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

CHEESE BITS

ARRL Affiliated Club

W3CCX
CLUB MEMORIAL CALL

Volume LXV **May 2022** **Number 5**

PREZ SEZ:

Last Month's meeting went well with quite a few attending in-person at the Ben Wilson Senior Center as well as 7 or 8 attending on the Zoom monitoring link. Bob Famiglio-K3RF our ARRL Atlantic Division Vice Director gave a good talk as usual, to keep us up to date on League plans for the future. He stressed that our feedback as ARRL members is very much appreciated and useful for the various League committees in deciding what direction to take on certain ideas or issues. Be sure to let Bob or any other ARRL official know what thoughts you may have.

The second part of the meeting was Packrats Awards night. You will see elsewhere in this issue that many handsome and well deserved awards were presented to our members. Phil, WF3W was there in the background providing light refreshments for everyone as is the Packrats tradition. Thank you Phil! It was very enjoyable to be able to have a somewhat normal meeting, get out of the house, and enjoy socializing in-person about our common interests in Ham Radio.

This month's meeting will center on preparation for our most ambitious yearly project. Yes, you guessed it...The June VHF Contest! We're going to Big Pocono State Park in the Poconos atop Camelback Mountain with a 360 degree unobstructed view at 2000+ feet ASL. Good stations will be set up on 6M through 10 GHz with good antennas. If you like VHF, UHF, and Microwaves, this is the place to be. Of course you do, you're a Packrat! Planning meetings have been held every 4th Thursday of the month starting in February with the last one scheduled for May 26th on Zoom. Please attend this meeting if you are planning to go this year and have some fun! If you can't come for the weekend, then plan a day trip and operate one of the stations while you are there for a couple hours. If you can not attend on the mountain, please schedule some time from home on the air so you can work W3 Charlie, Charlie, Xray on all the bands you have. Mike, N2DEQ will be presenting a short slide show at the meeting with tips on how to increase your score from home. After the contest, don't forget to send in a log to the ARRL for the Club Competition category to add your score to the club aggregate. The log submission deadline is 10 days after the contest. Go Packrats!!

Our June Meeting will be in-person at the Ben Wilson Senior Center. The topics will be: The June Contest Wrap-Up report and Election of Officers. You will find a report in this issue from George KA3WXV, chair of the Nominating Committee, announcing a slate of candidates for all positions. Please keep in mind that

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222.98/224.58 MHz (PL 136.5) Hilltown, PA

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PACKRAT BEACONS - W3CCX/B
Located at FN21be except 2304 which is at FN20dh
50.080 144.300 222.062 432.290 903.072 903.3 1296.264 2304.3 3456.200 5760.3 10,368.3 MHz (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	KB1JEY FN20je Michael
9:00 PM	432.110 MHz	WB2RVX FM29mt Mike

Microwave Tuesday:
7:30 Coordinate QSO's on 144.260 for all Microwave bands you'd like to work. Also setup Q's at w4dex.com/uhfqso or **Packrat Chat Page W3SZ.COM**
Visit the Mt Airy VHF Radio Club at: www.packratvhf.com or www.w3ccx.com

nominations are still open and will be taken for all positions up to and including just before the election on meeting night.

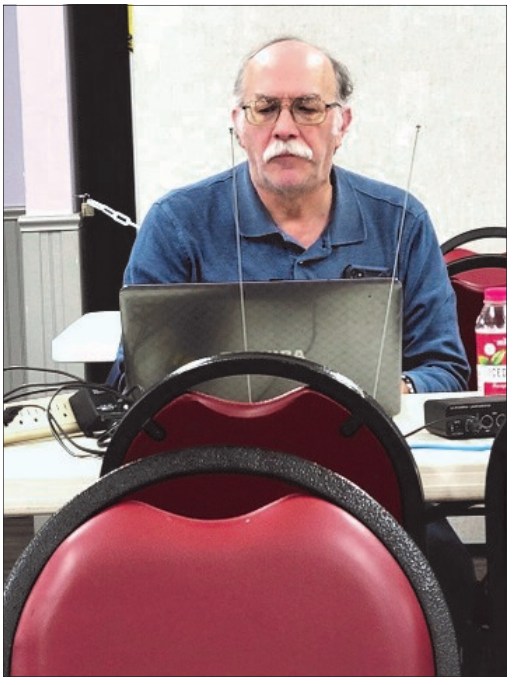
For our summer meetings we are presently planning to have the White Elephant Sale in July at WA3YUE's QTH and the Club Picnic in August at KB1JEY's QTH. More details on both to follow soon.

As I have said many times before: We have a great club with super members. We like to operate, help one another out with equipment issues, support antenna parties, and continue to carry out the ideals and traditions the original founders put forth. It's What Packrats Do! As the Army Generals might say, carry on Ladies & Gentlemen. Help make the Packrat experience an even more rewarding and fun time for all members.

Meanwhile, finish a project on the bench, keep one ear "listening for the weak ones", and the other on the "Magic Band"!

Vy 73,
Bob W2SJ

APRIL MEETING PICTURES



Pics by K3JJZ & W2BVH

Packrat Awards for 2021

Mario Award 2021—Bruce Loss WA3YUE
"For your generous and unselfish donation of time and talent with VHF construction projects, and thereby enriching the enjoyment of amateur radio, as first exemplified by Mario Fontana, K3UJD"

2020 Bill Seabreeze Rover Recognition Award—Andrea Slack K2EZ/R
" You are hereby acknowledged as an outstanding rover station, operating during the ARRL VHF, UHF and Microwave competitions. Your use of multiple bands from several grids, supplying hundreds of contacts to other operators demonstrated the rover spirit exemplified by Bill Seabreeze W3IY"

ARRL January VHF Contest 2021 First Place Single Operator High Power—Jeff Klein K1TEO 370,744 points

ARRL January VHF Contest 2021 Second Place Single Operator High Power—Dave Petke K1RZ 190,806 points

ARRL January VHF Contest 2021 First Place Single Operator Low Power—Phil Miguelez WA3NUF 44,506 points

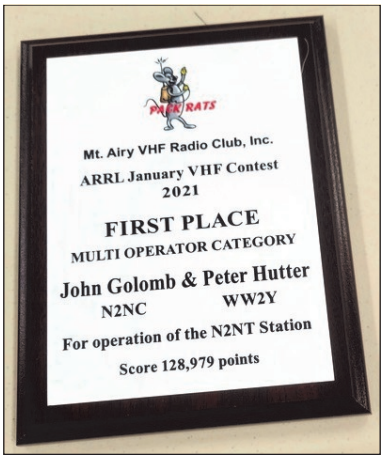
ARRL January VHF Contest 2021 Second Place Single Operator Low Power—Dave Mascaro 19,275 points

ARRL January VHF Contest 2021 First Place Multi Operator —John Golomb N2NC and Peter Hutter WW2Y (at N2NT) 128979 points

ARRL January VHF Contest 2021 First Place Rover—Russ Lamm NN3Q and Al Zimmerman K3WGR 29,800 points

ARRL January VHF Contest 2021 Most Improved Station and Score—Jim Huebotter KC3BVL
Increased score from 6,650 to 8,910 with station improvements adding 2 bands and antennas

Awards cont'd



2022 Spring Sprint Reports

2 Meter Reports

From K3MD
ALL FT* QSO's 384 pts

From K1RZ
Activity best on USB, with some FT8, CW and FM too. Tried with Bill K1DY FN54 and with Steve AG4V EM55 but no joy. Did have good fortune to work FN41 up through FN44 with WA1NLG, WA1PBU, AF1T, N1JEZ and KV1J in the log. Plus W1GHZ in FN34 and K2WW in FN24. Ontario was represented by VA3ELE in FN03 running 25 watts USB and VA3IKE in EN82. To the west K9MRI EN70 and KB8U EN71. South west showed up with KK4MA EM93, K3DNE EM94, W4DEX EM95, AA4ZZ EM96, NU4E EM85 and AA4DD EM86. I did find some cobwebs in a power supply to work out in the next few weeks. Thanks everyone who got on. And to those who I got to work. Thanks to Central States VHF Society for sponsoring this event for us all to enjoy.

From WW2Y (at W2KV)
Thank you Dave for having me for the sprint. Conditions were better for this time of year and activity was higher than normal. Nice to catch K1DY and K2CKA. It was nice to have Dean, K2WW to hand out FN24 to many of us. All contacts were completed on SSB/CW.

From K1DY
That was a fun night! Conditions seemed pretty flat but around 8PM I worked W2KV and N2NT both in FN20, both over 400 miles on SSB. N2NT was S9!!! Later on FT-8 worked N2WK in FN03 452 miles and W3XTT at 487 miles and on Q65 worked N3RG in FM29 at 477 miles. All in all 6 Q's on digital modes and 18 on SSB/CW. Missed a few easy ones, but still a good night from up here. Thanks to CSVHFS and all who got on!

From KR1ST
Really fun Sprint! No assistance was used. It's obvious that FT8 is where it's at when you don't live in a high activity area. Now, if we could just switch to FT4… As I was turning the beam I couldn't help but thinking of the great stations I would never hear again from certain directions.

From W3HMS
W3HMS 2 M 135 pts

From WA3NUF
Activity was very good throughout the 4-hour activity period. Good mix of SSB/CW/FT8 stations up to the final hour. My totals were 20 SSB QSO's, 2 CW, and 28 FT8 QSO's. The Sprints are still my favorite contest activity. Thanks again to the sponsors.

From K0BAK/R
See article elsewhere in this issue of Cheese Bits

From W9KXI
Conditions were not great here with rain in the area. Hoping for better weather for the 222 Sprint. Thanks to the sponsors of these Sprints. I enjoy them a lot.

From N2NC (at N2NT)
All analog. Nice activity. Wasn't planning on no FT8, but was pleasantly surprised at all the SSB/CW activity.

From K1TEO
Got home late so missed much of the first hour unfortunately. Noise worse than ever. Sigh. 50 on SSB/CW and 32 on FT8. CU on 222 where it should be a lot quieter! Tnx for the Q's and to the sponsors.

222 MHz Reports

From K0BAK/R
Due to unsettled weather of rapidly changing sun to rain, I decided to attempt to activate just two grids instead of my usual four: FM29 at a new-to-me location, and home grid FN20. I only put the mast up 3 out of 5 segments due to high winds, and still the rover van shook with wind gusts. When I was attaching cables to the top of the mast, I got hit with rice-sized wind-driven sleet.

First time using my "new" TE amplifier, putting out a little less than 200w peak on SSB. I was disappointed again in the lack of signals in this sprint, and it seemed like some folks would call CQ but by the time I could swing my 10el beam to them, they were gone. At the first grid I had all SSB contacts; the second was just FT8 (I called CQ on both modes at both grids with only one response). Shout out to W1FKF for my longest contact again, 300miles to FN43 on FT8.

From K1RZ
It was fun to hear the Spring Sprint activity on 222 MHz this evening. Many of the regulars, but some new to the Sprint activity too. A good sign. Conditions about normal, with no enhancements showing on the APRS Propagation Map. http://aprs.mennolink.org/ Everything worked and I had a good time. Thanks everyone for getting onto the ON4KST chat page, and to our Central States VHF Society sponsors and staff for organizing this event.

From N2NC (at N2NT)
Best DX AA4ZZ - 486mi (cw) One FT8 QSO (KE8FD) 17 total CW QSOs -- nice.

From KR1ST
Well I got the power I was missing last year, called CQ for about an hour and a half on SSB in every direction and that netted me 6 Q's. The same as last year. Speaking of unnecessary investments... I guess the chat page is where action is. Blah! Several times I moved frequencies because folks would just be dripping their CW on the frequency I was on. It's OK, I figured they couldn't hear me. I'm also starting to think folks don't tune around anymore and also have no bandscope so they can see other stations on the band. Call it lazy radio if you will. The real killer is that several times I could hear both sides of a CW QSO and they were just transmitting on top of each other and at some point they just start sending R's, TU's and 73's to each other while it could never have been a valid QSO. It gets really funny if one guy transmits at half the speed with a straight key and the other guy transmits fast with a keyer and then they transmit on top of each other, which makes it really obvious they are not completing a QSO. I bet they only heard some CW at the peak of some QSB and they figured it was the station they were calling and called it a day, followed probably by a quick thanks on the chat page to make sure they got in each other's log. C'mon guys! Thanks to the stations that stopped by and said hello!

From W9KXI
Thank you to the sponsors.

From WA3NUF
Good Activity, Terrible radio conditions. The Tuesday night 222 activity periods that K1WHS has promoted definitely helped to increase participation in this year's sprint. Thank you Dave, and thanks to the Sprint sponsors.

432 MHz Reports

From K0BAK/R
Another windy sprint prevented fully extending my mast, and gusts rocked the rover van. Relatively cold, after sunset wind chills were below freezing. More successful than the 222 sprint though. Activated two grids FN10 & FN20; tried a new operating spot in FN20ca that yielded good results. 6 PH, 1 CW, 16 FT8; 7 unique grids. On the way home the mast warning beep periodically came on even though the mast was fully seated...maybe highway speed + wind = antennas generating lift? Thanks to K1RZ for calling me to arrange a checkout contact before the contest, and thanks to W2HYW for riding along and helping with setup and teardown.

From K1RZ
The Troposphere had no propagation enhancements for any of us. But between SSB CW FM FT8 and Q65 there was good activity but had to really work for each distant contact. So it was good practice I suppose. WX was 41 degrees and 15 to 25 MPH through most of the sprint. At least here in the Mid-Atlantic there was no snow. My top three distant contacts were Mike N1JEZ FN44ar at 742 km, Joe K9MRI EN70ui at 710 km and Chip W1AIM FN34uj at 696 km. Thanks to Pete K0BAK/Rover for braving the wilds of FN10 and FN20. Good to see you were out there Pete. Thanks to everyone who got on and to the Central States VHF Society Sprint Team of Kent KA2KQM, Jon W0ZQ and Mike WB8BZK for managing these activities for everyone's enjoyment.

Sprint cont'd

From N2NC (at N2NT)
As others have noted, multipath made FT8 decodes tough.

From WA3DRC
I thought 222 conditions were bad, this was worse!

From KR1ST
The temperature dropped below freezing and it was very windy. The conditions were pretty lousy. Deep QSB and the multipath distortion on FT8 was downright wicked. Sometimes I got the best decodes by moving the antenna 20 degrees or so away from the station I was trying to work. I made one cross-mode QSO with Pete, K1PXE on SSB/CW, and QSY'd from FT8 to SSB to complete the QSO with WO2T. I was very fortunate that Al saw my QSY request. Al's signal was plenty strong, but the MP made it impossible to complete the contact on FT8. Best DX, as always it seems, was Gary, KE8FD, at 366 miles. I did not use spotting assistance or the chat pages. All in all a very enjoyable evening playing radio! Many thanks to the sponsors and for the Q's!

From W3HMS
All QSOs FT8. QSO's 11 x 6 Grids=66 pts

Microwave Reports

From KR1ST
I have no idea what my distance score is, but I'm sure if I knew it would still put me at the bottom of the list. Because I only have one qualifying band I only got on to hand out a few Q's. Conditions seemed to be pretty bad and I had nothing but rain here. Thanks to the SVHFS for sponsoring the Sprints and thank you for the Q's!

From K1RZ
It was a tough go today with the rain storm and wind (low pressure area) around the mid-Atlantic region. Not the best for the Microwave Bands. Activity seemed good though. Stayed busy through the whole event. Many thanks to Joe K9MRI EN70iu as my best DX at 709 km. Dana VE3DS FN03fq following next at 524 km. My thanks to John N9ZL/R who roved to four grids providing 18 QSO's. Staying dry inside the cab of the truck at the same time had to be a plus. A most interesting contact with Steve K3WHC on 10 GHz Rainscatter - a picture Steve sent me shows my signal was peaking in the back corner of the garage with Steve's tripod just inside the garage door. As usual a lot of station issues were uncovered in the sprints. Now to get to work and fix them before the June Contest. Hi. Thanks to everyone who got on. Thanks to the Central States VHF Society as our gracious sponsors, and to ON4KST 144/432 page for the liaison function.

From W9KXI
All contacts were CW. N1JEZ was a new state and new grid for me on this band. Beaming towards his FN44 location, my beam points right into the side of a school and across the street from the school is a hill. I was amazed by this contact. Apologies to those contacts that we were unable to complete. Let's try it again in the Fall. Thanks to all that participated and special thanks to the sponsors.

From W2BVH
Weather conditions for the sprint were terrible with driving rain and strong wind. Participation seemed to be down (or maybe the local wx made it look that way).. SWR was also a problem (1296 drain current was low) also caused by the weather. I was happy to complete on 902. 1296 and 2304 with K1RZ despite the rain and fully leafed out trees within feet of my antennas (the 2 meter antenna is actually hitting branches this spring — gotta call the tree guy). Also completed 3 Q's with K1TEO; did it on phone for 902, and 1296 with S7/S8 signals. This is a bit better than usual. KR1ST had a good weak-but-stable signal even with the rain, which bodes well for other microwave bands if he chooses to add them some time. Only 9 Q's in 1 1/4 hours this time. No matter what, the microwave contests are still always fun. Thanks to the participants and the sponsor!

Military Intruders in the Ham Bands

Lenny,
Interesting reading. Also the links are equally interesting.
http://www.southgatearc.org/news/2022/april/iarums-newsletter-military-intruders-in-ham-radio-bands.htm

73 Bob, K4TAX

K0BAK April Sprints

2 Meter Sprint

With cold and rain pushing into early April, I retrieved my rover van from its winter garage rental space only one day before the first of the spring sprints. Two days before while the van was still in the garage, I had installed the RF switching and band selection rack shelves described in the April Cheese Bits. I also updated and tested the van's station computer software. In a rushed two days on my driveway with high winds limiting work on the roof the first day, I installed: two rack shelves for my rotator, my short 1.5" steel mast on top of the rotator while replacing rusted bolts. In addition I added my 7-element 2m antenna (which hadn't been energized in about 4 years) , and my UHD monitor in front of racks #2 & #3 where I had been working on other rack items. Whew! With just one hour to spare, I successfully tested the whole system as best I could, though I couldn't raise anyone to make an actual contact. With all the new equipment I had built and installed since September (when the van was last on the air), I was happy it all seemed to work now.

As I often do, I sent Rob W2HYW some pictures of my progress. Rob is the one who found the van for sale in 2016 and checked it out for me when we were working together. A few years earlier his enjoyment of an SDR led us both to get licensed. He has roved in VHF contests in the past with his RV and a crank-up mast, but not recently due to his new job. Rob surprised me by asking if he could ride along, and he was helpful setting up and tearing down at each activation site. We also enjoyed being able to catch up with each other after Covid-limited IRL contacts. Perhaps Rob will join me again in a bigger contest where he might solicit just-in-time "scheds" while I'm operating or vice versa.

Rob and I got set up and on the air at my first rove stop in FN10 a few minutes early, breaking a bad habit in the last few contests of starting late. We were both surprised we didn't see anyone warming up for the contest; I tried calling CQ just before the contest start time but no one answered. I continued to be surprised at the relative lack of signals in the beginning and I think only one station answered my contest SSB CQs. I can't even blame FT8 because few signals were found there either; I only could make 5 FT8 contacts after making 5 on SSB before that. I went back to SSB before ending the rove stop. I was glad I did because I talked to two South Jersey Packrat stars, Bob W2SJ and Ray N3RG. Gosh it's nice to hear peoples' familiar voices, instead of the robotic screen-staring of you-know-what.

When we were done at FN10, I was a little concerned with how slowly the mast came down because we were on a bit of an incline. Due to there being an unusual evening activity at the elementary school that has become my standard Gap FN10 location, I didn't park on the flatter area in front of the school as I usually do. But the same collapse rate occurred on flat parking the rest of the night, so I guess I wasn't remembering well from last year.

After the short drive to a township park near the northeast corner of FM19, we set up in my usual spot in a

flat area that was free of other cars even though there was a nighttime game at the adjacent baseball field. This is not a good VHF location, but quick to drive to from the previous stop, which is the most important factor in a sprint. After getting connected again and the mast up, I sat down to notice that my 2M amplifier's power indicator was no longer lit (of course I jiggled its on/off switch like a dope). Yikes, I hoped it was just a fuse, but I wasn't about to try to replace it in its awkward location with so little time to operate. Now I was left with only 17w from my Q5 transverter. I still was able to make phone contacts with "local" stations and digital contacts with superstations, including my longest contact of about 300 miles to FN43 W1FKF, and to FN31 stalwarts K1TEO and WZ1V.

My usual FM29 stop is a cement plant along Rt. 30. When we arrived, I saw that a full-size tanker truck was parked in the spot I usually take. While there was more parking available, that area was especially thick with dust (always a problem at this site) and my current method pretty much requires the cable bundle that goes up alongside the mast to be laid on the ground. I didn't want my cables coated with fine dust that would be hard to remove, so Rob guided me to an alternate site a few miles away. This was a good site to park at, but it turned out that when I pointed my antenna to the east (where most Packrats are), I got an extreme dose of noise, probably from the streetlights 40 or so feet away. At least I got a lesson in the advantage of having a more-directional antenna that allowed me to make contacts pointing orthogonally to the lights. Once I finally got my antenna turned to him, I was honored to make a phone contact to a patient Terry W8ZN in FM09. Switching to FT8, three Packrat contacts followed, and the grid operation ended with Rochester-area superstation N2WK.

After driving 40 minutes back home, I dropped Rob off at his car and continued a couple miles to a decent spot at my township's government complex. It was only after I got there that I noticed the time was after 10:30, so there was no sense to raising the mast and I'd barely have enough time to connect the coax and try to make a few contacts (if anyone was still on the air). After the antenna and rotator were connected, I saw no signals at all, but figured I could at least try calling CQ. I noticed that my SWR was severe, and reconnecting both ends of the outdoor coax did not help. The attempt to activate FN20 close to home was a bust; for the next sprint I'll try to find an FN20 operating location near the others around Gap. Summary: 25 contacts, 14 mults in 10 unique grids, score 350.

Multiple Shake Faults Revealed

After a recovery day, I was focused on checking out the fuse for the 2M amplifier. I was glad that the "MIDI" screwed-down fuses for the VHF amplifiers were at the edge of my medium-current distribution rack shelf (presented at a Packrat homebrew night a couple years ago). Because there's another shelf just above it, getting a hex key into the fuse screws was a difficult task with my hand barely squeezing into the space. The 60A fuse appeared to be intact and tested good. This meant I was facing a mini project to get the amplifier out. Assuming I couldn't find something simple inside to fix, I'd be facing a wait of months with the amp at TE Systems for repairs (and hundreds of dollars of cost). After I returned from a morning

appointment and errands, I put the fuse back and measured the correct voltage at the amplifier's DC power input as expected. Then I went to the operating position, turned the amp's front panel power switch on, and had a big happy surprise: its power light came on! I'd still have to test the amp after solving that SWR problem found in FN20 but seeing the power indicator lit was hopeful. The only thing that makes sense to me is that the fuse got loose from the van bouncing around, since that's the only thing I touched.

Next on the fixit list was the high SWR found at my last rove stop. After connecting coax to the antenna again, I confirmed it was still a problem. I then measured SWR at the end of the mast coax with my handy but now-primitive Comet CAA-500 antenna analyzer. I took a measurement before I went out on my rove which was near-perfect at 144.200, but now it just showed a wimpy dip way above 150MHz. At least I narrowed down the problem to an inexpensive part of the system. My first suspect was the T-match shorting blocks that had been an issue in other M^2 antennas—the tiny 8-32 set screws can sometimes come loose on bumpy roads presumably because they don't have much contact area. Indeed, one of the shorting blocks was slightly loose though still in position with both screws intact, and the other block was tight. I removed the loose block, cleaned up the rods and blocks, and put the block on again with enthusiastic set screw tightening. My Comet now read near-perfect SWR again. I should have of course checked and tightened the set screws during the antenna install, but in my defense, I was rushing (sprinting?) toward the sprint deadline. Is that a good excuse? No, it is not.

With a good antenna again, I proceeded to send a carrier through my normal system albeit bypassing the amplifier for now. But my swr meter read virtually 100% reflected power. Wow, frustrating. I measured the end of the mast coax again, still OK. I measured at the end of the jumper from my wattmeter sensor normally connected to the amplifier; SWR was wildly bad. I checked the five RF connectors from the tested end to the N-connector pass-through (going to the mast coax outside); all seemed tight. I checked that my 4x1 RF relay indicator lights was showing 2m should be connected. But then I checked the 4-pin DIN connector that delivered the relay's control signals. I heard click-click-click when I slightly moved the connector up and let it come back down to resting position. Yet another connection that was good most of the time but was eventually loosened by Pennsylvania roads. The DIN connector is just a friction fit…I'm not much of an engineer, but I don't understand why this connector type was chosen for a device that would typically be installed at the top of a tower. I don't know how to secure the connector well; all I could think of was a band-aid using thick stretchy electrical tape to hold the connector in and up. **Unsatisfactory solution.**

Now I got near-zero reflected power from the transverter carrier, as expected. I then connected the coax jumpers to put the amplifier inline and got the same result. Gingerly I turned on the amp and began increasing power; the inline wattmeter showed 350W forward with about 2.1W reflected, pretty good. I was quite happy that the amplifier and antenna were performing like they were at the start of the sprint. I took the opportunity to set the drive power from the Flex radio to -6dBm on 2M, which gave the vendor-rated 350w power out from the amplifier (some folks report significantly more power from that amplifier but there's no reason to push it). I also slightly decreased my WSJT audio level to get 150w out from the amplifier, but don't know yet how that will play on other bands.

In summary, the sprint was literally a shake-out run for the new components in the van. The multiple failures reinforced my desire to try and make all mechanical connections as good as possible in the bouncy van, having to drive on our third-world-quality roads.

222 Sprint

After the 2M Sprint, I removed my 2M beam and installed my 7-foot fiberglass cross-arm with my 10-foot 432 and 222 beams on each end. This is intended to be the bottom item on my short rotator mast. The 2M beam and 6M Moxon will go above it. For a few days I thought I could install the other two antennas along with the antenna demultiplexing relay in time for the Packrats nets. But continued delays resolving the control connector problem described above and physically mounting the relay wasn't as straightforward as I

thought it would be. As it turned out, the big rain that Monday prompted me to put the van in the rental garage overnight so I couldn't have gotten on the nets anyway.

To prepare for the 222 Sprint, I bypassed the relay in the van because of the control connector problem and solicited an on-air test the day of the sprint. The test was successful. Thanks to Michael KB1JEY for making the contacts and to several other 'Rats for volunteering.

Due to unsettled weather of rapidly changing sun and rain, I decided to attempt to activate just two grids instead of my usual four: FM29 at a new-to-me park in West Goshen (central Chester County), and my home grid FN20. I only put the mast up about half way due to high winds, and still the rover van shook with wind gusts—I probably should have kept them even lower and was glad when the mast retracted when I was done ("when the van's a-rockin', mast don't be lockin'"). When I was attaching cables to the top of the mast, I got hit with rice-sized wind-driven sleet. This was my first time using my "new" 222 TE amplifier in a contest, putting out a little less than 200w peak on SSB. I was disappointed again in the lack of signals in this sprint. It seemed like some folks would call CQ but by the time I could swing my 10el beam to them, they were gone, but I recognize this is probably my lack of experience using a beam. At the first grid in FM29 I only made SSB contacts; the second grid in FN20 was just FT8 (I called CQ on both modes at both grids with only one response (thanks Bob W2SJ). Shout out to W1FKF for my longest contact again, 300miles to FN43 on FT8. Summary: 9 contacts, 8 mults in 7 unique grids, score 72 (blah).

432 Sprint

Since I still had my relay control cable problem, preparing for the 432 sprint started by moving and securing the rotator loop cable from the 222 to the 432 antenna mounted on the same cross arm, and moving the jumper coax on the N bulkhead adapter on the ground-level external control panel from the 222 to the 432 RF power sensor. Testing the setup with a carrier from my Q5 transverter was a disappointment. I saw only .2W (1.6 reverse) on my in-line WaveNode digital wattmeter that should have been 20W with 0dBm drive power—even though the Q5's 9 power indicator LEDs were lit indicating full power. I tested with the mast retracted so SWR was well above 2, but not awful. Double-checking with a Bird wattmeter without the WaveNode sensor showed similar forward power of 6W. Q5 suggested checking the current draw; when I reported less than 1A draw at max drive they wrote "None of those measurements really make sense to me"—yeah, I know, that's why I need help.

After checking in to the Pottstown club's FM 432 net on Sunday with the mast low, I checked in to Mike's Monday night Packrats 432 net with the mast up about 22 feet and got a good report from him. The transverter was putting out 8.4W now, but that was enough to get my "180W" amplifier to supposedly 146W peak, which was fine with me since my policy is to run my amps at <= 80% of their rated power on SSB (30 -40% on WSJT). Could the antenna's position have that much of effect on the transverter power? Although the power I got was good enough, why was the transverter still putting out much less than its rated power while its own power indicator is peaked? I'm grateful I can operate at my amplifier's expected power output, but **I don't like having this unexplained anomaly**. Looks like there's more debugging in my future.

Another windy day for sprint on Wednesday prevented fully extending my mast, and gusts rocked the rover van at both the old FN10xa and new FN20ca locations. The weather felt cold compared to our recent "fake spring" temperatures. After sunset, wind chill temps were below freezing. Despite the unpleasant setup and teardown environment, contest results were significantly more successful than the 222 sprint: 6 PH, 1 CW, 16 FT8; 10 mults in 7 unique grids; score 230. On the way home the mast warning beep periodically came on even though the mast was fully seated...maybe highway speed + wind = antennas generating lift? Thanks to Dave K1RZ for calling me to arrange a checkout contact before the contest, and thanks to Rob W2HYW for riding along and helping with setup and teardown at each site.

Status and Future of the 3.4 GHz Ham Band

Len, Below are notes I ran across today related to the 3.4 GHz spectrum allocation. The gist of the story is that we are on borrowed time. 73, Phil WA3NUF

Current Status of Spectrum Politics

The FCC's auction authority, which has been extended several times since originally granted in 1993, is set to expire on September 30, 2022. If Congress fails to act, the FCC won't have the authority to conduct spectrum auctions.
(Expectations are high that the FCC's authority will be extended)
Auction 108 for spectrum in the 2.5 GHz band is starting on July 29 and has only 63 days to complete. Beyond that no spectrum auctions are scheduled.
Chairwoman Rosenworcel explained that a number of spectrum bands are "in various stages of the rulemaking process," which could lead to auctions. She named 1675-80 MHz, 3.1-3.45 GHz, 12 GHz, 26 GHz, 42 GHz, and 50 GHz.

Recent update on 3.1 – 3.45 GHz Spectrum

The FCC's most recent Public Notice released on April 25th details the current timeline for actions related to disposition of the 3.1 to 3.45 GHz frequency spectrum:

https://www.fcc.gov/document/31-345-ghz-pathss-ex-parte-exemption

A portion of the public notice is copied below:

"As part of the Infrastructure Act, Congress directed the Department of Defense (DoD) to study the 3.1-3.45 GHz band in order to identify spectrum for reallocation for shared use and auction. Congress also directed that, "[n]ot later than 21 months after the date of [its] enactment, . . . the Secretary of Commerce, in coordination with the Secretary of Defense, the Director of the Office of the Science and Technology Policy, and relevant congressional committees, shall—(i) determine which frequencies of electromagnetic spectrum in the covered band could be made available on a shared basis between Federal use and non-Federal commercial licensed use, subject to flexible-use service rules; and (ii) submit to the President and the Commission a report that identifies the frequencies determined appropriate under clause (i).

As a result of the report's identification of 350 megahertz for shared use, "[n]ot earlier than November 30, 2024, the Commission, in consultation with the Assistant Secretary of Commerce for Communications and Information, shall begin a system of competitive bidding under section 309(j) of the Communications Act of 1934 (47 U.S.C. 309(j)) to grant new licenses for the spectrum identified . . . ."

If spectrum bidding is approved as described above the current 3.4 GHz **allocation will** be taken away roughly 12 to 18 months after the start of the auction process.

10 MHz GPS Reference Revisited

By Doc W3GAD

With the growing use of the WSJT-X suite of digital programs it has become necessary to provide a stable carrier frequency to assure readability and decoding of other stations. It is bad if the other stations drifts a bit but why complicate it with your station also drifting. While you do not need a GPS disciplined 10 MHz reference, my philosophy is why not add accuracy as well as stability, thus the use of the GPS with the Down East Microwave DIGI-LO local oscillator upgrade.

I had earlier shown my version of the Packat's GPS 10 MHz Receiver installation. Using a DEMI 10-4 distribution amplifier board had given me 4 +10 dBm 10 MHz signals to lock the LO's in my transverters. As I add the DEMI DIGI-LO boards to additional transverters I now need more 10 MHz sources to lock the new conversions.

Figures 1 and 2 are the pictures of the original, 4 output, GPS Receiver.

Figure 1 GPS 10 MHz Project with 4 outputs

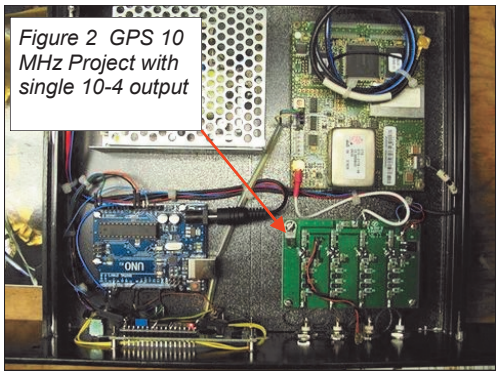
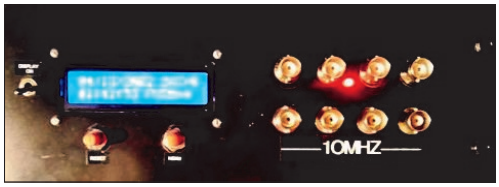


Figure 2 GPS 10 MHz Project with single 10-4 output

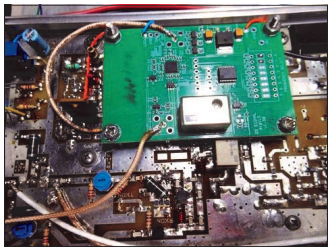
The 10-4 Distribution Amplifier typically provides unity gain; therefore, to add the second DEMI- 10-4 Amplifier board Down East Microwave's recommended method is to sacrifice one port and use that port to drive the additional board yielding 7 useable ports at +10dBm.

+10dBm will typically provide more drive than required for the transverter LO inputs. The recommended drive is typically 0 to +5dBm. This allows me to sacrifice 3dBm if I use power division to drive both boards. Rather than using a resistor network, I choose to use a MINI-CIRCUITS PSC-2-1+ two port power divider module to drive both distribution boards. My enclosure has plenty of room to stack the distribution boards and the front panel had been laid out for easy assembly of the first 4 10 MHz connections leaving plenty of panel space for 4 additional ports.



Stacking the boards was relatively easy, the cabinet has threaded holes for mounting the original amplifier board. By replacing the original screws with longer screws from the outside of the cabinet I was able to stack the boards using junk box spacers and plenty of lock washers and nuts to assure a good ground connection via the mounting hardware. The only challenge was the mounting centers on the second board did not match the original which required some additional adjusting to the second amplifier board. The Mini-Circuits module was easily secured using double sided mounting tape.

With the mechanical modifications completed the remaining task was verification of the signal source. I now provide 8 ports at 10 MHz with an output of +7dBm ±0.1dBm. The Packrat's GPS 10 MHz Project has been very successful for this station and, if you need to tidy up your signal this is a worthy solution. There may be a few more kits available from Gary WA2OMY. Inquire via the PACKRATS reflector. I also have upgraded several of my transverters with the DIGI-LO from DEMI/Q5. In the clamshell versions I totally disable the original LO and remove the crystal allowing the 9Vdc regulator to generate less heat and provide the recommend 9 volts to run the DIGI-LO board.



Repairing the Siemens RWN Series TWT Power Supply

By Steven Kerns, N3FTI eMail: n3fti@yahoo.com

Many amateurs interested in the microwave bands have rescued surplus RWN series Siemens traveling wave tube amplifier systems to achieve higher power levels on 5.7 and 10GHz. Over the last 10 years or so these TWTAs have been replaced by solid state amplifiers or removed from commercial service that have gone to satellite. These aging amplifiers occasionally show up at hamfests or on eBay but are usually sold untested - “As-Is”.

As expected, many of these amplifier systems are inoperable! Of the dozen or so of these systems I have acquired over the last 10 years I have only ever had one or two defective **tubes**. The majority of the failures were of the **power supplies**, and by far the major problem has been in the low voltage regulator circuit.

These power supplies were designed to operate from an unregulated positive ground systems with voltages that range between -20 to -70V. This unregulated voltage is applied to a Flyback-Converter circuit that is actually a switching power supply that isolates and steps up the unregulated primary voltage to be used by yet another switching power supply circuit (30khz switching supply). This 30khz switching supply produces many rectified and highly regulated voltages required by the tube (helix, cathode, filament, collectors) and control circuits.

The Flyback-Converter and the 30khz supply are both pulse width modulated supplies that utilize active feedback to provide secondary regulation. An +18V regulated power supply known as the Auxiliary Supply provides the power required to start these pulse width modulators. This Auxiliary Supply is initially supplied by a zener diode referenced transistor regulator circuit that provides the +18V start up voltage from the unregulated primary power supply. Once the switching supplies start, the Auxiliary voltage is then supplied by the 30khz supply.

While spending many hours of troubleshooting time I have recognized a common problem with 90% of the failed supplies I have found shorted filter capacitors on the +18V Auxiliary Supply bus. Once the capacitors short they cause catastrophic failure to the transistor regulator and cause the primary fuse to blow. Table 1 lists the capacitors and values that have been the cause of failures.

Table1

RWN 200	Board	Designation	Value
	200	C200	6.8uf/40v
	“	C201	3.3uf/40v
	500	C501	6.8uf/40v
	“	C502	6.8uf/40v
	1000	C1000	6.8uf/40v
	“	C1002	6.8uf/40v
	“	C1003	22uf/16v

A simple ohmmeter test of these capacitors will show a shorted condition if they are defective. I have replaced the 3.3uf capacitors with 4.7uf at 50v units and the 6.8uf with 10uf at 50v and they have worked just fine.

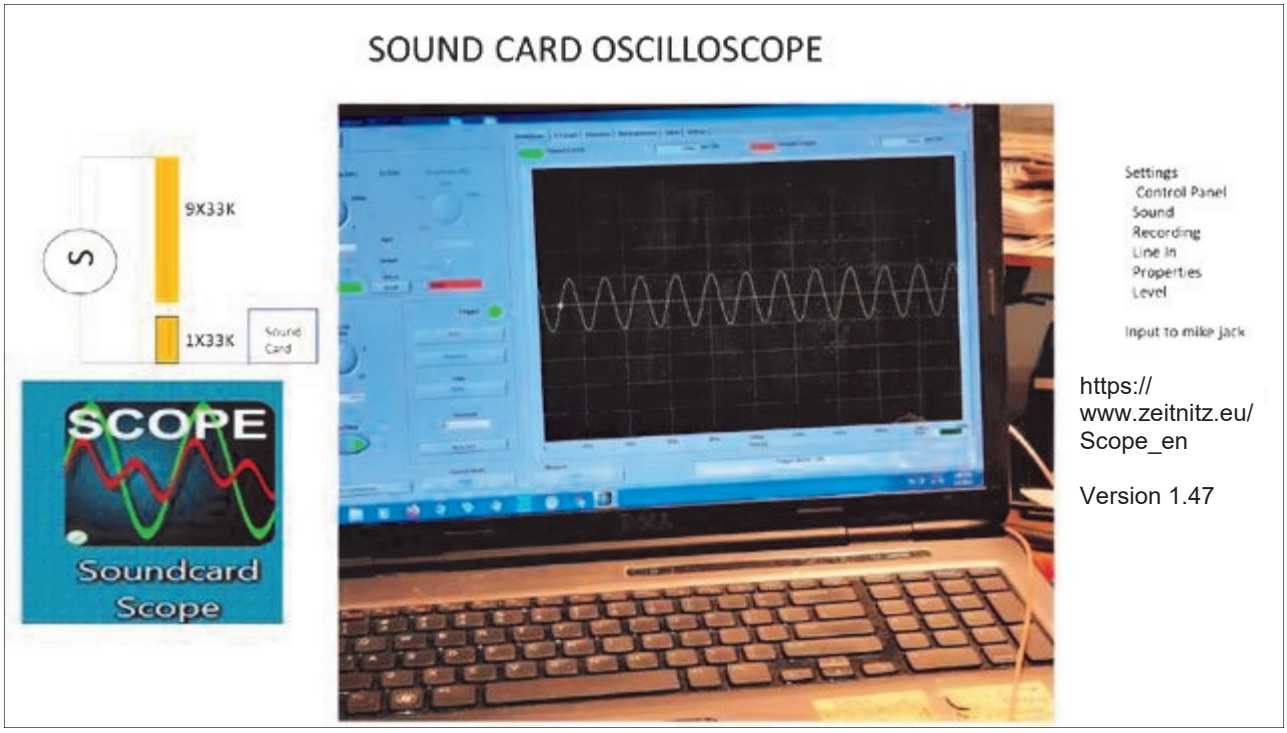
Once the defective capacitors are tested and the defective ones replaced, the shorted +18v regulator transistor (T001) will require replacement. The original part is a BD649 which crossed to an NTE-263. In the event the zener reference diode (GR113) is shorted it can be replaced with a 19V 1/2W Zener diode. .

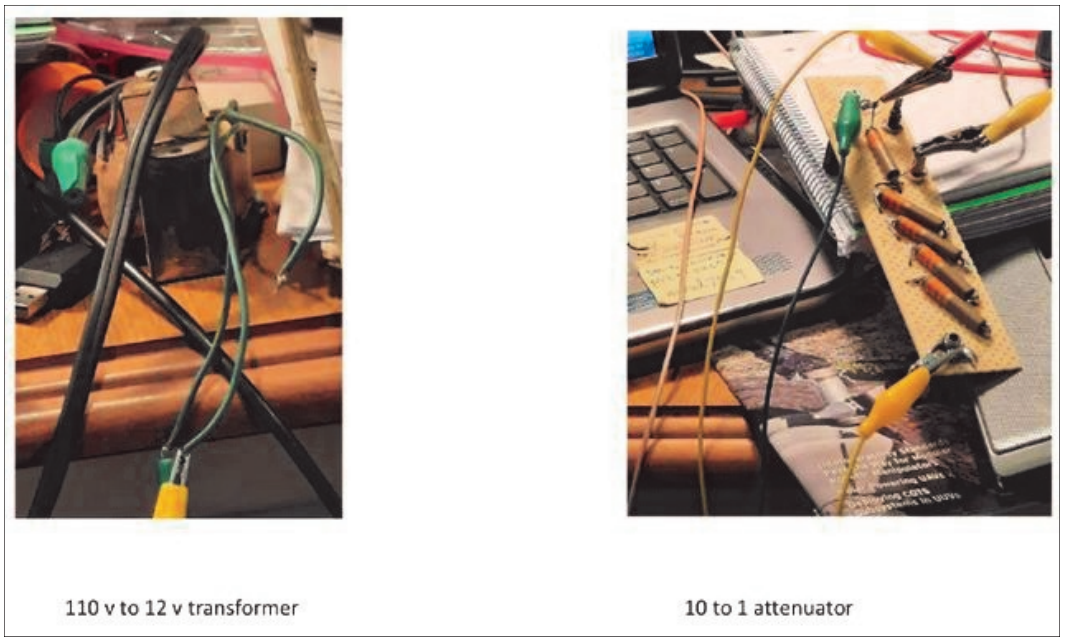
BE CAREFUL WHEN WORKING ON THESE SUPPLIES
LETHAL VOLTAGES ARE INSIDE AND CAN CAUSE DEATH!

PC Sound Card Based Audio Oscilloscope

Hi Lenny

I have been in the process of repairing an old boat anchor tube type oscilloscope. Quite challenging. In the process I came across some information on PC sound card oscilloscopes. Our computers are truly amazing pieces of equipment. There are at least 3 software versions of using your sound card as an o'scope. I was truly impressed with just downloading the program and playing with it. The default setting uses the computer mike port on the sound card so if you whistle you get a nice sine wave on the screen. The maximum input to the sound card is about 3 volts peak. Some time ago I built a 10:1 attenuator to work on high voltage supplies. So I got some things together to really give this thing a try. Here are some of the pictures I took of the experiment. This is just an AC scope. To measure DC one needs a chopper which converts DC to AC. One quad switch IC and a few resistors will do the job. I have one in the works but have not tested it yet. Best Regards Walt K3BPP





Video of Massive Solar Flare

The biggest solar flare in 5 years happened 2 1/2 weeks ago. An article (unfortunately heavily sprinkled with irrelevant ads) includes a great video of the flare. It's at https://bgr.com/science/massive-solar-flare-on-the-sun-captured-in-epic-new-video/

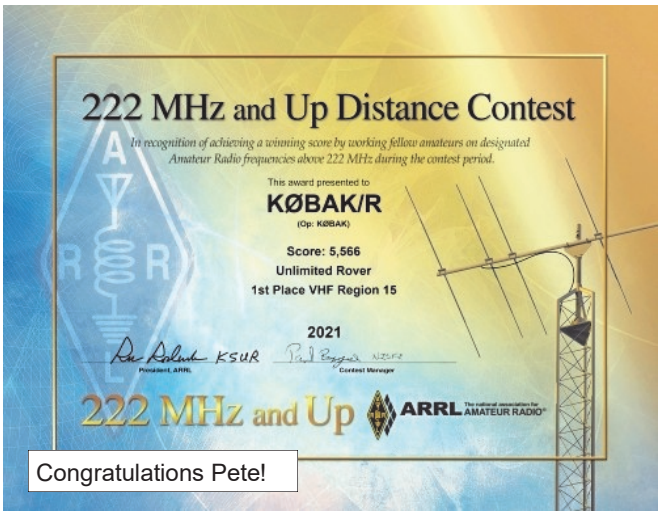
New Analog Only Category for the June VHF Contest

Steve, N2CEI did a write-up that explains the Analog Only category added to the June VHF contest rules. It includes the analysis and reasoning for the format of the new category. It was posted at the Florida Weak Signal Society website and can be found at http://www.flwss.net/New%20Analog.pdf

Thanks go to Warren WB2ONA for the link.

Jud Snyder K2CBA, SK

Jud Snyder K2CBA friend and mentor to many on microwave technology and EME passed on May 2. A fine tribute and obituary can be found at https://www.mcloughlinmason.com/obituaries/paul-snyder-jr



Congratulations Pete!

Crystal Radio Listening Event

Do you have a crystal radio, homebrew or otherwise? If so and you haven't used it for awhile, here's a great opportunity to try it out again! Facebook's Crystal Radio DX Contest Group ran a DX contest back in January but participation was fairly limited... Here's another chance to participate. https://www.amateurradio.com/crystal-radio-listening-event

After two years of postponements, the **Central States VHF Society** is holding their 54th Annual Conference July 22-24, 2022 at the Radisson Hotel in La Crosse, Wisconsin.

The CSVHFS is soliciting papers, presentations, and poster displays on all aspects of weak signal VHF and above operating for the conference. You do not need to attend the conference nor present your paper to have it published in the Proceedings of the 2022 Central States VHF Conference.

Posters will be displayed during the two days of the conference. Topics of interest include, but are not limited to: antennas, including modeling/design, arrays, and control; low noise pre-amplifiers; test equipment, including homebrew, commercial, and measurement tips and techniques; construction of equipment, such as transmitters, receivers, and transverters; RF amplifiers; propagation; regulatory topics; operating, including contesting, roving, and DX-peditions; EME (moonbounce); digital signal processing; software-defined radio; and digital modes (WSJT-X, FT-8, JT65, etc).

Further information is available on the CSVHFS website (www.2022.csvhfs.org).

73 Donn **WA2VOI**/0

2021 222 and Up Contest Results

A summary, results, analysis and commentary on the ARRL 222 and Up contest can be found at https://contests.arrl.org/ContestResults/2021/222-MHz-2021-FinalFullResults.pdf. Pictures of K0BAK and K1DS's rig are in the article, as well as mentions of numerous Packrats.

The election of Officers is in June

Here is the current list of candidates for Packrat's BoD 2022-2023

President Michael Davis KB1JEY
Vice President Mike Andrayo N2DEQ
Corresponding Secretary Jim Antonacci WA3EHD
Recording Secretary George Altemus KA3WXV
Treasurer Dave Mascaro W3KM
Director in their 2nd year Elliot Weisman K3JJZ
Director in their 2nd year Bruce Loss WA3YUE
2 Year Director 2022-23-24 Jim Huebotter KC3BVL
2 Year Director 2022-23-24 Michelle London KB3MTW
Honorary Director Bob Fischer W2SJ

This list is not closed !
You can nominate yourself or another Packrat in good standing. Naturally if you nominate someone else please talk to him or her first.

We have openings for **all positions**; everything from Directors to the Presidency.

By the way if you have no experience on a Board, a position as a Director is a great place to start. The position gives you a way to see how the board operates and how you can best help the club. This is a chance to give back to the club. Please consider calling anyone on the Nomination Committee and talking over the possibility of running.

The Nominating Committee this year is Jim WA3EHD, Michael KB1JEY and George KA3WXV

Feel free to call us and talk things over.

George
KA3WXV

3.4 GHz Transverter Mods

The whole 3.4GHz allocation for ham radio seems likely to disappear in the next couple of years. If you'd still like to get your last licks in on this band, you'll have to move your transverter down in frequency. Two write-ups on how its done are at https://directivesystems.com/information/tech-notes/ (click first link on the page "Converting a DB6NT 3456 MHz transverter to 3400 MHz ") and at https://www.downeastmicrowave.com/articles.asp?ID=255 And look for DN038 and DN039

Sherwood !

Frank K4FMH has a great set of write-ups and analyses based on the receiver tests at the well known Sherwood Engineering web site.

Frank's got lots to say and it's well worth reading. See the links to his articles at the bottom of https://foxmikehotel.com/hamography/studies/rigs-price-and-satisfaction-studies/

And the Sherwood Engineering test data can be found at http://sherweng.com/table.html (not a secure web site, but it's clean as far as I can tell).

The Wayback Machine
In CHEESE BITS, 50 Years Ago

Nibbles from May 1972. Vol. XV Nr 5
de K3IUV Bert
(*author's comments in italics*)

"**Our Prez Sez"**. Prez Don, **W3CJU** (*the Jeweler of Doylestown*) thanked member Ed, W3HKZ for his excellent meeting presentation and discussion on FM Repeaters. (*Ed maintained a 6-meter repeater on the WCAU-TV tower*.) He noted that Ed Tilton, **W1HDQ** would be our guest speaker at the ARRL night meeting in May.

Technical Article. Transmission Line Insulators. Member Joe, **W2EIF**, provided a nice article on constructing open wire phasing lines. He used plastic staple clamps designed for Romex cable. With minor tweaking he adapted them to #14 AWG copper wire. (*Joe was an inveterate antenna experimenter, and frequently supplied clever construction details. These insulators were intended for his latest 432 beam experiments*.)

Technical Article. "So, You Want to Operate FM." Member Paul, **WA3HIT**, provided a 3-1/2 page article that covered all aspects of FM operation on the Ham bands. It discussed theory, equipment, and techniques to give a good understanding of using this mode. Repeaters were just coming into widespread use and the article was very timely.

Membership. Applied for membership, Walt, **WA3AQA.** Retired, Lewis Clement, **K3AA**.

June 17 Hamfest. A two-page insert detailed a hamfest to be held at KASS Electronics in Drexel Hill. Looking more like an advertising item, it would feature manufacturers reps and details on FM equipment and sales. A "netting" station would be available for putting your channel crystals on frequency and setting transmitter deviation.

New Products of Interest to HAMS. From Lynn, **W3NSI.** 1) Vanguard model RMR 250-11 was an interesting FM receiver. Covered 135 – 250 MHz in 4 segments. Within each segment it could switch select 11 crystal channels. Price $110. 2) Heathkit Frequency Counter model IB-1101. A new model which extends the range to100 MHz. Five-digit readout. Price $270. 3) Varitronics IC21 FM Transmitter / Receiver. Another new design featuring 24 channels, SWR meter and a discriminator meter. Selectable 1 or 10 watt output. (*Starting to evolve to modern features*.) Price $390.

Calendar. May 6: 16th annual Ladies Night at the Buck Hotel in Feasterville. Prime Rib dinner, dance band, prizes, and favors for the ladies. (*Board – why don't we think about having this again*?) May 13, a Packrat expedition to Delaware, to activate 1296 in that "rare" state. (*See details elsewhere in this article*) May 17, General Club Meeting. ARRL Night, and Ed Tilton, **W1HDQ** (*Mr. VHF, and an honorary member of the club*) from headquarters is expected to attend. Refreshments will be served. Nominations of Officers. Guests are invited. June 9-10-11. June QSO party to be held at Hilltown. June 21, Club Meeting, with Ed Clegg as guest speaker. He will demonstrate his new

220 MHz equipment. August 13, Packrat Picnic at Ft Washington State Park, and October 1, a Packrat sponsored Hamarama in Jamison, PA. (*This was the **first** Packrat Hamfest, organized by Dave, **W3ZD***).

1296 DXpedition to Delaware. To make Delaware available to 1296 enthusiasts along the eastern seaboard an expedition is being organized by Tony, **K1SFF/3** (later **K3SMN**) and Doug, **WA2LTM**. Equipment has been donated by club members. Mario, **K3UJD** provided the100-watt transmitter. Walt, **K3BPP** donated a 75A2 receiver, and **WA2VTR** and **K2JNG** donated converters, preamps and a 3-foot dish. Operation is planned for Saturday May 13th, using the call of **W3CCX/3**. Schedules are available. (*Read next month to see how it worked out*!)

ATV Net. This net continues, on Friday nights, 439.250 MHz at 7 pm.

Swap Shoppe. By W3ZRR. *(Always nostalgia. Now we use the club reflector.*) For sale by Jim, **K3MNJ,** Kleinschmidt teletypewriter in very good condition, $49. Also, a 4CX250K for $15 and a 4CX300A for $26. From Bert, **K3IUV** (that's me!) a large assortment of goodies described as "Spring Cleaning to make room in the basement." They included a Philco Flying Spot Scanner, Hallicrafters Panadaptor, 6-string guitar (*wish I had kept it*), lots of tubes and transformers.

Ads. *The April 72 issue again included 27 business card size ads, plus the half page back cover ad from club member Ham Buerger (a GD-104 microphone for $2.00!) 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 currently, contact the ad chairman, Bob, **W2SJ**.*

Miscellany. *Postage for this issue was a pair of 8-cent Eisenhower stamps. (11 double sided, 8-½ x 11" sheets). As usual, many "folksy" comments about members, their families, and activities were included in this edition of Cheese Bits. 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 accessible to registered members. Have 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**)

Events

For inclusion, please direct event notices to the editor.

6M Spring Sprint -Contest– Saturday/Sunday May 14-15, 2022 (2300Z—0300Z) See https://sites.google.com/site/springvhfupsprints/home/2022-information for details.

June VHF Contest - Contest - June 11-13, 2022. . See http://www.arrl.org/june-vhf for rules and details.

Firecracker - Hamfest - July 2, 2022. Sponsored by HRAC. Harrisburg PA. Details at: http://www.w3uu.org/firecracker/

Murgas ARC - Hamfest - July 3, 2022. Plains PA. See http://hamfest.murgasarc.org for details.

CQ Worldwide VHF Contest - July 16-17, 2022. See https://www.cqww-vhf.com/ for details.

222 and Up Contest - Contest - August 6– 7, 2022. Details to follow.

6M Fall Sprint -Contest– Saturday/Sunday August 13-14, 2022 (2300Z—0300Z) See https://svhfs.org/2022VHFSprintRules.pdf for details.

10 GHz and Up Contest (Round 1) - Contest - August 20 –21, 2022. Details to follow.

September VHF Contest - Contest - September 10-12, 2022. Details to follow.

10 GHz and Up Contest (Round 2) - Contest - September 17-18, 2022. Details to follow.

EME - 2.3 GHz & Up – Wknd 1 - Contest - September 17-18, 2022. Details to follow.

2M Fall Sprint -Contest– Monday September 19, 2022 11 pm local See https://svhfs.org/2022VHFSprintRules.pdf for details.

222 MHz Fall Sprint -Contest– Tuesday September 27, 2022 11 pm local See https://svhfs.org/2022VHFSprintRules.pdf for details.

432 MHz Fall Sprint -Contest– Wednesday October 5, 2022 11 pm local See https://svhfs.org/2022VHFSprintRules.pdf for details.

Microwave Fall Sprint -Contest– Wednesday October 8, 2022 8AM—2pm local See https://svhfs.org/2022VHFSprintRules.pdf for details.

EME - 50—1296 MHz – Wknd 2 - Contest - October 15-16, 2022 Details to follow.

EME - 50—1296 MHz – Wknd 3 - Contest - November 12-13, 2022. Details to follow.

KC3BVL Friday Net

Lately Packrat Jim KC3BVL has been conducting a Friday night net with schedule as follows:

7:30 pm	144.160
8 pm	50.160
8:30 pm	222.150
8:45 pm	1296.160
9 pm	432.160
9:15 pm	2304.100

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

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

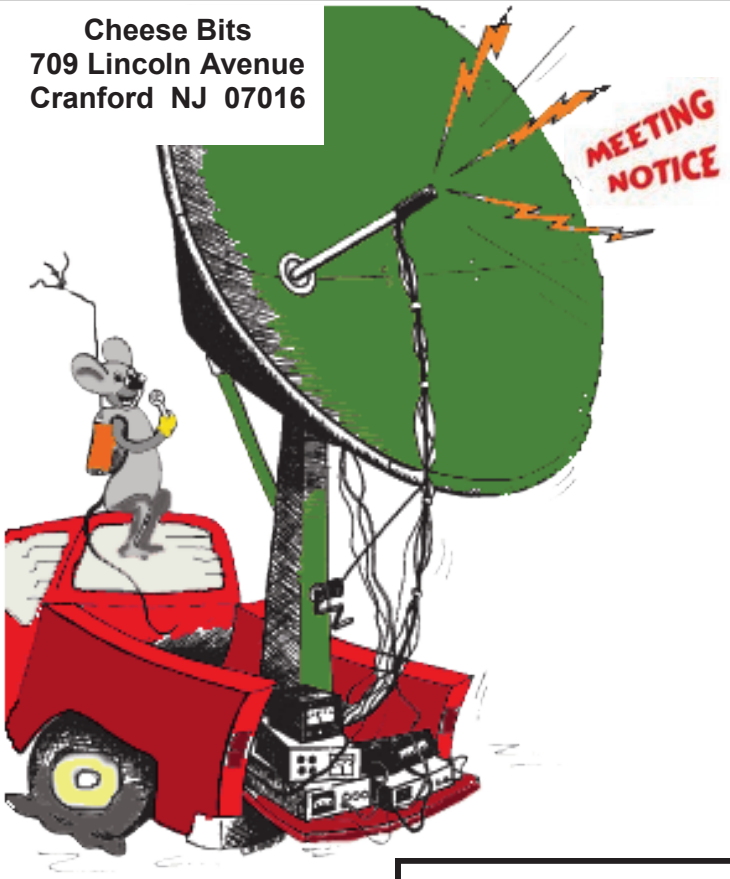
PLEASE SEND IN 2022 DUES

Club dues are due as of Jan 1st, 2022. 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 5/11/22 28 DUES REMAIN UNPAID

Dave ***W3KM***

Cheese Bits
709 Lincoln Avenue
Cranford NJ 07016



TO:

MT. AIRY VHF RADIO CLUB, INC.