Gray Line Report

Noise Sleuthing

5B WAS Triple Play

Antenna Restoration

... and more!

December 2020

Minnesota

Newsletter of the Twin City DX Association
www.tcdxa.org

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Outgoing TCDXA President Bill Mitchell on a backpack QRP rove. See page 6.

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TCDXA DX DONATION POLICY

The mission of TCDXA is to support DXing and major DXpeditions by providing funding. Annual contributions (dues) from members are the major source of funding.

A funding request from the organizers of a planned DXpedition should be directed to the DX Donation Manager, Mike Cizek, WØVTT. He and the TCDXA Board of Directors will judge how well the DXpedition plans meet key considerations (see below).

If the Board of Directors deems the DXpedition to be worthy of support, a recommended funding amount is presented to the membership for their vote. If approved, the TCDXA Treasurer will process the funding..

Key Considerations for a DXpedition Funding Request:

- DXpedition destination
- Website with logos of club sponsors
- Ranking on Most Wanted Survey
- QSLs with logos of club sponsors
- Most wanted ranking by TCDXA Members
- Online logs and pilot stations
- Logistics and transportation costs
- Up front cost to each operator
- Number of operators and their credentials
- Support by NCDXF & other clubs
- Number of stations on the air
- LoTW log submissions
- Bands, modes and duration of operation
- Previous operations by same group
- Equipment: antennas, radios, amps, etc.
- Valid license and DXCC approval
- Stateside and/or foreign QSL manager
- Donation address: USA and/or foreign

To join TCDXA, go to

http://tcdxa.org/

Lessons Learned from Sleuthing a Shack Noise Problem

By Al Dewey, KØAD

The noise culprit – a cheapie wall wart power supply made in China

It all began one Thursday night this fall. I decided to get on for the Thursday Night CW Sprint. This is a short 30-minute, low power contest every Thursday evening in which you work as many stations as you can on 20, 40, 80, and 160. I often hear Ron, NØAT during the event and usually work him for a few QSOs. When working Ron on 160, I noticed that I heard him all over the band and there appeared to be noise spikes on his signal. I didn't think much of it but when I got on the next week, I noticed the same thing. I contacted Ron and he said he noticed the very same thing with my signal! We decided the best thing was to find a local who could give both of us signal checks at the same time. Hans, KØHB agreed to take a listen. To my dismay, Hans said he heard the noise on my signal but not on Ron's. Confusing me even more was the fact that I saw the noise on BOTH Ron's and Han's signal. I concluded that the problem had to be at my end. But what could it be? I did some more checking at my end and found that all the other bands were clean on my Flex 6600m. The problem was unique to 160 using my Inverted L. I also did not notice the problem when using a dummy load on 160.

I opened a ticket with Flex to see if this might be a known problem with the Flex. When I explained that the problem only occurred on 160 when using my Inverted L, they suggested I disconnect everything from the Flex except the power supply and a direct run of coax to the base of the inverted L. I did that and the problem remained. They suggested I connect a 1:1 Balun at the base of the antenna and ground the coax at the point it comes into the house. So, I tried a 160M choke at the base of the antenna as well as another choke in the ground wire. None of this helped at all. I was beginning to think it must be something other than RF.

Several people suggested I try a different rig. Truth be told, I don't have a back up HF radio anymore. I sold both of them to fund

Flex 6600M Band Scope shot of my transmitted signal on 160 M prior to resolving noise problem

Flex 6600M Band Scope shot after resolving noise problem

the purchase of the Flex 6600M. So NØAT loaned me a neat little Yaesu FT 817 radio that we have used in the past on Field Day for satellite work. After figuring out how to put it on 160 CW, I called Ron for a signal check. Sure enough, Ron was seeing spikes on the signal from the 817 similar to those being put out my Flex. This helped reassure me that it was not my Flex which was a relief.

Kirk, NØKK happened to mention my issue to Gary Grivna, KØGX. Gary mentioned to Kirk that he has seen that kind of noise on a signal as a result of faulty LED lighting in the house. That got me to thinking whether I might have something in the house causing the problem. I have always believed the easiest way to check this was to put my radio on a car battery and cut all power to the house. So that's what I did and, sure enough, the problem went away! So, one by one, I flipped circuit breakers back on waiting for the noise to reappear. Sure enough, when I activated the circuit to the room where I have my shack, the noise was back. I went around the room and, one by one, unplugged things waiting for the noise to disappear. This included TVs, routers, LED lamps, etc. Finally, I got to my radio desk and started unplugging things one at a time. Way back in the corner under my desk was a small wall wart which powered a USB hub I added recently. I got on my back, reached behind the desk, and unplugged it. I got back up, looked at the radio, and the noise was 90% gone! I plugged it back in and back came the noise. I was elated. As it turns out, I really didn't need it anyway because all the

things plugged into my USB Hub were bus powered. So that wall wart became history. There was still a little noise left so I kept unplugging things. When I unplugged a small switching power supply that I used to power some shack accessories, the rest of the noise disappeared. I simply moved those things over to the main supply, which had plenty of capacity, and the rest of the noise was gone.

So what did I learn from this? The biggest thing is that noise sources can affect both receive AND transmit. I had never seen that at my QTH. This is why I thought sure it had to be RF related. One theory was that when my Flex was transmitting through my 160M inverted L, it was causing some other wire or metal object in the area to radiate some way causing the distortion / spikes. That seemed to make sense. Also, I have heard many stories of wall wart power supplies causing all kinds of problems but never thought much about it. Now that I have been a victim of a really bad one, I will always be suspicious of them – especially the cheapie ones imported from China. Finally, I reinforced my appreciation for the vast source of knowledge in our TCDXA and MWA community. A special thanks to NØAT, NØKK, KØHB, WØZQ and Tim at the Flex Help Desk for all the advice and suggestions they made which ultimately helped me sleuth this problem.

Note from the President

Bill Mitchell, AEØEE

With my time as TCDXA President nearing its end, I have been thinking about what has happened within the organization over the past three years. The largest and most obvious change has been the shift to all -virtual meetings necessitated by the COVID-19 pandemic. New members have joined, and several members have become silent keys. Remote operating has become much more routine, and there were even months where at Pub 42 we used the TCDXA callsign (WØTDX) worked a sponsored DXpedition from a remote station. We had tables and displays at hamfests around Minnesota and into Wisconsin. FT8 and FT4 have revolutionized DXing and made much more DX available to hams with modest stations.

It has been my privilege to work with many great volunteers who keep the TCDXA running. Volunteers help out at hamfests, create and edit the newsletter, maintain the website, maintain liaison with Pub42, handle AV gear setup/storage, present at meetings, handle the treasury, and review DX grant applications.

Looking forward, I hope that in the years to come we can continue to provide virtual meeting access to broaden participation. Solar activity is picking up from solar minimum last winter, which should make the DX a little more plentiful. I look forward to hearing you on the bands, and hopefully getting together again when it is safe to do so!

73 and good DX!

The 5-Band WAS and Triple Play

By Dan Dantzler, WØJMP

For the last decade or two, I have been chipping away at the ARRL 5 band Worked All States award. I decided early on that I wanted to work them all "in the wild", meaning no nets, no skeds, no spots and no QSO parties. About 3 years ago the effort stalled with two slots needed; North Dakota on 15 meters and Montana on 10. Both slots have a similar problem, states with low population and too close for normal F-layer propagation on those bands. I could hope only for some back-scatter or E propagation on 10 to fill the slots. And now, as we are at the bottom of the sunspot cycle, I had all but given up on filling those slots soon.

I was about to weaken and throw my silly rules out the window. Then, on June 27, I was setting up for field day. I was tuning around on 10 meters and bam! There is K7VIC, Jerald, calling CQ from Montana on 10 meter FT8. I called him, logged him, and half of my outstanding slots were filled. The contest started and, as D stations could work each other this year, it was a bit of a strange experience. But I was spending some time on 15 meters. I saw a station in Western South Dakota so I knew the band was short. There was a good chance that I could

work that last one, North Dakota if one was around. On June 28 at 0221 UTC, I heard KØHMZ, Robert in North Dakota calling CQ FD. Could I fill both slots within 24 hours of each other after looking for them for years? Yes, worked him, logged him and did a little victory dance around the shack. I was really excited. Then, at 0242 UTC I see Gerald, NØJE from North Dakota calling CQ FD on 15 meter FT8. Might as well make an "insurance contact" so logged and worked him also. Isn't that the way it goes. I spent YEARS looking for a North Dakota contact on 15 meters and then work two of them within 21 minutes of each other?

After reviewing what I needed for the 5 band award, I found that I had everything on LoTW for 15 so that was easy. I was missing one (Michigan) on ten meters so had to have a card field checked. Mike, WØVTT made quick work of checking the card and submitting it to the League.

The Triple Play

A couple months ago, a ham friend, K4SAF, pointed out the ARRL triple play award. I had seen it mentioned but never paid much attention to it. It requires three confirmed QSOs from each of the 50 states and each be confirmed on LoTW. The three QSOs must be one each on voice, CW and digital. When I looked, I found that I had them all on digital and lacked less than 10 on each CW and voice.

I chipped away and by our meeting last month, I only needed SD, TN and ND on CW and CO, MO, ND and NE on voice. Right there during the middle of our meeting, Lynn, WØND asked if my radio was on. It was and he gave me a call on 80 SSB. Boom! In the log. Then he asked if I needed CW? Yep, so right there on the same frequency, he worked me on CW. Thank you Lynn! ND is always my nemesis. Next, I knew that SD on CW would be the only one I would have difficulty with. Matt, KØBBC passed on a name, Arliss, W7XU. I looked in my log and he was there 3 times on SSB and digital on 6 and 2 meters. We made a sked for 2 but my amp was not working and we couldn't do it. We then moved to 40. He could hear me but I could not hear him. He told me it would take a few minutes but he would hook his amp up and we would try it again. He sent me a text and we made the QSO; SD CW? Check.

Now only easy ones left; TN on CW and CO, MO and NE on voice. NE is my home state. Even though it has been over 30 years since I lived there, I still thought it would be easy. When I contacted old friends, I learned that many had moved away, had become SKs or were no longer active. I did contact Joe, KØNEB (the cat in the hat guy) and we made several attempts without success. Next I checked into the Nebraska storm net on 80 and made a contact with a ham that used LoTW. I think SSB has the lowest LoTW usage of any mode.

Next, I went through my log to find hams that I had worked in TN, CO and MO who had confirmed on LoTW (other modes) and sent out a few emails. I soon only needed CO on voice. I then remembered that Bob, WØBV now lives in CO. I sent him an email and worked him on 40 to complete the Triple Play.

Hello 160!

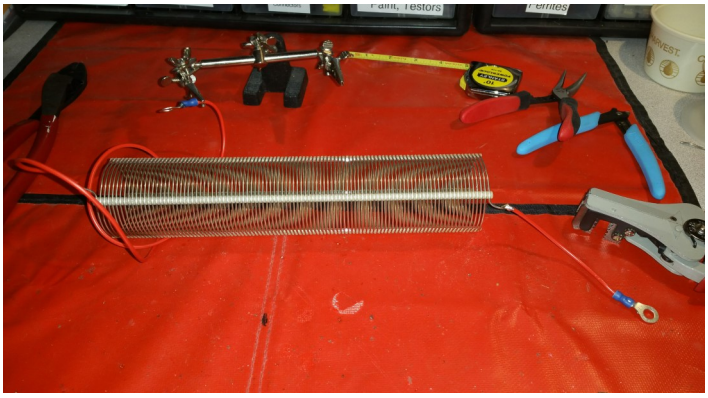
By Dan Dantzler, WØJMP

I have been a ham for 56 years but I have never had a 160 meter antenna. On November 8, a good friend started operating on 160 with a full-sized dipole. With that encouragement, I looked around the shack and tried to figure out how I could get on 160. I considered two possibilities: 1) tie the coax on my 80/40/30 meter dipole together and feed it against ground as a T with the coax becoming a single wire feed or 2) adding more inductance to my 43 foot vertical.

I already had the 43-foot vertical loaded for 80 meters. At the base of the vertical, I had an electrical enclosure with an un-un and a coil with about 9 µHy of inductance. Figured that I

Existing 80 meter vertical, un-un and inductor in the grey box

needed about 50 µHy to make the antenna resonant on 160! I thought about winding another coil like the one I made for 80 but then I remembered a piece of Air-dux coil that I bought many years ago at Dayton for a project that I never made. That coil had more

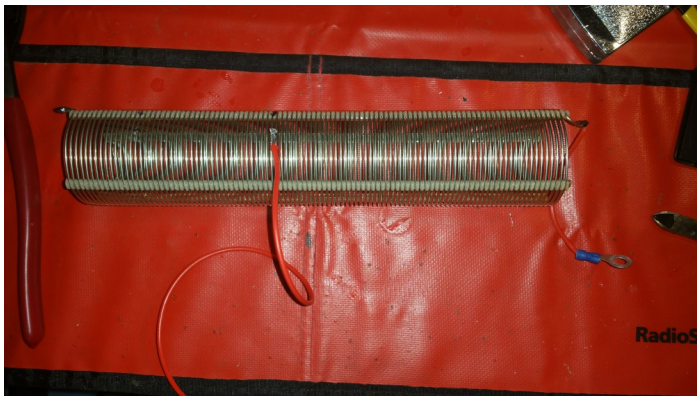


Air-Dux coil leftover from another unfinished project

than the required inductance so I just hooked it in series with the inductor in the box. It worked but was resonant below the 160 meter band. I made a rough calculation

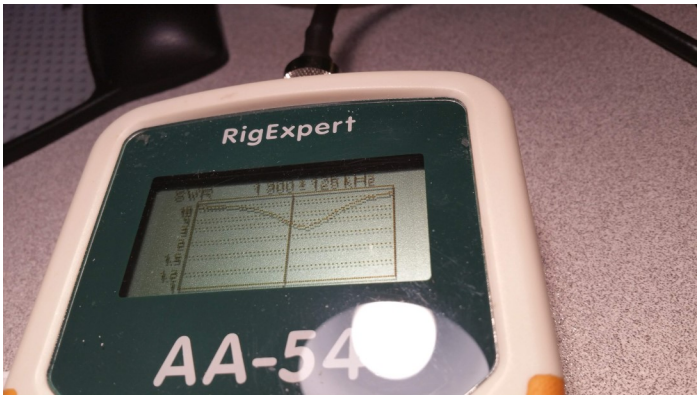
Full coil zip-tied to antenna, true red-neck engineering

on where the tap should be and moved it. It was close so I did one mere little tweak and it was resonant about 1.9 MHz; close



Tap on the inductor

enough to get on the air. I started operating and making some contacts, first one to K4SAF on FT8. I now made my first 160 meter QSO from my QTH! Then it started raining…and snowing. SWR jumped all over the place. Clearly the coil needs some kind of weather protection.

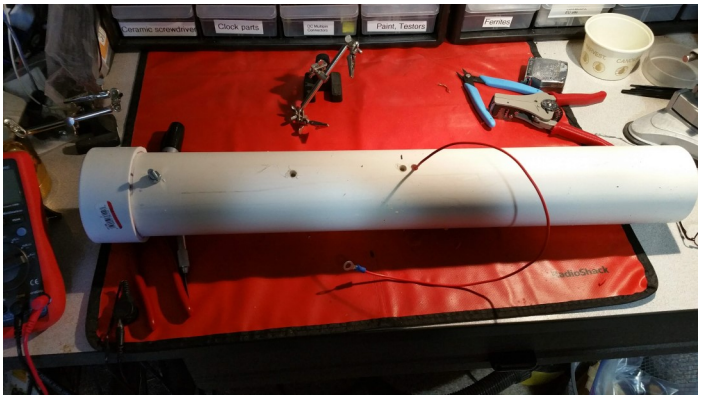


Resonant on 160

I found a piece of PVC pipe and a cap in my junk box so put the coil in the pipe. It seemed to provide adequate weather protection [See photo top of story].

Within a few days, I worked 47 states. I was trying to save MN for last and couldn't work AK or HI. In fact, I could barely even see them. I got several messages from Bert, WBØN saying "KL7xyz is on now and very workable." I couldn't see them at all. I know that when Bert can see them and I can't, that

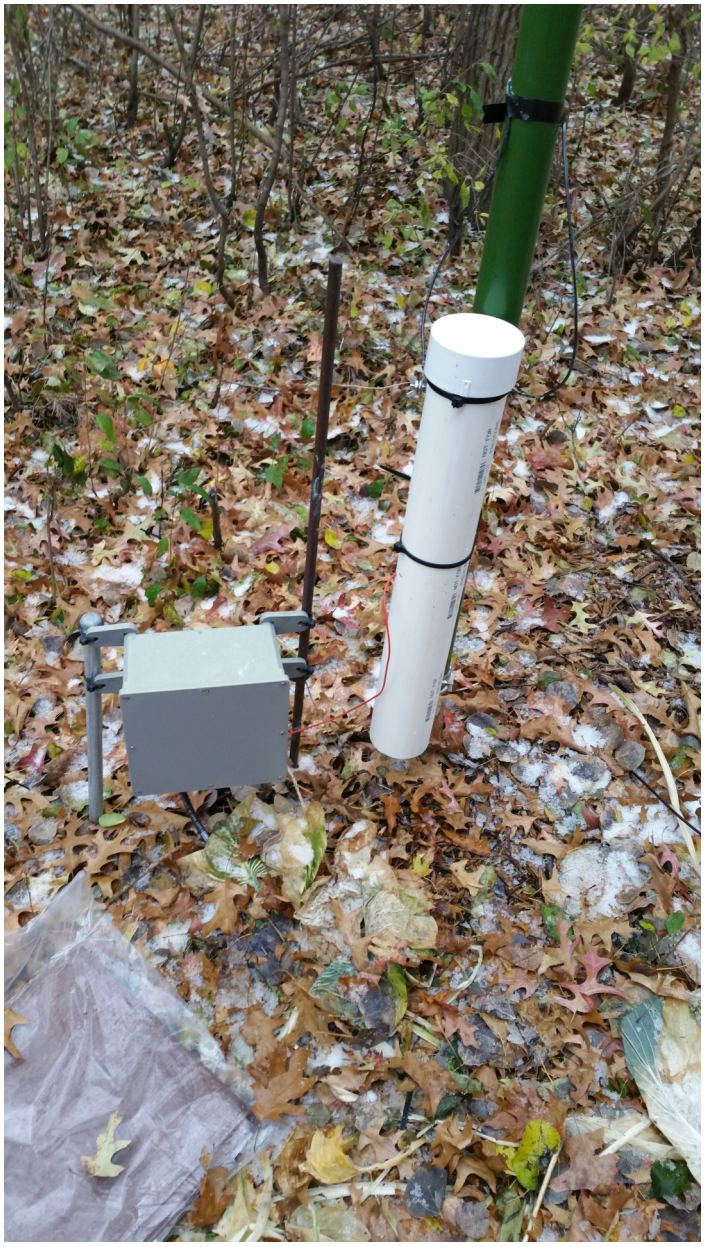
First iteration working on 160 but weather sensitive



Scrap PVC pipe converted to a radome

I will have great difficulty working them. I'm still trying and with a little luck and maybe a few improvements to the antenna, I will be able to work them. My friend, K4SAF worked all 50 states and had them all confirmed in her first ten days on the air! So what will I do next on 160? I have a pretty extensive radial field but it can always be better. I will lay down a few more radials for the winter months. The antenna is VERY narrow and the match is not perfect. Phil Salas, AD5X has written several articles on matching 43 foot verticals for 80 and 160. (http://www.oh1sa.net/data/mirrors/www.ad5x.com/images/Articles/Match160%20RevA.pdf)

I will follow some of his ideas and add relays at the base of the antenna to tune different places in the 160 meter band but that will wait until spring. In the meantime, I will just have fun and look for HI and AK and maybe a little DX. I realize that if I want to do better on 160 I will need a separate receive antenna. I don't have room for beverages so will look at other options. See you on 160!



Final version zip-tied to vertical

Tower 2020

By Greg Widin, KØGW

A few years ago, a tubular steel tower became available, a 40-foot US Tower MA-40. I had always been interested in a tubular tower both because they have a minimal footprint and since, by tilting down, one can still work on the antenna without having to climb. As we get older, climbing is something many of us would or should avoid. This version has the base which locates the rotator at the bottom, so the entire tower rotates.

I had in mind to put up the tower when we replaced the barn behind our house, and that project finally began in June of 2020. The tower was sited close to the barn, and took advantage of the excavating needed for the barn to get a hole for the tower base. I had to be sure the location would allow a beam (tribander dimensions used) to clear the new barn, surround-

Digging the hole

Pouring concrete into the form

ing trees and the existing windmill tower. I was surprised to learn just how much concrete was needed to support a 40' tower—5-1/2 feet deep by 3 feet square. Per manufacturer's design, there are two nested rebar cages in the concrete, and the anchor bolts are 3/4 by 27 inches.

Rebar cage in place inside the form. Bolts in template laid on top—note that there's only one template; there should have been two, spaced as far apart vertically as possible.

Base wire brushed and re-painted, with raising fixture attached on the back. Landscaping around concrete.

The base was professionally poured with a prepared cage, in steel forms. They didn't have 5-1/2 foot forms, so the concrete extends 6 feet vertically. The anchor bolts were hundreds of dollars from the tower manufacturer, but I found an Internet vendor who

Claw that will grip the tower, once raised.

could provide high-quality bolts at a fraction of that cost. The only real mistake made during the preparation of the concrete was that there was only one bolt template used, which spaced the bolts properly, but didn't align the bolts vertically. There should have been two templates, spaced apart to ensure the bolts were both spaced properly and perpendicular to the top of the concrete. To get the tower base mounted to the bolts, I had to bend them using an 8-foot pipe to get sufficient leverage. The bends weren't large, but there was little margin for error, with the close tolerance of the holes to the bolt diameters in the tower base. Fortunately, once the minor corrections were made, everything went together properly.

The photos show the steps of the process. I did everything "squeaky clean"—pulled a permit, used professionals for rebar, form and concrete pour, and got inspections. Because I was doing a barn project, it didn't add a lot of cost. Someone who knew what they were doing could have done this cheaper, but I've never done heavy construction, and I'm sure I would have made mistakes I'd regret, or the project would still be incomplete.

Tower in place in pivots, ready to raise into place.

Still to be done—add a mast (not yet in place in photos) which will add a bit more height. Refurbish a second tribander that will go on the mast. Put the rotator in place (at bottom). Fabricate a Tilt-Plate so the antenna will remain horizontal as the tower is tilted down from vertical. Run cables to the rotator and antenna from the shack.

Tower ready to raise, looking from the base, open claw visible.

The long-term plan is to migrate the largest antenna (the current tribander) from the windmill tower to the tubular tower, while leaving smaller antennas like the 6m and 17m beams. I might have to re-think that if a 40m beam became available in a good deal...

I also have material for a 3-element tri-band quad that I once thought I would put up. I was given it under the condition that I actually put it up. If you'd like to have it under that condition, talk to me.

Tower fully extended using crank -up winch, still in place.

Antenna Restoration

By Larry Menzel, WØPR

For us hams, whether we're just rag chewers or high power DXers or Contesters, getting our signal out there is of utmost importance...I think we can all agree on that. So having a good antenna selection is paramount for this activity.

I put up my first tower and beam back in about 1982, with a rickety old RG-20 tower, well-used little CDE AR-40 and a three element Cushcraft TA33. As a new ham, I was in heaven, as all my operating up to that time was from my portable station in my 18-wheeler or in my car. So a beam was a big step up.

Given that most of us are never satisfied with our ham setup or gear, I naturally wanted something bigger, higher and louder out there. There is only so much to be gained with a TA-33 and a Heathkit SB221.

Through my travels, I found that a ham in Duluth was selling a tower that he'd taken down. 80 feet of Rohn 45G, guys, anti-twist torsion bars, even a cable climbing system. All for the low, low price of $750, a bargain even by 1986 standards! I was quick to call and buy it. A week later, with my then 6-year-old daughter, Ellen, in tow, I drove to Duluth to claim it. Within a few weeks thereafter, preparations were made to erect the tower here at my QTH in North-

field. I dug the base, got a gin pole and erected the first 30 feet unassisted, and then hired some extra labor to get the job done.

The antenna was hanging by the boom struts!

I purchased a TH6DX with a TH7 upgrade kit, acquired a beefy, three-part climbable mast from IIX (I have a spare if anyone is looking for one) and secured a three element Hy-Gain Discoverer 7-3 from Frank Karnauskas, now N1UW (ex NFØK) who had recently taken it off his tower in Bloomington.

With the help of Frank, Dave Blair, WBØYUC (SK), and a few others whose calls and names are lost to the annals of history, we installed the beams on a cool fall day in October of 1986. I used a Create RC5B-3 Antenna rotor. I still have the videotape that Dave shot that day and it's fun to look back at a younger version of myself and others. But...I digress.

Fast forward about 5 years and I had the opportunity to purchase a TH-11 from Dan Dantzler, WØJMP. Funny story...Dan worked for Hy-Gain at the time and bought a new house in Burnsville, got the TH11, assembled it, and found that it was too big to turn without hitting the surrounding trees that were highly prized by his XYL. Long story short, Dan has a smaller antenna.

I hired a crane guy again, and swapped out the TH7 for the new TH11, and it's been up there ever since.

OK...that's the history.

Lightning damage to the clamps

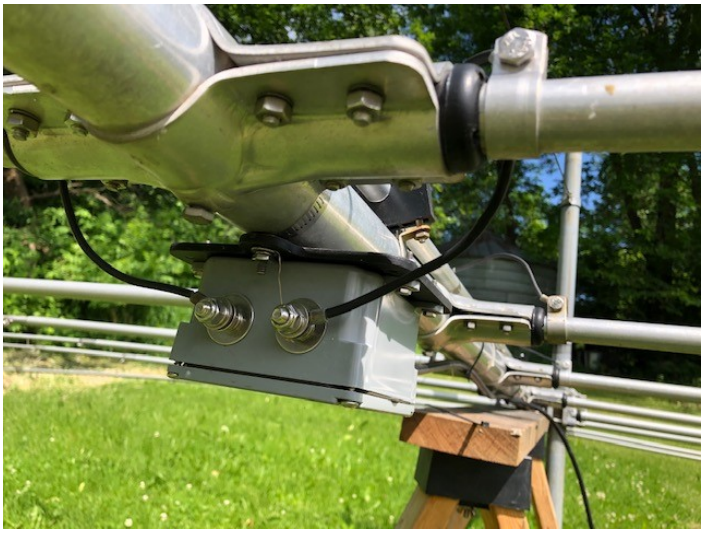
About four years ago, I took a lightning strike to my tower. Strangely, the lightning did no harm to any of my equipment. Not to my radios, my rotator...nada...only the boom-to-mast clamp and balun on my 40 meter beam. I have to thank Dan Soderlund, KBØEO who is gracious enough to climb my tower as I am no longer willing/able. So, here's what he found upon inspection at 80 feet:.

Yep, it was totally fried. And the antenna was hanging by the boom struts.

Crain dropping the antennas to the ground

KBØEO on the tower as antennas are lowered

This was over three years ago. Needless to say, there was a lot going on in my life. I had recently assumed a new role as a Building Site Supervisor for the Rice County Habitat for Humanity affiliate, and was building homes three days a week along with the administrative duties that entailed, playing a lot of golf in the summer and just generally not that interested in amateur radio. So...it all just hung there. Dan had tied



New BN4000 Balun

the antenna to the mast, and I just looked at the sorry mess and didn't want to deal with it.

Earlier this year, I wandered back into the shack and tuned in to the morning chatter on 3680. There, Dave Wester, KØIEA, Dennis Johnson, KFØQR, Jim Junkert, KØJUH, and Tom Lutz, WØZR, Larry Groom, WØSX/7, and a number of others encouraged me to get back on the air. I was overwhelmed by the changes that had occurred in the hobby in just a few years. But, it didn't take much convincing, and I swapped out my ancient TenTec radios and replaced them with a couple of Icom IC7300's and I was off to the races...except those antennas! Yeah, that.

As it was midsummer, it was ideal timing to get the antennas off the tower. I contacted Dan Soderlund again, and with the help of a local crane guy (and to the tune of $550), we pulled the beams off the tower and dropped them in the yard.

The TH11 was in fine shape after over 30+ years in the air. Still shiny in fact, but

Deciding to keep the 3-element configuration

not playing well. After checking all the measurements against the manual, I only found a couple discrepancies, and those just a few inches here and there, the real culprit, it turned out, was the BN4000 balun. Perhaps the lightning did get it, all I know is it was waaaay off. So I ordered up a new one from DX Engineering and installed it on the boom:

We also stripped all other antennas, a 13 Element 2M boomer, a side mounted TA33 (my original beam that I reacquired and used for contesting) and my Cushcraft 5 Element 6M beam. So, the tower was bare!

The Hy-Gain 3 Element Discoverer 7-3, however had sustained a lot of damage, both from the lightning strike and my subsequent neglect. Dan, KBØEO, thought it had too much damage to use, but I thought otherwise. Upon closer examination, yes, there were some wear spots on the boom, but nothing major and the antenna actually wasn't all that damaged. I had originally thought that I'd put it back up as a two element, but decided to repair it and keep it in its current 3 element configuration.

The real damage was to the balun (no big deal) and to the linear loading wires that give the elements their electrical length. The

linear loading is nothing more than a continuous aluminum rod that connects the element section together. There are loops and turns, but those loops and turns are connected by small nuts and bolts, which were prone to breakage by the constant flexing of the elements in the air. After 30 years, a lot of them had either cracked or broken completely, rendering the antenna useless. After WEEKS of waiting and multiple phone calls, I finally got the replacement parts from Hy-Gain (now MFJ...say no more). In the meantime, Dale Hagert, WØIR, loaned me the two driven elements and all their hardware so I could get the beam repaired and up on the tower.

I replaced the missing (exploded?) balun with about 12 turns of RG-213 on a 14" diameter, attached it to the boom and connected it to the driven elements. I replaced the two Beta rods and carefully measured their attachment points on the boom. I had originally intended to simply replace the boom struts with steel cable as when new. But Mark Franklin, KØKX, suggested using Phillystran instead. It has much higher tensile strength, is much lighter and is non-resonant as well.

I recruited Denny Moe, KØTT, to come and assist me with the final installation. Dan, KBØEO, came earlier in the day and installed another Create RC5B-3 that I bought from Brian, K9RA. As it turned out, my original Create rotator was still working fine...wiring issue. I got the crane guy back (another $600) and we reinstalled the antennas. Denny spent about two hours reconnecting all the coax and dressing things on the tower.

All in all, the whole process took a lot longer and cost more than I expected. But, I'm happy to report that both antennas are working perfectly. With the new balun on the TH11, my SWR is under 1.2:1 on all bands but 12 meters, and there it's only 1.6 or so, and still very effective. The Discoverer 7-3 is better than ever. By the way I pushed the TH11 to the top of the mast, so I now have about 16 feet between the two antennas...seems to help performance on both. The 3 Element is absolutely flat across the whole 40 meter band. My thanks to all who encouraged me and/or helped get this project done. I topped the stack off with a 2/440 vertical and here's the finished product.

73 to all and Good DX. Stay safe out there.

Member Profile — Mark Johns, KØJM

Back in a previous century, in Des Moines, Iowa, a friend and I started playing around with electronics. We were about 12 when we found a junk TV set in somebody's trash and started taking it apart to recycle the components, mostly for projects that ended in smoke. We both went on to get licensed (he's WAØWYX) and to become college professors. Fortunately, we had many good Elmers along the way. One of mine was Jack Peterson, KØAMB (SK), a Navy radioman and later a Lutheran minister, whose parents lived next door to me.

In those days, you could only be a novice for one year, then you had to either upgrade or get out of the hobby. So, I waited until I had saved up for a decent receiver, and got my novice license about the time of my 15th birthday. I was assigned the random call of WNØRGV. The written tests were never a problem for me, but I always struggled with the Morse Code, so at the end of my year I became a Technician with no HF privileges back then.

Two-meter FM wasn't really a thing yet, so as WAØRGV, I played around on 6 meters for two more years before I could get my code speed up. I passed by General to Advanced. But I never could get my code speed to 20 wpm. I didn't pass Amateur Extra until years later, when the code requirement was dropped. I've always admired, and been a bit jealous of, operators

While other high school kids worked to save up for a car, Mark as WAØRGV in 1970, worked to save up for a transceiver.

who are adept at CW. I practice, but it just doesn't come to me.

Through college, grad school, and early career we were on the move quite a bit. I often signed /Ø, with QTHs in Fremont, Omaha, and Ashland in Nebraska, Spirit Lake and Iowa Falls in Iowa, St. Paul, Roseville, and Maplewood, in Minnesota (back and forth, not necessarily in that order). Cedar Falls, Iowa was by far our longest stay – my wife and I raised our two daughters there and remained 26 years.

The last two decades of my career were spent as a professor at Luther College, a small liberal arts college in northeastern Iowa. I taught media studies, media production, broadcast journalism, and public relations – as well as some basic public speaking courses. With a name like Luther College, it shouldn't be a surprise that the school is affiliated with the Lutheran Church. I am, in fact, an ordained minister in the Evangelical Lutheran Church in America (ELCA) – but I haven't been in the marrying and burying business for a very long time.

Largely because of ham radio, I passed the old FCC First Class Radiotelephone exam back when I was in college. With that ticket in hand, I was able to get a job as an engineering technician at public television stations KTCA & KTCI in the Twin Cities. This is how I worked my way through semi-

Satellite array at KØMDJ in Cedar Falls, Iowa around 1997

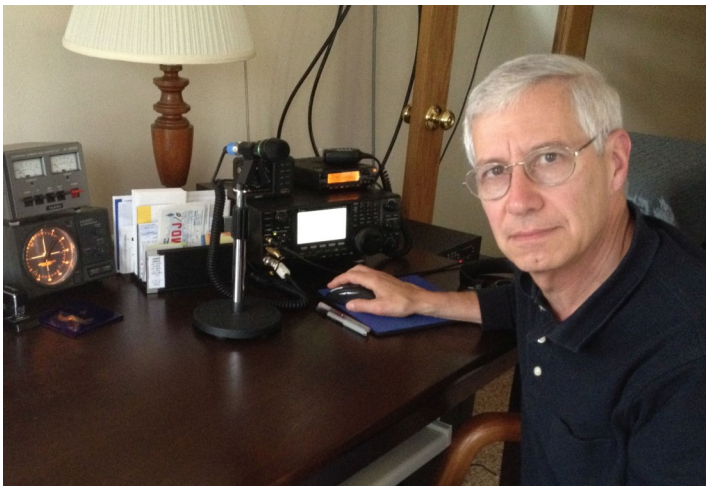
nary. I even dropped out for a while and worked full time for a commercial TV station, KSTP. So, when I did finally become a parish pastor, serving congregations in Iowa and Minnesota, the word was out that I had some expertise in the media field. The Lutherans put me to work.

I did some media production for the denomination, and some consulting on communication strategies at the congregational level, then regionally, and later for the ELCA denomination. I wrote some communication resource materials published for congregations and ELCA non-profit organizations. Finally, I quit my job and went back to school. I earned my Ph.D. in mass communication from the School of Journalism at the University of Iowa and became a full time academic until retiring from Luther College in May 2017.

KØMDJ was my dream callsign, because it's my initials, and I had it from 1997 to 2018. But when nearing retirement gave me more time, I started getting involved in HF contesting. KØMD is a very well-known contester, and with my QTH then in Decorah, Iowa, we were located only 70 miles apart. KØMDJ vs. KØMD created some confusion in the contests. That's when I started looking for a 1x2 call. But I didn't become KØJM until 2018, after I had retired and moved to Brooklyn Park.

My wife and I love world travel, and as a college professor I had a couple of opportunities to live and work overseas. In 2011 we moved to England for a year, and I was issued the call MØGZO, which I still hold. I also did a half year exchange in Malta in 2016, and had the temporary call of 9H3DJ. Unfortunately, I had little operating time and limited antennas in both overseas situations.

I have always been a tinkerer, probably more than an operator. I always have some sort of project or technical challenge I'm working on, though I'm certainly no engineer – some projects still end in smoke. Satellites were a technical challenge. I started listening to 10-meter and 2-meter downlinks in the late '70s. It was sometime in the early 1980s when I acquired a couple of Icom transceivers, an IC-290H and an IC-490A. I got them used, by way of the old "Yellow Sheets" that served for buy-and-sell pre-internet. Eventually the station was ready for AO-10, and when I could start working DX via satellite, I was definitely hooked. Between AO-10 and AO-13, I managed to earn DXCC-Satellite.



Mark as KØMDJ in Decorah, Iowa in 2013

In retirement, I am now about as close to being a full-time amateur as I can be. I'm operating on satellites daily, on FT8/FT4 often, and in contests occasionally. My journalism and mass media background is put to use as Senior Editor of the AMSAT News Service bulletins, and as the layout guy for Gray Line Report [And it feels more than a little odd to be laying out one's own life story in this newsletter!].

The only role I now have more important than "ham," is "grandpa."

Current antennas at KØJM, Brooklyn Park, Minn.

Backscatter

Collected by Mark Johns, KØJM

WELCOME ABOARD

Charlie Anderson, NGØC
St Peter, Minn.

"We adopt our proposal from the Notice of Proposed Rulemaking to remove the amateur allocation from the 3.3 – 3.5 GHz band," the FCC said in its Report and Order (R&O) and Further Notice of Proposed Rulemaking in WT Docket No. 19-348, adopted on September 30 and published October 9 in The Federal Register, R&O. "[W]e adopt changes to our rules today that provide for the sunset of the secondary amateur allocation in the band, but allow continued use of the band for amateur operations, pending resolution of the issues raised in the Further Notice."

Surprisingly clear videos of the Arecibo Observatory collapse are now available, one from a drone that was actively inspecting a cable during the event and the other from a camera in the control room. A detailed frame-by-frame analysis is available at:
https://www.youtube.com/watch?v=59WQIRvezzI

The NOAA Space Weather Prediction Center now reports that Solar Minimum occurred in September of 2019 and Cycle 25 has begun. This cycle is predicted to reach a peak similar to that of Cycle 24, in summer of 2025. However, sunspot numbers for November 2020 showed a sharp spike 50% above predictions. Spikes and dips are common, but can we be hopeful?

Dollars for DX Report

Mike Cizek WØVTT, DX Grant Manager

We actually had some action on the DX donation front this quarter. In September, we voted 51-7 to give $250 to the German team going to Kosovo; #87 on the Clublog most needed list at that time. Your editor was pleased to work them on 12m for a new DXCC Challenge point, but is still awaiting a QSL. Z6 was a new one for 24% of the voters.

After a healthy on-line discussion, in early October the club voted 25-16 to award $1000 to the JXØX team for their planned trip to Jan Mayen. JX would be an all-time new one for 29% of those voting. However, shortly after we made the payment, team leader Ken Opskar, LA7GIA, had to cancel the operation and they quickly returned all of the donations. They have tentative plans and permission to reschedule the trip once the virus situation is more under control.

This was by far the closest vote we have had in the last six years, which is when my record keeping begins. This is not surprising, given the healthy amount we were donating to a country that only ranks #70 on the Clublog list and now has a resident ham who is reasonably active (if you can get through those (@*#$#&*@!* Europeans!). It was good to read the online discussion, but a bit disappointing to see only 51 votes. This represents about one third of our membership. Remember, this is your money we are giving away. Please vote.

We will vote on one more donation later this month. Not a DXpedition this time, but the club is considering a major donation to the ARRL Logbook of the World project. LoTW committee chair Greg Widin KØGW will give a presentation at our December meeting, explaining the ongoing work and the ideas for new projects that would benefit from our donation. Monday evening, 21 Dec at 7:00 p.m. (That's 0100z on the 22nd for those of you who keep your wristwatches on GMT.) Voting will start after the meeting.

Finally, our online voting needs to move to a new platform. Survey Monkey has worked very well for us, but they are changing the terms for their free account next year and it will no longer work for us. After trying some of the other free online survey tools, we decided to return to collecting votes on the club's web page. Your DX Grant Manager is not the most computer literate person, but webmaster KØPC has been a very patient instructor and we hope to have everything up and running in time.

Join TCDXA

Our mission is to raise *Dollars for DX*, used to help fund qualified DXpeditions.

Our funds come from annual member contributions (dues) and other donations.

TCDXA is a non-profit organization, as described in Section 501 (c) (3) of the Internal Revenue Code. All contributions from U.S. residents are tax-deductible.

Becoming a member is easy. Go to http://tcdxa.org/ and follow the instructions on the home page.

All contributions (including annual dues) may now be paid on our secure site, using PayPal or credit card.

The MWA Contest Corner

Taking Contest Voice Keying to the Next Level

By Al Dewey, KØAD

Although I don't operate that many phone contests, I always try to at least get in the ones on the MWA list. When I do, I find using a voice keyer a necessity for two primary reasons. First of all, it saves the voice and throat during a long contest. Secondly, my shack is located in a den off our bedroom. Besides being the place where I operate, it is also the room where we watch TV so Marianne is often watching TV while I contest. This is no problem for CW and RTTY / Digital contests but it can really be annoying to her when I am operating phone. So I have an incentive to do as little "talking" as possible during a phone contest.

To accomplish this, I have always used a voice keyer. I typically have used the voice keyers that were built into my Yaesu and ICOM radios. For most contests, I just recorded four messages: a CW, an Exchange, a QRZ, and my Call. With these four simple messages, I can make S&P contacts in a contest without saying a word. When I run, however, it is necessary for me to voice the call sign of the station I am working. Of course, some contests have a unique component in each QSO – most often a QSO number. ARRL Phone Sweepstakes is one of these contests. As I approached phone SS this year, I got to thinking about whether I might be able to use voice keying to voice both the call sign I am working and the serial number. I took out the N1MM manual and read up on voicing. I decided I was going to give it a try (for at least numbers) and use ARRL Phone SS as a "test bed."

N1MM Voicing Capabilities

When I received my FLEX 6600M a while back, I started using N1MM for voice keying because, surprisingly, the 6600M does not have a built in voice keyer. However, voice keying was easy to set up with N1MM and FLEX's DAX application. Once things are set up, you can use N1MM's "Record on the Fly" capability to easily set up the voice messages you want to use with each Function Key. I have used this in the past and it works pretty slick. You can even change your recorded messages easily in the middle of a contest. I then saw that N1MM had the capability to voice both call signs

and numbers. This was what I was looking for. I decided I was going to start with just the voicing of numbers this year. I had heard a few guys voicing call signs and, in my opinion, they did not sound very good. So I decided to concentrate on voicing of numbers. My plan was to try different things during the contest to see what seemed to work the best. I had a couple surprises which I will describe later.

Simple and Advanced Voicing of Numbers

N1MM supports what they call simple and advanced voicing of numbers. Simple voicing is easy to set up and it simply voices all the digits in the number. For example, the number 257 would be voiced as "two five seven". To set up simple voicing, all you had to do is set up ten voice files for the digits 0 through 9. I decided I wanted my number voicing to sound a little more natural so I opted for advanced voicing. Using this technique, the number 257 would be voiced as "two hundred fifty seven." This required setting up individual voice files for 0 through 19, 20, 30, 40, 50, 60, 70, 80, 90 ,"hundred", and "thousand". I patiently recorded each of these numbers using the N1MM "record of the fly" capability and a dedicated function key. When each WAV file was recorded, I renamed it and copied it to the right place in the N1MM file structure. It didn't take too long. If you are going to use advanced voicing, one of the things that N1MM does is check to make sure all the necessary files are present on start up. If not, you get an error message. It took me a few times to make sure I had all the needed files.

Testing and Adjusting Files

I tested things out by setting up a dummy ARRL Phone SS contest in N1MM. I then set up all the Function Key Macros. For testing, I set up the Exchange macro to only include the serial number since I didn't care about the other parts of the exchange at this point. There is also a special N1MM configuration parameter in the "Other" category in which you specify the path to all the WAV files for voicing numbers. I set that up next. Then I simulated working the contest by entering a call and pressing the Exchange Function Key (F2 in my case). I listened to how each digit sounded as I entered a new contact and made notes on ones that I wanted to adjust. Number 1 through 20 were pretty straightforward. Starting at number 21, two or more files are combined to form the number. The main thing I listened for were digits that sounded too fast, too slow, too loud, or too soft. I also listened to the spacing between digits to see if it sounded too short or too long. Again I made notes. Periodically, I would take some time out of

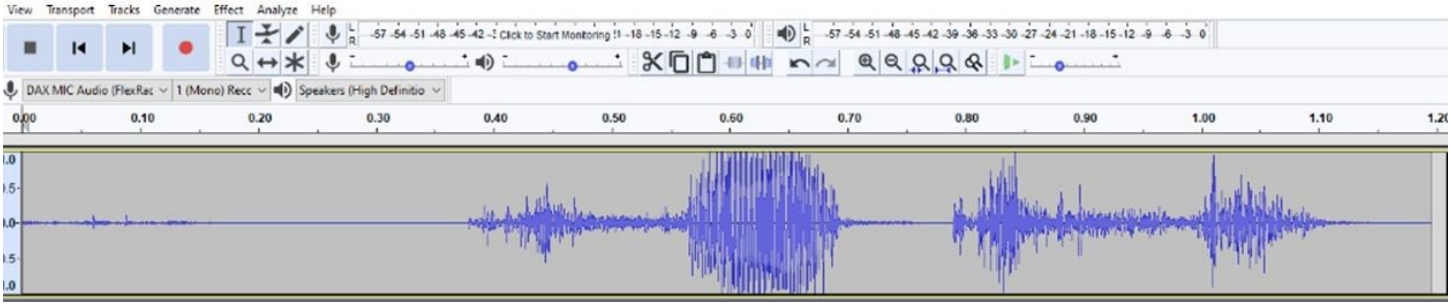


Figure 1 — Original WAV File for the number "six"

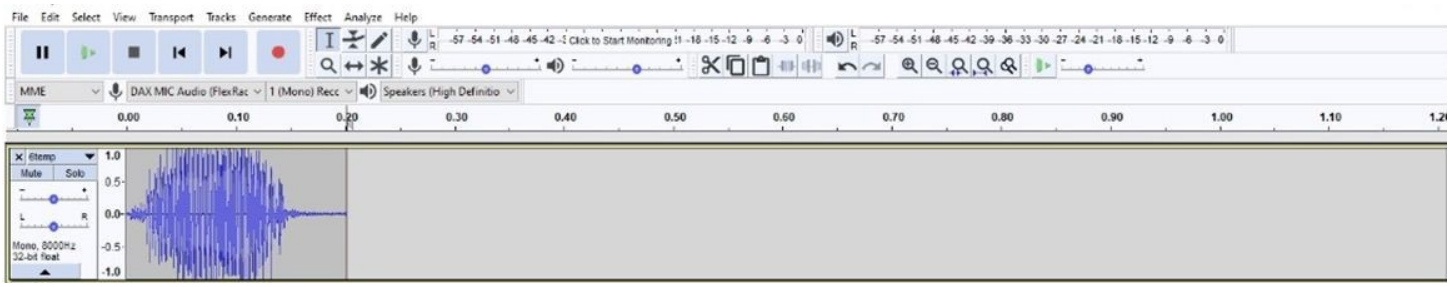


Figure 2 — WAV File for the number "six" after editing with Audacity

the contest to record some modified WAV files based on my notes.

Next I fired up the Audacity sound management software (Free Download at www.audacityteam.org). This is a great program in which you can edit and manage sound files. What I found (and this is common) is that each of the sound files I recorded had some dead time before and after the sound of the digit itself. These delays were caused mainly by how coordinated I was when pressing the various keys when I recorded the files using the N1MM "record on the file" feature. As an example, Figure 1 show what the raw recording looked like when I recorded the digit "6." Notice that there is a long delay before the "main part" of the audio. Afterward, there is another delay and some random noise. Using Audacity, you can cut the dead time out of the file. Figure 2 shows what the edited Wav file for the digit 6 looked like. I did this on every file I recorded. It made a big difference on how the voiced numbers sounded.

Lessons Learned in the SSB Contest

I went into the contest thinking that simple voicing would not sound very natural. In other words, it would sound a lot better to voice "One Hundred Twenty Five" than to just say "One Two Five." About halfway through the contest, I was not so sure so I switched back to simple voicing and that actually seemed to go faster with hardly any request for repeats. Another thing I found was that voicing 125 as "One Hundred Twenty Five" seemed to take too long. The easiest way to fix this was re-record the "Hundred" file as a short file of just a few milliseconds that said nothing. Once I did that, the result was that 125 became "One Twenty Five" which sounded better.

I was also listening to see how many others were using automatic voicing of serial numbers. I would estimate maybe 10 to 15%. Many (maybe even most) were saying the serial number themselves and then pressing an F Key for the rest of the exchange. This is what I have done in the past, Very few (less than 1%) were using automated voicing of the call sign.

One of my motivations for doing this, beyond the ones listed above, was to just try something new especially with unexpected time on my hands. I'll probably play around with this some more before the next SSB contest requiring a serial number. There are a lot of tricks to make the voicing sound more natural. I doubt I will take on voicing of call signs as I have yet to hear anyone where this sounds anywhere near natural.

See you in the pileups!

TOP LINE SUMMARY

TCDXA OPERATING BUDGET FY 2021
(Sep 2020 - Aug 2021)

December 12, 2020

INCOME		ACTUAL	BUDGET	Actual 2020
Surplus from FY 2020 (balance 8/31/2020)		**9100.90**		*5291.41*
Member Dues 2020 by Cash/Checks/ PayPal		2516.70	4400.00	*4406.11*
Door Prize Ticket Sales club share		0.00	500.00	*443.00*
Donatons (estates, wills, etc.)		0.00	0.00	*488.70*
Refunds and Reversals		0.00	0.00	*0.00*
TOTAL INCOME		**11617.60**	**4900.00**	*10629.22*
EXPENSES			**BUDGET**	*Actual 2020*
Member Recruitment/Retention/Zoom		0.00	(300.00)	*(160.96)*
Website ISP & Domain Name		(10.00)	(150.00)	*(130.69)*
Office Supplies, Miscellaneous expenses		0.00	(50.00)	*(25.00)*
Flowers <SK> and Hospital gifts		0.00	(200.00)	*0.00*
Holiday Party Dec 2019		0.00	(500.00)	*(386.67)*
ARRL Spectrum Defense Fund		0.00	(250.00)	*(250.00)*
NCDXF Donation		0.00	(250.00)	*(250.00)*
MWA Plaque		0.00	(75.00)	*(75.00)*
DXpedition Contributions Total		(250.00)	(4000.00)	*(250.00)*
#1 Dxpedition -	(250.00)			
#2 Dxpedition -	(1,000.00)			
#3 DXpedition - JXØX Jan Mayen Refund	1,000.00			
#4 Dxpedition -	0.00			
#5 Dxpedition -	0.00			
TOTAL EXPENSES		**(260.00)**	**(5775.00)**	*(1528.32)*
NET		**11357.60**	**-875.00**	
Checking balance		**9811.38**		
PayPal balance		**1250.22**		
Cash / Checks on Hand		**296.00**		
NET BALANCE		**11357.60**		

When required, Wells Fargo & PayPal online statements can provide detail not shown in this report.

Nominations have closed. There being only one candidate for each position, the board of directors have declared this slate of officers as elected for 2021:

President - Bert Benjaminson, WBØN
Vice President - Mark Endorf, WAØMHJ
Secretary/Treasurer - Pat Cain, KØPC
Board Member - Mike Cizek, WØVTT*
Board Member - John Rusciano, NGØZ

*WØVTT also serves as DX Grant Manager

The board would like to thank outgoing president Bill Mitchell, AEØEE (see front cover), for his service to the club and wish him well in his new position as Minnesota Section Manager.

We would also like to welcome John Rusciano, NGØZ, to the board and thank him for stepping up to help lead the club.

The new board will take office on January 1st.