SKYVIEW
Skyview Radio Society, K3MJW

SKYVIEW RADIO SOCIETY

Q5er – The Official Newsletter of the Skyview Radio Society

Virtual (Visual) Skyview

Led and organized by Marty - AG3I, Skyview dipped its toes into the world of virtual visual assembly due to the coronavirus anti-gathering restrictions. While several on-line gatherings took place, I did these screen shots during the first-ever Zoom gathering on 07APR20 (yes, in spite of various security warnings, we used that "risky" Zoom platform as we had nothing to hide, and it was easy for all to get setup and use).

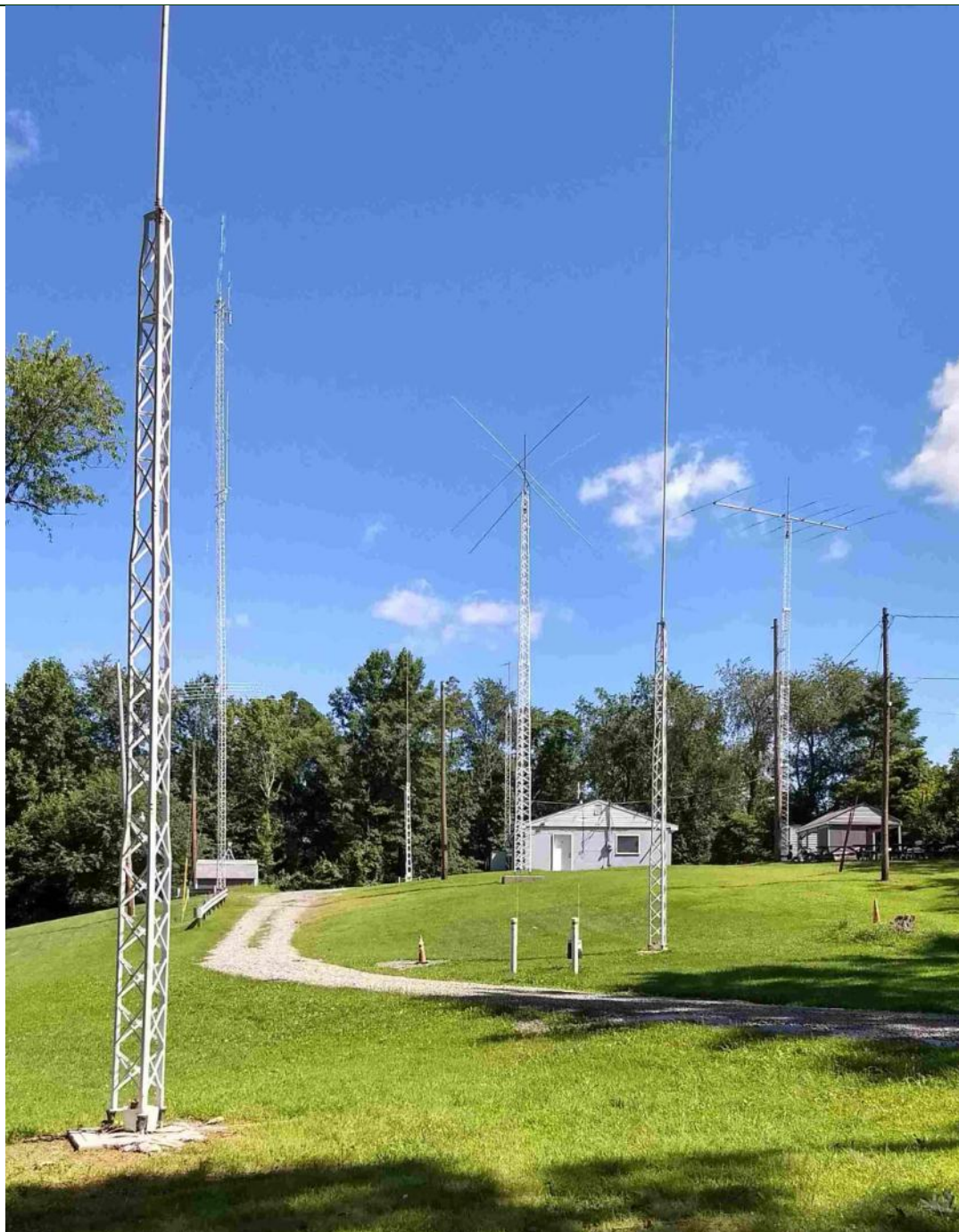## 2020 is Skyview's 60th Anniversary !!

June 1, 2020

- Skyview Swap & Shop
- Call Sign Masks
- FISTS CW Club News
- Bob's Hints & Kinks
- ZOOM Gatherings
- Short Stories
- Counterfeit Baofengs
- Winter Field Day Results
- And More . . . . . .

> **Sunspots?**
>
> **I don't need no stinking Sunspots.**
>
> **I have 40 meters and 80 Meters.**

Inside this issue:

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

The Breezeshooter's Hamfest is Cancelled.

NOTE: As this is being published, the Skyview Club-house is adhering to PA State Government require-ments and is —>> **CLOSED Until Further Notice**.

Follow https://groups.io/g/K3MJW for updates.

Jody - K3JZD

From the Treasurer

With the lockdown keeping us away from the joint, there has not been much financial activity during the last few months. We did purchase a used IC-7300 with the goal of setting it up to be used for Remote Operation.

The Skyview Swap and Shop is scheduled for August 30.

If things go right, we will probably see a lot of pent up demand for getting out and attending a Hamfest and enjoying SkyBurgers and Dipole Dogs.

A Custom Mask with your Call Sign on it ??? Check with Amy at : Createdbyamy.com (412-398-8833)

Jody - K3JZD

Skyview Radio Society "Swap N Shop"
Sunday, August 30th, 2020, 8:00 AM—???
Vendor Setup prior to 8:00 AM
K3MJW Clubhouse
2335 Turkey Ridge Road, New Kensington, PA 15068
Talk-in on 146.64 PL 131.8   Admission $5
More Information at http://www.skyviewradio.net

Tnx for the FB Graphic WASHRag !!!!

Ham Radio is a Contact Sport

Heathkit HW-16 CW Transceiver

de Ken - KG4LLQ

In 1967 when it was introduced, the HW-16 cost $99.95 as a kit from Heathkit. That corresponds to about $780.00 in 2020 dollars! To put that in a more tangible perspective, you can buy an Icom IC-718, 30 amp. power supply and an endfed antenna for about the same price today. How far we have come!

But the HW-16 was a cutting edge radio in the day for it was a quasi-transceiver designed for the Novice licensee that could adapt for a general class or higher class licensee. I say "quasi" because the HW-16 wasn't actually a transceiver as we conceive of one today. It was actually a transmitter and a receiver sharing a common power supply with the ability to switch from transmit to receive by utilizing a PNP transistor as a switching device! Heath's engineers were really smart. But perhaps its greatest deficiency was being crystal controlled (for Novices of course). In order for VFO operation it required an outboard VFO, which Heathkit offered separately. But Novices were required to operate via crystal and FT243 crystals were readily available during the HW16s production run.

But still, the HW-16 was an innovation. One of those innovations included the final amplifier tube, a 6GE5. Instead of using a more typical 6146(A), Heath chose using a tube originally designed for horizontal deflection amplifiers in televisions of the day. That lessened the cost and utilized a fairly rugged tube. Power input

was adjustable, by the operator, from about 50 to 90 watts. That corresponds roughly to 30 to 50 watts power output. To keep the price down, Heathkit engineers utilized an NE-2 neon tube as the side tone generator. It sounded "strange" but it worked.

I found my HW-16 in March 2011 at the Charlotte, NC Hamfest. After inspecting it and asking a few questions, I offered $40 and it was accepted. She had problems; first it had set in a homeowner's beach-house garage, on the concrete floor for years. Needless to say rust presented a problem. Then there was the power supply. There was one 1 watt resistor that had burned, plus several wires that were burnt as well. I saw a complete power supply rebuild in my immediate future.
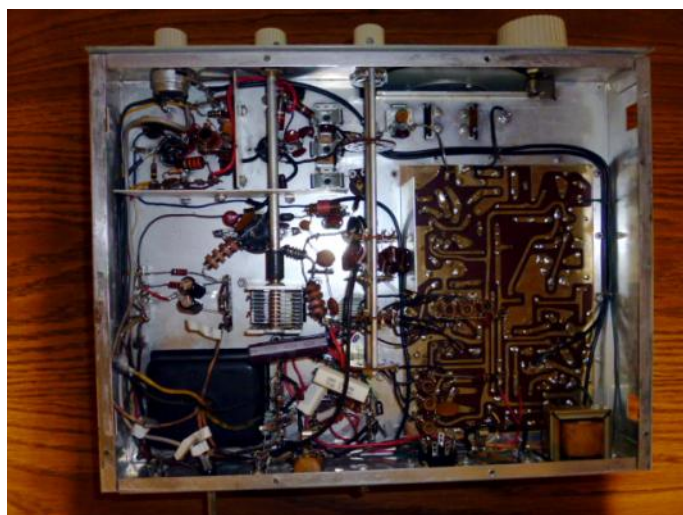
I completed the refurbishment, rebuilding and realigning later that same year. I cleaned-off rust, ran ground wires from various circuit boards to chassis, painted nuts and bolts I couldn't get off, replaced all electrolytic capacitors, most resistors and other capacitors and of course replaced all tubes, except the 6GE6 final, with "nos" (new old stock) tubes and finally realigned the whole thing.

I still operate my HW-16 today, mainly during SKCC "Weekend Sprints" and other CW events. After communicating with "rebuilders" more experienced than me, I learned it best to operate with crystals. The HW-16s power supply is fine for the HW-16, but add an accessory (i.e. the Heath VF-1 VFO or the HG-10) and the B+ voltage can get a little unstable.

Crystals can still today be found. Bry Carling, AF4K, has a website and he repackages FT-243 cases with the smaller crystals. They actually work fine for the HW-16 and I operate with several different ones.

The HW-16, when properly aligned, has a unique sound over the air. It's not really a chirp, but as I like to call it, a very "distinctive" tone quality. It's easy to recognize.

And so, if you hear a CW signal with a "distinctive" tone quality on 40 meters (7.110 or 7.120 mHz) it is probably me pounding the straight key connected to my most favorite radio, the Heathkit HW-16 CW Transceiver.

73, Ken – KG4LLQ

By the time my father was my age he had amassed, like, 30 coffee cans full of screws. I have none. What have I done with my life?

FISTS CW CLUB NEWS

CHANGES COMING JAN 1, 2021
to
FISTS AMERICAS CHAPTER MEMBERSHIPS

All Americas Chapter memberships will be dues free for life.

Dues expired memberships will be changed to life memberships on Jan 1, 2021.

Current paid memberships which expire this year will be changed to life memberships on their expiration date.

All New Memberships after April 2, 2020 will be entered as life memberships.

Keynote newsletters will be produced each quarter and will be available free to all members and the public as an on-line PDF download.

A printed & mailed newsletter will be available at a yearly subscription rate of $25 for USA members and $35 for chapter members outside the USA.

All current "Mailed" newsletters will change to On-Line on Jan 1, 2021, unless the above subscription is paid.

Rationale :

On Aug 15, 2018 we started a trial program of two years with no dues for new members as well as offering a two-year free membership extension to current club members as of that date. These two year memberships came with downloaded newsletters only. This was done to reduce the yearly increasing costs of printing and mailing newsletters to the membership. This coming August 15th we will come to the end of the original two-year dues free offer.

The two-year dues free program seems to be working very well and many members have opted to download their newsletters from the Americas Chapter website page. As a result only 8.7% of the membership are now receiving printed and mailed newsletters. We would like to reduce that further but we realize that there are a number of our members that either have no Internet service or they simply prefer a printed and mailed newsletter. Unfortunately the only way we can continue to offer that choice is to charge a subscription rate to offset the cost of printing and postage. This is the reason for the $25 per year for USA members and $35 per year for those members outside the USA starting Jan 1, 2021. Since the future cost of printing and postage will most likely increase from time to time, these subscription rates may change in the future. Details for printed/mailed newsletter subscriptions will follow towards the end of this year.

Award certificates will continue to be printed and mailed free to all chapter members for the foreseeable future. A fee may need to be charged at some time in the future. PDF award certificates may be made available for on-line download at a future date.

If you wish to join FISTS Americas Chapter and obtain your FISTS Number to use in the various FISTS events, send an e-mail with your Call, Name, Current Mailing Address, and (Telephone Number - optional) to: Dennis K6DF, FISTS Membership Manager at member-ship@fistsna.org

Bob's Hints & Kinks   de Bob - WC3O

Here's an easy addition to your shack if you use a manual tune amplifier or antenna tuner. Buy some

Post-it color markers made for signature locations. The Post-it markers stick, but can be easily removed / re-positioned. The glue does not leave marks and you can color-code your setting, making easy to return to pre-determined positions quickly. Pick a band/color combo and simply match up the knobs and you're ready to roll!

Fuse Selection

Littelfuse Advertisement
April 1954 Radio & Television News Article

Question: If a fuse is rated at 3 amps, at what value of current should it "blow?" Answer: Not at 3 amps. As this Littelfuse company advertisement from a 1954 issue of *Radio & Television News* magazine informs us, fuse ratings do not indicate the current value at which a fuse opens to protect a circuits, but rather the maximum current level at which it will NOT blow (open circuit). The same goes for circuit breakers. Various types of fuses are available to handle certain types of applications. For instance, a highly capacitive load will according to the well-known equation $i_C(t) = C * dv/dt$ could draw a very large amount of initial (inrush) current if there is not enough series resistance to limit it to prevent a standard fuse from blowing. The same goes for a heavy physical inertial load at startup (e.g., an air compressor motor). Highly inductive loads can cause extreme counter-emf currents to be impressed at shutdown. Both of those circuits need what is termed a slow-blow (aka slo-blo) fuse that allows a relatively high level of current to flow for a short period of time, and then settles down to the rated value of protection thereafter. At the opposite end of the spectrum are very sensitive circuits which need to be protected from overcurrents as rapidly as possible, so quick-blow (aka kwik-blo) fuses are used there. Fuses are also rated according to applied voltage, ambient temperature, vibration levels, and other operational parameters. All fuses are not the same.

April 1954 Radio & TV News

[Table of Contents] Wax nostalgic about and learn from the history of early electronics. See articles from *Radio & Television News*, published 1919-1959. All copyrights hereby acknowledged.

Littelfuse Ad

Things Are Not As They Seem ... This is a perfect square. It is an optical illusion that the sides bend.

3 amps fuse will not blow at 3 amps.

Fuses are not rated by the current at which they blow. Fuses are rated by the maximum current they should carry indefinitely.

Each type of fuse blows according to the requirements of the equipment it was designed to protect.

Littelfuse has cooperated with NEC, Underwriters, Armed Forces MIL Specs Committees in establishing the characteristics of the various fuse types. Littelfuse holds more design patents on fuses than all other manufacturers combined.

3 AG "Slo-Blo"

3 AB

8 AG U/L

1 AG

4 AG Anti-Vibration

Littelfuse

Des Plaines, Illinois

FOR SALE: 100 FUSES

I have individually tested each of them and they all worked.

I booped the beepy button like this, just like he does, and he called me a "BAD DOG!"

Time to go pee in his shoes!

RFI / TVI Notes

de Dan - NM3A

Interesting times here at NM3A. A couple of months ago, we decided to ditch Dish network and go with over-the-air (OTA) TV only. Generally has worked pretty well from the TV point of view. All seemed good for a while. However, now that we've been locked in place at home for the past month, a few things have cropped up.

We've been doing 75 and 80 meter nets instead of hanging out up the Joint on Tuesdays. And I have a 75 meter net Tuesday evening that I often miss due to hanging out up the Joint, but now can catch. So I haven't been on 80 meters very often in the past. But now it's different and since the XYL is home as well, the TV is often on while I'm on the air.

Well, she has come down to the shack to let me know that the TV pixelates and/or freezes up every time I transmit. And when I'm on CW, she notes that it's coming out of the walls in the hall! She has been very tolerant of this, but I know that interrupting *The Voice* is not going to be tolerated forever, so something has got to go. Of course, the only thing that is going to go away is the interference!

Today I started to document the issues and noted that the pixelation/freezing was worst at the lower frequencies like 160 and 80, moderate at 20 and 15, and hardly noticeable at all on 12 and 10 meters. That explains why being on Breeze Shooters did not elicit any complaints. The problem did not seem to make any significant difference which antenna I was on although it was a little bit less on the vertical (R7). The Carolina Windom 160 and the 135 foot EF seemed to be very similar. It did not make any difference which of my three TVs were in use either, so I thought it was unlikely to be the TV tuner being overloaded directly.

So what's causing it? Common mode radiation? Harmonics? Feedline or switch issues? Just plain front end overload on the TVs or the TV preamp? Grounding issues? Well, I don't know yet, but all my antennas have feedline isolators (1:1 UnUns) on them, so I am leaning away from common mode issues and RF in the shack and house. While my grounding could certainly be better, everything is grounded, so I'm leaning away from that.

Harmonics don't seem to be likely as it occurs on all the channels which have actual frequencies from channel 4 (~70MHz) to channel 48 (~675MHz). And it is from all MF and HF ham bands, so no clear harmonic relationship. Also, I find it hard to believe that a 160 meter harmonic can get into 675 MHz at any significant level. If it can, I've got more serious problems!

Feedline and switches seem unlikely too as they are three separate feedlines with totally different ways into the K3 radio. So that leaves me with TV/or preamp overload or grounding issues or some other issue that I haven't thought of. These remain to be explored further. More later after I get some new filters...

Part 1: CW from the Walls in the Halls

But the most interesting part of this RFI issue is the CW coming out of the **walls in the halls**! On systematically going through tests today, I noticed that the CW only came out on 80 meters! Not 160, not 60 meters or any other HF ham band. Further sleuthing showed that it was coming from the security system piezo alarm transducers. But it was only coming from two of them. These particular piezo transducers are not speakers and act more like a fixed buzzer when energized. There are two other similar piezo alarms and an outdoor horn with a driver, *none* of which were emitting *any* noise. They do work with the alarm system though - I checked.

The two that were receiving CW were much older (circa 1987) units. When I checked on the DSC PC1832 main board (a common alarm system), I noticed that those two older transducers had a diode (odd number-USC1000, but appears to be simple rectifier similar to 1N4001) in line with them. Of note, the wire is simple two wire speaker type and was not twisted. Figuring that the wiring was close to resonance in the 80 meter band, I added 6 small dual cavity #73 toroids to the wiring near the first transducer. No luck, no change in the reception. I then added a 0.1 micro-Farad capacitor across the transducer- no change.

I added about 5 feet of wire wrapped around a large (generic) toroid and inserted it in line with the first piezo alarm. What do you know, the 80 meter CW reception was almost completely gone! There was still a faint reception coming from the second piezo alarm, so I added wire wrapped on a toroid to that one. There was still faint reception after that, but it was not terribly annoying.

Thinking I had essentially solved the issue, I redid my check and found that the problem now had moved to the 160 meter band and was just as loud as it had been in the 80 meter band! (If I had tried to move the resonance of an antenna exactly that amount, it would certainly have failed!) Realizing that the rectifier probably was a good detector and this was feeding current to the transducer, I decided to remove the diode. Not good, apparently this is completely necessary with the older transducers, as it then sounded continuously. I had one more toroid left and I added another 4 feet of wire wrapped on that one and inserted it into the line nearest the DSC main board and near the diode. (See picture.)
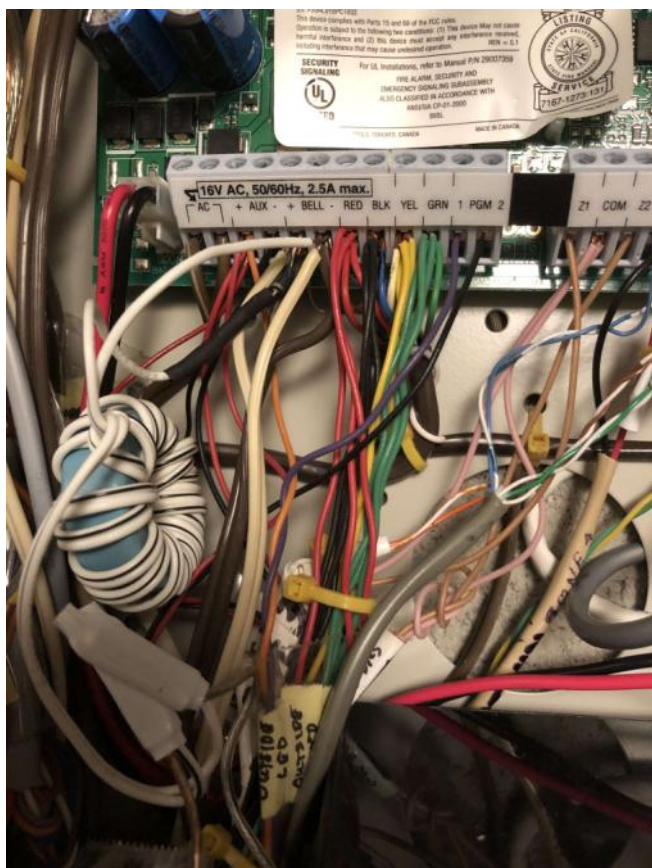
That did it! No more CW coming from the walls in the hall. Rechecking the HF ham bands, none of them are now being received by the piezo transducers. I suspect that the new resonance is somewhere below the MF AM broadcast band and that's just fine with me! Replacing the old transducers with new ones would probably take care of the issue without the toroids as the new ones do not require a diode in line with the unit. While I am not totally sure what part of my endeavors fixed the problem or if all were necessary, I'm not taking any of the items back out! They're with the house now!

Part 2: The Dreaded TVI

(which was thought to be a thing of the past!)

Grounding issues have been suspected by a number of hams for the TVI pixelation/freezing. However, I have no easy way of checking that out. So my first try was to take the TV UHF preamp in the attic out of the circuit. Did not fix the problem.

I actually have 5 homemade antennas in the attic that are connected together to feed my TVs. There are 2 Grey-Hoverman UHF antennas (very high gain and very simple to make from 2x4, copper wire and chicken wire) pointing in opposite directions, one essentially east and the other approximately west. East picks up (virtual) channel 6, while West picks up all of the UHF Pittsburgh channels except 13 and 19. These are all combined and fed into a low noise UHF only preamp. Channels 19 and 9 (real RF channels 11 and 9) are picked up by a VHF 5 element yagi pointed west. There are two other antennas: Channel 8 (real and virtual) is picked up by a broadside three element curtain array with a screen reflector (I always wanted to make one of these!) pointed southeast and Channel 13 (real channel 4) is picked up by 5 element yagi pointed west. The UHF preamp output is then combined with the two VHF antennas and the whole lot is fed to my 4 TV outlets in the basement, family room and two bedrooms. Kind of a crazy patchwork, but it does work well. The system picks up every channel and subchannel from Pittsburgh and Johnstown. Channel 9 is sometimes picked up as well.

So, I did what any self respecting ham would do; I called DX Engineering to see what their suggestion would be and what equipment I could buy to fix the problem. Alas, while they agreed that front end overload from my HF signals was likely the case, they had no solutions. So, I searched and searched and lo and behold, I found a 54 MHz high pass filter for TVs with only 0.5 dB insertion loss and a 60 dB attenuation below 30 MHz. There were even a few satisfied hams that testified that this had fixed their similar problem. They're on order- 25 for $50 from Solid Signal. Don't really need 50, but I ordered them.

Four days (in May?, no, it was April) later....

The filters (see picture and spec sheet) arrive via FedEx. They are 54MHZ Hi pass filters with F-connectors (male/female) for insertion in-line and they are tiny! Hard to imagine where they hide the filter in the 4 cm long body which is no wider than an F-barrel connector.

Connecting them up was as simple as disconnecting the RG-6 from the antennas, inserting the filter and reconnecting. I put one in every antenna in the attic and went to check out my solution. I was very disappointed to find out that it still did it on all three TVs. So, I decided to place one at the input of the tuner on each of the TVs. No more interference! It all is gone with full 100 watts on every MF and HF ham band and on every TV channel. I did not try 6 meters, but tests on 10 meters were minimal even before the filters and 2 meters and 70 centimeters never had any issues even at relatively high power.

Again, I do not know whether the filters on the antennas or the ones on the tuners were the most important, but I do know the combination worked. I believe this was a problem with RF overload of the TV tuners from HF signals. So I don't know if any of you use OTA TV tuners or if you have any issues with TVI with them, but if you do, this is something to try.

73, Dan, NM3A

Zoom Gatherings   de Jody - K3JZD

There have been several other instances of Marty - AG3I organizing Skyview Zoom gatherings to keep us more connected during our 'Stay At Home' period. The cover page showed images from the first time. (Why that time? Well, because everyone remembers their first time, right?)

Can't list them all here - you had to be there for each of them. (You need to follow the K3JW groups.io reflector to get the invites to these Zoom gatherings—see the last page for information on how to subscribe).

But a memorable Zoom gathering worth documenting here occurred on the evening of April 21, whenever Tim - K3LR provided a tour of his shack.

That tour showed me that I have a little ways to go to catch up - where did I leave my DXE Catalog ?

screen shot by Harry - W3YJ

Update On The Skyview Radio Systems

de Cooky - WC3O

Remote HF Operation:

Progress has recently been made on the long awaited remote HF station at the clubhouse. The project coincides with another project that has been in the works, automating antenna rotation with N1MM+ logging software.

The common aspect of the two projects is the addition of a (remote) computer being used as a server for both aspects - Remote HF radio and rotor computer control. The (Remote) computer is a relatively low performance machine that is made up of parts from old computers taken out of service at the club. It will run 24/7 under the radio bench at the clubhouse.

Our remote radio ended up being Bob, KC3JBS/SK's ICOM IC-7300 used with the ICOM software.

Everything on the IC-7300 radio can be controlled via the radio's USB port - Including remote power-up and power-down. The use of the ICOM software allows all features of the 7300 to be used. The radio is connected to a multi-band vertical antenna, our HyTower. The HyTower covers 10 through 80 meters, sans the WARC bands (but they may be used with the IC-7300's internal antenna tuner?)

The use of this antenna greatly simplifies operation of the radio. The internal tuner in the 7300 should handle any SWR issues with the antenna. We are currently working on a procedure to offer Skyview members the ability to have access to the 7300 and enjoy HF operating from wherever they are. Stay tuned. The hard part is over.

The rotor portion of the story:

Two of our three HF rotating antennas already have the capability to be computer controlled utilizing an interface added into the rotator controllers.
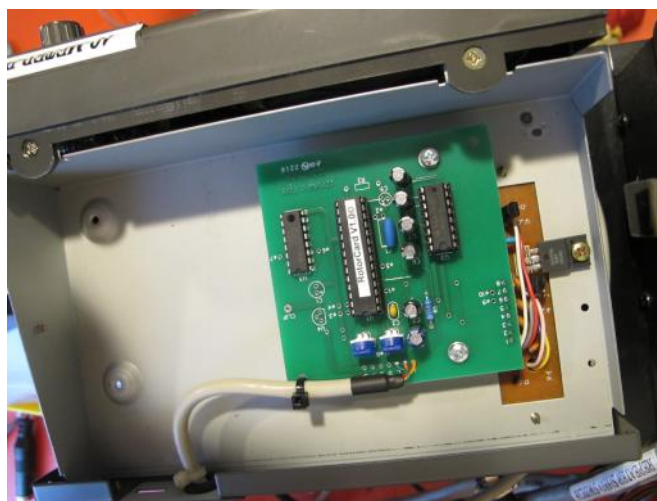
We have never made use of that, until now. The issue we are working to resolve is sometimes you want to aim your antenna in a different direction. Depending on which radio you are operating from, you might not have easy access to the rotor control box. Then you need to get up from your operating position and make your change. If that change doesn't produce the result you were looking for, now you need to move the antenna back. It can be a real pain, and kills your rate when contesting. Plus, it's a real pain. Did I mention that?

When finished, you can aim the antenna right where it needs to be directly from the N1MM+ logging software! The N1MM+ logging software knows where you are located. It also knows where the country you are wanting to aim at is located. You may notice that when you enter a callsign in to the logging window and you hit the SPACE bar, there is a small font line in the window that indicates the beam heading of the country you are talking to.

In our demonstration I punched in a German callsign. In small print below you will see hdg 47 degrees. (The logging software also shows you the long-path heading, distance, sunrise time and more!) So, let's say I heard DL4HG. I type the call into the callsign field and hit SPACE bar. Let's say my antenna is currently aimed to Asia but I am hearing a lot of EU and I want to work EU stations. I simply hit [ALT-J] and the beam automatically re-aims to 47 degrees, no other action needed! Slick.

Now, we have more than one rotating antenna. How does the N1MM software know which is the correct antenna to rotate? No problem! Within the logging software there is a setup page to set which antenna is for which band/s. The logging software knows what band the radio is on. So if you are on 40 meters, the software knows to rotate the 40 meter antenna. If you are on 10, 15 or 20 meters, it will automatically pick the quad to rotate!

Now, let's say you just want to aim the antenna northeast? Simply type 45 into the logging window (Where the callsign normally would go) and hit [ALT-J] The correct antenna with rotate to 45 degrees! Hit [ALT-S] to stop rotation. The current beam headings are constantly being fed to all three computers that we use for contesting. There are small windows on each computer indicating which beam it is and its current direction.
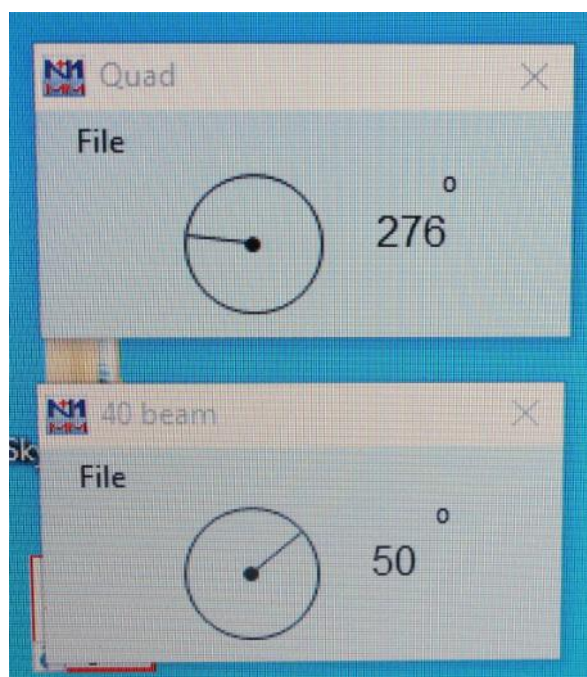
These computer controls are completely independent of the normal, manual operation of the rotors. So when we are not contesting, nothing has changed. Just rotate the antennas as you always did.

Rotor automation is controlled by the server computer under the bench. The N1MM software communicates with the server (and vise/versa) over the network.

This simplifies the operation from all three contesting computers. It also allows opportunity for future possible remote radio operating where you could select other club antennas and rotate them remotely, rather than the remote radio simply being hooked up to the HyTower. But that's another day. One thing, or two things, at a time.

Enjoy !

Cooky

A Handy Component Tester

de   Jody - K3JZD

Yes, a very Handy Component Tester. And at a very good price considering all that it does.   This is a LCR-T4 Mega328 Transistor Tester Diode Triode Capacitance ESR Meter US Quite a mouthful. I bought it on eBay for $ 12.08, which included sales tax and shipping.   Assembled and ready to use – it is not a kit. A test instrument does not get much cheaper than that.   I found it being discussed in the August 2019 CQ Magazine.

What does it do? Well, as the name suggests, it is a transistor tester.   And a pretty slick one at that. Anyone who remembers tube testers, will recall that one had to look up the tube on a list and setup various toggle switches to define the tube's characteristics before testing the tube. No need for anything like that with this transistor tester. Just put in a transistor, without worrying about which lead is which, and press the 'Test' button. The 'put it in' is very easy with the ZIF (zero insertion force) socket. The Mega 328 computer figures out what type of transistor it is, and reports that on the screen.

Here is what I got whenever I put in a 2N2222 general purpose transistor. It figured out that it was a NPN transistor and showed me the hFE (the current gain or amplification factor) and Uf (forward voltage drop between the base and the emitter) in millivolts.

I put in a BS170 Single N-Channel Small Signal MOSFET. The tester reported that it is a N-E MOS transistor. The C (capacitance) and the Vt (threshold voltage) were reported. The QCX transceivers use BS170 MOSFETS in the transmitter, and they can be smoked. So it will be good to be able to test replacements before installing them into the QCX.
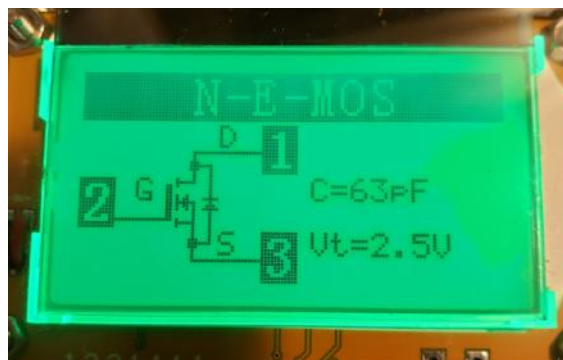
I do not have a defective transistor laying around to test, but if I were to put in a defective transistor, I suspect that it would fail all of its internal tests and it would report that I have a defective component.

But, it is more than just a transistor tester. I put in a resistor and pressed the 'Test' button.   It was identified as a resistor and the value is reported. This will be quite handy when using some of today's tiny 1/8 watt resistors which can have some very hard to differentiate color bands. The photo shows the results for a 1k resistor.

I put a small mica capacitor in and pressed the 'Test' button. It was identified it as a capacitor, with the capacitor value and vLoss (immediate voltage loss, a quality metric). reported. This is quite handy for the small mica capacitors that just have a code on them. Will be ideal for when I'm building a kit and sorting out all of the little capacitors. The photo shows the results for a '683' mica capacitor.

Electrolytic capacitors can also be tested. I put an electrolytic capacitor, without regard for the negative or positive leg, in and pressed the 'Test' button. It knew that it was an electrolytic because this time the vLoss (immediate voltage loss) and ESR (equivalent series resistance) was reported along with the value. The photo shows the results for a 100mf electrolytic capacitor.

According to the description on of this eBay, the device will automatically detect and test NPN and PNP transistors, and N-channel and P-channel MOSFETs. We saw that. It will also automatically detect and test diodes, thyristors, and 'other components'. . I tried a 7805 voltage regulator – it did not know what to do with a voltage regulator. It will test a LED – it flashes the LED a number of times whenever running through its test patterns. Although it
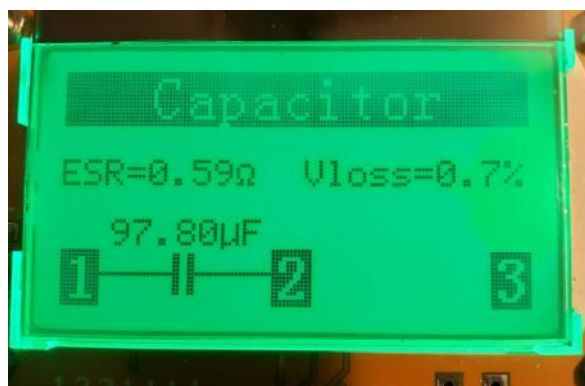
identifies it as capacitor, blinking the LED verifies that it is good And the current limiting keeps it from smoking the LED. It is supposed to do inductors, but whenever I tried a simple wire wound coil, it usually identified it as a resistor. I suspect a better wound coil would get correctly identified more often. Some experimentation may uncover some of the 'other' passive components that could be tested with this device.

This device is setup for testing components with leads. However, short lengths of small wire with alligator clips on one end and small pins (ie resistor leads) that will fit into the ZIF socket on the other end should allow testing tiny Surface Mount (SMT) components.

The plastic case does have to be ordered separately. The case and hardware for it was $ 3.45. LCR-T4 Mega328 Transistor Tester Triode Capacity ESR Meter MOS NPN Shell Case I did have to enlarge the hole for the 'Test' button whenever I was assembling everything – the hole did not exactly line up with the pushbutton. And I added the tie wrap to keep the battery from sliding around – no method of securing the battery was provided.

One thing that I am watching is the life of the 9v battery. There is no on-off switch. The Mega 328 computer is going into what is probably a deep sleep mode after 'x' seconds of displaying the test results. And then it looks like it is rebooting whenever the 'Test' button is pressed. So the 9v Alkaline battery should last a pretty long time while it just sits around. The battery voltage is displayed whenever the device boots. If I do not get a long life out of the battery while it is 'sleeping', then I will add a small on-off switch in the battery lead.

While wrapping up this article, I just happened to see a 1960 vintage HeathKit IT-28 Capacitor Checker advertised on eBay. It tests capacitors. Just capacitors. It was in great shape – the seller said it was new. It was only $ 360.00 plus $ 37.50 shipping. That may be priced for a collector. But we have come along way in 60 years.

Bottom Line : This is quite a handy component tester for an insignificant price.

Jody – K3JZD

Short Stories

Steve Ford, WB8IMY, author of the monthly "Eclectic Technology" *QST* magazine column, has just published a book entitled, *"Amateur Radio Satellite for Beginners."* You can make contacts through amateur radio satellites, and even with the International Space Station, using equipment you probably own right now! All it takes is the right information, which you'll find in this book. There are dozens of spacecraft in orbit just waiting for your signals, and more are being launched every year.

This book is your guide to a whole new world of operating enjoyment. Inside you will: Be able to locate satellites and determine when they will be available in orbit. Gain tips for building your own satellite station even if it s just a dual-band FM transceiver and a mobile ante

From RF Café de Check - K3CLT

You wouldn't know it from the lineup of Crosley Corporation radios and turntables appearing in department stores, but the company also manufactures dishwashers, ranges and freezers, clothes washers and dryers, and air conditioners. That is still a small chunk of what Crosley, based in Cincinnati, Ohio, made back in the middle of the last century, including cars and trucks, a small private airplane (the Moonbeam), television sets and even had a television broadcast station, as well as other items that were part of the mainstream of American life. Take a look at their About Crosley webpage for more insight. Amazingly, along with the extensive line of retro radios and turntables, they still also make a few models of full-size jukeboxes. This full-page advertisement for Crosley TVs appeared in a 1954 issue…

From RF Café

de Check - K3CLT

Believe it or Not

Would you believe that there are counterfeit Baofeng Radios ???

Building and Operating the Phaser Digital Mode Transceiver Kit   de Tom - AB3GY

The Phaser Digital Mode Transceiver is a single board SSB radio kit specifically designed for digital mode operation using computer applications over a sound card interface. The transmitter is capable of 4W output. The kit is manufactured and sold by Midnight Design Solutions.

I first learned about the Phaser during an excellent Elmer Night presentation by Jack Stoner K3JAS. Following the presentation there was enough interest by the club in putting together a group order. The original intention was to have a "solder smoke" night where we all get together to build our kits in a group setting, but the COVID-19 situation changed our plans. As of right now we're all working on our kits separately, but hopefully we'll be able to get together later in the year to finish building all the kits and share what we learned.

Each Phaser is designed to operate on a single band, and versions are available for all bands from 80 through 17 meters. I opted for the 40-meter version. Although the transceiver can interface with many computer sound card programs and operating modes, the Phaser was designed with FT8 in mind. The board supports two frequencies: the standard FT8 frequency for the band, and a user-programmable alternative frequency that defaults to the band's JS8 frequency.

I found the kit easy to build. I spent about 8-9 hours over the course of three days on the assembly. The parts are laid out on 9 index cards which makes everything easy to inventory. All parts are the through-hole type; the PC board comes with several surface mount parts already attached. All of the integrated circuits in DIP packages are socketed, so there is no danger of destroying them during soldering. Assembly essentially consists of installing and soldering the through-hole parts, winding and installing toroids, and testing.

Assembly is divided into six groups, each with a test at the end. In addition to a checklist of assembly steps, each group has a picture of the PCB with colored dots near each component that is installed for that group. I found it helpful to put a check mark on top of each

colored dot as I installed the component in that location since some checklist steps require the installation of several components. It was easy to see if I had missed a component by looking at the colored dots.

In addition to the assembly instructions, there is a detailed knowledge base available on the Midnight Design Solutions website and a "Chat with the Designers" user group that you can search and post questions if you run into any difficulty.

Once assembled, adjustment and calibration of the Phaser is simple. There is a single output power adjustment using a pot on the board, and a one-time calibration of the local oscillator frequency.
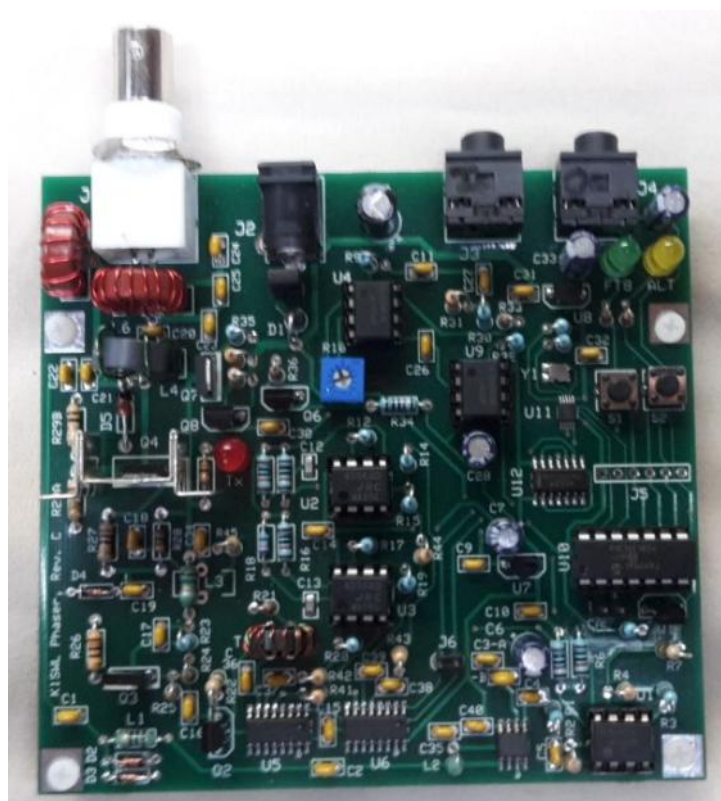
The completed Phaser transceiver.
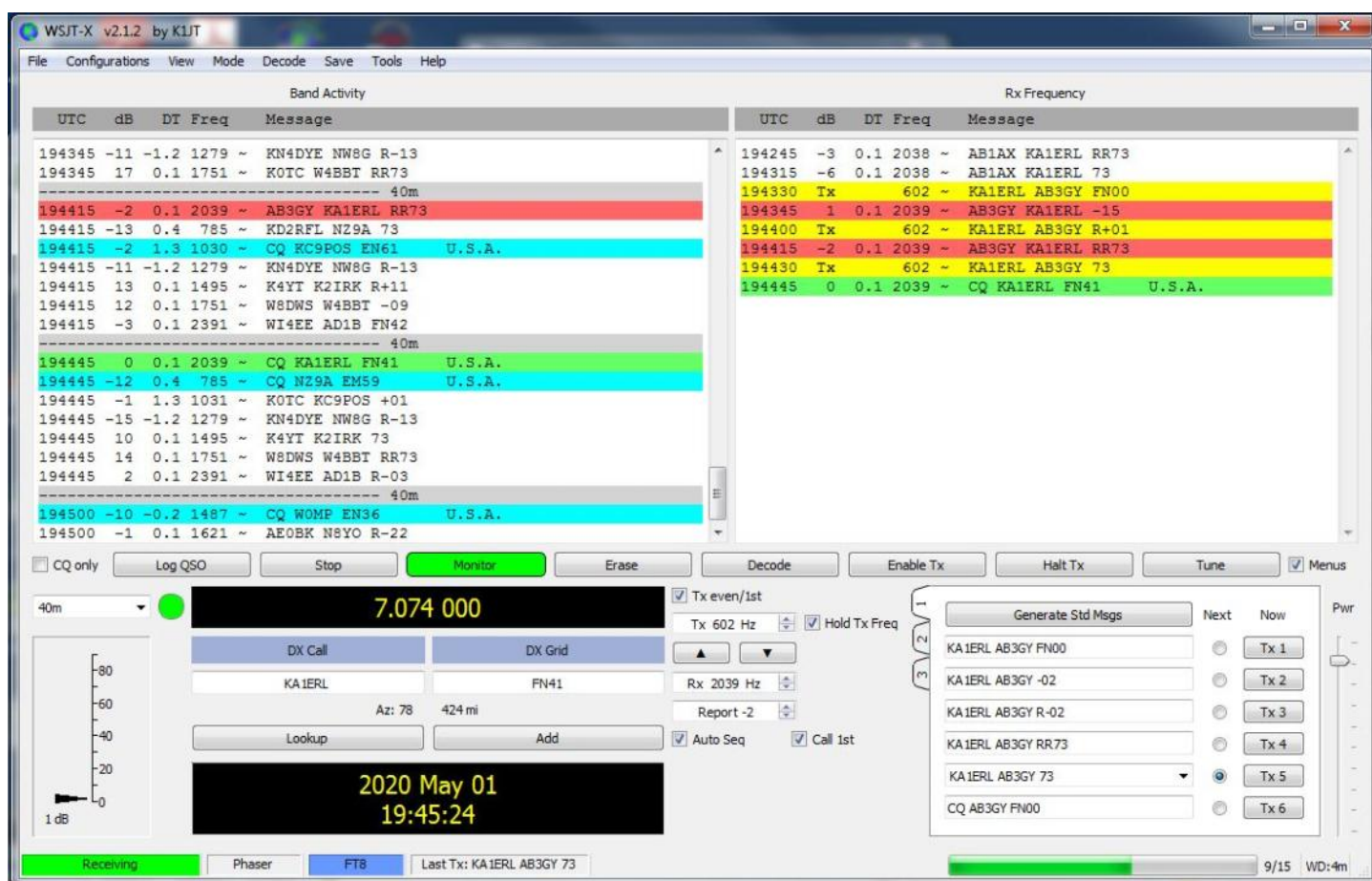
First FT8 QSO using the Phaser.

I put my Phaser on the air on 40 meters during the late afternoon before the FT8 portion of the band became crowded. I figured it would take me a long time to make a contact with only 4 watts of power, but to my surprise my very first call was answered! The QSO was with a station in Rhode Island, about 450 miles away.

I continued to make QSOs over the course of a few days by answering other CQ calls (classic search & pounce mode). I used the PSK Reporter reverse beacon network to determine where I was being heard, and I would answer calls from grid squares in those locations. I was amazed at how many stations reported my call, and the distance at which they were located.

The PSK Reporter screenshot on the next page shows a reception report form A71UN in Qatar, at a distance of 6917 miles.

It should be noted that my station is not optimized for QRP operation. I have a single, inexpensive HF trap vertical antenna (Hustler 6BTV) at the end of a long run of RG8 coax. Although it is tuned as good as possible for the digital end of the 40M band, it isn't resonant and I still need to use a tuner. Despite these drawbacks, I am still getting good performance out of the Phaser. In only a couple weeks of operation, I have made many US contacts and several DX contacts including Canada, the Caribbean and Western Europe.

The folks at Midnight Design Solutions continue to make improvements to the Phaser and its documentation largely based on user feedback. My experience is based on building revision C.1. Among other improvements, this revision includes a Tx LED which I found to be very helpful. The transmitter is keyed using VOX, so I used the Tx LED to help set my computer audio output gain for proper keying. The revision C boards also contain im-
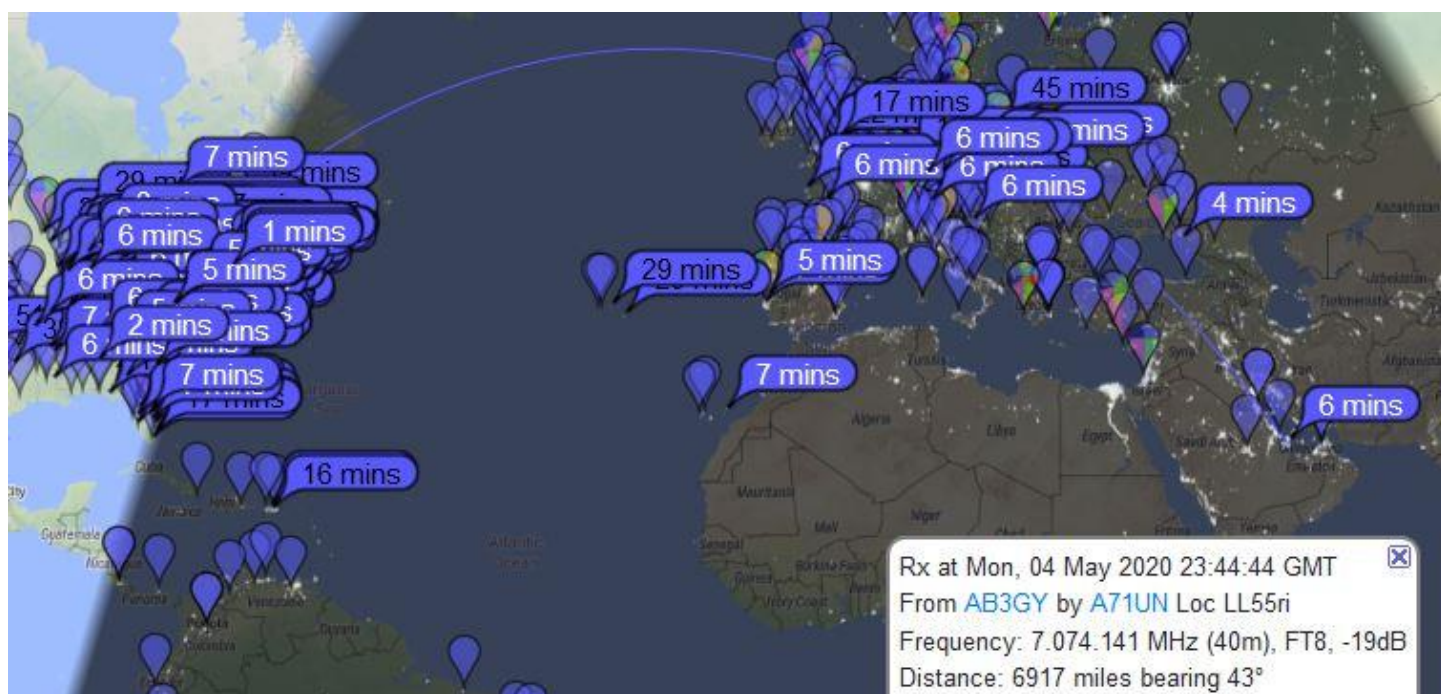
A map of my PSK Reporter spots. My 4W Phaser was heard as far away as Qatar.

proved heat sinking, increased drive capability and overdrive protection of the final PA transistor which improves performance of the Tx chain.

I found that the audio output from the Phaser into my computer was very strong. Even with my computer mic gain set to its lowest possible setting it was difficult to set the WSJT-X receiver noise level properly. Stronger signals had distortion that I was unable to remove, which probably affected my decoding capability. I tried a couple of methods to reduce the audio signal coming into my computer, and eventually settled on an audio cable with an inline volume control. This was an inexpensive solution and has worked well.

Overall, I am very pleased with the Phaser transceiver. I think I have been bitten by the QRP bug. My plan is to construct a portable resonant 40-meter antenna and set up a portable FT8 operation at a Scouts BSA summer camp or other scouting event to introduce more youth to amateur radio.

I would recommend the Phaser to anyone who is interested in kit building, electronics experimentation, or Digital QRP operation.

Tom — AB3GY

Here is a typical FT8 Digital QSO:

"CQ KA1ERL FN41"	CQ call from KA1ERL, who's Location is in Grid FN41
"KA1ERL AB3GY FN00"	AB3GY replies to KA1ERL's CQ, with his Location in Grid FN00
"AB3GY KA1ERL -15"	KA1ERL responds with a Signal Report (FT8 reports the Signal-To-Noise Ratio (S/N) in dB)
"KA1ERL AB3GY R+01"	AB3GY confirms receipt of the Signal Report & replies with KA1ERL's Signal Report
"AB3GY KA1ERL RR73"	KA1ERL confirms receipt of the Signal Report and sends Best Regards
"KA1ERL AB3GY 73"	AB3GY sends Best Regards (the FT8 Digital QSO is over)

Each message of up to 13 characters takes 13 seconds to send. There are 4 - 15 second time blocks per minute — you transmit for one 15 second block, then listen for replies for 15 seconds, and transmit again for 15 seconds, etc, etc.   The exchange above would therefore take about 90 seconds.   (Automatic Repeats, when required, can extend that length of time for completing a FT8 QSO). Once contact is established , the free WSJT-X Software automates stepping though the Exchanges and handles Automatic Repeats.

Digi Edgeport USB to Serial Adapters
de Cooky - WC3O

Recently we replaced most of the computers at the clubhouse with faster units, including solid state drives. They are quick! To use the computers with our radios and other devices we need COM ports. The new computers came with one built-in COM port, but we need more to handle all of the duties that have to be performed. I used PCI cards, which are becoming harder to come by. It is possible to use USB to serial port converters, but I have seen some of these converters do strange things – Especially with WINDOWS updates. I like stable things that I don't have to go and troubleshoot before or during a contest. PCI serial cards have worked flawlessly for us for many years.

However, as I stated before, these PCI cards are slowly becoming harder to come by. I don't know enough about the inner workings of USB to serial adaptors to make an informed decision on what works and what doesn't. As it turns out – I don't have to!

Enter Contest University. One of the presenters for CTU (Bob, N6TV) this year does know the inner workings of these devices, what to do and best of all, what NOT to do. The goal is to have serial ports that work consistently ever time, over time. One of the units that he spoke very favorable about is called a DIGI Edgeport USB converter. The common unit gives you four COM ports from a single USB cable. Bob, N6TV said that these are his favorite units.

I made note of this information and found that these units can be obtained (used) all day long on Ebay. I bought mine for around $35.00 shipped. The nice postal lady brought mine to me at work. It was in very good shape. One nice thing about these is that the correct drivers load completely automatically with WINDOWS 10. Just plug it in, wait a few minutes and BOOM! You have four working COM post. While I have not had a chance to actually try this thing out yet, I trust N6TV knows what he is talking about. I am looking forward to putting this converter to work. This opens the way to possibly using a micro-computer such as an INTEL nook, and using the Edgeport converter for all of your COM port needs. For 35 bucks you can't beat it.

Now I know the name is "Contest University" but there is TONS of good information that any ham can use. If you missed it, don't worry. The whole thing is on You Tube for your watching pleasure. In this way you can watch what interests you and fast-forward though what doesn't. The link is

https://www.youtube.com/watch?v=fEEUpsWUtAA

The USB segment starts at around the 2:14 mark.

I highly recommend it.

Typical Automatic Setup in Windows :
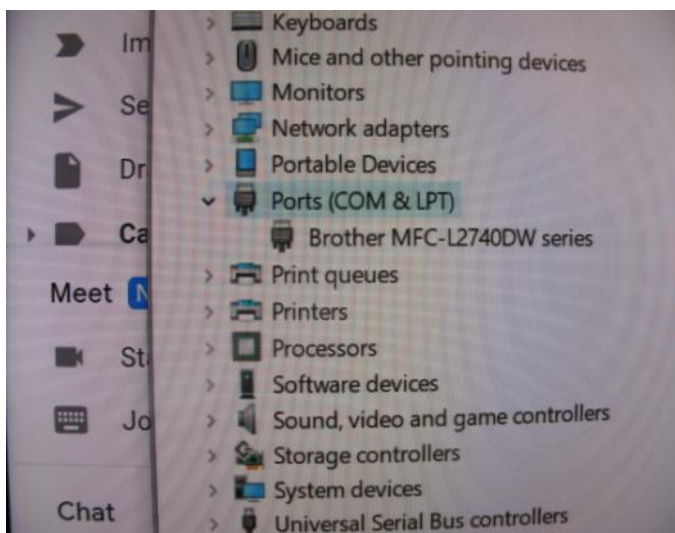
Before Connecting the Edgeport Adapter
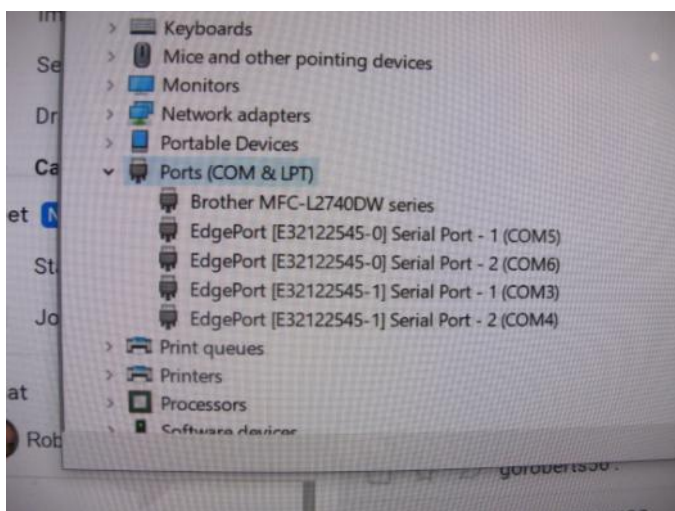
After Connecting the Edgeport Adapter

BOOM ! - You Automatically have four COM Ports

Also, keep in mind that if you don't like the COM port number that WINDOWS assigned to your ports you can change them. Go into the Device Manager, Right-click on the COM port that you want to change. Click on Properties. Click on Advanced Settings. From there you can change the COM port number. Easy !!

Changing the COM Port Number:
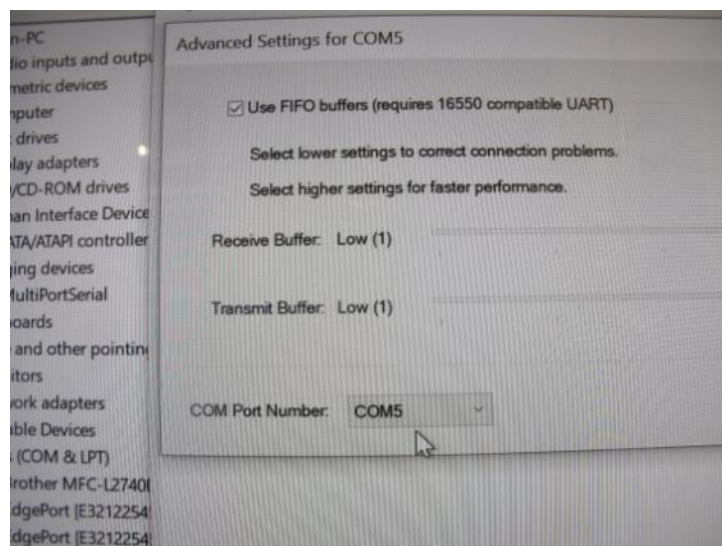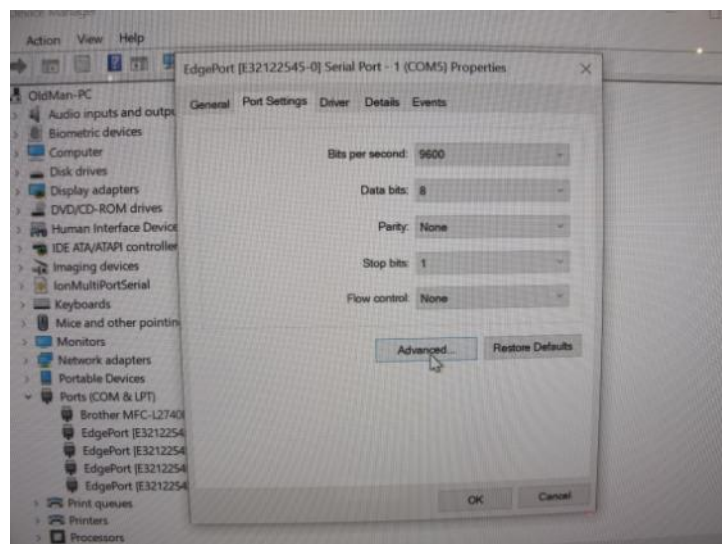
BTW one thing the Bob, N6TV noted was DO NOT DO NOT DO NOT use Prolific brand USB to COM port converters. Nothing but trouble.

So that's what I got.

Cooky

Here are the Results for the WPA Stations that operated in the 2020 Winter Field Day

(Thanks to Rich - K3SOM and the Beaver Valley Amateur Radio Association *eQRM Newsletter*)

Of Interest to All

Here are the published 2020 Winter Field Day results for Western Pennsylvania from the WFD web site page. I thought that you would enjoy seeing how well we did when compared to others in Western Pennsylvania. Our secret weapon worked very well! We had a female voice on one of our stations.

2020 Winter Field Day Results in WPA*

RANK	CALLSIGN	CATEGORY	SECTION	PH	CW	DIG	MULT.	PWR	BONUS	CLAIMED	CALC'D
	AB1A	1H	WPA	10	0	0	1	4	1500	1540	1535
	AB3GY	1H	WPA	3	0	9	2	2	0	80	76
	K3VZ	1H	WPA	30	0	0	5	1	0	150	105
	KA3PMW	1H	WPA	2	0	0	1	2	0	4	2
	KC3GYU	1H	WPA	26	0	0	3	2	0	156	138
	KC3JAS	1H	WPA	333	0	0	3	2	0	1998	1878
	KD3VN	1H	WPA	19	0	0	5	4	1500	1880	1880
→	**W3SGJ**	**2H**	**WPA**	**357**	**1**	**0**	**5**	**2**	**0**	**3590**	**1800**
	W3ZIC	3H	WPA	99	35	15	5	2	0	1980	1490
	WA3JAW	1H	WPA	16	0	0	2	2	0	64	60
	WU3U	1H	WPA	145	51	0	5	1	0	247	1130
70	KS3N	2I	WPA	168	51	0	6	2	1500	4740	4372
141	N3LI	2I	WPA	150	0	0	2	2	1500	3680	1660
54	W3ACH	4O	WPA	152	85	0	6	2	4500	8352	7946
66	W3GH	1O	WPA	65	37	0	6	4	4500	7836	7268
140	N3RF	1O	WPA	45	0	0	2	4	4500	4860	4851
145	KC3TOM	1O	WPA	22	0	1	4	4	4500	4868	4816
154	WA3PRR	2O	WPA	36	4	0	3	2	4500	4764	4736
296	KA3KSP	1O	WPA	12	0	0	3	2	0	3072	60

*Sorted by Category: H = Home Station, I = Remote, Indoors (non-home), O = Outdoors (tent, ice fishing shelter, etc.)

Operators: K3SOM, KC3IXE, K3AHP, N3SVK

Provided by Rich Soltesz, K3SOM

Welcome New Members !!

Welcome the following Skyview Radio Society Members who have joined us since publishing the April 2020 newsletter:

No New Members during

this 2 month period

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 31MAY20

NM3A	WD3HAY	KC3LRT	K3RMB
WB3ACC	KB3HGJ	AB3LS	W3RRK
AD3AD	WA3HGW	KC3LVC	I2RTF
W3ANX	KA3HPM	KC3LZH	KA3RXY
KB3APD	KB3HXP	N2MA	KQ3S
KC3AY	AG3I	KC3MBM	KD4SBJ
NA0B	KC2I	KC3MIQ	KB3SOU
N3BPB (SK	KC3IIO	K3MJ	K3STL
W3BUW	WA3IKQ	KC3MNN	KB3SVJ
KF3C	W3IU	KC3MNO	N3TIN
KC3CBQ	K3JAS	K3MRN	N3TIR
W3CDW	KC3JBS	N3MRU	W3TLN
K3CLT	KB3JGG	KG4MSB	N3TTE
K3DCG	N3JLR	KS3N	AG3U
KC3DIA	KA3JOU	G4NFS	NS3U
KC4EGG	N3JPB	KB3NSH	N3UIW
KC2EGL	ND9JR	KC3NYN	W3UY
KC3EJC	KC3JSF	AJ3O	K3VRU
AB3ER	KB3JXG	WC3O	W3VYK
KC3EVT	KC3JXO	KC3OCA	N3WAV
KB3EYY	K3JZD	KC3OCB	K3WM
WB3FAE	KC3KEI	KC3OCC	N3WMC
KC3FEI	WA3KFS	K3OGN	W3WTJ
K3FH	KB3KHR	N3OIF	K3WWP
K3FKI	AC0KK	KB3OMB	KZ3Y
KC3FWD	N3KNB	KB3ORO	KG5YFN
N2GBR	W4KV	KR3P	N3YJN
KC3GIL	KC3KXG	NK3P	KB3YJQ
KC3GIN	KC3KXZ	W3PRL	W3YNI
KC3GPM	WA3LCY	AE8Q	W3YNX
K3GT	KC3LHW	NU3Q	WA3YWU
AB3GY	K0LIN	WQ3Q	K3ZAU
KC3GZW	KG4LLQ	NJ3R	
NC3H	KC3LNG	KB3RBV	

<u>Notes:</u> 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 . . . . .

How about this: A way to test the Value of a Fuse

https://tinyurl.com/y9nnbl24

Here is a web site that may be useful

https://www.everythingrf.com

Can't get the lighting in your shack quite right for every situation? Try one of these.

https://tinyurl.com/ued2nhr

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, 2020
Closing Date For Submissions : July 15, 2020
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 EVERYTHING that you need to know, go to:
https://www.facebook.com/SkyviewRadioSocietyHamRadioTesting/

(This will tell you what you need to bring with you)

Skyview Radio Society Contact person: Bob Worek, AG3U
e-mail: ag3u at arrl.net   phone: 724-274-8201

Location: Skyview Radio Society clubhouse. 2335 Turkey Ridge Road. New Kensington, PA 15068.

Directions, and map are on
http://www.Skyviewradio.net

Please schedule in advance.   While walk-ins accepted, exam may be cancelled if no candidates are scheduled.

Q5er Editor & Publisher: Jody Nelis - K3JZD

This newsletter may be freely forwarded.

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email your comments and article submissions to: **K3JZD AT ARRL DOT NET**

That's Easy . . . .

Come up to the Skyview Clubhouse on any

Tuesday and ask !!!

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

Subscribe to K3MJW **groups.io** reflector for All Current News & Activities : https://groups.io/g/K3MJW

If you want to keep up with what is going on NOW, that is the place - have it forward msgs to your email

Is this how your dining room looks ??

Where are the pictures of your shack ??