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

"Wabbit Ears"

CHEESE BITS

W3CCX
CLUB MEMORIAL CALL

ARRL Affiliated Club

Volume XLV ***April 2003*** ***Number 4***

Prez Sez

It was a real treat to see the push for 24GHz at the Homebrew Night this past month. Thanks to our panel of judges, Len N3NGE, Ben WA3RLT and Joe, K1JT for selecting the category winners. Congratulations to those who won honors, and to all of those who brought their projects to share. Hopefully more of the club members will be able to be active on more bands, and we will see significant expansion on 24GHz.. This month we have our ARRL speaker, Gene Zimmerman coming to talk to us about one of our favorite topics, VHF Contesting, and I hope we will have a good showing and discussion. You can also meet and chat with Gene at our dinner at Pippo's Fantastico that evening at 6PM. Don't forget to tell our Activity Chair, Paul, WA3GFZ if you are coming to the Dutch Treat dinner. The meeting will also be our Awards Night, and there may be surprises in store, so be sure to be there.

Al, N3ITT, has served as the June Contest Chair for a number of years and has done a brilliant job of organization, but he has asked to be relieved this year, and we must have another member to step into this role. One of the basic membership responsibilities is to be on the mountain in June with the Packrats. (For those unable to be out there, they should be operating from home to work the mountain crew.) We have several new members who need to step up to assistant roles for the June Camelback effort in addition to having seasoned and experienced members as band captains, cooks and truck drivers. From the time you read this, there will be only 70 days until we load 'em up. For those who haven't been to a Packrat June contest, go to the packrat webpage and see the June contest pictures to get an idea. WE NEED EVERYONE to make this another successful year. It is no small feat to have big stations and big antennas operating for the entire weekend, setting up, breaking down, loading and unloading, and feeding the crew.

AA2UK, Bill, shows off his 24GHz transverter and dish project to the club and judges panel and earned the Best Design Award for Homebrew Night 2003.

Don't wait for someone to call or tap you on the shoulder. This is the year that YOU will take the lead. I will be waiting to hear from many of you volunteering in leadership roles. Please call or e-mail me this week with your preferred position. Help maintain the Packrats as a premier VHF contest club!

73, Brian, N3EXA
n3exa@enter.net
215-257-6303

Was it raining out and did the wind strip W2SK's parapluie? See the full story on p 4.

Welcome to the Newest Packrats!

H.P. Drexler, Jr., W3ICC Bill Shaw, K3EGE Phil Theis, K3TUF

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Editor's Column

24GHz…that will be the password for the next several months. Watch for more and more operators capable on that band. Every day that I ask another question about gathering the gear for that band, I learn a new hardship! Every lesson in life costs time and/or money.

During the January contest I was parked over the Palisades Parkway in NJ in FN30 and worked WB2JKJ, Joe Fairclough, the mastermind behind the JHS 22 "Crew"—they advertise regularly in QST and through other media to get donations of dollars and equipment. As a youth, I grew up in ***the*** Bronx, NY, and I went to PS 28 (Public School), JHS 117 (Wade Junior High School) and then to the Bronx High School of Science. Certainly these years were formative to my ham radio interests, as I got my first crystal radio kit when I was in the Cub Scouts-Pack 28, that met at PS 28, and later I got my ham ticket after a local ham brought his Gonset Communicator to one of our Troop 28 meetings. When I was in Junior High School, I was in the Science Club, and I studied radio-electronics, and remember making a presentation to the club on how a super-heterodyne receiver operated. I got a pair of ARC-5's (don't be jealous Paul) and burned up the airwaves on 40 & 80m. By the time I was in HS, I was a member of the Bronx Radio Club, the Fordham Radio Club and then the Bx. HS of Science Radio Club. I feel an obligation to support Joe's efforts in his radio program to get students interested in radio, communications, electronics, and group activities. To that end, I have been a "honor roll" donee to the group for many years, and last year donated an old, working, but idle surplus FT101B to them. I feel it is a worthwhile cause, and encourage others to make their old gear, and perhaps a monetary donation to Joe and the WB2JKJ "Crew."

There has been a fascinating thread on the microwave and rover reflector lately, concerning the use of a newly (?) available digital compass, which provoked many replies about the use of spotting scopes, stars and moon and sun as references, known radio towers and mountain peaks as references, and then a series of very technical opportunities to use various motors, gear reduction assemblies, A-to-D converters and the like to have digital direction control of a dish or other antenna for accurate positioning. Here is a copy of a recent post from w2drz@madbbs.com

"Here is a preview of the new controller and a temp site for those so interested .. (*From an email web post from W2DRZ)* http://mywebpages.comcast.net/russk2t/Drz/index.htm Have decided as still doing the new PC board, to include a RS 232 I/O for a mouse encoder input, to the new board , as it is a freebie, a spare RS232 port is not used , if any interest the hardware is there to run a encoder style using a mouse RS232 interface, as is described in several web sites on the I-Net .. have not looked myself , so if any interest for a mouse style encoder system that could be included later in the software .. Have a look , it is a beta op system yet, as still massaging some of the features .. best tom"

As I explained earlier, this year I added some varactors to my rotors to stabilize the voltage for the indicator, and it was a great help for the January contest microwave contacts. With just a little more ingenuity, I was also able to make a universal directional control, that used rather easily available parts. Since I am a rover, it was essential to have not only azimuth control, but also elevation, since it is common that the rover vehicle might be parked on a slight incline or side slope. But why stop at AZ-EL, when one can easily make an X-Y-Z axis control, so that if the van is parked at a slight angle, there can be total compensation for any skew.

This becomes especially important as we approach the higher microwave bands, as slight aiming errors can make the difference between a QSO and noise. Just imagine an azimuth system with 0.5 degree accuracy—pretty darn good for a rover that continues to change location—but an elevation tilt of 2 degrees and a side-hill slope of about the same would kill that advantage. Using simple trigonometric calculations, this can place a 8db aiming loss, and a potential partial polarization loss, which can be as high as 4.5 db at those minimal angles.

Adding a Z-axis control compensates for those problems, and the fastest and simplest way to compensate was sitting in the driveway, in the form of a set of motorized auto seat controls. Not only are there several motors with substantial torque under the seat, but they are already set for 12VDC operation, have gear reduction and/or threaded drive-shafts, and already have reversible switch controls attached.

There is no doubt that the mechanics of the imports are superior to the domestic varieties, but the torque of the domestics is better than the imports...so how do you choose the optimal combination of gear from the local automotive junkyard. My first approach is to ask the management if they already have stripped seats out of the junkers, since it is far easier to dismantle the drive motors from the frames once the seats have been removed from the unibody. For accuracy, I use the imports with a clock reduction mechanism for azimuth control. The ease of knowing the 60 second/60 minute ratios of those gear chains and the 360 degree compass rose makes for an easy indicator relationship. Depending on the potential for some weight-lifting for elevation, I would tend to favor a domestic motor, perhaps with a jack screw. Lastly, for the Z-axis, it is a toss-up, and depends largely on availability, and perhaps the dimensions of the actual rover vehicle, coupled with the load-leveling ability of the suspension.

The tricky part at the end was the controller, I must admit, and keeping the three axes simultaneously controlled. As others have pointed out, rovers cannot simply rely on known landmarks, as they move an reorient quickly. The days may not be sunny , the moon and stars may not be visible at night, and fog at elevation often prevents spotting of objects on the horizon. In order to establish a fixed reference point, a weak microwave signal source was mated to APRS setup and deployed approximately 1Km from the intended rover site. This source is leveled using two 1 meter long base brackets at right angles to each other, each with its own triple-bubble level attached. Considering the accuracy of the GPS system and the beamwidth of my 10G dish, I now have an azimuth accuracy of 0.03 degrees, but still having a problem calibrating the elevation, due to ground level operations, refraction and reflection problems. Once that is accurately done, the polarization aiming error can be corrected.

By this time I'm sure many of you have already come to the conclusion that Z-axis control is far more difficult than a simple twist of the feed to control for polarization, and this is the next phase of the construction and testing. With all the sizes and shapes of motors and gear drives, it is rather simple to add a small motor drive for the feed polarization, but for those with waveguide feeds, the entire dish-feed assembly may require a partial tilt.

Your feedback is welcome, and sure to be published in our next April 1 edition. 73, Rick, K1DS
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VHF-UHF-Club Activity Calendar

Tuesday, April 1 8:07PM (est moonrise)	**Harmonic Band Test**	See if your receiver's sensitivity can copy the ZRO signals being sent via WSJT on multiples of 144.065. Listen there and on 432.195 and ham band frequency multiples. Point your beams toward the moonrise azimuth. Logs copying the special test message should be sent to Cheesebits for a "Luna" tick Certificate.
Friday, April 4 7-11PM	**2m Sprint**	See P9
Saturday, April 12 7-11PM	**222 Sprint**	" "
Saturday, April 19 7-11PM	**432 Sprint**	" "
Mondays, April 7,14,21,28	**Net Nights**	Start on 6m@7:30PM, up a band each 30 min
Thursday, April 10 8PM	**Board of Directors Meeting**	Watch Reflector for QTH
Thursday, April 17 6PM	**Meet Gene, W3ZZ ARRL Speaker for Dinner**	**Pippo's Fantastico Restaurant 765 Second Street Pike Southampton, PA www.pipposfantastico.com/**
Thursday, April 17 8PM	**Annual ARRL and Awards Night**	**Southampton Free Library 947 Street Road Southampton, PA**

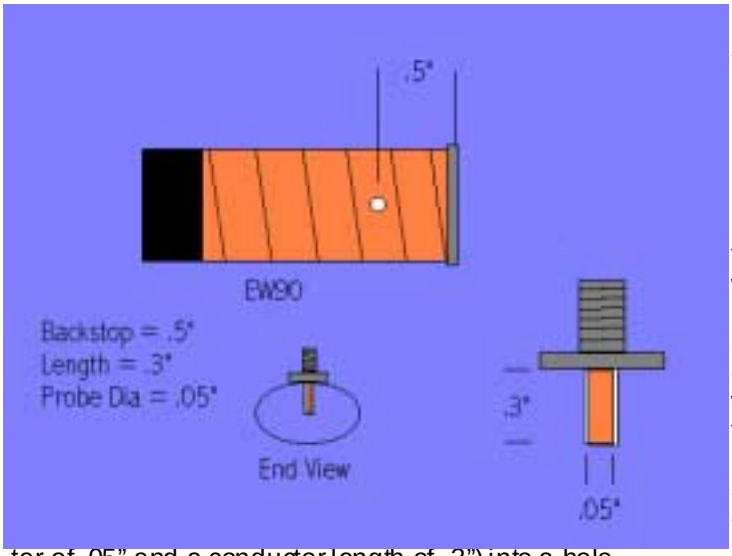
Gene Zimmerman, W3ZZ, the new editor of the ***50MHz and Up*** section of ***QST***, will speak on the Future of ARRL VHF Contesting. This is a very appealing and timely topic, as there has been an evolution in activity and techniques, as well as many newcomers and old timers involved in this common cause. Be sure to read this month's QST article by Gene in preparation for substantial discussion and feed-back. And who knows, you may be an award winner this year.

Connecting EW90 for 10G

What did you do during the big winter storm on Presidents Day 2003? After clearing the 24 plus inches of snow from the drive and sidewalks, the day off from work gave me the opportunity to experiment with microwaves…

While at the flea market at Microwave Update this year I picked up a 135' roll of EW90 waveguide for use on 10 GHz. It was brand new and terminated at both ends with ER90 to WR90 connectors. I planned on using a 40' piece for an upcoming EME project while the balance would be used for my contest station. Here lies the problem! Having only two ER90 to WR90 connectors, how would I get power in and out of the second piece of waveguide? Buying new connectors was not an option; they are very, very expensive!

A few years ago I read an artide in QEX by Paul Wade, W1GHZ (Jan/Feb 2001) where Paul described and documented his work on coaxial to ¾" water pipe transitions for 10GHz. Armed with my trusty digital caliper and Paul's "ideal" dimensions for probe size, length and backshort distance; off to the workshop! I soldered a two hole female SMA connector (a SMA that has a conductor diameter of .05" and a conductor length of .3") into a hole drilled .5" from each end of my 95' ength of waveguide. I then soldered a brass plate on each the end of the waveguide. Proper cleaning and the use of rosin solder flux will assure proper solder flow with minimum heat!



I fired up the test bench and much to my surprise; the untuned waveguide assembly had 16dB of return loss (1.37:1 SWR) when terminated into a 50 ohm SMA load. Although not perfect, very acceptable considering total attenuation for 95' of EW90 and both transitions was only 2.1 dB! Attenuation was 1dB less than Andrews specifies for 100' of EW90. For a more precise match each transition could be optimized using a #4 tuning screw placed opposite the SMA connector and adjusted for maximum return loss.

Although not tried, a microwave quality N-Type connector could be substituted for the SMA connector. This same procedure should be scaleable to other size EW waveguides and frequencies. Where are my calipers…

Steve, N3FTI

Homebrew Night 2003

This could have been dubbed Microwave Night by the number of projects that were diplayed for the higher bands, with several prodly showing off their 24GHz setups, each unique in their parts and structure. At left is the handiwork of AA3GN, using a small offset feed dish and feed arm as a platform, a weatherproof endosure for the electronics, and a big waveguide switch as the centerpiece. Note the substantial heatsink on the 2GHz amp. This won the "Most Ambitious Project" award.

WA2GFZ also showed off his start onto 24GHz with a series of filters and TR relay, circulator and dish and LO brick. He was able to measure things with Paul in his RF lab, finding only minor and negligible losses in potential mismatched fittings. His gear is shown below.

The next attempt at a microwave homebrew project was the portable antenna frame of W2SK. Pat's idea was purloined from the movie "E.T." but nonetheless, it was appreciated by the crowd. (see p1)

Best Construction award went to Chuck Grabowski, WA2ONK, for his 903 MHz transverter, seen below, which I heard was promptly procured by another Packrat. See p5

CARE AND FEEDING OF THE mm-TECH 24 GHz AMPLIFIERS

by Paul Drexler W2PED

The following guidelines provide proper operating conditions for the surplus 24 GHz PA's. If the guidelines are followed, your amplifier should give you many years of trouble-free service. Failure to follow these recommendations, however, may result in damage to your unit. Since the construction uses chip-and-wire assembly techniques, repair is nearly impossible. If in doubt, please ask first!

HEATSINKING

First and foremost, the amplifier needs to be mounted to a heatsink of some kind. The amplifier dissipates about 15 watts of power, so it gets warm VERY quickly if not heat sunk. Heat kills MMICs, so unless you get the heat out, your unit isn't going to survive. I prefer to mount it to a small finned heatsink (for instance use a heatsink the same footprint as the amp with 3/8" fins). This will allow you to go key down without every worrying. Another approach is to bolt the unit to a large plate, if your transverter arrangement uses such a mechanical configuration. If it's large enough, this may serve OK as a heatsink. Whatever the situation, the amplifier should never get more than warm to the touch after being on for say 5 mins. If it gets HOT (>50C), then you need more heatsink. The amplifier housing has four 4-40 clearance holes at the four corners to allow for mounting to a heatsink. Use a LITTLE thermal grease.

SUPPLY VOLTAGE

The 2W PA operates on 12 VDC nominal, however, anything from 8-15 VDC is OK since there's a DC-DC converter on the input. At 12 VDC, current is about 1.2A under RF power conditions. At lower voltages, current will be higher. Most of the amps have a wire dangling from the bias board, some have a large inductor dangling off the board. This is the +VDD input. If your unit has neither, the LOWER terminal on the upper left side of the bias board is the input terminal. The terminal above it is ground. WAVEGUIDE ATTACHMENT The amplifier uses WR42 for input/output interfacing. 4-40 tapped holes are provided. When mounting transitions or waveguide to the unit, be sure to use screws that do not protrude too deeply into the amplifier housing - they may bottom-out. The WG must be mounted snugly against the amplifier. Failure to do so may cause a high frequency oscillation (i.e. leakage from in to out)

LOAD IMPEDANCE

The amplifier should always see a decent load Z (2:1 or better). It should NEVER see a short or open circuit or damage may occur.

VOLTAGE SEQUENCING

I t's probably best to power up the PA during Tx only. Engage the TR relay and then the PA voltage. This way, the PA should never see a short/open circuit.

DRIVE LEVEL

The PA saturates with -20 dBm RF input. This means that if you drive the amp at a higher input power level, you WON'T see any increase in power output. Driving the amplifier at more than -15 dBm may cause permanent damage. Measure your drive level before applying it to the PA. (NOTE: The DB6NT's put out -5 dBm. A 15 or 20 dB attenuator is required on the amplifier input when using a DB6NT xvtr). Also pay attention to out of band energy. If your xvtr has LO energy at its output, the amplifier may be driven into saturation from LO feedthru as the amp has very broad band gain. A good LO reject filter is usually required at the mixer output before driving the PA.

CU on the band! Paul, W2PED

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More Homebrew Night:

For the Most Unique Project, recognition went to Jim Antonacci, WA3EHD, for his audio S meter for enabling a blind person to peak his antennas on a signal. Using the "S-meter output" from the rear of the rig, and a circuit that converts the voltage to a variable pitch, Jim is able to be right on target.

Perhaps the most entertaining of the presentations was from NE3I, Griff, who demonstrated his new rover antenna set-up, complete with tire tracks over the plywood mounting plate, upon which he plans to place the following lettering: "Park it Here, " as he had assembled the whole shebang the first time without stabilizing the base with the car wheel. Although he couldn't really demonstrate the height of the set-up, he was able to show how he tuned the six-meter loaded dipole, depending on the frequency and station orientation. He reminded us about his 1296 loop yagi that had 12 db gain for 14 elements, or 14 db gain for 12 elements, but in either case, he reversed the polarity on his power supply to the 1296 rig and didn't turn in a single QSO on that band, regardless of antenna gain.


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Winner—Losers: The Cryin' Towel '03

A relative newcomer to the club wins 1st Place! Yes, Steve, N3FTI had the most heart-breaking tale of the evening as he retold the frigid story of the heater failure in his home on the eve of the January contest. The emergency repair technician was bombarded with repair requests during the extreme cold-snap of

the contest weekend, and Steve and his family came home from a brief outing to find it unusually cold inside. After checking the usual options, he called for help, and despite promises, the technician made it there in the wee hours of the morning, keeping Steve up all night stoking the fireplace for warmth.

The repair was completed in a few minutes, but Steve had to get some sleep, so his early wake-up call was abandoned, and he got started after catching sufficient shut-eye. For those of you unfamiliar with his set-up, it is a 10-band station in a trailer, with external tower and antennas that are erected once at a portable site. He managed to get things assembled and operating, although the bitter cold did foreshorten some antenna hopes, and a log-periodic was used for many of the bands. He has power from a gasoline generator, with a smaller unit for back-up. The larger powerplant is able to run some heaters to make the operating environment tolerable, but in that cold, maintaining even 50 degrees was difficult.

About three hours into the contest he made contact with Murphy, and the power went out. Wow, it certainly used that tank of gas quickly he thought, making calculations about how he might need to re-supply himself in the morning—but it was not a dry gas-tank, but rather a mess of oil that was all over the ground. It was dusk, and there was little time to troubleshoot in the cold and dark, and he used his back-up generator for a while, but quickly realized that without heat, he'd have to pack up and head home. As an added bonus, as he headed down the hill, he heard a pinging sound every so often, and by the time he was at the main road, realized that the log-periodic antenna had been stripped of its elements by the low-hanging trees and shrubs along the trail.

Yours truly, K1DS, got the second place Cryin' Towel, relating the story of the large gas puddle discovered under the van while gassing up Sunday morning on the way to FN30,31 and 21. "It's only a filler neck leak," offered the attendant at the station as he topped off the tank, "It'll drive fine…" Well, it did, at least for the contest, and a very full operating one at that.

Parked in the driveway at about 11:30 Sunday night, and with the MLK holiday on Monday, would dissemble the antennas and unload the following morning. Daughter got up early to go to work and moved the van down the driveway to get her car out. I got up, pulled the van back up the driveway, dissembled all the antennas and cleaned out the van, then went to pull into the garage. The key is dead—a little click but no starter motor—the batteries are fine, so it must be the starter.

Have the van flat-bedded to the repair garage and ask the mechanic to check out the gas tank when he checks the

starter. Pull van is ready. He reports the next day…I ask if he checked the gas filler leak, and he told me that the whole fuel-pump and gasket set were the culprits, to the total tune of an $850 repair bill. Well, what can you expect from the 120K mile van? At least I'll have this rag aboard in case there's another leak!

Walt, K3EBB was at the meeting and told us his tale of getting the old gear back into action for the first time in a while. Since the transverter power was minimal, he needed to crank up the amplifier, but it hadn't been on the air in quite q while. He had already stripped out the variac from the power supply for another project, so he just rewired it and plugged uit in and turned it on—BAM!! Bigger than on Emiril's Cooking Show. Those dried out filter caps went popping like the Fourth of July. Third Place!

In good ham spirit he found a bunch of electrolytics in his spare parts box and got them in a string as replacements and was back in business to make a nice log!

Other presenters included WA3GFZ and his story of the town permits for his tower, N3EVV and his late night loss of his toll ticket when roving, "That will be $1350 sir!" N3EXA told of how he replaced the fan bearings for his amp, and then it was so quiet, he didn't realize it wasn't blowing air and burnt up his final tube.
WA3RLT was the "blind leading the blind" as he tried to recycle N-connectors for WA3EHD.
W3GAD rebuilt his sequencer in prime time.
It was a fun night for all those things that could go wrong and did. *73, Ed*

Cryin' Towel Bits

Pre contest replacement of the main marine battery, installation of parallel gel cells for the micros. Come back into the house and head down to the shack, touch the red mouse button in the middle of the keyboard and it's zapped. Purchase a Logitech trackball off eBay for a few bucks and I'm back in business.
Install dedicated FM rigs for 146 and 223, with dedicated antennas. Tape the mag mount with some duct tape to prevent it from flying off at high speeds. Spend the whole travel time listening to the 2m FM whip banging against the 2m beam reflector element.
Make the mistake of looking at the longterm weather report--cold and snowy. Head to Home Depot to buy a handful of chemical hand and foot warmer packets. XYL finds a store going out of business and buys us both 2 pairs of the greatest wool socks--eliminating the need for the warmers, but we needed to run the vehicle motor and heater for the entire contest.
Get off to a great start in FM29, but without Leon, as he has work until 2PM that day, so he gets there about 50 QSOs late.
A local ham pulls up while we're working stations fast and furious--he has a 2-band walkie, so we work him there, but then he decides he wants to see how far he can continue to work us on FM while he drives around, so we have to beg off for the contest.
The absolute highlight is finding Highpoint after living here for 5 years now. I think there are 80 Packrats, but no-one ever told me about this rover QTH!
So we are doing great up there--as we were in place for activity hour, but Leon lays down on the back seat and starts to doze off, just as the microwave activity hours start.
Up early Sunday and get going north with a stop at K1JT for a few micro contacts and laser. Marietta refills our coffee mugs and has a great bag of cookies for us on the road. I ate a few too many and forgot the Pepcid!
We head back to Route 1 and gas up. We meet Murphy at the Sunoco station there. Does Murphy look Arabic and speak in a foreign tongue? I ask for a fill-up of regular and while the pump is on, I give a peek to the attendant of the gear inside since he was curious about the antennas. The pump clicks off....he tries to top off the tank--he spots a small puddle of gas on the ground--"must be a filler neck leak," he says....but it's driveable, so we head north and get on the NJ Turnpike, cautiously watching the gas gauge and what might be dripping underneath at each stop.
Arrive at the Palisade Parkway and head to the scenic overlook. Catch plenty of locals and work FN30 up thru 1.2, but unable to contact many Packrats above 432. Several NEWS contacts, thru 10GHz.
Depart for FN31, and try the first turnoff and pull into a football field parking lot for a local High School. Propagation from that spot is poor, so after a few contacts we explore a nearby ridge--we climb up about 1200 feet, only to find hat there is no possible place for us to pull off the road and operate since evrthing is snow or ice covered.
Now onto FN21, and again, the first exit we find has a great high spot and we start running contacts, but there are not many folks on now--was it the football game? We start to lower the antennas and prepare to head south again, when Leon says, "don't move!" I'm thinking he is not feling well, since he is motionless with his head down, and when you are operating while in motion, it can be stomach churning. Instead, he has discovered 6m is open and we each get to work several distant grids.
Back to FN20 and onto a few Laser appointments, DRC is tied up and unable to give me directions to his house from the Turnpike. Luckily, we have the club roster in the van and maps to make our way.
Additional stops at K3IUV (hey Burt, we're outside in the driveway waiting for you) and WA3GFZ's (watch out for the hounds), and then up to the Nike site for rendezvous with NE3I, but his 1296 stuff is dead.
Over to KB3XG for a string of QSOs, but Celeste has turned in for th night, so we miss another potential 72 points with her.
Head back up to the Nike site for the final 30 mins, trying to work some micros with other Packrats, but unable to get those 8 point QSOs logged before 11PM. We're home at 11:15 with a combined total of almost 200K points.
Monday AM, my daughter leaves early for work, and moves the van out of the driveway into the street so that she can pull her car out. I'm up at 8AM and pull it back up the driveway, dissemble to coax connections and antennas, and finally go to pull the van back in the garage but it won't turn over. Did I kill the battery? No--it's the starter. Well, if you have to be lucky with something, this was the time for it to go, not during the contest. We flat bed it to the mechanic's garage, and while I have the starter replaced, I ask him to check out the filler-neck leak. $850 later, I have a new starter and fuel-pump assembly and seals.
Well, the final part is putting Leon's log, all 500+ QSOs into the KM-Rover log, in post-contest mode. It's a drag, but needs to be done. The final insult is cross-checking a few calls and contacts with my log, and I discover that I had the clock mis-timed, and every one of my 500+ QSOs has to be redone with the correct time. Clearly a few additional lessons to be learned for the next rove! **K1DS/R & N1XKT/R**
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VHF Database

Those who are active in meteor scatter - specifically WSJT, know I have a register to produce a callsign/grid locator file for the WSJT program. To date, there are just under 800 persons registered in this database. You can access this register at http://www.aa1yn.com/wsjt/

Since I am an active VHFer, I thought it would be good to have the same for contesting in the VHF and higher contests. To this end, I have been working on the general usage VHF & UP Registry. I have some of the basics ready for testing and am looking for some volunteers to test it out and make comments on it. If you feel the registry is worth the effort and you would like the opportunity to give it some direction, please contact me for further information I am also looking for input from the Rover stations. The test website is presently hidden. Your help will be greatly appreciated.

If you are one of the contest log designers, I would like to work with you to provide your log programs a database which can be downloaded from the website.
Lee Scott - AA1YN Hooksett, NH FN43gc52
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The final results of the 2002 Fall Sprints have been compiled and the results show two Packrats taking honors: on 432, WA3DRC won third place, and in the microwave sprint, K1DS won second place. The complete results will be available on the Southeastern VHF Society website (www.svhfs.org). Plaques and certificates (as appropriate) will be awarded to the winners at the Southeastern VHF Conference Banquet in Huntsville, Alabama, Saturday evening, April 26th, or by mail if not attending.

Propagation Observations on 10 GHz

Via the web from Mike KD7TS, printed with permission

For the past several years a few of us in the Pacific Northwest have been observing propagation on 10 GHz using the DSP-10 2 meter IF radio. This has been a lot of fun and the results have been surprising. What makes these observations possible are the excellent weak signal capabilities of the DSP-10 and the use of a GPS disciplined station reference oscillator. All observations have been done among home stations without the need for portable operation.

At the outset, little was known of the role weather plays with propagation. Through many observations over a period of a few years it has become apparent that there is enhanced propagation when there is higher than average water vapor at high altitudes.

Observations are done on the direct heading, with dishes elevated as required by local terrain. A slight amount of frequency shift seems to be present, but has not upset the usefulness of the path. In the case of shorter paths the antennas may be elevated as much as 25 degrees and seem to indicate a common volume between 20 and 30,000 feet altitude. This is around the same altitude as the common volume on the longer paths observed.

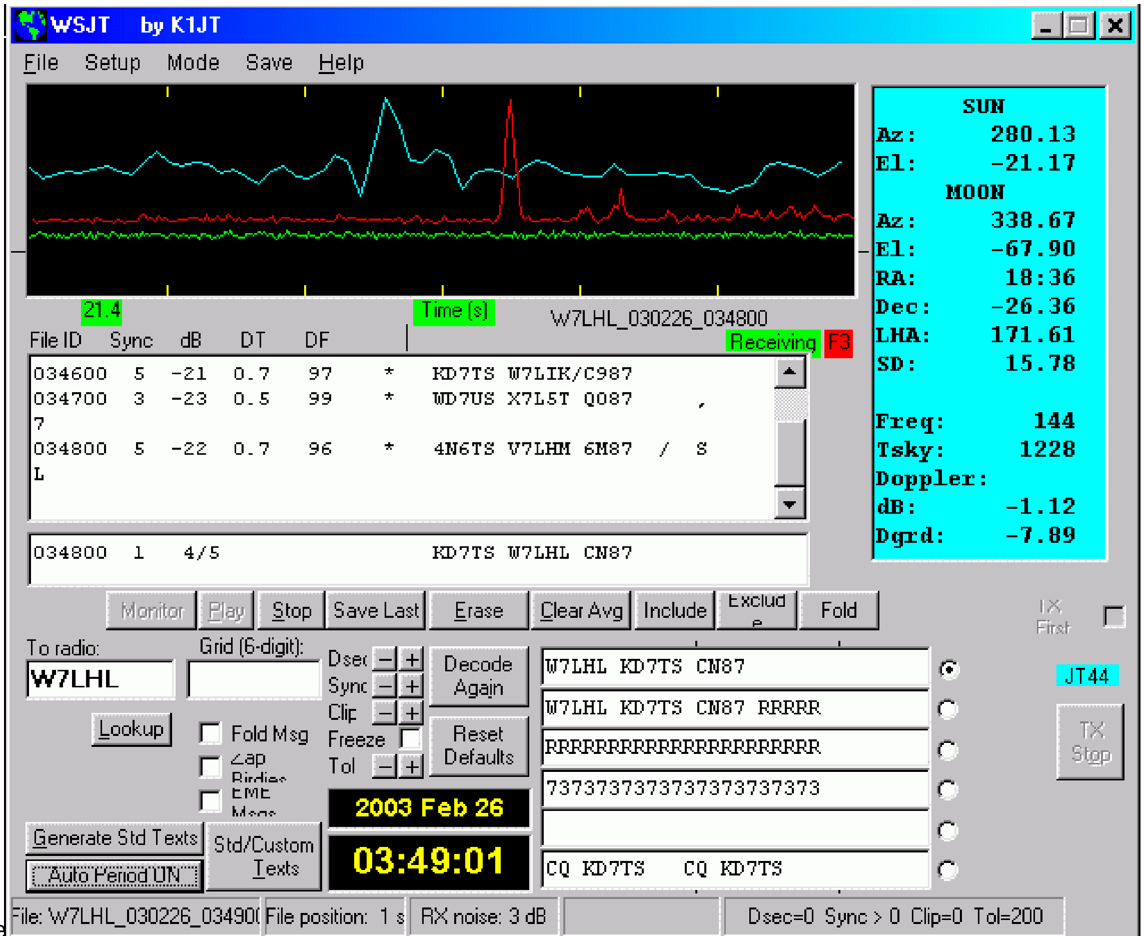
Enhancements (WINTER 2002-2003) have been observed at lower altitudes as well. On clear, cloudless days signals are 10 to 12 DB above the noise from 20 to 30 DB and has been as high as 50 db above "flat" conditions. 95% of the time four degrees of elevation at both ends seems to work well for this enhanced path. Common volume seems to be around 6,000 feet. This coincides with periods of high humidity and low clouds. In the case of "flat conditions" one end is on the horizon, while the other is up two degrees for terrain clearance. There is no definite correlation between any data we have and the short path we have been observing.

On 26 February 2003, we had favorable conditions for testing the WSJT program on 10 GHz between Ernie, W7LHL and Mike, KD7TS over a 31 mile path. Antennas were elevated to 15 and 26 degrees respectively. Results were very good, with 100% copy in 10 minutes. This test was done to illustrate the use of common equipment and sound card programs in receiving weak signals. As this test was in progress signal strength was also observed using the Spectran waterfall program. This agreed quite well with the waterfall display of a DSP-10. This test was repeated again on February 28 with a brief and weaker enhancement. The test was successful, but near the lower limits for this mode.

Frequency stability at 10 GHz is very important for this type of communicating, and cannot be over emphasized. Local oscillators at both ends are Qualcomm 3036 based frequency synthesizers at 2556 MHz referenced to a GPS disciplined HP 10 MHz reference oscillator.

The use of a sound card and waterfall program is very useful for peaking and observing signal levels which would otherwise be undetectable. As the signals increase in strength a CW contact can be easily accomplished.

NOAA WV2 images available on the WWW.
http://www.wrh.noaa.gov/satellite/
East Coast, Central US :
http://www.wrh.noaa.gov/satellite/east4km/WV4E.GIF



West Coast, Central US:
http://www.wrh.noaa.gov/satellite/4km/WR/WV4.GIF
There are other 2KM products with greater detail, but the 4 KM has plenty of detail for our purposes.

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This link has drawings with dimensions of nearly every size of waveguide including the flange and hole dimensions:
www.contmicro.com/waveguide_catalog/CMTDesignAids.pdf
warning to modem users - several MB **73 Paul , W1GHZ**
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Bits

Greetings to all from Reno. I too am actively putting together my 24 and 47 GHz stations. Equipment is here but I need some WR-42 parts and a feed for the 2 foot dish and I'll be all set. NR6CA/Rover will be operational on the East Coast in one of the contests next year, most likely June 2004. I might brave it for January but time will tell. Equipment will be all bands through 47 GHz plus laser. Check out my new web site and let me know if there are any suggestions or submissions for it. It is now finally starting to come together but it needs a lot more work to get it where I want it to be. I am designing it as a VHF through microwave resource site that will also include some other interesting things plus HF stuff. Always looking for material to add to it. Keep making those wavelengths shorter! 73, Randy, NR6CA/7 http://www.nr6ca.org

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After additional review and conversation The ARRL has come to believe that BEACONet is similar to an automated CQing system. It facilitates the solicitation of contacts. It uses a band that is usable in the particular contest, and QSOs are made on such radios. It uses a mode that is acceptable for contacts in the particular contest. BEACONet seems to comply with the letter and spirit of the contest rules. Although this might be a "new" concept in V/UHF contesting, it doesn't seem contrary to the rules. In view of this interpretation, it appears to that BEACONet does not violate any contest rules, and therefore the use of BEACONet is permissible. If you have questions regarding this rules interpretation, please contact me at n1nd@arrl.org Thanks and 73 Dan Henderson, N1ND ARRL Contest Branch Manager

Our newest members show off some neat kit completion.

At left is a DEMI 50 MHz transverter by HP, W3ICC

More from Homebrew Night

Phil, K3TUF Put together this Elecraft rig and Fit a 144-28 DEMI Downconverter Board and a 903 transverter Into the cover.

2003 Spring VHF/UHF Sprints Sponsored by East Tennessee DX Association

ETDXA is pleased to announce the 2003 Spring VHF/UHF Sprints. Everyone is encouraged to participate, even if only in a small way. The rules have intentionally remained simple, and yes, they do encourage rover and microwave operation. The contest is intended for single operator, single transmitter entries, however if one wishes to introduce a newcomer to weak signal vhf/uhf operations, the sponsors of the contest reserve the right to allow such entries, if identified as such. We are continuing to refine the process, and we appreciate all the support, which has been shown. ETDXA Certificates from 2002 are in the process of being mailed now.

The official rules for 2003 will be found on the ETDXA Web-site: www.etdxa.org/vhf.htm I wish you the very best of VHF! 73, Jeff Baker WU4O

The 144 MHz Sprint will be from 7 PM until 11 PM local time on Friday (April 4, 2003).

The 222 MHz Sprint will be from 7 PM until 11 PM local time on Saturday (April 12, 2003).

The 432 MHz Sprint will be from 7 PM until 11 PM local time on Saturday (April 19, 2003).

The Microwave Sprint (902+) will be on Saturday (May 3, 2003) from 6 AM until 1 PM local time. This includes all Amateur frequencies above 902 mhz. Please include band data in summaries and logs. NOTE: use of Liaison Frequency is encouraged.

The 50 MHz Sprint will be from 2300Z Saturday until 0300Z Sunday (May 10 & 11, 2003).

Count one point for each complete QSO. Multiplier: The total number of different grid squares worked. Final score: Multiply QSO points by multipliers. Each Sprint is scored separately.

Rovers score same, but please segregate logs by grid. Scoring for Rovers is cumulative, total # of grids worked from each grid activated multiplied by total # of stations worked in each grid activated.

Microwave Sprint scoring is cumulative, total # of grids worked from each band activated multiplied by total # of stations worked in each band activated
Logs (paper, ASCII, xls) must be submitted no later than four weeks after the closing of each event. Only submitted logs are eligible for awards.
Certificates for top three scores in each Sprint, Certificate for top three scores in Rover Category.
Submission of Logs: E-mail logs to :
springsprints@etdxa.org
Paper Logs to: ETDXA / WU4O Jeff J Baker 8218 Foxworth Trail **Powell , TN 37849 USA**
Questions ? Email springsprints@etdxa.org
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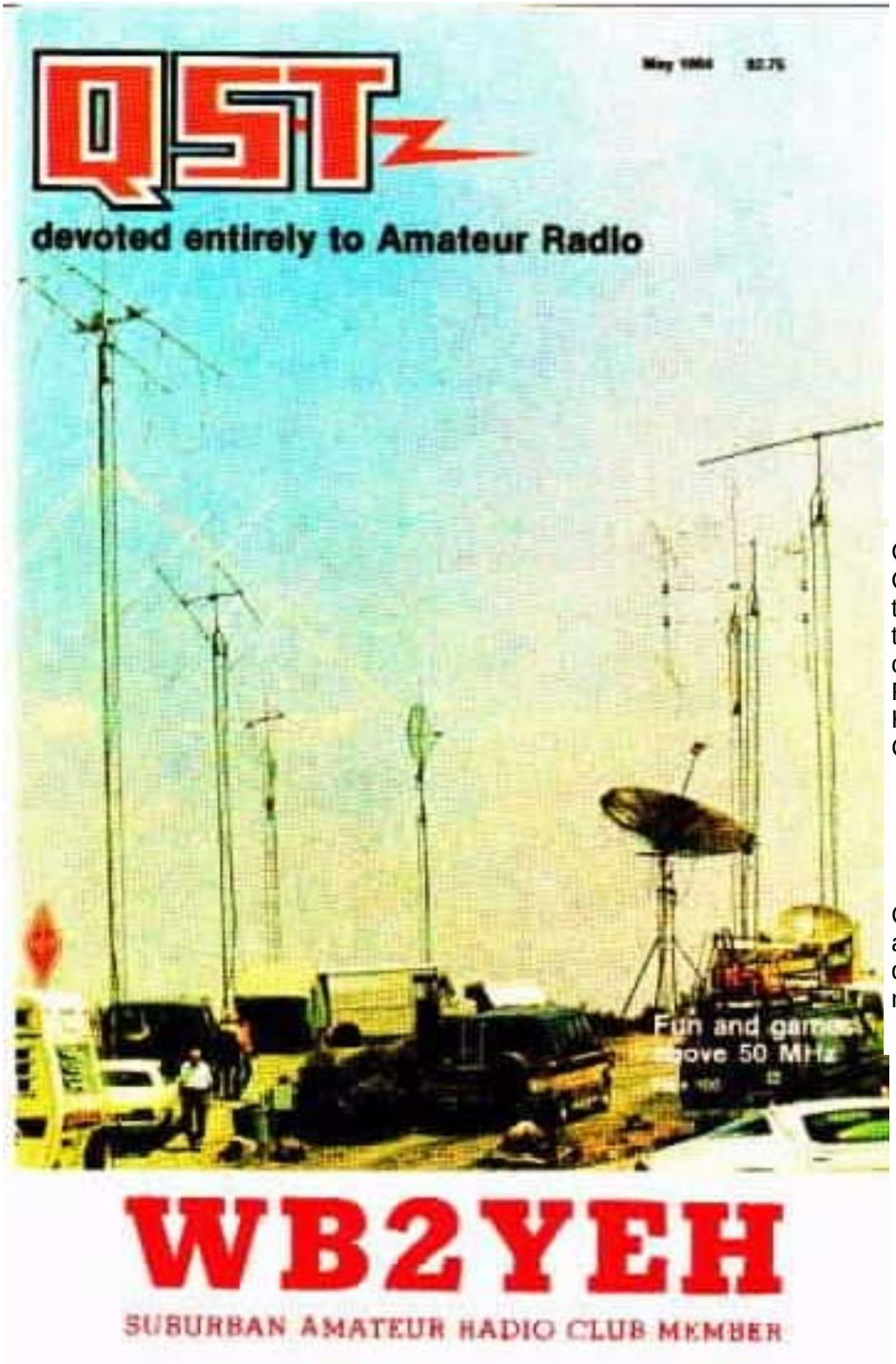

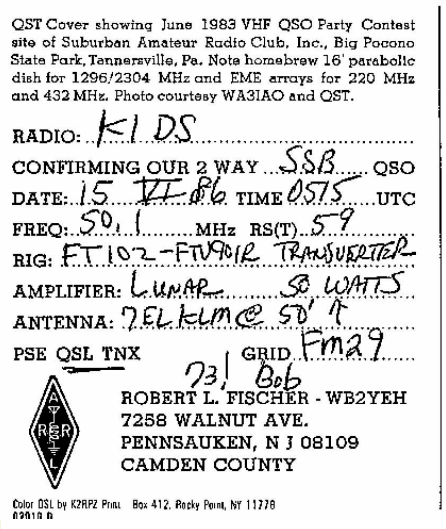
QST Cover showing June 1983 VHF QSO Party Contest site of Suburban Amateur Radio Club, Inc., Big Pocono State Park, Tannersville, Pa. Note homebrew 16' parabolic dish for 1296/2304 MHz and EME arrays for 220 MHz and 432 MHz. Photo courtesy WA3IAO and QST.

RADIO: K1DS
CONFIRMING OUR 2 WAY SSB QSO
DATE: 15 VI 86 TIME 0515 UTC
FREQ: 50.1 MHz RS(T) 59
RIG: FT102-FTV901R TRANSVERTER
AMPLIFIER: LUNAR 80 WATTS
ANTENNA: 7EL KLM @ 50' 4
PSE QSL TNX GRID FM29
73! Bob

ROBERT L. FISCHER - WB2YEH
7258 WALNUT AVE.
PENNSAUKEN, N J 08109
CAMDEN COUNTY

Color QSL by K2RPZ Print Box 412, Rocky Point, NY 11778

Copies of the front and back of a QSL card I received 16 years ago—the Packrats? on Camelback mountain, and a QSL card from the 1986 contest.
Please call Brian now and tell him How you will help in this year's Contest efforts.

n3exa@enter.net

215-257-6303

Contest Chairman, Band Captains and cooks needed. Setup and take-down crew and truck drivers call now!

SBMS Microwave Contest Results

Thanks to the eight entrants got their microwave gear on for this operating activity.
A club composite score and all logs have been submitted to the SBMS.

Station	Unique calls	Bands	QSOs	Km	Km x mult	call pts	Final Score
K1DS	8	fghi	16	1127	1166	800	1966
AA2UK	3	fghi	10	968	1113	300	1413
WA3GFZ	6	fghi	19	534	663	600	1263
W3RJW	5	fghi	16	667	742	500	1242
AA3GN	3	fghi	7	172	215	300	515
WA3NUF	3	fghi	8	174	183	300	483
WA3DRC	3	fg	5	161	161	300	461
W3KM	2	f	2	67	67	200	267
Totals for the club					**4310**	**3300**	**7610**

Seventh Annual Southeastern VHF Society Conference
April 25 & 26, 2003

The Southeastern VHF Society invites you to join us in Huntsville, Alabama April 25 & 26, 2003 for the Seventh Annual Southeastern VHF Society Conference. The conference will be held at the Huntsville Marriott, 5 Tranquility Base, next door to the US Space and Rocket Center. Mention the SVHFS Conference when calling the Marriott Reservations Department, toll free, at (888) 299-5174 on or before the cut off date of April 3, 2003 in order to receive the special rate of $75.00 per night single or double. The local phone number for the hotel is 256-830-2222, the FAX number is 256-895-0904. The Huntsville Area Young Ladies Amateur Radio Club is organizing the family program. There will be lots of things to do that will keep the family busy and happy during the weekend. More information will be forthcoming concerning the family program as plans take shape. As in years past, we will have an exciting program with presentations from accomplished VHF+ amateur radio enthusiasts from around the country. We will also have antenna gain measurements (including the 1296 backscratcher competition), pre-amp gain and noise figure measurements, the Friday evening flea market with vendor displays, the Saturday afternoon auction, and of course, the Saturday evening banquet, which is open to everyone. Drawings for the notoriously enviable door prizes will follow the banquet. New this year is a FREE surface mount technology soldering workshop for Friday (time to be announced). Steve Costro N2CEI of DEMI has graciously offered to conduct the workshop. It will be "hands on" with a chance for the participants to learn and practice proper techniques for soldering SMT devices. The class is limited to 15 participants on a first come first served basis. We will also be having a 1296 homebrew antenna competition based on the "Mouser Electronics" backscratchers that were given out at the 2002 Conference Banquet. Gain will be confirmed on the 2003 Conference Antenna Range. Rules for the competition are posted on the website. Dick Hanson K5AND is our Program Chairperson for the conference. He can be reached via k5and@adelphia.net . Our website has been just been updated and the registration form is now available. If you register in advance by April 3rd you will be eligible for our advance registration prize drawing. The advance registration prize is a new Bird Wattmeter courtesy of Bird. For further information and updates please check the SVHFS website at: http://www.svhfs.org/ 73 & thank you for your time, **Greg Robinson KB4NVD** Rover@wireco.net SVHFS Conference Publicity Chairperson

11th International EME Conference—Aug 6-8, 2004

We will be hosting the 11th International EME Conference in New Jersey in August 2004. The Conference web page is: http://www.qsl.net/eme2004. The Conference will be of interest not only to EME operators, but also to general VHF/UHF/SHF hams. Thanks, **Marc N2UO & Al K2UYH**, Organizing Committee, EME 2004.

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29th ANNUAL EASTERN VHF/UHF CONFERENCE
AUGUST 22- 24, 2003

Well, its time to mark your calendars and set aside the weekend of August 22, 23 & 24, 2003 for this years annual conference. After last years Joint Conference event in October. 2002 with Microwave Update we're back to our normal venue with hopefully some new and exciting events to be added. The conference will be held once again at the Radisson Hotel in Enfield, CT. A block of hotel rooms is reserved under the NEWS group and available for making reservations. Volunteers are needed to help with Registration and mailings, Prizes, Lab Sessions, Antenna Range, Bandsessions, Moderators, Fleas Market, etc. Please remember those who helped make your attendance at last years event memorable and please volunteer to help this year. Speakers and conference proceeding papers are being solicited and we're open to new suggestions and recommendations. Please contact me at bdwood@erols.com or (631) 293-9600 (w) or (631) 265-1015 (h). More to follow as it develops.
Bruce Wood - N2LIV - Conference Chairperson

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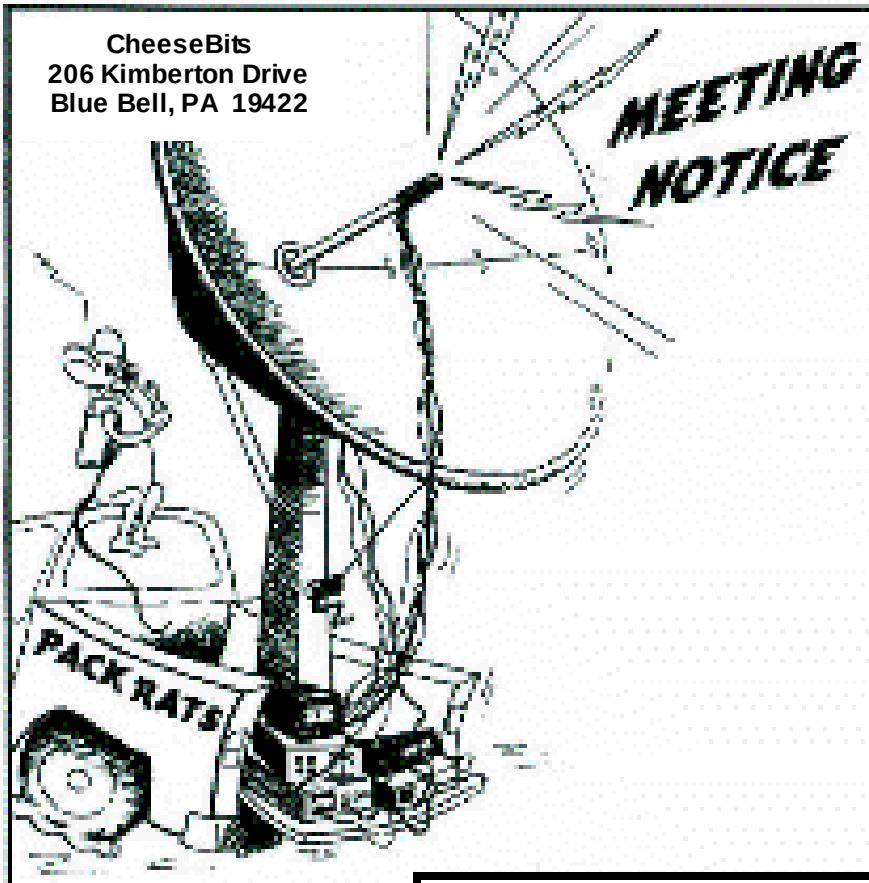
I posted a site detailing the use of hobby brass rectangular and 'C' channel stock as waveguide:
http://home.att.net/~weatheradio/waveguide.htm
I hope it will be of help to some homebrewers out there!
73 de Jon W2MXW

CheeseBits
206 Kimberton Drive
Blue Bell, PA 19422



June Contest Chair and Band Captains needed immediately-call Brian-N3EXA

April 1, 8PM-Harmonic Band Test

April 4, 12, & 19th-Spring Sprints

April 10, 8PM Board of Directors

April 17, 6PM ARRL Speaker Dinner
At Pippo's Fantastico

April 17, 8PM ARRL Speaker Night
Gene Zimmerman, W3ZZ
"The Future of VHF Contesting"

See page 3 for details

FIRST CLASS

MT. AIRY VHF RADIO CLUB, INC.