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

CHEESE BITS

ARRL Affiliated Club

W3CCX
CLUB MEMORIAL CALL

Volume LXIV *August 2021* *Number 8*

PREZ SEZ:

The most exciting news about this month is we are having **our first in-person outdoor meeting since the pandemic started,** at the QTH of Bruce, WA3YUE!

It's our annual White Elephant Sale on Thursday August 12th starting at 7PM. Be sure to bring a mask along with a folding chair as available seating is limited. Since we did not have the WES last year, we have many more items available this year. A word of warning!! Our Auctioneer Extraordinaire, El K3JJZ has been known to count all body actions as a bid, so be careful scratching your head, nose, ear, or "talking" with your hands. Even a subtle sneeze could make you the winner of something you did not intend to bid on. Enjoy the evening, it's lots of fun.

This month I am starting something new within the Prez Sez and calling it "The Prez Shouts Out". There are many of our members who help out behind the scenes doing things that just seem to happen to most of us. It's time to recognize those who "go the extra mile" for the club. The Prez Shouts Out, may not be monthly, but will be included when appropriate.

This month, I would like to shout out to **Michael, KB1JEY**. He is our Recording Secretary spending many hours recording the minutes from both the General and BOD meetings. Then he completes the task of editing and producing the written minutes and posting them on the website. He's also the Membership Committee chairman developing membership candidates and helping with the processing of applications. He's a valuable member of the Camelback team effort each year bringing just about any tool with him that one of us may have forgotten. If you need an antenna analyzer he has it including a pack of adapters. When our tower jack seemed to be missing he ordered one and had it in time for the contest. Yes, Michael wears many hats in the club. Speaking of hats, do you remember that he is also the man to see if you need Packrats logo wear? Thanks Michael for all you do and may all Packrats Hats be off to you!

As of this writing the 222 & Up Contest is scheduled for August 7th and 8th. It's a favorite of many members and very enjoyable as the pressure of running 6 & 2 meters is off and you can have a fun, relaxing time on 222, 432, and the micros. Give it a try if you have never operated in it before and send your experiences to Lenny, W2BVH for publication.

The 10 GHz & UP Contest-Round #1 is August 21st & 22nd. If you have equipment for those bands get on a give it a try. You can find a listing of station plans for the weekend in the K1RZ/W3SZ database as well as some posted plans on the Packrats reflector.

For the September general meeting we are planning to return to the Ben Wilson Senior Activities Center for our first indoor in-person meeting. As of this writing the center has a 100 person limit as well as a mask and vaccination

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

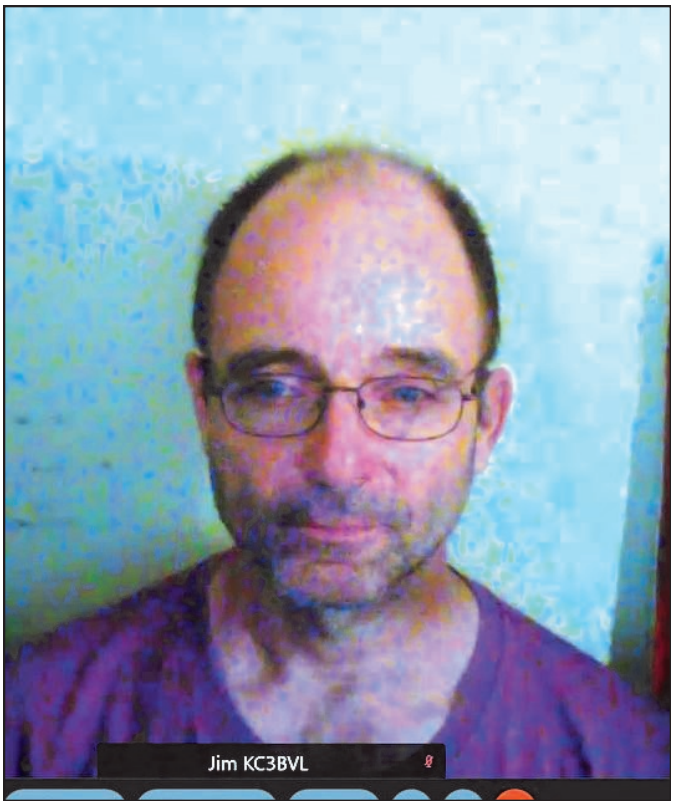
mandate in place due to the recent increase in COVID variant activity. We will discuss the possibility of adding a live WebEx session for those who can not attend the General in-person meeting at the next BOD meeting on Thursday August 19th.

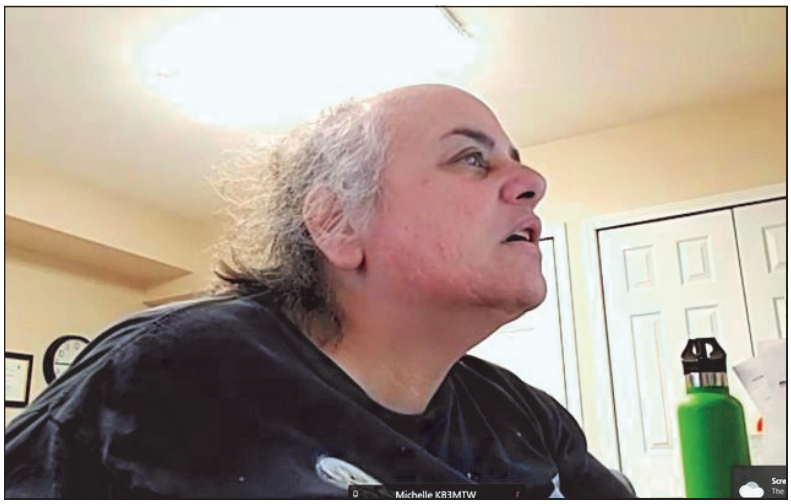
Meanwhile, finish a project on the bench, keep one ear "listening for the weak ones", and the other on the "Magic Band"!

Vy 73,
Bob W2SJ

JULY (WEBEX) MEETING PICTURES


wa1te


Jim KC3BVL

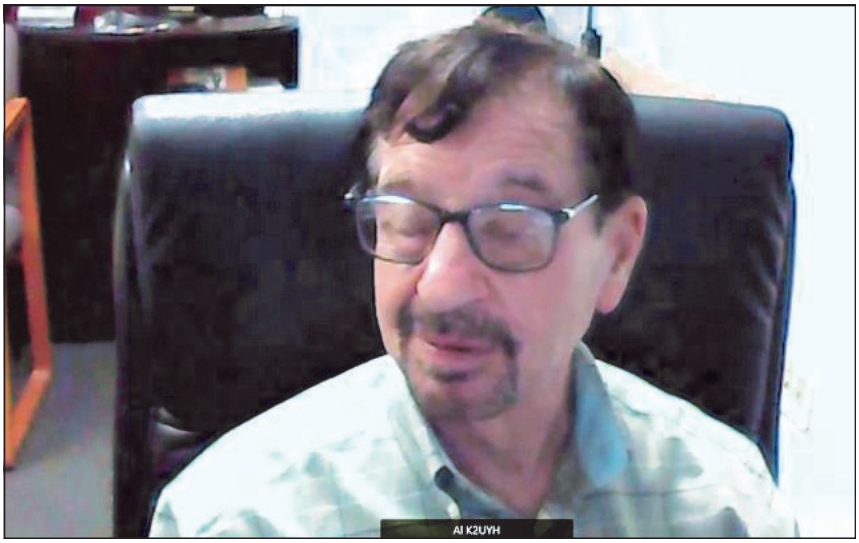

Michelle K8JMTW


N3RG -RAY


Mike N2DEO


PNY
VHF QSO


HF-AUTO
Joe KC2TN


Al K2UYH

The Digital Dilemma – Adapting to a balanced use of FT8 and SSB/CW in VHF Contests

By Phil Miguelez WA3NUF

Since its full release in 2018, WSJT FT8 has dominated the activity in VHF contests. The impact of digital modes on VHF, especially 6 meters, has been indisputable. Contest participation has significantly increased with long haul and DX contacts becoming commonplace events, helped by the finally improving sunspot cycle. But the benefits of FT8 have been overshadowed in many peoples view by the change in operating habits particularly during the major ARRL VHF contests in January, June, and September. The majority of operators spend most of their time on the 6-meter FT8 frequency and to a lesser degree on the 2-meter FT8 channel, leaving the remaining UHF and higher bands nearly vacant. As a result of the drop in higher band multipliers and contact points, contest scores initially decreased by roughly 50%. Schedules, spotting websites, and more aggressive assistance methods have helped for those that take part, but most stations seem to rarely move the dial. Consequently, following each major VHF operating event the various email reflectors, chat rooms, and radio club zoom meetings are filled with manifestos and proposals to limit or eliminate digital modes from VHF contests and take things back to "the way it used to be".

There are many repeated grievances with the use of digital modes in VHF contesting and just as many strategies. Included below is a summary of the common themes in the digital discussion.

The Pros and Cons of digital modes in VHF/UHF contests

Digital modes are beneficial, supportive, and fully within the rules and spirit of VHF contesting:

- VHF contest rules allow any mode of operation – CW, AM, FM, SSB, and digital
- Contest scoring does not include mode of operation, only time of contact, call signs, band, and grid
- FT8 increases participation, increases workable grids, and allows low power stations to compete

Therefore, it is not realistic to eliminate digital modes or change the score points assigned to FT8/FT4

Digital modes are not totally compatible with VHF / UHF equipment:

- Until recently, FT8 calling frequencies were only assigned to 50, 144, and 432 MHz bands
  - Narrow bandwidth modes such as FT8 require high frequency stability
  - Commercial multi-band transceivers typically have stabilized local oscillators
- Transverters are not usually built with TCXO's. L.O. multiplication factors needed for higher bands makes operation above 432 MHz impractical due to frequency stability during transmission

As a result, FT8 operation is limited to 6 and 2 meters for many contest participants

Digital modes are not compatible with VHF / UHF contest operational practices:

- Once a contact is made, contest operators typically move the contacted station to the next higher band preserving antenna pointing and other station information as well as the opportunity to agree on contact formats such as mode, sequencing, or a liaison frequency to assist if immediate contact is not established

- Narrow bandwidth digital modes can only support limited character counts such as basic contest exchange information

- FT8 /FT4 digital modes and operating practices do not easily allow QSY information to be passed between stations, discouraging higher band contacts

Consequently, contest activity congregates on 6 and 2 meters diminishing higher band operation which is a primary focus of the various ARRL VHF contests

Digital modes are not conducive to rover operation:

- Rovers have limited space, power, and time at each location. Adding FT8 capability would increase complexity, increase power consumption compared to SSB, and reduce contact efficiency – QSO's take longer to complete and a single rover can't use FT8 and drive at the same time.
- The lack of QSY capability limits the rover to two bands negating the major incentive for roving – to activate higher bands in rare grids thus multiplying the grid totals and ultimate rover score.

Subsequently, FT8 significantly discourages rover activity

During the spring and summer, a series of Packrat special Board of Directors meetings were held. The purpose was to address the issues identified above and establish a plan to encourage like-minded VHF operators to embrace a balanced schedule of time on the bands and modes available during the contests. We hope the ideas covered below will provide a starting point for Packrat members and hopefully other VHF clubs and operators to improve their stations and future contest strategies to make the most of traditional and digital modes.

Proposals to educate VHF operators and improve higher band activity

1. Improve L.O. stability for 144, 222, and 432 MHz transverters

Improve your station to maximize FT8/FT4 contacts on as many bands as possible.

Frequency stability issues will lower FT8 station contact rates even when it appears that everything is working. A slanted waterfall display while operating WSJT digital modes is a sign of frequency drift due to temperature. If the problem is at the received station you can attempt to correct the drift the old fashioned way and slowly adjust the clarifier / RIT control.

If the problem is your station the first thing to do is take a serious look at the transverter LO. Many transverters in service today use Xtal controlled oscillators. Adding a 50 deg C PTC ceramic element as a heater element plus a Styrofoam block to act as an insulator will improve frequency stability.

However, as the oscillator multiplication factor increases as commonly occurs in higher band transverters the frequency stability becomes more and more critical. A low-cost heater upgrade may not be sufficient.

Modern transverters have eliminated Xtal oscillators and now include synthesized PLL oscillators that include a TCXO and an input to allow the use of an external 10 MHz reference or GPS locked reference. Downeast / Q5 sell a small PCB Digi LO unit for $99 that can be retrofitted into almost any commercial or homebrew transverter. The use of a stabilized reference oscillator will allow WSJT digital operation up to at least 1296 as a few well known VHF ops have proven earlier this year.

Proposal - Promote a tech session to instruct club members on how to modify existing transverters to allow operation at least up to 432 MHz. A periodic club sponsored activity to allow member to test their station FT8 capability on 144, 222 and 432 MHz would identify station problems and provide confidence that their station is working on these bands before the next contest.

2. Educate operators on effective use of digital versus SSB/CW

FT8 can be somewhat addicting. Watching call signs and grids scrolling up your display screen every 15 seconds interspersed with colors indicating new grids and unworked stations is pure dopamine to contest operators. But the facts are clear, spending all your time operating FT8 on one or two bands will not dramatically increase your contest score. A more balanced approach is needed.

The top scoring stations in the past year of contesting all had a similar strategy, basically employing an 80/20 rule. Spend the majority of air time using SSB/CW to find and move stations up the bands compared to a strategic use of FT8 to check on propagation and fill in the grid map or add to your Q rate. Applying the 80/20 rule to contest operating means scheduling your time so that you are only using digital modes for approximately 10 minutes of each hour.

When DX Maps or PSK reporter lights up indicating a band opening on 6 Meters don't immediately run to get on FT8. The first step should be to check the SSB/CW portions of the band and call CQ.

Contest QSO's can be made 2 to 3 times faster on SSB than FT8 increasing your QSO rate and potentially providing more grids during the opening.

Another strategy is to set up a separate 6M FT8 station which will allow you to make FT8 contacts while you are on 2M SSB/CW or a higher band working rovers or looking for stations to work. Click the WSJT "call first" box to allow automatic QSO exchanges with the first station that answers your CQ message.

Proposal – Changing behavior requires repetitive messaging and constant reinforcement. Encourage successful contest operators (K1TEO, N3RG, K1RZ, etc.) to provide testimonials on their operating techniques related to SSB versus Digital. Club presentations on setting up a SO2R station and other learning programs should be pursued.

3. Create and promote a standard QSY format for FT8/FT4 contacts

The most quoted problem with FT8 is the lack of a method to QSY. WSJT provides a free message block) but FT8 messages are limited to only 13 characters which means full calls plus QSY frequency information will not fit. A standard message format promoted to all VHF clubs and contest participants must be devised so that QSY messages are universally used and immediately understood.

"W2SJ 144.21" has been proposed by K1TEO and others. Using the station call first will cause FT8 to highlight their call in RED and get their attention. Following the call sign with the QSY frequency provides the minimum information needed. This will work in most situations but /R calls will exceed the character limit in many cases.

W4ZST (SEVHF) has proposed **"W2SJ DV"** an abbreviated 2-digit code that identifies the band and mode to QSY (DV = 432.100 SSB). See the complete QSY chart included below. The calling frequency associated with each mode is assumed for all QSY contacts. This scheme is efficient regarding the message size but needs to be learned just like Q signals. The more active calling frequencies may create a logjam. Especially in high activity areas.

A simplified version of the QSY decoder chart is located below. This version reduces the total number of combinations needed. Joe Taylor K1JT is aware of the W4ZST and other proposed formats but due to the extensive amount of work required, needs a consensus of WSJT users to agree on the format before incorporating a QSY message into a future revision of the program.

W4ZST original QSY Decoder Chart

Band		SSB calling	MSK freq	FT8 freq	FM freq	CW freq
	Band Code	V	4	8	M	W
50	A	AV 50.125	A4 50.260	A8 50.313	AM 52.525	AW 50.090
144	B	BV 144.200	B4 144.260	B8 144.174	BM 146.520	BW 144.190
222	C	CV 222.100	C4 222.260	C8 222.174	CM 223.500	CW 222.090
432	D	DV 432.100	D4 432.260	D8 432.174	DM 446.000	DW 432.090
902	92	92V 902.100				92W 902.100
903	93	93V 903.100				93W 903.100
1296	E	EV 1296.100		E8 1296.174		
2304	F	FV 2304.100		F8 2304.174		
3456	G	GV 3546.100		G8 3456.174		
5760	H	HV 5760.100		H8 5760.174		
10368	I	IV 10368.100		I8 10368.174		

Simplified QSY Decoder Chart

Band		SSB calling	FT8 freq	CW freq
	Band Code	V	8	W
50	A	AV 50.125	A8 50.313	AW 50.090
144	B	BV 144.200	B8 144.174	BW 144.190
222	C	CV 222.100	C8 222.174	CW 222.090
432	D	DV 432.100	D8 432.174	DW 432.090
902	92	92V 902.100		92W 902.100
903	93	93V 903.100		93W 903.100
1296	E	EV 1296.100	E8 1296.174	

Proposal – Reach out to other VHF clubs to get consensus on a QSY message format. Publicize the agreed to format and start using it as soon as possible. Petition the WSJT developer group for assistance in streamlining FT8/FT4 for QSY messaging and acknowledgement.

4. Create and promote activity times for FT8/FT4 contacts on higher bands

In order to encourage FT8/FT4 operators to at least switch bands occasionally, new activity hours for FT8 need to be established and promoted to all VHF radio clubs. 50, 144, 222, and 432 must be included at a minimum.

Currently, FT8 users only follow the activity so 6 meters and to a much lesser extent 2 meters are the only

bands in use. Creating FT8/FT4 activity on other bands will hopefully encourage these operators to switch the dial on their transceivers. Without a well-publicized, dedicated activity time there is little chance to draw enough stations to make the switch and stay for a long enough period to reflate the higher band activity.

Proposal – Create a 30-minute minimum window for the lower four bands during each evening of the contest. Engage other VHF radio clubs to co-sponsor this event and advertise as much as possible to gather momentum. If successful additional bands can be added.

5. Encourage 902 and above use of WSJT modes to incentivize microwave activity

One of the primary goals of VHF/UHF/microwave organizations like the Packrats is to encourage activity on the higher frequency bands. WSJT has made EME contacts possible for small low powered stations with modest antennas. The same advantages are possible for terrestrial contacts on the 902 MHz and above amateur bands.

A very few dedicated individuals have demonstrated exceptional long-distance contacts on 902 and 1296 MHz. It is time for the pioneering spirit of the club to focus on establishing communication on the microwave bands using WSJT digital modes. JT4 has been shown to be effective on bands up to 10 GHz. Q65 the latest addition to the WSJT arsenal is expected to be even more effective. All it takes is encouragement and maybe some healthy competition.

Proposal – Invite speakers to present their experiences with long haul 902 and above contacts using digital modes. Create a Packrat award for long distance terrestrial contacts using digital modes. Create an experimenter's net with the goal to establish digital contacts on as many microwave bands as possible. Special citations for distance, number of grids worked, etc. can be established to sustain interest and foster a sense of achievement.

There are probably many more opinions and ideas available related to this topic. Hopefully this article summarizing the comments and views of the Packrat BOD and many of the active contesters in the club will serve as a starting point to rally the VHF community and solve the Digital Dilemma.

Some Practical Comments on 222 MHz Propagation

I recently made an observation that signal quality was much better than I would have expected between Dave K1WHS and myself during the regular Tuesday 222 MHz activity night. — W2BVH
Here is Dave's reply:

I think our QSO on 222 MHz would be a normal event. The nice thing about regular activity is that you can determine benchmarks as you have many QSOs with the "regulars" over time. There is a typical QSB range on 222 that can be over 10 dB. I think the depth of that QSB is distance related. At the longer distances, I see less variation unless weird things are happening. K1DS in FN20 with his 35 watts is an easy contact on SSB when the QSB is up. He is good on CW when the QSB is circling the drain!

You were peaking up very well and sounded almost local on the QSB peaks. The distance is a bit over 250 miles, so we have a pretty good cushion as things get difficult for me at 500 miles. Last night I did work WA3EOQ in FM09 at just over 500 miles. He runs about 80-90 watts. KO4YC at 527 miles was worked on SSB no less. I have a great negative horizon towards KO4YC. The path to EOQ is not as clear but the horizon angle is still around 0 degrees. Same with the VE3s in Toronto. The path is about 0 degrees and they are 100% workable on Tuesdays at 450 miles or so. VE3DS was loud and gave me a 599 on CW. Not bad for the distance.

JUNE VHF SAGA

By Drex **W3ICC**, with Paul **W2PED**

There are few VHF contests that the W3ICC rover team has missed in recent years, but some are more memorable than others. June 2021 will be remembered as the contest that set a new record for problems and blunders.

It all started when we decided that the laptop we used to operate the Flex 1500 for microwave operation, was old, slow, cranky, and blocking physical access to the microwave controls. My understanding wife encouraged me to buy a new laptop with the "free money" that Uncle Sam was mailing out. Upgrading to modern standards, it was now practical to drive an external monitor for the microwave position. But wait, we now needed a separate keyboard and mouse. That accomplished, we smiled at the improvement. The inverter that supplied the AC to charge the laptops, cell phones, and run the rotator did a good job with the new monitor. Moving on to the other operating position, the logging laptop was large, blocking either the I.F. rig, or the rotor control box, or both. As a constant annoyance, with no room left for my clip board, I sought a similar solution. Since there was no more "free money" left, I searched high and low for a monitor and found that I could use an older flat screen TV as a monitor. I succeeded in mounting the second monitor.

During the shakedown the week before the contest, a fuse blew for some unknown reason. Since power out and current looked normal, we proceeded to air check with W2SJ. Bob reported good signals until we tried 1296. He played back a recording of our CW signal and we heard the mother of all CW chirps. Back at home base, we measured the 24V line to the mast mounted MW, and found the output of the newly purchased TRC, DC-DC converter drops to 10V on key down, exceeding the ratings. We need a bigger converter.

Nearing the end of the days' shakedown, I inadvertently moved the power cable to our DEMI weak signal source and the small gauge cable dramatically burst into flames. Thank God for quick disconnect power pole connectors. I was able to yank the burning cable from power, and swat out the burning section of cable. The writing surface will never be the same. We now know why the fuse blew: an intermittent short at the connector.

With only five days to go, Paul ordered a Samlex Step-10 DC-DC converter with 10A output. During the pre-flight, the morning of the contest, we hooked in the replacement converter. The 10A input fuse was not heavy enough for the new booster. We needed a *bigger* fuse so I increased the fuse to 15A. With both monitors turned on, the AC inverter alarmed. We found that by adding a second monitor, we exceeded the capacity of the inverter. We need a *bigger* inverter. We had to forego the logging monitor, so the logging laptop obscured the antenna rotor control box once again. Next we discovered that there were not enough USB ports on the new laptop to accommodate the monitor, keyboard, mouse, and SDR radio. We had to stop on the way to FM29 and purchase a USB hub, more precious lost time.

Flashing back to previous contests, we operated successfully from the empty parking lot of the Army National Guard Armory in Chester County. Last January however, with the specter of "peaceful demonstrations and fires", they were on standby, with many cars in the parking lot. Our operation was abruptly interrupted by the appearance of five fatigue clad solders. My best attempt of salesmanship of "testing for emergency communication preparedness" was met by a polite but firm invitation to leave. This June, I mused "If there are many cars in the parking lot, we will have to move across the street to an industrial second choice lot". You guessed it; yes the Army parking lot was full.

Sunday morning I took the rover to "high ground" at the grange fairground where we previously had the ham

fests. Six meters was open, so all of our pre-announced information went out the window. I'm knocking them out on six and suddenly, the lights went out on the rotor control box. Oh Nooo! It's time to go pick up Paul, and I can't move the rover.

K1RZ texted "where u guys at?" I responded, "Dead in the water. Rotor failed with antennas crosswise." Then N3RG texted, "U wanna run the bands?" Same answer.

In the heat of troubleshooting, I started taking the control box apart. Continuity through the power cord was OK. Searching for the reason, I saw that the LED was out on the inverter. No AC. Checking the back panel of the inverter, the fuse was OK. Starting the generator for power, it wouldn't come on line and shut down repeatedly. Fortunately, I was parked not far from one of the Grange out-buildings. I had seen the grange president's truck arrive not long before. Shouting, I located him and explained my situation. Scott reappeared with a 100 ft. extension cord and I was able to rotate and store the antenna array for transit. Finding all of the screws, I was able to reassemble the control box and mount it in the rack again.

At Paul's QTH we tested the generator and compressor running the mast partly up several times. He found a tripped breaker on the front of the inverter. Resetting it, restored the AC. All other quick checks seemed OK. Confident that the generator was running OK, we packed up and drove out Paul's driveway.

We all live in a horizontal world. We look left, right and straight ahead while approaching an intersection. Rover operators however, develop a heightened vertical awareness of tree limbs and underpasses. I've driven the rover from Paul's QTH many times without incident.

Oh Nooo, something's wrong. The antennas have snagged overhead wires and tree branches.
In testing the generator under load, I ran the mast partly up and down several times, and I did not fully retract the mast. Neither of us noticed the extra few inches of mast height. The "H frame" had two tubes extending above the frame for future MW dish mounting. One is used to mount the 6 meter Moxon but the tree and wires broke the appendage off at the weld. Returning to Paul's' QTH, he used his Sawzall to remove the jagged, useless welded portion. His many decades old Sawzall permanently failed and he had to use a hacksaw to finish the job. I happened to have my battery operated drill on board so I enlarged the existing hole to accept a 1/4-20 bolt, and drilled a hole through the frame where the MW box is mounted. The drill ran slower and slower as I drilled. The battery ran out just as I broke through.

With significant lost time, we decided to forego the day's first site and move on to FN30. Paul was driving at highway speed when the engine just died. Numerous tries at restarting were futile. I looked under the hood but saw nothing broken. We waited, reviewing possible causes and options. Praying for a solution, the engine started and we decided to chance it.

FN30 was a good grid as usual.

With the contest nearly over, the mike audio cut out on the lower four bands. Judicious positioning of the headphone cable managed to restore transmissions for the duration.

After the contest I thought, since the generator and engine pull fuel from the same tank, there must be contamination, so I had the fuel line filter replaced. Days later, on the way to fuel up, the brake pedal went nearly to the floor. Cautiously, the rover limped back to the service center. Confirmed, leaking brake lines and right rear brake cylinder leaking badly. I can't take rover inside the garage with all of the antennas on top, so they must work on it outside. With the oppressive heat, rain, and hurricane Elsa coming, there's no telling when it will be road worthy again.

Oh well, there's always the September contest!

KoBAK 222 & Up Contest Rove Report

Thanks to the Packrats and a few others I contacted in the 222 & Up contest this past weekend. I activated my four closest grids FN10, FM19, FM29, FN20. Some disjointed thoughts FWIW:

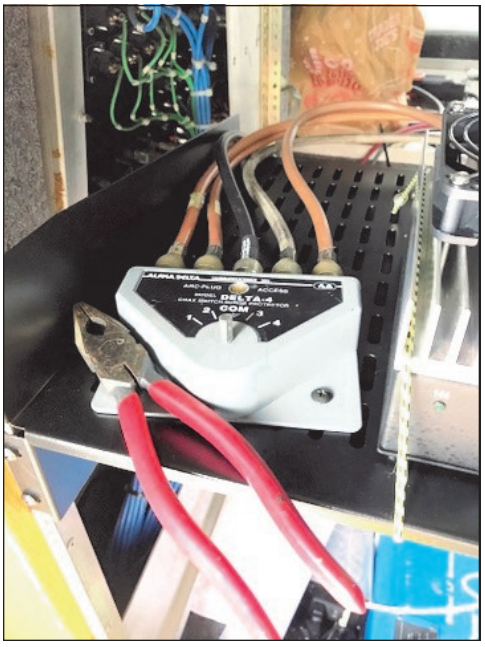
My main goal was to use my new 5-band transverter on 222 through 1296, not to be competitive. With 10-20 watts into a log periodic, I wasn't going to be setting distance records.

Having installed the transverter in my van temporarily just hours before the contest, I was quite unprepared. I'm glad I got a little experience. Can't say I like this contest, but hopefully I'll get better at it anyway.

As warned beforehand, calling/texting/slacking, or tail-ending, are about the only ways to make contacts As far as I can tell, that's the main reason I don't like this contest. I was poor at this style of operating, but having a plan and learning to use the Roger+Dave map would have helped a lot.

I appreciate the time the bigger stations K3TUF, K1RZ, N3NGE took to work me, even though I can't contribute much to their score compared to the longer contacts at higher bands those guys can get.

Sorry to those who switched over to CW trying to work me: given enough time and strong enough signal, I can answer CQs with the help of a decoder, but I can't copy by ear on demand.



I'm getting a little better at using my rotator, so I'm glad I got some practice. I'm not always able to point my van along the rotator's north axis, whether due to parking lot restrictions or avoiding the hot sun. I was able to use the N1MM rotator offset to compensate for the van's direction while keeping my rotator controller settings relative to the van. This allowed the use of Alt-J in N1MM to point to a station. Of course, getting better at this will be vital for when I get Yagis mounted onto the rover. (I don't have a rotator at home so I have no experience anywhere else.)

Thanks to Phil K3TUF for being a strong neighborhood station the first day for me to get confidence using the transverter to run my 4 bands. Also, Phil gave me my first contacts using the transverter on 902 and 1296; I hadn't even made test contacts on those bands before I went out on my rove.

During the 'test, the knob on my manual coax switch first became loose then useless. I was using pliers to switch bands by late Saturday afternoon. This gets annoying quickly, so that's one reason I just pulled

K0BAK cont'd

into a Home Depot to make 4 contacts from FM29 then went home. Tiny set screws on knobs that require a bit of force are never a good idea. Wish I was able to use my 4-band relay (from W3SZ) instead, but I just ran out of time.

I was surprised there was so much activity from 1-2pm Sunday, compared to the start of the contest. I was tired from a long-for-me bicycle ride that morning and almost didn't bother to go out to activate FN20. I rested, fixed the coax switch, and went out to a local park at a slight height for the final hour. Glad I made the effort since I was able to take advantage of the better activity, and was able to get a few 'Rats in the log that I didn't have the day before.

With just two contacts on 222 at my longest distance, W2SZ supplied 21% of my score. Indeed it' really is a distance contest. Q's 42 Points 6549

What can You Do with Two Rigs and Only One Power Cord?

One More Rove: The 222 & UP Distance Contest

On Thursday I made my packing list that included "POWER CORDS." On Friday I packed the SUV, except for the computers and clothing and snacks. On Saturday, I drove to the mountain, arriving at 2:30PM and set up the tripod and antennas. I placed the TS2000X and the IC375A on the passenger seat. I opened up the accessories box and searched for the power cord for the TS2000X.

I checked the packing boxes, my pockets and the space under the seats. No power cord for the TS2000X. But wait, I have the power cord for the IC375A—it has the same plastic 6-pin connector. But does it have the same polarity? I quickly plugged it in to the rear of the ICOM and found K3TUF in QSO with 2 rovers who were in FM08us. They walked me through the connector pins and reassured me that right-red was positive.

Fortunately, the cable was able to be easily switched back and forth from each of the rigs as I changed bands. The only glitch was that I had to leave the driver seat and run around to the passenger side to flip the connector from one rig to the other. Fortunately, this is a relatively slower contest and I didn't miss any contacts while running back and forth.

I have anticipated operating this contest each year, and was able to get things t

K1DS/R on Camelback for the ARRL 222 & Up Distance contest with minimal antennas and low power

Power cord cont'd

together to head to Camelback Mountain for Saturday afternoon and operate Sunday locally in Blue Bell. There were the usual visitors on the mountain, hikers and picnickers, and Jack, N2JMR also stopped by—he lives close in Stroudsburg.

I made extra preparations for the weekend, anticipating that I would use a computer for logging and connecting on the ON4KST VHF chat, while the other computer would be used for FT8 and possibly Q65. I purchased a small 300W inverter to keep those powered. I always add a pad of paper and pens, just-in-case…As it turned out, I logged on paper as it was a bit hectic to try and have the computers, the rigs and running around to change the power cord and reposition the antennas. I also had the 2-meter Yagi, but that wasn't used for 144.160 liaison as it was far easier to phone a friend.

Conditions were fairly good and I was able to make QSOs on 222, 432 and 1296 from Maine to Virginia on SSB and CW. I operated for 3 hours and headed home to find the TS2000X power cable—still attached to a power supply!

Sunday morning was active early—stations were on the chat board and many were making meteor-scatter QSOs. I saw several stations pointed north to get several VE stations into their logs. I was able to get the digital mode going and managed to get 14 of my 76 total QSOs using FT8. I was even able to move up the three bands with Alex, KR1ST as he messaged the frequency.

It was nice to have so many Packrats participating, although I did miss NN3Q/R both days as I called just after he was packed and on-the-move. By 11AM I thought things had slowed down and I linked into a ZOOM meeting with a group of my college classmates for an hour. I checked the bands once that was done and found another group of stations on CW, SSB and FT8 that helped fill the log. Thanks all for getting on the air to make this another fun event. 73, Rick **K1DS**

Two photos sent by Sarah, KB3BBR, of herself, husband Leo, and baby Noah for Cheese Bits. This means that Ben, WA3RLT recently became a grandfather!

Slot Antennas: Wire Reciprocity

By: Dr. Al Torres, KP4AQI

From the July Issue of "Anomalous Propagation" newsletter of the Midwest UHF/VHF Society. Used with permission.

A slot antenna consists of a metal surface, usually a flat plate, with a hole or slot cut out. When the plate is driven as an antenna by a driving frequency, the slot radiates electromagnetic waves in a way similar to a dipole antenna.

The shape and size of the slot, as well as the driving frequency, determine the radiation distribution pattern. Often the radio waves are provided by a waveguide or a coax feedline, and the antenna consists of slots in the waveguide. Slot antennas are often used at UHF and microwave frequencies instead of line antennas when greater control of the radiation pattern is required.

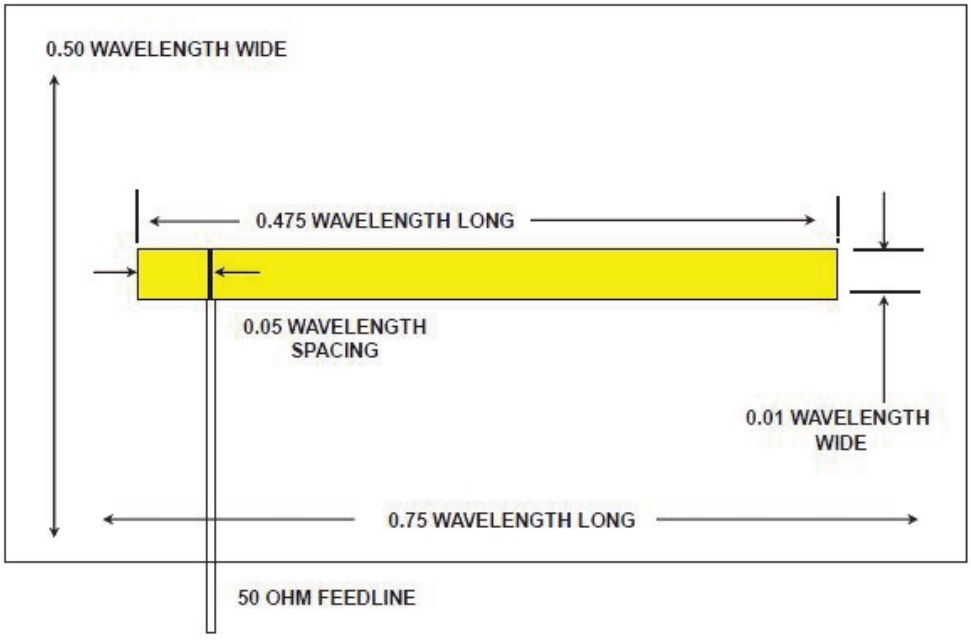
Slot antennas are widely used in radar antennas, for the sector antennas used for cell phone base stations, and are often found in standard desktop microwave sources used for research purposes. They are also used by some "adventuresome" hams. A slot antenna's main advantages are its size, design simplicity, robustness, and convenient adaptation to mass production using PC board technology.

Slot Antennas Attributes:

- Very efficient radiator; currents are not confined to the edges of the slot but spread out over the sheet.
- Radiation occurs equally from both sides of the sheet.
- If the slot is horizontal, the radiation normal to the sheet is vertically polarized

Slot antenna can be energized with a coaxial cable transmission line; outer conductor of the cable is bonded to the metal sheet.

Terminal resistance at the center of a resonant (λ/2) slot in a large sheet is about 500 ohms; for a 50 ohms coax placing the feedline at about λ/20 will produce perfect matching.



Slot antennas are similar to wire antennas with 100% reciprocity.

As can be observed from Figure 1, the feedpoint to the antenna is made at 0.05 wavelengths from the edge of the slot. If you feed the slot antenna at the center, the impedance will be 363-j211 ohms, which is not compatible with 50 ohms systems so moving the feedpoint to the edge will produce a 50 ohms match.

I have made these antennas from construction material, mostly foam which is coated with a thin aluminum

Slot cont'd

sheet. For the slot, I used adhesive copper tape because I had to solder the feedline to such tape. I have made slot antennas for 2 meters, 440 MHz and others. I have a computer excel program which will calculate the dimensions for the slot antenna; just send me an email to atorres4850@yahoo.com and I will send you the program. Figure 2 shows the slot antenna on the Concorde Aircraft.

Summary: We have defined slot antenna configurations. Slot antennas are more efficient than wire or cylindrical antennas. Slot antennas are easy to fabricate; design calculations are provided by the KP4AQI excel computer program. They can be made from insulating foam (4' x 8') for the 2 meter band or from a sheet of copper for the 450 MHz. band.

Call for Amateur Radio Operators to Participate in an IEEE Project

The IEEE PCJS Broadcast Technology Chapter recently received a very generous grant that is intended to provide mentoring, proactive intervention, and inclusivity to help expand Ham Radio's outreach. The ambitious goals of the 2-year *Make Operating Radio Easier* (MORE) Project are: to train and license 500 new U.S. Radio Amateurs, with 50% non-male and 60% between ages 12-18; to encourage understanding of digital and analog aspects of radio communication through hands-on activities and explorations, including *Software Defined Radio* (SDR); and to help these new Hams learn basic communications protocols by observing and participating in HF and VHF operations.

Currently, we need to enlist 25 people, each with a current FCC General Class license or above, to serve as Trainers and Volunteer Examiners (VEs). If you have the appropriate Ham license but are not yet a VE, we will provide you with information about how to **easily** obtain the additional credentials. All teaching materials (manuals, slides, handouts, etc.) will be provided to our trainers, including: a Yaesu dual band HT, a Software Defined Radio (receive only) dongle, components for a long-wire antenna, reimbursement of most MORE Project related out-of-pocket expenses, and additional radio gear that you will be using with the students to demonstrate communications procedures and help them with Get On The Air (GOTA) activities.

Anyone in New Jersey or Eastern Pennsylvania who holds a current FCC General Class (or higher) radio license and would like to participate in this program as a Trainer or Volunteer Examiner should email Dr. Rebecca Mercuri, as soon as possible, at rtmercuri@ieee.org with their full name, callsign, and email address, in order to obtain additional information and an invitation to an upcoming Zoom meeting. Please make sure that -- MORE Project -- is in the subject line of your message.

Slack is a great tool for sharing ideas, software, screenshots, audio files, and a great place to chat.

The vhf-chat workspace was created as a place where all those interested in vhf modes could gather and post spots, or just talk.

Currently there are over 550 members and channels for eme, ft8/ft4, meteor scatter, rovers, news, and even a flea-market.

Go to https://www.n5tm.com/slack-vhf-chat/ to get the link to the vhf-chat channel.
—W2BVH

Pics of Downed Tower at K1WHS

Our friend Dave K1WHS lost his 130 ft Rohn 45 144 MHz tower about a month ago, It was presumably caused by a “microburst” weather event at the site. Reimbursement, recovery and rebuilding are all pending. According to Dave: “As for the tower debacle, the whole mess is suspended from trees and is also bent over a Phillystran guy wire belonging to another 70 ft Rohn 45 tower. I have to climb that tower and rig up a temporary guy system so that I can remove the phillystran that has stretched and is in danger of breaking. Should the downed tower shift, that impacted guy wire could snap and tower #2 would come down. It is a difficult situation.”

Hi Len, I just ran across this article. It seems the new infrastructure bill in Congress contains a new proposed spectrum auction for 3.1 GHz to 3.45 GHz which includes the amateur bandwidth assignment. As stated in the attached article the process is estimated to take until mid 2025 before the current users of the spectrum would have to move. So it looks like the clock is ticking on our use of 3.4 GHz. This action bookends the 3.45 to 3.55 GHz spectrum we will lose sometime later next year. Wish it wasn't so. Time to get your VUCC award before the band is gone for good. Phil WA3NUF

What the latest infrastructure bill says about 3.1-3.45 GHz

by Bevin Fletcher | https://www.fiercewireless.com
Aug 2, 2021 8:28pm

This October, the FCC is auctioning 100-megahertz in the 3.45-3.55 GHz band.

A massive infrastructure bill that's making its way through the U.S. legislature includes a section on spectrum auctions, including pre-auction funding for the Department of Defense to research sharing and commercial use in the 3.1-3.45 GHz band.

Broadband is a **major category** in the 2,700-page draft that provides more details of a nearly $1 trillion bi partisan infrastructure package, which could see action in the U.S. Senate this week.

The section on spectrum auctions says once the bill is enacted, $50 million from the Spectrum Relocation Fund would be transferred to the DoD for research, planning and other activities for efficient spectrum use for the purpose of making the band available, including reallocating spectrum for shared federal and non-federal licensed users and conducting an auction.

Identifying and determining which frequencies in the band could be used on a shared basis between federal and non-federal commercial users under flexible-use service rules would happen within 21 months of the bill signed into law, with a report submitted to the president and FCC.

The Secretary of Commerce would work in coordination with the Secretary of Defense, Director of the Office of Science and Technology and congressional committees including House and Senate Committees on Armed Services, Senate Committee on Commerce Science and Transportation and the House Energy and Commerce Committee.

Once identified, the FCC would start an auction process no earlier than November 30, 2024, to grant new spectrum licenses. It cites May 31, 2025, as the earliest the president would modify any federal station assignment of the frequencies identified to accommodate shared federal and non-federal commercial licensed use.

Sharing in the lower portion of the 3 GHz band (specifically 3100-3550 MHz) is not a new ambition, and something that's been investigated by the NTIA, alongside the DoD and other federal users.

Mid-band frequencies are a prime target for 5G services because they provide a sweet spot of coverage and capacity. The 3.5 GHz band is used by many countries globally for 5G, including Canada which just raised $7.2 billion for licenses in the band. Portions of the 3 GHz band are occupied by federal users in the U.S., such as DoD radar operations, though the FCC has already auctioned spectrum in the 3.5 GHz (CBRS) and 3.7 GHz (C-band) ranges. However, the two auctions, respective proceeds, as well as rules for use of the spectrum differ on a number of fronts.

K0BAK/R CQ WW VHF Rove Report

Since my TV van was in build mode in preparation for adding low VHF band transverters and amplifiers, I used my little WRX with halos on a walk-up mast for the July contest. The day before I was feeling tired and sluggish after a busy week and did not think I could make a rove effort, plus I had an excuse that I could use the time to keep working on VHF bands in the van. But after a rare good night of sleep, I reversed myself and scrambled Saturday morning to pack the car, test the station, and make a Hazleton hotel reservation. I'm glad I spent the time to test because I discovered a loose Allen screw in the 6m halo, though it made me late. Saturday was hot and humid, so it was a difficult to do the work of raising and lowering the antennas and mast several times during testing.

I arrived on Camelback to find a wedding party unloading from the longest limo I ever saw. Parking at the top where W3CCX builds, I repositioned the car to keep the hot sun on the trunk. After I began building the mast out the back, I saw that ridiculous limo coming toward my area, apparently with the intention of swinging around the top to turn around since he didn't have room to turn around in the crowded paved parking lot. There was plenty of room for a normal car or pickup to loop around me but not his limo. He stopped about halfway up. We stared at each other for a few seconds, and I think he got the message that I was planted in my spot. He did a four-point turn to get back down; I continued to build my station.

It was a shame my hesitation the night before combined with the halo problem caused me to miss the start of the contest by an hour. I was happy though that there were still humans on the bands at 3pm, so I was able to make some quick 2-band voice contacts. It's nice to hear people and exchange brief pleasantries especially with fellow Packrats. After the rare voices and my own CQing were done, I probably spent too much time on 2m FT8, but I did pick up a few non-local grids that surprised me considering my low-gain antenna and about 30 watts. Of course, there were more signals on 6m FT8, but thunder was getting more frequent, and clouds were getting more ominous, so I had to cut short my 6m operation even though it looked like there were plenty more contacts to be made.

I packed up while a few drops started coming down, then drove down to park on the paved part of the lot for a comfort stop. With the wonderful view to the south, I could see some extreme rain coming, which I drove through coming in waves on the highways between Tannersville and Hazleton. Instead of operating in FN20 and FN10 on the way to the hotel as I had hoped, I instead checked directly into my well-worn hotel, took a short break in the room, and checked the weather radar. It appeared that I might have an hour or so before the next big storm rolled through, so I hightailed to a FN11 spot less than 15 minutes away at a restaurant.

I had operated from there a few times during the June contest trying to contact W3CCX, but only late at night. Now, the restaurant was open in the daylight, so I couldn't get away with a quick operation. I went in to seek permission, first ordering a Bushmills and leaving a healthy tip—you can see that I'm willing to suffer to improve my score. The bartender said it was OK to use their lot. I wish I could have heard the discussions among the patrons who had a good view of the fat guy doing some goofy thing in the parking lot. Monitoring the sky and radar was a constant activity while struggling to make just 3 contacts (two from K1TEO, thanks f

for being there). Packing up quickly under storm threat, at least I had less regret about leaving early since signals just weren't out there like they were on Camelback. This spot is also noisy especially on 2M.

Returning to the hotel disappointed I had made so few FN11 contacts, after eating some awful junk from Sheetz I called "dinner", I checked weather again and there seemed to be another break before an even bigger storm came to the area. In planning for the June contest, I was going to operate the TV van from a new FN11 location with a near-line-of-sight view to W3CCX (thanks to the W3SZ/K1RZ profile feature).

Since I canceled the Hazleton part of that June rove, I still wanted to check out this new location in person and possibly try for some more FN11 contacts. Back out I went, past my old FN11 location and down the hill toward the Susquehanna. As I got to the flat just outside of Nescopeck, my phone alerted with flash flood alarms and I saw extremely dark clouds in my travel direction. I decided to fuel up and turn around back to the hotel, a totally wasted trip.

The next morning it seemed like 6M was somewhat awake on DXMaps, so I decided to attempt to go to that FN11 spot that I attempted the night before. The other grids around Hazleton are available nearer my home, but FN11 would be now or never in this contest. Back out on route 93 for the third time, in a half-hour I got to the ~1520' Game Lands gravel lot which was a little rough but pretty flat. It seemed like there was only a thin line of trees toward Camelback, so I hope I will come back here next June to try to get all the contacts I can with W3CCX. I had significantly more contacts this morning than last night, so the trip up to this new location was worth the time. Weather-wise there was some mist and showers, but nothing requiring me to pack up early. The contacts started petering out around the time I would have to return to the hotel to pack and checkout.

My hotel was not my first choice, and it was showing its age greeting me with that smoky-musty odor that comes with older small hotels. But it did have one thing going for it, a decent local height in FN10. After checking out I tried operating from the hotel parking lot, wondering if I'd be hampered with high noise. Turned out the noise was tolerable compared to the convenience, and I made 6 contacts in a half hour before getting on the highway for my trip back south (and thanks again K1TEO for 2 bands).

I was considering aiming for the two southern grids in Gap PA (FM19 & FM29), but my trip would have taken me close to Reading, so I decided to stop on Skyline Drive on Mt. Penn in FN20 on the way. Sadly, the parking lots at the stone fire tower were still chained, so I set up at the same non-optimal scenic pullover I did for the 2M Spring Sprint. It was funny that I was using my WRX for radio while faster WRXes raced up Skyline. I made 2 voice contacts with K1TEO to start, then switched to decent FT8 activity on 2M and steady contacts on 6M. Continuing the theme of this rove, I saw rain clouds rolling toward me from my overlook spot and decided to pack up when the temperature suddenly dropped. I probably could have made a handful more contacts but still did OK. Leaving a little after 4pm, there wasn't enough time to make it to FM19 and get on the air, so my contest was over.

Band	Qs	Points	Grids	Score
6m	58	58	36	
2m	23	46	19	
Total	81	104	55	5720

[Note that grid multipliers count again when I'm in a new grid. CQ WW scores the right way IMHO to encourage rover movement. I had 32 grids (+4 bonus) counting the ARRL way.]

CQWW VHF

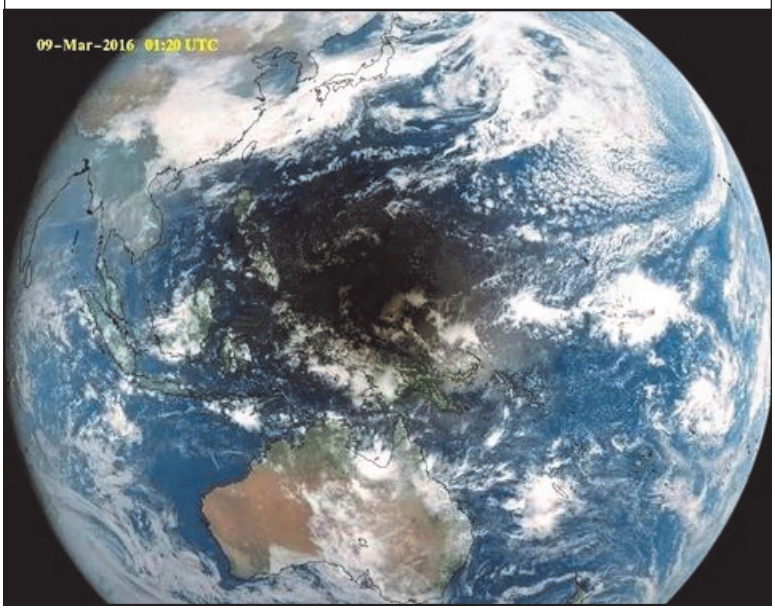
I spent a few hours on 6m and 2m for the contest this weekend (7/17—7/18). Here's the results:
6M 21 Qs 10 grids, 2M 16 QSO 7 grids.
Nice to work several Packrats. Sort of what I expected for the limited station and antennas.
Rick **K1DS**

It was nice to work you yesterday, Rick. I was on for an hour on Saturday and near the end of the contest for about an hour as well. This was mainly to test a low cost mini PC to see if it would run everything I need it to without producing as much heat as my current shack computer does. I also added a bandpass filter on 2M and also tested a 54MHz B&W low pass filter I got at the Murgas hamfest two weeks ago. Usually when I run a KW on one band, the noise floor would rise on the other band because the antennas are just 4ft apart. These filters take care of that. I hope everyone got on for the contest to support it, even if it was for just a little bit. Score: 2,482
--Alex **KR1ST**

10 Band WAS

Paul WA3QPX reports that he just sent out QSL cards to N7DED,N7BT and N7RO which completes their 10 band worked all states. He worked all of them in a matter of minutes. Delaware is rare DX for many looking for WAS.

Shadow of the moon on the earth's surface during a solar eclipse.



222 Activity Night

If you haven't given the 222 Activity Night a try, here's an example of what it's like. It runs Tuesday night 7:30 or so till late. Rick describes his op on 7/20/21. —W2BVH

Ran out to dinner with my son N1XKT and his family but managed to get on the air about 7:45P and things were quiet here. Gave a few CQs and was called by N3NGE FN20 with Bill K3EGE at the mike and Len there in the background. Of course, he was 30dB/S9. Exchanged calls with El, K3JJZ FN20 and then heard WA2VNV weakly. I switched over to FT8 on 222.174 and after a few CQs had the bright red blob from Tom KA3FQS FN20 at +24 as he's just a few miles away. A bit later I heard George WA2VNV FN30 better as conditions were real up and down--catching a syllable here and there. That was followed by a call from Ron WZ1V FN31 and after that I picked up Pete K1PXE FN31on CW. The only thing that really bothers me when I operate from this rental QTH is that when I set up the tripod to hold the Yagis, I have to open the door/window to our Juliet balcony and leave it open while I operate. For those unfamiliar with a Juliet balcony, it has a railing and about 2" of ground space--so you have to stand in the house and look out the doorway--or set up the tripod and keep the door open as there's no room for the tripod legs to rest on any balcony. So what? MOSQUITOS FLY IN! 73, Rick, **K1DS**

Free Online Audio Tests, Test Tones and Tone Generators

https://www.audiocheck.net/ You can use this site for all things audio. You can test audio devices, ADC's even test your hearing using signal sources available at the site. Some run directly in your browser. —W2BVH

Wave Reflection and Diffraction

Here's a video of a simulation of waves reflecting and diffracting off an array of squares (A "Sierpinski Square"). Gives you an idea of what UHF signals do in a city. https://www.youtube.com/watch?v=o6EG7TqJPIc

Extracting DC Power from a Personal Computer

By Pete K0BAK

Early in 2019, I was considering additional DC power requirements my rover station might need. I already had a good DC-only system that supplied 14v at up to 80amps for my radio and medium-power amplifiers. I was pretty sure I would need clean low-current sources of 5vdc and 12vdc for microcontrollers and relays for station automation. I wanted the 12v supply to be really 12, and for both voltages to not be subject to possible sags and noise from the high-power equipment.

While considering small DC-to-DC converters and regulators, I was also modifying my rack-mounted station computer ("PC") to accept DC input power from my station batteries instead of standard AC. Looking into the open PC, it occurred to me that I already have a clean source of 12 and 5 volts from the PC power supply. Since a microcontroller and related devices should use only a few amps at most, one or two of the PC's many SATA power connectors should be sufficient. SATA power connectors, meant to power disc drives, includes 3.3v, 5v, and 12v at up to 4.5 amps each.

The problem was getting that power out of the PC case. I really wanted to avoid drilling into the case itself, since I would have to remove the motherboard first or risk tiny computer-killing drill shavings. The most obvious egress was through one of the expansion card slot openings. To continue to protect the interior, I would mount connectors on a slot blank that covers an unused expansion slot hole. I found cheap thin blanks to work with, instead of the thicker quality blanks that came with my PC. My first preference was to use 2.1mm barrel connectors since I already had some panel mount female connectors and thought three of them would fit well. When I compared them to the slot opening, I was surprised they did not fit in the horizontal dimension through the slot hole.

Disappointed my first choice wouldn't work, I figured I could try to fit the SATA power connectors themselves on the slot cover. I cut a single narrow rectangular hole in the cover to snugly fit two connectors. The hole wasn't pretty, and I wasn't sure they were tight enough to take the force of the male mating connector, but I was anxious to get the PC installed in a rover rack so I called it done. Since I didn't have an immediate need for that power source, the connectors sat unused for a couple years.

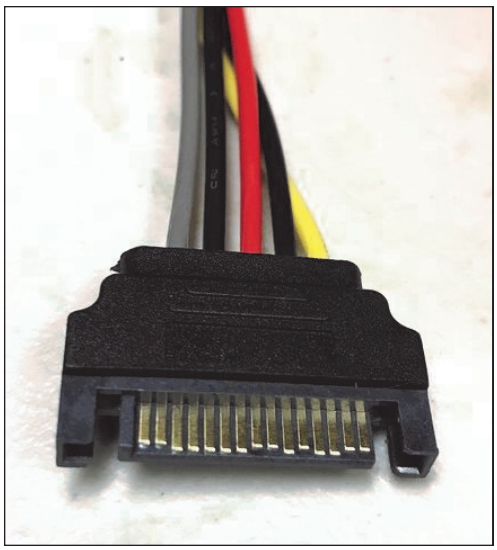
Fast forward to July this year. While I still didn't need a microcontroller or other control logic, I did start to use a USB hub on the PC and the Flex 6500 radio. (The Flex offers USB output to drive serial and parallel cables to control downstream equipment like transverters and amplifiers.) While the 4-port hubs probably don't strictly need external power, especially since the USB cables connected to the hubs won't be used for charging devices, I still thought it would be safer and more reliable to apply power. The hubs expect 5vdc normally supplied by AC wall warts, so I resurrected the PC power output project to have a power source for the hubs.

My intention was always to run the power from the PC to one side of a terminal strip for reliable mechanical connections. I needed male SATA connectors to plug into the female connectors installed in my expansion slot cover. These were found in the form of SATA power extenders with a female connector on one end and male on the other. I cut off the female end to have five wires available for the terminal strip. However, when I attempted to connect the raw male connector, I found the female side wasn't snug enough and risked pushing the female connector into the PC case. Also, there were wings on the male connectors for a better fit for female connectors, but they interfered with each other, and they hit the slot cover preventing a full insertion. My hacky solution to the first problem was to apply cyanoacrylate ("crazy") glue gel around the female connectors. The second problem was also solved with a literal hack… I cut off the wings as well as I could with diagonal cutters, then whittled down the remaining plastic with a box cutter. I was able to do these things because I have no pride in craftsmanship.

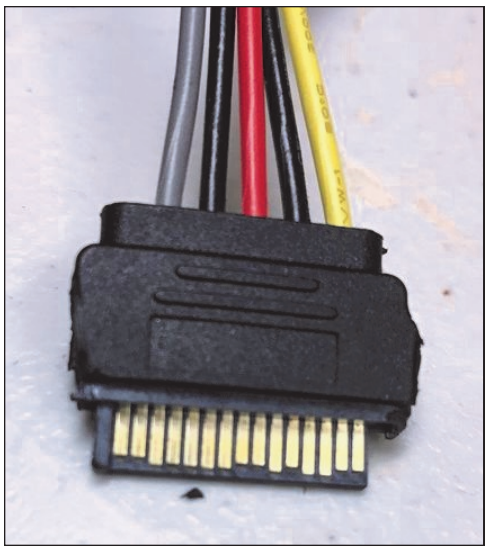
I tested that the two male connectors could now fit into their mates on the PC and verified voltage values

on the wires from the two connectors. Each of the five wires from one connector (two grounds and the three voltages) were mated with the wire from the other connector, and a ring terminal crimped onto each pair. I now had five ring terminals which were screwed onto a 5-screw terminal strip. The terminal strip was screwed onto the rack shelf wood substrate, and the two male SATA connectors pushed onto the females on the PC slot cover. I again checked voltages, this time on the terminal strip screws. One of the SATA connectors didn't fully seat, so I assume I'll have to shave some more plastic from their sides if I start to tax the maximum current draw. In the meantime, I have my voltages available for USB hubs and future needs.

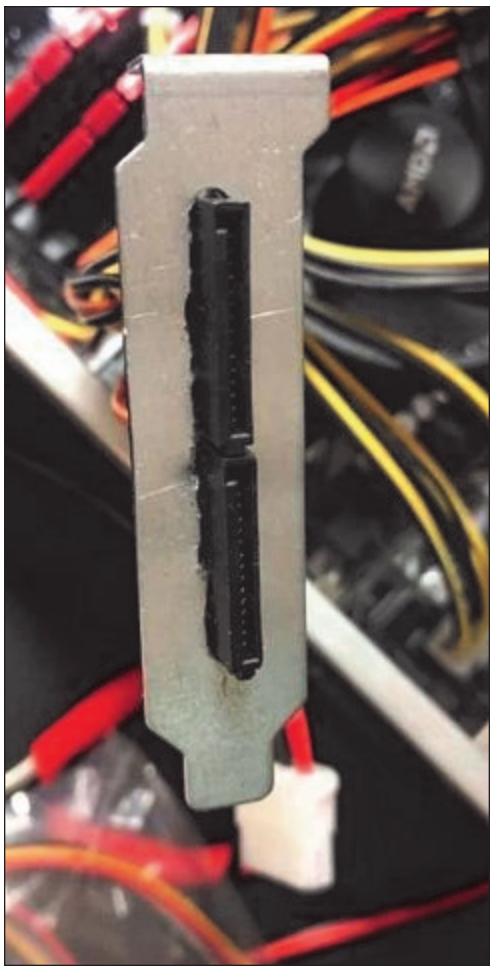
I would not recommend my method for physically bringing out the SATA power connectors; there were too many half-baked make-it-fit compromises. If I had to do it again, I'd try harder to find smaller circular connectors that fit through the narrow expansion slot holes. Despite that poor design decision, I'm glad I'm making use of the resource of my PC's power. This power source saves space, complexity, and the possibility of adding another source of RF noise so common with DC-to-DC conversion devices.



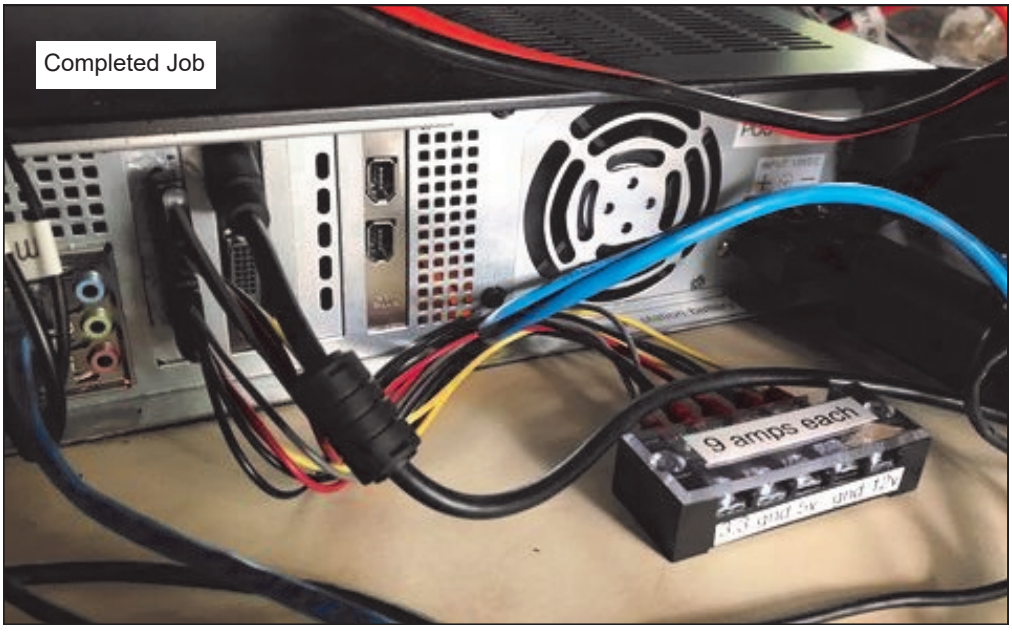
Before Trimming



… and after



Hacked panel plate



Completed Job

The Wayback Machine
In CHEESE BITS, 50 Years Ago

Nibbles from August 1971. Vol. XIV Nr 8
de K3IUV Bert
(*author's comments in italics*)

"**Our Prez Sez"**. New Prez Don, **W3CJU** (*the "Jeweler of Doylestown"*) listed his reasons for the Packrats being so successful. His thoughts (below) are worthy of repeating, and reflecting on:

- Mutual interest in VHF, UHF and exploration of these bands
- Something for everyone, such as: the annual picnic (*for the whole family*); hidden transmitter hunts (*where are they now*?); antenna measuring contests (*again, why not now*?); and ladies night banquet as a reward for the long-suffering xyls.
- January Contest which provides an incentive for station improvement throughout the year (*or at the last minute*?)
- June contest held in the field, letting members get to know each other better and working as a team.
- Monday night nets (6, **W3CL**, Harry; 2, **W2EIF**, Joe; 220, **K3GAS**, Doc; 432, **K3IUV**, Bert; and 1296, **W3HMU**, Tony). (*50 years ago*!)
- Lastly, the monthly club meetings, with a raffle run by Mario, **K3UJD** (*how it got its name*), the silent auction run by Doc, **K3GAS** and the main program always organized by the VP (Walt, **K3BPP** at the time)

Technical Article. "Simplified T-Pad Design." By Ron, **WA3AXV** (*now **W3RJW***), this article described the use, design and practical comments about this useful circuit. Ron included a table of parameters for sample designs, precautions on the type of resistors used, as well as an example design.

Club letter to the FCC. At that time, the FCC was considering a rule-making which would transfer the "Citizens Band" to the 220 MHz region. The club authorized Harry, **W3CL** and Jack, **W2AXU** to generate a detailed letter to the FCC, giving reasons for rejection of this plan. The full (2-page) letter was included in this issue. (*Obviously, the rule-making was rejected. But now, we have other encroachments in this band*.)

New Products of Interest. From Lynn, **W3NSI.** 1) Eastman 910 Adhesive. Comes close to being a universal adhesive, setting within 2 minutes. Handles rubber, fiber, polystyrene and all metals. Should be just the thing to mount components where holes may not be drilled (was this an early "super glue"?). 2) Mobile antennas from Larsen Electronics (*was this the Larsen E Rapp of April QST fame*?). 450 and 2-meter verticals. 5/8 wave for 2, claims 3 dB gain. 450 is a collinear with claimed gain of 5dB. Elements are stainless steel, silver plated. Various mounting brackets are available. Priced between $27 and $30. 3) Dialco series of solid-state indicator lamps, various colors available. $3 each.

From the Book Rack. Paul, **K3WEU**'s monthly column covered the book "How to Use Test Instruments in Electronic Servicing," written by Fred Schunaman (former editor of Radio-Electronics). Published by TAB books. $4.95 paperbound. 256 pages, over 200 illustrations. The book details using a scope for troubleshooting, new "tricks" that can be done with multimeters, signal generators, alignment techniques and special equipment such as a grid-dipper. Paul gave it a high rating, and recommended it for the member's bookshelf.

The Sensuous Rat. A lengthy tongue-in-cheek article (*anonymous*), describing the antics of a Packrat around the house. For details, see the issue on the club website.

Calendar. August 8, the annual Packrat picnic, held as usual at the Fort Washington State Park. Games led by El, **K3JJZ**. Peanuts for the scramble, from Ernie, **W3KKN**. Door prizes and surprises for all. $2 per family. (*We used to have hundreds of attendees.*) Talk-in on 50.2 and 145.2. (A smaller version is now held at the QTH of Michael, **KB1JEY**.) August 11, first outdoor meeting at the QTH of Bert, **K3IUV** (*me*). Pictures and slides taken by our alert roving photographers. Commentary by Harry, **W3CL**. September 15, Packrat annual auction at **W3ZD**'s QTH. Two golden voiced auctioneers will be present. September 12, SJRA hamfest, Malaga, NJ.

Cryptogram. A 3-line cryptogram was included in this issue. Translation not included. (*If you want to try it, you might see El, **K3JJZ** for some help. The author's name was also encrypted*!)

Swap Shoppe. By W3ZRR. *(Always nostalgia. Now we use the club reflector.*): For sale by Mel, **K3DXC**, HQ-171A receiver $150. HE145B 6-meter transceiver, with a 4-el halo, "Reduced Price". From Ed, **W2BAY**, a 20-element 220 collinear, $15; From Stan, **K3IPM** (*recent SK*), a Supreme 6 -meter SSB exciter with VFO, $75. A Hy Gain 6-meter beam (48' boom!) for $75, 8/8s J-slot for 2, 220 and 432. Pair, complete system $75, and lastly a 5-element Telrex for 6, $20; from Ben, **K3ESL**, 500' of RG-17 coax (the heavy stuff), "cheap." Also, from Harry, **W3CL**, two 2-meter Telrex and a 220 Collinear, $7/$5.

Miscellany. *Postage for this issue was a single 10-cent Flag. (7 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 **W3SO**, 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*

Events

For inclusion, please direct event notices to the editor.

6M Fall Sprint - Contest - August 14-15, 2021. Details to follow.

10 GHz and Up Contest (Round 1) - Contest - August 21 - 22 , 2021. See https://contests.arrl.org/10g/ for details.

September VHF Contest - Contest - September 11-13, 2021. See http://www.arrl.org/september-vhf for details.

10 GHz and Up Contest (Round 2) - Contest - September 18-19, 2021. See https://contests.arrl.org/10g/ for details.

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2M Fall Sprint - Contest - September 20, 2021. Details to follow.

222MHz Fall Sprint - Contest - September 28, 2021. Details to follow.

EME - 2.3 GHz & Up – Wknd 1 - Contest - October 23-24, 2021. Details to follow.

432MHz Fall Sprint - Contest - October 6, 2021. Details to follow

Microwave Fall Sprint - Contest - October 9, 2021. Details to follow.

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EME - 50—1296 MHz – Wknd 2 - Contest - November 20-21, 2021. Details to follow.

EME - 50—1296 MHz – Wknd 3 - Contest - December 18-19, 2021. Details to follow.

Monthly Half Hour 2 Meter Sprint

There's a new half hour sprint on 2 Meters the morning of the first Saturday of every month. Details at https://fwrc.info/2021/05/21/two-meter-classic-sprint/ It will be interesting to see if it catches on in the northeast. —W2BVH

…. Wayback cont'd

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**)

Two Monthly FT8 Contests

A 2 Meter and a 70 CM FT8 contest is held monthly, with 2M held the first Wednesday of the month and 70 CM the second Wednesday. This contest is organized in EU, but I don't see a reason that NA hams could not participate. (I don't see mention of it being EU only on the web site.)

See http://www.ft8activity.eu/index.php/en/ if interested.

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

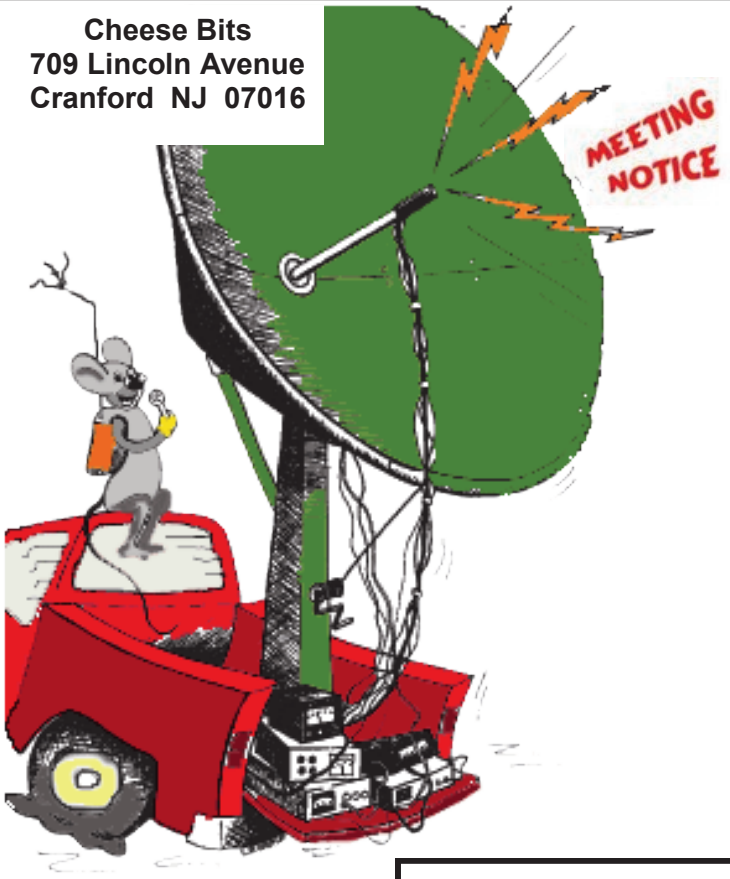
222 MHz Activity Night

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 coordinates Q's when direct CQ's are weak.

Bill A2UK reminds us that the full results and extended report on the January VHF contest is available and well worth the read. The 34 page (!) article can be found at https://contests.arrl.org/ContestResults/2021/Jan-VHF-2021-FinalFullResults.pdf

Andrea K2EZ has a 15 minute video segment on her eventful June rove at https://www.youtube.com/watch?v=ACYxlDbnHLs&t=2408s . Her portion starts around 35 minutes into the video. Check it out.

Cheese Bits
709 Lincoln Avenue
Cranford NJ 07016



TO:

MT. AIRY VHF RADIO CLUB, INC.