

# Mt. AIRY V.H.F. RADIO CLUB, INC.



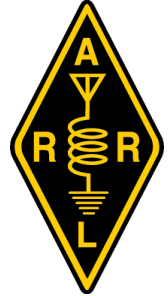
## CHEESE BITS



**W3CCX**  
CLUB MEMORIAL CALL



ARRL  
Affiliated  
Club



Volume XLV

February 2003

Number 2

### PREZ SEZ

I wonder how many will agree with me that this was one of the best club January contest efforts and results in the past five years. Several positive conditions before and during the contest added to the fun and excitement, participation and activity level. Contest Chairman AA2UK facilitated the preparation of the contest packets and they were dutifully distributed by hand, mail and the internet. Local activity was stimulated by all of the net managers. There was sharing of surplus equipment to maximize member participation and band capabilities. The amplifier conversion and tuning weekend at my QTH was fruitful. Several of you are aware that I was among others who helped get W3OR's antennas up. It was terrific to work W3OR and K3BPP our members in FM28 and our new members K3TUF in FN10 and KB3BPP in FM29 on bands AB-CDE.

Several members had added bands and the rover teams of N1XKT/R & K1DS/R, NE3I/R, N3EVR/R, and friend of the Packrats N6NB/R, were out there in freezing but clear weather to provide extra QSOs and multipliers. Our multi-op stations were primed for the activity and took advantage of plenty of participants on multiple bands. The weather, which had a warm spell break about 3 weeks before the contest allowed several ops to do final work on their towers and antennas. For those who missed that window of opportunity, there were the single digit days of clear and windy weather just prior to the event! The actual contest weather had no precipitation, and allowed everyone to maximize their operating time.

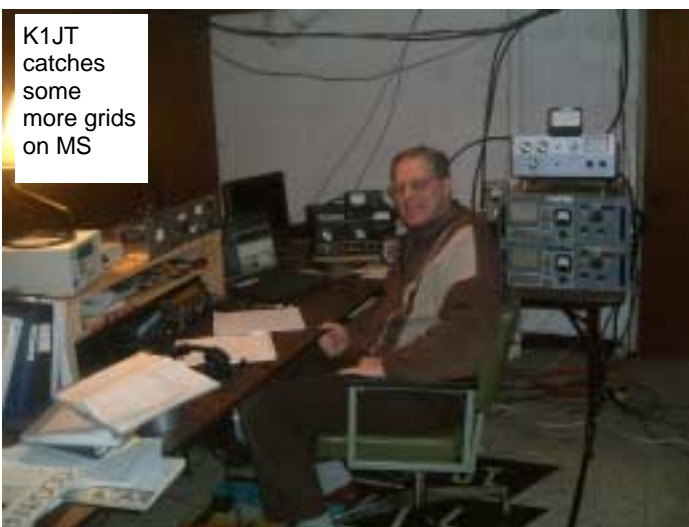
Band activity on 50 was enhanced by the e-skip session Sunday afternoon, and most took advantage and added to their grid counts. Meteor-scatter mode was utilized by some, and there was excellent activity on the microwaves through 24GHz and Laser.

No matter what the final scores and results, it's clear: "You done good!" We're all over the Eagles' loss in the playoffs, and without the pause to celebrate, all of us could get back to the bands for the final contesting hours. Saluting each and every one of our active participants for all of your efforts, and all the "Elmers" who helped another member along the way. As we put this one into the club contesting annals, take a minute to appraise your station, activity and results, and make a few notes for next year!

I expect to see most of you at the contest wrap-up at the QTH of W2SJ this Saturday morning, February 1st at 10 AM. This will be a great time to swap stories and scores, in addition to the snacks that Bob's preparing. You may also get a tour of his shack, if not already accomplished.

No matter how much we can celebrate the contest operating success, I look forward, as I am sure you do also to our "Cryin' Towel" meeting this month. Bring your stories, true and often embellished, and any unique props that help make your point.

**73, Brian, N3EXA**



Pack Rats **CHEESE BITS** is a monthly publication of the  
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## Editor's Column

It's all over but the crying. You'll be reading this after the  
 contest, but I'm writing this half of the column two weeks before  
 the fray. I made the mistake of looking at the two week forecast—  
 snow and very cold. So what else is new for January in the Mid-  
 Atlantic and New England. I remember when living in RI that there  
 was always a cold snap for about 10 days in January, with temps  
 in the single digits and below zero. I distinctly remember when I  
 purchased my car back in '93 with one of those temp gauges that  
 displayed the outside temp on the dash, and driving to pick up my  
 daughter from a weekend visit with friends in CT. As I headed out  
 of the unheated garage, it was reading about +4 degrees. As I  
 drove down 95, it continued to drop toward zero. I wondered  
 whether the gauge and display had been set up for temps below  
 zero. I didn't have to wait to find out—this was the trip—the lowest  
 noted was -11F.

We have all seen the power of ice and snow on feed  
 lines, antennas, rotators and towers. Yet there is that inner call to  
 have it all ready and contest, no matter what the conditions. I am  
 looking forward to my "dream" January rove: 8 grids, comfortable  
 weather, good conditions, and all working equipment. I almost  
 cried 2 weeks ago, when I fried the built-in mouse on my rover  
 laptop by working on the rover in a fleece pull-over, then touching  
 the mouse on the computer and having a static discharge to the  
 button and watching the pointer arrow slowly slide into the far left  
 bottom corner of the screen. Luckily, an outboard mouse/trackball  
 still works and all the keyboard strokes are OK. The older Logi-  
 tech trackball is small and useful in the rover, as it won't be rolling  
 around during travel.

Several emails have chronicled the improvements being  
 made to stations to get ready for the big event. An amplifier modi-  
 fication and testing weekend at N3EXA-Brian's, solicitation and  
 supply of a 222 antenna for K3MFI, Bill, roving potential for NE3I-  
 Griff, and tower work at AA3GN-Joe's with W3KM-Dave assisting.

We have recognized the Rochester VHF Group's  
 achievement in 2002, and have brought the inter-club competition  
 to a keener edge. In the final analysis, it will be, "Did we have fun  
 in the anticipation and the activity?" Will we have stories to tell,  
 boasting rights, and pictures to share? My only hope at this junc-  
 tion (precontest) is for fair skies and incident-free rover operation  
 for all of us out there!

I'm trying to convince myself that I should have a project  
 to enter into this year's Homebrew Night. I do have a 12MHz crys-  
 tal marker, but perhaps the three component simplicity is not a  
 real Packrat effort. And it would really be a challenge to enter the  
 rover van improvements, since it would only be pictures. If I could  
 think of one good project for next year, it would be a "smart  
 charger" for the rover batteries.

Speaking of projects, Paul Wade-W1GHZ's 222 trans-  
 verter project was published in QST last month, and there is an  
 enterprising ham who is gathering up participants on eBay who

would be willing to ante up about \$175 for a kit of all the parts. He  
 is seeking a group of at least 20, and when I last checked, he had  
 at least 10 takers. For those with a new rig that has a 24MHZ  
 band, here is a great 222 transceiver project. As is often said: Use  
 it or lose it.

Right now I'm feeling pretty accomplished, since for the  
 first time I opened the case of my computer to install some up-  
 grades, and it was easily done with good results. Installed a 2 port  
 USB-2 card and another 256M of RAM. Next project is a router  
 and making a home net available. This is greatly facilitating all  
 computer functions—as I got a little holiday gift of a digital cam-  
 era. Expect more activity pix! After receiving a gift certificate to-  
 ward the purchase, I almost got into analysis paralysis, trying to  
 decide what to get. In the end, I purchased a rather small  
 2megapixel type, with 3x optical and 3x digital zoom, since I was  
 not planning on making 8x10 enlargements, and even if I do, it  
 has a built-in software program that enhances to 4Mpixel. Ulti-  
 mately, size and convenience, as well as price were the final fac-  
 tors, and I ordered it from a distributor in NY after doing some  
 webpricing, and it arrived in 1 business day. Now I have been  
 having some fun getting used to it.

Well, here it is, 2 days after the contest. You'll have to  
 wait until the "Cryin' Towel" meeting to hear what the weekend  
 events were for this rover team. What I can say now is that there  
 were a ton of microwave QSOs, and we covered a fine route. As  
 the refinements have been made to the rover set-up, I felt the best  
 I ever felt on the day after the contest. No backaches, shoulder or  
 leg aches from hauling gear or repeated trips up top of the van.  
 Having the contest packet on board was a very useful addition.  
 For the very first time, we were in the right position for the activity  
 hours and maxed out that opportunity on Saturday night. I am  
 sure that when we add our paper logs while in motion to the com-  
 puter log from the fixed positions, that Leon and I will have per-  
 sonal best scores, and even hit significant milestones for our-  
 selves. Sure it was cold, and we did find that we could operate  
 with the engine and heater running continuously for a long time...  
 more about those specifics at the meeting! From our preliminary  
 indications, this will be a great scoring year for the club. **73, Rick**  
 below: "vintage" QSL card from my RI contesting days.

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## Important Dates and Events

Saturday, Feb 1, 10AM

**\*\*\*Contest Wrap-up\*\*\***

QTH of W2SJ

Also— Microwave Activity Day—6AM-1PM on bands 432 & up, use 144.260 coord

Mondays Eves, Feb 3,10,17,24 Nets, start at 7:30PM on 6m and move up one band each half-hour. Note freq changes in **red**

<u>TIME</u>	<u>FREQUENCY</u>	<u>NET CONTROL</u>	
7:30 PM	50.150 MHz	K3EOD FM29	903 freq changed due to portable phone QRM. 2304 freq changed due to crystal freq of 1 regular attendee.
8:00 PM	144.150 MHz	N3ITT FN20	
8:30 PM	222.125 MHz	W2SJ/N3EXA FM29/FN20	
8:30 PM	224.58R MHz	W3GXB FN20	
9:00 PM	432.110 MHz	W3RJW FN20le	
9:30 PM	1296.100 MHz	WA3NUF FN20le	
10:00 PM	<b>903.125</b> MHz	AA3GN FN20ig	
10:30 PM	<b>2304.085</b> MHz	W3KJ, & go to 3.4G & up after FN20hg	

Thursday, Feb 13 8PM

Board of Directors

QTH of Paul Sokoloff,  
WA3GFZ



Thursday, Feb 20 8PM Club Meeting  
Southampton Free Library

**Visitors Welcome**

## “The Cryin’ Towel”

Your best stories of how Murphy helped you for the VHF SS. A panel of judges will choose this year’s award winners. Be prepared!

Saturday, Mar 1

Microwave Activity Day—6AM-1PM  
432 & up, use 144.260 coord

Thursday, Mar 13 8PM

Board of Directors

Watch reflector for QTH

Thursday, Mar 20, 8PM

Club Meeting

Southampton Free Library

**Visitors Welcome**  
**Get your project ready for**  
**Homebrew Night**



As far as reprinting the article in "CheeseBits" I would be honored! The caveat here is that I am NO expert but wanted to share my personal experiences (good and bad) with others. I am new to 24GHz myself as well and am being tutored by Dave Halliday K2DH. Any success I have had has been a combination of luck and Dave's assistance. Reprinted from the Rochester VHF Group's *The VHF Journal*, Jan 2003

## Tips on Fabricating a DB6NT 24 Gigahertz 2 pole transition Fred Miller, WO2P

One of the decisions I had to make while building my 24 gigahertz station recently was how to direct 24ghz signals into and out of the filter / transverter pair. Finding an SPDT relay that can handle 24ghz can be difficult. When my DB6NT modules arrived, a diagram was included that showed how to make a 2 pole transition from just a WR42 waveguide flange, a piece of WR42 waveguide, and a couple of pieces of UTO8S coax terminated with SMA connectors. Having had some success at building 10ghz and 24ghz single pole transitions I thought I would make an attempt at this 2 pole version. This project looked a bit intimidating at first as it required soldering probes made from UT085 coax directly into WR42 waveguide but, through trial and error, I came up with a couple of jigs and some tricks that actually made this quite easy.

Please refer to the attached diagram and pictures for clarification. As with any soldering process, make sure all surfaces to be silver soldered or soldered are extremely clean.

Fig 1



Step 1: Silver solder a WR42 flange to the .850" long piece of WR42 waveguide. I found that silver solder is preferable to regular solder for these steps of the assembly. The melting point is somewhat higher than regular solder and, since the transition will require additional heating, the silver soldered connections will retain their bonds.

Step 2: Carefully mark and drill the 2 .085" holes for the UT085 coax. Be careful here not to distort the waveguide with drill bit pressure. To avoid the distorting problem, I made a jig out of

scrap aluminum to just fit into the waveguide cavity .420" x .170" x 3". I slid this into the Waveguide as a backstop while drilling the holes.

Step 3: Using a small, very fine jeweler's file, carefully remove all burrs from the holes and flange surfaces.

Step 4: Fabricate an end cap / reflector from scrap waveguide or copper and, using minimum silver solder, attach it to the waveguide end.

Step 5: Prepare the UT085. Determine how long each one needs to be (one for transmit and one for receive) and, using an Exacto knife, cut (out through) the copper outer jacket leaving the teflon dielectric material and center conductor intact. File the teflon and center conductor if necessary to the final length of .087".

Step 6: Fabricate another aluminum jig .420" x .083 x 3". This jig will be used as a spacer and a probe stop while soldering the coax stubs into the cavity.

Step 7: With everything CLEAN, insert the probe stop jig into the cavity and push the coax stubs into the holes until you feel them bottom out on the jig. This insures that the EXACT probe length extends into the cavity.

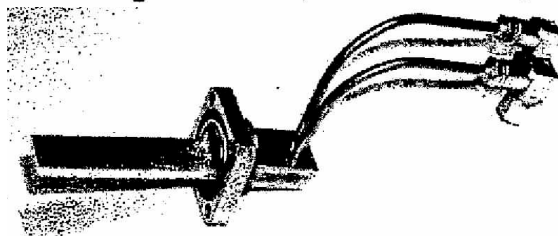
Step 8: Using the MINIMUM heat possible, solder (not silver solder) the probes into the cavity. Excessive heat here will cause deforming of the dielectric and possibly the end cap to move. Make sure probes remain bottomed out while soldering. When the unit cools, remove the jig.

That's it! It sounds difficult but it really quite easy. Dave Halliday (K2DH) was kind enough to put it on his test fixture and "ran the numbers" for me. (thanks Dave!) Here is how it turned out:

Transmit port: WR42 flange (with 5" of UT085) to SMA connector, 4.0db loss

Receive port: WR42 flange (with 2.5" of UT085) to SMA connector, 2.4db loss  
SMA to SMA, 12db isolation

Figure 2: Flange soldered, coax stubs in place



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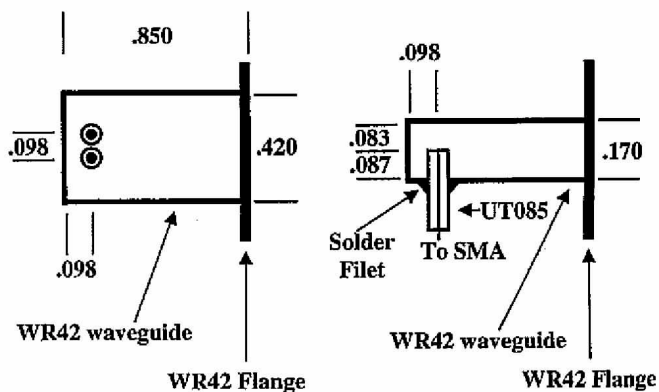
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## DB6NT 24ghz 2 pole transition



**Figure 3 Dimensions (in inches)**

Here is a URL from the Kuhne site that shows where this 2 pole transition is used. It should become clearer after you examine the diagram:

<http://www.kuhne-electronic.de/english/transverter.htm>

Go to the 24ghz page and look at the diagram in the transverter listing.

The right angle connector you see in the picture is actually running at IF 144.100mhz not 24ghz. That cable connects the IF pad (9db) to the DB6NT transverter IF input section. Since the losses were well within operational limits of my Transmit and Receive chain, I was able to incorporate this unit (with additional transmit padding) directly into my station without further refinement. The transition I had success with and eventually was installed in my rig did have standard straight (non-right-angled) SMA connectors. If you have any questions on this project just drop me a note at [wo2p@arrl.net](mailto:wo2p@arrl.net). **73, Fred Miller W02P**  
Fig. 4



## Almost a Crying Towel Story

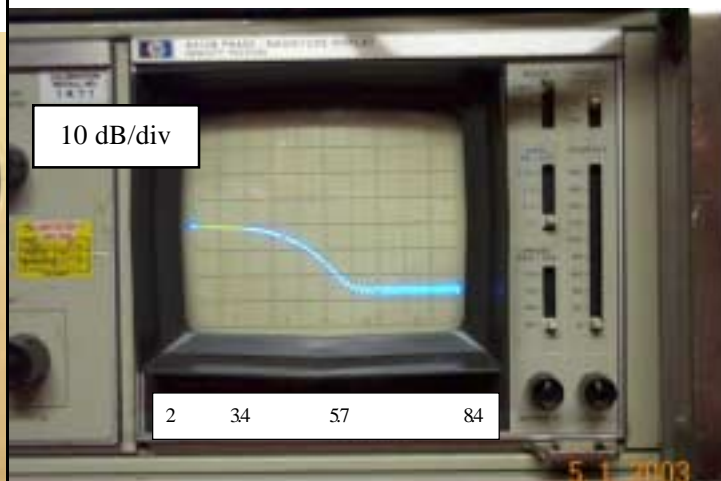
Two years ago I installed Superflex (Andrew FSJ4 -50B) jumpers as rotor loops for 3456 and 5760. At the time I carefully checked the loss of each jumper (6' lengths) and measured 0.08 dB/ft at 3456 MHz and 0.11 dB/ft at 5760 MHz. The beacons were blasting in and my feedline loss was as low as I could make it. Life was good.

Two weeks before this years January contest the beacon on 5.7 GHz suddenly disappeared. Suspecting the Superflex jumper was the cause, (actually praying that it was just the rotor loop which could be replaced easily), I substituted a piece of LMR-400 and brought the 5.7 GHz Superflex jumper down the tower for a closer examination. The beacon was back so I knew the rotor loop was indeed the problem but I couldn't find anything wrong with the Superflex jumper I had just removed. No breaks, no intermittent problems, but when the jumper was put in-line on 5.7 the beacon magically disappeared.

After finishing the installation of the new LMR-400 rotor loop (0.2 dB/ft at 5760), I fired up the lab equipment to investigate further. RF testing with the jumper from 100 MHz to 2 GHz showed normal operation. The next sweep was 2.0 to 8.4 GHz and that told the story as shown below. The Superflex jumper had become a low pass filter. The return loss looked normal but the transmission loss began increasing at 3 GHz and was down >20 dB at 5760. I had heard story's that Superflex was unpredictable at uW frequencies but until now, I hadn't experienced any issues myself. Lesson learned.

Hope this helps some of you when you see those shiny new looking Superflex jumpers at the next flea market.

**73, Phil, WA3NUF**



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## New Saudi OSCAR Satellite

(from the ARRL web bulletin 1-7-03)

ARLS001: New Saudi satellite gets OSCAR designation  
A third satellite in the SaudiSat series has earned an OSCAR designation from AMSAT, SO-50. The Amateur Radio payload was successfully placed into orbit December 20 from Russia atop a modified SS-18 intercontinental ballistic missile. The German-made SAFIR-M Amateur Radio payload went into orbit during the same launch. SaudiSat-1C is a project of the Space Research Institute of the King Abdulaziz City for Science and Technology (KACST). SaudiSat-1C follows the 2000 launch of SaudiSats 1A and 1B. Now in a 650-km orbit, SaudiSat-1C carries several experiments, including a new Mode J FM amateur repeater. The downlink frequency is 436.775 MHz. The uplink frequency is 145.850 MHz. A 67 Hz CTCSS tone is required for access. The repeater will be available to amateurs worldwide as power permits.

AMSAT-NA President Robin Haighton, VE3FRH, said SaudiSat-1C will require activation on each pass by a designated control operator. "A worldwide network of designated control operators is now being developed so that radio amateurs may begin using the satellite immediately," he said. The NORAD identifier for two-line Keplerian elements is 27607. The new satellite is also equipped with capabilities to provide vital data concerning weather conditions and oil exploration as well as to monitor the movement of vehicles in remote regions of Saudi Arabia.

## NEW JERSEY LEGISLATURE HONORS AMATEUR RADIO'S 9/11 ROLE

VIA The ARRL Letter Vol. 22, No. 02 January 10, 2003

The New Jersey Legislature has honored the role of Amateur Radio operators in the aftermath of the September 11, 2001, terrorist attacks. On hand in Trenton to witness a joint proclamation December 12 were ARRL Hudson Division Director Frank Fallon, N2FF, Hudson Division Vice Director Steve Mendelsohn, W2ML, Northern New Jersey Section Manager Bill Hudzik, W2UDT, and Bergen County District Emergency Coordinator Mike Adams, WA2MWT, who's also a member of the New Jersey PRB-1 Task Force. "I would like to take this opportunity to commend you for your hard work and efforts," said Assembly Speaker Albio Sires. "During times of disaster, your group has displayed superior service and dedication to the safety of our citizens. I applaud the efforts of the independent radio operators and thank you for your selfless actions on September 11, 2001. Allow me to express my sincere gratitude for your participation with the New Jersey General Assembly on this day, December 12, 2002." On behalf of the amateur contingent, Hudzik thanked the 80 members of the Assembly. Among the cosponsors of the resolution was Assemblyman Matthew Ahearn, KB2PNN, a Democrat from Fair Lawn and sponsor of an Amateur Radio antenna bill, Assembly Bill 3065, in the Garden State.

**While in the state capital, the ham radio delegation took the opportunity to promote A3065, "The Amateur Radio Antenna Bill."** The measure would codify the limited preemption known as PRB-1 into New Jersey's statutes. In addition, it would preclude local ordinances or regulations that effectively prohibit an antenna support structure of 70 feet or less above ground level exclusive of any antenna upon the structure. The measure has been assigned to the Housing and Local Government Committee chaired by Assemblyman Jerry Green (D-Plainfield). The text of the proposed legislation <<http://www.njleg.state.nj.us/>> is available on the New Jersey Legislature Web site. Search on "A3065" in the "Bill Search" engine. Ahearn will be seeking cosponsors in the New Jersey General Assembly and Senate. Interested New Jersey amateurs may contact him via e-mail <[asmahearn@njleg.org](mailto:asmahearn@njleg.org)>. **Amateurs may contact their state lawmakers to express their**

opinions on the bill or to urge their cosponsorship. Visit the New Jersey Legislature page <<http://www.njleg.state.nj.us/>> and look under "Members--Find Your Legislator."--Michael Adams, WA2MWT

## 76GHz MIXER OFFER

Martin, G7MRF, wishes to add the following information to his offer made in last month's RSGB Microwave Newsletter (that was copied into the Jan '03 Cheesebits) ..

**From: Martin Farmer [g7mrf@prism-online.co.uk]  
Please note my new email address**

The current status is that the machined enclosure for the mixer has just been redrawn but I waited until after Christmas to give the drawing to the machinist for costs. I have changed it somewhat from the published picture in the newsletter to a bolt together section that meets with the X3 module - so no transition will be required. I will let the interested people know just after the start of the New Year what the cost will be. (If you are interested in one of these units, described and pictured in the last issue, contact Martin via email....Ed)

## 145 GHz VUCC?

(from a posting on the microwave reflector on 1/12/03)

I'd like to claim what should be a new World and North American DX record for the 145GHz band. Today, W2SZ/4 worked WA1ZMS/4 with FSK-CW on 145GHz at a distance of 79.6km.(The former record was 61.7km by W2SZ/4) Details of today's QSO:

Date: Jan 12th, 2003

Time: 20:50z W2SZ/4 in FM07fm (37-31-04N 79-30-40W)  
WA1ZMS/4 in EM96wx (36-59-28N 80-07-17W)

WX at time of QSO on the EM96 end was Temp: -1.5C Dew Point: -18.3C Relative Humidity: 26%

Calculated atmospheric loss: .193dB/Km

WA4RTS was the CW op at W2SZ/4 and was being helped at the time by W4WWQ and KA4YNO. WA1ZMS/4 was op of his own station and roving in EM96. Signal margin was about 2dB on the 'ZMS end and about 6dB on the W2SZ end. One station has a better RX mixer than the other. This QSO is also the 5th grid needed for the ARRL VUCC award for the 145GHz band for W2SZ/4. This claim should be the very first VUCC for that band, and it took two years of hard work to make it happen. More information with photos and an audio file will be posted on

[www.mgef.org](http://www.mgef.org)

**73, Brian Justin, WA1ZMS**

## The Power of Ice (via the web)

Here you have the picture of the antenna farm at WZ1V prior to the ice storm in CT in Dec. Top right p7 is the after picture. De-



spite that, Ron was able to make repairs and get on the air for the Jan VHF SS and score a cool 120K+ thru 3.4GHz



W3KKN

We also had a nice turnout on 903, 2304, 3456. The 903 net had 10 check-ins. Afterwards, ran with N3PLM K1JT, WA3NUF, WA3DRC, AA2UK on 2304. Also Ed and Bill on 3456 where we



WZ1V after the ice storm

enjoyed really pounding sigs. Nice job guys! **73 Joe AA3GN**

Celeste Murdock passed her Technician Class FCC License with a callsign of KB3IZP. Celeste is the XYL of KB3XG and operated in the January SS to give out points to contesters. *Via W3KM*

Ernie Kenas, W3KKN hosted the January Board of Directors meeting at his QTH. The meeting was well attended with 12 Packrats there. Ernie's gear was all checked out for the contest and he expects to be active on 6 thru 2304. Shown in front of his impressive collection of active gear, he also has lots of club memorabilia and vintage gear on the other side of the shack.

I must say I was amazed at the 30 stations that checked into my 6 meter net last night. This has been the largest number of check ins that I can ever remember. Lets not forget that the PackRats run nets each and every Monday night on all bands. Don't just check in the week before the contest, but join in each and every week. Again I want to thank everyone who has supported all of the PackRats nets each and every week.. Wish the best of luck to everyone on the contest this weekend. **73 Al K3EOD** Net control for the PackRat 6 Meter Net

We had a great 222 net with 17 check-ins and W3OR was 5x9 plus a bunch 73 All and good luck in the contest. **73, AA2UK**

### New 10GHz Beacon

A new 10Ghz beacon has been activated by Al K1JCL.  
CALLSIGN: K1JCL/B FREQUENCY: 10368.265Mhz +/- 10Khz  
LOCATION: Coventry, CT FN31US  
41deg 46' 47.4"N, 72deg 18' 36.3"W  
ANTENNA HEIGHT: 190 FT above base elevation of 751 FT  
TRANSMIT POWER: 200 MW (DB6NT MKU10BAKE)  
ANTENNA: 16 Slot Waveguide, 10dbd -Thanks to Harry WA1VVH  
KEYING: FSK (1000Hz Shift keyed down) Please send reports to  
K1JCL al15@mindspring.com or K1GX. **73, Paul K1GX**

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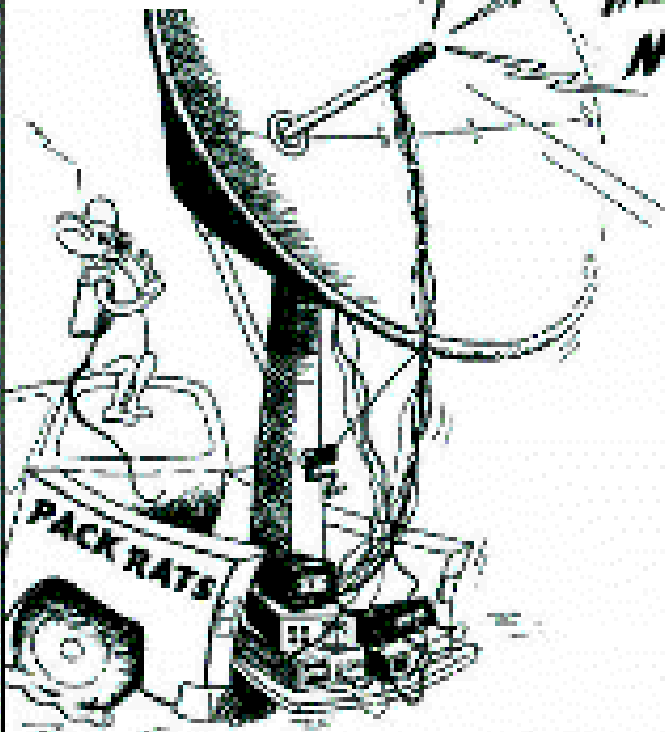
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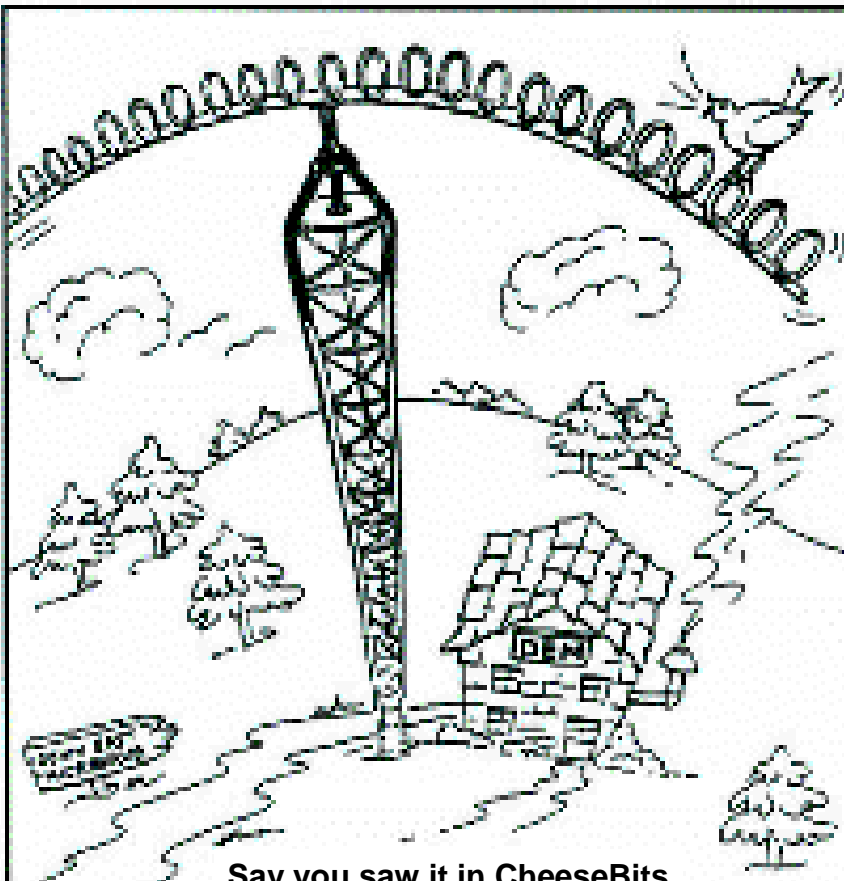
## MEETING NOTICE



- Please pay your dues and subscription fees promptly
- Saturday, Feb 1, 10AM  
\*\*\*Contest Wrap-up\*\*\*  
QTH of W2SJ
- Thursday, Feb 13 8PM  
Board of Directors  
QTH of Paul Sokoloff, WA3GFZ
- Thursday, Feb 20 8PM  
Club Meeting  
“The Cryin’ Towel”  
Southampton Free Library

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