadcast time sensitive trade information across the ocean. The messages broadcast by these stations can be received milliseconds faster than an email or phone call, which can mean large gains for being the first financial institution making a trade before someone else. Though shrouded in secrecy and trade secrets no one can completely confirm this, there are a myriad of articles online about the subject.

Back on track: this article is not about the stock market or short-wave radio. It is about listening to military aircraft communications.

Listening to HFGCS does not require an expensive rig. As of writing this article, I do not yet have my HF Rig set up. However, for less than 80 dollars and a laptop computer anyone can listen to the HFGCS.

While the messages are a string of alpha numeric characters which (I assume) are generated by some type of “one time pad” and the messages are not re-used. The call signs used and the frequency of these broadcasts are a good way to have a small window into the sky.

HFGCS broadcasts on a couple of frequencies. 11.175 MHz seems to be the most active one I can hear during the times I listen. The HFGCS is run by the Air Force but is usable by all branches of the military. It is mostly used by aircraft in flight but can be accessed by other means.

The network consists of 13 transmitters located around the world, and for some transmissions all 13 stations each operating on 4 different frequencies will transmit the same audio at the same time. The common frequencies are listed as 7.424MHz, 8.992 MHz, 11.175 MHz and 15.016 MHz all broadcasting in Upper Side Band. [1]

Now that we know what it is, how do we listen?

One inexpensive way to do it is by using a HF USB SDR Dongle. One of the most popular ones to get started with is the RTL-SDR. It can be had on Amazon for under \$30 dollars. Be careful though. there are a lot of clones and knockoffs. Only the genuine RTL-SDR will receive and process HF signals. Visit <https://www.rtl-sdr.com/> for more details and how to purchase one of these kits.

The other piece of hardware needed is an antenna.

Since I was just starting out, and not sure where my rig was going to end up, I purchased the MLA 30 active loop antenna for \$35. While this is not the best antenna on the market, its cost and size made it suitable for my use. The receive range for the antenna I purchased claims to be from 500 kHz to 30 MHz



The third part of the equation is the software. I chose SDR#. It is fairly easy to use free open-source software for Windows. I am by no means claiming to be an expert on any of these systems – but a mere novice trying to learn the only way I know how to; by doing. I am sure there are much better ways to accomplish the same thing perhaps even better, and I am all ears about how I can improve. But this is where I am beginning.

I set up my MLA loop antenna on a piece of 1 inch PVC conduit. Since PVC is nonconductive and the MLA loop antenna is basically a piece of exposed wire in a circle connected to a box. The conduit provides a nonconductive rigid structure to affix the set to. The box is connected by coaxial cable and an SMA connector to a power injector powered by USB. There are better options available but out of convenience the USB worked for me. The power injector then connects to the SDR dongle in the computer.



I screwed the antenna box directly to the PVC Condit and ran the wire antenna through a hole in the top.

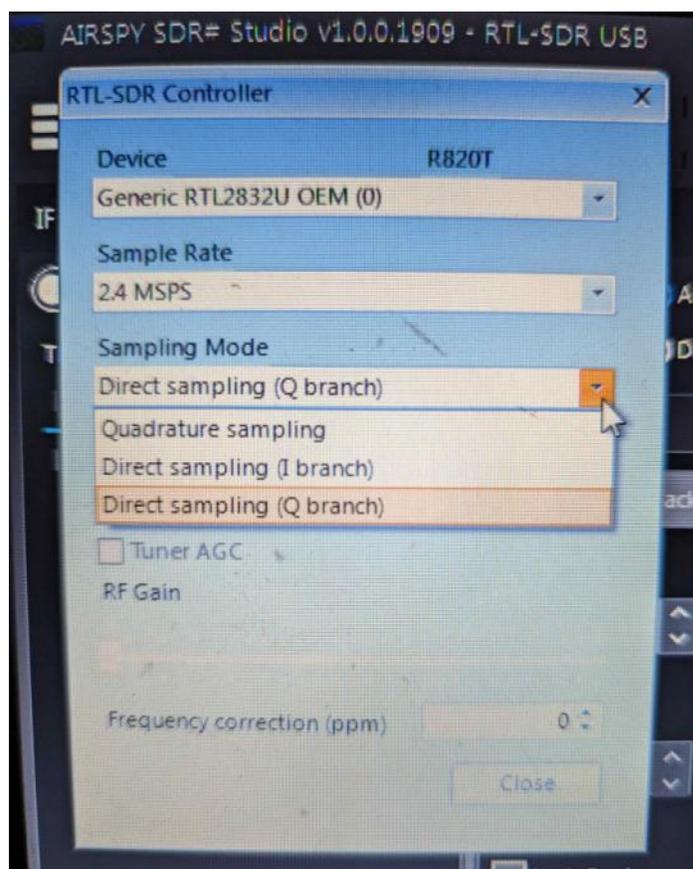
While there are some improvements that could be made using this setup (the cheap coaxial cable comes to mind as something to address) the system works.

I mounted the antenna on my porch railing. So far the birds seem to enjoy perching on it. I am sure I could get better signals if I went higher with the antenna. For the moment though, this will do. When I get my HF rig set up with a proper antenna this antenna will find a new home.

As for the SDR software itself, there are many choices out there. But I must learn to walk before I run. I went with SDR# by Airspy.

I am not going to go through getting SDR# installed. There are a ton of videos explaining that process much better than I could here. There is even an a phone application to use the SDR on a phone or tablet. So, while you cannot transmit using these tools they are great for listening.

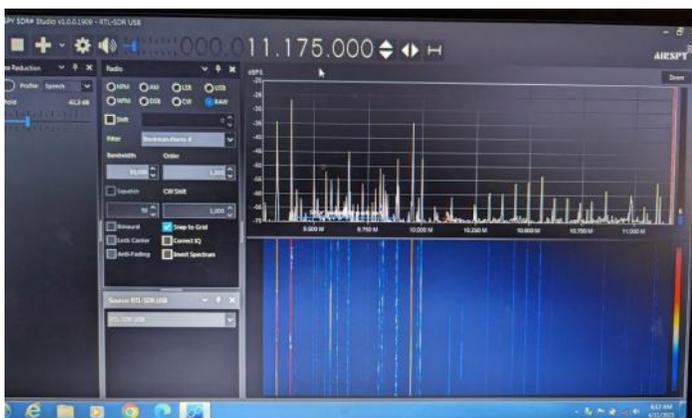
If you are going to listen to HF using SDR# there is something that needs to be set differently than if you were listening to UHF/VHF



The sampling mode needs to be changed from “Quadratic Sampling” to “Direct Sampling (Q Branch)”

Then press the play button and start listening on 11.175 MHz.

Once you get set up and start listening to broadcasts you will find an array of callsigns and messages being broadcast. The aircraft will call in using their call signs and if you are paying close enough attention you will be able to find the aircraft on the map.



The signal on the waterfall display is relatively weak. But you should be able to hear the activity. The broadcasts are not constant, though like any good fishing trip some of the fun is in the waiting.

I have a long way to go with learning the ins and outs of the SDR and the radio hobby in general. But this is one of the activates I enjoy, and I wanted to share it with everyone.

If there is more interest in an article pertaining to number stations let me know I would be happy to put something together.

*de Chaz - KC3TTK*

1: HFGCS Transmission Schedule:

<https://priyom.org/number-stations/station-schedule>



## RF. It Is All Around Us *de Jody - K3JZD*

Every really stop and think about RF (Radio Frequency) energy. RF is what our hobby is all about. We can send RF from Point A to Point B. We communicate wirelessly. Neat!

Actually you may think you are sending RF from Point A to Point B. But you are actually spewing your RF out all over the place.

Think about it. RF is all around you. All of the time. Easy to prove. You can walk all around with an HT and find RF. You can walk all around with a portable AM/FM Radio and find RF. You can walk all around with your cell phone and find RF. Indoors and outdoors. You can go out in the woods with your portable HF radio and find RF.

RF could be coming from 10 yards away, 10 miles away, or even 10,000 miles away. From all directions.

You would need to be in a special room that was built to purposely keep all RF out to get away from it. A tin hat won't do it. It is really hard to hide from RF.

Ever wish you could see RF? No, you really don't want to do that. You would not be able to see anything but RF.

Early crystal radios were able to capture RF energy and vibrate headphones to produce sound. No battery was required. The RF energy powers them. Build one sometime and see for yourself.

I just read about someone who will be making a wireless computer keyboards that do not need a battery. They will be powered by 'harvesting' RF energy. Will work everywhere, except for that special RF proof room.

Some have tried harvesting RF energy to charge batteries. Some have tried harvesting RF energy to run very low powered remote devices.

I doubt that this RF energy harvesting will get in the way of our sending RF from Point A to Point B. But, if it really catches on, would it be game over for us? Would our signals would get sucked into all of these RF Harvesters?

Probably not. Folks have been harvesting light energy for quite some time, and it is not dark during the daytime hours. But, just in case, do your part; keep producing RF.

*Jody - K3JZD*

## So, What About 60 Meters ???

de Steve – K3FAZ

Ah, the 60 meter band..... all five glorious frequencies also known as the Channel Band.

What makes 60 meters such an intriguing band within our operating privileges?

Quite a few things actually. First off, the band has very interesting day and night propagation lending itself as a bridge between the 80 meter and 40 meter bands.

Additionally 60 meters works quite well for NVIS operations. The band is also less affected by D-Layer absorption than say 80 meters.



Can one work DX on the 60 meter band? Absolutely.

Can one work CW on the 60 meter band? Absolutely.

Can one work digital modes on the 60 meter band? Absolutely. Digital modes include PSK31, Pactor/Packet and the modes within the WSJT-X suite.

There are some ground rules to observe . . .

- 1-Operations are limited to USB voice, CW and data
- 2-Power is limited to 100 watts PEP ERP with a dipole as the baseline @ 0db gain.
- 3- The band has five channels that Amateurs share with US government agencies who have priority.
- 4-For USB and data, one must tune your radio to 1.5 khz lower than the center frequency. For CW operating tune radio to center frequency.

5-Even though CW and data modes are narrow band modes, one is not allowed to use a second or adjacent frequency within the 2.8 khz channel bandwidth.

6- Operating privileges are for General, Advanced and Extra Class licensees.

Yah, rules... but it is what it is, right?

Anyway, the 60 meter frequencies are as follows:

Center	'Dial' Frequency (USB)	'Unofficial' Channel Designation
5332.0 kHz	5330.5 kHz	Channel 1
5348.0 kHz	5346.5 kHz	Channel 2
5358.5 kHz	5357.0 kHz	Channel 3
5373.0 kHz	5371.5 kHz	Channel 4
5405.0 kHz	5403.5 kHz	Channel 5

(Use the "Center" Frequency for CW, USB for All others)

CW is commonly used on Ch.1 but phone QSOs can be found there Data/Digital is primarily used on Ch.3

Voice/phone is commonly used on CH.2,3,and 5

Here are a few arguments regarding the 60 meter band that I've heard:

"You can't contest on 60 meters" Like the WARC bands that is correct but what's your point? The idea is getting on the air, right?

"My radio won't TX on 60 meters" Most newer radios are capable of TX on 60 without any modifications. Older radios can often be easily "opened up" to allow using 60 meters by clipping a diode found in the circuitry - this is usually called the "MARS modification".

"I don't have an antenna for 60 meters" I bet that you do...60 can be tuned up on most wire antennas and even many vertical antennas...honest. (If interested, a 60m dipole is 88 feet long and may be easily fed with coax.)

"I seldom hear anyone on 60 meters" Well, did you call CQ?

The 60 meter band gets more attention than most folks realize...there are nets, EMCOMM exercises, support comms for the National Hurricane Center, hams with regular skeds and folks that meet up to ragchew.

My farthest 60m SSB contact was a DXpedition out past Hawaii several years back. On FT8 I've worked all through North America, Europe, and the South Pacific. Those who enjoy FT8 will have big fun on 60m.

You can put out your CQ and have four or five stations get back to you in a heartbeat. CW operators can enjoy clean crisp signals from near and far.

Not too shabby, eh? And let's not forget Parks On the Air...I've made my share of POTA Qs on Ch.5 (how's that for dangling the bait?)

So, there you have it. The band is pretty amazing...sort of an unspoken secret within our operating spectrum.

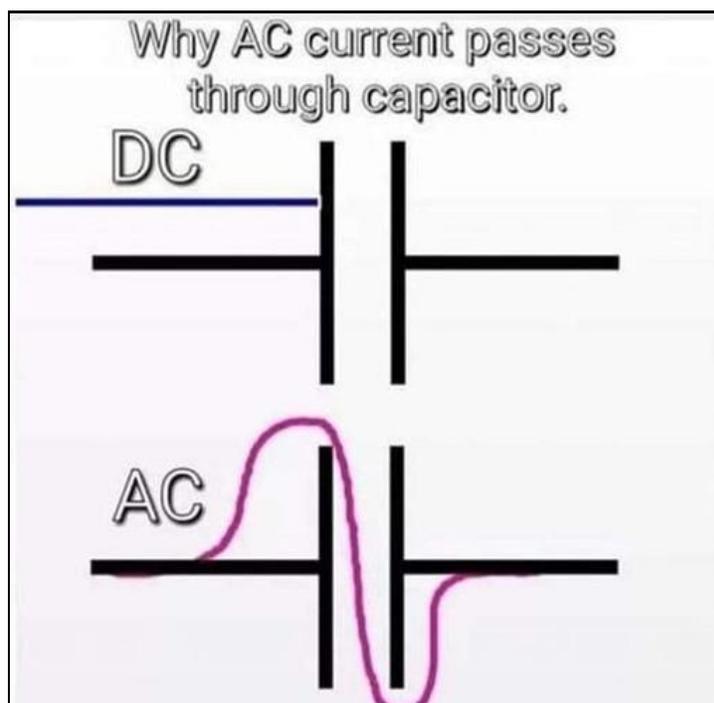
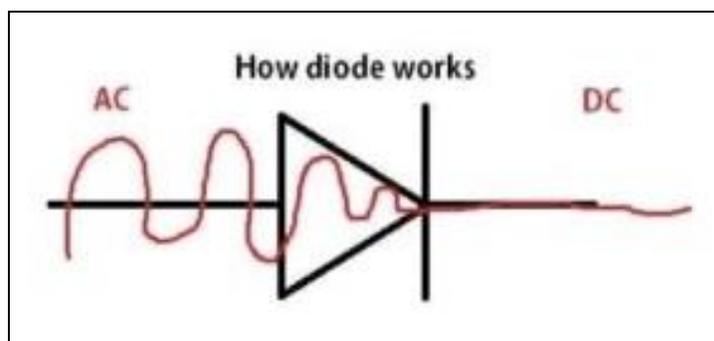
Give 60 meters a shot...you'll more than likely be pleasantly surprised. If you don't try you may be missing out.

*73s all around.  
de K3FAZ Steve*

**Ed: Not all countries allow operation on the 60 meter band. Those that do, may use different frequency segments that may or may not include the five fixed "channels" that we in the US must adhere to. Don't be tuning around if you hear an 'off-frequency' station. They may be allowed to be there, but you are not.**

**A good reference to everything you always wanted to know about the 60 meter band, but were afraid to ask, can be found here :**

[https://en.wikipedia.org/wiki/60-meter\\_band](https://en.wikipedia.org/wiki/60-meter_band)



Farnsworth, 15wpm character speed.  
Reasonable.  
So I send C Q F D M Y Ø C A L L  
So what do I hear...  
~~MØCALL~~ ~~W5/4~~  
Naturally I send ?  
so now I plainly hear  
MYØCALL ~~W5/4~~

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If using a MAPPING APP on your phone, be sure to query "**BUTLER FARM SHOW GROUNDS – Butler PA**"

**Dig That Tune - er**

**de Bob – WC3O**

I personally think that the Dentron MT-3000a and the MT2000 are the best high power tuners ever built. They are built like a tank. They have a wide tuning range. They use silver plated contacts on the switches and silver plated SO-239 connectors.

The 3000 model is the deluxe version of the 2000. The inner workings between the 3000 and the 2000 are exactly the same, except the 3000 has forward/reflected watt meters, a three position antenna switch and an internal 200 watt dummy load.



**Dentron MT-3000a Deluxe Tuner**

The only real downside of the MT-3000a is that it was designed before it was deemed important to keep a constant impedance through the tuner while it is in bypass mode. At the time, most all ham radios used vacuum tubes in the final output stage and they were not very

worried about SWR. When solid state power amps came to be popular SWR became much more important.

Since the 3000 has an antenna switch built in, the designer of the tuner made no attempt to maintain a constant impedance through the tuner in bypass mode. This was all fine, but as you go up in frequency this "impedance bump" in the line becomes more noticeable.

By the time you get to 10 meters, 28 megahertz, this poor design results in substantially changing the SWR that the radio sees. In other words, if the antenna has a 1:1 SWR, by the time it goes through the tuner, the radio is seeing maybe an SWR of 1.7:1. That is being caused by the poor design of the antenna switch in the tuner. In contrast, a well designed antenna switch, such as an Alpha-Delta coax switch, maintains a constant impedance through the switch.

Well

The MT-2000 does not have an internal antenna switch. It just has a bypass switch which makes switching MUCH simpler. This makes for a MUCH smaller impedance bump in the line. As for the 3000 tuner - The watt meters are not terribly accurate, and we never use that internal antenna switch. So we really don't need that deluxe 3000 version. The 2000 suits us just fine.



**Dentron MT-2000 Tuner**

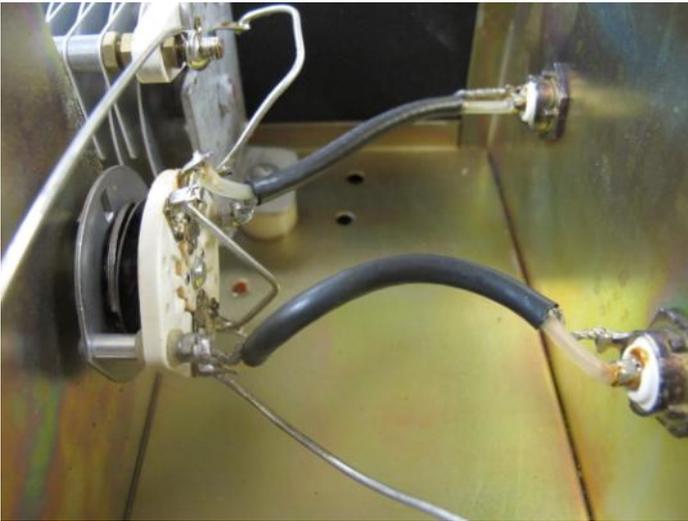
## Q5er – The Official Newsletter of the Skyview Radio Society

For a long time we've had a MT-3000a tuner at the Green station. It has served us very well over the years. But recently at a local hamfest I spotted a MT-2000 at a good price. BINGO!

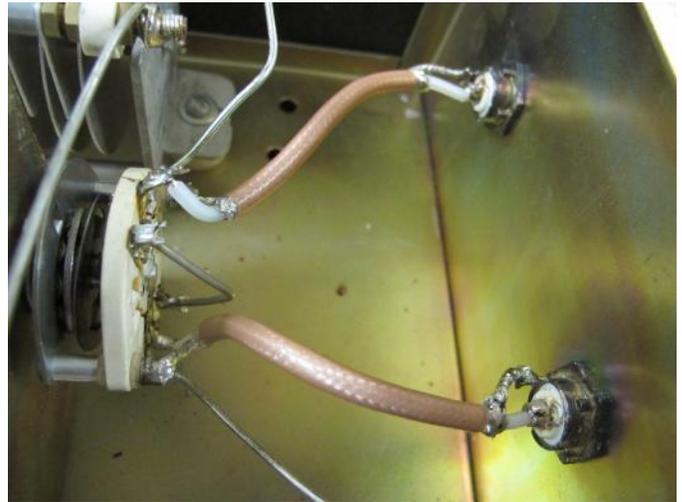
Now, the only downside of the 2000 is that Dentron used two small pieces of RG-58 coax between the two coax connectors on the back of the tuner to the bypass switch. RG-58 is just barely capable of running @ 1500 watts dependably.

So there you have it. That is why we replaced the tuner at the Green station. Now all that is left to do is play radio!

de Bob - WC3O  
Skyview Radio Officer



Dentron MT-2000 Before



Dentron MT-2000 After

We have a MT-2000 tuner on the Blue station. Once during a RTTY contest I had one piece of that RG-58 break down, resulting in VERY high SWR. On that tuner I replaced the pieces of RG-58 coax with RG-400. RG-400 has no problem handling 1500 watts and beyond.

So before I commissioned the new MT-2000 to the Green station I replaced the two pieces of RG-58 with RG-400. This should make this tuner bulletproof also.



For sale: MT-3000a high power antenna tuner.

## Old-School CW Filter Speaker Revisited

de Bill – W3BUW

As a longtime ham radio operator, (since 1965) I am often looking for ways of doing things better or more to my liking, as we all do. I've always had a passion for both electronics and mechanical things so I have become very adept at building my own equipment when I find it necessary, to keep the cost down. Or just for fun!

One of my big complaints whenever operating CW has always been dealing with the background or off frequency white noise. Not necessarily the noise from adjacent CW signals, but the hiss and band noise that is found on all radio signals. After a short period of time I find it annoying! Over the years, I've looked for ways to reduce this noise.

The radio companies have come out with very high quality electronic filters to control bandwidth of signals so that we don't hear adjacent signals. But these filters do little to remove white noise. There are a variety of signal filters out there to control bandwidth and many of them now use DSP processing which works very well for the most part.

My complaint has been that none of these filters seem to do a very good job of eliminating the adjacent white noise that completely surrounds the CW tone. The DSP filters help reduce it, but never totally remove it. While they will reduce it somewhat, it is not enough to my liking.

In today's age of DSP processing this should now be totally doable as far as I'm concerned. Forensic audiologists do this all the time. I'm not sure why the process has not been hard wired into software/firmware for radios yet. Probably cost or just lack of interest from most hams is my guess.

My incentive to reduce this noise has always been motivated by my personal preferences. I find the hiss to be fatiguing when doing CW.

So after some research I came across some old articles from the 70's about building resonant mechanical speakers by building speaker enclosures that are built to be resonance at around 700 Hz (or to what ever frequency you like). I personally like my CW side tone to be around 550 to 680 Hz.

The principle used is to build a speaker with an acoustic tuned housing. It will be resonant at the frequency of the CW side tone that you choose to use. This punches up the CW tone and the white noise drops off rapidly (about 50-80 Hz) on either side of the main CW tone frequency.

Much like us gear heads do with headers on cars, and expansion chambers of 2 stroke motorcycle and boat engines for racing. The resonant tuning extracts a lot of extra power.

I set mine for 680 Hz on this unit shown. Today this is easier than ever. Parts are easy to come by at Home Depot and the small speakers are very easy to acquire on Amazon. A fairly low cost project!



Setup and use is easy. Every modern transceiver lets you adjust the frequency of the CW side tone without tuning the CW signal off frequency. You tune in the signal on the radio for maximum S-Meter strength and then you adjust your CW side tone control on the radio until the CW note pops out at you. Set and forget once if you chose.

Building a resonant speaker housing to whatever frequency you would prefer for your CW side tone is basically pretty easy. The instructions in this link are explicit:

<https://wcarc.com/wp-content/uploads/CW-Resonant-Speaker.pdf>



**SIDE NOTE:** These units will not work properly if plugged into the headphone jack. Not enough power from this jack to drive the speaker. Plug it into the main speaker output on the rear panel. I modified my speaker with a switch and a jack on the front of it so I can switch back and forth between the real speaker and the CW speaker.

**For more online reading:**

These articles came from a variety of old magazines like 73 Magazine, QST and Ham Radio.

<https://www.youtube.com/watch?v=4iNELueaU6M>

<https://www.kb6nu.com/testing-alaskit-resonant-cw-speaker/>

<https://www.youtube.com/watch?v=MF8bk6958Hg>

**Here is some additional good reading material on acoustically resonant CW speakers :**

An Electro-Acoustic CW Filter, QST Apr 1983

A Resonant Speaker for CW, QST (Hints & Kinks) Dec 1987

More On Resonant Speaker. QST (Hints & Kinks) Jan 1989

(This is the best set of building instructions I have found and I based my speaker on this plan set.)

I'm not going to make this a step by step construction project. For any of those that would like to try this out please see me and I'll help you out. This could be a easy smoke and solder night project.

For my version of this project I bought a small speaker from Amazon and a short piece of PVC pipe and some fittings from Home Depot. All were 1-1/2 inches in size.

My finished product looks like PHOTOS 1 and 2

In my estimation the results are pretty impressive! When the speaker unit is tuned properly for your favorite CW side tone frequency and you get the radio adjusted on frequency properly the CW note will jump out at you quite nicely and the white noise will drop off substantially! The CW experience becomes less fatiguing!!

**73's ! Have Fun!!**

**Bill Samek - W3BUW**

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## Chasing DX . . . . Again

de Paul – AC3IE

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Recently (if you consider over a month recent) I was on the 8:00 PM CW practice Zoom talking with Al (N2MA) and Bob (WC3O). Al was discussing working CYOS, Sable Island off the coast of Nova Scotia, with FT8 Fox and Hound.

I had heard of Fox and Hound but didn't know much about it. I thought I'd look into it later. Bob said he also worked CYOS but on CW and that it took about half an hour to make the contact. He went into detail on how to work split and expounded on the advanced features of his radio versus mine for things like split operation.

This conversation with Al and Bob reminded me of a goal I recently set for myself. I had earned my DXCC in 1968 under my old call sign while in high school in the Chicago area. I never did officially submit additional countries after that. After a decades long dry spell, I'd like to earn my DXCC again but here and under my new call sign. If I didn't snag CYOS soon I might not have another chance for quite a while.

On Friday, I woke up early ... way too early, like 4:00 AM early. Having had surgery on my wrist and elbow on Monday, my dexterity was limited. I wasn't going to attempt CW contacts this morning because of some bad experiences earlier in the week. There is some poor guy out there who thinks I am from Puerto Rico because I could not properly send "PA".

Instead, I decided to go digital. I worked a couple of North American stations and noticed someone calling CYOS with no response. I recognized the call sign of the DXpedition to Sable Island, and did not want to miss my chance to begin chasing DX again.

So, I checked the DXCluster which immediately lit up with CYOS indicating that he was operating on 7.051 using Fox and Hound mode. That explained why there was no response on the usual 40 meter FT8 frequency of 7.074, Fox and Hound typically chooses a different frequency.

A quick Google search for Fox and Hound resulted in an article on K3LR's "On All Bands" which provided references to the official and thorough instructions, which I ignored. (I am a ham after all.) The article gave me just enough detail to blunder my way through.

Once configured and on the proper frequency, it all made sense. I could see contacts being made at a high rate. So, I started calling. After about 10 minutes at 0854 UTC the contact was completed. I got him! Success! Once my euphoria wore off, I went back to sleep.

Later that day, I was eager to get back on the air. I did some POTA hunting and worked two parks. There wasn't that much activity, so I checked the DXCluster again and found that CYOS was operating on a 15 meter CW. I tuned in and found a strong signal that would send a call sign 599 and later "TU UP". I tuned up a few KHz and indeed found many stations sending their call signs. Unlike other split operations, there were almost no lids send call signs on CYOS's frequency.

Now I had to figure out how to do split because I did not want to be one of "them lids." I replayed in my mind Bob's instructions on split operation with my 7300. I made the necessary adjustment to settings and was pretty sure I had it right ... But what if it wasn't? I grabbed my trusty Yaesu FT818 and set it to listen to his frequency with a dummy load.

I turned the power down on the 7300 and sent some random dits and did not hear them on the FT818. Just to make sure though, I changed it to receive on my transmit frequency and heard my dits.

Success! I turned off the FT818, turned up the power on the 7300 to max, set my call in a keyer memory and waited for CYOS to send TU. I sent my call ... and sent my call ... and sent my call ... Then, at around 1741 UTC, I heard VA3IE? .... and again heard VA3IE? I sent my call one more time and heard "R AC3IE 599". I quickly replied with "599" and received his "TU".

Success! I celebrated with a ham sandwich for lunch to prolong the euphoria.

After all that fiddling with the RIT and a second rig to listen, I noticed that the IC-7300 display indicated I am using VFO A, which reminded me that, yeah, there is a second VFO. Next time I'll just try doing split that way. I wonder how many other ways there to do it? Hmmm, there's a Delta TX button!

Maybe I should read the manual again, this time all the way through.

How did I do split way back when? Easy, I had a separate receiver and transmitter. No new-fangled transceiver with 6 knobs and over two dozen buttons plus a myriad/plethora of on screen menus and buttons. The transmitter and receiver were connected and it was normally set so that the transmitter used the receiver VFO.

Split was just a matter of separating them and setting both frequencies. Just a bit of nostalgia. But then on Field Day you had to lug both of them out to the field (and provide 110 VAC)!

I'm eager for my next success. Um ... when and where is the next DXpedition??

*de Paul - AC3IE*

### Math Conversion Test

To change centimeters to meters  
you   ?  .

take out centi

*ED : I found this article in the April 2023 edition of the Nittany Amateur Radio Club (NARC) Newsette (State College PA) AFTER I had written my Article on Page 6*

### American Red Cross Liaison Appointed

Centre County Emergency Coordinator Carmine Prestia, K3CWP, last week announced the appointment of Brett Saylor, W3SWL as Assistant EC for American Red Cross Liaison. The Red Cross recently appointed Brett Em-Comm Lead for the State College Chapter.

The Red Cross is planning to equip all of its chapter offices with amateur radio stations and is currently supporting Winlink communications for all Red Cross offices. Brett's experience with Winlink and digital amateur radio will be a plus in supporting the Red Cross and its efforts to provide reliable backup communications in disasters and emergencies.

Congratulations to Brett and good luck in all your efforts.

Carmine W. Prestia, Jr., K3CWP

**CREDIT : NARC Newsette**

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## Coaxial Cable

de Don – WA3HGW

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### A Didactic Description About What I've Learned

Like a lot of hams, I like gadgets, and am somewhat thrifty. (A cheapskate!) My ham station is not the simplest and may be a lot like yours. There are many connections in the RF chain between the transceiver output and the antenna.

In my case, my main and back-up transceivers both connect to an A-B switch so I can easily choose one or the other. The switch connects to the input of my linear amplifier. The amplifier output goes to an Elecraft W2 directional wattmeter, the same model as used at Skyview. The wattmeter then connects to an LDG antenna tuner, which in-turn connects to a Kenwood SM-220 monitor scope. The scope isn't really needed, but it's one of those gadgets which is fun and nice to look at. From there the connection goes to a 4 port antenna switch and then on to whichever antenna I select.

So, as you can see from the description of my station setup, I need quite a few coax cable jumpers. For many years I've been a fan of BNC connectors. I mostly like the ease of the ¼ turn connection plus the 50 ohm impedance and weatherproof design. I don't need the weatherproof function inside the shack, or at least I hope I don't. The 50 ohm impedance isn't much of a factor either since everything they connect to has an SO-239 connector, which adds the need for a UHF to BNC adapter at each end.

Multiple connectors aren't the most reliable things to have, but as I said, I like the convenience of the BNC connector. (As a side note: BNC stands for "Bayonet Neill-Concelman" after the two designers. As a teen I used to frequent a ham radio store near Philadelphia called "Ham" Buerger. Occasionally Mr. Neill or Mr. Concelman – I don't remember which – would come into the store and hang out with the usual assortment of other hams who always seemed to be in there rag-chewing. When he was there, someone would usually whisper to whoever they were standing near "He's the guy who invented the BNC connector!") If you're interested, here is a link to the history of "Ham" Buerger: <http://www.ham-buerger.com/Webpages/History.htm> )

While I like the convenience of the BNC connector, they are not the easiest connector to install on a piece of coax cable, at least before the crimp-on style became available. I was never a fan of crimp-on coax connectors anyway. Nevertheless, when I moved my ham station to the back of the garage about 12 years ago, I found myself in need of some different length coax jumpers for the new configuration.

Instead to making up a bunch of new jumpers from coax and individual connectors, I went to one of the ham suppliers who advertise in QST (one of those smaller one-inch ads) and purchased pre-made RG-58 BNC end jumpers in 2 and 4 foot lengths. Problem solved!

These worked pretty well for me until I purchased an Ameritron AL-80 linear amplifier. The RG-58 cable was probably fine with the 800 watts or so output from an AL-80, but I wanted to be conservative and switched to RG-8 for the jumpers after the amplifier. This was a bit unwieldy with the stiff RG-8 cable, but I made it work.

Fast forward to a few years back to one of the club visits to the K3LR superstation. Tim was talking about his quest to find and eliminate every possible electrical noise source in his station. One of the things he discussed is coaxial cable shielding. The better the shielding, the less noise can get in or out of the cable.

He changed all the jumpers at K3LR to use RG-400 coax. It is the same diameter as RG-58, but has a double braided shield, a larger wire gauge center conductor and a Teflon dielectric. It has no problem with higher power on the HF bands.

I came across a cache of RG-400 for sale at the Washfest about 4 years ago. Cookie, WC3O, and I split the cost and shared the cable. I replaced all the jumpers in my station with RG-400. I did away with the BNC connectors and used the common PL-259. BNC connectors are available for RG-400 (Tim uses them at K3LR) but the cost was prohibitive – see "cheapskate" above.

Well, all this brings me round-about to what I've learned (once again) about coax. Last fall I made a trip to Eastern PA to visit family and also Judy, the wife of my best friend, Chuck, WA3CEJ (SK). Judy was preparing to move to a senior community and needed to clear out the house to get it ready for sale.

I offered to pick up some of Chuck's radio and electronic equipment. There were several Kenwood transceivers I brought home. Included are a TS-520, TS-440S AT, TS-450S AT, TS-850S AT, and Kenwood "Twins" R599 and T599. Chuck was also an advocate of BNC connectors, and his radios already had UHF to BNC adapters installed.

I'm in the process of checking out these radios as I don't know their condition. I used some of my old pre-made BNC jumpers for connecting the radio to a Drake W4 wattmeter and the wattmeter to a Heathkit Antenna dummy load.

While tuning across the ham bands, I could hear a few stations from all around the US coming through. That's odd, since there was no antenna connected, and the radios should be shielded from external signals. That got me to thinking about those jumpers.

I've known not to buy cheap coax because the braided shield wires can have some rather poor coverage. I never thought about the same being true of my purchased short jumper cables. I should have realized this as most of the cables were marked as RG-58, but also has a long line of what look like Chinese lettering.

To check out any leakage in these jumper cables, I substituted some of my RG-400 jumpers to the test setup. I heard no more signals leaking in with the RG-400 cables. Naturally, it was time to sacrifice one of those old jumper cables.

What I found was barely any coverage of wire braid. There was a metallic foil wrap between the braid wires and the dielectric. I checked the outer surface of the foil, and it was conductive.

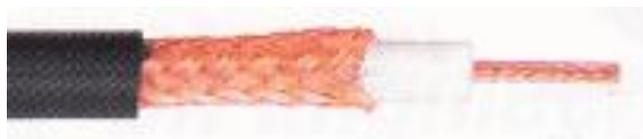
My guess is the foil was not an effective shield, and the open gaps in the wire braid left signals get in. More importantly, it could let signals get out, potentially causing all kinds of RF problems in the ham shack.

I'm glad I made the change over to RG-400 coax. I think all these cheap jumper cables might be good for is interconnecting test equipment, like signals to a scope or frequency counter. I probably wouldn't use them for that purpose either.



Here's what lurks below that smooth black covering.

*de Don - WA3HGW*



Good Coax Shielding (RX-8X)



**DX ENGINEERING**  
RG-400 High Isolation Double Shielded  
50 Ω Coaxial Cable

Great Coax Shielding (RG-400)

## Shave and a Haircut

de Bob – WC3O

I'll admit it. I'm old school. I am slow to change. Sometimes that's bad. Sometimes that's good.

Each situation is different.

Old school:

At the club, the two outer stations are connected to some old RigBlaster Pro radio interfaces. Back in the day these were pretty deluxe rig interfaces. They handle audio in and out of the radio/computer. All audio goes through audio transformers for good isolation.

They have a TTL to RS232 interface. Early radios with digital output for some reason used Transistor-Transistor logic, TTL. Computers have RS-232 ports. To have your radio talk to your computer you would need a level converter to translate between TTL to RS-232. The RigBlasters have that converter built in.

They also have a keying circuit built in for CW, FSK RTTY keying and PTT, Push To Talk for the radio. ICOM radios data in/out is called CI-V, Computer Interface - Five (I think). The RigBlasters also can handle that.

That's is a pretty busy box! That's a lot of gazindas and goesoutas! To accomplish all of these functions you need a lot of wires. Wires for audio in and out. Wires for mic audio. Wires for CI-V and RS-232. Wires for keying. When it's all said and done you have a whole lot of wires (Hair) going to varied locations!

The problem with wires:

You can make some nice antennas out of wire. The issue is that wires can become an antenna by accident. It happens all the time. While there is no RF involved with the RigBlasters, all they handle is audio and switching, the near field RF can (and will) get into all those wires and cause you all kinds of grief.



Also every connection with all of these wires is an opportunity for an intermittent connection, reducing reliability. Who wants that?

Those RigBlasters have served us very well over the many years. Fast-forward to current radio -

Now we have USB connectivity with most all modern radios. Basically, all of what we talked about above can be handled with a single USB cable.

MUCH less wiring.

This is where I become old school:

All of our current rigs at the clubhouse have USB ports. It may seem like a no-brainer to simply switch everything over the USB and put the old RigBlasters on the club table at the next Swap N Shop!

Well, not so much. There are some downsides to USB. I don't claim to know the technical details of how USB works. I really don't need to. One of the things that I don't like about USB is that sometimes WINDOWS screws with it during the MANY WINDOWS updates.

"It worked before? Hows come it doesn't work now?" You poke around only to find that WINDOWS switched up the virtual COM posts. It doesn't happen that often, but it does happen.

The COM ports on the RigBlasters are not hooked to the computers with USB to RS-232 adaptors. The computers have PCI COM port cards installed in them.

Again, I don't know the details of how USB works, but I do know there are timing issues. From what I'm told this results in "jitter" with RTTY keying and even CW. This results in your signal being less copyable, especially in high noise situations.

WINDOWS never screws with those PCI COM port cards. They are super solid and they do not suffer from jitter. I like that.

Currently, ICOM covers all of the bases by giving us, both old school I/O via two DIN connectors on the rear of the radio AND a USB port. You can use either, or both!

All this to say:

It dawned on me that I can eliminate a lot of RigBlaster wires by using the rig's USB port for audio in/out (The radios have built-in sound cards) and CI-V duties. And leave the PTT, CW and RTTY keying to the RigBlasters. So this is what I did.



We now have no shortage of wires with 1/8 inch jacks.

So far this new arrangement is working well. I don't see why it wouldn't.

We'll see what happens . . . .

**DIT DIT Bob - WC30  
Radio Officer**

**ED : Yes, that first picture was taken utilizing a passenger side mirror from a car. Nothing goes to waste at Bastone Auto Service !!**

Took me a minute to realize how funny this is.



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## Novel and Simple Way to Measure Capacitance

de Brian – KC3VNB

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You've got a mystery capacitor, and you grab your multimeter to determine its value – but how do you know if that reading is even in the ballpark? In the past few years, nearly all multimeters, even inexpensive models, have included a capacitance measurement mode. When it comes to accuracy, especially on the low end (up to 100 pF or so) the adage that you get what you pay for has never been truer. In fact, the specs for some high end 6.5 digit meters are quite poor on their low ranges.

If you want to get accurate and repeatable results the gold standard is an LCR bridge, but those can be extremely expensive – so much so, that it is hard for a typical hobbyist to justify the expense.

So, what do you do when you need reasonable accuracy (even if only to do a sanity check on your existing meters) and a high end LCR bridge is out of the question? Well, as it turns out, there are two tools (a digital oscilloscope and a function generator) on most benches that can solve this problem, but it is important to use them properly.

All measurement devices can contribute their own input capacitance. Often, multimeters will allow you to “rel” out that contribution, but that is a brute force approach that may help on the high or low end of some ranges, but probably not on all. Since capacitors are reactive components, their measurement must rely on some sort of applied transient or AC signal, and calculating a result often from the observed current, usually in relation to the applied signal magnitude and phase.

AC signal measurements are less accurate than their DC cousins – and some aspects of AC measurement like phase relationships are even more error prone than amplitude. Our goal here is to figure out a measurement technique that minimizes, or better yet, can eliminate those sources of error.

To get started, let's consider some classic approaches. Many of you will no doubt have seen these approaches published in textbooks or posted online. The most basic is a signal generator hooked up in series with a known resistor and the unknown capacitor under test. A sine wave is applied with a known amplitude and frequency.

One or more scope channels are connected to this circuit to measure the voltage across the resistor in relation to the capacitor. Those measurements may include voltage magnitudes and relative phase. Either of those sets of info will allow you to compute the capacitive reactance (usually with a little bit of trig), and since the frequency is known, the capacitance.

In theory, the problem is solved, but in practice there are some real problems. First, a scope channel is attached across the capacitor, and even with a 10X probe, you've introduced a significant error for low pF measurements. Second, phase measurement, as previously mentioned is fairly imprecise even for a decent digital scope. Yes, it may report it to single degree, but the error could easily be +/- five degrees. Third, the signal generator and attached cable has its own resistance and capacitance contributions.

You can attempt to solve the first error by measuring your scope's input capacitance, but that can be more difficult to do (even for an LCR bridge, due to transmission line issues) than the capacitor that we are actually trying to measure.

Similarly, the third error can be addressed by measuring your signal generator's output impedance and capacitance. Another approach is to instead apply a square wave to the RC circuit, and measure the capacitor voltage rise time (or more correctly a voltage rise percentage that corresponds to a known number of RC time constants).

For example, you might measure the time it takes for the capacitor to charge to 63.2% of the applied square wave's amplitude (one RC time constant). Even with very careful cursor placement, this is tricky and you still have the error sources from the scope/signal generator capacitance and resistance.

You can apply some math and transform the problem to measuring the rise time from 10% to 90% of the input, and you will have least diminished the problem by allowing you to use a native measurement feature of most scopes, rise time.

At best, you are still stuck with the problem of the measurement tools introducing their effects into the problem.

So how do we solve this? Well let's consider how a capacitor works from first principles, and see if we can exploit that to our benefit. The most fundamental definition, for a capacitor is:

$$Q = C * V$$

where Q is the charge in Coulombs, C is the capacitance in Farads, and V is the voltage in Volts. To be clear, there are measurement techniques that use nothing more than this relation, but those typically involve an electrometer, which is even more exotic (i.e. expensive) than a typical LCR bridge.

So, since that won't help us, we will need to explore some AC behavior. Without going into a formal mathematical analysis, we can, with quite reasonable assumptions turn the equation above into:

$$I = C * \Delta V / \Delta t$$

where I is current in Amperes, C is the capacitance in Farads, and  $\Delta V / \Delta t$  is the change in voltage divided by the associated change in time, in Volts per second.

The only assumption being made is that  $\Delta V / \Delta t$  is a constant; that is, the voltage ramps up (or down) steadily in time. The current is what you would measure going into the capacitor when that ramped voltage is applied. For those interested, this is also equal to the displacement current that flows between the plates of the capacitor. We'll save that discussion for another day.

Please note that there is one special case – when the voltage is not changing on a capacitor, whether the capacitor is charged or not, there is no current flowing (setting aside leakage currents that typically won't matter for our small valued capacitors). The last concept we will leverage is one that you all know – Kirchhoff's current law. The current through circuit elements in series is the same in each element.

So how does any of this help us? Well, if we can avoid probing directly across the capacitor, we can eliminate the big sources of error. Also, if we can take measurements with our scope only when  $\Delta V / \Delta t$  equal to zero across the scope input, we can ignore the scope's capacitance (but not it's DC resistance).

The circuit used is in fact the same as the simple approaches – a function generator in series with a known resistor and the capacitor under test. However, in this case, we will only be measuring across the resistor with our scope, treating it as a shunt resistor to determine the current.

We will also be using a triangle wave from our signal generator; that wave gives us our constant  $\Delta V / \Delta t$  (a positive constant while rising, and a negative while falling). There is a little care that needs to be taken in picking the value of R and the frequency of the triangle wave (more on that later), but otherwise we have everything we need to calculate our unknown C.

Remembering that the period of a repetitive wave, is just  $1/f$  (where f is frequency), and that a triangle wave goes from V- to V+ in one half period, and from V+ to V- in the other half of each period, we get the following for  $\Delta V / \Delta t$ :

$$\text{SigGenVpp (peak to peak)} = (V+) - (V-)$$

$$\frac{1}{2} \text{ Period} = 1 / (2 * f)$$

$$\Delta V / \Delta t = Vpp / \frac{1}{2} \text{ Period} = 2 * f * \text{SigGenVpp}$$

The current through the resistor will be the measured voltage on the scope divided by  $R \parallel$  (Ohm's law).  $R \parallel$  is the parallel resistance of the shunt resistor and the scope's DC input resistance (typically  $1M\Omega$ ).

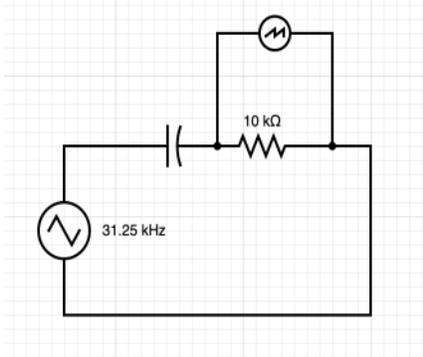
$$I = C * \Delta V / \Delta t \text{ (our fundamental formula)} = \text{Scope voltage} / R \parallel$$

$$C = \text{Scope voltage} / (R \parallel * \Delta V / \Delta t) = \text{Scope voltage} / (R \parallel * 2 * f * \text{SigGenVpp})$$

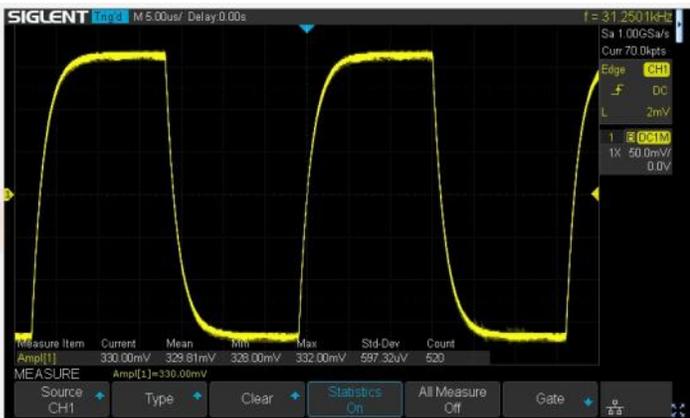
You don't really need to worry about the above derivation – just know that we now have an expression that gives C, as long as we know the measured scope voltage, the value of R, along with the Vpp and frequency setting of our signal generator. What you will see on the scope is roughly a square wave (a wave that alternates from the value when  $\Delta V / \Delta t$  is positive, to when  $\Delta V / \Delta t$  is negative). If we use the scope's built in measurement for the amplitude ( $V_{AMP}$ ) of the square wave, it will be twice the value of what we need to substitute in our equation above. With that:

$$C = (V_{AMP}) / (R \parallel * 4 * f * \text{SigGenVpp})$$

Let's look at some examples to help make this clear. Here is our basic setup, in all of its simple glory:



In my first example  $R \parallel$  was  $9.9\text{k}\Omega$  ( $10\text{k}\Omega$  in parallel with the scope's  $1\text{M}\Omega$ ), SigGenVpp was  $8.08\text{V}$ , and the frequency was  $31.25\text{ kHz}$ . As shown on the scope image below, Scope Vpp came in at  $329.81\text{ mV}$  (use the mean value if your scope has it).



$$C = (329.81\text{mV}) / (9.9\text{k}\Omega * 4 * 31.25\text{ kHz} * 8.08\text{V}) = 33.0\text{ pF}$$

Please note that this technique depends on getting a waveform that reaches a flat top and bottom before the transitions. You will need to adjust the signal generator frequency for different capacitance values, watching the scope to get a suitable waveform. For larger capacitors, you'll need a lower frequency to get a sufficiently flat top. Those flat tops are the critical feature which allows us to ignore the scope probe capacitance, since at those moments, the scope is not seeing a varying input voltage, and probe reactance becomes zero.

With that said, you have a fair bit of flexibility in picking your frequency, so that you can test your capacitor under different conditions. I also carefully measured my test setup capacitance by removing the cap, adjusting the frequency until a good set of flat tops and bottoms were shown and got  $0.6\text{ pF}$ . Yes, with care, you can measure down to tenths of a  $\text{pF}$ ! So my net measurement was  $32.4\text{ pF}$  ( $33.0 - 0.6$ ). Using a known good LCR yielded  $32.2\text{ pF}$  – less than a one percent error.

Here is one more example, with  $f = 6.25\text{ Hz}$  and all other values the same.



$$C = (960.0\text{mV}) / (9.9\text{k}\Omega * 4 * 6.25\text{ Hz} * 8.08\text{V}) = 0.48\mu\text{F}$$

Compared to the LCR meter reading of  $0.475\mu\text{F}$ , it was nearly within one percent agreement.

So what is the bottom line here? I'm not suggesting you replace your favorite multimeter capacitance measurement, but you may like to do a little testing to see how well it really works, especially at low values.

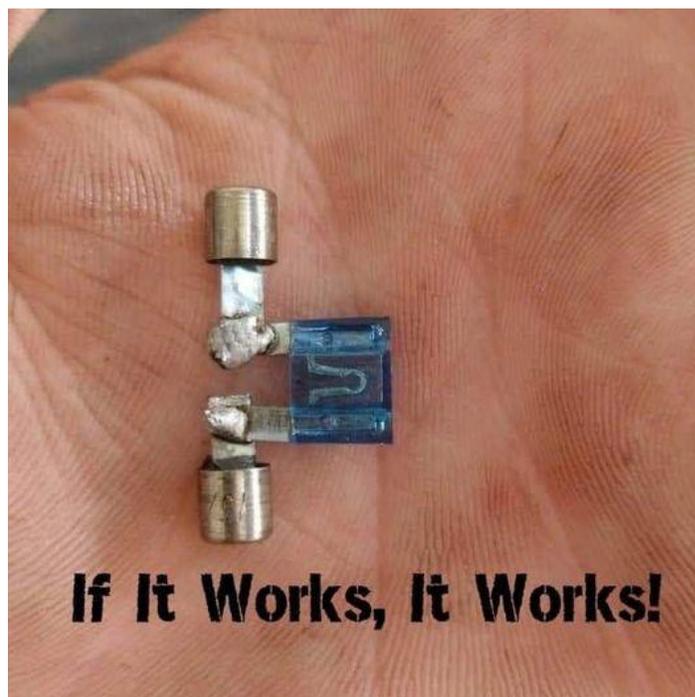
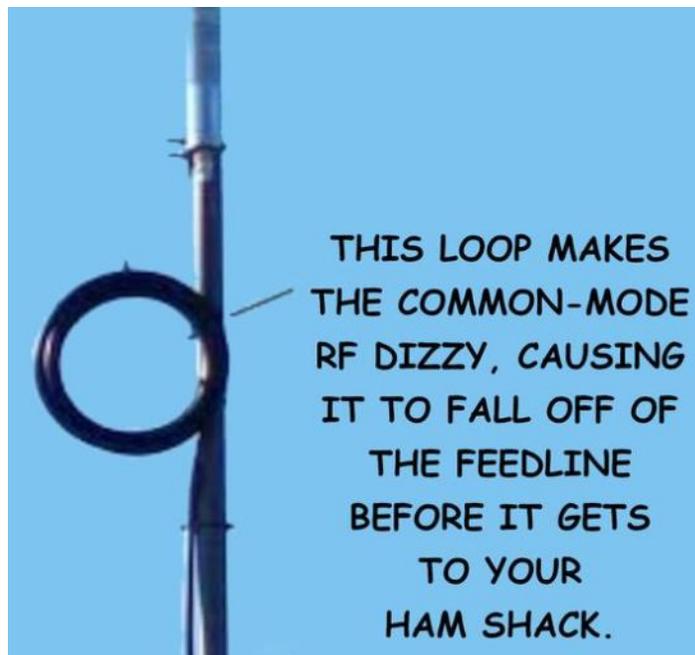
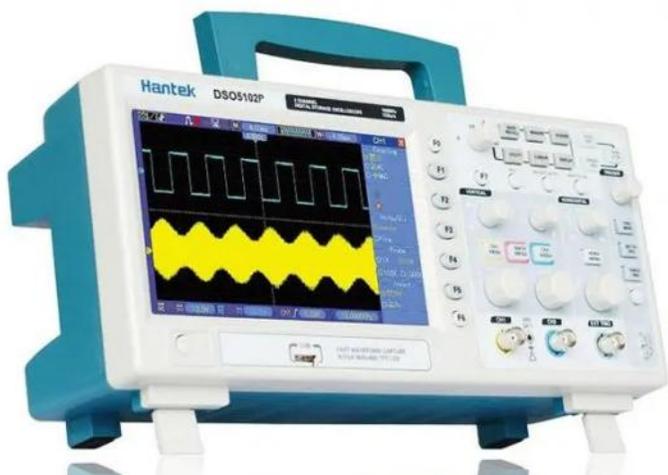
Moreover, if you need to do a measurement at specific frequencies, voltage amplitudes and offsets, you now have way to do so.

Finally, it is always fun to explore a new technique, even if for an old problem, and add it to your repertoire.

If you have any questions, please don't hesitate to contact me at: [kc3vnb@gmail.com](mailto:kc3vnb@gmail.com).

*de Brian - KC3VNB*

*Ed : Hobby Level Bench Building Examples :*



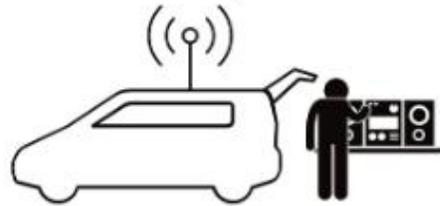
# WACOM HAMFEST

**July 30**  
**8am-1pm**

**FREE TO ENTER**  
**FREE TO SELL**  
**TAILGATING**

\*Ham radio or electronics related

WASHINGTON CROWNE CENTER  
MALL (REAR PARKING AREA  
NEAR BONTON ENTRANCE)  
1500 W CHESTNUT ST,  
WASHINGTON, PA 15301



## Raffle

- |                             |               |
|-----------------------------|---------------|
| 1. Yaesu FT-710 - Base      | \$2 each      |
| 2. Yaesu FTM-300DR - Mobile | \$5 for 3     |
| 3. Yaesu FT5DR - Handheld   | \$10 for 7    |
| *Drawing at Noon            | \$20 for 15   |
| *Winner need not be present | \$50 for 40   |
|                             | \$100 for 100 |

Tune to 147.54 simplex for on-site announcements



Talk-In on the K3PSP Repeater System

- 146.790- No Tone, Washington
- 147.285+ 131.8 Tone, Scenery Hill
- 145.250- 131.8 Tone, West Alexander
- 147.390+ 131.8 Tone, Smith Twp
- 147.315+ 131.8 Tone, Waynesburg

Contact Info

Hamfest Chairman:  
Tom Wright, N3WS;  
tom.n3ws@protonmail.com

## Welcome New Members !!

Welcome the following Skyview Radio Society Members who have joined us since publishing the April 2023 newsletter:

**N3OEX - Doug Wing - Export**

Remember that something is going on up at 'the joint' every Tuesday. Sign up for the K3MJW Groups.io Reflector to get the latest news and event announcements by email.

If you are a reader who is interested in becoming a Skyview member, then go to:  
<http://www.skyviewradio.net/> for information.

If you are a reader who is not yet a ham, and you are interested in becoming a ham, , then go to:  
<http://www.skyviewradio.net/> for information.



## Skyview Radio Society Roster as of 31 MAY 23

NM3A	WA3 HGW	WO3 O	KB3 SVJ
N3 AFS	KB3 HPC	KC3 OCA	KC3 TEX
KB3 APD	K3 HSE	KC3 OCB	WV8 TG
NA0 B	KB3 HXP	KC3 OCC	N3 TIN
W18 B	AG3 I	N3 OEX	N3 TIR
N3 BAH	AC3 IE	K3 OGN	W3 TLN
W3 BUW	KC3 IIO	N3 OIF	N3 TTE
KF3 C	AB3 IK	KB3 OMB	AG3 U
KC3 CBQ	WB3 IMB	KB3 ORO	NS3 U
W3 CDW	W3 IU	NK3 P	N3 UIW
K2 CI	K3 JAS	K3 PC	KC3 UNP
K3 CLT	KG4 JBB	K4 PDF	W3 UY
K3 DCG	N3 JLR	KC3 PIM	KX3 V
N3 DRB	KA3 JOU	K2 PMD	KC3 VCX
KB3 DVD	ND9 JR	KE3 PO	K3 VRU
K3 DWS	K3 JZD	W3 PRL	N3 VXT
KC2 EGL	WA3 KFS	KC3 PSQ	W3 VYK
KC3 EJC	AC0 KK	KC3 PXQ	N3 WAV
K3 ELP	W4 KV	AC3 Q	K3 WM
AB3 ER	KC3 KXZ	NU3 Q	N3 WMC
WA3 ERT	WE3 L	WQ3 Q	KA3 WVU
N3 ERW	WA3 LCY	KC3 QAA	K3 WWP
K3 ES	KC3 LHW	KC3 QWF	N3 XF
KB3 EYY	WB3 LJQ	NJ3 R	W3 YNI
AC3 EZ	KB3 LND	K3 RAW	K3 ZAU
WB3 FAE	K3 LR	KC3 RIL	W3 ZVX
K3 FAZ	KC3 LRT	K3 RMB	
KC3 FEI	AB3 LS	KC3 RMN	
K3 FH	KC3 LZH	KC3 RPE	
K3 FKI	N2 MA	W3 RRK	
KC3 FWD	KC3 MBM	I2 RTF	
AC3 GB	N3 MHZ	KI2 RTF	
N2 GBR	K3 MJ	KD3 RVR	
AC3 GE	W3 MLJ	KQ3 S	
KC3 GPM	K3 MRN	K3 SBE	
K3 GT	N3 MRU	KC3 SDJ	
AB3 GY	KS3 N	KC3 SKX	
KC3 GZW	G4 NFS	KC3 SNZ	
NC3 H	KB3 NSH	KB3 SOU	
NY9 H	AJ3 O	K3 STL	
WB3 HFP	WC3 O	KC3 STV	

Notes: Only Call Signs are being published. Refer to QRZ.COM for more information. (Unable to publish those without Call Signs. )

## Kul - Links

Jody - K3JZD

There is lots of stuff out on the Internet... Some of it can brighten your day. Some of it can educate you.

I can't really copy and past it all in here. But, I can point you at some of it . . . . .

Are you ready for this : First edible rechargeable battery created from food  
<https://tinyurl.com/bdfje2zh>

How about this for a just for fun project ??  
<https://tinyurl.com/bf8w4hka>

I'll consider any Kul - Links that you find.  
Email then to me at: K3JZD AT ARRL DOT NET  
They might just end up in the next issue

## Previous Issues

Previous Issues of the Q5er are available at  
<http://www.nelis.net>

Next Newsletter will be **August 1, 2023**  
Closing Date For Submissions : **July 15, 2023**  
**K3JZD AT ARRL DOT NET**

## Become Well Known Publish in the Q5er

The Q5er goes to other clubs and is available to all on our web site.

Submissions to : **K3JZD AT ARRL DOT NET**

>>>>> **WARNING** <<<<<<

An Alarm System has been installed up at the joint. Do Not go in there on your own until you learn how to disarm and rearm it.

## \*\*\*\* Skyview VE Testing \*\*\*\*

For Testing Dates, See :

<http://www.arrl.org/find-an-amateur-radio-license-exam-session>

Time: Usually 8:15 AM

Location: Skyview Clubhouse Meeting Room  
2335 Turkey Ridge Rd  
New Kensington PA 15068-1936

Contact: Bill Dillen  
(724) 882-9612

Email: [bdillen@comcast.net](mailto:bdillen@comcast.net)

Please E-Mail or call to register!!!

While walk-ins are accepted, the exam session may be cancelled if no candidates are scheduled.

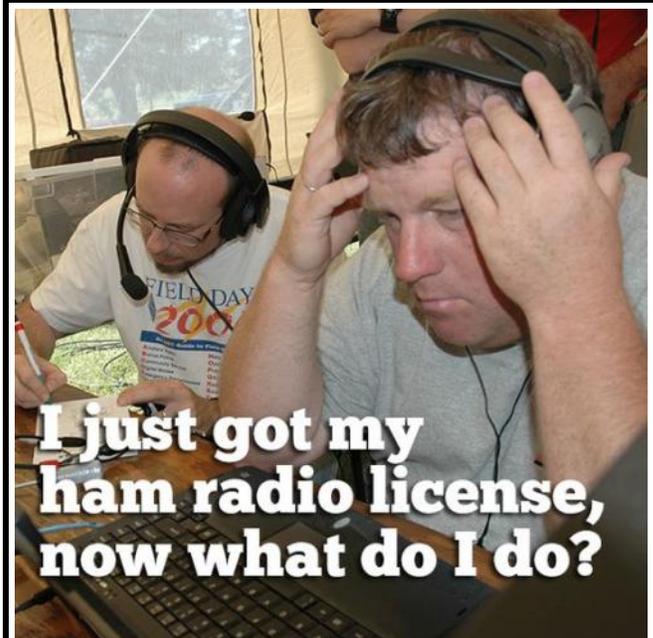


Q5er Editor & Publisher: Jody Nelis - K3JZD

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**I just got my ham radio license, now what do I do?**

That's Easy . . . .

Come up to the Skyview Clubhouse on any Tuesday and ask !!!

And See : <https://tinyurl.com/y79tqsr8>

All General Information about the Skyview Radio Society is at <http://www.skyviewradio.net>

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Is this how your dining room looks ??

Send in pictures of your Ham Shack