



CHEESE BITS

W3CCX
CLUB MEMORIAL CALL

ARRL
Affiliated
Club



Volume LX

May 2019

Number 5

PREZ

Boy, did this Spring ever start out fast!

SEZ:

First there was ARRL/Awards Night at the April general meeting, then the Sprints, followed by the VHF Super

Conference. May saw a soggy WARC Ham Fest near Bristol. All this with much planning by many Packrats for the activities to come in the next few months.

I encourage all to try the Sprint contests coming up in the Fall. What I find interesting is the high number of grid squares you work compared to the number of stations you work. Many Sprints are only a single band on a given night so they are not high scoring contests like in January or June. They are different but fun nevertheless. The purpose of the Sprints is to encourage weak signal VHF/UHF amateur radio operation & have fun. Most are low pressure since only one band has to work for most contests, not your entire station – HI.

May 11th a Saturday, will be a work party in Dover Delaware. We have modifications to make on the Packrat trailer and upgrades on the van that will be used for 6 and 2 meters. Talk to me, KA3WXV if you want to participate and want more details on this.

May is also the Dayton Hamvention in Xenia. If you've never been to the Hamvention I strongly suggest you go this year. Don't put it off another year. It's the biggest one in the country with hundreds of commercial vendors in at least 5 buildings and at least a thousand HAMs outdoors selling out of the

trunks of their cars and SUVs. Claimed attendance for last year was over 29,000. Also worthwhile is a visit to the Wright Patterson Air Museum which can only be described as HUGE. You may need an extra day to see the entire museum.

And then there is Camelback. This is one of the biggest and most ambitious activities of the year for Packrats. I find it amazing to roll up to the top of Camelback and see only a rock and gravel knoll. In just a few short hours it is covered with at least 5 towers and at least 10 bands of antennas. This is followed by over 30 hours of intense contesting. By Monday at noon time everything has been taken down and returned to the Packrat trailer ready for storage till next year!

New this year are Omni antennas for the bottom 4 bands. This should give us better close in coverage.

Try to come up for the whole contest weekend if possible, or just come up for a few hours to operate. Again, realize this is a great location with great stations. And did I mention we're running high power on the bottom 4 bands? If you cannot make it to the site itself, please get on the air and give the club some points. We're LOUD and easy to find! Also remember Assistance is permitted in this and all ARRL contests. The dates are June 7-10th. Friday, the 7th is setup and Monday, the 10th is take down. We can always use extra help those two days. Lots of hands make the job go quickly and easily. At least one Packrat is looking for a hotel roommate for the weekend. Check the Packrat reflector for info on this.

But wait there's more!

Pack Rats **CHEESE BITS** is a monthly publication of the
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PACKRAT 222 MHz REPEATER - W3CCX/R

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PACKRAT BEACONS - W3CCX/B

FM29jw Philadelphia, PA
50.080 144.300 222.062 432.290 903.072 903.3 1296.264 2304.3
3456.200 5760.3 10,368.034 10,368.3 MHz (red = temporarily off the
air see Packrat web page 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	50.145 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

June's general meeting is Camelback wrap up and election of officers.

The 3rd weekend of June is the ARRL Field Day weekend and several Packrats informally known as Team VHF will be on 6 and 2 meters as part of the WARC outing. Come up to

the field at our Lady of Czestochowa near Doylestown. You can operate or just say hi and have a cold soda.

Bruce, WA3YUE is hosting the Annual White Elephant sale again this year on July 18th the regular Packrat general meeting night.

Michael, KB1JEY is hosting the Annual Packrat Picnic Saturday, August 10th . Michael has a pool!

Is your workbench gathering dust? Do you have grandchildren? Consider showing them a simple LED circuit and maybe let them solder it together dead bug style. How about that Laser communicator you only use at Camelback? Why not get it out and show them how it works. Spend some time, have some fun, learn more and build something.

73, George KA3WXV



From the Editor

I received feedback from several correspondents that the URL for the "VHF to Microwave SDR Transceiver" article's PDF download was busted. Apologies for the error. The info in the N.E.W.S. Letter can be found at <http://www.newsvhf.com/newsletter/2019/news1903.pdf>

April Meeting Pictures (ARRL and Awards Night)



Packrats 2019 Awards Presentation

- 1st Place - Single Op High – K1RZ – Dave Petke – 124,540
- 2nd Place - Single Op High – W3SZ – Roger Rehr – 79,856
- 1st Place – Single Op Low – N3RG – Ray Golley – 75,440
- 2nd Place – Single Op Low – WA3NUF – Phil Miguez – 49,632
- 1st Place Multi Op – N3NGE - Len Martin – 220,704
with K3EGE, KB2AYU, K9PW, NN3Q & WA3WUL
- 1ST Place Rover – W3ICC/R – Drex Drexler – 10,920
with W2PED – Paul Drexler
- Most Improved Station & Score from 2,106 to 7,884. Improvements
include the addition of new equipment & antennas for 222 MHz &
1296 MHz. - Bill Schaffer – WS3O
- Rover Recognition Award 2018 – Drex Drexler, W3ICC/R and
Paul Drexler, W2PED
- Mario Award - Warren Whelan - WB2ONA
- Special Recognition - Lenny Wintfeld - W2BVH

Home Brew Award

- High Power Solid State Amplifier - Vitaly Vasheka - KC3ACQ

Special Certificates Packrats Worked and Packrat QSO's

- Single Op-High WA3DRC 56 Worked 245 QSO's
- Single Op-Low WA3NUF 60 Worked 222 QSO's
- Rover W3ICC/R 44 Worked 182 QSO's with W2PED
- Multi-Op N3NGE 65 Worked 265 QSO's with K3EGE, KB2AYU, K9PW,
NN3Q & WA3WUL





ARRL The national association for
AMATEUR RADIO®
Advancing the art, science, and enjoyment of Amateur Radio

- ADVOCACY
- MEMBERSHIP
- PUBLIC SERVICE
- EDUCATION
- TECHNOLOGY

January 15, 2019

Mt. Airy VHF Radio Club
C/o James J Antonacci, WA3EHD
1427 Arline Ave
Roslyn, PA 19001-2303

Dear Jim,

Congratulations to the Mt. Airy VHF Radio Club for your fine efforts during the past year in these ARRL club competition events:

- 2018 ARRL January VHF Contest - where the PackRats earned top honors in the Unlimited Club Category
- 2018 ARRL June VHF Contest - where the PackRats earned top honors in the Medium Club Category
- 2017 ARRL September VHF Contest - where the PackRats earned top honors in the Medium Club Category
- 2018 222 MHz and Up Distance Contest - where the PackRats earned top honors in the Medium Club Category
- 2017 222 MHz and Up Distance Contest - where the PackRats earned top honors in the Medium Club Category

Well done!

As the President of the club, please accept the enclosed award gavel on behalf of the club's accomplishments.

Very 73,

Bart Jahnke, W9JJ
Contest Branch Manager
ARRL - The national association for Amateur Radio™

Cc: ARRL Atlantic Division Director Tom Abernethy, W3TOM

- | | | |
|---|---|--|
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AMERICAN RADIO RELAY LEAGUE, INC.—International Secretariat of the International Amateur Radio Union



The American Radio Relay League

awards this
Certificate of Merit
to

Mt Airy VHF Radio Club

in recognition of your outstanding
service to the Amateur Radio community
Promoting VHF/UHF activity and experimenting
in the Philadelphia area.



Thomas Abernethy - W3TOM
April 18, 2019

G. Miller W3GWM
George Miller W3GWM
Section Manager EPA

SuperConference Pictures

Pictures and Captions by **Doc W3GAD**



ON4IY, W3ICC 2019 ROVER AWARD RECEIPT & KA3WXV NOTE THAT DREX IS HOLDING 2 PLAQUES AS ONE IS FOR W2PED (HIS ROVING PARTNER)



GUESS WHO THE AUCTIONEER IS



PACKRATS - KA3FQS, K3GM, KA3WXV, K0BAK



W9JJ (BART JAHNKE), WA3QPX XLY JUDY, BARBARA (XLY OF TXB) K2TXB, N4NC (CONNIE) BACK OF HEAD IS CONNIE'S XYL



ANDREA, WAYNES PARTNER AND N6NB



PACKRATS N3RG, N3NGE, K1JT AND W2KV



JEROME K3GNC AND HIS XYL



WA1MBA (TOM WILLIAMS), K3TUF, K3JJZ



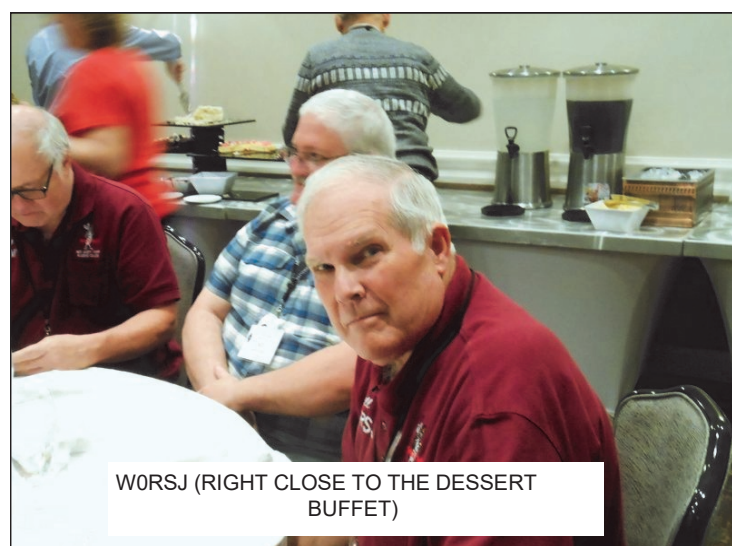
I MET THEM BUT CANNOT REMEMBER NAMES AND CALLS



K3TUF AND ON4Y BELGIUM
CHRISTOPHE HUYGENS



K3JJZ, KB1JEY, WA2OMY



W0RSJ (RIGHT CLOSE TO THE DESSERT
BUFFET)

A BAND DECODER FOR THE FT-857D

by Tom KA3FQS

A few years back I decided to get on 2304 and needed a 2 M IF radio for the purpose. At the time I was using a Yaesu FT-857D for PSK-31 on HF and decided to use the 2 m section of that radio as the IF for the 2304 transverter. The problem is that the FT-857D has only one PTT output, called TX GND, that is active for all of the bands. I needed a PTT line that would only be active for the 2 m band so I didn't key the 2304 transverter when I was working PSK31. Fortunately the LINEAR jack on the FT-857D provides all of the signals needed for a band decoder when Menu 020 is set to linear mode. These signals are four lines to indicate the band to which the radio is set, an open collector PTT line and even a 13.8 V output to power the decoder.

Table1 shows the coding used by the four band indicator lines.

TABLE 1

Radio Band	Band D	Band C	Band B	Band A
160 m	0	0	0	1
80 m	0	0	1	0
60 m	0	0	1	1
40 m	0	0	1	1
30 m	0	1	0	0
20 m	0	1	0	1
17 m	0	1	1	0
15 m	0	1	1	1
12 m	1	0	0	0
10 m	1	0	0	1
6 m	1	0	1	0
2 m	1	0	1	1
440 MHz	1	1	0	0

Three things that the table shows are a) that the bands follow a binary counting sequence, b) band 0 is not used, and c) that both 40 m and 60 m share the same code. Not shown in the table is the fact that the logic levels are 5 V CMOS logic compatible. This means that simple binary decoder ICs can be used to decode the band data. The decoder IC I chose is the Texas Instruments TPIC6259. This IC contains a 3 to 8 line decoder followed by eight D type latches that drive open drain power MOSFETs. All of these features combine to make this IC a very useful choice for this application. The 3 to 8 line decoder decodes the binary code from the radio, the D latches allow the TX GND signal from the radio to gate the outputs, and the power MOSFETs are ideal for driving external relays or other high current loads up to a maximum of 45 V and a maximum of 250 mA. Since there are more than eight bands to decode two of these IC decoders are required. The Band D signal from the radio is used to select which decoder is active. See the schematic, Figure 1.

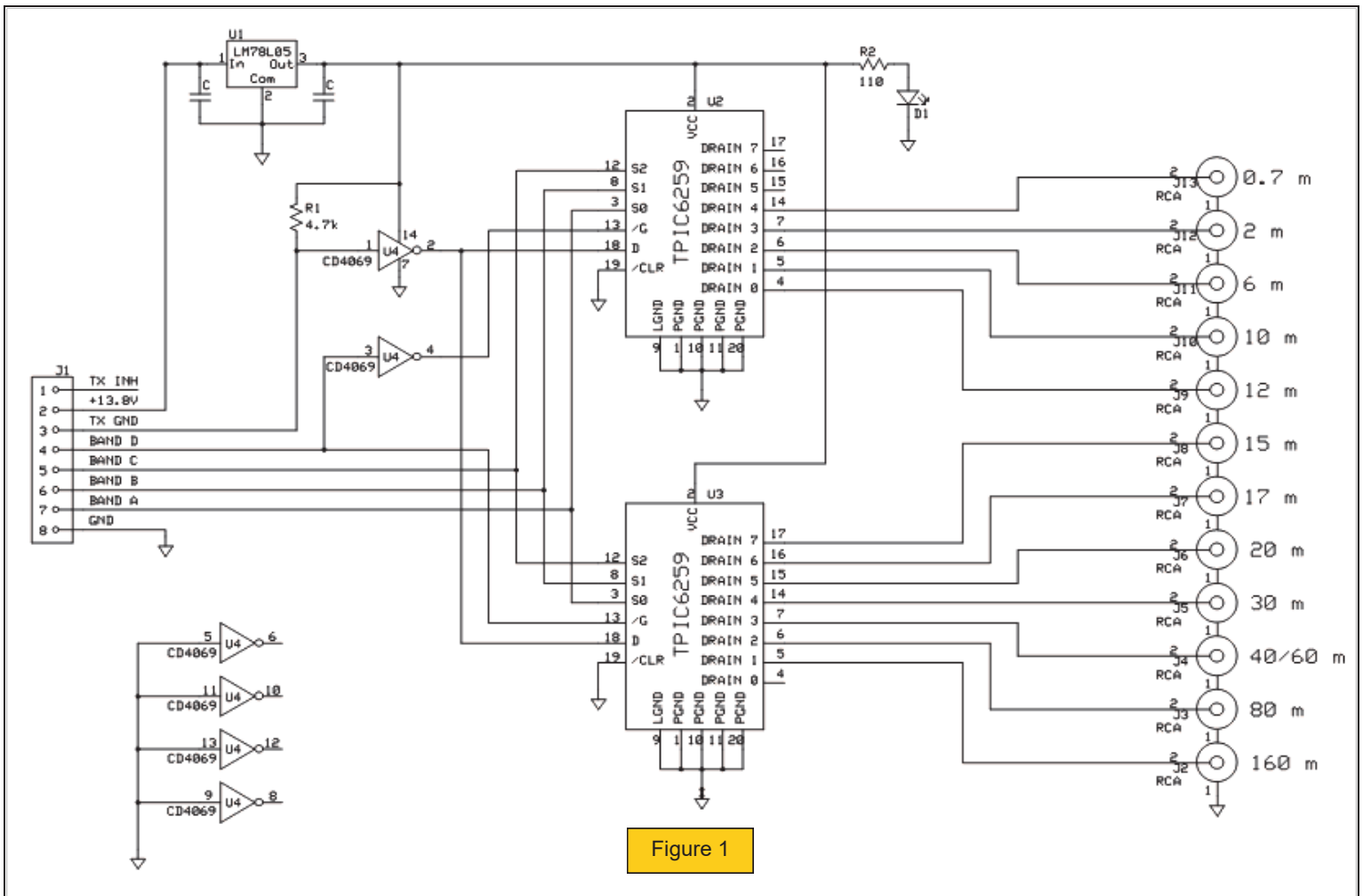


Figure 1

Connector J1 receives the signals from the Linear Jack on the FT-857D. The TX INH signal is not used for this project. The +13.8 V supply is regulated down to +5 V by U1 to power the logic IC's U2, U3, and U4. IC's U2 and U3 are the 3 to 8 line decoders.

Signals BAND A, BAND B, and BAND C from the radio are connected to the S0, S1, and S2 inputs on both decoder ICs. BAND D from the radio is connected directly to the active low enable input, /G, of U3 to decode the bands 160 m to 15 m. The BAND D signal is low for these bands. The BAND D signal is inverted by a section of U4 and connected to the /G input of U2 to decode bands 12 M to 70 cm. The BAND D signal is high for all of these bands so U3 is disabled and U2 is enabled. The TX GND from the radio is pulled up by R1 and is inverted by another section of U4. This signal is connected to the D input of both decoders. When the D input to the decoders is high the selected decoder output is active so the inverted TX GND signal enables the selected output to go low only when the radio is in transmit mode. If you only want a band decoder rather than band by band PTT signals you can eliminate U4. Tie the D input of U3 to +5 V tie the /G input of U3 to the BAND D signal, tie the D input of U2 to the BAND D signal, and tie the /G input of U2 to ground. With these modifications the selected band output will be active as long as the radio is set to that band. The TX GND signal can then be routed to a jack to control other accessories. Since the TX GND signal comes directly from the radio you must refer to the manufacturer's manual for the radio to determine the safe levels to voltage and current to apply to this pin.

The outputs of the TPIC6259 decoder ICs are open drain MOSFETs that provide a "contact closure" to ground when active. According to the data sheet they can handle a maximum of 45 VDC when in the off state and conduct a maximum of 250 mA to ground in the on state. If you are driving relays or some other inductive load it is always a good idea to put a flyback suppression diode across the coil. The TPIC6259 ICs do not have flyback suppression diodes built in like some other drivers do. The DRAIN1 through DRAIN7 outputs of U3 and the DRAIN0 through DRAIN4 outputs corresponding to the twelve band codes are connected to RCA jacks to drive the desired accessories.

LED D1 is a pilot light to indicate that power has been applied. R2 limits the current through the LED. Since this is a simple circuit and there are no controlled impedance signals I chose to build this project on old fashion perfboard using through hole packaged devices. The input cable was for some peripheral device for an Apple computer that happened to match the connector on the back of the FT-857. I cut one end off and wired it directly to the board. It would be a simple matter to layout a printed circuit board for the decoder.

The whole project is housed in an old Radio Shack project box as shown here in Figure 2.

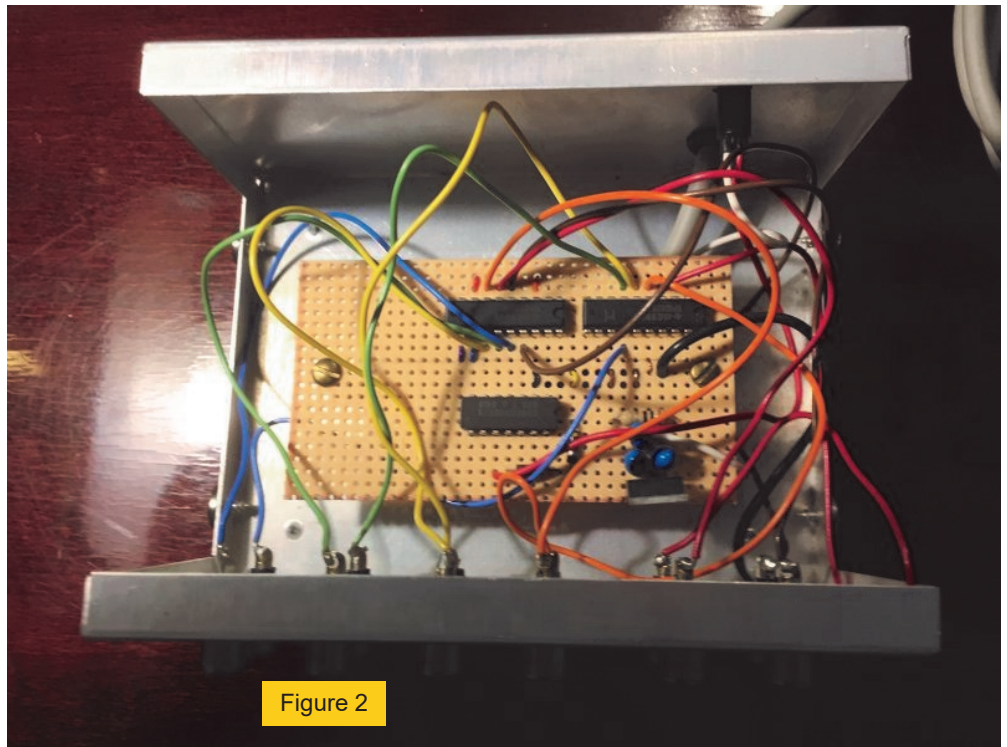


Figure 2

.... Decoder cont'd

I apologize for the messy wiring but that is not seen when the top of the enclosure is installed.

This decoder was designed to work with the FT-857 and may work with other radios but it will not work with the FT-817 or FT-818 as those radios use a different format for the BAND DATA signal. Check the user manual of your radio for details. This project has worked well for me in my station. It may be a good idea to put some RF bypassing on all of the lines going in and out of the box.

When building a project like this it is very easy to make mistakes. Some mistakes are benign and just result in the project not working as desired while other mistakes can damage your radio or other equipment. If you attempt to build a circuit like this you should make sure that you understand what you are doing and always check your work before connecting the circuit to other equipment. To paraphrase Smokey The Bear, only you can prevent damage to your equipment.

2019 Spring Sprint Results and Comments

2 Meters

From Lenny W2BVH

Being retired, it's usually a low-key environment at the W2BVH household, but it was busy last night. I got on for the Sprint around 7:30 and limited myself to 1hr since I hadn't even had dinner yet. An hour later I went downstairs, had dinner and watched some of the Yankee game. Around 9:15 I noticed an email from WB2ONA, that he'd be on 2M at 9:30. So ran upstairs and worked Warren along with N3RG and N2DXT/R at his second stop. Immediately went to 1296 for my regular Monday QSO with K1PXE and picked up AC2CZ in Brooklyn on 1296. He usually runs low power so it was good to hear him. Then back to the Yankee game (they lost on a misplayed ball late in the game).

So for the 2M Sprint I logged 24 Q's, 9 Grids, 216 points. It was fun, on a busy night!

From Tom KA3FQS

Lenny you should have watched the Phillies instead. Nice to work you last night. 30 Q's 10 grids.

From Ray N3RG

I was on phone and cw for a little over an hour and made 35 Qs in 18 grids. It was a good test of the antenna, etc. after being off the air for over a month. I didn't really listen for digital contacts because there was plenty of activity on phone and CW. Everything worked well and I heard lotsa Packrats! Thanks for the fun!

432 MHz

From Bill K1DY

Hi all, I had a fun time in the sprint.. Operated the first 90 minutes or so. I'm running a barefoot FT991A. 50 watts, no preamp, pretty deaf receiver, BUT managed 9 QSO's in 8 grids. Band condx were up and down, mostly down. Best DX was fellow Rat K3TUF in FN10 at 470 miles. I heard N2NT and W2KV both in FN20, both easy copy on CW but did not work either, QSB just took them away. It is clear to me that N1BUG (35 miles north of me) is hearing better than I am and being heard better so.. I am extra incentivized to get my KW amp and antenna mounted preamp going. Just need to find time hah hah.. Thanks to all who got on and to the sponsor, CSVHFS!

From Lenny W2BVH

I operated about 1 hour & had 12 Q's in 9 Grids. Conditions seemed kind of flat with some wicked QSB, though W2KV, N2NT and K1TEO ("the usual suspects") were very strong. Had 3 consecutive Q's from the Bronx (I think 2 of them were using verticals!). Hope you did well.

From Andrea K2EZ

I was in the area for the sprint and had a good time. I operated from four grids, started at the FN21qa/FN20qx, got over to FN30 and FN31. 40 Qs and 25 mults for an even 1,000 points

The Story of the September 2017 Gavel, and Why Every Log Counts

by Ken **K2WB**

First of all, thank you for operating in the September 2017 VHF contest and sending in your log. Everyone should feel good for participating.

The packrats received another gavel for the September VHF Contest. It was the 3rd one in the last 10 years. Another one should be coming for the 2018 September VHF Contest. This is something we all should take pride in as a radio club. Gavels do not come easy.

What is the gavel all about? It tells the world that our club has members who support their radio club by listing the Mount Airy VHF club as their club, whenever a log is submitted to the contest sponsoring group. For this contest the sponsor is the ARRL.

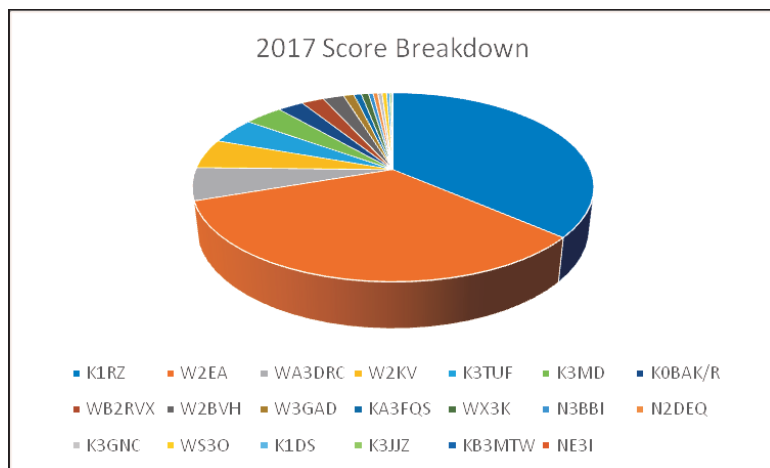
The W2EA log was not the only log submitted that year. Seventeen other logs were also submitted. The W2EA log represented only 15.9% of the score that year. They were only outdone by the N3NGE operation and K3TUF, who together represent 46.6% of the score. The 2011 club aggregated score was the 3rd highest since 2002.

The bottom line is that it requires a lot of logs to get the gavel. Not just one or two with a high scores. While gathering data for this article, I found that since 2002, the top 2 logs in the club produced an average of 55% of the club score, rising slightly to 58% in the last 10 years. **Every log counts** regardless of your score.

Since 2002 the members of the Packrats usually submitted 17 logs peaking at 25 in 2005. This only represents 25% of the membership. If more members get on the air, the score can only rise. If we work each other all of the scores will increase. The same principal will apply to the January VHF contest.

For the 2017 Gavel, the club only won it by 49,405 points.

Anyone can see it is not just the big guns that count. That number would be the sum of all logs submitted under 13,000 points. That is why it is important to submit a log with Packrats regardless on how low the score.



Packrats 2017 Aggregate Breakdown			
Club Rank	% Score	Call	Score
1	36.36%	K1RZ	202,230
2	33.39%	W2EA	185,691
3	5.61%	WA3DRC	31,208
4	5.04%	W2KV	28,060
5	4.49%	K3TUF	24,964
6	3.67%	K3MD	20,412
7	2.49%	K0BAK/R	13,872
8	2.14%	WB2RVX	11,913
9	2.03%	W2BVH	11,310
10	1.00%	W3GAD	5,577
11	0.71%	KA3FQS	3,937
12	0.70%	WX3K	3,885
13	0.45%	N3BBI	2,494
14	0.44%	N2DEQ	2,424
15	0.43%	K3GNC	2,400
16	0.42%	WS30	2,349
17	0.31%	K1DS	1,700
18	0.17%	K3JJZ	969
19	0.10%	KB3MTW	583
20	0.04%	NE3I	224
Total			556,202



2017 South Jersey Mountain Toppers (W2EA) who were present at the April Meeting.

Left – Right: Al KB3SIG, Ted N8MP, Joe KC2TN, Michael KB1JEY, Ken K2WB, and George KA3WXV

You can see why it is important to send in your logs and support your club. The Packrats focus on the club score mostly in January. In June the gang goes to the mountain as W3CCX and another gang goes to a different mountain in September to operate as W2EA. Look for us. All operations need contacts and the club needs your log! **Everyone one of them counts.**

We all win!

73's Ken K2WB

Solar Cycle 25

NOAA is predicting another below average Cycle. See <https://www.weather.gov/news/190504-sun-activity-in-solar-cycle>

George NE2U

Luck. I am a great believer in luck, and I find the harder I work the more I have of it. [Thomas Jefferson]

As quoted in the April issue of "Anomalous Propagation", newsletter of the Mid-West VHF/UHF Society

Batteries and the Airlines

by Tom AF4NC

I travel frequently to QRP/Hiking places around the world. To date I have completed the Appalachian Trail, the John Muir Trail and 11 peaks over 14,000 feet in Colorado. I use a Elecraft KX-1 or the KX-3 with a simple MFJ vertical antenna and of course my 7 amp/hr battery. To carry the gear I use a Tamrac Expedition 10 camera backpack. It has enough padding and pockets plus I have external holders for two water bottles. There is plenty of room for my accessories including the small antenna tuner and my Begali key.

Some amateurs have even resorted to just buying a new battery at the destination rather than dealing with the hassle of carrying a battery. To me, using a bunch of AAA or AA batteries is just a waste if you are out for a few days.

I am always asked just what can you carry on a plane in the way of batteries. Being a pilot I have done some research and found out that non-spillable wet batteries (absorbed electrolyte) are permissible, Voltages up to 12 volts and 100 watt hours can be carried. Those battery types include gel cells, AGM, ETC. Batteries must be in a strong outer case and terminals protected from shorting out with non-conductive caps, tape and etc.. These 7 amp/hr batteries can be carried in carry on or checked baggage.

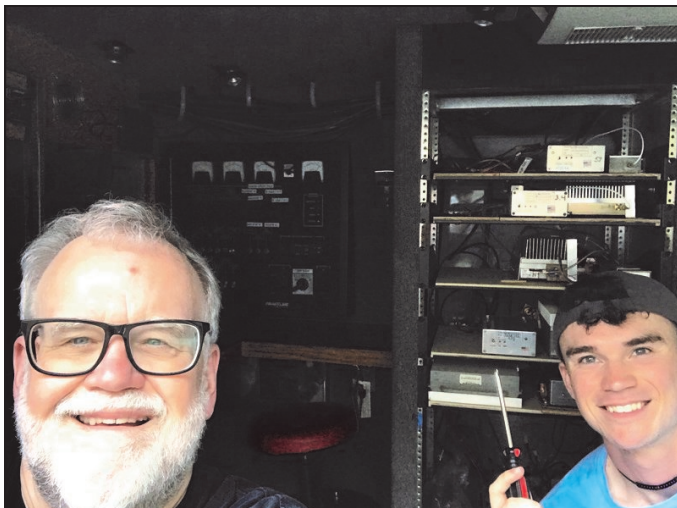
You are limited to two batteries. The way that watt hours are calculated is 12 volts times the rated amp hour (7 amp hr) of the battery. That gives us 84 watts so it's permissible.

Look at the web site https://www.faa.gov/about/office_org/headquarters_offices/ash/ash_programs/hazmat/passenger_info/media/Airline_passengers_and_batteries.pdf. it lists other types of batteries as well. While this is the federal rule, the airlines can impose a stricter rule. I have not had any problems with US air carriers. But check with them before leaving home. When traveling on foreign air carriers check them directly, but from what I have heard there are no problems.

[This of course applies to batteries used for any purpose, including powering HT's and VHF/UHF rigs. --Ed.]

I activated 7 POTA parks from 4 locations in Washington DC before the Superconference started. Here's a picture of me with a pedestrian portable activation on Columbia Island at the Merchant Marine Memorial on Thursday afternoon

73, --Pete K0BAK



My boy helped me install microwave shelves into the TV van, so I can demonstrate *some* progress at the Superconference. Luckily he's strong because these shelves are pretty heavy and hard to hold up in the tight space.

73, --Pete K0BAK

MUD 2019

The North Texas Microwave Society would like to invite you to the annual Microwave Update Conference to be held October 3rd through the 5th 2019 at the Hilton Garden Inn and Conference Center in Lewisville (Dallas) Texas.

Microwave Update is the premier microwave conference of the year. This is the ideal conference to meet fellow microwave enthusiasts and share ideas and techniques that will help you conquer your next microwave band.

We have a full slate of speakers already set up including Rex VK7MO, Tony Emanuele K8ZR, Rick Fogle WA5TNY, Paul Wade W1GHZ, Joe Jurecka N5PYK, Doug Miller K6JEY, Greg McIntire AA5C, Steve Kostro N2CEI, Kent Britain WA5VJB, Bob Stricklin N5BRG, Barry Malowanchuk VE4MA, Tom Williams WA1MBA, Tom Apel K5TRA, Tom McDermott N5EG and Al Ward W5LUA. If you are interested in speaking, please let us know.

Topics will include small dish EME, microwave propagation, parabolic dish feedhorn design and construction, SSPAs, circuit design, latest microwave devices, software defined radios and digital modes just to name a few.

We plan to have an informal program for the spouses which will include local shopping and sightseeing in the Lewisville, Grapevine and greater DFW area on both Friday and Saturday.

Our Saturday night banquet speaker will feature Rex VK7MO who has activated over 100 grid squares on 10 GHz EME in both Australia and New Zealand. Rex will show us some of the beautiful places he has visited and talk about his adventures to some of the more remote places down under. This should be a real treat for hams and spouses.

Kent Britain WA5VJB will coordinate the publishing of the proceedings by the ARRL. We are always looking for additional papers for the proceedings. You don't have to be a presenter to have your paper published in the proceedings. If you have an article on your latest microwave related project that you would like published, please send your article to Kent WA5VJB at wa5vjb@flash.net

Hotel registration is being setup. The hotel link will be available shortly. The main web site is up now at www.microwaveupdate.org

5 Band VUCC Award?

[Sent to the Packrats by Sean WA1TE]

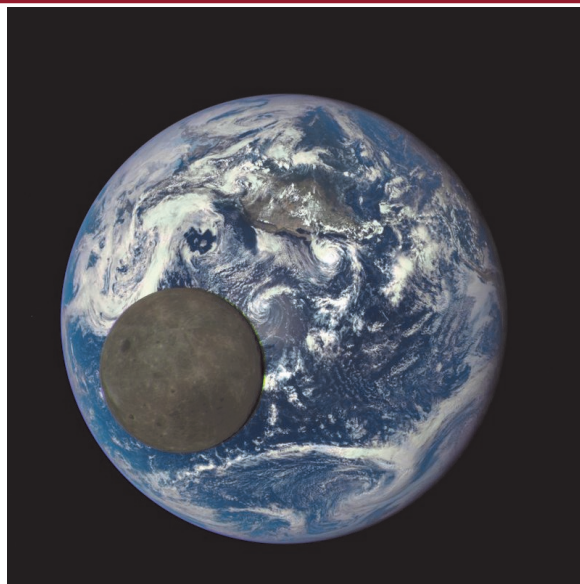
In an effort to stimulate activity on VHF/UHF/ Microwave bands (beyond 70 CM). I'd like to suggest the creation of a Five Band VUCC (5B VUCC) award that would closely mirror the 5 Band DXCC Award.

Successful applicants would need to achieve VUCC status on five or more of the VHF/UHF+ bands to be eligible for the larger award. A special certificate and pin could be created to honor recipients.

My feeling is that this award would encourage greater activity on the VHF/UHF+ bands, especially on bands that have less use like 222, 1296, and higher microwave bands. This increased activity encourages the sale of more gear, helps protect our spectrum from commercial interests, and advances the state of the radio art.

Please let me know if you think this idea has any merit, or what I could do to help support the creation of the new award. As always, grateful for your service to the hobby.

73,
Les Rayburn, N1LF



This image shows the far side of the moon, illuminated by the sun, as it crosses between the DSCOVR spacecraft's camera / telescope, and the Earth – one million miles away: NASA/NOAA . See <https://sservi.nasa.gov/articles/video-from-a-million-miles-away-nasa-camera-shows-moon-crossing-face-of-earth/> for bigger pic & more info.

--W2BVH

Spring Sprint Mode Observations at W2SJ

-Or-

Why the use of the FT8 Mode does not mean “The End of VHF+ Contesting”

I decided to take a look at my results operating the Spring VHF Sprints this year and what effect the use of FT8 during contests adds or detracts from the enjoyment of these short 4 hour events. From my standpoint not having the tallest tower, longest antennas, or lots of power usually limits the number of QSO's and Grids I can make. Therefore I wondered how the best use of modes available, in my case SSB, CW, and Digital, would affect the outcome of QSO's logged in new grids?

First the numbers:

144 MHz: 46 Q's x 14 Grids=644 Score
(30 Q's SSB, 1 Q and 1 Grid CW, 15 Q's and 6 Grids FT8)

222 MHz: 24 Q's x 11 Grids=264 Score
(16 Q's SSB, 4Q's and 4 Grids CW, 4Q's and 3 Grids FT8

432 MHz: 27 Q's x 12 Grids=324 Score
(15 Q's SSB, 6 Q's and 4 Grids CW, 6Q's and 2 Grids FT8)

Dave, K1RZ and I originally tested the idea of possibly using the FT8 mode on frequencies above 6 meters just before just before the January VHF Contest. We wanted to see if our transceivers were stable enough to decode FT8 signals as we kept moving up in frequency. We lowered our power to no more than 10 to 15 watts. Sure enough we were able to make contacts with no decoding problems up through 432!

So my strategy for the 144 through 432 Sprints was to use SSB first. When that died down, switch to CW looking for new grids & then to FT8. My final strategy was to use assistance and go directly to the ON4KST and the Pack Rats Chat pages.

144 was busy enough that I never got to the Chat Pages in the 3.5 hours I operated! SSB activity seemed to stop after the first hour. CW gave me KA2LIM in FN12 and new grids on FT8 were provided by N9AGC-EN91, NO3I-EN90, KB1JDX-FN41, N2LEE-FM18, N3MK-FM27, & N8LRG-EN80!

222 was similar to 144 in that after the 1st hour SSB died down. Went searching for new grids on CW and picked up K3MD-FN10. Went to FT8 picking up K1OR-FN42, K1RZ-FM19, & KR1ST-FN21. Back to CW and heard N2SLN calling CQ for at least 10 minutes with no answers after I worked him in rare grid FN22! Went to ON4KST chat and worked VE3ZV-EN92 & VE3DS-FN03 both on CW.

432 was very similar to the results above switching from SSB to looking for grids on CW. I quickly logged KJ1K-FN32 & KA2LIM-FN12. FT8 provided K1OR-FN42 & to my surprise K1HC-FN53 in Maine! ON4KST assisted me to put WA3EOQ-FM09 & VE3ZV-EN92 into the log.

So my conclusions from all of the above as expressed to Bill, AA2UK via email are:

“Had a great time in the Sprints. Started on SSB then did some CW. Just like 2M after an hour many were gone. Checked FT8 and there they were! Worked 5 or 6 and then back to SSB. Tried FT8 again, same guys, but tuning around found N2SLN on 222.135 endlessly calling CQ on CW @ S9 and no one answering him from FN22! So I had a blast using **all the tools** in my toolbox wisely: SSB, CW, FT8, ON4KST, and other assistance. Regardless of what the naysayers talk about, FT8 is here to stay and we should all embrace it's features along with the just introduced FT4 mode. These new modes will only enhance contesting if used wisely with all our other tools”.

Bob W3GXB, SK

I learned that Bob Fox W3GXB passed away the morning of 29 March 2019. As many of you will remember Bob had a variety of health issues recently. It was a real pleasure to see him at a recent PACKRATS meeting in December. He will be missed. RIP.

DOC **W3GAD** PACKRATS VP

How very sad. Bob joined the club on January 17, 1957 (62 years ago, probably just in time for the January contest!) before the end of the first year of the formation of the Packrats (5/15/1956 in case you've forgotten your history). Two years before I did. I remember getting the chassis of an RCA taxicab rig from him, to serve as the start of my net control station on 432. He moved to FL in 1969 and dropped out of the club for a few years. But he rejoined as soon as he returned to our area. For many years, his barn served as the repository for the Club's "June hardware collection." He was the net control station on the Packrat repeater net for a number of years.

He will be missed.

Bert, **K3IUU**

Sorry to hear that, I remember trips up to the farm to sort June contest hardware. He was active on the air and at meetings for a long time.

Gary **WA2OMY**

Bob Fox. What a truly sad note. I remember Bob from the first Packrat outing in the late 1950's in Lahaska Pa. I think we had Gonset Communicators on 6 and 2 and my home brew 220 station. Bob was always a great club member and helped a lot through the years. His Haycock farm was a nice retirement operation and he was net control of the 220 repeater for very many years. He will certainly be missed.

Bob rest in peace.

Walt **K3BPP**

Bob was a fascinating guy. I was always thinking about how he enjoyed having a little farm with his antique tractor that helped pull our vehicles out of the mud when they were stuck while picking up our June mountain gear. The geese would squawk as we approached as a live alarm system. He lovingly collected their eggs and sold them. Who has ever enjoyed a cooked goose

egg? He was especially kind to me when I needed a place to store my newly acquired EME dish and EME Yagis. The dish petals were kept in his barn and the Yagis lived outside until I could find time to put them on the air. I lent him a 6m brick amp so that he could be more effective in the January contest. He always reminded me that he was using it and would return it after use (he did). Most of all he was a very diligent patient as he had a lot of medical needs that he attended to without a complaint. It was also great that he was able to celebrate his 80th birthday with all of us a few years back at Giuseppe's. When I was able, I enjoyed checking into the 222MHz repeater net that he ran on Monday eves. RIP.

Rick **K1DS**

Very sad to hear of the passing of W3GXB. Moved "The Stuff" from Tabernacle in 1991. Always hitting my head on THAT %#@& BEAM!

Or when WA3NUF got the Ryder truck, STUCK!

And Bob on the mountain, back when.

RIP old Friend!

Al, **N3ITT**

Hi Dave,

Please let everyone know that we received the gift basket from Wolfermans on behalf of Packrats. As my brother noted, W3GXB was who he was. More than anything else he was proudest of being a member of the Packrats. My brother and I both have memories from the 1960's of gatherings where we'd do the Easter egg hunt with ham radios at some Packrats gathering or another. It really meant a lot to him to get to the Packrats meeting in December, even though he was pretty worn out at the time. It also meant a lot to me personally that I was able to get him there while he could enjoy it.

He always cheered up whenever you stopped by, and he'd talk about you all the time. I want to extend a personal thanks to you specifically for the times you called and stopped by. They made his situation more bearable to him. And, by extension myself and my family.

73s Ken KC3IXL & Cindy KC3IXM.

"We plan to hold a memorial service for him later in the year (June) because he donated his body to the Humanity Gift Registry like his late wife Ruth did in 2009."

Ken Fox, KC3IXL can be reached at: kenfox@starlinx.com

Some advice from N1JEZ on the PLUTO SDR

Howdy all,

I highly recommend downloading Simon Brown's SDRConsole v3 software to run the Pluto. He should be releasing v 3.0.7 any day now.

Several issues we're seeing:

1.) Analog Devices USB Driver issue. This manifests itself as "bursting" or "cutting out" on TX. This is not happening to everyone or on every machine. The interim solution is to use the lowest BW setting you can in setting up the Pluto.

2.) Frequency stability is not great. Several of us have replaced the 40 MHz TCXO on the board, along with adding heat sinks to the FPGA and RF Chip. This has helped RX tremendously, but we're seeing drift in TX related to drive power, so more work to do there. Paul, W1GHZ is going to assemble one of his VCXO locking boards and inject that. Stay tuned.

Sigi, DG9BFC has done a lot of work stabilizing the TCXO. The TCXO's we've played with are Abracon: ASVTX-13-C-40.000MHz-I05-T (that is the one with tuning pin so you can pull it to 40.000000) or ASTX-13-C-40.000MHz-I05-T (If you can live with a small error and do not want to add the tuning pot).

I went with the non-tunable version. Cost is under \$5. Here's a shot through the microscope of the replacement TCXO. It's small, but not overly so... For size comparison, C122 is an 0201 part.

<https://drive.google.com/file/d/13u75i3EbYNhfWY-c7rbNfNVa733CqUXb/view?usp=sharing>

SDRConsole now provides a nice TX/RX solution for external switching. Simon has setup "USB HID" relay control. You can get these boards 1/2/4/8 relays on eBay. Simon's interface allows setup with configurable delay timing (sequencing).

Mike N1JEZ

HERMES - LITE (Out-of Stock)

Roger, W3SZ sent the following to the Packrat reflector on 4/18. The Hermes-Lite SDR is currently out of stock, but I think it's worth letting you know about its existence, since it's an interesting subsystem, is relatively inexpensive and these boards have been issued several times. So there's at least a possibility that more may be available in the future. --W2BVH

Here's the email:

If you are interested, you may be able to get in under the wire and order one of these.

I just ordered today 4-18.

The build was supposed to close 4/1, but it appears that it may still be open...at least they were willing to take my \$\$ today. Even if it is closed, it may be of interest as there may well be future builds as well.

https://www.makefab.com/index.php?route=product/product&product_id=614&search=hermes

https://www.makefab.com/index.php?route=product/product&product_id=615&search=hermes

<https://github.com/softerhardware/Hermes-Lite2/wiki/Hermes-Lite-Test>

<https://groups.google.com/forum/#!forum/hermes-lite>

<https://groups.google.com/forum/#!topic/hermes-lite/Ff3d9L2qm2o>

73, Roger W3SZ

Jerome's unicycle and my folding bicycle are similar in size.

Here we prepare to make use of a 1.5 hour break in SuperConference proceedings Saturday to get some fresh air; Jerome by riding round trip to Reston on the Washington and Old Dominion Trail. I visited one of three Brew Pubs within 2 miles of Convention. As we rode back to the Conference together (1 mile), many a passing car had passenger widows with wide eyes and slack jaws pressed against them.

Jim **KC3BVL**



Central States VHF Conference

Organizing for the 2019 Central States VHF Conference, July 25-28, 2019 in Lincoln NE, is in its preliminary phase. The web page for the conference is at <http://2019.csvhfs.org/>. Additional details will be forthcoming as the year progresses.

The Wayback Machine In CHEESE BITS, 50 Years Ago

Nibbles from May 1969. Vol. XII Nr. 5
de Bert, K3IUUV
(*author's comments in italics*)

“Our Prez Sez”. Now back on pg 1, the Prez, Charlie, K3HSS noted that the ARRL speaker for the next meeting will be Ed Tilton, W1HDQ. Ed was known as “Mr. VHF,” and was a recognized leader in the VHF / UHF community. He was a frequent visitor to the club, and wrote the VHF column in QST for many years. (*In my shack I have a copy of his technical talks, on an audio tape on a 7” reel. Who can transfer it to a CD?*) Charlie also noted the next meeting would include nominations for officers, and identified the committee which included Mario, K3UJD, and myself, K3IUUV!

ARRL Bulletin 213, 3/20/69. The FCC issued a notice that Thailand will now permit its amateurs to contact US operators stationed in Thailand who are using their US calls (with /HS suffix). Contacts to other US stations remain prohibited (*getting our foot in the door?*) Similar arrangements have been made with Indonesia.

Editor's Comments. The editor EI, K3JJZ noted that the April issue “was our first with the new machine.” (*The club's new Multilith printing machine.*) This month's issue showed significant formatting improvements, but he commented “we have a lot to learn.” He concluded with “we welcome articles.” (*50 years ago, and sounds like Lenny's broken*

record!) (One day this will change. Hope springs eternal ;-)--Lenny)

Another Old Grouch Rebuttal. Another anonymous member chose to rebut the complaints voiced by the Grouch. He took a full page, but in my view “blew a lot of smoke.” You can read the details in the website copy, but I won't air them here.

The Old Grouch Returns. The Grouch was back. He noted that “the club is going to crack down on the deadwood that's not paying their dues.” He said “about time.” He also noted that “The nominating committee will have a tough time. Everyone wants to be a Director, but nobody wants a working job!” (*Was he right then? Now?*)

“From the Book Rack.” This month, the book review net, conducted by member Paul Behrman, K3WEU reviewed the “Transistor and Diode Laboratory Course” written by Harry Stockman. \$3.95 paperback, 128 pages. (*Remember the days when things were cheap!*) The book featured a number of experiments and tutorials designed to improve the students understanding of these devices. It included details on many of the standard “circuit building blocks.” The review was very favorable.

Technical Stuff. Two circuit diagrams (*schematics!*) were supplied by Jack, K3GQJ. The first was for a Hybrid Phone Patch, patterned after the Heathkit design. (*If you're too young to know what a phone patch was, it enabled Hams to facilitate voice traffic by connecting a phone to their Transmitter and Receiver.*) The second showed the details of the

“F57948 Voice Coupler” which was supplied by the phone company to provide an interface between customer equipment (*like us Hams*) and the phone line (*twisted pair*). 50 years ago the phone company (Ma Bell) was very protective of its equipment, and frowned on the connection of any “foreign” devices to its networks. Their coupler included transformer isolation, and signal voltage limiting diodes. (*They would probably shudder at what we do with the phone lines now!*).

Technical tidbits. Ed, W3HKZ, provided some early information on a new type of amplifier. The article was intended for the APRIL issue, but didn't get to the editor in time. The amplifier is known as a “phonon amplifier,” and uses acoustic waves to amplify radio signals. It was specifically developed for use in home entertainment and military equipment. Currently under evaluation at General Telephone Labs, it uses the piezoelectric effect of a small ceramic plate bonded to a slice of silicon. Audio signals at one end of the plate are changed into acoustic waves, and amplified by voltage injected through the silicon. (*Ed expected to demonstrate some samples at an upcoming meeting.*)

Swap Shoppe. By W3ZRR. (*Always nostalgia.*) For sale by Bob Welsh (no call), a Heath SB-110A 6M SSB transceiver with accessories, including a 6-element Cushcraft Yagi. Also a Johnson “Challenger” and a National “HRO-5” (with coils!) (*Young fellows probably don't remember these names and models.*) And by Doc, K3GAS, an Eico classic 2510 FM stereo for \$30,

and a Zenith (*remember them*) portable TV and stand for \$25.

Meeting Notice. Next general meeting will be “Ed Tilton (W1HDQ) night,” and will also include the WA5LVT repeater story (*one of the early Ham repeaters.*)

Did you know? Tidbits about the club and members: 1. K3JJZ, EI, is now operating 220 mobile. So far, worked 7 different stations. 2. Mario, K3UJD is planning another antenna measuring party at his QTH in Ivyland. 3. The Packrats now own a generator, which is being stored at the QTH of Ernie, W3KKN. (*Where is it now? Did we leave it in Ernie's garage?*)

Miscellany. *Postage for this copy (It was from Harry, W3CL) was a single 6-cent Roosevelt stamp. (6 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 the above items, visit our website (www.W3CCX.COM) and read the full issue scanned by K3IUV (me), and posted on the website by WS3O, our webmaster. Remember, 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.*



.... Wayback cont'd

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

thirty, de **K3IUUV** (K3IUUV@ARRL.net)

Video of FT4 talk by Joe Taylor K1JT

On March 15, Joe Taylor K1JT gave a talk on the new digital mode FT4 to the Fair Lawn amateur radio club: "Soon after the "FT8 Roundup" held on December 1-2, 2018, we started serious work on a faster, more contest-friendly digital mode that can compete with RTTY-contesting QSO rates while preserving many of the benefits of FT8. Details and a video at <http://www.southgatearc.org/news/2019/april/video-of-ft4-talk-by-joe-taylor-k1jt.htm#.XNDGDo5KIF7>

Includes a brief description of Joe's Nobel Prize research near the end.

Tnx K1DS for the reference & link.

Aussie 76 GHz Cubesat Set to Go

Brian WA1ZMS provided the following link to a description of a soon-to-be-launched cubesat satellite on the Microwave reflector:

<http://forums.qrz.com/index.php?threads/australian-cubesat-to-use-76-ghz.654156/>

Calling CQ on 2 Meter FM

An interesting editorial proposing calling CQ on 2 Meter FM and replies to the proposal can be found at <https://www.amateurradio.com/go-ahead-and-call-cq-on-2m-fm/>. Interesting discussion and food for thought.

--W2BVH

PCB Microwave Antenna Source

Joe W2JEJ sent a URL for a variety of PCB microwave antennas sold at the Chinese bargain site "Aliexpress". Look and see what you think. <https://t.co/7X0ljzHEUQ>

Events

For inclusion, please direct event notices to the editor.

6M Sprint - Contest - May 11-12, 2019, 2300Z - 0300Z. See <https://sites.google.com/site/springvhfupsprints/home/2019-information> for details.

June VHF Contest - Contest - June 8-10, 2019. Details to follow.

Murgas ARC Hamfest & Computerfest - Hamfest - July 7, 2019. Plains PA. See <http://hamfest.murgasarc.org/> for details.

Sussex County (NJ) ARC Hamfest - Hamfest - July 14, 2019. Augusta NJ. See <http://www.scarcnj.org/> for details.

CQ WW VHF - Contest - July 20-21, 2019. See <https://www.cqww-vhf.com/> for details.

222 and Up Distance - Contest - August 3-4, 2019. See <http://www.arrl.org/222-mhz-and-up-distance-contest> for details.

10 GHz and Up Round 1 - Contest - August 17 - 18, 2019. See <http://www.arrl.org/10-ghz-up> for details.

September VHF - Contest - September 14 - 16, 2019. See <http://www.arrl.org/september-vhf> for details.

10 GHz and Up Round 2 - Contest - September 21 - 22, 2019. See <http://www.arrl.org/10-ghz-up> for details.

EME 2.3 GHz and Up - Contest - September 21 - 22, 2019. See <http://www.arrl.org/eme-contest> for details.

EME 50 to 1296 MHz Round 1 - Contest - October 19 - 20, 2019. See <http://www.arrl.org/eme-contest> for details.

EME 50 to 1296 MHz Round 2 - Contest - November 16 - 17, 2019. See <http://www.arrl.org/eme-contest> for details.

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Four SDR receivers on a Board for \$130

Crowdfunding site Indiegogo has an SDR receiver on offer for \$130. All four channels are fed from a single clock making it useful as a RDF receiver (e.g. using phase measurement to determine the azimuth of the signal). It's also claimed to be good as a passive radar receiver, by measuring the arrival time of a direct signal and the reflection of the signal off an object at a known distance(?). Sounds interesting.

--W2BVH

How Loud Was the Big Bang?

The YouTube video at <https://www.youtube.com/watch?v=KYr6Yjol3xM> (about 12 minutes long) has Prof Phil Moriarty (U of Nottingham) describing how loud the sound of the Big Bang was. Hint: Loud but not as loud as you might think. Check it out!

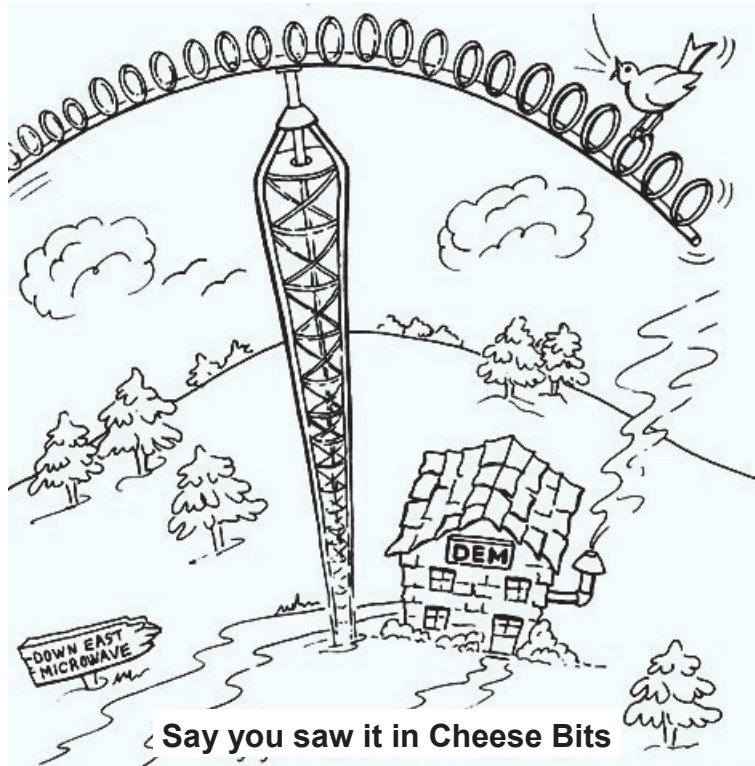
--W2BVH

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