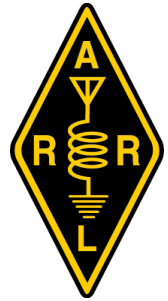




CHEESE BITS

W3CCX
CLUB MEMORIAL CALL

ARRL
Affiliated
Club



Volume LXIX

August 2026

Number 8

PREZ

August 2026

SEZ: The July meeting was quite spectacular, a record turnout, with the MDS Testing, Picnic and HK1TL 50th Anniversary celebration.

It was the best attended group Pack Rat activity in a long time.

Gary WA2OMY, Phil WA3NUF, Dave K1RZ and the score keepers did a good job with the MDS testing. It was great to see all the portable 10 & 24 GHZ stations. Make sure to see all the write ups in this CB.

Hats off to Len N3NGE for providing a tasty lunch for the group.

The HK1TL EME talks were well attended and informative. The whole gang that worked on doing the expedition back in 1977 really accomplished something that makes you proud to be a Pack Rat. Thanks to Phil WA3NUF for his legwork to get the ARRL to award the club with the WAC 432 MHZ award some 50 years later.

On July 11th the Pack Rats were well represented at Doc's W3GAD funeral, it was a very nice service and luncheon.

Unfortunately we lost another Pack Rat this month, Bob Griffith "Griff" NE3I past away on Sunday evening June 28th.

Bob had just attended the ARRL Field Day on Saturday and Sunday with the R.F. Hill Radio Club where he was operating CW and mentoring Girl Scouts on Ham Radio. Bob was a respected member of the Pack Rats as well as the R F Hill Radio Club and Frankford Radio Club. No funeral

announcements at this time. See the write up from the R F Hill ,MHZ TIMES in this CB.

Keep your eye on the ARRL contest calendar for August 15-17 10 GHZ & up and September 12-14 September VHF Contest, and the Fall VHF SPRINTS starting September 21st.

At the August meeting it will be Pizza Night Dinner please RSVP to me at president@packratvhf.com so we can have a count. Dinner will start at 7pm firm and followed by a short business meeting and a presentation on 6 Meter Rover Antenna by Chris W3CMP and a short video movie a tribute to Al Katz K2UYH titled "EARTH MOON EARTH" directed by Al's daughter Alesha Hastings-Kimball.

I hope you all have been on the bands. There have been 6 meter openings. I was able to work Saudi Arabia on FT8.

I look forward to seeing you at the meetings

73 Brian N3EXA

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PACK RAT COMMITTEES

January Contest	N3RG, N2NC, W2SJ, AA2SD
June Contest	N3YMS, WA3YUE, W2SJ
Fall Sprints	WA3NUF, W9KXI, WA3EHD, WS3O
Pack Rat Awards	WA3EHD, W2SJ
Quartermaster	WA2OMY
Membership:	Ray N3RG, W2SJ, WA3GFZ

PACKRAT BEACONS - W3CCX/B

144.300 (FN21be), 222.060 (FN20tk), 432.300 (FN20tk), 903.300 (FN21be), 1296.300 (FN20dh), 2304.300 (FN20tk), 3400.300 (FN20dh), 5760.300 (FN21be), 10,368.300 (FN20tk) See <https://www.packratvhf.com/index.php/on-air> for details

MONDAY NIGHT NETS

VHF/UHF Monday:

<u>TIME</u>	<u>FREQUENCY</u>	<u>NET CONTROL</u>
6:45PM	224.580 MHz	KB3MTW Michelle
7:00 PM	Packrat Talk Group	KA3WXV George
		See Packratvhf.com ON AIR for details
7:30 PM	50.150 MHz	N3RG FM29ki Ray
8:00 PM	144.245 MHz	W2KV FN20ok Dave
8:30 PM	222.125 MHz	KC3BVL FM29jw Jim
9:00 PM	432.110 MHz	WB2RVX FM29mt Mike

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

PACKRAT E-MAIL REFLECTORS

The Pack Rats have an E-Mail reflector that is open to Pack Rats and friends of the Pack Rats. The intent of this E-mail reflector is to have a convenient means of reaching list members on subjects of general interest to the VHF/UHF and Microwave community.

Packrats@mailman.qth.net

The Pack Rats also have a **Members Only** reflector. This list consists of, and is for the use of, **only Pack Rat club members**.

Packrats-members@mailman.qth.net

See the W3CCX Web page for specific information on joining.

Packrats on Facebook

Use the browser link "www.facebook.com/PackRatVHF", or within Facebook search for the name "Mt Airy VHF Radio Club".

July Meeting

The Pack Rat Summer Picnic, MDS Test and 50th Anniversary of HK1TL

Saturday, July 25th, the club held the annual Pack Rat Picnic along with the Minimum Discernable Signal measurement (MDS) test. This MDS was for both 24Ghz and 10Ghz microwave equipment. Historically there has been a White Elephant auction at this event, this year...that was cancelled. In its place, this year the club took the time to recognize the 50th Anniversary of the 1976 EME Expedition, by club members, to Columbia to operate HK1TL. Their objective was to achieve the ARRL WAC award on 432MHz. for both W3CCX and other stations. 50 years ago, this was the first and only 432MHz EME station on the South American continent.

Sandwiched between the MDS and the 50th Anniversary presentation we enjoyed a fabulous picnic lunch.

The Events

I arrived at The Ben Wilson Senior Center, along with my wife, at 10am and activity was already underway. This activity included, but was not limited to, the setting up canopies and tripods on the berm. Gary, WA2OMY, already had the weak signal source operating and located on the edge of the property, immediately adjacent to Delmont Avenue, half a block away. Promptly at 11am the 24 GHz MDS started with seven participants. Shortly after noon we quit for lunch which was both planned and executed by Len, N3NGE (for the 3rd year in a row) and assisted George, NE2U. Shortly after 1pm, the 10GHz MDS test started with approximately twenty participants. Good communications facilitated the 10GHz test completion about 2:15 or 2:30. We then adjourned to the inside of the senior center for a major program – The HK1TL 1976 EME Expedition 50th Anniversary program. We heard from some of the expedition's actual participants: Walt – K3BPP, Elliott – K3JJZ, Bill – K1DY and Dan - WA3NFV. We also were able to see numerous physical objects, which included the HK1TL log book, QSL cards and an equipment shipping box. At the end of the program, we were all served a piece of cake. Phil – WA3NUF has posted a link to the video recording, on the "Member's Only" reflector, of this presentation. Scott – AA2SD has also posted a link, on the general distribution reflector, with pictures which he took throughout the day.

Acknowledgements

This was a truly great event.

At the risk of missing someone, I'm going to acknowledge people who I saw/watched work on it.

Firstly, the president and the BOD for the past year. The planning for this event started early, committees were formed and plans executed well. Thank you ... all of you.

The following are presented in random order –

“Range Master” Gary – WA2OMY What can I say? Gary assembled, tested, set-up and controlled the two MDS tests. And everything...worked.

Gary always has time to help/advise during any activity.

Bruce – WA3YUE OK... we all saw him running the A/V equipment inside the building for the W3CCX

1976 EME Expedition program and setting up the 120v electrical service outside for those without battery power. What you may not know is that Bruce also developed the remote control software for the MDS weak signal source RF control. It was new this year for the MDS testing.

This software allowed Range Master Gary WA2OMY to control the signal sources remotely from his location on the berm. Gary could then make immediate changes, if conditions with individual operators, warranted such. With Gary located in the "active area" this allowed each operator immediate feedback from the Range Master. This remote control feature also allowed Gary to test his own personal 24 GHz system concurrently with everyone else.

George – KA3WXV Kept in contact with the senior center staff, to regularly confirm with them our scheduled date and answer any questions about our planned activities.

George also procured ice, drinks, and assisted all day with whatever was necessary for the picnic.

He is our Quality Control Manager regarding cleaning the senior center. Like he does for our monthly club meetings, George was one of the last to leave the senior center on Saturday.

Phil – K3TUF Phil readily offered advice and assistance wherever it was needed. Phil was also was the one who "raised his hand" to volunteer to source the magnificent cake.

Phil - WA3NUF As previous club president, Phil triggered the planning for the event. Yeah, yeah, Al, we know that. What some people may not know is just how tirelessly Phil worked to get the WAC certificate confirmed. Pursuit of this award had been sitting idle for years certainly, more likely decades. As we all know this 432 EME expedition took place before LOTW and, as part of the application, there were QSL cards which needed to be certified by the ARRL. For whatever reason, that never happened. Through constant contact (and networking) with ARRL executives and Pack Rats who were involved 50 years ago, it happened. It happened!! This effort took Phil more than a year to drive it to a successful conclusion on...the 50th anniversary of the event!!

Len – N3NGE As I mentioned earlier, this is the 3rd year in a row that Len has done the food. Len's day started earlier than many realize. 6 am? Both the hamburgers and the sausage were hot when I went through the line! He has never missed on delivering a great lunch.

George - NE2U George again assisted Len with the grills. He also assisted with setup and takedown of canopies, and setting up and taking down member's equipment. To many, George was not always visible but his work was certainly felt.

Dave - K1RZ Dave communicated, solicited, "reached out" and organized all the operators for the microwave MDS testing. Dave was also in charge of an accurate "head count" for lunch and an accurate MDS test count.

Ray - N3RG and **Joe - KC2TN** again agreed to be referees for the MDS testing, recording test results, keeping the MDS testing moving.

We all can thank club members for bringing dessert items, canopies, and providing transportation for members who needed it.

July 25th ...My perspective

I recently read this: "... hams value face-to-face connection as well as on-the-air contact." *
I believe that statement. I certainly saw that on Saturday. Many of the participants could be seen stopping, looking and talking to others about their set-up and just plain having a pleasant time talking about "things".

The number of new microwave operators was readily apparent on Saturday. I also saw improvements versus last year's effort by many of the operators who participated last year. My minimum discernable signal this year was -77db. That is an improvement, when I think of last year. As I think about the things that I saw Saturday and the questions that I asked, I now have ideas how to further improve my system's performance next year. Does anyone have a MACOM dish with a shepherd's crook feed?

Mentors. I've only been on 10GHz since the summer of 2023. The first two months of that summer were with a transverter which turned out to be...deaf. I slowly got things working thanks to great friends which I've found in this hobby.

I looked around on Saturday found a respectable number who have given me good advice or who I know are regularly helping others.

For all of the Mentors ... Thank you,
AI – W9KXI
FN12ne82bd

* = August 2026 QST; page 9; D.A. Minster NA2AA



The Minimum Discernable Signal Testing

by Dave Petke K1RZ and Gary Hitchner Jr WA2OMY

MDS is an overall system test of how weak a signal you can copy, and potentially then work. On our tripods as many of you see there are a lots of interconnects between system components, which include transverter's and antennas, and can include low noise amplifiers, SSPA's and external relays or waveguide switches. Each SMA connector, barrel connector, extra cable length, waveguide transition, cable adapter, dish feed focal point misalignment, etc. is a point of possible loss. Working to identify losses is the Goal of running an MDS Test for all the portable operators in the region. Improvements in MDS helps everyone be more capable of making long distance contacts. The 10 GHz and Up contest is a Distance Contest, so everyone wins if we all get a little better at receive.



The July 25, 2026 MDS Line-up. 23 Tripod Systems. WG3K Photo



Andy KF3Y showing Drex W3ICC his MACOM Dish 10 GHz system. AA2SD photo



Andy WA4BRX with his Offset dish, with dual 10 & 24 GHz feed. KC6QHP photo

MDS Results

Date	7/25/2026	PackRats MDS Test at BWSS, Warminster, PA				
		(Prime / Offset)	(Inch or cm)	(watts)	(dBm)	
GHz	Call Sign	Dish Type	Dish Size	Power	RX MDS	Name
24	K1RZ	Shepherds Crook	24 in.	2.5	-108	Dave
24	K3TUF	Lense Horn	10 in.	2	-104	Phil
24	K3WHC	Shepherds Crook	24 in.	2.5	-102	Steve
24	WA2OMY	Cassegrain	18 in.		-92	Gary
10	K1RZ	Shepherds Crook	24 in.	8	-102	Dave
10	K3WHC	Shepherds Crook	24 in.	8	-102	Steve
10	KF3Y	Shepherds Crook	24 in.	3	-102	Andy
10	K3TUF	Shepherds Crook	24 in.	10	-100	Phil
10	WA4BRX	Offset	24 in.	3	-96	Andy
10	WX3K	Shepherds Crook	24 in.	3	-96	Stephanie
10	KC3BVL	Prime Focus	24 in.	3	-95	Jim
10	W2SJ	Prime Focus	16 in.	6	-95	Bob
10	W2KV	Prime Focus	24 in.	1	-94	Dave
10	N3FTI	RCA Offset	18 in.	3	-93	Steve
10	W2BVH	Prime Focus	24 in.	1	-87	Lenny
10	AA2SD	Prime Focus	24 in.	3	-86	Scott
10	WB3CAL	Prime Focus	30 in.	3	-86	Kerry
10	AA2SD	Horn	4.5 x 6 in.	1.5	-85	Scott
10	KM3G	Horn	3 x 3.75 in.	0.35	-83	Tyler
10	W9KXI	DSE Prime Focus	60 cm	3	-83	Al
10	W3ICC	17 dBi Horn	4.5 x 6 in.	1.5	-78	Drex
10	KC2SGV	Prime Focus	23 in.	0.2	-76	Joe
10	KC6QHP	Prime Focus	12 in.	2.5	-76	Tony



Gary WA2OMY setting up his 24 GHz System. As Rangemaster, Gary also ran the Sources remotely. AA2SD Photo



Bob W2SJ checking out his 10 GHz 18 inch dish system before it goes on the tower at home. AA2SD photo



Wayne N3DRF listening on AA2SD's 10 GHz Horn antenna system. AA2SD photo



Tyler KM3G setting up his 10 GHz system. AA2SD photo



Steve N3FTI totally ready for 10 GHz MDS. KC6QHP photo



Dave K1RZ's 10, 24 & 47 GHz Dish Antenna's. KC6QHP photo



Tony KC6QHP explaining his 10 GHz system to Andy WA4BRX. AA2SD Photo



Steve K3WHC & Kerry WB3CAL discussing MDS. AA2SD Photo



Stephanie WX3K is excited about the latest results she got in the 10 GHz MDS. KC6QHP photo



Steve N3FTI and Dave K1RZ trying to help Joe KC2SGV to get his GunnPlexers to hear the 24 GHz Source. AA2SD photo



Steve K3WHC ready for 24 GHz MDS. AA2SD Photo



Referee's Ray N3RG & Joe KC2TN finalizing the MDS log. AA2SD photo



Al W9KXI and his 10 GHz rig, ready to make a QSO Pre-Round One. KC6QHP photo



Phil K3TUF copying the Signal Source with his handheld Flex IF Radio. AA2SD photo

MDS – More Having Fun, copying the Weak ones



Results – Tune-Up – Use the Bands – Resources

Kudo's - Future Plans

Your MDS Results drive's your System Improvements. The Log above shows you where your systems MDS fits in the list with other operator's results. You can now gauge whether your system is competitive with others using the same antenna size, ...or not. If your MDS is higher than others, with similar setups, that means you have the challenge to find where to eek out a few more dB in system performance.

Tune-up and Test Session. There is growing interest in microwaves in the Mid-Atlantic States and the Packrats are planning on supporting the growth. The participation in the MDS test weekend has increased every year for three years now. There is interest and discussion on offering a Tune-up and Test Session separate from the MDS test weekend. All members can submit ideas for these activities to members of the board of directors of the club.

Microwave Bands. Remember the use of these Microwave bands is important. There are many commercial organizations with extremely deep pockets looking at frequencies and band allocations to expand business opportunities, and our allocations are in their sights. Get on these bands and make some noise.

10 GHz and Up Resources. For those who find the Microwave bands an interesting challenge, the information below is meant to show where equipment's can be found and where operating activities are planned. Here is a summary of companies with websites, who manufacture equipment and/or components that are used in our portable and fixed station 10 GHz & Up systems.

Directive Systems and Engineering. <https://directivesystems.com/> 10 GHz Feed, feed support and 60cm dish.

Down East Microwave <https://www.downeastmicrowave.com/> PA's, transverter's, LNA's, sequencers, etc.
DX Engineering. <https://www.dxengineering.com/> IC-905, IC-CX-10G, IC-705, etc.

Gigaparts. <https://www.gigaparts.com/> parts

HRO <https://www.hamradio.com/> IC-905, IC-CX-10G, IC-705, etc.

Kuhne Electronic Microwave Components. <https://shop.kuhne-electronic.com/kuhne/en/shop/amateur/>
PA's, transverter's, LNA's, etc.

VHF design <https://vhfdesign.com/> Sequencers

W1GHZ <https://www.w1ghz.org/> Kits: Preamps, Transverters, Sequencers, PC Board Small Projects, Filters.

W6PQL https://www.w6pql.com/relay_sequencer.htm Relay Sequencer, Latching Relay Driver

Here are some websites very helpful in providing 10 GHz and Up technical information and / or operational planning. Like placing your ARRL August and September 10 & Up plans in Rogers and my database at <https://w3sz.com/k1rz/getUpdateForm.php>, which feeds the Map at <https://w3sz.com/map.php>. How everyone in the Northeast plans, and then finds each other for these contests.

<https://groups.io/g/10GHz-Up> select messages, and note the search window upper right corner to search a topic of interest. Also be sure to enter your 10 GHz and Up operational Plans for Microwave Activity Days (MAD's) and 10 GHz and Up Contest weekends, or just when you feel you want to get out to an overlook and get on the air.

<https://rainscatter.com/> by Andy K0SM, allows a 10 GHz operator to initially join and then enter their station on the map. The map displays all the stations in the region, plus the Rain Cells that would allow scattering 10 GHz signals to stations 500+ km distant - depending on rain cell height. After clicking on another station on the map, and if rain cells are present in the region, and cells turn Red if they would support communications between your two stations. The site displays Azimuth's for you and the other station to scatter off a Rain Cell. Last year I worked VE2UG off a 50+ kft rain cell at a distance of 780 km.

Kudos for Ray Golly. I want to thank Ray N3RG who has been so critical to the 10 GHz successes of many of our members. To name those I am aware of what may be a partial list, I would include Scott AA2SD/R, Chris KE5NJ/R, Joe KC2SGV, Bob W2SJ, plus two "Shoe Shine Kits" – for folks to visit people's driveways. Ray is now Retired and very capable. Ray wants to continue to be "the go to guy in South Jersey".

Future Plans. For next year we will have a sub-committee looking into other options for next year's MDS and related activities. Continue to have fun on 10 GHz and the Microwaves.

HK1TL Equipment

With the agreement to go to South America, we had a lot of equipment to design and build within 6 months. At the time an antenna for 432 that was having success at antenna measuring get-togethers was the 13 element design by K2RIW. This was a design that scaled from a 24 foot boom 2 meter antenna that was quite popular. The design was described in the "VHF Handbook for Radio Amateurs" by Bill Orr W6SAI. A number of attempts to scale the design to 432 were made but without much success. Dick Knadle K2RIW took up the challenge and was able to make a design work. The main change was insulated elements on Plexiglas blocks. Dick optimized the design in his backyard antenna range with a snow shovel and an HP differential volt meter with an audio output. With this setup he could wave the snow shovel around to see if the signal from the Yagi under test got stronger than the reference signal. This method was sensitive in the fractional dB range. We picked this design as the design of choice. I had developed an array program that would input an element characteristics (AZ and EI beam widths) and element spacing in azimuth and elevation. On an HP 9820 desk top calculator and an X-Y plotter, I was able to print out radiation patterns of the array. Spacing was adjusted for minimum grating lobes and a clean pattern. The end result was a 5 foot spacing between Yagis. Meanwhile Tony W3HMu was building Yagis like mad. Now the maximum length allowed for a shipping container was 6 feet. Thus the antennas split in the middle and were reassembled in S. A.

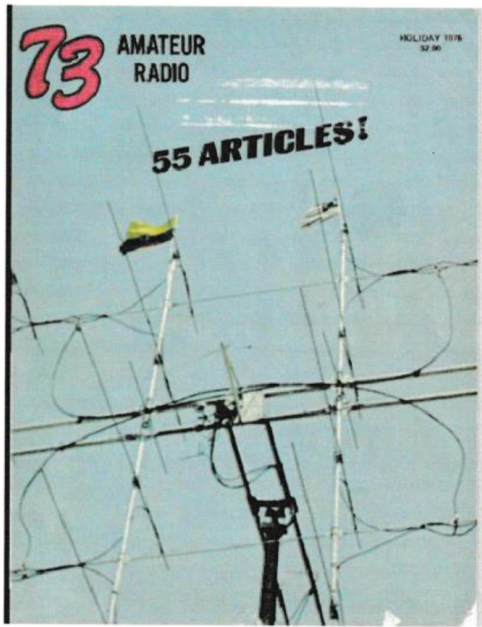
A second 8938 2.5 kW tube was acquired thanks to Bull Wenner W3IVL (SK). Thanks to the success of the K2RIW Stripline Kilowatt Amplifier design, the design was copied for the 8938. Construction was performed by Tony W3HMu with help by K3BPP and W3HQT (K1DY). A high voltage power supply was constructed by Bill W3HQT. Testing provided successful results. A surplus 4CX250 432 amplifier and power supply was scrounged from Tony's storage and a driver for the amplifier was constructed by K3BPP. Now this amp was also used by the transmit arm of Oscar 7.

Also at this time Bill W3HQT was designing and fabricating the support structure for the array, (15'X15') as well as polarization rotation. The W3CCX/3 operation found that being able to rotate polarization is very important. With the dual polarization dish feed we were always able to hear our own echoes, many times the receive was a different polarization than the transmit. The first tests for the station were next to the Revere dish with parallel results. The setup was then set up for the June contest in Hilltown, PA. This proved the viability of taking down and setting up the station. Not sure if we made any contacts.

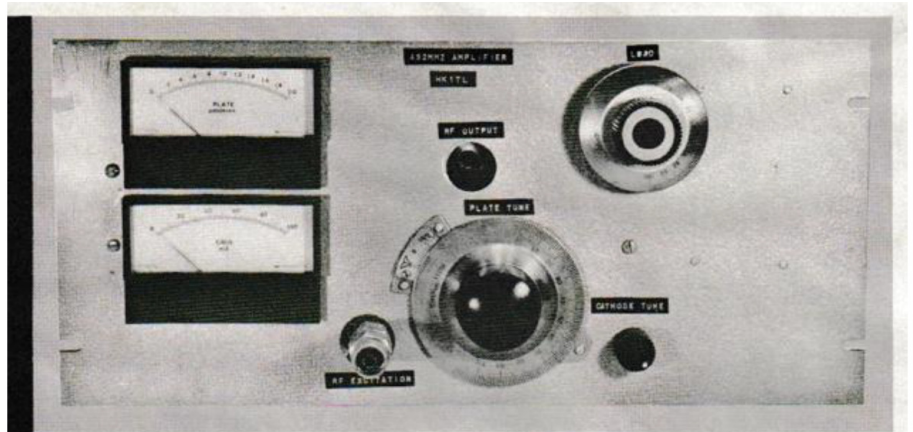
The receive end consisted of a Drake 2B receiver and a Packrat 432 to 28 MHz converter. A club project to duplicate a Parks 432 converter (many were constructed). Also a collection of preamps were available which were placed at the feed point of the array. These were W1JAA (W1JR) design with about 2.5 dB noise figure (substantially higher than today's technology).

Walt K3BPP

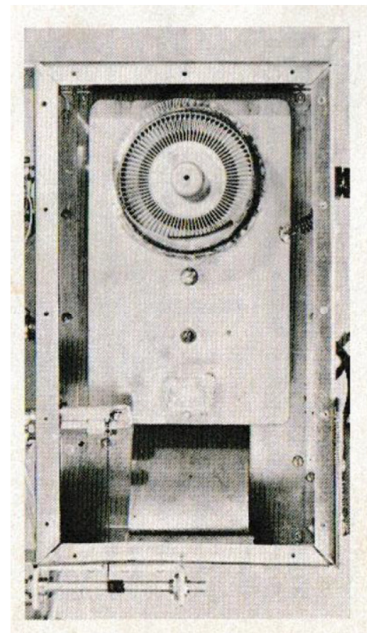
HK1TL Equipment



HK1TL ARRAY
16 K2RIW style Yagis



432-MHz power amplifier



HK1TL Exciter /Oscar 7 Amp single 4cx250

In Memoriam

As mentioned in last month's Cheese Bits long time Pack Rats member Robert "Griff" Griffiths NE3I died on June 28, 2026. There were some remembrances from fellow club members in the July issue of this newsletter. Here are some other stories about Griff from Mark Hinkel.



In Memory of **Robert A. Griffiths** **"Griff", NE3I**

SK June 28, 2026



From his QRZ page:

Licensed over 50 years, I am a long time member of the ARRL and the Montgomery County, Pennsylvania, Radio Amateur Civil Emergency Service ("RACES") and Amateur Radio Emergency Service ("ARES"), "MCAR". I have served as the Radio Officer for Montgomery County RACES and twice as the Emergency Coordinator for Montgomery County ARES. I have also held ARRL appointments as an Official Relay Station, Official Emergency Station, Volunteer Counsel and as the Public Information Coordinator for the Eastern Pennsylvania Section. I am currently a member of the RF Hill Amateur Radio Club, the Mount Airy VHF Radio Club, Inc., ("The Packrats") and the Frankford Radio Club. I enjoy contesting especially, on CW. Being "Deed Restricted" and normally utilizing 100 watts or less with single element wire or vertical antennas, I sincerely appreciate all QSOs. I reciprocate QSLs received/requested via the Bureau however, I enjoy receiving QSLs direct for the interesting postage stamps from your country. I like to use U.S. commemorative postage stamps with a military history topic if available. I have entered most DX contacts from the past 20 years and all contacts for several years into Logbook of the World, ("LOTW"). If your QSO is not in my LOTW account, feel free to send me an email to NE3I@ARRL.Net, with your QSO information and I will check my log and either make the appropriate LOTW entry or reply to advise you otherwise. I have DXCC for CW, Phone and the 40, 20, 15 and 10 Meter Bands. I have uploaded a picture of one of the two 4 States QRP Club Bayou Jumper replica World War Two Para-Sets that I have built as well as a photo of the 4 States QRP Club Crystal Spotter that I built and modified into a 17 Milliwatt 10 Meter CW Transmitter. I have also uploaded a photo of a CB Walkie Talkie that I converted to 10 Meters as part of an ongoing project of the RF Hill Amateur Radio Club. See the RF Hill Amateur Radio Club site for additional examples of CB conversions. Thanks for all of the contacts! 73. Griff NE3I



In Memoriam

From the Girl Scouts at Field Day:



Here is a note from Holly:

I truly wanted to express my appreciation for educating me on the modern day radio. It is shocking to me that such an experience would be open to the public and with such amazing people to help me out in the process. I am especially grateful for the time Mr. Griff put in to help me get a full understanding. His charm, patience, and communication skills with a newcomer changed the experience entirely. I went from a Girl Scout meeting, to a lifetime memory where I communicated with people from France! He took time out of his day and the competition to ensure I could fully comprehend how a radio works and the importance of one. Thank you so much for treating me like a friend and not a stranger.

Here is a note from Claire:

I am beyond grateful for Mr. Griff to have taken time out of his day to teach my sister and I the operations of Ham Radio. Before this meeting, I knew very little about the subject nor its importance to our community. After just a few minutes, however, I began to realize its impact on a global scale. This system allows communications across not only the nation, but around the world. Many hold a similar passion as Mr. Griff to the Ham Radio Competition, and his enthusiasm about the sport was contagious. For the short time I got to spend with Mr. Griff, he was immediately welcoming and truly made that day so special. This was a meeting I will never forget, and I thank Mr. Griff for providing my family and I such a wonderful opportunity.

Here is a note from me:

Dear Mary,

I need to thank you immensely for working with our Girl Scout Troop 2114 over the past few months to schedule a meeting. The wait was worth it because meeting with you on Field Day 2026 was an experience that will not be rivaled. Being able to join such a welcoming community was so memorable for me and my girls. I will say the highlight was meeting with Griff, and the time and care he took bringing in newcomers to his world. Being shown a whole other world, and being able to use real equipment and participate on a global scale for almost two hours was just fantastic. Hearing of the passing of such a wonderful man was heartbreaking, and I am so thankful we were able to meet with him because he truly made the day what it was. Completing this event earned our troop the ARRL Girl Scout patch, and we will think of you all whenever we wear it.

Sincerely,

Amber, Claire and Holly Titus
GSEP Troop 2114

Press Coverage by Jack, N3ANZ

Perkasie amateur radio club to participate in ARRL Field Day

Amateur radio operators, also known as "hams," from the RF Hill Amateur Radio Club in Perkasie will participate in a national amateur radio exercise starting at 2 p.m. Saturday, June 27 until 2 p.m. Sunday, June 28.

The event is ARRL Field Day (www.arrl.org/field-day), an annual amateur radio activity organized since 1933 by ARRL, The National Association for Amateur Radio in the United States.

The RF Hill Club will establish temporary ham radio stations in the Markley Memorial Park, 1418 Ridge Road, Perkasie, to practice and demonstrate their skills and service. The purpose of the event is to practice the use of voice, Morse code and digital radio communications. Field Day highlights ham radio's ability to work reliably under any conditions such as the recent hurricanes



Members of the RF Hill Amateur Radio Club in Perkasie will participate in a national amateur radio exercise June 27-28.

in North Carolina where ham radio was the only reliable communications in and out of the affected areas. This year's event is also noteworthy given that a particularly active hurricane season is predicted.

"Hams have a long history of serving our communities when storms or other disasters damage critical communication infrastructure, including cell towers," said Tom Dumire, (call sign K1RKL), president of the RF Hill Club. "Ham radio functions completely independently of the internet and phone systems and a station can be set up almost anywhere in minutes. Hams can quickly raise a wire antenna in a tree or on a mast, connect it to a radio and power source such as batteries, generators or solar power, and communicate effectively with others," Dumire added.

The RF Hill Club will welcome

visitors to its Field Day site to learn how amateur radio works. They will have an opportunity to get on the air, guided by a licensed ham, to talk to ham operators across North America. Although an appointment to visit the site is not required, it is advised to call first. More information may be obtained by calling Tom Dumire, club president, at 267-228-8230.

During Field Day 2025, more than 31,000 hams participated from thousands of locations across North America. According to ARRL, there are more than 750,000 amateur radio licensees in the U.S., and an estimated 3 million worldwide.

Among the tenets of the Amateur Radio Service is developing and practicing skills in radio technology and radio communications, and even contributing to international goodwill. Hams range in age from as young as 9 to older than 100.



FN20 The Pagoda Overlook, KE5NJ/R Rover deploys a 10 GHz antenna with a Suction Cup Mount making 10 GHz contacts with Len N3NGE and Roger W3SZ

Fellow PackRats WA2OMY, N3RG, NA2O and W2KV Assist AA2SD/R to Get on the Air with a 10GHz Slot Antenna

AA2SD/R ARRL 222 and Up Contest July 31, 2026 - How do you take a fixed Slot Antenna for 10GHz that is normally used for a beacon and go mobile with it ? In preparation for the June Contest and this weekend's 222 and Up Contest I attempted to come up with a quick Rover set up to operate mobile on 10 GHz. After contacting Gary WA2OMY in search of a slot antenna, Gary was able to find an older 10GHz slot that had not been used for years, and I made a donation to the club for the antenna. I later learned that Dave W2KV had built this antenna many years ago, and I was excited to get it back on the air again as a mobile rover. Slot antennas are typically used for fixed beacons, and the challenge was to see if we could deploy this as a mobile rover.

This fits into my quick Rover set up strategy. With more Pack Rats getting onto the 10GHz band this could be an excellent solution for higher band contacts at overlooks.

One of my first challenges was to obtain a waveguide for the antenna and running the appropriate feed line. I was in need of a WR-90 to N transition waveguide and fellow Pack Rat Ron NA2O graciously came up with the solution. My next challenge was to reach from the roof line into the car cabin for hookup with a feed line. Both Ray N3RG and Dave W2KV donated some older flexible wave guides that fit the bill perfectly.



Universal Super Clamp for Motorcycles to temporarily mount the Slot Antenna with flexible Wave Guide

My last challenge was to mount the antenna. I used a Neewer Double Super Clamp Camera Mount from Amazon which only costs \$22 . This clamp is used for motorcycle mounts and worked perfectly to mount to my Subaru rack. I reinforced it with a zip tie safety harness

My last part of the project was to cover the Slots with Kapton tape to keep out the bugs and water during the Rove.

The Mobile Slot antenna project was a success for the June contest, I was able to make 10 contacts from my Rover while roving, and never had to stop and set up a dish. Chris KE5NJ/R also added a 10 GHz and was successful with this antenna as a Rover.



5 GHz Slot Antenna with 12 Slots (2) Bays fabricated by PE1RKI for the 222 and Up Contest

Resources on Slot Antennas That I Used

I was able to find an excellent paper on Slot Antennas from **Stephen Bell, KB7TRZ** on Slot Antenna Design . You can read this paper on the Pack Rat site at the following Link: This paper was presented at the 40th Annual West Coast VHF/UHF Conference held on May 5-7 (1995?)

https://www.packratvhf.com/attachments/article/18/Slot_ant.pdf



PE1RKI Bert Modderman Engineer

I found an excellent fabricator of Slot Antennas PE1RKI

Bert Modderman Engineer, he makes slot antennas for all frequencies from 23 cm to 24 GHz
<https://pe1rki.com/23cm-13cm-9cm-6cm-3cm-10ghz-24ghz-slotantennas.html>

You can also read this excellent paper from **Paul Wade W1GHZ** at the following link below:

https://www.w1ghz.org/antbook/ch7_part1.p

Chapter 7 Slot Antennas

Paul Wade W1GHZ ©2000,2001,2019

7.0 Introduction

Slot antennas are popular omnidirectional microwave antennas. These antennas feature omnidirectional gain around the azimuth with horizontal polarization. Waveguide slot antennas, usually with an array of slots for higher gain like Figure 7-1, are used at frequencies from 2 to 24 GHz, while simple slotted-cylinder antennas like Figure 7-2 are more common at the UHF and lower microwave frequencies where the size of a waveguide becomes unwieldy. The Alford slot is an enhanced form of the slotted-cylinder antenna with somewhat higher gain.



Figure 7-1

7.1 Slots and Dipoles

A thin slot in an infinite ground plane is the complement to a dipole in free space. This was described by H.G. Booker¹, who extended Babinet's Principle^{2,3} from optics to show that the slot will have the same radiation pattern as a dipole with the same

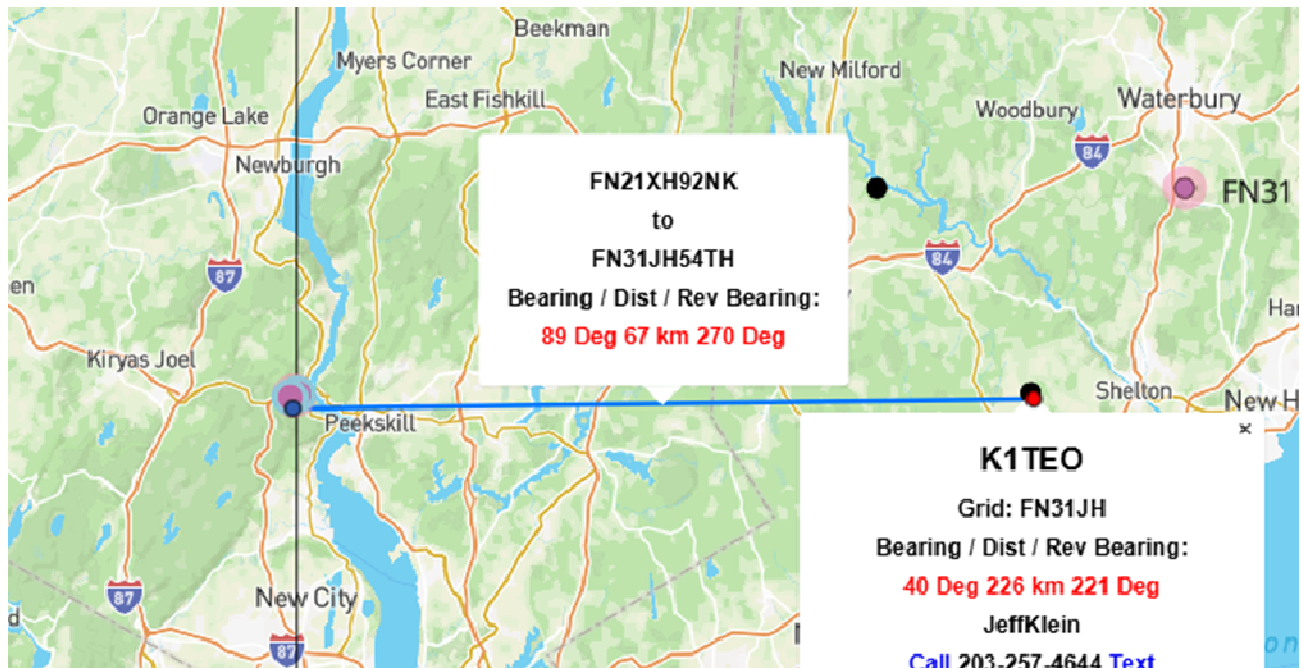


Figure 7-2 - by M0DTS



Assortment of Slot Antennas fabricated by Bert Modderman Engineer

Testing 10GHz Slot Antennas Part of our strategy was to test 10 GHz Slot antennas to minimize set up and take down time. This proved to be an effective strategy to work within a 5-10 mile range for contacts. Chris also made a mountain top contact from FN31 to Jeff K1TEO with a range of 67 km deploying the slot antenna. In order to stay on schedule we had to abandon setting up the larger 2 foot Dishes for 10GHz and relied solely on our Slot antennas which were roof mounted on top of our rovers.



Slot Antenna Contact for K1TEO and KE5NJ/R 67 KM

I wanted to personally thank everyone in the Club that assisted with advice and resources to test this fun project. Since testing the 10GHz Slot arrangement successfully I have ordered a 5GHz version and hope to have it on the air for the 222 and Up or the September VHF Contest.

Go Out and Play Radio Listen for the Weak Ones



Scott AA2SD/R www.aa2sd.com

609 254 7120 Pack Rat DMR 8804

Swap Shop

The photo's are of equipment racks that are available.
There are 4' and 6 foot equipment racks available.
Some have wheels, some have sides, some are wide open.
The price is right!

Contact Warren wb2ona
732-238-1986 Leave a message.



For Sale: Bayly 150 Watt RF load, good to 1300 MHz, good size for test bench use.
\$40.00. Contact Gary, WA2OMY
TNX,
Gary
WA2OMY



2026

24

Mount Airy VHF Radio Club, Inc.

APPLICATION FOR MEMBERSHIP

Call	WA4BRX	Class	General	License Expiration date	6/13/27	Application date	6/20/26
Name	Andy Byzet			E-mail address	[REDACTED]		
Address	[REDACTED]			XYL's Name	[REDACTED]	Call	None
City	Huntingtown			Harmonics (1 st names):	[REDACTED]		
State	MD	Zip	[REDACTED]	Savannah			
Phone	[REDACTED]			ARRL Member?	Y		
Business				Other Radio Clubs	Maryland Radio Outdoors		
Bus. Addr.				Other Hobbies	None at the Moment, Used to Skydive		
Bus. Phone				Grid Locator:	FM18ro	(6 digit if possible)	

Station Equipment

Band MHz	Radio	Output power	Antenna
A 50	Icom 7300, Yaesu FT-891	100W	Dipole
B 144	Icom 9700	100W	Yagi, Jpole
C 222	Yaesu VX6R	2.5W	SignalStick
D 432	Icom 9700	75W	Yagi, Jpole
9 903	Kenwood TK-981	15W	Yagi
E 1296	Icom 9700, DEMI 28 Transverter	10W, 25W	Loop Yagi
F 2304			
G 3456			
H 5760			
I 10368	DEMI Transverter (x2) w/ Icom 705 IF	3W	Dish, Horn

Applicant's reasons for joining this club:

Deep interest in microwave and recently VHF/UHF. My dad, WA4PRR, SK, was big into VHF/UHF. Grew up hearing about PackRats. Recently, I have met several PackRat members as I have launched on my 10GHz journey. They have been kind, supportive, and helpful. These are the kind of people I would like to surround myself with and a community I can give back to. Additionally, I am working on some challenging projects, and I could use any knowledge and support the club may offer. I am working on a 122GHz radio and soon plan to embark on a journey to work 1296 and/or 10GHz EME. In summary, I am looking to meet others who share similar interests, and provide me the opportunity to share knowledge, experience, and volunteer to support others in our Amateur Radio community.

Applicant's signature: *Andy Byzet*

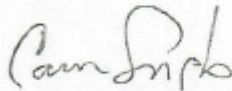
Reasons for Sponsoring

I first connected with Andy when he joined the 10GHz-Up at groups.io in January 2026. I've worked Andy on 1.2 and 10 GHz in the June MAD when he operated from Hogback Overlook VA at FM08us in Early June, plus on 6m from his home QTH. And then I worked him in 2 grids for 7 QSOs when he Roved in the June VHF Contest on 50, 144, 432, 1.2 and 10 GHz. Andy is a very energetic operator with his focus now on 50 MHz and Up. He is excited to be meeting us all at the July Picnic and MDS. And he is driven to help others get on the bands, particularly 10 GHz. He will be a great addition to our PackRats Team.

I ran into Andy on 2m simplex one afternoon and we immediately started talking VHF+ weak signal stuff. He has taken after his Dad and become very interested in that part of the spectrum, especially the microwave spectrum. Together we've started a near-weekly opportunity to work the higher bands and include others in the area. Andy has already been activating many summits on 10GHz and seems to have a knack for understanding the technology. He also loves portable operations on all bands. I believe he'll be a great addition the the PackRats.

Mount Airy VHF Radio Club, Inc. Warminster, PA.

APPLICATION FOR MEMBERSHIP

Call	N2QVY	Class	E	License Expiration date	2032-05-29
Application date June 9th 2026					
Name	Carmen Sangarilo		E-mail address [REDACTED]		
Address	[REDACTED]		Spouse Name*		Call*
City	Hammonton				
State	NJ	Zip	[REDACTED] *(optional)		
Phone	856 979 2743		ARRL Member? ☐ Y ☐ XN ☐ Life (check one)		
Business			Other Radio Clubs Knights of C		
Bus.			Other Hobbies*		
Cellphone			Grid Locator: FM29on		(6 digit)
Station Equipment					
Band MHz	Radio		Output power		Antenna
A 50	PTDX 500 Icom 7100		800		5 Ele + Sq
B 144	JM751 Icom 9100				12 Ele + vert
C 222	Ukraine Transvertor				5 Element
D 432	Icom 910				10 Element
9 903					
E 1296	IC 410				55 Ele Looper
F 2304					
G 3400					
H 5760					
I 10368					
Low Band					
Applicant's reasons for joining this club:					
I am trying new parts of the radio hobby. Signature: 					
Reasons for Sponsoring					
It is with great pleasure that I recommend Carmen N2QVY as a prospective member. Carmen has been very active on both 6 Mtrs and 70 CM and participates in the Pack Rat Nets. Carmen Recently expanded his capability with antennas for both of these bands and he is also now on 1296 Carmen's technical abilities, and his general interest in low signal VHF and UHF operation would be a good fit as a new active club member. I have personally worked with Carmen several times as a Rover during the prior Winter and June VHF Contests. He also recently added a 6 MTR amplifier, and is working on a 222 transverter now. This would allow him to participate in the four lower bands. Carmen has also added a M2 12 element 2 m beam and mirage amp to his station as he expands his capabilities. Carmen has also been a participant in the Pack Rat Nets, as he tests his equipment. Scott AA2SD/R			Carmen has been active on 5 band 50, 144, 432 and 1.2 GHz. He has attended several meetings and operates in VHF Contests. He is a contributor! Ray N3RG Bob Fischer <bobw2sj@gmail.com> Hi guys, Sounds like a great plan! I certainly agree that Carmen will make a good member! 73, Bob		

Division Vice-Director New (Interim) Atlantic

K9RS New ARRL Atlantic Division Vice Director

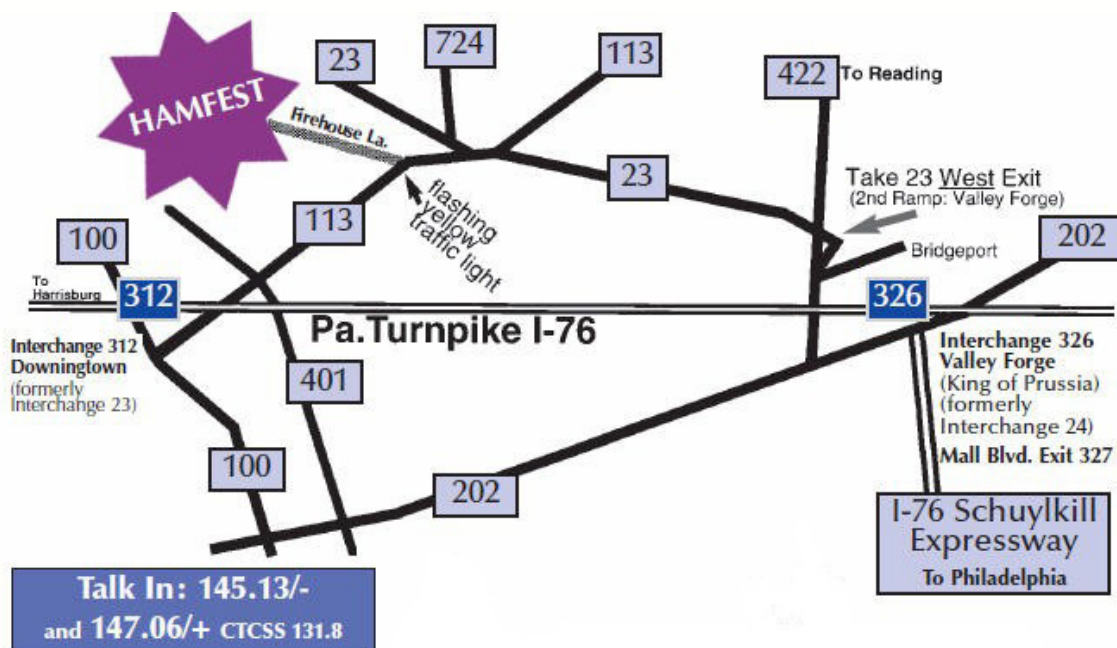
ARRL President Rick Roderick, K5UR, has appointed Ray Sokola, K9RS, of Wilmington, Delaware, as Vice Director for the ARRL Atlantic Division. The appointment fills the vacancy created in January when former Vice Director Marty Newingham, AG3I, assumed the office of Atlantic Division Director (see The ARRL Letter, January 29, 2026). Sokola will serve the remainder of a term that expires December 31, 2026.

The Atlantic Division includes the ARRL Sections of Delaware, Eastern Pennsylvania, Western Pennsylvania, Maryland-DC, Northern New York, Western New York, and Southern New Jersey.

Last Minute Notice MARC (Kimberton) Hamfest

The **2026 MARC Hamfest** will be on **Sunday August 9th** at the Kimberton Fire Company grounds, Route 113 (742 Pike Springs Road) (GPS: 40.12748, -75.56726) west of the intersection with Route 23 in Kimberton, PA.

Doors open for sellers not before 0700 and for buyers at 0800. Doors close at 1200. Admission is \$10 and entitles you to a door prize ticket. Sellers have an outdoor tailgate space for \$10 (one car width, head-in parking) not including admission. An indoor table is available for \$10 each for 1 to 4 tables or \$8 each for 5 or more tables not including admission. Reservations for indoor tables are required by emailing hamfest@marc-radio.org.





On Your MARKS

GET READY for VHF Fall Sprints 2026



Sponsored by the Mt. Airy VHF Club

50 MHz	Oct 3rd : 1800 UTC to 2200 UTC
144 MHz	Monday Sept 21st 7PM - 11PM
222 MHz	Tuesday Sept 29th 7PM - 11PM
432 MHz	Weds Oct 7th 7PM - 11PM
902 MHz and Up	Sat Oct 17th 8AM - 2PM



Short Seat Time - Promote Weak Signal - Check Your Equipment

www.packratvhf.com

Microwave Update 2026

— SAVE THE DATE —

Friday October 23 – Saturday October 24

DoubleTree by Hilton – 1111 Jefferson Road, Rochester, NY 14623

Group Rate of \$159 per night - Reservations currently being accepted

Call 1-800-774-1500 for hotel reservations

Group Code - RVHFG 2026 Microwave Update

Conference registration, events, and Thursday arrival details coming soon!

Check the website in February

www.MicrowaveUpdate.org

Questions? Email: MicrowaveUpdate2026@gmail.com



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Pack Rat Nets

VHF/UHF Monday - Every Monday except holidays and contest nights the following nets are held, 224.58 MHz FM Repeater, at 6:45, Packrat Talk Group DMR net at 7:00 PM, 50.150 MHz USB NCS N3RG FM29ki at 7:30 PM, 144.245 MHz USB NCS W2KV FN20os, at 8:00 PM, 222.125 MHz USB NCS KC3BVL FM29jw, at 8:30 PM, 432.110 USB NCS WB2RVX FM29mt at 9:00 PM.

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

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.

KC3BVL Nets

KC3BVL UHF Wednesday Net—Packrat, Jim KC3BVL conducts Wednesday night nets with schedule as follows: 7:30PM—903.100, 8:00PM—1296.100, 8:30PM— 432.150, 9:00PM 2304.100.

KC3BVL VHF Friday Net—Packrat, Jim KC3BVL conducts Friday night nets with schedule as follows: 7:30PM-144.160, 8:00PM-50.160, 8:30PM- 222.150. **No 432 net.**

KC3BVL SHF Saturday Net—Packrat, Jim KC3BVL conducts a Saturday morning net with schedule as follows: 7:00AM—5760.100



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Editor's Notes

Tom KA3FQS

This issue of Cheese Bits is a little late as July was a busy month with a family picnic, a car show, a birthday, and a wedding anniversary and that was just at our house. The Pack Rats July meeting was held later than normal meetings and had a lot to write about. Thank you for the crew that put together the write up and supplied the pictures. As usual Scott was busy both on the air and on the computer producing a write up detailing his latest exploits. Thanks.

Much of the material for Cheese Bits is coming into my personal email account where it gets mixed with other correspondence and can get easily lost. Even if the submissions don't get lost it takes a lot of time to sort through the account and forward them to the correct account which is **cheesebits@packratvhf.com**.

Please send all Cheese Bits related material to this account only.

I think that I have included everything for this month so I will ask Melanie and Buster for expedited proofreading service and get this in the mail shortly.

Bob Fischer

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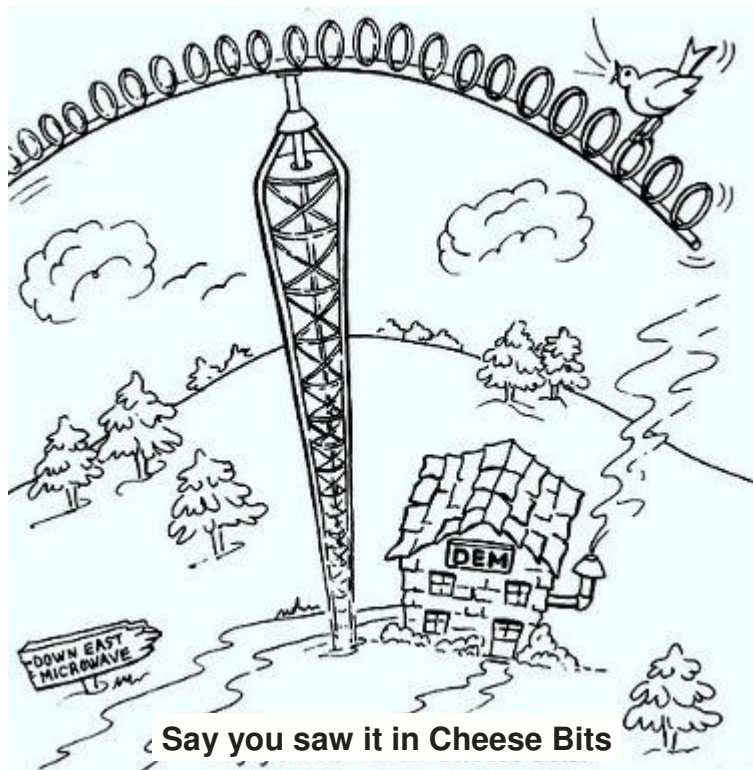
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