



# CHEESE BITS

**W3CCX**  
CLUB MEMORIAL CALL

ARRL  
Affiliated  
Club



Volume LII

October 2011

Number 10

## PREZ SEZ:

Welcome to October. Eighth month of the Roman calendar. Here are eight things you should be considering doing this month. A few are now past like HAMARAMA 2011 on October 2 and PA QSO PARTY on October 8/9. It is not too late to catch the rest of the really good activities in October.

**MICROWAVE UPDATE 2011** is in Enfield Ct. At least a dozen PACKRATS including **PREZ** will be attending the two days of presentations and the Sunday tailgating. This is the international version of our Mid-Atlantic VHF Conference (which will be returning in 2012). Next up is the **monthly meeting** on October 20, featuring Norm Fusaro, W3IZ from ARRL with a program on Log Book Of The World (LOTW). Norm's objective is to get more of us active in the system and to help clear away some of the mystery that may be keeping many from joining in.

We also have a few special things going on to make the meeting even more interesting. Come and see. And of course there the usual MARIO AUCTION to whet your creative appetite for building something useful.

October 22<sup>nd</sup> brings a double header – First up is the **FALL MICROWAVE SPRINTS** for 903 MHz and up. Starting the same day is the **ARRL EME competition** - for those who like

chasing Earth's original satellite. It is possibly a good time to try to learn more about WSJT and the other weak signal programs from Joe Taylor K1JT.

The last weekend of the month brings us the **50 MHZ FALL SPRINT** and the **CQ WORLDWIDE DX CONTEST – SSB**. Both of these events are great for honing your operating skills.

Why all this sudden interest in these contests? There has been a lot of chatter on the WA1MBA Microwave Reflector about recent FCC proposals for auctioning off portions of the amateur radio allocations. How realistic these proposals are remains to be seen. Our best defense for keeping hold of the frequencies we have in addition to ARRL's efforts on the political and legal fronts, is to **keep the frequencies alive with activity**.

The PACKRATS have a small 24/7 presence on all bands from 50 MHz through 10.3 GHz with the beacons but we need more communications between stations taking advantage of the crazy weather and solar activity to fill the bands with activity. There has been **aurora** and **tropospheric ducting** to give 50 and 144 MHz a boost and plenty of stormy weather to enhance band performance on other bands.

I am working toward getting all my equipment back to peak performance so I can take advantage of some of this activity but it requires effort from everyone to make the bands truly active.

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**PACKRAT BEACONS - W3CCX/B**

FM29jw Philadelphia, PA  
50.080 144.284 222.064 432.286 903.072 1296.245 MHz  
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 WA3QPX FM29di
8:00 PM	144.150 MHz	N3ITT FN20kl
8:30 PM	222.125 MHz	KB1JEY FN20je
8:30 PM	224.58R MHz	W3GXB FN20jm
9:00 PM	432.110 MHz	WB2RVX FM29mt
9:30 PM	1296.100 MHz	K3TUF FN10we
10:00 PM	903.125 MHz	OPEN

Visit the Mt Airy VHF Radio Club at: [www.packratvhf.com](http://www.packratvhf.com) or  
[www.w3ccx.com](http://www.w3ccx.com)

Remember the message from Len Martin N3NGE after the January Contest. The January contest is not the time to see if your station works. Use your equipment regularly **between** the contests and there will be no doubt that you can be successful.



Also, as of this writing there are 4 ARRL CLUB SCORED VHF CONTESTS. Starting in January we have the JANUARY VHF SWEEPSTAKES. This is just 3 short months away and we want everyone on the air and submitting logs. **There are other groups out there** that would like to remove the PACKRATS from the high seat of being perpetual winners in this contest.

Next up is the JUNE VHF QSO PARTY – A lot of membership effort is used to make the W3CCX annual trek to Camelback a success but there are plenty of members who chose to stay home that weekend.

Get on the air and submit your logs. Every log no matter its size adds to the grand total in club competition.

In August we have the ARRL UHF Contest for 220 and up and in September we have the September VHF CONTEST. The September contest is different because of the influence of the weather on the lower bands.

Now that you have marked up your October 2011 calendar and hung all those notes on to the 2012 calendar let's get working on being active PACKRATs. Remember that one of the requirements to become a PACKRAT is to be active on the VHF/UHF and Microwave Frequencies all the time. Start by checking into the nets. Next expand to calling CQ occasionally. Just because the bands are quiet does not mean there is no one listening. Your call might just bring the bands alive once again.

**Save the bands – don't just listen for the weak ones – WORK EM!!**

**de Doc W3GAD**

PS - 6 was open between KH6 and the midwest on10/9. A sign of things to come -- W2BVH

## *K1JT Wins the ARRL DeMaw Award!*

*ARRL Recognizes: 2010 ARRL Technical Excellence Award Winners Announced*

Joe Taylor, K1JT, and Bruce Walker, W1BW, are winners of the 2010 ARRL Doug DeMaw, W1FB, Technical Excellence Award for their article "WSPRring Around the World" that appeared in the November 2010 issue of QST. Established in 1975 as the ARRL Technical Excellence Award, the name was changed in 1997 to honor the late Doug DeMaw, W1FB, a former ARRL Headquarters technical editor and well-known Amateur Radio author. The award consists of an engraved 9 inch pewter cup.

Joe Taylor was first licensed as KN2ITP in 1954, and has since held call signs K2ITP, WA1LXQ, W1HFV, VK2BJX and K1JT. He was Professor of Astronomy at the University of Massachusetts from 1969 to 1981 and since then Professor of Physics at Princeton University, serving also as Princeton's Dean of the Faculty from 1997 to 2004 and retiring in 2007. He was awarded the Nobel Prize in Physics in 1993 for discovery of the first orbiting pulsar.

[cut and pasted from the current ARRL newsletter]

Congratulations form all the Packrats, Joe!!

### **K3TUF 10GHz Contest**

Paul, WA3GFZ and I went to Camelback Mountain to work the first weekend of the 10GHz contest. This was primarily to check out my new equipment. While that was very successful, we were not that fortunate to work many stations. I'll let Paul talk about his experience with the red wire and the black wire, but I was happy to ring out the new dish and the new low power station for my rover.

The new dish is going on the tower as soon as I work out the details for a 5.7 feed on the feed arm. You can see how I mounted the .98 meter dish on the back of the truck rack in the picture. The system that will go permanently in my low profile rover is a 10mW transverter without a receive preamp. Primary purpose of the rover is to check out the main station as you can't always find someone on the air on 10GHz. That system worked fine.

Support infrastructure also checked out fine. We had a deep discharge battery running all equipment that was charged by a small 800 watt generator placed some 75 feet down wind off the side of the mountain. I found that the loads worked much better with the addition of a rather

heavy constant current isolation transformer; the generator was happy and the loads remained stable.

The best performance was produced by the 144MHz liaison system. With Paul's rig and a 12 element yagi on top of the rotor, we had an easy time working folks on 144. Wish we had worked on 10GHz all of the stations we heard on 144MHz :-)

Phil K3TUF



## September 2011 VHF Contest - KA2LIM

Preparation for the September VHF contest started about two weeks prior with a work party day that consisted of mowing around the site and brush trimming along the access road and putting up the newly built 4x4 6 meter beams.

Saturday of the contest, Ken arrived on site just before noon followed by Al and by 1245 the rest of the team was on site. Equipment was turned on and checked and ole' Murphy stopped by. There was no direction on the indicator meter of the rotor control for the new 6M 4x4 stack. All the wire connections were checked and still no good. Oh well, we could and did look out the window to check on the direction it was pointed and after about an hour into the contest, the meter **started working in its own!**

The next thing that ole' Murph touched was the 2M station. VSWR meter indicated a dead short on the stacked beams and shed a high value on the LVA and upper omni stack. Ken climbed the tower and pried the plug from the bottom of the power divider on the LVA and **water poured out**. Then up to the beams. By standing on top of the tower he could just reach the power divider for the beams. He pried the plug from the bottom of that power divider and **water poured out**. The top omni's power divider could not be reached. Re-checking the VSWR on the two antenna systems the meter showed the LVA to be back to flat and working A-OK but the beams were still showing a high VSWR. Removal of the power divider the day after the contest showed that **water had caused a short from the center conductor to shield** on one connector of the power divider causing the problem. **A fix has been made** so this problem will not occur again. Next the stacked omni's for 6M showed a higher than usual VSWR so I'm sure **water is the problem** here also. This will be corrected on another trip to the site. This was not unexpected, after all we had over 8 inches of rain and high wind from the hurricane and tropical storm that hit us in a two week time period.

Everyone got the food set up in "The Hornby Room", enjoyed a sub for lunch and was ready for the start of the contest.

About 45 minutes into the contest, the **logging program crashed** and **all the data was lost** on the server. Luckily everyone had been hand writing on a note pad at each position and there was current data on each laptop at each position so in reality nothing was lost. Ken got a "stand-alone" program running on each computer and logging continued, just without a network to send messages and see who had been worked on what band. After about 4 hours of working on the server, Ken **got the network running** on all but the 2M computer. Late at night all the log data from 6, 222 and 432 had been merged manually to the server, and those four computers were talking to each other. The 2M computer continued to operate as stand-alone which was only an inconvenience that did not let us see the total score until that data was inputted, again manually, the day after the contest.

Ken took the computers home to work on the problem. After about an hour of checking it was discovered that a **necessary file within the program was missing**. A quick un-install and re-install of the program on the server, correcting the path on all the other computers, and everything was back operating just fine. Needless to say, **there are now back-up folders** with the complete files that will provide a quick fix should this ever happen again.

Band conditions for this contest were flat, flat, and flat from this location. We got none of the morning scatter on 6M that some experienced in other parts of the country on Sunday morning, and got none of the aurora that many others worked. All of us noticed that the signals received on the bottom four bands seems to be at a very low angle on both receive and transmit at this location. Evidence for this was indicated by the antenna system that we had to use. I might say at this point that the newly added **4x4 stack on 6M proved to be the work-horse antenna system for that band**. We heard and worked stations that could not be heard on the 7x7

stack and / or omni's. The new 4x4 stack is one wave length above ground which no doubt was the contributing factor with the **low angle** of signals coming into this location.

With the network being down we were guessing at our numbers as compared to last year and were thinking we would be close or maybe just above. More on the results later.

The food department was GREAT again. There were subs for lunch on Saturday, with macaroni salad, potato salad, two kinds of salsa for the corn and potato chips. There was also fresh watermelon and cantaloupe, all-beef kosher dogs from the grill with baked beans. There was home-made stout and red ale plus an assortment of other specialty beers, soda, gator-aid and water to wash all this down and apple pie for desert. On Sunday morning Walt and Tom did up a pancake, scrambled egg and sausage breakfast along with orange juice and coffee to top it off. For Sunday afternoon and evening eating we had pulled-pork barbecue sandwiches plus the salads and beans and of course more beer.

Sunday afternoon we could hear the **static crashes on 6m** which indicated a storm coming. About a half hour later we saw it coning from the SW moving toward the NE. When it got due south of us it stalled, about 10 miles away, with lots of BIG lighting. Suddenly it started coming due north straight at us. We quickly decided that we would **turn things off, ground the antenna's and wait it out**. The storm moved in and then stalled right over us with lots more of that BIG lighting. No lighting hit on us or near by, thank GOD, but waiting for the storm to move on was the safe thing to do. Radio contest is not that important. After an hour we were able to get back up and running.

Having the **capability to work FM** on 2, 223 and 440 with our stand-alone FM radios and antenna's proved to be an asset. The result was **more FM contacts** this contest, mostly coming from south and east of us, than all the other contests combined. I might note here that we consistently worked VE3CRU/R on 223 FM ,out to around the 200 mile

range. He was running 25 watts. Also worked a station in Ohio and another station in FM29 with no problem.

It should be noted here that **activity was down** from the areas affected by flooding from the hurricane and tropical storm. **Understandable and we pray for those folks.**

The crew this time consisted of KA2LIM-Ken, KB2YCC-Rob, W9KXI-Al, WA3CSP-Larry, N2IK-Walt and KV2X-Tom. **Even though Murphy showed up** and caused some annoyances, we worked thru them and had a good time. Our score was a bit higher than last year with the following breakdown:

Band	Q's	Grids
50-	167	41
144-	217	49
222-	67	34
432-	81	32

Total score: 106080

**Best of all, We had FUN and that's the bottom line.**

Ken KA2LIM

## K1DS, 10GHz Contest (With Some Trouble)

I had some time free on Sunday afternoon and headed up to the bank parking lot at the intersection of 309 and Stump Road. I easily worked K2GE on 10GHz CW and then struggled to work K1GX and W1GHZ in FN41ee. I heard several more folks on 2m and tried to call them, including WA3NUF, who remarkably was unable to either hear me or for me to hear him, despite the fact that we both were hearing the W3CCX 10GHz beacon, and I also moved from FN20jf to FN20he. Just too many leaves on the trees!! I will try to get my 1meter offset dish going for next year! 73, Rick, K1DS

# Hamarama 2011



Thanks to K3JJZ for Pix

Early reports suggest that the Hamfest was a financial success in spite of the early morning rain and very very soggy fields.

I'd like to thank all the Packrats that gave their time and effort. It was your efforts that made it possible to have yet another successful Packrat event!

Please never underestimate your help at one of these events even if it's just for a short time. All these events continue to keep the Packrat name out there as one of the premier Ham clubs and helps to draw new members - the life blood of any club.

I would especially like to thank Michael, KB1JEY and Rich, KB3NRL. Both took on multiple tasks and put in that extra effort. I think Rich is still water logged from doing the (rainy) overnight and the early morning gate.  
**George, KA3WXV --Hamfest Co Chair**

# W3SZ 10 GHz EME

It all started in February 2006 when Steve Kerns, N3FTI decided to get out of the roving business and sell off his UHF and Microwave equipment. I had vaguely been considering trying to get on 10 GHz EME some day, and when I saw that 10 GHz TWTs were a part of his sale items, I decided to start accumulating. I obtained some nice 5-10 GHz Siemens TWTs from him as well as his very nice "Rover Box", which had inside an already wired up and ready to go TWT as well as band switching, TR switching, and 5 and 10 GHz Transverters. Also included were Down East Microwave receive preamps.



Then, in the spring of 2007, Steve decided to sell his 8.5 foot Birdview dish and mount, and so I got both of those from him.

Things got really busy for me with work and family "stuff", so I put my thoughts of 10 GHz EME on the back burner. I didn't really have a good place to put up the dish, anyway. I figured

I would get to it after I retired from work in a few years, and so I stored the dish in my garage/workshop.

I thought about doing a temporary, portable installation with the dish mounted on a trailer so that I could drive it down to a clearing in my Hilltop country property (which is otherwise heavily forested) when I wanted to operate 10 GHz EME; but I wasn't sure that was a practical thing to do. I figured I could use a short tower section and a tilt-base mounted on the trailer to support the dish, but never having done anything at all like this kind of installation I wasn't confident this could be accomplished with reasonable expenditures of time and money.

Then I read an excellent article by Rick Rosen, K1DS, that was published in the proceedings of the 2010 14th International EME Conference entitled "There's No Such Thing as a Free Dish", and a brief follow-up article in the November 2010 Cheese Bits describing Rick's journey to create a portable 1296 [and 432] MHz EME installation that was almost exactly along the lines of what I had been thinking about. Rick had done it and it worked! I was really excited about this and I emailed Rick for more information. He sent me lots of great information and pictures, and even drove up from the Philadelphia area to my site and gave me more information and encouragement first-hand. After that I felt for the first time that **I really could do this!**

That was in October 2010, and at that time I decided to start working towards getting on 10 GHz EME.

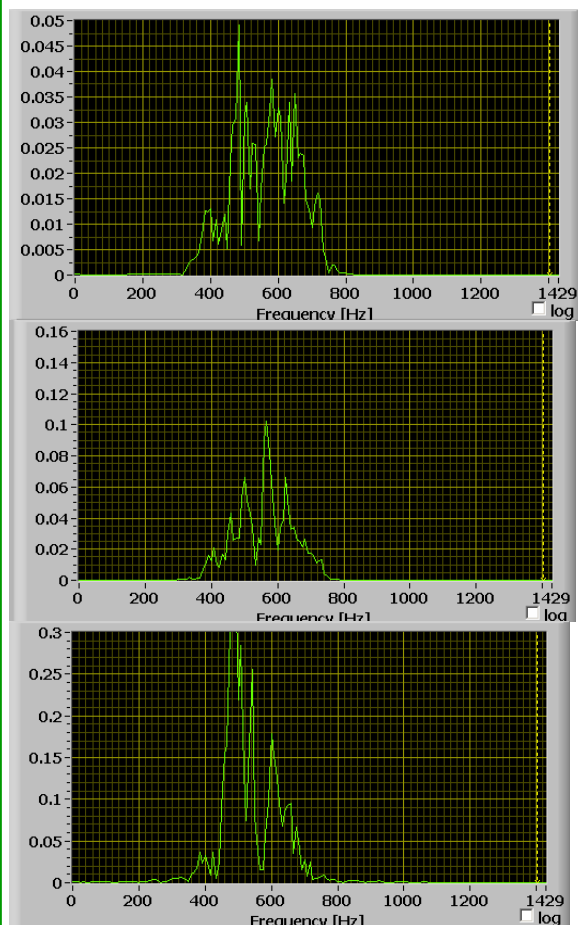
My goal was to be operational by the 2011 ARRL International EME contest.

Today [Saturday, September 25, 2011] **I made my first 10 GHz EME contact**, "right on schedule" on the first day of the 2011 ARRL International EME contest, working W5LUA. Unfortunately, I didn't make a recording of that contact. But I did make a recording of DL0E, whom I called and called before I worked AI. I was too weak to complete with DL0EF, getting only a "very poor" and "219" back from him after many, many QRZ's from him. I guess I need MORE POWER. DL0EF and AI W5LUA were the loudest stations on the band. Both were Q5, 100% copy. I gave DL0EF a 579, and AI was 559.

The next day I did work DL0EF, who has a TREMENDOUS signal. On the second day, I had not yet "found the moon" and was hunting around "where it should be" looking for an increase in moon noise when I saw a huge signal on the HPSDR bandscope. I figured it must either be a huge birdie [of which I have none] or DL0EF. Fortunately, it was DL0EF and I was off to the races. I worked him a short time later.

I also made a recording of DL0EF while he was in SSB QSO on 10 GHz EME! He was good copy.

Because of libration the 10 GHz EME signals may have an auroral or rain-scatter-like quality. This smearing seems to peak near zenith, at the point where Doppler shift is minimal. You can see the frequency distribution and thus the effect of libration on DL0EF's CW signal on day one on these spectra:



I am currently operating "portable" on my "Hilltop"

property, towing the 10 GHz EME setup which I have mounted on a trailer to the clearing when I want to operate, and putting it inside when done. Things are not yet waterproofed, so I am a "fair weather" EMEer on 10 GHz.

Also, I have not finalized or fully calibrated the Az/EI drive system, and it is difficult for me to accurately know the Azimuth heading to within a degree when I park the trailer. For these reasons I thought I would need to see the moon to get started, because the beam-width of my dish is less than 1 degree. I figured that I would never get close enough to the correct Az and EI to find the moon with such a narrow beam-width. On day one of the ARRL contest the moon was totally clouded over, and so I thought all was lost, but I found the moon by going to where it "was supposed to be" and actually found it by the moon noise. Once I found it I was able to track it manually using the moon noise, which was approximately 1 dB. On day two, DL0EF's huge signal came to the rescue, and I found the moon by seeing it on the bandscope, and then peaking on it, even before I found the moon noise. On both days, once I found the moon noise I was able to follow the moon across the sky by repeatedly peaking the moon noise by jogging the Az and EI positions. Of course, if DL0EF was always on the air I could always easily find the moon!

I am using a classic "Birdview" satellite dish with its companion rotator. The Birdview Az/EL system is "Az over EI" and this creates a number of issues which I won't repeat here.

The 28 MHz IF radio is an HPSDR software defined radio, and in parallel with it I run an SDR-IQ and its companion SpectraVue software [the latter operating in "Right to Left Continuum Mode"] to watch the moon noise [or sun noise when testing and tuning]. Al Ward W5LUA recommended this method to me at Dayton this past Spring. The SDR-IQ



is essential to tracking the moon. Its use to measure sun noise was also essential to setting up the system properly when adjusting the distance between the feed and the dish. Keeping a regular log of the sun noise allows me to monitor system performance.

The IF radio is followed by a Low Power 28-144 MHz transverter from Down East Microwave. This is followed by a Down East Microwave 144-10368 MHz transverter. On receive I have a second stage Down East Microwave 10GHz receiver preamplifier. On transmit I have a Siemens RW1125G TWTA. These are connected to the dish via a short run of miniature hardline which runs from the T/R switch immediately after the second stage preamp and TWT to a WR75-to-N adapter. This is followed by 6 feet of flexible WR75 waveguide, which in turn is followed by 12 feet of Andrew EW122 elliptical waveguide. Finally, this is connected to the waveguide switch at the feed. I measure 1.3 dB loss between the T/R switch at the Transverter/TWT/2nd stage preamp and the WR75 flange at the feed after the waveguide switch. My sun noise is usually 13.6-16.5 dB with my 8.5 foot Birdview dish and the Chaparral Feed. I have 25 watts measured transmit power at the feed.

For tracking I use Northern Lights Software Associates' Nova software feeding a homebrew Visual Basic program that converts the standard "Az and El" coordinates to what I need with my Birdview Az over El dish/drive system. This Visual Basic program, which masquerades as SM-Trak [so it can work with the DRZTrack via DDE], then sends the new numbers to DRZTrack 2.11 by K2TXB which is the software for W2DRZ's excellent W2DRZ Controller Board. The W2DRZ controller drives the Birdview dish Azimuth motor and Elevation actuator. Both Russ, K2TXB and Tom, W2DRZ were EXTREMELY helpful to me in getting things going. **Thanks, guys!** The weak link in this system is the original Birdview mechanical Az and El hardware, which was not made for positioning with better than 1 degree accuracy, which is what is needed here. **A light tap** on the switch, as brief as I can do, is enough to cause

the motors to move the dish from **one side of its beam width to the other**. I think I have gotten a significant improvement in positioning capability by adding a PWM Speed control to my setup. By dialing back the pulse width I seem to have much better control over fine movement of both Az and El. It was eBay to the rescue once again!

Future plans include first of all waterproofing the feed, waveguide, and electronics, so that I am not limited to fair weather operation. After that my next step will be modifying the dish support and the Az and El drive to provide more accurate and precise position control, as well as horizon-to-horizon azimuth range. The Birdview Azimuth rotator is limited to 130 degrees rotation.

The W2DRZ Controller itself provides extremely fine position control so it will be anxiously awaiting suitably precise drive mechanics!

I will also work on improving receive sensitivity, and eventually increasing transmit power as well.

**There is still lots to do, but I am very happy to have made a couple of actual 10 GHz EME contacts!**

My feed support is made of "toilet rings" from PaulB [Zimmerman Hardware] of Ephrata, PA. This is in the heart of Amish Country. Russ Lamm, NN3Q told me I "had" to go to PaulB's when I showed him what I was trying to do, and he even drove me out there. We walked into PaulB's with my Chaparral feed and I approached one of the associates and I told him that I needed something to make a mount for "this", holding up the Chaparral feed, and the very helpful gentleman said "**It looks like you need some toilet rings**" and led us over to the toilet rings, and that was that. Here is the "toilet ring" feed assembly with toilet rings visible at top and bottom, courtesy of Russ NN3Q and PaulB's:



I have been back to PaulB's several times since that trip, even taking my son, who is senior in Mechanical Engineering at my alma mater RPI and my wife to show them its glory. My son was more impressed with PaulB's than was my wife. If you visit PaulB's, you must stop at either the Evergreen Diner or "The Udder Choice"...or both. Simple fare, but real Lancaster County. The Udder Choice is also popular with tourists, so time your trip accordingly.

Below are some little details of the process I went through "for the next guy" who travels this road...

The Birdview dish has a diameter of 8.5 feet and a height "s" of 16.25 inches, so by the formula from The ARRL "UHF/Microwaver Experimenter's Handbook":

$$f/D = D/(16 * s)$$

$$= 102/(16 * 16.25)$$

$$= 0.3923$$

the focal length =  $102 * 0.3923 = 40.015$  inches [1024 mm]. I have found that the sun noise Y factor seems to be flat from 1008 to 1027 mm. I ended up using a focal length of 1016 mm because that was where it was when I finished my testing. The reference given at [http://www.vk3um.com/Documents/SunNoise\\_Measurements.pdf](http://www.vk3um.com/Documents/SunNoise_Measurements.pdf)

is extremely helpful not only in explaining how to measure sun noise, but also telling what to do with the results.

I aligned the feed using a laser pointer wrapped with electrical tape so that it would be a snug fit in the feed bore. I just turned on the laser pointer when it was nestled snugly in the bore of the feed, and if the red dot was not exactly in the center of the dish, I adjusted the feed mount until it was so. I don't have a good picture of the laser pointer in action, so here is a crummy picture of it sitting on an anti-static mat:



The waveguide transfer switch at the feed has an extra set of "indicator" contacts, that gives feedback on whether the switch is in Transmit or Receive position. I use these to provide a lockout to the PTT, so that the system cannot go into transmit unless the switch is actually in the Transmit position. This is of course to protect the first stage receive preamplifier, which is mounted at the waveguide switch, from being blasted with 25 watts of RF.

I rigged up a CCD camera mounted to the dish assembly to help me align the dish with the moon, but so far I haven't used it because it was overcast and nearly "new moon" this past weekend when I made my first attempted QSOs, so there was no moon to see. When checking sun noise, I place one each #10 and #5 welding glass over the camera, and then I have just the right amount of

light coming through to see the sun without damaging anything. I display the image on my computer screen by using a Hauppauge USB-Live camera adapter. When the dish is right on the sun or moon that celestial object is in the center of the screen when the camera is fully zoomed in. You can see the camera in this photo, at about 1 o'clock on the dish:



The trailer itself is a Worthington WT58 from Keysone Trailers. The dish pedestal is a 6 inch schedule 40 A-500 ERW Structural Carbon Steel Pipe. Its a 6 foot length that I ordered online from Metals Depot. It is welded to a Rohn BPH25G hinged base plate. This is bolted to the trailer, and placed inside a Rohn SB25G5 Short Base (5'-predrilled) from 3Star inc. I actually ended up getting a 7 foot section cut down to 5 feet as that was cheaper, since 3Star cut and drilled it at no charge. Two AS25G accessory shelves are attached to the tower section and the pipe is also welded to them. The Birdview dish mount is fastened to the top of the 6 inch pipe.

The dish assembly is stored and transported tilted over [but not flat, as then I would be unable to lift it to its erect position]. It is supported near the dish end by a 24 inch step ladder. It is pulled erect from this position by means of a boat trailer winch attached to the tongue of the trailer. Note that I used carbon steel plate to fasten the boat winch to the winch mount. Solid aluminum plate did not do so well. The

no-longer-in-use aluminum bottom plate used to be straight, not angled upwards at nearly 45 degrees!



Four 50 lb bags of stone are moved from the back of the trailer to the front or vice versa to balance the load on the trailer. The stone is placed at the front of the trailer when the dish is "laid over" and at the back when it is erect. You can see the bags of stone in some of the pictures that follow



The picture below shows the station setup for 10 GHz operation. I just got out of the chair after working DL0EF and stepped back to take this shot:



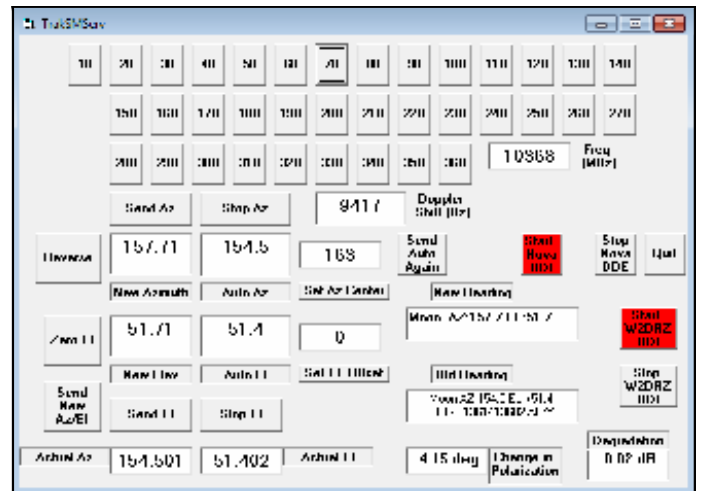
This picture is from the other side of the trailer:



Here is a screen grab taken while I was listening to DL0EF:



Along the top you have from left to right: PowerSDR CW window, W3SZTrakSM program that takes the Az/EI data from Nova and converts it to Az over EI numbers, and DRZTrack. Below on the left is PowerSDR modified by me to use large FFTs [with DL0EF's signal clearly visible on both the spectrum and the waterfall] and on the right SpectraVue SDR-IQ software in "Right to Left Continuum Mode", watching the moon noise. Nova is running in the background. W3SZTrakSM also displays the Doppler shift as well as the degradation caused by rotation of the feed polarization angle due to the Az over EI rotator system. The latter information is hidden behind the PowerSDR window. Here is the W3SZTrakSM window brought to the front and shown alone:



The computer is a super-duper laptop designed for best SDR performance [Low latency] that I got from Neal Campbell at Abroham Neal Software Products. He didn't sell too many of them, so it is now a special order item. **It is terrific!** If you are interested, contact him via his website.

Just in case you aren't bored yet, there are additional random pictures of this adventure at <http://www.nitehawk.com/w3sz/10GEMEPix.htm>.

A copy of this article with some additional hyperlinks can be found at <http://www.nitehawk.com/w3sz/W3SZ-10GHzEME.htm>

....10GHz EME continued

Thanks for reading this! Let me know if you have questions, comments, or corrections!

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## "Rotor Clinic"

Do you have problems with a CDE / Hy-Gain style rotor (HAM-M, CD45-II or similar)? Want to know how to disassemble them? K3IUUV will have one of each, disassembled, at the November meeting. He'll discuss some do's and don'ts in the care and feeding of rotors, and field questions from the floor!!

**Bert, K3IUUV**

## 6 Meter Kilowatt 1/2 Done

With a few column inches to spare this month, here's a quick progress report on my 6 Meter Kilowatt amplifier conversion. It got a BNC for rf input and an "N" for rf output. A Cinch-Jones barrier strip carries power, and the keyline signal into the amp. The directional coupler board was populated with components needed to drive an output power meter. Most of the work so far (about 25 hours) has been the metal work on the duct / plenum /cooling fan mounts. Quiescent drain current looks good. Shown in the photo is the amp with input/output relay and the low pass filter (with its own fans). With only 120VAC in the shack, it will be run at ~5-600 watts when done. The good news: at that power it should be extraordinarily linear.

-Lenny W2BVH



## MICROWAVE UPDATE 2011

October 13 - 15, 2011 **Joint Conference Announcement and Call for Papers - Microwave Update 2011 & The 37th Eastern VHF/UHF Conference**. Both sponsored by the North East Weak Signal Group at Holiday Inn, 1 Bright Meadow Blvd, Enfield, CT, 06082 USA - This year the premier amateur radio microwave conference and the Eastern VHF/UHF conference will include **tours, hospitality, swap session, equipment for measuring and tweaking, banquet and of course technical presentations**. Dave Sumner K1ZZ will present at our conference banquet,

Please visit <http://www.microwaveupdate.org/> for the latest updates, registration and hotel information. Please contact Paul Wade W1GHZ [w1ghz@arrl.org](mailto:w1ghz@arrl.org) by July 15, 2011 for paper and talk arrangements.

Registration is currently 125 and growing.

## ***The Wayback Machine***

Gleaned from the pages of  
Cheese Bits, October, 1961  
(Vol. IV Nr. 7)

de K3IUV

*(author's comments in italics)*

- Helen started this issue with a lengthy copy of an article first published in the Hazelton, PA Standard-Sentinel, 8/22/1961 (*Helen and Frankie were originally from that area, and they made frequent references to the "coal-crackers" of the region. It's near Tamaqua, and the site of the Mahanoy Valley Brass Pounders Picnic*). The title of the article is "Doing Nothing". The author provides an extensive list of one-liners about the advantage of Doing Nothing. Too extensive to include, here's an example. "The wonderful thing about doing nothing, is that it gives you all the time in the world to think about what you always wanted to do". (*If you want to read more, go the original issue, soon to be posted on the club website*).
- Club member Lynn Rowland, W3NSI described his recent portable operation from Canada (VE1) on August 18, 19 and 20. "The equipment was a homebrew 6-meter Transmitter Receiver, using a 5763 in the final, running about 12 watts. Antenna was a 3-element Hy-Par portable beam. He worked 30 stations including 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>

and 8<sup>th</sup> call areas. He worked 8 packrats, including W3QAS and K3IPM. (*W3QAS was Lynn's father. We always referred to them as Lynn Senior and Lynn Junior*). *Lynn was an extraordinary builder. Not only was his mechanical and electrical construction professional in appearance and functionality, but he would construct his own cabinets finished like fine furniture. There may still be some of his equipment in member's shacks.*

- Interesting FCC note: "The FCC is badly behind in processing amateur license applications, the delay often amounting to more than 70 days. Unfortunately, there will be no summertime extra help this year to work on the backlog". (*Gov't budget problems even then*).
- Club code classes run by member Jim, W3KXH to resume 9/11 (prophetic date?). Monday night, 50.35, 10:00pm to 10:30pm. (*Wouldn't this be a nice thing to resurrect*)?
- "Congratulations are in order to K3IPM, Stan for being number one in the E.Pa section for the June QSO Party". (*In the "old days", the multipliers were based on ARRL sections, not grid squares*). The club took 3<sup>rd</sup> place in the club score

competition.

- El, K3JJZ offers to prepare articles for Cheese Bits, based on member stories related to him at the meetings (*El, is the offer still good?*). El also authored an article in this issue, titled "The Misguided Clutch" (*I'll save that for another time*).
- Smel. A. Rhat's Comments: Smel reports that two-meter activity has continued at a high level, with 20 over 9 signals ranging from Nantucket to Ohio and North Carolina. He also reminds the gang that there is "little less than 4 months left before the January contest. Get your rigs working, get your antenna work done now." (*Nothing changes*)
- Frankie quotes and expounds on the Club Constitution requirements for members to be active, pointing out that a club with a large membership list, without the interest and loyalty of members to attend meetings is a decaying club. (*Let's not let our club fall into that condition*).
- 9/27 meeting highlights: K3AUH reached age 21, elevated from student member to full member.

W3HFY voted into membership. (*Hal had a unique antenna setup. His mast extended from his shack, through the roof. He had a wheel on the mast in the shack, and used what he called "the armstrong" rotor system*)! Transmitter hunt is in the planning stage. Speaker at the next meeting will be Jim Spry, W3KXH, demonstrating Keying and learning CW. Also on the agenda will be a Technical Problems session, with our technical panel fielding questions from the members.

- Things that aren't there anymore: Harry, W3CL received his 20 year pin at the NADC, Johnsville. (*Naval Air Development Center went the way of many other things, and is now the site of commercial buildings, a retirement community, and (under construction) a Costco*). Another thing (*soon to be gone*) is the Willow Grove Air Base. A navy jet plane from that base recently crashed through the roof of the Bargain City Store (*also gone*) in Willow Grove. At the time, the XYL and Jr. OP of club member W3FOZ were in the store, but escaped injury.

73 until next time,  
K3IUV Bert

## Events

For inclusion, please direct event notices to the editor.

**Microwave Update 2011 - Conference** October 13 -16, 2011. Crowne Plaza Hotel, Enfield CT. Rooms \$99. Sponsored by N.E.W.S. Group. This is the location where the Eastern VHF/UHF Conference has been held for the past 10 years. Additional info to follow or email n2liv@arrl.net and w1ghz@arrl.net for details.

**Fall Microwave Sprint - Contest** October 22, 2011. 7am - 1pm local time. 903 MHz and up. Scored by distance. Off radio (phone, internet, etc.) skeds ok. See <http://www.svhfs.org/2011fallsprinrulesv1.pdf> for details

**EME Contest, 50-1296 MHz (round 1) - Contest** Oct 22-23, 2011. See <http://www.arrl.org/eme-contest> for details

**6 Meter Fall Sprint - Contest** October 29-30 2011 (2300Z to 0300Z). See <http://www.svhfs.org/2011fallsprinrulesv1.pdf> For details

**EME Contest, 50-1296 MHz (round 2) - Contest** Nov 19-20, 2011. See <http://www.arrl.org/eme-contest> for details

**January VHF Sweepstakes - Contest** January 21-23, 2012. Details to follow. Not too early to start planning!

**ARRL June VHF QSO Party - Contest** June 9-10, 2012. The annual Camelback trek. Details to follow

**ARRL August UHF Contest** - August 4-5, 2012. Details to follow

**10 GHz and Up (round 1) Contest** - August 18-19, 2012. Details to follow

**September VHF QSO Party - Contest** September 8-10 2012. Details to follow.

**10 GHz and Up (round 1) Contest** - September 15-16, 2012. Details to follow

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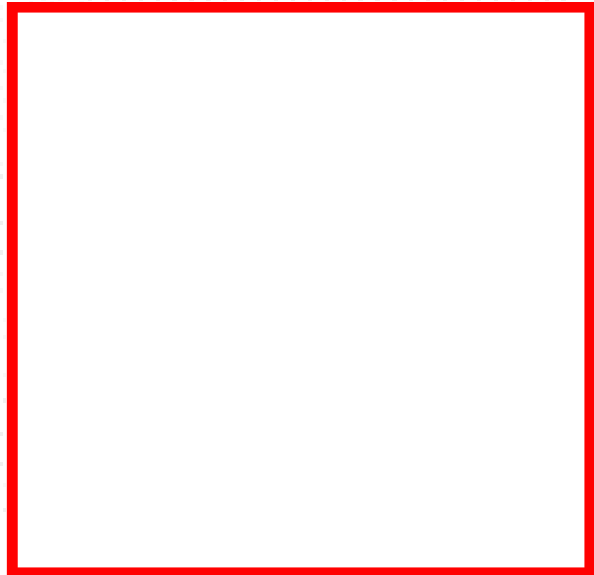
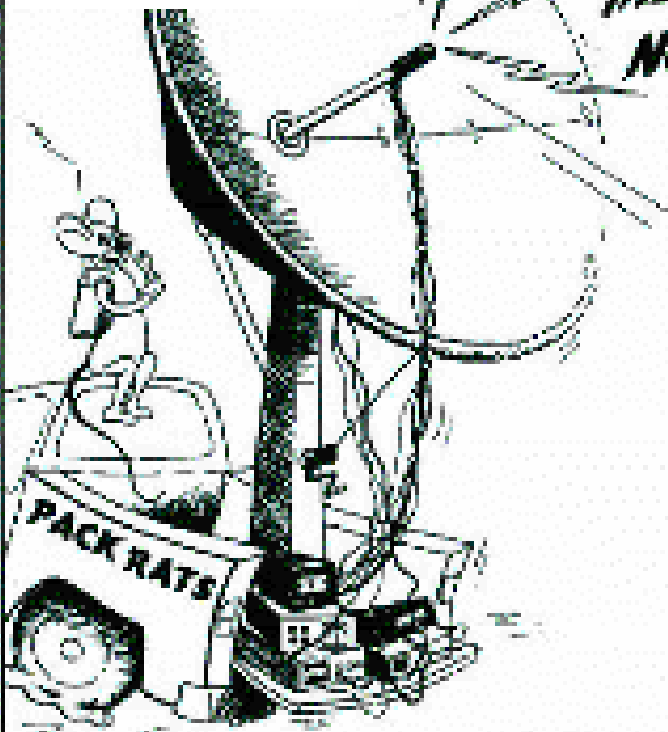
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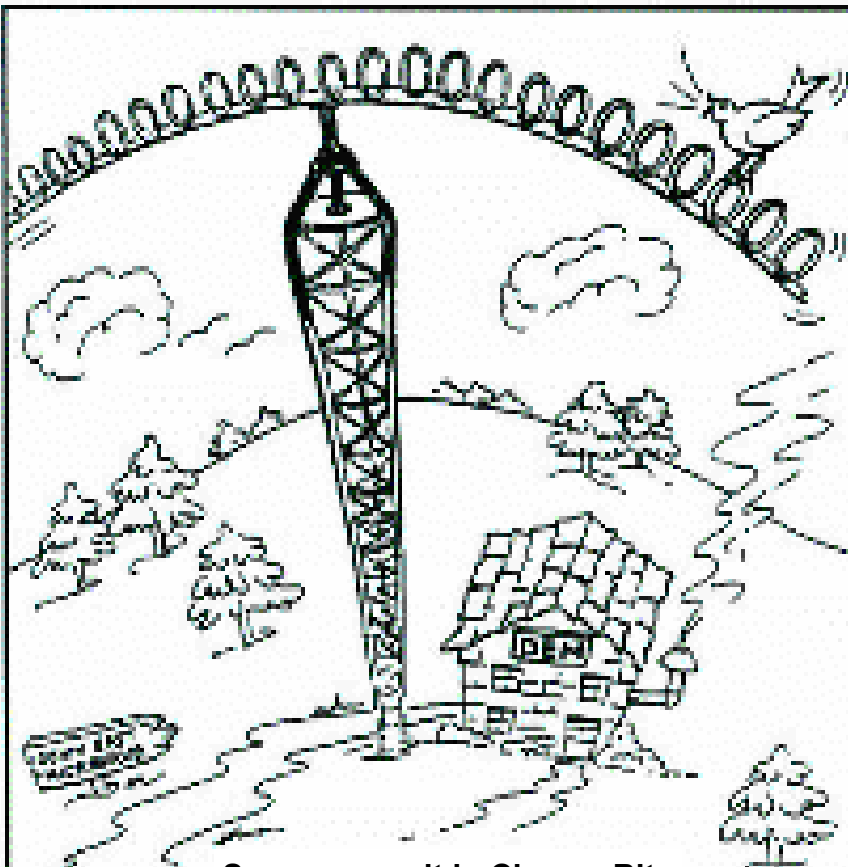
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