Mt. AIRY V.H.F. RADIO CLUB, INC.

CHEESE BITS

W3CCX
CLUB MEMORIAL CALL

ARRL Affiliated Club

Volume LXVI | May 2023 | Number 5

PREZ SEZ:

Such a Deal May 2023

Last Sunday during a lull in traffic through Tool World, I contemplated potential subjects for this month's *Prez Sez* column. Suddenly the connection appeared between the typical desires of my customers and that of many hams: It is the search for deals. At my store, the search for deals is straight-forward. You check the weekly flyers, browse the clearance section, check the signage ("buy one, get one free"), or look for a yellow price tag.

Getting a good buy in amateur radio is not as transparent a process. I keep my eyes posted listing for SK (Silent Key) estate sales in club newsletter and email reflectors. For example, I now own 7 Bird 43 RF watt meters. As I recall, 5 of them were obtained from estate sales for about half of the price that I might otherwise have paid. There is not too much wrong that can go wrong with a Bird watt meter so if it is clean-looking, your purchase is probably safe.

Last weekend, Tom KA3FQS and George KA3WXV discovered that one of the 200 MHz probes to my digital scope was bad. There was an exact used replacement on eBay but for very little more, I purchased a new replacement probe from a test equipment vendor with whom I had a good relationship. I go with eBay when buying simple items such as plugs, adapters, and for Heathkit stuff.

One must be careful when purchasing used electronic components. For example, Len N3NGE has cautioned me and others that you really don't know the condition of the contacts of used high power relays. You would be upset if an antenna relay mounted on top of a 100 foot tower gave out during the January contest. On the other hand, my used 2 meter TE power amp started acting up during the January contest. On the advice of Tom KA3FQS, George KA3WXV and I discovered that once we cleaned up a relay's contacts with a burnishing tool, the intermittent problem went away.

One of the great adventures for radio amateurs are conventions and hamfests. There is no telling what you might find. I buy all sorts small items at these events and unload surplus. One caution is that hams all too often attribute an inflated value of their items at both hamfests and also online at eBay and QTH.com. There is a 100% solution to the problem of over-valued items. If modest negotiation doesn't yield a satisfactory result, just walk away. That item will appear elsewhere and perhaps at a more reasonable price.

I have mixed feelings about purchasing used transverters and other radio gear. The selection of such gear is much more limited than HF gear. My transverters from 2 MHz to 3400 MHz are all from DEMI (Down East Microware) and were purchased used from other hams, except for the 3400 MHz transverter bought new as part of a group purchase from DEMI. My thinking was that if I needed help that one of my Packrat

Packrats **CHEESE BITS** is a monthly publication of the
Mt. AIRY VHF RADIO CLUB, INC. –Abington, PA.

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Pack Rat Web Site: http://www.packratvhf.com

SUBSCRIPTION/ADVERTISING MANAGER:
Bob Fischer, W2SJ 23 Morning Glory Circle, Mullica Hill, NJ 08062 (609) 440-2916 bobw2sj-at-gmail.com

EDITOR:
Lenny Wintfeld W2BVH 709 Lincoln Av., Cranford NJ 07016
(908)-272-0559 lennyw-at-comcast.net

TRUSTEE OF CLUB CALL - W3CCX
Mike Gullo WB2RVX
(609)-743-6643 MGullo3-at-comcast.net

W3CCX QSL CARDS:
Bill Shaw K3EGE

PACKRAT 222 MHz REPEATER - W3CCX/R
222.98/224.58 MHz (PL 136.5) Hilltown, PA

OFFICERS 2019-2020
PRESIDENT KB1JEY Michael Davis president -at-packratvhf.com
VICE PRES: N2DEQ Mike Andrayo vicepresident-at-packratvhf.com
CORR. SEC: WA3EHD Jim Antonacci correspondence-at-packratvhf.com
REC SEC: KA3WXV George Altemus secretary-at-packratvhf.com
TREAS: W3KM Dave Mascaro
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144.300 (FN21be), 222.300 (FN20tk), 432.300(FN20tk), 903.300 (FN21be), 1296.300 (FN20dh), 2304.300 (FN20dh—under repair), 3456.300, 5760.3 (FN21be under repair), 10,368.017 (FM29jw) **Note:** red = temporarily off the air; see https://www.packratvhf.com/index.php/on-air for details)

MONDAY / TUESDAY NIGHT NETS
VHF/UHF Monday:

TIME	FREQUENCY	NET CONTROL
7:00 PM	224.58R MHz	WR3P FN20kb Ralph
7:30 PM	50.150 MHz	N3RG FM29ki Ray
8:00 PM	144.150 MHz	K3GNC FN20ja Jerome
8:30 PM	222.125 MHz	KC3BVL FM29jw Jim
9:00 PM	432.110 MHz	WB2RVX FM29mt Mike

Visit the Mt Airy VHF Radio Club at: www.packratvhf.com or www.w3ccx.com

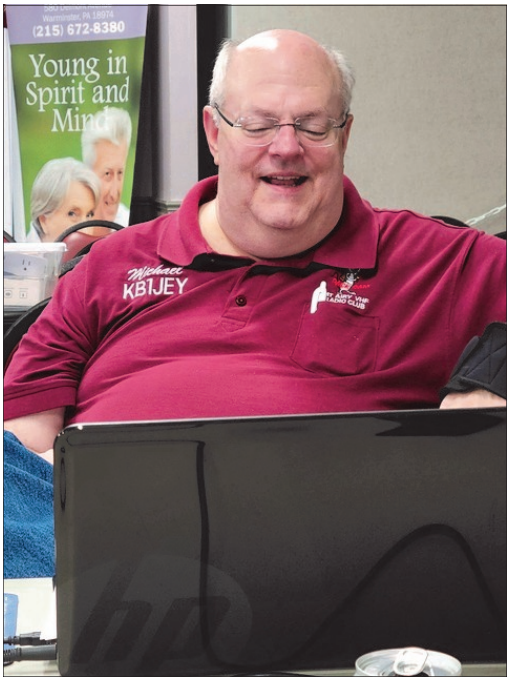
buddies or DEMI would come to my rescue. I have purchased power amps for VHF/UHF/ microwaves in used condition when I can find them, new from DEMI or Q5 when not available used.

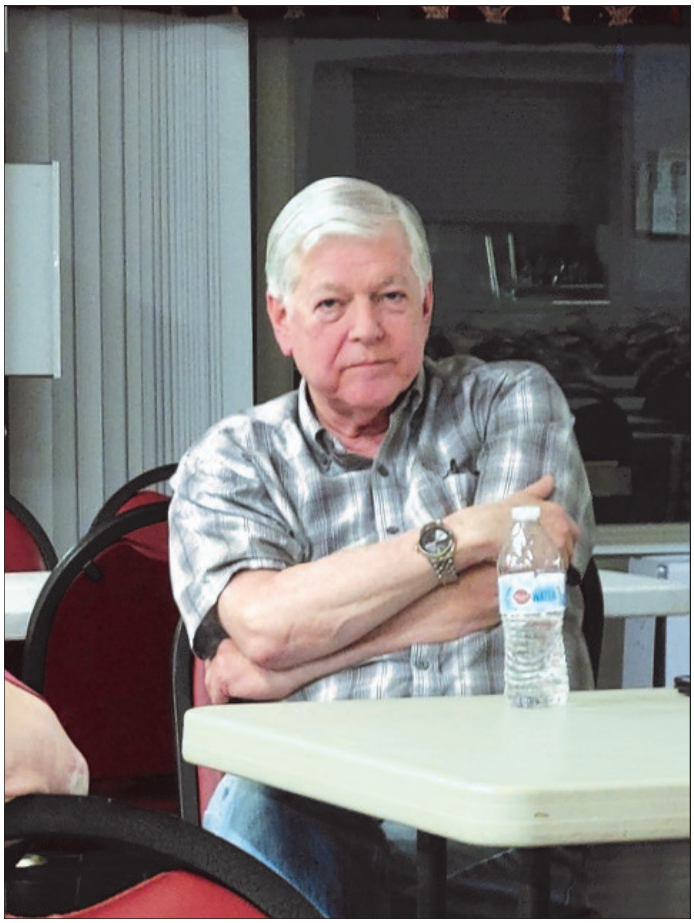
My last piece of advice: Acquire and use modest test gear such as a digital volt meter and an inexpensive spectrum analyzer, and a VNA to perform inspections. In addition to checking out your gear, you can verify that equipment and cables whose purchase you are contemplating are in good working order.

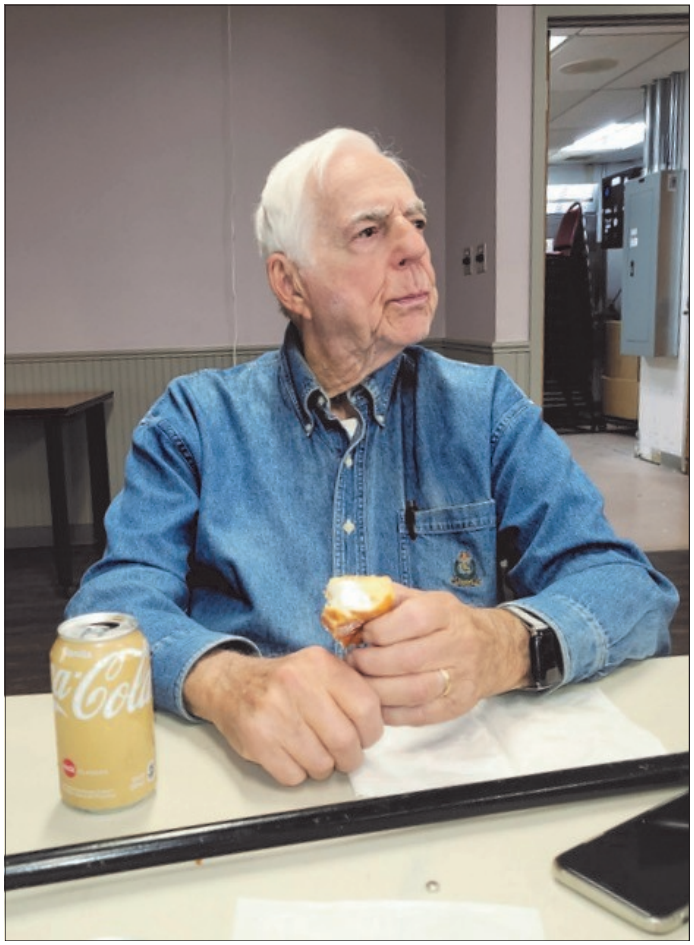
Michael KB1JEY

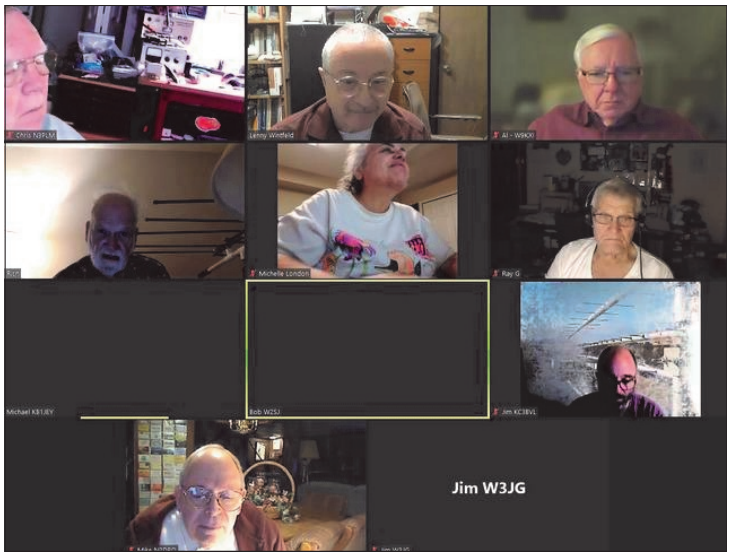
DMM Check

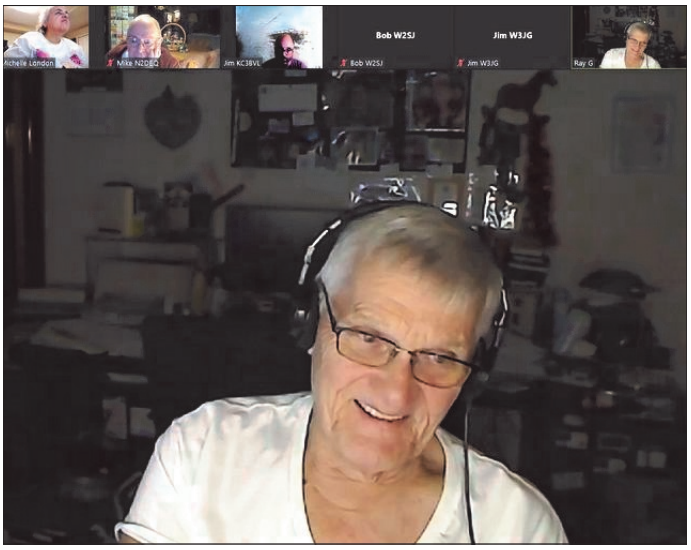
APRIL MEETING PICTURES

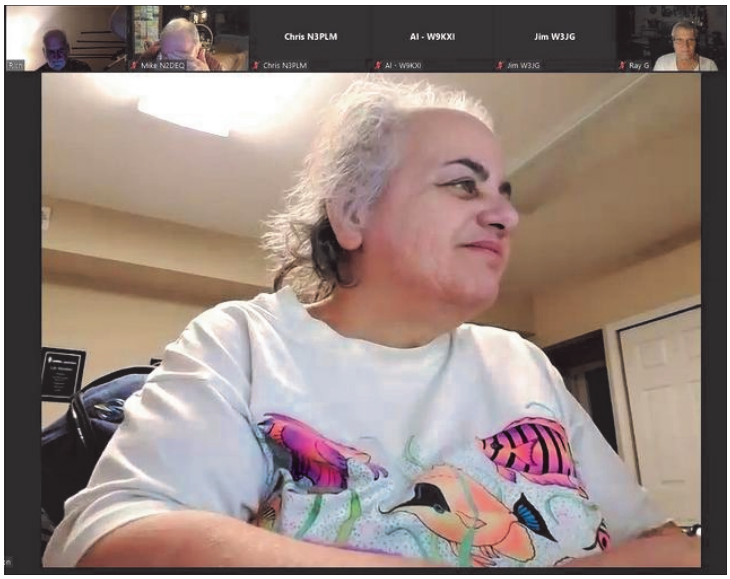




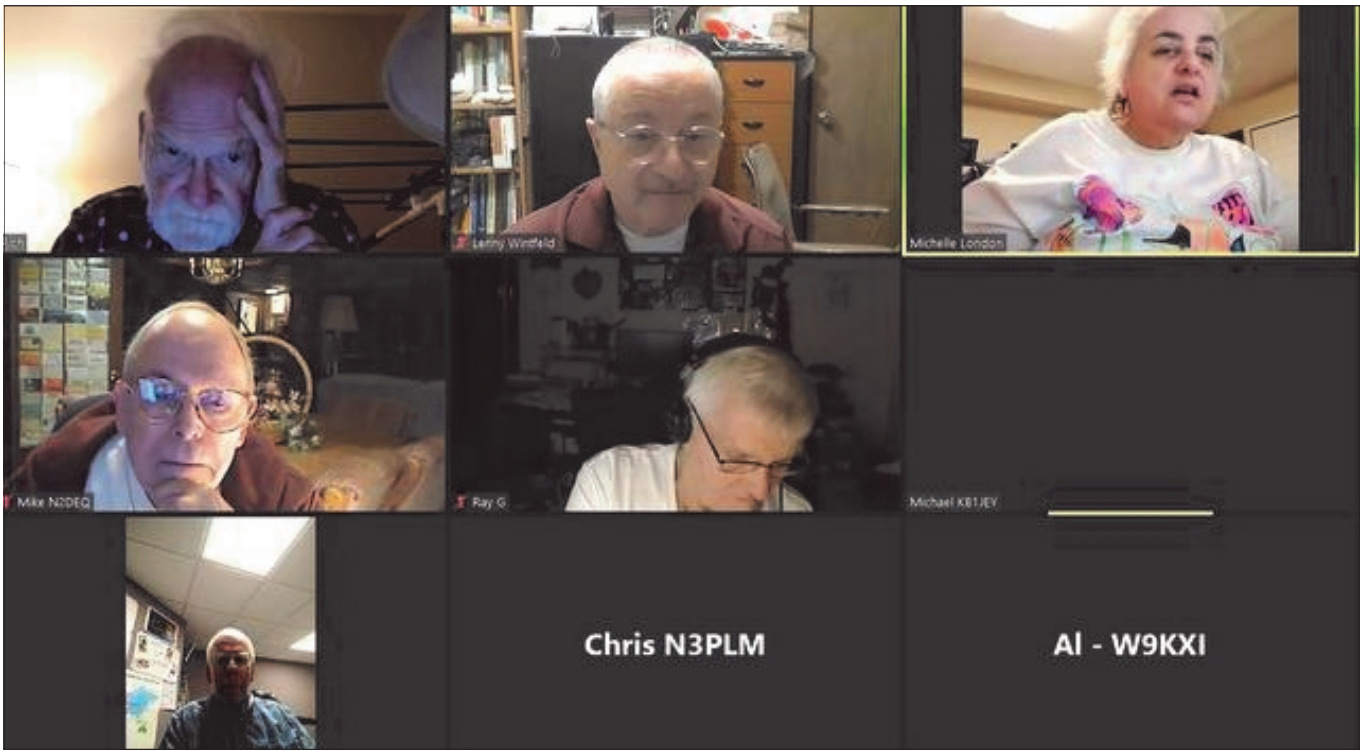








Pix by K3JJZ & W2BVH



Some Reports from the Spring Sprints

2 Meters

Good activity.....13 QSOs and 9 grids=117 pts. **W3HMS**

Conditions were not good here. I had to use CW to work stations that I normally work on phone. For the last 2 hours of the contest I resorted to FT8 for new contacts and grids. Distribution of contacts: Ph: 9, CW: 4 and FT8: 27 See ya next week! Al - **W9KXI**

Well, since my 110 ft tower blew down in the big "bomb cyclone" we had just before Xmas, I've had to improvise. On 2 meters I just put my 8 element rover antenna on a 15 ft mast and pointed it SW (through trees and a ridge I normally see over). I can run outside and "Armstrong rotate" the antenna. Made 11 QSO's 5 QSO's were on SSB, 6 on FT-8, though I'm pretty sure I could have worked all the FT-8 stations on SSB or certainly CW. Best DX was K1TEO in FN31 on sideband. Also worked WZ1V in FN31 at 288 miles, K1ZK in VT on SSB at 203 miles and VE1SKY in FN74 at 193 miles, (went out and turned the beam 135 degrees for that one!) Had a near QSO with W2KV in FN20. We both heard each other on CW but couldn't complete. That's a 408 mile path. Not bad for an antenna 15 feet off the ground! Thanks to CSVHF for sponsoring and to all who got on. - Bill, **K1DY** FN54JQ Maine (still snow on ground)

I decided to operate from home this time. Activity and band conditions were okay. Best DX were VE3WY and VE3DS. Heard KE8FD, VA3ELE/R, and VE3SMA. 73, Peter **WW2Y**

The Sprints are my favorite operating activity. Lots of stations participating and good spread of grids available. 50/50 mix of Phone/FT8 in my log. It would be interesting to see the results if the contest sponsors adjusted the rules to make the first 2 hours PH/CW only and the last 2 hours digital only. Definitely had fun and looking forward to the 222-sprint next week. Phil **WA3NUF**

Activity seemed pretty good but not much propagation. My FT8 wasn't working so all contacts were SSB or CW. **W2KV**

Condx for the most part average or a little below. Managed to miss FN01,00 and EM96 all of which were decoded on FT8 numerous times. Working on my 222 antennas tomorrow and if all goes well will be back on the band and able to operate in the sprint next week. Looking forward to much lower noise levels - 2m is awful hr these days. Special tnx to N2ZBH and N2DXT for the rover Q's and to the sponsors. Jeff **K1TEO**

First test of our repaired Larcan KW amplifier after an FET replacement. The repair lasted 3 hours :'(Hope to get all the bugs out by June. Good activity! N2NT (**N2NC**)

222 MHz

QSO=10....Grids=7.....Total =70 Did not get own grid nor FM19. **W3HMS**

This was certainly a great way to spend the World Amateur Radio Day! The conditions were certainly interesting with incredible QSB peaks in some directions. Best DX was W8RU at 419mi/670km. Thanks to the sponsors and thank you for the Q's! Let's do this again next week (4/26) on 70cm, shall we?! :) 73, --Alex **KR1ST**

Conditions seemed to improve as the sprint progressed. Activity was good and showed the results of the effort by Dave K1WHS to promote 222 activity on Tuesday evenings. Contacts were 72% PH/CW and 28% FT8. Best DX was AA4ZZ at 450 miles. Thanks to the sponsors for creating a great event. Phil **WA3NUF**

I had a great time last night. 23 Q's, 1-FT8, 4-CW and the rest SSB. Best DX K1WHS, followed by KO4YC and W8ZN. I was pleased to work my own Grid this week as well as FN11 to my South (K2LNS). Absolutely incredible QSB last night, long slow troughs and short crests. 800 watts to a 15-element yagi at 35 feet. Thanks to all who participated and especially the sponsors. See yuh next week! Al - **W9KXI** FN12ne

After being off 222 for a few months with a bad swr issue, I got the tower down last Thursday. Fixed a connector issue at the main coax to rotor jumper coax and then mounted a pair of new DS 16 element antennas. The Sprint was a good chance to give the new system a workout and it seemed to be fine. Condx hr were about average some of the time and below average other times. As others have noted a good deal of variability so stations would be weak and then come way up. I was busy the first hour with 36 QSO's, even missing some time to help my xyl out. That was fun. I was in and out for the next 2.5 hours and things not surprisingly slowed down quite a bit, hi! Still waiting for my 222 Beko to return from DL Land but the RIW amp was a fine replacement. CU on 432 next week. Tnx for the Q's and to the sponsors. And tnx to Dave, K1WHS for starting the Tuesday night activity. And to those who get on each week and make noise. It's great to see the band being used more than I ever remember between contests. Jeff **K1TEO**

Thanks for the QSOs. Cool to find K8RYU on CW in the first 10 minutes of the contest (377 miles). - John **N2NC**

Well I got home on Tuesday around 9:45 for the 222 sprint. Checked into ON4KST and all of a sudden I was "new meat" and a new grid too, I guess. Quickly worked K1WHS and several others most on SSB, no digital. Lots of noise here and QSB. Stu, VE2XX, chatted me to try with him and I ran outside to turn the Armstrong rotated beam. Couldn't see where I was pointing and no flashlight handy. Took a guess at it but couldn't hear Stu. Turns out I was turning the 2M beam NW instead of the 222 one, duh. So missed FN25. I can normally work Stu easily! Seven Q's 5 grids, best DX K1TEO at 308 miles. Running 300 watts, but antenna still 10 elements at 15 ft. Thanks to those who hung around and to CSVHFS for sponsoring. Bill, **K1DY**

432 MHz

Band condx seemed below average hr. 44 on CW/SSB and 10 on Digital. 222 and 432 continue to be mostly analog. Tnx Q's and to the Sponsors. Hope to be on for the Microwave Sprint. Jeff **K1TEO**

I started a half hour late at 7:30pm, and should have stopped at 9, but stuck around until 10pm to see if anything new would pop up, but it netted me only 2 Q's. Conditions seemed pretty lousy to me. I'm missing some easy ones in my log. As usual, I did not hang around the QSO begging waterholes, or used any other form of assistance to make a Q. Many thanks to the sponsors and thank you for the Q's! 73, --Alex **KR1ST**

It was...an interesting sprint: Wild QSB swings. A Station went from 59 to unreadable in a second. I started with only one mode SSB. An LNA protection circuit was not working. It became really apparent that I needed to both find and fix the problem. I tried twice to work K1ZK (25W), once on CW and once on FT8. I heard him but the QSB peaks just weren't long enough. I tried Q65 for the first time. Something in my setup wasn't correct because I wasn't decoding anyone. To work Alex (KR1ST) my beam heading is to the side of a hill (East side of a valley). Alex's signal last night was, at times, "multi-path". He too has reported a similar experience when hearing my signal. Thanks for everyone that came out. Also thanks to the sponsors. Look for me in the uWave Sprint on 1296, from here in the valley of FN12ne82bd. As always, my goal for the uWave Sprint is 5 Q's, which I have yet to achieve. Al - **W9KXI**

Having fun looking for portable contest locations. Last nites at a cemetery at 1,150 asl, with permission to operate from there. It might be a location to also use in January weather permitting. VHF from my home QTH will never happen again. Looking forward to my new portable operations. New home location will cover 160 to 10 meters. Very exciting to work my buddy Dave in Maine last night with a very simple system. 50 watts to a 16 element yagi at 15 feet. Also surprised to grab FM07 to the south. **K2LNS**

Microwaves

Not many on and band condx below normal. Any day on microwaves is a good one so glad to fire up the rigs. Had 4 Q's over 500 KMs including KF7NN who was running 10 watts on 1296 from

Sprints cont'd...

FM07 - SSB to boot. Worked WW2Y on 10G for his first 10G contact. Hope you have a lot more Peter! Band totals were: 902 - 6 1296 - 12 2304 - 2 10G - 1 Only found one station to try with on 3.4 but it was a ng. No tries on 5g unfortunately. Worked W2BVH and WA3DRC on 3 bands. Would have worked KC3BVL on 3 as well but my PTT stopped working right as he called me on 2304. Tnx for the Q's and to the sponsors. Jeff **K1TEO**

Crappy conditions **WA3DRC**

The conditions were downright crap. Contacts that would be easy any other day of the week were a struggle to complete. Best DX was Ed, WA3DRC at 295km. On FT8 I could only see aircraft scatter, not even the direct signals.

Thanks to the SVHFS for sponsoring the Sprints and thank you for the Q's! 73, --Alex **KR1ST**

Yes, conditions were a disappointment. Things were so bad that I began to wonder if my transverter was broken. Not so. I did hear one station, WA3DRC (@385KM), which I couldn't complete the contact with. In the end, I worked K1TEO in FN31 but was unable to work others, even in the same grid square. Did I have fun? You betcha!!! Thanks to all who came out today and...to the Sponsors. Al - **W9KXI** FN12ne

K1TEO was the only contact (10GHz) and Jeff was loud. However, I did hear traces from K0SM in FN12 at one point. But I was happy that I didn't get skunked. 73, Peter **WW2Y**

Conditions were poor, and my Q total reflected it. Though it was nice to pickup WA3DRC down in MD on two bands from up here in central NJ. I'm convinced we can do a Q on 2304 in better conditions. I've got 3.4G planned for some time this year which should make things even more interesting. Far as I'm concerned a bad day on the microwaves is still a very good day. (It's the fly fishing of Ham radio). **W2BVH** Lenny

Home Brew Night Results

Topics and Presenters

Tower Automation: Ken, K2WB

W3CCX EME Expedition: Tony, W3HMU and Walt, K3BPP

10 GHz Portable Rig: Dave, W2KV **Winner – Organization of Good Ideas**

50 MHz Low Pass Filter : Doc, W3GAD **Winner - Best Construction**

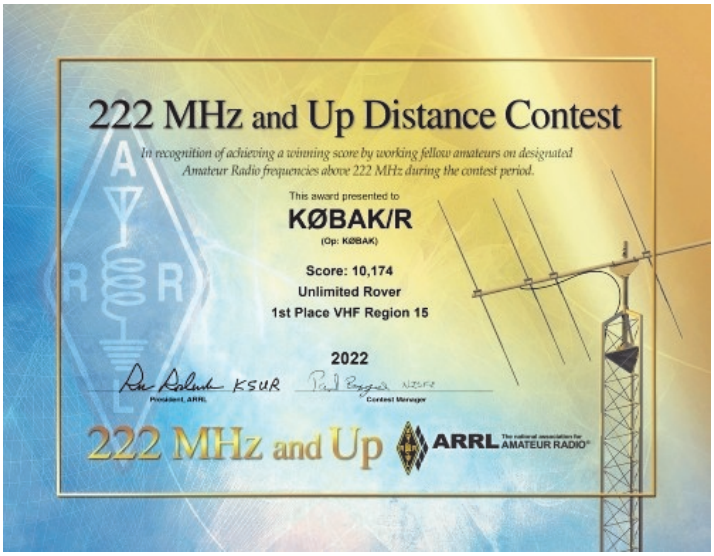
220 FM Go Box Antenna in a Tube: Bill, WS3O **Winner - Most Unique**

Assorted test equipment + Cell Phone Mount: George, KA3WXV **Winner - Adaptation of House Hold Items**

12volt 10/20 Amp Load unit with Fan: Mike, N2DEQ

6 GHz Portable VNA: Ray, N3RG

Club GPS 10 MHz Source: Michael, KB1JEY



Congrats Pete!

MUD 2023 Comments and Summary

[From the “10 GHz & Up” reflector. Note: the URL in the report is a SUPER description of the goings-on at MUD with lots of pictures. Check it out —W2BVH]

[ALSO note: All papers presented at MUD can be found at: http://www.microwaveupdate.org/conf2023/2023papers.html]

The conference has concluded and all I can say is "wow" (in a very good way). I've uploaded more pictures and captions to the blog on QRZ.com. If you weren't in attendance, you may find it interesting...at least until you can get your hands on a copy of the proceedings for yourself. I'm told that it will appear on lulu.com in the near future.

https://forums.qrz.com/index.php?threads/2023-eastern-vhf-uhf-conference-microwave-update-mud.860059/

Thanks to the MUD Committee and N.E.W.S. conference co-chairs along with their team of support volunteers for making this informative and enjoyable. The next MUD was announced as occurring in the fall of 2024, near Vancouver, B.C. What a fantastic destination that is certain to add to the event itself!

Keep having fun!
Ev, W2EV

George WB3IGR is now on 902 and 903 with his 30 watt Down East Transverter from FN-10!

A Welcome Diversion

Steve and Jen (W1SMS / KB1LIJ) invited Packrats to stop over at their QTH in CT before they wended their way home from the MUD Conference.

Status of 3400 MHz Band

Congress did not renew the FCC authority to auction off frequencies. This is the first time in 30 yrs that has happened. It provides a temporary reprieve from anymore of our frequency bands being pillaged, but the telcos and others are still screaming that they need more BW to provide gigabit cell service. The article below provides an overview of the situation plus a theory on why the FCC is on hold. Phil WA3NUF

DoD may be causing the delay in FCC spectrum auction authority

By **Linda Hardesty** Apr 21, 2023 10:50am

Everybody in the wireless ecosystem is clamoring for Congress to reinstate the spectrum auction authority of the Federal Communications Commission (FCC). One former deputy at the FCC speculates that the delay may be related to the Department of Defense (DoD) wanting to wait for a spectrum report that the NTIA is working on.

This week, nine trade associations including the Competitive Carriers Association (CCA), CTIA, 5G Americas and the Wireless Infrastructure Association (WIA) sent a letter to Congress about the issue.

The groups noted that for the first time in 30 years, Congress had allowed the FCC's authority to lapse. As a result, since March 9, the FCC lacks the ability to auction spectrum bands and issue wireless licenses.

They said Congress needs to act in a bipartisan effort to address spectrum policy so that key 5G wireless innovations stay in the U.S. and don't get led by China.

"We expect five times more traffic on wireless networks in the next five years and have no new spectrum available to meet consumer and business needs," wrote the associations. "In stark contrast, China is poised to have over 400% more 5G spectrum than the United States available for commercial use by 2027 and is working now to drive other nations to make available the same bands that are already available in China."

They urged Congress to restore FCC auction authority "to safeguard our national security and promote our economic security with clear planning for future commercial spectrum opportunities."

FCC leaders sent their own letter

Earlier this week the four commissioners of the FCC sent their own letter to members of key congressional committees, asking them to restore the auction authority.

They said that to date, the FCC has held 100 spectrum auctions that have raised more than $233 billion for the U.S. Treasury. "As a result, the agency's auction program has enjoyed strong bipartisan support here at home and our efforts have been a model for regulators worldwide."

"Importantly, the United States cannot afford to wait," they added. "The global community will soon convene for another World Radiocommunication Conference (WRC) to determine the future of spectrum policy, and we must send a strong signal in advance of that meeting of our continued commitment to lead in coming generations of wireless technologies."

DoD's interest

Fierce recently spoke with Belinda Nixon, a former deputy chief in the FCC's Wireless Telecommunications Bureau. Nixon is currently a partner in Perkins Coie's Technology Transactions & Privacy Law practice. Nixon said the holdup with the auction authority reinstatement may relate to the DoD wanting to wait until the NTIA completes its assessment of the use of the 3.1-3.45 GHz spectrum.**

3400 MHz
cont'd...

Nixon said the NTIA's final report on this topic may not be published until this fall. But surely Congress could reinstate the FCC's auction authority in the meantime with the stipulation that no auction of the 3.1-3.45 GHz spectrum would occur until after the NTIA's report.

"The DoD does have ongoing concerns about the commercialization of the spectrum that they hold," said Nixon. "But I think they've seen some benefits in some areas where they've had to share."

She said with the World Radio Conference (WRC) coming up in November, the lack of FCC spectrum auction authority "makes it challenging for the U.S. to prepare because you want to present a united front when going into WRC."

https://www.fiercewireless.com/wireless/dod-may-be-causing-delay-fcc-spectrum-auction-authority

Implementing a High Performance, Low Cost SDR Into Your Station

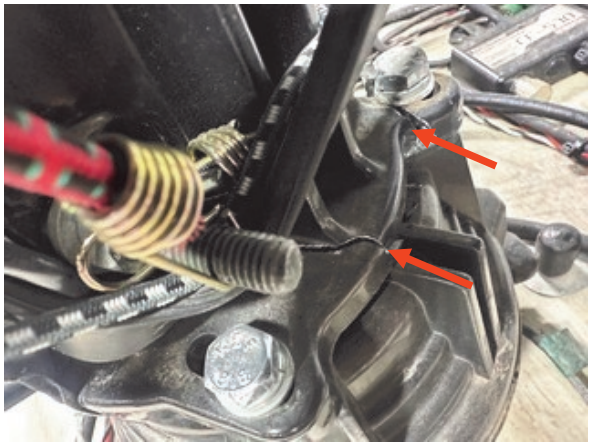
"The Gray Line Report" newsletter of the Twin City DX Association had a very nice detailed article (though somewhat dated now) on setting up a low cost SDR. The steps needed and principles are still valid. The article is at : https://tcdxa.org/wp-content/docs/Newsletters/Mar2018GrayLine.pdf

URL sent to Cheese Bits by Mike N2DEQ

K0BAK at W1AW

After not attending ham conferences for a few years, I decided to attend the NEWS / MUD conference mostly for the sake of attending anything. Arriving by train a day early to participate in two pre-conference tours, I fulfilled a minor bucket list item by operating as W1AW at ARRL headquarters. I returned home with a commemorative certificate, info from microwave talks that often went over my head but left me highly impressed, and a cold or flu or something that still has me knocked out two weeks later.

More ham van destruction: Just before I left for the MUD conference, the owner of the garage at which I keep my ham van sent me a picture of a crack in its rotator mast clamps. He or an employee moved the van without opening a door high enough. This comes on top of them unplugging the van a couple months ago resulting in the batteries running down destructively, and damage to my cell phone antenna a couple years ago. Having to fix problems caused by the garage where the van is supposed to be safe is demotivating, and makes me question the effort of the whole project! Pete **K0BAK**



Some Observations and Advice on using LMR400 and LMR600

[Comments form Moon Net, forwarded to Cheese Bits by Paul WA3QPX]

LMR 400 has become generic with so many variations in quality like RG8 . Some are good and most are not. Some of the cheaper cable companies splice the cable runs with not always the same exact velocity factor. I bought the original made by Times Wire and Cable some 15 years ago with no problems. Times still makes it as well as LMR600. As far as type N connectors they are waterproof , if installed correctly . The motion of the cable flexing tends to allow water intrusion after awhile. It is solved by using the commercial heatshrink that is used on cell systems cable. The type that needs a heat gun to melt the glue inside not a hair dryer type. It immobilizes the connector and waterproofs it. I have about 40+ N connectors on eme systems with no failures in 15 years. It takes a razor knife and pair of pliers to take off if needed but worth the trouble.
gl , Paul, **WA3QPX**

Hello all....we use LMR-600 UltraFlex for rotor loops. UltraFlex cable (both LMR-400 and LMR-600) has a rubber jacket that is more flexible than the standard "slick" jacket. BUT, over time, the rubber jacket degrades in the UV light from the sun. It breaks up into little "scales" that look just like the scales on a snake's back. Of course, the water gets into the braided jacket and you get the silvery powdery stuff that everyone is seeing. The loss goes WAY up and even if you dry the cable out completely, the losses don't go back down. Never mind that as soon as it rains again, the braided shield is going to fill up with water again. We have just resigned ourselves to replacing the rotor loops every 10 years....sooner if we see problems. We use Type N crimp connectors which are NOT "waterproof"(whatever that means), so we do extensive waterproofing with one layer of Scotch 2242 Linerless Rubber Electrical Tape(stretch it as you put it on) and two layers of Scotch 88 vinyl tape. We have never had water get into our connectors with this regimen. These tapes are available at any home improvement store, like Lowe's or Home Depot.....and no I don't own stock in any of these products or stores....although as much tape as we use, maybe I should. GL and best EME to all....73 Marshall **K5QE**

Yes, N connectors with rubber gaskets. They are supposed to be "waterproof", though I'm not sure how that term is defined in this context. LMR-400 has a copper wire shield, so flexing isn't going to break it, though the center is aluminum and LMR-400 is bendable, but not very flexible! I don't know how the outer jacket responds to bending, but really, LMR-400 should probably only be used for fixed lines. I've also wondered about waterproof tape. It should be just another coating on top of a waterproof connector, but if not applied properly it could leak and seal water between it and the cable. Since connectors are not hermetic seals to the end of the cable, I'm sure everything "breathes" in moisture containing air which makes its way into the cable, where it can condense and possibly do some damage. Since I'm not going to use nitrogen purged air dielectric coax, I guess I have to live with the limitations of normal coax! Maybe testing and replacing every few years should be part of routine maintenance in critical areas. I'm not sure the jacket material is hygroscopic, but pretty much everything is eventually permeable to water vapor. Even if it's not permeable, microscopic cracks could let water in. I don't much care if the feed line to the PA gets a few dB more lossy since all I need to do is turn up the drive a little bit and everything is OK. It's the line from the PA to the feed that's the one to watch. Not too bad with a dish, a nightmare with a multi Yagi array I would think. 73 Bob, **KA1GT**

Recent AU QSO's in Maine

So I was expecting the "Big Aurora" earlier this week (4/28/23) . Nice having the internet sources as indicators of when to look these days. Back in the day you started looking for Aurora on 2 if you heard it on 6, looking on 220 if it was strong on 2, etc. Not sure what made us listen for it on 6!!

Having lived in the "northern tier" for 50 years or so, I've worked a LOT of Aurora, But not a heck of a lot lately. As this new sunspot cycle gets going, I'm sure we will see more (yay!). It's also nice to see a mode of propagation that still largely favors operating good ol' fashioned CW! Anyway, I was paying attention to the internet chat and the K-index and the email lists and got on shortly after the buzz started up here. I was hoping to work some new grids on 220 in particular, since I'm a little light there. I was set up on 2 meters as well. Anyway the attached image of the 6 and 1.25 meter antennas here shows what they are pointed at when looking northwest, but I'm getting ahead of myself. I heard VE3DS, Dana, calling CQ AU on 220 when my antennas were still pointed SW! I have to run outside to rotate the temporary antennas since the tower mishap I had from a "bomb cyclone" awhile back. I quickly shot out to peak up the signal. It was dark and I couldn't see the antennas and couldn't find a flashlight. Oh well, I took a stab (can't hear the receiver from outside) the signal didn't seem to get any louder! Finally I realized I was turning the wrong antenna. (Guess I really WAS excited)! Finally got NW and worked Dana pretty easily, but that was it for 222! I called CQ and solicited contacts on ON4KST but nothing. I think the building in the way of my antenna might have had something to do with it. My 2M antenna has a clear shot NW, through trees - but not any leaves yet, so I went there, pointed the antenna in the correct direction and worked 8 or 10 stations — New England and the near upper Midwest pretty much.

The pictures show my 2M beam pointed SW, you can see NW is not blocked by the building, then the 220/6M "stack", and finally my Armstrong rotor "azimuthal indicator and direction control system". Gathering the pieces to put newer bigger antennas up this summer. Yay! Bill, **K1DY** in FN54JQ

WW2Y's Initial 10 GHz Op

My trip to High Point NJ was a lot of fun. I worked Jeff, K1TEO easily for a 75 mile QSO on CW and SSB. We chatted for several minutes on 10.3681GHz and he was S9. He said I was loud as well. I did hear traces of K0SM in FN12EV, but he couldn't hear me. Overall, it was a successful effort. Having the Tiny SA Ultra with me was a lifesaver for finding the correct frequency offset and making certain that the transmitter is working. $120 well spent.

We should do the 10GHz contest up here sometime. It's only a 2 hr drive.

Today (5/8) I went to Warminster hamfest and picked up a straight key so I don't have to bring a keyer and extra junk for future trips. Also, thinking about a battery to streamline the setup.

Here's a view towards New England:

Dave, W2KV helped me with the assembly and testing of the 10 GHz portable rig to make sure it was functioning properly. Also, he has repaired his portable 10GHz rig by replacing a dead LO in his transverter. He'll be QRV once he returns from his vacation.

I use the Tiny SA Ultra as a signal generator to help me know where the actual frequency I'm tuned to since Kuhne transverters LO can be off by as much as 30KHz at 10GHz from a cold start. The offset will eventually drift downwards to within several KHz of the desired frequency after approximately 40 minutes has passed. I'm using a FT-817 as an IF radio operating on 144MHz. Tiny SA Ultra operating in this mode can only go up to 5.7GHz, but its harmonics are rich and strong. For example, I set it to 5.18405GHz and listen for 2nd harmonic on 10.3861GHz.

When the Tiny SA Ultra is operating as a spectrum analyzer, it can be tuned up to 12.5 GHz, but its displayed amplitude is not calibrated at this frequency range. I use it as a relative detector to make sure the transverter is operating properly while it's in TX mode.

You can't beat it for $130 and it can be purchased from R & L Electronics. I highly recommend it.

Regards, Peter **WW2Y**

How to Design Build and Test an RF Linear Amplifier

Part 1 of this 5 part YouTube video series can be found at https://youtu.be/GkOz4iJQ86A. This is about an HF power amplifier, but the same principles apply at VHF and up. Though be warned, there are additional considerations to be accounted for at higher frequencies. Well worth a look. —W2BVH.

Coax Cables I used for SOTA/POTA (A Horror Story)

This article on the web at https://qrper.com/2023/04/coax-cables-i-used-for-sota-pota-a-horror-story/ describes what can happen when you order prefabricated cables (even RG-316) from an anonymous source. Sometimes you get a bargain sometimes you get a headache. —W2BVH

ESR (Equivalent Series Resistance

ESR is a characteristic of all capacitors. Its value can change over time and if it gets too high, the circuit the cap is in can start to misbehave. Here is an article on this subject including an explanation, how to measure ESR and a handy chart of maximum good values for various capacitances and voltage ratings. https://www.circuitsgallery.com/electrolytic-capacitor-esr-chart/

A Homebrew Low Cost High Performance RF Power Sensor (To 6 GHz)

Here's a YouTube video describing a power sensor that works up to 6 GHz. It's actually a simple diode sensor similar to what you'd find in the Handbook. But it uses a microwave diode on a carefully laid out controlled impedance PCB. Supposedly you get change back from your 5 dollar bill if you make one of these. https://www.youtube.com/watch?v=aHz1cfFBWjI
—W2BVH

Meteor Scatter: How it Works; Getting on the Air

K5ND has a nice web based tutorial on meteor scatter using WSJTX. It includes an explanation of how this propagation works, what frequencies to use, what times of day are best and how to set up WSJT for communicating using meteor scatter. https://k5nd.net/2023/04/meteor-scatter-propagation-how-it-works-getting-on-the-air/
—W2BVH

Phased Array Beamformer

Jon Kraft of Analog Devices has a nice video tutorial on creating a 2 antenna microwave phased array where much of the heavy lifting and beam steering is done in software. It uses the popular ADALM PLUTO module and a pair of cheap PCB logperiodic antennas. This is more of an educational project than a rig to be used on the air. But if you have (or know someone) who has a Pluto (or if you have a spare $200 or so to use for just fooling around), this could be fun to experiment with. (Note "real" phased arrays go for well in 4 figures — and up).
https://www.youtube.com/watch?v=2QXKuEYR4Bw

RFNM: A Next Generation SDR Transceiver With 10 MHz To 7200 MHz Tuning Range

This device is currently in the works and not yet released. They claim it will go for "around" $500, which puts it in the same neighborhood as HackRF and the PLUTO module. It has a 12-bit ADC in the receive string. Some additional info can be found at https://www.rtl-sdr.com/the-rfnm-a-next-generation-sdr-with-10-mhz-to-7200-mhz-tuning-range-12-bit-adcs-and-up-to-612-mhz-bandwidth/
—W2BVH

Annual Report Smithsonian Institution 1908 on Wireless Telephony by RA Fessenden

This 48 page booklet is a background report published in 1908 on the development of wireless communication since its start 12 years earlier with Marconi's first radio. It describes "recent" advances in transmission of phone signals over radio. (Remember, at this time, the vacuum triode had not yet been commercialized). Its written in rather archaic English using engineering terms that have long since gone out of use. A good peek into the early development of "The Radio Art". It's $1.75 plus shipping, but if you want it order it soon. The publisher is closing down operations in just a few weeks after 10 years in business. https://www.youroldtimebookstore.com/
—W2BVH

The Wayback Machine
In CHEESE BITS, 50 Years Ago

Nibbles from May1973. Vol. XV Nr 5 de K3IUV Bert
(*author's comments in italics*)

"**Our Prez Sez"**. Prez Walt, **K3BPP** presented a nice list of the varied expertise represented by the club members. They ranged from ATV (Amateur Television, to Oscar (satellite operation), to moonbounce and a number of other ham-related activities. He noted that "it may be helpful to new members for locating someone involved in his particular interests." He also reminded the members that the May meeting will feature an ARRL representative as speaker. Expected was Tom McMullen, **W1SL**, assistant Technical Editor of QST. Guests are invited.

Calendar. May 5th, Ladies Night Banquet at The Buck Hotel. "Our official annual night out and well worth attending." (*Too bad we can't manage to do this anymore. We need an enthusiast to resurrect it*.) May 16th, general club meeting, with topic **ARRL** night. Tom, **W1SL**, Technical Editor of QST will be the guest speaker. June 9-10, the QSO party at Hilltown. Tony **K1SFF/3** (now ***W3HMU***) is the chairman. He reports that we will share the grounds with a horse show on Saturday, and a dog show on Sunday! June 20th meeting will be elections, and NASA night (more info coming).

New Products of Interest to Hams. **W3NSI**, Lynn's always interesting article offered up the following new items: 1). Drake TR-72 replacing their ML2 unit. Now features 23 channels and a choice of 1 or 10 watts. Price $300. 2) Heathkit announced an RF Absorption wattmeter. Rated at 175-watts continuous duty, with two ranges: 0-200 and 0-1000 watts. Priced at $60. 3) Tempo model FMH, 2-meter Transmitter / Receiver with 2-watts output. Six channel selection. Price is $189.

VHF Report. Joe, **W2EIF** noted that an excellent aurora occurred on April 1st. Good contacts were made on 6, 2 and 220. Joe worked into Chicago on SSB, and was heard in Missouri and Iowa. He also worked **W1YTW** in Maine, and **W8UCI** in Michigan. His daily 2-meter schedule with **W8DGF** continues nightly at 8:00pm, with contacts nearly every evening. Joe closed with "CU at Hilltown!" (*Some may remember Joe's tower trailer which he brought each year, and erected himself*.)

ARRL Bulletin Nr 421, April 26, 1973. Amateur stations in space, such as Oscar 6, must operate under the regular amateur rules except that certain requirements may be waived by the FCC. Previously such waivers required the approval vote of the 7 commissioners. However, the FCC released a new order giving such approval authority to its Special Radio Services authority, simplifying the task for amateurs.

Membership. We had 12 visitors at the last meeting, including future members Bill Olson, **K1JDY/3**, Don Nelson, **WB2EGZ** and Rich Pattison, **K3ACR.** Voted to membership was Michael Nessen, **WA3PUL**.

Armed Forces Day Communication Tests. Armed Forces Day will be observed on May 19, 1973.

Departments of the Army, Navy and Air Force will conduct communication tests between military radio stations and amateur radio stations "to demonstrate the partnership and mutual respect" between the military and the amateur radio service. A table of frequencies to be used was included. Test will include CW, RTTY, and SSB transmissions. Properly received messages will be eligible for awards.

Operation Downed Craft. George, **W3HK** (SCM for EPA) provided a nice discussion of a simulated test that was run. An airplane crash in Fern Hill Park was the simulated emergency, and George described the planning, participants and problems encountered. He noted that "Commissioner Rizzo was there." (Frank Rizzo was police commissioner at the time.) Some favorable publicity for HAM operators was accomplished.

OSCAR VI. Bill Murphy, **K3ZSG** (now **W0RSJ**) provided his second article on the new Oscar VI amateur satellite. This one covered the ten-meter downlink reception, and the two-meter uplink transmissions. He included design details and dimensions for a Turnstile antenna he recommended for the 10-meter link, and a full discussion of options for accessing the two-meter uplink.

Swap Shoppe. By W3ZRR. *(Always nostalgia. Now we use the club reflector*.) A Collins 75A4 with 3 (*mechanical*) filters, $350. A Rohn #25 Tower, 40' with hinged base plate and house bracket, $115, a Heath HX-30 plus a 2-meter mixer and a 6 and 2 amplifier using a 4X150, as a package for $175. All from Will**, WB2OAD**. From Stan, **K3IPM**, a 6-meter 11-element Hy-Gain beam for $60 (was $195). An SB500 2-meter transverter for $140, and a Supreme 6-meter 1-kilowatt amplifier for $150. (*Stan was always revising his station complement*.) A Heath DX 60B (5-band transmitter) with vfo for $65 from Pete, **WA3RCA**

Ads. *The May 73 issue included the half page back cover ad from club member Ham Buerger. (A HAM-M rotor for $109. 95! And a phone patch - remember them - for $14.95.*) The usual 23 *business card ads were included in this issue. I note the current Cheese Bits Ad complement includes only 4 small ads, a ¼ page from Beko and a ½ page from Down East. If you'd like to join them, contact the ad chairman, Bob, **W2SJ***.

Miscellany. *Postage for this issue was a single 8-cent "Flag" stamp. (6 double sided, 8-½ x 11" sheets). (Don't forget, current postage went to 63-cents on January 1st {maybe to 66-cents in June}, and a penny postcard now costs 44-cents!) As usual, many other "folksy" comments about members, their families, and activities were included in this edition of Cheese Bits. (Check out the new 8th-district call for Dan Mitten.) If interested, or for more detail on any of the above items, visit our website (**www.W3CCX.COM**) and read the full issue scanned by **K3IUV** (me), and posted on the website by **WS3O**, our webmaster. I have also posted the club Officers history, club Membership history, and Packrat Inventory (updated frequently) on the **W3CCX** website. These files are password protected, and only*

Wayback cont'd

accessible to registered members. Are you registered? I hope you enjoyed reading these bits of nostalgia as much as I did in writing the article. If yes, you might let me know. Thanks to those that did.

thirty, de **K3IUV** (comments or corrections to: **K3IUV@ARRL.net**)

W2DRZ Controllers, Products for the VHF Operator

Hello Cheese bits readers. I am working on some new designs for some of our products and will announce them here when they are ready. In the meanwhile, I have some current and some reconditioned items available.

The CT-2 Antenna controller board. See the Overview page. These are assembled and tested. For readers of Cheese Bits, the price is $199 (mention the Cheese bits ad when ordering).

1. The LCD-1 display unit. This is a nice backlit LCD that shows hardware and firmware version details on startup, and then shows current antenna position.
2. The ENC-1 enclosure. This is a nice box to hold the CT-2 controller and the LCD display unit. See the picture above, showing the box, LCD, and controller, with the box top off.
3. The LC485-1 and LCD485-IDX level converter boards. These boards can be used to convert quadrature position sensor TTL outputs to RS485 protocol levels for sending over a distance between the sensor and the controller.
4. The SEQ-2 Station Sequencer. These are assembled and tested, except for mounting of the relays and optional installation of LED indicators. See the Products page for details. ($55 for Cheese bits readers.)
5. I also have a few reconditioned and tested SEQ-1 sequencers. These use the older relays that are no longer available. The relays are rated at 10 amps, so they should last a long while in normal usage. These are a bargain at $25 each.

For all products, see the Products page for prices and shipping.

To Order, send email to k2txb@comcast.net, or call 856-866-6611

Events

For inclusion, please direct event notices to the editor.

(For contests, see Ray's "2023 VHF and Up Contests.pdf" document at the "Contest Info" tab on the club web site. Many repeated here for convenience)

6M Spring Sprint -Contest– May 13, 2023 2300Z—May 14 03000Z See https://sites.google.com/site/springvhfupsprints/home/2023-information for details

Dayton Hamvention— May 19-21, 2023. See https://hamvention.org/purchase-tickets for details

ARRL June VHF Contest— June 10-12, 2023. Details to follow

Firecracker - Hamfest - July 1, 2023. Sponsored by HRAC. Harrisburg PA. Details at: http://www.w3uu.org/firecracker/ .

Murgas Hamfest — July 2, 2023. Plains PA. See http://murgasarc.org for details

CQWW VHF Contest— July 15 1800Z - July 16, 2023 2100Z. Details to follow.

Sussex County (NJ) Hamfest - July 16, 2023. See http://scarcnj.org for details.

North American Meteor Scatter Sprint - Contest - August 2023. Details will be found at https://kv5w.com/na-meteor-scatter-sprint-digital-rules/-digital-rules/

ARRL 222 UP Distance Contest— August 5-6 2023. Details to follow.

ARRL EME 2.3 GHz & Up Contest — August 12-13, 2023. Details to follow.

1296 MHz Activity Night

There's an informal 1296 activity night in the NY/NJ/PA/CT region (and beyond) every Monday night starting around 9:30 pm (or so) on 1296.110. No coordination, just jump in and say hello W2BVH

KC3BVL UHF+ Wednesday Net

Packrat, Jim KC3BVL conducts a Wednesday night net with schedule as follows: 7:30PM—903.100, 8:00PM—2304.100, 8:30PM– 432.160, 9:00PM—1296.100

KC3BVL VHF Friday Net

Packrat, Jim KC3BVL conducts a Friday night net with schedule as follows: 7:30PM—144.160, 8:00PM—50.160, 8:30PM– 222.150

Reminder: there are 3 FT8 VHF / UHF Activity Contests each month. For info see: http://www.ft8activity.eu/index.php/en/

For those interested in an online "Contest Only" event calendar for VHF+, see https://www.qsl.net/n2sln/contestcalendar.html

Meteor Shower Calendar

Here's a Meteor Shower Calendar showing the dates for all the Meteor Showers in 2023. They're correct for our location in the Northeast. https://www.timeanddate.com/astronomy/meteor-shower/list.html

222 MHz Activity Night

There's been an informal 222 activity night in the Northeast (and beyond) every Tuesday night starting around 7 pm (or so) Eastern Time. ON4KST is being used by some to coordinate Q's when direct CQ's are weak. W2BVH

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PLEASE SEND IN 2023 DUES

Club dues are due as of Jan 1st, 2023. Go to https://www.qsl.net/w3km/MtAiryRC_Dues.htm and use the "check here" link to see if you already paid. If not, enter your callsign and click on "PayPal"

AS OF 4/8/23 15 DUES REMAIN UNPAID !

Dave ***W3KM***

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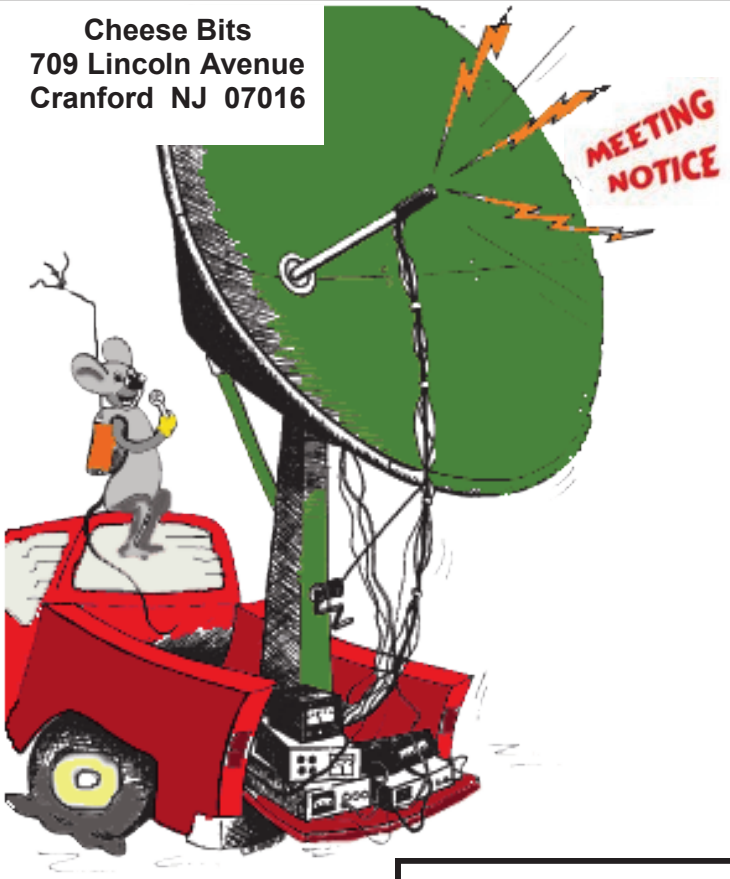

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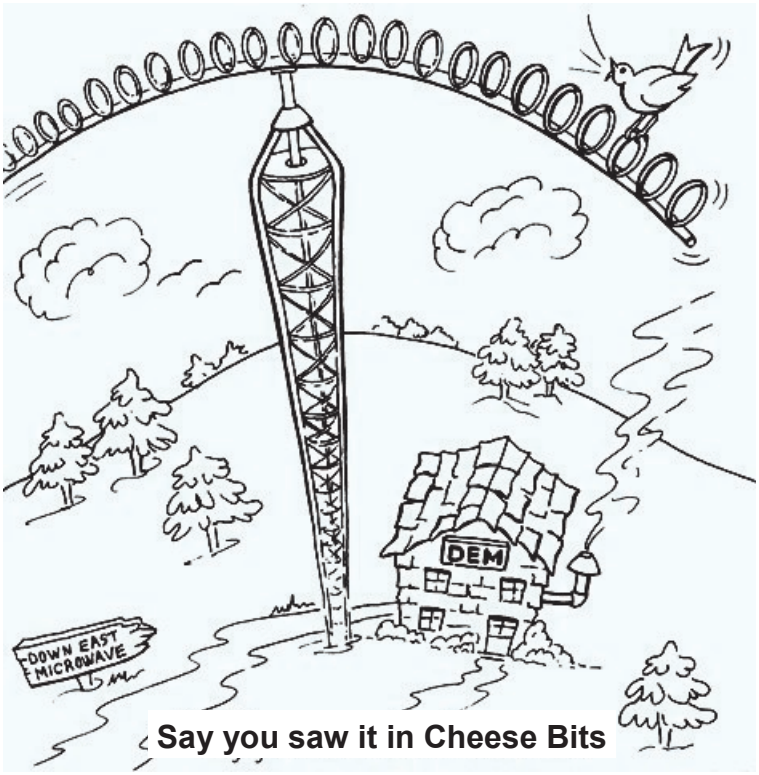

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