



CHEESE BITS

W3CCX
CLUB MEMORIAL CALL

ARRL
Affiliated
Club



Volume LIX

January 2018

Number 1

PREZ

SEZ:

Well it's here! 2018. Too bad the sub freezing temperatures are also here. My 6 year old car battery finally said enough last week.

I hope everyone enjoyed the Holidays. After visiting with family and friends I know I've picked up a few pounds. Might be a good time to get back to regularly visiting the gym again. Then maybe not, that was too many years ago! I think I'll rationalize not going back by claiming I still have work to do on my station in preparation for the contest. The weather outside doesn't look promising so the good news is all work will take place on equipment inside the shack! I still need to set up FT8 and see if I can increase my grid square count. If you made recent changes to your station or added something new, get on the Packrat nets.

Our January general meeting is less than 48 hours prior to the start of the January contest. Again, the contest starts January 20th, Saturday afternoon 2pm local time. The general meeting will feature a pre contest program by our Contest Chairs Bob, W2SJ and Bill, K3EGE. Ben, WA3RLT will round out the evening with a supplemental analysis to help us all improve our scores.

The Contest Wrap Up meeting will be held the following Saturday January 27 at the QTH of Bob, W2SJ. I believe start time is 10 am. Bob will have more details at the January general meeting.

The February general meeting will be our annual Crying Towel meeting. If this cold snap continues I'm sure we'll have some tales of woe. By the way there must be a special place in Ham Heaven for Rovers that brave the winter weather in these parts.

The March general meeting will be Homebrew night. This is a great opportunity to bring (part of ?) your latest version of station automation. Hopefully any of your projects you bring will help feed the imagination of fellow Packrats and improve other stations too. But projects don't have to be big or complicated. Sometimes it's the little things or a different way of looking at things that can make operating easier and lead to higher scores in the next contest.

The second part of the March meeting will be by Gary, WA2OMY and Michael, KB1JEY. They will have a well stocked table of test equipment. I'm sure Michael will bring some of his inexpensive Chinese test equipment also, offering the opportunity to see how close some of this new stuff can or cannot meet the needs on your test bench.

The May general meeting is the same week as Dayton. More on this meeting later in the year. Dayton saw many changes last year with the move to the Greene County Fairgrounds and Expo Center. If you're planning to go, now is the time to make reservations for lodging. I personally enjoyed last year's Hamvention. This year we'll try to get several flea market spots together. Last year this was not possible.

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

222.98/224.58 MHz (PL 136.5) Hilltown, PA

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PACKRAT BEACONS - W3CCX/B

FM29jw Philadelphia, PA
50.080 144.300 222.062 432.290 903.072 1296.264 **2304.043**
3456.200 **5760.195** 10,368.034 MHz (as of 1/17, red = off the air)

MONDAY / TUESDAY NIGHT NETS

VHF/UHF Monday:

<u>TIME</u>	<u>FREQUENCY</u>	<u>NET CONTROL</u>
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

Hopefully the Dayton organizers will make the process easier.

June of course is the June contest. W3CCX will be operating from Camelback again. Many of us are going up Friday June 8th for setup. The contest itself starts on Saturday



at 2pm local time. Preliminary reports sound great. If you can't make the entire weekend consider coming up for a day. We'll have a signup sheet soon so if you come up you'll be guaranteed operating time. **If you plan to come up for an hour or two consider bringing up a son or daughter or maybe a friend from work.** You have to admit, seeing 5 towers with at least 10 antennas and operating vehicles on top of the mountain is an impressive sight. How better to entice possible new Hams.

And last, if you find a new and interesting piece of test equipment, or a retired commercial RF amplifier on Ebay, let your fellow Packrats know about it. Has anyone seen or purchased the new **MiniVNA Tiny Plus?** Some interesting specs and extremely portable.

Bottom line, have some fun, learn more.

Build something

73, George KA3WXV

DECEMBER MEETING PICTURES





Presentation of 50-years-of-membership clocks



Tnx K3JJZ for Pix!

On The Bands

By Jerome Byrd – K3GNC

Tropo Scatterings:

Station Capability: In making long distance contacts in the vhf-microwave bands most of us, in one situation or another, have depended on the “other” station to do the heavy lifting. This leads many of us to have an incorrect assessment of our station’s true capabilities. The **January Contest is the reality check** for us all. Who can we work that has a station similar to ours? This is the definitive measurement of our station’s true capability. In non-contest situations using **ON4KST** chatroom, N1GC and I worked 75-80% of the time with him running 300w to an KLM 16xx, and me with 2 x 8 el and 300w. The contacts were cw or course and 339 – 429 in strength. With me raising my power to 800w, we now work 98% of the time with 429 -519 signals from him and 519 – 529 signals from me. My extra power allows him to better tweak his beam on me, helping both our signals. The path is 430 miles and we are successful summer, fall, winter, spring. Using the ON4KST chatroom I also work K8TQK every morning, that I am on, with stronger signals, often ssb quality over a 430 mile path. He has a bigger station than Gary or I. The zinger is I usually don’t work either of them in the January contest, unless I setup a schedule or find them on the ON4KST chat page! Only “super stations” can point to Ohio and have Ohio stations come back. For the 400+ mile contacts, even *they* usually have to coordinate. Tailgating some of the super stations may lead to an unexpected grid or two, but for the most part if you want to increase your grid count you must use the ONK4ST chat page! The wonderful program created by W3SZ and the W3SZ/K1RZ database will allow even the smallest of stations to increase their scores .. use it! While you are working out the Packrat list on Saturday, you should alternate between “hunt and pounce” and calling CQ. On Sunday you should CQ as much as possible as most of the stronger-active stations will have had their “runs” and will themselves occasionally be hunting and pouncing, as finding new stations gets harder. If you don’t use MSK144 for 6 meters’ scatter/meteor contacts, then don’t scratch your head in puzzlement when you see some of the grid totals other ‘Rats obtained with no E-skip openings of note. Wait until next year suggestions: Check into not just the Packrat nets, but the other nets (schedules listed below) as much as possible. They will give you good idea how your station is performing outside of the local area. It also makes you and your call more familiar to net attendees, which comes in handy during contest time. Many stations who don’t participate in contests will give out a point to someone they “know”. Improve the strength of your 2 meter station as much as money/room/time will permit. (6 meters is the alternate). Add a new microwave band if possible. Get QRV on the digital modes, especially MSK144 and FT8. Use ON4KST chatroom during the whole year, to test one’s long distance capabilities. **Happy New Year everyone** and CU in the Test! I hope to be QRV 50, 144, 222, 432, 1296, 2304, 3456 MHz from my new station location.

**** Please edit your QRZ.COM page to at least list your station rundown (see AA2UK, K3TUF, WB2RVX, etc.)**

Nets and Schedules: The following is a rundown of the nets and group meetings in the ‘local area’ (<= 250 miles, only nets that don’t conflict with the Packrats nets are shown).

Mondays: 2130 local – 1296.110 (group schedule with WA2LTM, K1PXE, WZ1V, N2SLO, WA2ONK, WB2SIH, W2BVH, K3GNC and others. All are welcomed.

Tuesday: 2000 local – “Mud-Toads Net”, KD8UD fm17uv net control. 144.175, all are welcomed.

Wednesday: 2030 local - 432,150 – group schedule, WA2LTM, K1PXE, WZ1V, N2SLO, WA2ONK, WB2SIH, K3GNC and others. All are welcomed.

Thursday: 2030 local - 144.250 – N.E.W.S club net, W1COT fn31st net control. All are welcomed

Saturday: 144.205 – 2130 local - Chesapeake Net, W3BFC net control. All are welcomed

Sunday: 1030 local – 144.250, Sunday Morning Memorial Net, Bill AA2TT fn30br net control, all are welcomed, 2030 - - 432,150 – group schedule, WA2LTM, K1PXE, WZ1V, N2SLO, WA2ONK, WB2SIH, K3GNC and others. All are welcomed.

... On the Bands cont'd

The Luna-Tic Fringe:

I have spent almost zero time on the moon since last summer. Working and moving my entire station to a new location and putting up antennas has taken all of my time. I probably will not be active again until the spring, however, **I shall return!**

EME Tidbits – For the first 6 hours of a moon-pass Europeans stations are available. The next 3 hours are limited to NA and SA. The final 3 hours feature the Pacific islands, AU, ZL, Japan and the far east at the very tail end of moonset.

Until next time please stay/get radioactive!

7 3, Jerome, K3GNC

FIRST SNOWFALL OF THE SEASON AT K2UYH



WS3O at W3SO



I had a quick business trip to Altoona, PA back in November. Once the work was done, I thought I would explore a little to see if I could find the W3SO site. Since everyone likes to confuse me with them, I thought it might be fun to snap a picture there.

As expected, no one was at the site. This was an unannounced visit, and during a work day also. But still fun, as I also got to see my first snow of the season, and do some train watching at the curve.

Someday in the future, I am going to see if I can visit during a contest and operate from there.

-Bill, WS3O



First Arduino Project at W3GAD

Thanks to rapid emerging technologies.

When I needed to replace my shack computer I found a refurbished DELL INSPERON with both a serial port and a parallel port installed and running Windows 7 too. Great, I thought, simply move all my programs over to the new computer and everything will be back in operation without a hassle. Think again! Neither the band switching nor keyboard CW would work with the new box and the W3KM logging software.

Next up, maybe with so much praise for the N1MM+ logger software, maybe that would be worth a try. It's a good thing I started this new computer conversion project in July and didn't wait until December to get started, which is my usual pre-contest preparation window. N1MM+ is a very powerful, versatile logging program with lots of bells and whistles plus a long learning curve for an OLD DOG. W3SZ offered to come by and resolve the issues with N1MM+ but... his life, unexpectedly, became much more complicated too.

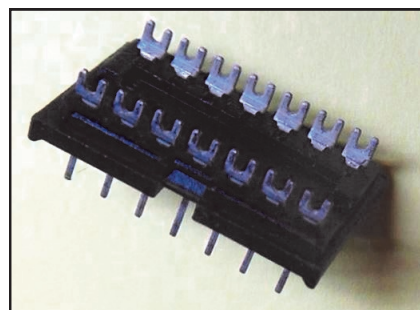
My next thought was to reengineer the whole system to make things work. Recently there has been a lot of interest in MCU supported station accessories. W3SZ offered a "Crash Course" in using MCU's and Arduino and Beaglebone type single board computers as drivers for accessories. He even put a carrot out on a long stick to get us to go to his special seminar about using the Arduino and other microprocessors the day before the PACKRATS MID ATLANTIC VHF CONFERENCE. Roger included a book of already coded projects, and an Arduino UNO MCU with a ton of knowledge all wrapped into a three hour crash course in using the systems.

The first project in the book is a re-write of a band switch program Ed Finn WA3DRC wrote to have his TS2000 work with Steve Kerns', N3FTI's band switch PCB. Roger had configured the software to work along with W3KM Logging software. Wow I thought such a simple solution to a most perplexing problem.

Once I was convinced the Arduino was the way to go, as my control interface, it was not a terribly difficult project, beyond solving the mechanical issues. To drive the N3FTI Band switch with the MCU required converting the board into a simple relay interface.



Poking around in the shack I found a simple solution. Since I always socket mount IC's I could simply remove the CD4048 BCD/decade decoder and hook the Arduino into the socket. The 4028 is a 16 pin device. I found a 14 pin header. You just have to love that Mario Table as a source of parts.

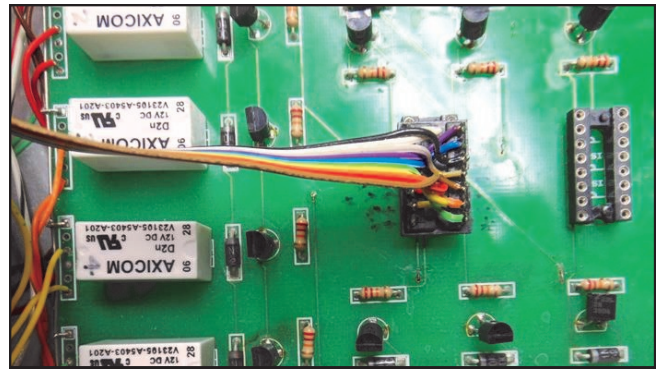


..Arduino cont'd

Studying the BCD output I see that I can access 9 of the ten relays directly and if I need them I can also access the 4 BCD coded accessory relays using only 13 of the 14 pins. Great I'm covered for the 7 bands I currently operate plus, there's room for expansion. The cross over of pins and function are in the following table:

CD402 8	BCD Cod	Re- lay	ARDUINO Output Pin	Ribbon wire 10 Color Code
3	0	1	2	Brown
14	1	2	3	Red
2	2	3	4	Orange
15	3	4	5	Yellow
1	4	5	6	Green
6	5	6	8	Blue
7	6	7	A5	Violet
4	7	8	A4	Gray
9	8	9	A3	White
5	9	10	A2	Black
16	Vdd			
8	Vss			
10	A			BCD Coded relay
13	B			BCD Coded relay
12	C			BCD Coded relay
11	D			BCD Coded relay

Next is the interconnection from the socket to the ARDUINO. Wha La! Found 20 conductor ribbon cable. Remove 10 wires and I have a nice, neat 10 conductor connection between the board and the MCU.

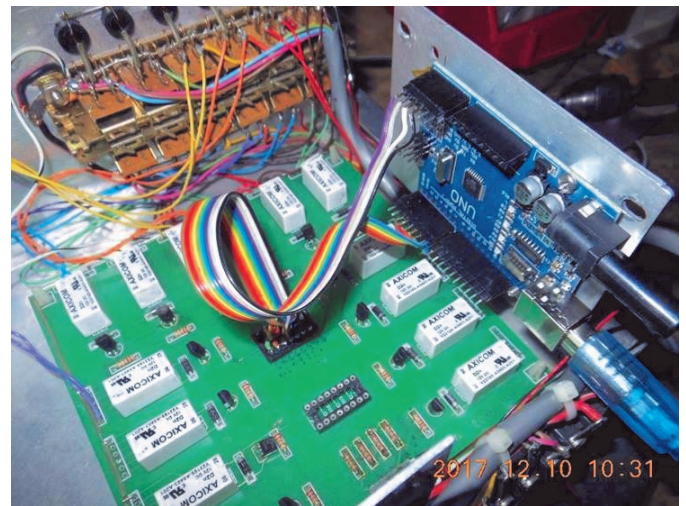


A few more problems to solve. To be sure I have a good return path for the relays, the Arduino needs to be powered from the same source as the relays. The Arduino does not like 13.8 VDC; it is only rated for 5 to 12 V and who needs to smoke their controls in the middle of the contest. Again - enter the "cheap & dirty fix". Connect a 1N4004 diode and a 150Ω ¼ watt resistor in series to the supply to the relay

board and with the Arduino connected. You have just under 10 volts into the microcomputer. For added protection I added a 10 Volt 500 Mw Zener diode and some shrink tubing for protection. The last issue is to get all this into the current switch box. Back to the Packrat resource box and we find a nice pre-formed plate with a right angle bend the right size and we have a final package.

Thanks to Roger Reher and Ed Finn for their wonderful work writing the code and their encouragement and guidance to bring this project into reality.

Some notes on operation: The W3KM VHF Logger program originally functioned off the bands selected code. To use the Arduino you must enter a 2 digit code into the call sign field to effect a switch command; e.g. enter 50 + ENTER to select relay (1); enter 90 +ENTER for relay (5). Seems very inconvenient until you realize you can not change bands until you have completed the entire entry process for the current contact and the field is cleared. After playing with this for a while I realized that exiting the logger does not disable the MCU – the last band used will remain selected until a new command is sent to the ARDUINO. The simple solution is to add a easily accessible reset button. This clears the registers and all the relays are now de-energized until the next event. I



also have full manual capabilities for the band switch as this was my original band switch system converted to the current state. If you want do make this, email me I still have a few DIP headers:

docw3gad@outlook.com.

73 de Doc W3GAD

Way Down Low (The New “Old Band”)

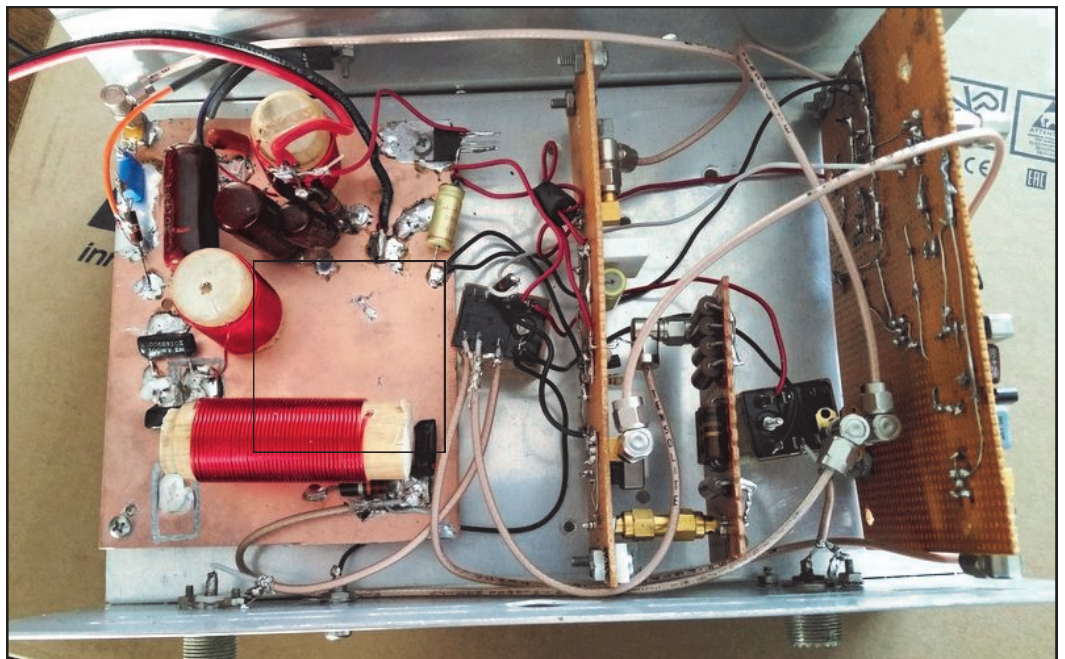
The FCC has granted us two new frequencies to play with....2200 meters and 630 meters. Amateurs have not used these bands for close to one hundred years when they were booted to the “useless bands below 200 meters”.

I have always been fascinated with the MF and LF spectrum having played around with 1750 meters as a teenager....never made it more than a few miles, but it was fun building a radio that works down there.

Now with the new bands 5 watts EIRP is the maximum the FCC allows. At 630 meters a quarter wave vertical would be 500 feet tall! A short top loaded vertical is the way to go but it is so inefficient you **need** to have a few hundred watts out from the transmitter to get 5 watts EIRP....but do not let that stop you. There are stations using 40 meter verticals with a LARGE base loading coil making QSO'S . A dipole can be turned into a “T” antenna by shorting out the feed. A 160 meter inverted L with a base loading coil is another favorite.

The other problem is that the big amateur radio manufacturers do not produce a rig that can transmit below 1.8 MHz....BUT most of the rigs will receive down to 100 KHz with degraded sensitivity. Some rigs, like a Kenwood TS-2000 have a “DX” jumper to improve receiving below 1.5 Mhz. My first 630M rig that I built was a transmit converter with a LO in the 80m band. Receive was accomplished by going “split” with my TS-2000. I used a design by G3XBM. Power out was 10 watts. The antenna is a 40 foot high “T” antenna with 300 foot top. The base loading coil is 196 uH wound on a 3 inch diameter piece of PVC and .003uF in series to get a 1.8 to 1 SWR....close enough to try. First QSO was CW with NO3M in WPA...he was 599 and my report from him 579....**it was the WOW moment for me!** During the course of a few days I used JT9 protocol and CW and was able to make contacts up and down the east coast. The problem with running split like this if you moved frequency you had to add the dial receive frequency to the 3.2 MHz LO and that was a pain.

So I decided to build a full blown transverter with a 10 MHz IF. That way $10.472 \text{ MHz} = 472 \text{ KHz}$ way easier. The transverter has four modules.... 10 MHz LO oscillator, receive converter, transmit converter and amplifier with low pass filtering. Transverter puts out 30 watts. With my antenna system that is about 1 watt EIRP . **I have worked as far as the Cayman Islands and Texas.** I have received a WSPR station, W7IUV, in Washington state.

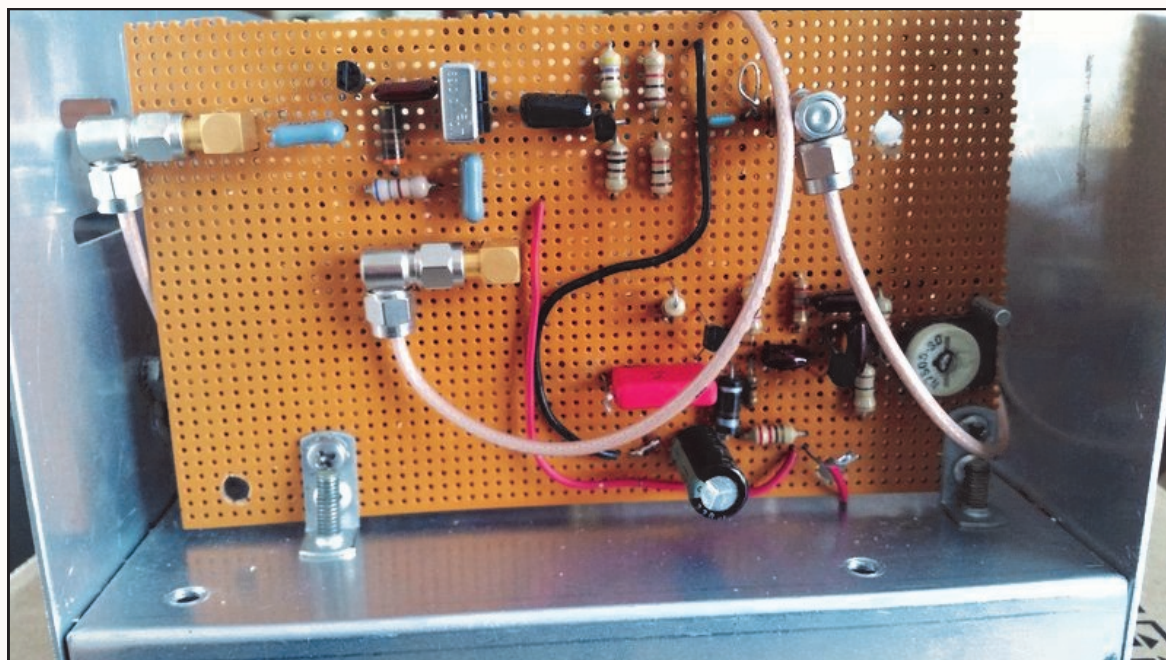


Overall layout of the complete 472 KHz to 10 MHz transverter

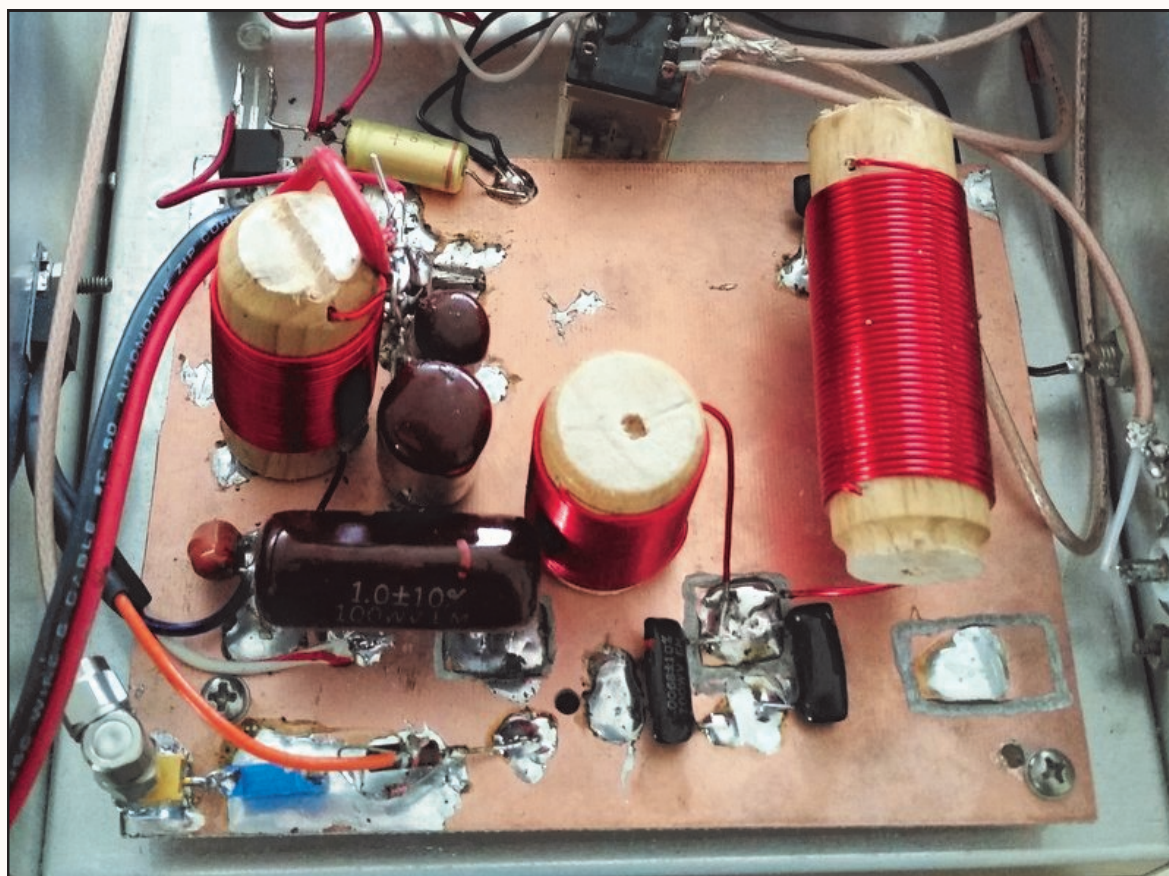
...Way Down Low cont'd

The LO and receive converter are constructed on a perfboard. The transmit converter is on a separate board. The final amplifier is "dead bug" style on a piece of double sided circuit board. I used a Dremel tool to make the pads to solder the components. The switching relays are just glued down to the chassis. The only part that was purchased is the IRF510 MOSFET. The coils were wound on 1" dowel rod.

There is a lot more information on the Way Down Low bands at the www.472khz.org website. It is a good place to start if you are interested in operating on a "new old band".



Receive Converter and LO. SMA's make small and handy rf interconnects even at 472 KHz!



Close-up of the power amplifier

73 es gud DX down low! **Wayde K3MF**

The Wayback Machine In CHEESE BITS, 50 Years Ago

Nibbles from January 1968. Vol. XI Nr. 1
de Bert, K3IUV
(*author's comments in italics*)

- **“Our Prez Sez”**. Dave, W3LHF (later W3ZD) discussed tower topics, including trying to arrange your installation so that it can be lowered / tilted to permit servicing at ground level. He also extolled the virtues of hot-dip galvanizing over primed and painted towers. He also noted a good number of towers available in the area, and closed the tower discussion by talking about the recent tower party at Doc's (*No, not Doc, W3GAD, but our previous Doc, K3GAS*). His final reminder was to pitch in and help win gavel #8, in the January contest).
- **Mobile / Portable station ID**. The FCC announced that effective January 15, 1968, Hams will no longer be required to describe their geographical location when operating either “Mobile” (*capable of operating while in motion*), or “Portable” (*operating from a stationary location, but capable of being easily moved*).
- **Did You Know?** A continuing series of tidbits, which included: 1. W3MVF, Dave (our treasurer) can supply you with a form for a 50c club discount when renewing your ARRL membership; 2. W3KKN, Ernie, will organize an indoor, blindfolded transmitter hunt.
- **ARRL Bulletin 141, 11/2/1967**. The ARRL Intruder Watch has completed almost three years of operation, and has been very successful in having other stations removed from the Ham bands. Additional volunteers are urgently needed, to help in this continuing effort.
- **Two Meter Activity Report**. W3LHF, Dave (later W3ZD) discussed his equipment problems in getting a new VFO to interface properly with his transmitter. “Almost tamed now”, he said. He also reemphasized using CW to pick up section (*now grid*) multipliers in the contest. He noted that “Two meters is the band that can make or break a good score”. (*Phil refers to it as “the money band”*)
- **“Ham Radio Magazine” previews**. A letter received from T. Zenny, the publisher announced the initiation of a new magazine. The first issue of Ham Radio is to be released in January, 1968. (*A number of complimentary copies of the first issue were distributed among the Ham Fraternity. Relatively scarce now, I have a copy in my own archives, “down in the basement”. It is soon to be turned over to Gary, WA2OMY, who has agreed to take custody of my extensive collection of HAM publications.*)
- **Millimeter Com Link Tested Successfully**. W3HKZ, Ed our technical news sleuth, reported on the results of millimeter wave testing in Washington, DC. “A millimeter communication link operating between 28 and 40 Gigahertz has been operating successfully during tests conducted between the Defense

Communication Agency offices in Arlington, VA, and NASA headquarters in downtown Washington.” A great deal of interest is being shown by various military agencies, in use of these frequencies. (*Still true, but much more advanced now.*)

- **New Members.** Three new members were added to the club in November, just in time to participate in the contest! They were: W3DIL, Hitner Smith (Willingboro, NJ); WA3GNV, John Ellmore, Glenolden, PA; and WA3IMT, Richard Marshall (Dresher, PA.)
- **Meeting Notice.** The January meeting will be the Crying Towel session, where all can tell why they didn't do better in the January contest!
- **Swap Shoppe.** For sale by K3JJZ, EI. A 17" Philco TV (*now a collector's item!*) for \$10, a 6-EI two-meter beam for \$5, and a 16-element Collinear for 432, for \$7.50.

Miscellany. Postage 5c (*a nice Washington stamp*) this month (4 sheets 8-1/2" x 14). *As in previous editions, 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 www.W3CCX.COM and read the full issue scanned by K3IUUV, and posted there by our Webmaster.*

**thirty, de
K3IUUV**



DL7APV gave Dorothy, M6EBQ, her first EME contact. She has a 10W license and was using a single 17 el yagi. The rig was the same as M0ABA, so did not count as an initial, but was still a nice QSO. QSOs like this one hopefully will encourage more EME activity by smaller stations! She was (-22dB) best here, so there is plenty room for stations with less gain to work her!

See <https://www.essexham.co.uk/news/essex-eme-success.html> for more info.

73, AI - K2UYH

New VHF/UHF/Microwave Rig On the Way? (From MVUS Reflector)

As some of you know, Icom showed a prototype of a new VHF/UHF/1.2GHz transceiver called the IC-9700 at the Tokyo Hamfair, on September 2nd and 3rd, 2017.

“The Icom IC-7300 saw its debut at the Tokyo Hamfair August 2015 and was the star of the Dayton Hamvention™ May 2016.”

Source: <https://www.universal-radio.com/catalog/hamhf/0173.html>

Might this imply that the new VHF/UHF Icom IC-9700 transceiver will be introduced for sale in the US at the 2018 Dayton Hamvention? Probably not...but you can now reserve your Icom IC-9700 at DX Engineering for \$50: <https://www.dxengineering.com/parts/rsv-ic-9700>

This sure would have made a nice Christmas present.

Joe - WA8OGS

SV1AFN RF Modules

Makis, SV1AFN offers various rf modules at his web site. It appears he's making a "cottage industry" of implementing small functional boards and subsystems of interest to hams and rf experimenters.

He offers a variety of RF detector / logamps (e.g. "power heads") that go well into the microwaves. Also attenuators, MMIC amplifier boards, Diplexers, DDS's etc. etc.

Prices seem reasonable. I've gotten some 25 ohm mini coax from him and shipping was fast, with tracking. Faster than stuff from China for sure.

Worth a look.

73, --Lenny W2BVH

"Cheap" Thermal Imaging Camera

There's an interesting article on building your own thermal imaging camera at https://makezine.com/projects/diy-thermocam/?utm_source=MakeNewsletter+20171212&utm_medium=email&utm_content=headline&utm_campaign=newsletter

These devices can be used to observe the thermal profile of power amps, power supply heatsinks etc. They're also generally useful in finding missing insulation and sources of drafts around the house. They've come way down in price over the last couple of years but I still consider them fairly expensive, unless you have a serious need for one (or you're a gadget freak). Other "cheap" fully built cameras of varying resolutions and image capture times (some even cheaper) are available elsewhere on the internet.

Whether you have a current need for such a device or not, the article is well worth a look. Well written and interesting.

73, --Lenny W2BVH

Franck F5SE, SK

(From 432 & Above EME Newsletter)

F5SE is an SK: Franck and his father (F9FT) were true VHF/UHF and EME pioneers. They produced the F9FT yagi and other innovative antennas and were responsible for many firsts. Franck was at the key of the first 432 EME QSO from France. He continuously maintained an exceptional signal off the Moon on 70 and later on 23 cm for more than 40 years. In 2010, He completed a 10 m dish that he beautifully mounted and used to produce one of the top 1296 EME signals.

Frank was 70 and had heart problems for more than 30 years, but always managed to survive. His death was unexpected. RIP dear friend.

QRP HF General Coverage Transceiver you can build

This transceiver appears to have modest specs, but a very low price for what it is. Would probably make a nice portable QRP rig and a nice I.F. rig. Take a look and you decide. Info at <http://www.hfsignals.com/index.php/ubitx/>

I was very fortunate, even though aiming through some trees, to have worked VK2JDS early this morning(12/4/17) on 1296. Lucky the leaves are all gone
Herb at FGK

77 GHz Chip Available?

(from Dan Stocks, on the Microwave Reflector)

Found this thing on Freescale website. I'm not sure if it is available yet but they are making a 3 chip chipset for 77GHz auto radar. There is a lot of integration of other features that would be superfluous for our use, but looks like the chip is set up so it could be bypassed. For instance, the TX chip takes in a ~38GHz LO, and runs internal biphasic modulator, but looks like the modulator could be set just to 'on'. Maybe this only would be good for FM running, but hey, where else you going to get nearly a watt on this band?

<https://www.nxp.com/products/rf/radar-transceivers:MITERWAVEICS>

Events

For inclusion, please direct event notices to the editor.

HRAC Winterfest - Hamfest - January 13, 2018. Sponsored by Harrisburg Radio Amateurs Club. See <http://www.w3uu.org> for details.

ARRL January VHF - Contest - January 20-22, 2018. See <http://www.arrl.org/january-vhf> for rules and details. Lots of info will be presented at Packrat meetings and on the reflector.

Winter Hamfest - Hamfest - February 24, 2018. Big Flats NY. Sponsored by LIM Contest Group. See <http://www.ka2lim.com/7.html> for details.

Cherryville (NJ) Hamfest - Hamfest - March 10, 2018. Sponsored by Cherryville Repeater Assoc. II. See <http://www.qsl.net/w2cra> for details.

2M Spring Sprint - Contest - April 9, 2018, 7:00-11:00 pm local. See <https://sites.google.com/site/springvhfupsprints/home/2018-information> for details.

222 MHz Spring Sprint - Contest - April 17, 2018, 7:00-11:00 pm local. See <https://sites.google.com/site/springvhfupsprints/home/2018-information> for details.

432 MHz Spring Sprint - Contest - April 25, 2018, 7:00-11:00 pm local. See <https://sites.google.com/site/springvhfupsprints/home/2018-information> for details.

Microwave Sprint - Contest - May 5, 2018, 2300Z. See <https://sites.google.com/site/springvhfupsprints/home/2018-information> for details.

EPA Section Convention - May 6, 2018. At Bucks County Community College, Bristol PA. Sponsored by WARC. See <http://k3dn.org> for details.

6M Sprint - Contest - May 12-13, 2018, 2300Z - 0300Z. See <https://sites.google.com/site/springvhfupsprints/home/2018-information> for details.

Eastern VHF / UHF / Microwave Conference Call For Papers

2018 Eastern VHF/UHF/Microwave Conference is coming up soon - April 20-22, 2018 in Manchester, CT. You can get more details at newsvhf.com in the next week or so.

Now is the time for winter projects - while you are working on them, take some pictures and notes. When you are successful, you might write a paper or give a presentation to share. It doesn't have to be unique and earth shaking - simple ideas are often a great help to the rest of us. Even a paragraph with a picture for the Proceedings CD is good.

The CD has room for lots of photos and even videos, so take pictures at events or when you are out roving. If you took some last summer, please send them along.

WORKSHOPS -- for the last few years, we have had informal workshops on Friday afternoon. If you have an idea for one, send it along. You don't have to lead the workshop, just tell us what you'd like to hear about and we will try and find an expert (or someone who knows a little more, anyway)

73 and all the best for 2018,
Paul W1GHZ

Mud 2017 Proceedings hardcopy still available. Get a copy at <http://www.lulu.com/shop/arrl-american-radio-relay-league/microwave-update-2017/paperback/product-23355271.html>

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Latest Packrat

John, N2NC was voted into the Packrats at the December meeting. John often works out of the N2NT station with Packrat, Peter, WW2Y and Andy N2NT. **Welcome to the Packrats John!!**

Cape Hatteras 10 GHz Beacon

Mark K1MAP reported to Warren WB2ONA that the Cape Hatteras 10 GHz beacon is back on the air.

Details: Frequency - 10.368.130

Mid-Atlantic VHF Conference Discs Available

MASVHF 2017 Proceedings Discs are available for \$5 per disc + \$2.50 shipping (for 1-3 discs) and handling. Send PayPal payment to W3KM@verizon.net.

Special offer: Get a VHF Super Conference 2016 disc ****AND**** a MASVHF 2017 disc for \$10 (includes shipping).

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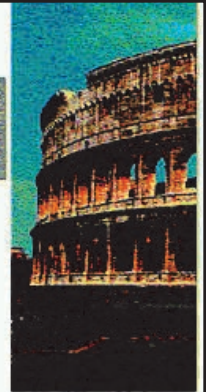
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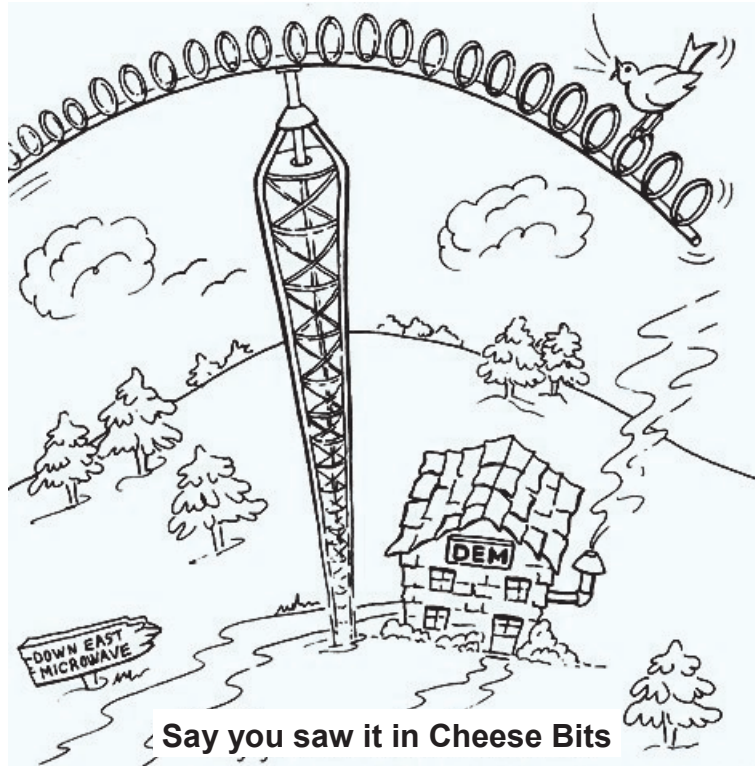
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