



CHEESE BITS

W3CCX
CLUB MEMORIAL CALL

ARRL
Affiliated
Club



Volume LIX

March 2018

Number 3

PREZ SEZ:

Well, we just had a March Noreaster come through. I hope everyone's antennas survived. One of the WARC members had a major failure with his brand new tower! The large HF beam was just too much for the aluminum tower section.

I was interested to hear all the talk on FT-8 so far this year! Many of us used it in the January contest. This will be new and potentially a great tool for contesting if properly harnessed. It was good to hear the discussion lead by Bob W2SJ at the last meeting, but it did not stop there. Packrats continued the discussion on the Packrat forum. I heard a lot of good ideas and also some comments about the possible pitfalls. It's interesting to watch the "Wisdom of the (experimenting) crowd" in action. Hopefully the Packrats as a group will come up with some suggestions in the months to come on how to best use digital modes in general during a contest. One suggestion I heard was to add 15 minute blocks of time for digital to our Contest clock. Another idea was to have an alternate frequency like 50.314 for close in inter-Packrat contacts and leave the normal frequency for more distant contacts.

The theme of the March meeting is "Home Brew Night". Afterwards we will have a Test Equipment table available compliments of Gary WA2OMY and Michael KB1JEY

The April meeting is "Awards Night" followed by

ARRL's Ed Hare with stories from the ARRL lab.

The month of June is all about the contest and Camelback. Improvements to the Microwave Trailer are on the schedule for early spring. Every year we try to decrease setup time and increase operating convenience. There's also a lot of work going on with the 222 and 432 stations this year. We also hope to work towards having more stations we don't tear down and set up every year in the future. This would save a lot of final testing and angst every year just before the contest starts.

The June general meeting will feature the contest wrap up and the Election of Officers. Please consider running for one of the positions. The BOD can always use new blood with new ideas.

Keep July 19th open for the White Elephant Sale which will be held at Bruce's (WA3YUE) QTH again this year. It's on our regular meeting night. This is always a great social event.

The Packrat Picnic will be Saturday August 11th at the QTH of Michael KB1JEY. Rain date is August 12th. More details coming soon.

The 2018 Packrat Mid Atlantic VHF Conference is September 28-30, 2018 in Bensalem near the Pax Casino Save the date! Rick K1DS is currently soliciting papers and presentations.

Also plans are in the works for the spring of 2019 for a Super Conference near Washington

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

DC. The last Super Conference's attendance was well over 200 and 2019 conference expects to push the 300 mark.



Got a new project “on the bench”? Tell the members about it at Home Brew night. It doesn't have to work yet.

It can even be a failed project as long as you learned something!

Bottom line: Have fun, Learn more
Build something.

73, George KA3WXV

PICTURES FROM THE FEBRUARY “CRYING TOWEL” MEETING





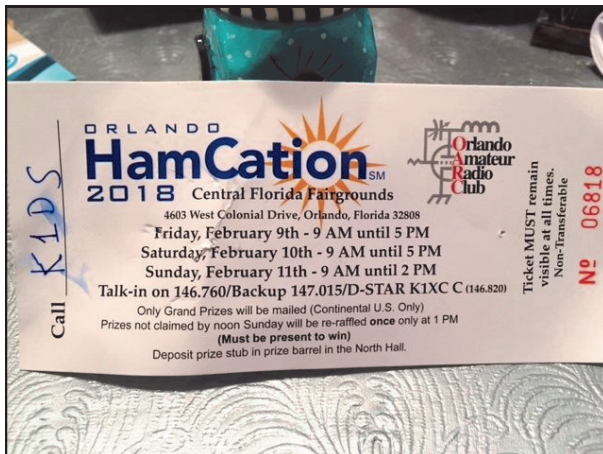


Tnx KC2TN
& WA3JZN
for Pix



A VISIT TO THE 2018 ORLANDO HAMCATION

I left my Boynton Beach QTH at 10:30AM to drive first to Lakeland, FL to get some antennas, and then on to Orlando, FL for Hamcation. I met up with Buddy, WB4OMG and paid for a pair of long 1296 loopers that he was unloading. They were in good shape, despite some reformed loops caused by hurricane Irma. I'll likely use them here to try and do some 23cm EME. A group of us met again for dinner at Texas Roadhouse in Orlando on Thursday evening. We had a table for 5 with three fellows from GA and myself and Dick Frey WA2AAU from the W2SZ Mt. Greylock Expeditionary Force. Friday morning the gates opened at 9AM and the crowds began to pour in. There are acres of parking for attendees, including plenty of parking for RVs and campers who remain on the fairgrounds for the weekend. There are three large buildings for indoor sellers. The largest is for the commercial companies, the next smaller is for indoor flea marketeers and the smallest is for various other commercial sellers and organizations.



I'm really unsure of why I go to hamfests any more. I need very little, and most everything I need can be purchased on-line or by putting a note on the Packrat reflector! But just to make sure I do my hamfest duty, I managed to get a deal on a PAR 6m omniangle triangular antenna, and then scored another K2RIW long Yagi for 432MHz that seems to match the one I got there last year. Hopefully the pair will increase my 432 EME signals. I met up with K3TUF early on and he passed on a box to me with a great 5G & 10G station intended for K3IPM. By that time I had scoured the place for the things on my shopping list, and I was about done.

I ran into Andrea K2EZ, the rover, and we chatted a bit. I found Joe from Junior High School 22 in NYC from the WB2JKJ gang and we chatted a bit too about the great student ham education programs he has been running for years and to which I have been a regular annual donor since it began.

A few more passes at the vendors to get more Powerpole pieces, a digital voltmeter, and I was done. I mulled over a purchase of a 432 MHz preamp with a pair of Tothsu relays, but deferred the purchase. I thought about it on the drive home and called back to K3TUF to see if it was still available, but as you

know, he who hesitates is lost when it comes to flea market deals.

Hamcation is a bit smaller than Dayton, easier to navigate In three hours, I was back on the road to Boynton Beach. Folks come and go across the three day event. Most all of the presentations and forums are done on Saturday and Sunday, and more and more flea market vendors show up for the weekend. Who knows if I'll be back there next year? **73, Rick, K1DS**

Finally met Joe from the NYC WB2JKJ gang to which I have been an annual supporter.



I filled my trunk with aluminum and the 5&10GHz box for K3IPM.



That's a URAL Russian motorcycle and side car belonging to K14ORI with his converted military walkie for 6m.

I have received QSL cards from all 9 stations I worked using JT65 on 432MHz with 100W and a single 5WL Yagi and manual AZ-EL control from EL96. And ad-hoc setup in the back yard, but it works! Rick K1DS



Some Tips on the New PLUTO SDR

I know some of you ordered Analog Devices' PLUTO SDR as a result of the great talk by Joe Jesson W2JEJ at the last Packrats' Mid-Atlantic VHF Conference (it was to me the most interesting talk I have ever heard at a ham-radio-related conference). And like me, you probably were disappointed to find out that Plutos were back ordered at that time. (I ordered mine while Joe was still giving his talk, so I couldn't have done it any sooner than I did). **I finally got the Pluto yesterday (2/23/18)** that I had ordered last October, and this is just a short set of instructions so that those of you who already have MATLAB. You can use it to get PLUTO up and running with little to no effort. Here is the short list of instructions:

So far I've just updated the Pluto firmware to 2.7 and played with the MATLAB FM Broadcast Receiver Simulink Example, which of course works fine right out of the box. I have other things to do but now that I know it works well with MATLAB things are good.

Firmware update is simple. Instructions here: <https://wiki.analog.com/university/tools/pluto/users/firmware>

Prerequisites include MATLAB, and also the following add-ons which you likely have if you've been doing any digital or SDR work with MATLAB. (I have what I consider to be a minimal system and had all of these already installed): Communications System Toolbox, DSP System Toolbox, Signal Processing Toolbox. I also had the Simulink add-on, and you will need that to do Simulink examples like the FM receiver. Simulink basically takes MATLAB from the command line sphere to the "connect the boxes" paradigm that you have probably used with GNURadio. Instructions for installing the necessary free add-on to MATLAB for Pluto are here: <https://www.mathworks.com/help/supportpkg/plutoradio/ug/install-support-package-for-pluto-radio.html>.

A list of MATLAB PLUTO examples is here: <https://www.mathworks.com/help/supportpkg/plutoradio/examples.html>. That should be all you need to get started. Things went together here quickly and "just worked".

The device used in the Pluto is an AD9363. It is spec'd to work from 375 MHz to 3.6 GHz. But you can tell the Pluto that the device is an AD9364, and "unlock it" for use from 70 MHz thru 6.0 GHz. Time will tell how it works on the extended frequencies, but I am listening to Y1002 at 102.5 MHz with the Pluto after unlocking it and it is doing GREAT. If you forget to do this, when you run the FM Broadcast Receiver Example you will be prompted to unlock the Pluto, and clicking a link will get that process going. If you need to or just want to do it manually the link to doing that is here: https://wiki.analog.com/university/tools/pluto/users/customizing#updating_to_the_ad9364

I did the unlocking manually so I can't say how well the link that pops up if you didn't do it before running the FM Broadcast Receiver example works.

MATLAB for home use is inexpensive, and the individual modules are reasonably priced, though costly enough that I only buy the ones I need. If you are a "student", MATLAB and its modules are even cheaper. If you didn't previously order, and don't have a PLUTO, the bad news is they sold out again within a few hours of becoming available at the usual distributors. But the good news is that the previous price of \$149 is now \$99, which is what those of us who ordered in October but just took delivery were also charged. So you can skip going to Starbucks for a week and pay for your SDR. [Plus another week or so for the add-ons ---Ed.]

Roger Rehr W3SZ

Some Observations on Using FT8 in Contesting

From Bob W2SJ

After the January contest we had a discussion at the Wrap Up meeting as well as our February club meeting about the use of the FT8 mode in contests.

Many views were expressed both pro & con, but one thing was agreed by the majority at both meetings: We should look at FT8 and other JT modes as "another tool in our toolbox". As we all get more experience with this mode, most of us will decide what works the best considering our own situation and station capabilities.

As a guide on good ways (and when) to use our new "tool", please see a copy of a post below by Keith, N9RM that presents some sensible guidelines.

Comments by N9RM:

"It's all very simple. Just remember that the idea of CONTESTING is to make the maximum amount of points possible. In VHF contests, you can use ANY mode possible. Select the one that's best at the time for maximum efficiency."

--If you don't know CW and a guy is weak, go ahead and use FT8 - good move !

--It's 5AM and 6 isn't open, so you're hitting MSK144 M/S hard - good move !

--You're in New Jersey, there are plenty of loud locals on 6, even though there is no Es and you're on SSB - good move !

--You're in New Jersey, there are plenty of locals, you have added bands and are also hitting 2/222/432/+ hard - good move !

--You're in western Colorado, there is no such thing as a local, 6 is closed and you're on FT8 - you're making the best of a bad situation !

--You're in western Colorado, there are no locals, 6 is closed and you're running MSK144 -

probably better than using FT8!

--The band is stompin' loud on Es, you've run W9RM off 50.137 and you're now running 250/hr on SSB - good move !

--The Es opening of the year is happening and you and everyone else are trashing each other on 50.313 FT8 - STUPID move; use phone or CW!

The last example hurts everybody on the band, reducing everyone's efficiency and turning the entire lower end of 6 into a signal-less wasteland. Don't say it doesn't happen - it does and I've seen it time after time during the 2017 Es season. A contester back east sent me a private message earlier saying they were working FT8 on 50.313 this weekend because that's where the signals were... EVERYBODY IS PART OF THAT PROBLEM.

The whole idea in contesting and competition is to increase your score. Methods and procedures have been evolving for decades to this end -- improving your score. NOW, for the first time in MY contesting life (40+ years), a method has come along, embraced by the masses, that is capable of actually decreasing efficiency (and possibly score) in many cases. I can't see any win for contesting in general if FT8 becomes the dominant mode on 6M.

[e.g. FT8 is a great mode in contesting when used to best advantage; not so good when used indiscriminately / exclusively. ---Ed.]

Some interesting arithmetic:

1. A pizza that has radius "z" and height "a" has volume $\text{Pi} \times z \times z \times a$
2. $111,111,111 \times 111,111,111 = 12,345,678,987,654,321$
3. 10! means 10 factorial which is $10! = 10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 3628800$. It happens that 3628800 seconds is 42 days, or 6 weeks, exactly

--Lenny W2BVH

The Wayback Machine **In CHEESE BITS, 50 Years** **Ago**

Nibbles from March 1968. Vol. XI Nr. 3
de Bert, K3IUV
(author's comments in italics)

- **“Our Prez Sez”.** Dave, W3LHF (later W3ZD) complained that “Now that the contest is over, there is no one on the air!” (*So what else is new?*) He reminded all, of the auction at the coming meeting, and said “we plan to sell everything!” And he encouraged more articles from the members, for Cheese Bits (*Ask Lenny, he'll tell you nothing changes!*)
- **Contest comments.** The club submitted 95 logs, with **90 Packrats participating.** A list of preliminary scores for about 60 stations was included. (*Included among the top 13 were current members; Stan, K3IPM; Bert, K3IUV; El, K3JJZ; and Walt, K3BPP. In the next tier was Randy, WB2SZK [now NR6CA.] All of the others are now SK.*)
- **Did You Know?** W3SAO, Frankie, had a full page write-up in the Johnsville NADC paper, about his work in supporting the Red Cross at the Normandy hotel fire (*see last month's issue*).
- **Two Meter Activity Report.** W3LHF, Dave (later W3ZD) reported his rotor died at the end of the contest, and his antennas are now fixed. But he worked a VE3 station in the contest, by “remembering where to put the beam.” He suggested we get a copy of the US map published in January, in the National Geographic.
- **432 and up Report.** K3IUV, Bert (*that's me*) reported that the 432 net activity has diminished, but “the interest of the group that signs in is increasing”. The net is serving as a meeting place for those interested in moving up to 1296. Stations in our area that are building for 1296 include club members K3UJD, Mario; K3BPP, Walt; W3VIR, Bill (recent SK); and K3IUIV, Bert. A list of stations active on 1296 in North Jersey and New York was included, supplied by K2DZM, Mike.
- **June Contest.** K3IUV, Bert “volunteered” as the June contest chairman. He asked that interested members contact him, and guaranteed “more than one 1296 contact this year!”
- **Construction.** W3KKN, Ernie, contributed a nice article on his design for a “Heterodyne VFO for two meters.” He reviewed commercially available units, but felt they were too “pricey”. His design used the triode section of a 6AW8 as the 31 Mc crystal oscillator, and the tetrode section as a mixer to generate 36 Mc. This in turn was tripled in his two-meter rig. (*Nice article with some good technical discussion.*)
- **Meeting Notice.** The March meeting as noted will be the auction. The auctioneers will be W3LHF and K3GAS. The assistant will be K3JJZ, El (*El was in training for his current position as club chief auctioneer.*)
- **Swap Shoppe.** For sale by K3IUV, Bert. Philco model 48-2500 Projection TV set. Collector's item in excellent condition (*I wish I had kept it*). Also wanted by K3IUV, were a Cement Mixer, 2 to 3 cu. Ft. size, and a ground

.... Wayback cont'd

- post for an EZ-Way tower. (*Never did get it, so I hinged at the base.*)
- **Miscellany.** Postage 12c (*two flag stamps*) this month (5 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 K3IUV, and posted there by our Webmaster).

Thirty, de K3IUV

January Contest Preliminary Write-up

An initial write-up of the January Contest is available at the ARRL web site at http://www.arrl.org/files/file/ContestResults/2018/2018%20ARRL%20January%20VHF%20Contest%20-%20Preliminary%20Results%20-%20Version%201_2.pdf

Packrats mentioned in the preliminary article as category winners are N2NT, N3NGE, K1RZ, N3RG .

CONGRATS!!

Tnx K0BAK for the info

Save the Date!

September 28-30, 2018

Mid-Atlantic States VHF Conference

Papers and presentations solicited!

Send your topic or title to:

RICK1DS@hotmail.com

Sponsored by the Packrats

Packrat Meetings Live-streamed on Facebook

Packrats who can't attend a meeting at Ben Wilson Senior Center may now be able to view our meetings live. Phil K3TUF set up a Facebook group and configured a dedicated laptop for the club to use to broadcast meetings live. Search for "Mt Airy VHF Radio Club" on Facebook.

At the first try in the January meeting, the live stream was working fine early, until most of the members showed up and overwhelmed the 2.4G Wi-Fi at Ben Wilson, killing the stream. At the February meeting, I was able to connect to the Center's 5G network through a USB adapter, and streamed almost two hours of the Crying Towel meeting until I ran out of power. (Sorry Michelle, I missed your report).

I'll next try a separate camera to make it easier to aim at the person talking at the meeting. As I learn, I hope the live streams will become more reliable and better produced. Let me know if these broadcasts are useful, and what could be improved. Note that these live streams are also automatically posted to the Facebook group as a static video after the live session is done, so you can watch sometime after the meeting is over, not just during the meeting.

--Pete K0BAK

The College of New Jersey Hosts
The 43rd ANNUAL ORIGINAL PERSONAL COMPUTER FESTIVAL



TCF'18™



Twitter:
@TCFfestival

Saturday, March 17, 2018 at The College of New Jersey, Ewing NJ

NJ Makers Day Partner

Focus on

Wearable Technologies



3:40pm

Keynote Speaker:
Dr. Nick van Terheyden,
"Healthcare Innovation
Incremental and Exponential"

Dr. Nick is a leader in Digital Healthcare and Innovation and former Chief Medical Officer for Dell. He provides strategic insights and guidance to support healthcare organizations, medical professionals and patients through information-enabled healthcare. He is a highly sought out speaker on the practical and futuristic use of healthcare.



Featured Speaker: George Harris,
"Medical Tricorders -
Taking Science Fiction Into Reality"
Co-founder and CTO of Basil Leaf
Technologies, the team winning the
Qualcomm Tricorder XPRIZE

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All-Day Robotics Pavilion
Room ED-205

Maker Demos

Tour the Sarnoff Museum of Tech.



TCF Saturday Banquet with Door Prizes.
See TCF Web Site to Buy Tickets.

IEEE Integrated STEM Education Conference (ISEC)**
Saturday, March 10, 2018 - 8:00 am - 5:00 pm
at Friend Center, Princeton University, NJ
Theme: iSTEM: Lead, Engage, Succeed!
Info: <http://ewh.ieee.org/conf/stem/>

**The IT Pro (Friday) and ISEC Conferences require separate registrations.

The 2018 TCF™ is sponsored by The College of New Jersey, its School of Engineering and supported organizations.

Admission: \$14.00 (advance)

\$20.00 at Door

Free Parking / Wi-Fi

www.tcf-nj.org

at The College of New Jersey, Ewing, NJ

Saturday, March 17, 2018

9:00 am - 5:00 pm

Registration/Vendor Fair open at 9 am, Talks start at 10:15 am.



David Soll
on Windows 10;
Also HTML5 + CSS3



Hands-on
Arduino Workshop
for Beginners



Author Barry Burd Speaks on
App Development; Quantum
Computing; Alexa Skills



High School Student
Sam Zeloof Shows How to
Make Semiconductors and
IC Chips at Home



Ham Cram Session & Exam:
Get an Amateur Radio License in
one day at TCF! Cram begins at 9 am.

IEEE/ACM IT PROFESSIONAL CONFERENCE

Friday March 16, 2018, 8:30 am - 5:00pm**
and continues as part of TCF's Saturday Talks.
For Conference Info and Fees see
<http://princetonacm.acm.org/tcfpro/>

For additional TCF'18 Info,
directions and advance tickets:
www.tcf-nj.org

Events

For inclusion, please direct event notices to the editor.

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.

44th Eastern VHF / UHF / Microwave Conference - April 21-23, 2018, Manchester CT. Sponsored by N.E.W.S. Details at <http://www.newsvhf.com/vhfconf.html>. Online registration info and registration forms at the web site.

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

ARRL June VHF - Contest - June 9-11, 2018, Join us at Camelback or operate the contest from home. Let's turn in a great score in the spring classic. See <http://www.arrl.org/june-vhf> for details.

HRAC Firecracker Hamfest - Hamfest - June 30, 2018. Harrisburg Area Community College, Harrisburg PA. See <http://www.w3uu.org/>

Eastern VHF / UHF / Microwave Conference

44th ANNUAL EASTERN VHF/UHF/MW CONFERENCE

Fri./Sat./Sun. April 20-21-22, 2018 BAYMONT INN & SUITES, 20 Taylor St., Manchester, CT 06042 (just a few miles northeast of Hartford, CT off I-84, at Exit 63)

Registration ONLY \$20! deadline April 15. (Register at door \$25) Includes: Friday nite Super Hospitality Room, Saturday Pizza+Sub Lunch & Proceedings CD

Sat. Eve. Banquet Buffet \$30. deadline April 15

Extra Proceedings CD's -- \$5ea. at the Registration Desk

Registration at www.newsvhf.com is on-line NOW! Many of your friends have already registered!

Discounted Room Rate--even lower than last year!

You can reserve rooms NOW
Call the Baymont Inn at 860-643-5645
For Discounted Rate--phone in only
Ask for the "VHF Conference" rate
or the "North East Weak Signal Group (NEWS Group)" rate

QUESTIONS? Please Contact:
Paul, W1GHZ, (presentations, proceedings)
w1ghz@arrl.net
or
Mark K1MAP, (hospitality, hotel, swaps/vendors)
map92map@gmail.com
(cell) 413-777-9828

Bradley International Airport (Hartford, CT), is close by the site (1/2 hr). The New York, Boston, Providence, Albany airports are a 2-3 hour drive. The Hartford Amtrak Train station is only about 15 minutes from the hotel.

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An HF SWR Meter Computer USB Interface

An SWR meter that sends SWR to your computer. It's a nice Arduino homebrew project at: <http://www.kk5jy.net/swr-meter-v1/>. The author's auto-tuned loop antenna project (for which the SWR meter was originally designed) is also very interesting. Just follow the link on the SWR meter page to find the loop antenna project.

EUV Finally Ready for Prime Time

Machinery ("tools" in industry parlance) for creating IC's using EUV (extreme ultraviolet imaging) is finally ready for use in production. Tool makers have been struggling for years to bring this technology on line. It potentially means faster and cheaper chips will keep coming our way, at least for awhile. See <https://spectrum.ieee.org/semiconductors/nanotechnology/euv-lithography-finally-ready-for-chip-manufacturing> for a nice write-up.

--Lenny W2BVH

A Great VHF Video

See https://www.youtube.com/watch?v=2Rh3-K8V4_o

Recommended by K1DS

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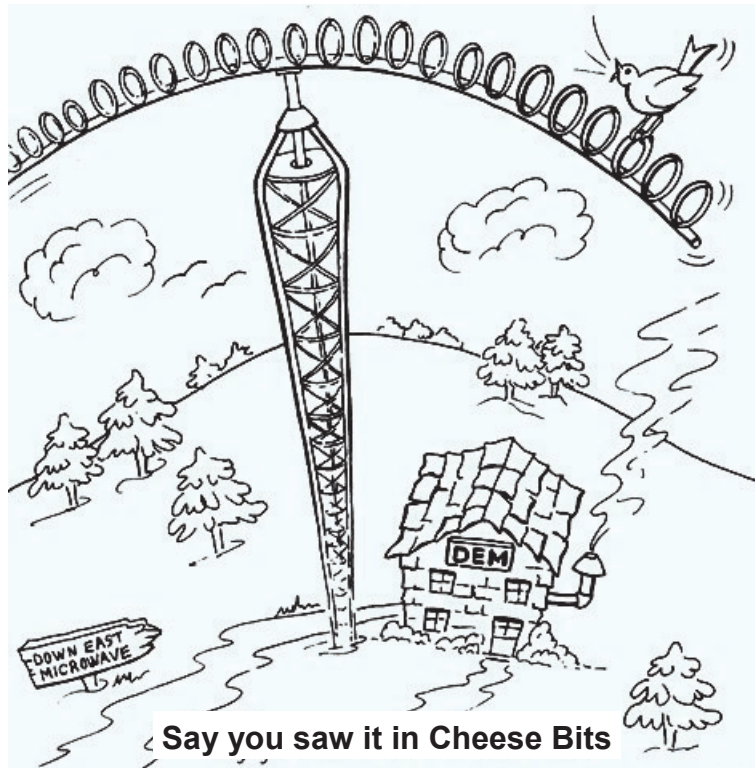
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