



CHEESE BITS

W3CCX
CLUB MEMORIAL CALL

ARRL
Affiliated
Club



Volume L

October 2009

Number 10

PREZ

SEZ:

September has been a busy month. With the Conference and HAMARAMA behind us for this year it is time to focus on the coming few months and the preparations for the January contest.

I, unfortunately, had to miss the Mid-Atlantic VHF Conference. From all the verbal reports and e-mails I have read the programs were well attended and the content was well presented. Thanks to Paul Drexler, W2PED for lining up all the speakers and to Mike Davis, KB1JEY and Rick Rosen, K1DS for coordinating the facilities and the banquet. Despite a lighter than usual response from our door prize vendors there were plenty of goodies for those at the banquet to pick from and take home a few useful tidbits.

Despite the rain, HAMARAMA, under the skilful and long experienced direction of Ed Finn, WA3DRC, managed to finish in the black. I guess not too many people got lost without my being there to do talk-in; but, thanks to Don Schwarzkopf, N3OZO and Drex Drexler, W3ICC the air waves were filled with helpful directions.

There were plenty of other willing hands on deck for site preparation, and cleanup. I can not mention all of you, but thanks to all for the effort put forth to make our weekend successful. Any thoughts on how to improve the quality of the conference and/or HAMARAMA will be most welcome.

Bill Shaw, K3EGE has once again accepted the January Contest Chairman

position and has issued an early call for "wants and needs" plus a call for available loaner equipment.

My station needs a lot of attention but I am buried in family issues at the moment. With my son's beautiful wedding the 26th of September in South Carolina behind us, my XYL is facing hip replacement surgery on October 7th; therefore, my efforts have been focused on renovations to convert my office back into a bedroom so she won't have to navigate stairs just to use the bathroom. You can imagine the accumulation of "stuff" a good PACKRAT packs into a small room over twenty years. Most has been deemed useless or archival and had to be thrown out or moved to storage in the barn. Another week or so and the room will be ready and I can once again focus on getting my station squared away.

For the October meeting we will be having a repeat of last year's "TECH NIGHT", with test gear on hand to check your construction projects and checkout your contest gear. Please let WA2OMY or myself know what type of testing you want to perform. We are not planning on testing LNA for noise figure performance during this session.

Look for a presentation by Chris Patterson, W3CMP on the recent 6 meter DX-pedition in November and Ben Kelsall, WA3RLT's 2009 contest analysis and contest preparation meeting in December.

LISTEN FOR THE WEAK ONES de
W3GAD

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FM29Jw Philadelphia, PA
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2304.043 3456.207 5763.196 10,368.062 MHz (as of 1/08)

MONDAY NIGHT NETS

<u>TIME</u>	<u>FREQUENCY</u>	<u>NET CONTROL</u>
7:30 PM	50.145 MHz	K3EOD FM29II
8:00 PM	144.150 MHz	N3ITT FN20kl
8:30 PM	222.125 MHz	K3TUF FN10we
8:30 PM	224.58R MHz	W3GXB FN20jm
9:00 PM	432.110 MHz	WA3EHD FN20kd
9:30 PM	1296.100 MHz	K3TUF FN10we
10:00 PM	903.125 MHz	W2SJ FM29LW

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



Sarah & Andrew Whitticar 26 September 2009

Editors Column

Our next meeting will be at our usual meeting site, the Ben Wilson Senior Center, 580 Delmont Avenue, Warminster PA., on October 15. The meeting starts at 7:30 pm.

This month we'll have a reprise of last year's **Tech Night**. Last year there was an almost overwhelming amount of equipment brought in for characterization and testing (including, unfortunately a few duds ... well at least its good to know). Please let us know what you intend to bring in so we can have the right test equipment available for you. A quick email to Gary, WA2OMY or Doc W3GAD is all it takes. As you'll see in this issue, the recently held MidAtlantic VHF Conference was quite a success. It was well attended (around 60 people) and all the presentations were varied and very well delivered. There was something for just about everyone. I was particularly impressed by the presentation by Dale AF1T "An Illuminating Introduction to Antennas". Using a wide variety of simple antennas constructed out of heavy wire, each with an incandescent bulb or a LED at the feed point, and a low power 432 MHz transmitter, Dale demonstrated various effects using the brightness of the bulb as an indication of field strength. Such effects as cross polarization, front to back ratio, number of elements and effect of antenna length were demonstrated. For me, seeing the brightness of the bulbs vary with the effect being demonstrated was more educational than any antenna pattern or text I've read so far.

See you in a couple of weeks.

73, Lenny W2BVH

2009 Mid-Atlantic VHF Conference

A roaring success, thanks to so many who contributed to the planning and actual coordination of all the weekend activity. We had over 60 registrants from as far away as the UK and 12 surrounding states. The weekend started out with an EME echo demonstration in the parking lot of the Marriott Courtyard. K2UYH, W2KV and K1DS supplied the gear, and it appeared for a while that there was a reasonable peak of echoes using the version 4 of JT mode. The rig was a TS2000x, supported by an LNA and a 200 watt amplifier, using a WIMO long yagi with about 19dBd gain.

The group proceeded indoors to the hospitality suite, well stocked by KB1JEY and KB3NRL. Plenty of suds were available to wash down the dinner that several had enjoyed at the local Benihana. The Marriott was a pleasant spot for folks to stay for the weekend.

Early Saturday morning the crowd filtered in to the Mt. Carmel Club to get started with registration and continental breakfast. Our speaker line-up was ready-to-go and the audience quickly filled all the available seats. Our techies, Greg and Wes from Rohde & Schwarz brought two table tops full of test gear and spent most of the day evaluating transmitters, receivers, relays and transverters. Their contribution was immeasurable (pun intended, as most of us never have access to that experience and test gear.

Each break started with more food and drink, and ended when all were called back for auctions of unique radio items including GPS receivers, power amplifiers and a 2304MHz receiver.

The speakers were all well prepared and their slide presentations were flawless. The topics varied from multi-op and single-op station design to EME, beacons, 24GHz, 2304 commercial gear mods, LASER modulation and antenna basics with a delightful hands-on demo by AF1T and W1MKY. A small but enthusiastic beginner's group saw three presentations on VHF basics, transverters and contesting, given by KB1JEY and K1DS. Hopefully all of them will be showing up on the VHF bands for the nets and future contests.

The banquet dinner was well enjoyed, as well as the challenging and entertaining dinner speaker, Gene Zimmerman, W1ZZ. The final activity of the evening was the much anticipated door prize table, and there was enough to allow everyone three opportunities to take home some useful goodies.

There was a bunch of positive feedback, as the conference proceeded without a hitch. All were well fed and hydrated, and went home richer for the experience. Many stayed on for Hamarama the next day and managed to add a little bit more to their take-home with bargains of new and old gear, parts and cables. Despite the steady drizzle, the vendors and buyer crowds all seemed to enjoy the event.

--Rick K1DS

Some Pix from the MidAtlantic VHF Conference



Conference was very well attended and had an attentive audience



AI, K2UYH sets up the software for the 1296MHz EME demo



Steve W1SMS and Gene W3ZZ at the hospitality room



Angel, KB3STA our youngest attendee assisted with some of the demo's



The EME demo antenna

Thanks to KB1JEY WA3BZT and K1DS for the photos



AI, K2UYH explains the fundamentals of UHF EME



Paul, W2PED describes a 24 GHz "Lunchbox" Transverter he has designed



Dave G4HUP explains the intricacies of a 10GHz beacon monitoring and reporting project being developed in EU



Gary, WA2OMY (above) and Bruce, WA3YUE explained how to convert MMDS equipment into a high quality high power 2304 transverter



Dale, AF1T assisted by Mickie W1MKY and audience members did some fascinating antenna experiments



Some of the 100+ door prizes available to attendees. Everyone got 3!

Kudos To All Who Helped at the Mid-Atlantic VHF Conference

by Rick K1Ds

This past weekend was a **great success**, and since Doc was away, I wanted to take this opportunity to thank so many of you who helped make it successful.

Michael KB1JEY made all the Mt Carmel and Raymond the Caterer arrangements. He also bought the food and drink for the hospitality suite with **Rich KB3NRL**. Rich helped **Mark WA3QVU** set up the PA. In addition, Michael put up the Hamfest signs, sold tickets and moved tables, and assembled the papers onto a master CD and then burned 60 discs and labeled them. Sadly, Rich was headed out to the Grange to help Don on the overnight shift and would up losing his gas-tank to a road hazard.

Greg Bonaguide WA1VUG and his buddy **Wes** from **Rohde & Schwarz** did a fantastic job at the test bench.

Ed WA3DRC made the grange arrangements, ordered supplies, worked with everyone to staff the place.

Paul W2PED gathered the speakers and papers

Don, N3OZO did the talk-in with Drex W3ICC. Drex also delivered the door prizes that were being collected by Doc W3GAD.

Paul WA3GFZ coordinated the food vendor (and we dodged a bullet as the gal who came was a last minute replacement) **Phil WA3NUF** collected vendor fees.

EI K3JJZ led the auctions at the conference and staffed the club table **with Sarah KB3BBR**

Phil K3TUF ran the program at the conference along with the projector.

George KA3WXV supplied the additional projectors, and helped park the cars at the grange, along with **Ben WA3RLT**, Sarah, Paul, **AI N3ITT**, Tom, and probably another bunch of folks I didn't see. That's the danger of naming names.

Gary WA2OMY gathered auction items and door prizes, along with John KB3XG and others

K3TUF, N3NGE, WA2OMY, KB3NRL, KB1JEY, K1DS and W2PED were speakers.

AI K2UYH and **Dave W2KV** supplied the EME demo on Friday night.

Steve W1SMS rented the hospitality suite and delivered several door prizes.

Dave W3KM did the financials as usual. I'm sure there are others that played major roles in the success of the weekend--like the webmaster **Ron, W3RJW** who posted the publicity. I apologize if I left anyone out, as I'm sure there was a big set-up and break-down crew for the grange. THANKS ALL

And thanks to K1DS for all his work! -Ed.

The Ups and Downs of Assembling a 1296 3 Meter EME Dish

Early in September there was some lively discussion with some EME experts, prompted by Rick K1DS, who was (and is) in the midst of assembling a trailerable 1296 EME station. What follows is a transcript of some of the emails that were exchanged. Hopefully, it demonstrates some of the pitfalls and triumphs in attempting to execute this rather daunting task. As of this writing, the K1DS EME station is very well along, but is still incomplete. Stay tuned for more episodes in the near future. --Ed.

9/5/09 -- Lenny [W2BVH] was here to help me assemble the dish today. We did not have great success finding the sweet spot for the feed, but we played a bit listening to the W3CCX beacon at ground level--aiming it through a house. The long yagi heard better though....see attached pix. Tomorrow Paul [WA3GFZ] will be helping me find sun noise and adjusting the feed. Thanks guys. I am hoping that I can try to hear stuff next weekend for the ARI CW weekend aside from the VHF Sept contest. What I clearly realize is that I will never be able to do this alone--it is essential to have a partner. --K1DS

9/5/09 -- Nice to see some progress. It all looks very well made. I am curious, though. I don't see the feed support. Are you, by any chance, trying to find the focal point by holding the feed manually or using the ladder? The focal point can be calculated quite accurately by measuring the diameter and the depth of the dish. Then you can slide the feed an inch or two for maximum sun noise. Then you need to slide the ring for best cold sky to ground. --N2UO

9/5/09 -- Yes, the dish is 120" diameter and the depth is 21.5" ($f/D=.35$) The supposed focal point calculates to about 41.6". When we were playing around with the feed without the support arms the beacon seemed to peak somewhere around 34", but that was through a house and from a point source....and of course the feed is circular and the source was horizontal...and that was by ear rather than by a measurement--no real reading on the S-meter despite a nice preamp also. Tomorrow we will start with the feed only as it is lighter and easier to work with without the scalar....we'll add that later and try to optimize its position also. Thanks for the encouragement. I don't think we need that small 10" central flat plate as it is blocked by the feed and the scalar anyway--right? --K1DS

9/5/09 -- You'll do better if you mount the feed. The presence of the ladder or someone holding the feed blocks the signal and causes uncertainty. The beacon is not a good point source because of multipath propagation. It is definitely better to use the sun.

Regarding the center plate, you are right that it does not help with the dish gain due to feed blocking, but the feed sees the warm earth through the hole and that increases the antenna temperature, so you need to cover it up. Probably not a big (or measurable) difference, but EME is about the summation of several fractions of a dB here and there.

Most feeds have the phase center at the mouth, so that's where you want to position the focal point at the beginning. Some feeds may have the phase center slightly inside the mouth. I don't know about this one. --N2UO

9/5/09 -The new dish looks great, but I fully agreed with all of Marc's comments. You need to build a feed mount. Playing around with holding the feed in front or using a ladder does not work well. The feed point is not that critical. You can probably move it half a foot and see no or very little difference. A tri-leg or Gooseneck will work. --K2UYH

9/6/09 - Paul WA3GFZ (Thank you and Lenny a thousand times) came over today and we started with the following steps:

1. Tune the 1296 feed--using a wattmeter and 2.5W slug adjusted both of the tuning discs for a perfect 50 ohm match
2. Mounted the frame holder for the feed on the dish
3. Adjusted the feed frame by re-drilling mounting holes to make it more centered and stable and allowing for sliding the feed freely in the frame to adjust for best sun noise. <<Lunch Break>>
4. Using the dish in somewhat of a polar mount scheme, tried using the TS2000x and WSJT to peak on sun noise. This was not successful. The clouds also moved in making sun tracking visually hard.
5. Hooked up a down converter and preamp from 1296 to 144, and a second down converter to 28MHz and fed that into my SDRIQ. The sun came out again for a brief interval. Measured the "cold" sky noise, then peaked the dish on the sun and peaked the feed in the frame for best sun noise.

SWEET SUCCESS---we found the feed distance to dish surface is best at 40.25" (calculated 41.5") and appears to have a sun noise figure of 7-8 dB.

Did not add the scalar ring on, as the sun then decided to hide behind the clouds for the rest of the afternoon and we took everything apart and put all back in the garage dissembled.

I still need to finalize the AZ-EL controls and the Lidl level indicator, but I also have one of the visual red-pointer elevation indicators from Harbor Freight.

Please let me know how a sun noise of 7-8db compares to others for the ability to make QSOs. I am realizing that this will take a team to set-up, operate and dissemble--not long, but takes a few sets of hands to work at a reasonable pace. Breaking down took less than 30 mins, Now that I know how to do it, set-up should take less than 3 hrs, and likely 2 hrs. Again, tnx to all for the inspiration, collaboration and patience and help. --K1DS

9/6/09 - Great going... 7 to 8 dB seems a little low, but there are a lot of factors and I have not done the calculation in a while. Do you have a 10' dish?

I responded to you yesterday, but my e-mail bounced. I wonder if you received it? I basically agreed with all of Marc's comments and the importance of getting your feed mounted. I am surprised you can see a significant difference in Sun noise for a 1" change. But I am used to the 28' dish, with a 10' dish it may be more critical. --K2UYH

9/6/09 - Glad to see some progress; congratulations to the team!

I have a 10' dish and I see 9 to 10 dB of sun noise. The flux these days is something like 68 at 2.8 GHz, which is low. A few years ago I was measuring 12 dB of sun noise.

The TS2000 has AGC, so make sure you disable it.

There are lots of reasons for the apparent low sun noise, apart from obvious ones like a poor preamp (not your case) or out of focus feed. Here go a few:

1 - The feed VSWR is not as low as expected. Make sure you measure the VSWR with the feed mounted on the dish, and the other port terminated with a 50 ohm load. Then, when you measure sun noise, leave the termination connected. If you tune the feed by itself, the VSWR will probably change when you mount it. The preamp noise figure was optimized for a 50 ohm load. It can actually oscillate if it is mismatched.

2 - The square septum is a decent polarizer, but not a good feed. The side lobe levels are horrible! This is why you made a ring. So, don't expect great performance until you actually use it. Otherwise, why bother?

3- "Cold sky" is not as cold as you think. Search carefully for the minimum. --N2UO

9/7/09 - Check Joe K5SO web page http://www.k5so.com/Using_sun_noise.html

He has some interesting plots of sun noise vs. dish diameter.

You can get the sun noise from the day before here <http://www.solen.info/solar/>

Sun noise varies a lot over time, so don't take the numbers too seriously. The web site shows the average at a particular location. --N2UO

9/7/09 - Happy to hear of your success getting the feed set up, and the focus checked!!

With your dish, sun noise of 7 or 8 dB on 1296 sounds slightly low, as Al and Marc have mentioned... but it's in the right ballpark, especially at the present low solar flux density. For some guidance, see Table 30.10 and the associated text, p 30.41 ff, in

http://physics.princeton.edu/pulsar/K1JT/Hbk_2010_Ch30.pdf .

It seems that you should be QRV on 23 cm EME very soon! -K1JT

9/7/09 - Thanks all for the resources on solar flux and sun noise. Although the actual number was "light" I was happy that we were able to get the whole thing together and get the feed calibrated. As all of you know, this is no simple task, and aside from all of the electronics, the mechanicals are rather complex, especially with a portable type set-up--although Al's portable adventures would seem to prove that it is simple!! We did not have enough time to play further as the clouds became very dense at about 4PM. We did note that the feed was probably a few degrees askew from the dish center, and did work to fix that a bit also, but never got to measure once that was done.

I do have circular feeds for 2.3, 3.4 and 5G and peamps for 2G and 3G that I bought from Tommy (in TX), but not sure that the sensitive az/el control on those frequencies would be suitable with my set-up. I can always make those available to Al and his dish for the fall EME contest.

I wish that I had more time and energy to devote to this--I was anticipating this three day weekend, and glad to have had the help from Lenny and Paul to accomplish what we did. Hopefully we will find a nice moon weekend, and a spot to set the whole thing up and operate a bit of WSJT in the near future before the stuff goes into winter storage.

I also have a pair of 5WL 2m yagis and the fiberglass ended boom with an elevation rotor that I want to try out on EME. They also mount on the trailer in place of the dish, with an additional 6' mast. I have not yet tried out that configuration, but I think I need a location bigger than the cul-de-sac in which I live. Also need a hand managing those long antennas on a rather limited trailer base, as it might prove a bit unwieldy on a 4x8 footprint that has wheels!

Just taking it one step at a time - K1DS

9/8/09 - You are basically there. With the ring and a little tweaking you should be in good shape. Joe and I are going to meet to discuss plans for the ARRL EME Contest. We will keep you in the loop.

-K2UYH



Day 1 Feed tested on ladder & hand held using W3CCX Beacon



Day 2 Feed on mount; tested on sun & cold sky

... EME Dish Continued

The above email exchanges are a good example of the VHF/UHF/Microwave fraternity (and especially Packrats) in action, helping one another out. From the looks of it Rick will be able to do some testing on the moon in the near future; though as he says it will probably take at least two to assemble the dish in the field when it comes time for full operations. Wish him continued success.

Next month we have the prefect **follow-up** article to this one. **John W3HMS** will present his article "Sun Noise Measurement for EMEers and Microwavers" as adapted from the "Scatterpoint" newsletter. **Watch this space! --Ed.**

Feedback on the MidAtlantic VHF Conference

Here are some examples of feedback received on the MidAtlantic VHF Conference:

I just wanted to pass along my appreciation for your well-executed conference. Food was very good, technical content interesting, and the dinner speaker was both entertaining and thought-provoking. We also **had a LOT of activity at the test bench**, and some interesting discussions. Thanks again for the opportunity to take part in the conference this year, and best wishes to you all for the year ahead.
-- **Greg Bonaguide, WA1VUG**

It was great seeing everyone at the conference this past Saturday, had a wonderful time. A special thanks to whoever arranged with the caterer to provide Yuengling on tap! -73, **Ron WZ1V**

Great conference to all, sorry about the rain two years in a row. Join us at the first of 2010 conference, April 17, 18 & 19 Eastern VHF/UHF Conference. Enfield, CT. -
Bruce N2LIV

My personal thanks to those who have volunteered as speakers; we have another great lineup this year. 73, **Paul W2PED**

Ham Radio URL of the Month

This months url is <http://www.k2txb.com/Mv2009/Mv2009.htm>. It's a super picture essay Russ did of his recent trip to Martha's Vineyard for the 10GHz and Up Cumulative Contest. Included are shots of his 10 GHz setup and that of Dale AF1T and Mickie W2MKY. The pix are extensively commented. Russ also includes some nice shots of island scenery and he has his log for Martha's Vineyard operations.

ENJOY!

--Lenny W2BVH

Events

For inclusion, please direct event notices to the editor.

Tailgate Fest Hamfest- Oct 3. Spr: Red Rose Repeater Assoc See w3rrr.org

OMARC Hamfest - Oct 4. See www.omarc.org

ARRL EME Contest - Oct 10-11, 50-1296MHz segment. See <http://www.arrl.org/contests/rules/2009/eme.html> for details.

RF Hill ARC Hamfest - Oct 18. See www.rfhill.ampr.org

MUD - Oct 25 The Westin, Dallas Fort Worth Airport 545 West John Carpenter Freeway Irving, Tx 75063. See www.microwaveupdate.org

Southeastern VHF Society Fall Sprints - October 7 - 432 MHz Sprint. See http://www.svhfs.org/fall_sprint_rules_2009.pdf for details.

Southeastern VHF Society Fall Sprints - October 17 - Microwave (902 MHz and up) Sprint. See http://www.svhfs.org/fall_sprint_rules_2009.pdf for details

Southeastern VHF Society Fall Sprints - October 24 - 50 MHz Sprint. See http://www.svhfs.org/fall_sprint_rules_2009.pdf for details

ARRL VHF Sweepstakes Contest - Jan 23-25, 2010. Details to follow at <http://www.arrl.org/contests/rules/2010/jan-vhf-ss.html>, when available. See email reflector message from Bill K3EGE January Contest Chairman for additional information

... Events continued

JCDXA Hamfest - April 10 and Sept. 11 2010. Details to follow. See <http://nadxa.org> when available.

Hamarama Door Prize

Dave, W3KM reports that the \$100 door prize at this year's Hamarama was won by Bob Unger WB3DTG. Congratulations Bob!

Packrats in the News

Pictured on page 80 of this month's QST is 17 year old **Joe Taylor, K2ITP** (currently K1JT), who made a record score along with his brother in the 1958 VHF Sweepstakes. The accompanying article has some insightful remarks and opinions on the history and current state of VHF+ contesting.

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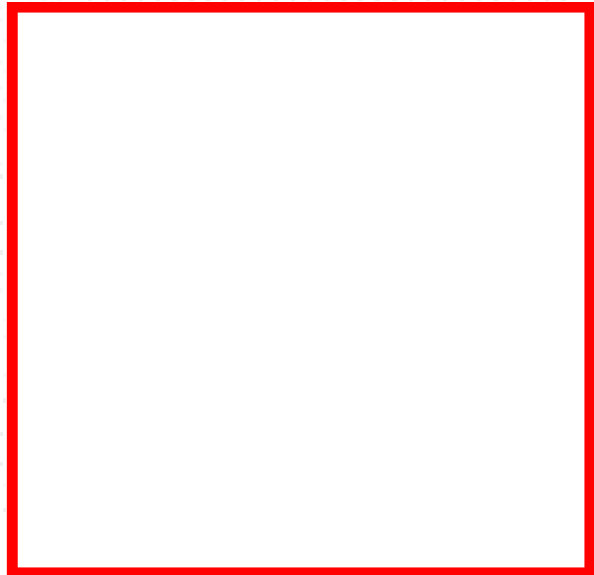
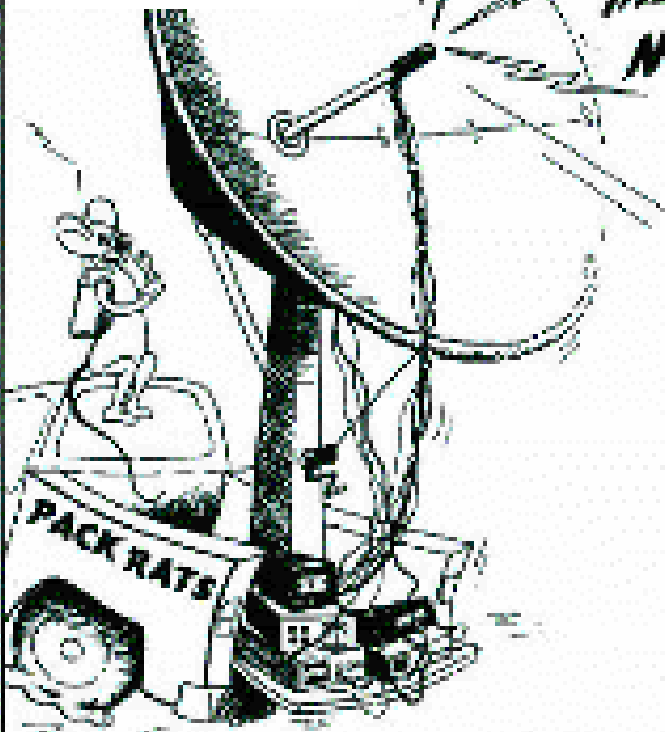
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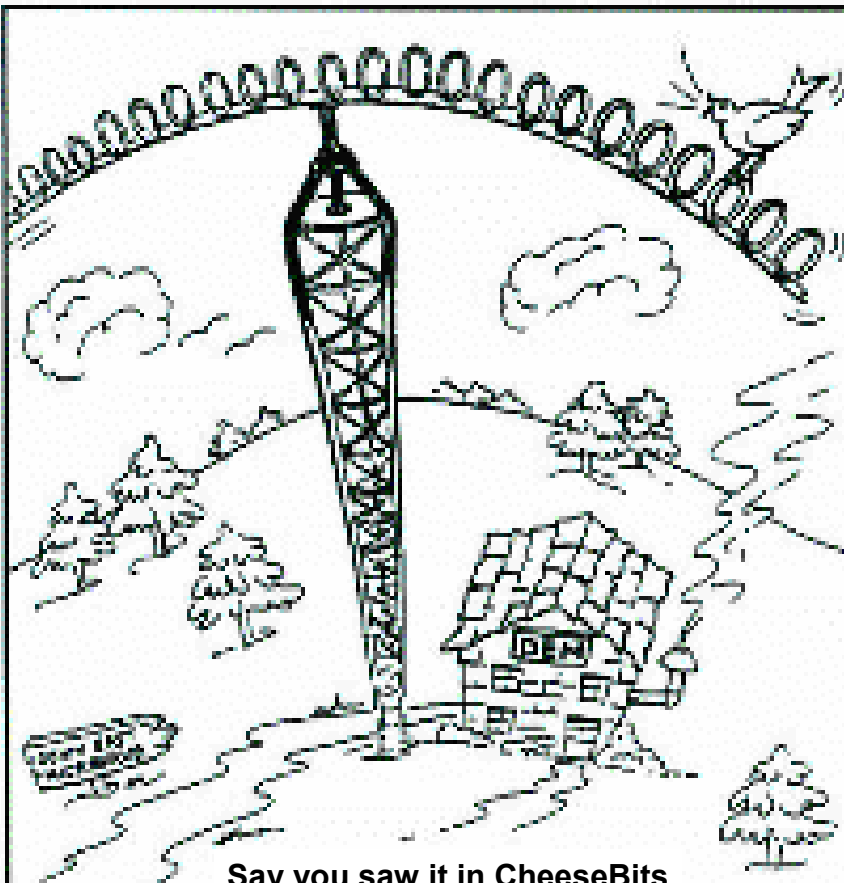
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