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

CHEESE BITS

W3CCX

CLUB MEMORIAL CALL

ARRL Affiliated Club

Volume XLVI **SEPTEMBER 2004** **Number 9**

Prez Sez:

We are coming into our regular meeting season, and I look forward to seeing a full room each month. As we have several new and prospective members, make sure that you wear your name badge and make sure to introduce yourself to the new faces, and make sure that we make them feel welcomed. We are also in need of ongoing items for the Mario Raffle, so look through those storage shelves, garages and basements, and let's keep the table full monthly. Please also be sure to keep Sunday, October 10th available for helping out at Hamarama. Our flyers have been sent, the announcements have appeared in publications, and we are expecting a crowd. Although we don't have formal subcommittees, Ed, WA3DRC has reassured me that the usual leaders will have their posts, and will instruct all the newcomers in handling of their responsibilities. We need everyone available to help with the gate, parking, vendors, and cleanup. You might even want to buy and sell some stuff….Hamarama has always been productive for me.

Although the weather was not cooperative, several hardy souls braved the precipitation to enjoy the chow at the Packrat Picnic. Al and Carol Sheppard were able to accommodate us indoors, as well as under the tents, as we enjoyed each other's company in addition to the food. Drex, W3ICC, had hoped to get the games going, but owing to the conditions, has postponed them until next year…a whole year of anticipation…Thanks to the Sheppards for hosting this event again, we anticipate better conditions next year.

The summer has brought us some great conditions on the bands, but you had to be quick to catch them. I managed to pull my van out for some 6m Es, but missed the 2m opening. I did manage some time for the UHF Contest mixed in with the EME Conference weekend, and put several Packrats in my logs. WA3GFZ and I made the first weekend of the 10GHz + up contest activity in Newtown Square and on Camelback, and we were joined up there by Joe, W3KJ and K2GE, operated by N2CEI and WB2ONA. See inside for further details.

Since the June contest, there has been a series of teleconferences to review the successes and needed improvements for next year. We will continue to build on the momentum, and everyone should feel free to let Al, N3ITT and Steve, KF6AJ their thoughts about continuing to make the experience and score better. With the September contest a week or so away, be sure to operate and submit your score for a Packrat club aggregate. Thanks to Joe, W3KJ for leading this new effort.

It looks as if we have several folks who have volunteered and been selected for various club activities and responsibilities. Thanks in advance for saying "yes" and helping to continue the success of the club. A committee appears to be forming for our 50th anniversary year celebration plans. We will be starting to gather thoughts, memories and club history to document the Packrat annals. Your contributions are welcome in any form. As it looks now, I am planning to attend Microwave Update in Dallas in October. Anyone else going? C U on the nets, on the contest, and at the meetings. 73, *Rick, K1DS*

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Pack Rat Web Site: http://www.ij.net/packrats

SUBSCRIPTION/ADVERTISING MANAGER:
Bob Fischer, W2SJ 7258 Walnut Avenue, Pennsauken, NJ 08110
(856) 665-8488 bobw2sj@prodigy.net

EDITOR:
Doc Whitticar W3GAD 28 Twining Bridge Rd, Newtown, PA 18940
215-968-6397 doc@docstech.com

CLUB TREASURER:
Dave Mascaro, W3KM 1603 Mink Road Ottsville, PA 18942
(215)-795-2648 dmascaro@motorola.com

TRUSTEE OF CLUB CALL - W3CCX
Ron Whitsel, W3RJW (215) 355-5730 W3RJW@aol.com

PACKRAT 222 MHz REPEATER - W3CCX/R
222.98/224.58 MHz, Churchville, PA

OFFICERS 2004-05
PRESIDENT K1DS, Rick Rosen rick1ds@hotmail.com
VICE PRES: N4HY, Bob McGwier rwmcgwier@comcast.net
CORR. SEC: WA3EHD Jim Antonacci
Anonacci@worldnet.att.net
REC. SEC: K3EGE Bill Shaw K3EGE@aol.com
TREAS: W3KM Dave Mascaro dmascaro@motorola.com
DIRECTORS:
(1 Yr) W3KJ Joe Keer w3kj@comcast.net
(1 yr) K1JT Joe Taylor
(2Yr) KB3HCL Dave Fleming KB3HCL@arrl.net
(2Yr) AA3GN Joe Landis joe.landis@draegermed.com

COMMITTEE CHAIRS

January Contest	AA2UK
June Contest:	N3ITT & KF6AJ
HAMARAMA:	WA3DRC
VHF Conference:	KB3XG 610-584-2489
Awards Chairman	WA3GFZ 215-884-3116
Quartermaster:	K3IUV soltoff@uscom.com

PACKRAT BEACONS - W3CCX/B
FM29jw Philadelphia, PA
50.080 144.284 222.065 432.295 903.071 1296.251 MHz
2304.037 3456.220 5763.190 10,368.140 MHz (as of 3/1/01)

MONDAY NIGHT NETS

TIME	*FREQUENCY*	*NET CONTROL*
7:30 PM	50.150 MHz	K3EOD - FM29 WA3EHD - FN20
8:00 PM	144.150 MHz	N3ITT - FN20
8:30 PM	222.125 MHz	K3TUF - FN10
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	903.125 MHz	AA3GN - FN20ig
10:30 PM	2304.085 MHz	W3KJ - FN20hg & go to 3.4G & up a

Editor's Column

It is very gratifying to be associated with such an active club. There were many articles submitted for the August issue and lots of reports on the 10 GHz Weekend One for the September issue. One of the challenges as editor is to select what I think you might like to see here. Any comments or suggestions are welcome.

While I did not get to operate the UHF contest at all due to schedule conflicts, there were many PACKRATS on the airwaves "making noise" and some of those reports will be found scattered about this issue.

We have a follow up report on the EME Conference and drum beating for the Fall VHF QSO PARTY. This is a club competition and W3KJ is seeking a lot of participation so the PACKRATS make a good showing.

Looking ahead we have a lot of operating opportunities into the fall. Start with the Monday night nets The September VHF Contest, and the HAMFEST , which is the same weekend as the PA QSO PARTY. Look for information on the Fall Sprints and the second weekend for the 10GHz competition, too.

There are good meetings coming up this fall, not only do the PACKRATS have some very interesting speakers, but take a look at what is scheduled for MICROWAVE UPDATE 2004 in Dallas the end of October.

I would like to see is more technical articles. Thanks to our friend from New Zealand for the article on the basics on crystal oscillators and LO's and a simple diode detector design. There have been many new members added to our ranks, some of the your ideas on how to more effectively and efficiently switch all those transverters and IF's would probable be very welcome.

Anyone experimenting with rain scatter , WSJT, EME, or other unusual modes? How do you make your Rig Blaster work in your station? Anyone working on a DXCC VHF awards? What is your standing with this award? Any suggestions on operating for those awards and more ideas on how to best operate a contest station are welcome additions.

With all the MAR-6's handed out over the years there has to be an idea or two one how to use these MMICS.

Well I had better get on with putting all this wonderful information together so you can enjoy

LOOK FOR THE WEAK ONES
73 de W3GAD

A SIMPLE DIODE DETECTOR - Kevin Murphy

A simple project is a diode detector for alignment of RF projects. One built on a connector is usable to about 500 MHz whereas a SMD version on a PCB can be used to 1300Mhz.

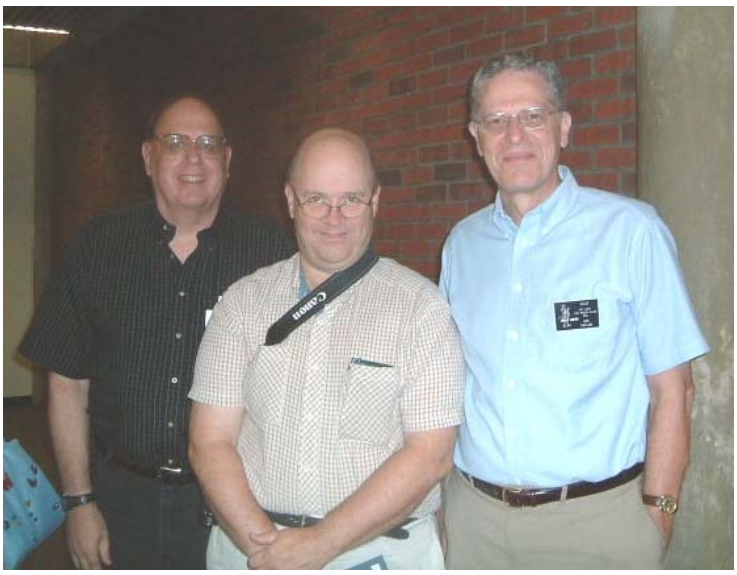
The detector can be connected to the output of an oscillator/TX via a short coax cable and connector or used with a multi-turn loop to detect oscillator/ multiplier operation. The detector works from ~1 mW to 500 mW (maximum dissipation of the 1206 resistors. The detector may be used from 1.8 MHz up

Continued on page 9

Reflections on the 11th International EME Conference, Trenton, NJ Aug 6-8, 2004

Even if you've never operated or watched EME, you had to be impressed by the organization, presentations and spirit at this event. Mark Franco, N2UO and Al Katz, K2UYH, ably assisted by their spouses, Patty and Sally, and with the additional hospitality of Joe Taylor, K1JT and his XYL Marietta made this a fantastic weekend. Attendees and their families represented over 20 countries, and the presentations were complemented by delicious and plentiful food, vendors, and a full 2 days of technical evaluation of transceivers, preamps and demonstrations of Linrad and AZ/EL controllers.

Thursday evening's registration and hospitality brought the group together, with many familiar EME'ers and VHF'ers alike, F5SE, K6HIJ, W1GHZ, W3ZZ, W2RS, K1UHF, and W1JR. I even got a long delayed QSL card from a 10GHz QSO made almost 10 yrs ago in New England. The program was a smorgasbord of technical and practical presentations, with insights applicable to all phases of radio communication, operation and construction. Three Packrats were featured speakers, N4HY introduced the SDR-1000 as an excellent IF rig; K2TXB delivered the advantages of the W2DRZ AZ/EL controller; K1JT showed the future of a suite of computerized communication programs and discussed their ultimate limitations. Joe was also the dinner speaker at the banquet, highlighting the history of developments in electricity, electronics, and communications. Additional Packrat attendees included K1DS, WA3GFZ, W2PED, WA3BZT, and W3SZ.



K2TXB, N4HY and K1JT at EME Conference K1DS photo

Leif Asbrink, SM5BSZ brought along some great software and ran a transceiver clinic, at which he commonly demonstrated that the ALC is the usual culprit in the generation of a signal with a lot of unsuppressed sidebands. His recommendation was to leave the ALC off, and pad the signals to get to the desired attenuation for transverters. The output waveforms from many of the transceivers tested during the weekend was very informative, however for most of us, it will remain a "don't ask, don't tell" scenario.

Our hosts K2UO Marco and K2UYH Al K1DS photo

Franck Tonna, F5SE showed an exciting computer program that more accurately predicted Doppler shifts, by using the geometric relationships between earth stations and the moon, with the full capability of putting all the objects into motion, and then watching the changes on the attached spread sheet. Of course the dopplers are most highly affected with the use of frequencies above 432MHz, and the examples were carried out to 10 & 24GHz, where there is the greatest predicted shift. Clearly, this is a program needed when you attempt EME at those frequencies, as the signals are weak enough, and not knowing where to find them may render the potential for communication a failure.

Several presentations were made regarding antennas and feeds, including W1GHZ's analysis and explanation of multi-reflector antennas, OK1DFC's refinement and use of the circularly polarized septum feed, K2UYH's small offset stressed dish for DXpeditions, and G3LTF's work on his dual dipole feed. SM2BYA showed us his adventure in Svaalbard using the 32m dish there when they were able to hook up some ham

continued on page 4

EME Conference Report *Continued from Page 3*

gear to the feed, removing the 500KW pulsed signal that is usually used for ionospheric research.

K2UO impressed the group with the presentation on the construction of his dual triode 500W 1296 amp, an update of his presentation at the Packrat VHF conference last October. It appears that some of the Packrats have been interested in this construction, and we may see a few clones in our area in the next few years.

The first day's presentations were capped off with dinner and home hospitality at the QTH of both K2UYH and K1JT, allowing the hams and their families some social time together, and tours of the host stations and antenna installations. Check out the picture of WA3BZT in front of the K2UYH 432/1296 setup!

The personal take-home messages for me were:

1. EME is a real dedication, and you have to have a wide group of support and Elmers to get beyond the first few contacts with the giants (if you have decent power and a single yagi with az control)
2. There are inexpensive techniques to increase your ERP in amplifier, feed and antenna construction, and they also bring added results in reception.

3. Computerized communications and signal processing make it possible for even modestly equipped stations to enjoy the thrill of EME.
4. EME'ers, like most other special interest groups are open to newcomers, and have a wealth of knowledge that they are willing and able to share, and they know how to make a good party.

Might we continue to pool our efforts and get more Packrats "on the moon?"

K1DS Reporting

RainScatter! needs your help

Fellow Microwavers,

I've been pretty busy this summer so I haven't had much time to update the RainScatter! program. However, I have started back up in anticipation of the upcoming contests.

In an effort to get coverage to the whole country, I've designed a little program that allows you to align your local map(s) properly.

Basically, you need to know the 6-digit square of a couple small towns or other landmarks on the NEXRAD map. You then adjust the Lat/lon controls until clicking that pixel produces the correct 6-digit square. It's a little cumbersome, but it beats me having to look up the lat/lon of 600 little towns, map them to grid squares and then do this process all by myself.

Once you get the map adjusted as best as you can, just report the magic LAT?LON numbers back to me and I'll update the program (these are special numbers internal to the program, and not directly related to geographical Lat/Lon).

BTW, it's best to use landmarks that aren't at the edges of the map, as that is where the error is greatest. I usually use two or three locations to be as accurate as possible. There are additional instructions on the program screen.

I'm breaking this program into regions so you don't have to wade through a sea of radar sites to find those relevant to you.

You can find the MapMaker program for the W7 region (and El Paso, TX) on the RainScatter! homepage now. (I heard it was monsoon season.)

I'll have MapMaker for the uncovered parts of W5 and W4 soon (and yes, those of you in MO also...and western ND if anyone is there to do so).

http://mail.rochester.edu/~af006m/RainScatter.html

I've found the following websites useful in this process: Lookup by City, St:

http://www.arrl.org/locate/locate.html

Then pop that Lat/Lon info into:

http://www.arrl.org/locate/grid.html

It's best to use small towns for this, as cities will span several squares.

I also have a few other little enhancements coming in the next release of the program too.

Andy K0SM/2

e-mail: aflowers@frontiernet.net

REMINDER: Get on the air for the **ARRL SEPTEMBER VHF QSO PARTY** 11th through the 13th

MICROWAVE UPDATE 2004

The North Texas Microwave Society is the sponsor of Microwave Update 2004 in Dallas, Texas, October 15 and 16, 2004. The conference will be at the l Harvey Hotel DFW Airport, just minutes from DFW Airport.

Microwave Update is the premier technical conference for the amateur radio operator interested in pursuing activities on the frequencies above 900 MHz. This year's event will host technical presentations on Friday and Saturday from your friends and peers pursuing projects in the microwave bands. This is an ideal event for you to meet with and talk to your fellow microwave hams from around the world. The ARRL will be publishing the conference proceedings.

The current list of speakers is:

Experiences with the CT1DMK reflock board by Wes Atchison WA5TKU

Microwaving in the UK by Peter Day G3PHO

Building and using the DSP-10 as a microwave IF by Dave Robinson WW2R

A 10 GHz linear translator by Gary Lauterbach, AD6FP

Millimeter-wave LO references & phase noise considerations by Brian Justin WA1ZMS

Introduction to 802.11 HSMM (High Speed Multi Media) by John Beadles N5OOM

Using WR-28 waveguide at 47 GHz by Barry Mallowanchuk VE4MA

Joining the fun on 1296 EME by Jay Liebmann K5JL

Multi-band microwave operation at K4TO by Dave Sublette K4TO

Contest operation at K8GP by Gene Zimmerman, W3ZZ

Multiple-reflector dishes and feeds by Paul Wade, W1GHZ

Extra-Terrestrial LASER Communication by Paul Perryman, WA5WCP

ARRL Forum to discuss the regulatory environment as it applies to the microwave bands by Joel Harrison W5ZN, Dave Sumner K1ZZ and Chris Imlay W3KD

Tropospheric enhancement VHF and Up by Joe Jurecka N5PYK

Building beam lead diode multipliers for 80 and 120 GHz by Will Jensby W0EOM

Writing code for DDS and PLL chips for microwave synthesizers by John Miles KE5FX (tentative)

Update on microwave capabilities of AMSAT's newest and future satellites by Keith Pugh W5IU

Rainscatter in Europe by Sam Jewell G4DDK and Jonathan Naylor, G4KLX

Demonstration of Software Defined Radios by FlexRadio Systems by Gerald Youngblood AC5GO

The surplus tour, hosted by the ultimate junk hound, Kent Britain, WA5VJB, will be on Thursday. Kent's world famous surplus and electronic store tour will visit such places as TESCO, Nortex, Texas Towers, Altex, Tanner Electronics, several small parts stores and Fry's Electronics just to name a few.

Kent, WA5VJB will again head up the auction, which very helpful in bringing in extra money to help keep conference costs low. If you have any extra or unwanted equipment to donate, please let Kent know.

We are expecting several microwave component and microwave surplus companies to be present during the conference. The tentative list includes Down East Microwave, TESCO, Holtzman Electronics, Hanger 18 (Phil Galloway) and Bogden Electronics.

A test equipment table will be available . Noise figure measurements will cover VHF through 47 GHz. Network analyzers will cover frequencies to 50 GHz. A spectrum analyzer will cover frequencies to 26.5 GHz allowing one to take a look at the spectral output of a local oscillator. The spectrum analyzer also has a special phase noise module to measure and record the phase noise of your favorite LO(s). Power supplies will be available for your equipment. However, bring your special tools for opening and tuning your projects. We will also be hosting a Reflock tune-up session to help those that have built the CT1DMK reflock boards to get them programmed tuned up and de-bugged. Antenna gain measuring will be available at frequencies from 902 MHz through 47 GHz. There is a possibility that we will be able to push our equipment limits to 74 GHz, however, if there is anyone that would like to bring signal sources, noise sources, etc for 74 GHz please let us know.

A Friday night flea market will provide the opportunity to both buy and sell. So ..bring your goodies!

The women will have a chance to do some local shopping including antiquing or touring a local winery . On Saturday morning, the women will have the option to attend a "Holiday Card & Gift tag Craft Project" at the Hotel. Saturday afternoon has been reserved for local shopping ....Or you can venture out to other attractions in the DFW area.

For those that would like to spend some extra time in the DFW area, there are plenty of attractions to take in, including the Ft. Worth Stock Yards, Billy Bob's, Dallas West End, Dallas Arboretum, Kennedy museum, Gilley's in downtown Dallas, Six Flags over Texas, the Meyerson Center and numerous great golf courses .

On Saturday evening following the last of the technical sessions will be our Microwave Update banquet. We are pleased to present a Italian Buffet.

Bob, WA5YWC, will be coordinating the prize drawings. If you have something to donate, please indicate so on the registration form or contact WA5YWC. The prize table will offer both ham and non-ham prizes.

The Harvey Hotel provides free shuttle service to and from the DFW airport. The rate for Thursday night is $89.00 plus taxes and $65.00 plus taxes per night for both Friday and Saturday nights. These rates are reduced from the usual corporate rates.

The Harvey Hotel provides on-line registration. Go to www.dfwairport.harveyhotels.com and click the Reservations box (the Boeing 747 picture). Once on the Reservations page, enter the dates you will be staying and 10606 in the Group/Event ID boxPlease register for the conference as soon as possible. The registration form

is up on our web site www.ntms.org. Pre-registration cost is $40.00 and is due to W5LUA by October 1. Regular registration after October 1 and at the door will be $45.00. We will have special prize drawings for pre-registered attendees.

Also, check out the NTMS website www.ntms.org often for further information about MUD 2004.

This conference will be the microwave event for 2004. Don't miss it! Come join the fun and camaraderie in Big-D. Al Ward W5LUA Bob Gormley WA5YWC and Kent Britain WA5VJB

Crystal Oscillatorsom: Kevin Murphy <rfman@xtra.co.nz>
FROM: NZART BreakIn and VHF Scene July 2004

One of the most common building blocks for both HF and VHF/ UHF communication systems are crystal oscillators. The most common usage of crystal oscillators are as clock oscillators (used with CPU's and synthesizers) and also conversion oscillators (used with mixers/ modulators).

In VHF/UHF/SHF transverters (Transmit/ Receive converter) the crystal oscillator, normally runs in overtone mode. The oscillator together with its associated amplifiers or frequency multipliers provide a signal which is fed into the mixer(s) to enable the incoming signal to be down converted to most commonly a 144 MHz IF or 28 MHz IF. Up conversion on transmit being a reverse of this process. The oscillator is often called the local oscillator or LO.

The important parameters of the crystal oscillator and its associated circuitry are to provide a stable and clean signal. Sounds easy doesn't it!! It's down to good basic design. Stability generally means frequency stable (with voltage, temperature changes) but it not only encompasses the crystal oscillator itself but the overall stability of the amplifiers and multipliers as well.

Some designs of crystal oscillators have no voltage regulation on either the crystal oscillator or the multipliers, leading to not only frequency changes but unstable multipliers. On TX this is often apparent as warbles on output signals as the crystal oscillator FM's as supply voltages varies under drive, while on RX the frequency of other stations/ beacons change as the supply/ battery decreases. If the frequency multipliers go unstable then the output of the oscillator chain can be a mass of unwanted frequencies where the multipliers themselves can actually oscillate. (The oscillations can cover many 10's, 100's or even 1000's of MHz depending on the output of the multiplier chain.

One important point then, is to regulate both the oscillators and the frequency multipliers.

To enhance the temperature stability of the oscillator/ multiplier, enclose the oscillator in a box so that temperature changes from PA's or outside variations are minimized. Higher frequency designs sometimes have heaters over the crystal and even the complete crystal oscillator to elevate the temperature above ambient variations. (The crystal should be purchased to operate at this higher temperature). Crystals should be ordered "preaged" as this will reduce the crystal aging of up to +/- 5ppm per year. The crystals are specially stressed at elevated temperatures of the order of 100 to 125 degrees C.

In recent years designs have appeared which phase lock the VHF crystal oscillator to a lower frequency reference derived from a 10 MHz frequency standard. The 10 MHz may be derived from a TCXO, Rubidium standard or GPS.

A clean oscillator has a low level of spurious coming from the local oscillator (LO), using good design, with multiple filters in each frequency multiplier stage and good supply decoupling.

Another important criteria (in clean signals) is having low composite noise (made up of phase noise and AM noise). High composite noise can be the result of having Voltage regulators with minimal filtering on the regulator output. (See http://www.walmba.org/noise2.gif).

A second important point is to adequately filter the regulator output. A 10 uF Tantalum capacitor is the minimum value that I personally recommend for use with 3 terminal type regulators. An additional source of noise is having high order multipliers (x4, x5, xN) resulting in low RF levels which have to be re-amplified to achieve usable output.

A number of common overtone crystal oscillator circuits are seen in the amateur designs (and also professional equipment) Some of the circuits are Butler Emitter follower (seen in Down East Microwave transverters), Butler common base (gate) (seen in DB6NT transverters), and also the 2 transistor Butler oscillator which is often seen in designs by G4DDK, G3WDG, G8ACE, DF9LN and DB6NT (12 GHz LO and most recent 2M and 70 cm transverters) and also VK5EME (Mini-kits). Some of these oscillators are multiplied up, to frequencies in excess of 100 GHz so the criteria mentioned before help with producing a stable and clean signal.

These oscillators may have a number of uses, such as a local oscillator as mentioned before. The oscillator may be used in a Beacon or a TX. A low power TX, up to a few 100mW could be useful for antenna checks or as a companion to some modern handhelds or mobile transceivers for 50, 33, 23cm communications around the city or town. Note that some handhelds/ mobiles have RX coverage up to 1300 MHz or higher.

Mini-Kits EM65 Oscillator

The oscillator circuits may constructed at home either from available parts, or they may be purchased either as a kit, (or assembled) from the equipment/kit suppliers mentioned earlier. The oscillator kit EME65, from Mini-kits in Australia (www.minikits.com.au) is reasonably priced and well documented. The unit is capable of covering from less than 400 MHz to frequencies in excess of 600 MHz with 2 kit options. I have added some feedback to Mark VK5EME, which has now been posted to his site

Note:- The 2 transistor Butler oscillator circuit is popular but not necessarily the best. There are a number of other circuits such as those by DK1AG (4/81 VHF Comms) which may offer superior performance.

UHF ROVER RESULTS

2004 ARRL August UHF Contest K1DS ROVER EPA Section
Operators: K1DS

Band	QSOs	QSO pts.	Mults.
222	21	63	8
432	26	78	8
903	10	60	3
1296	16	96	7
2304	6	72	3
3456	3	36	3
5760	3	36	3
10368	2	24	2
TOTALS	87	465	37 + 2 = 39

Claimed score = 18,135

Only operated a few hrs from FN20 & FM29 limited elevation & propagation, but glad to work everyone that I did. It got very busy in the last hour 73 es tnx, Rick

The Hills were Alive with the Sounds of 10GHz *de K1DS*

The first weekend of this year's 10GHz and up activity is in the books, and for four Packrats who took to the road, and at least 4 others who operated from home, the results were excellent, especially considering the rain on Saturday, the Packrat picnic, and the growth of the foliage!

WA3GFZ and I started out in FM29hx at the Newtown Square Community Center parking lot and were able to work most of the locals and one QSO to FN31. We also had our 24GHz and laser rigs, and added QSOs on those bands. K2TXB completed a 711 KM QSO with W4DEX using a weak rain front for scatter. He also made SSB QSOs with the Mt Washington gang at about 570 Km. We'll have to look and see where this stacks up in the records.

On Sunday, WA3GFZ piled his gear into my van and we headed up to Camelback, arriving before 9AM, and met up with Steve, N2CEI and Warren, WB2ONA with his rover van. They operated under the call sign K2GE, and with their 10W, preamp, 36" dish and about 20' of tower, had a great ear and signal. We tried but were unable to QSO with K1WHS, although later in the day, we had QSOs with the groups in FN43, FN44, FN42 and FN41. At one point, WA3GFZ was making easy SSB contacts with the Mt Washington group (N1JEZ, W1FKF, K1LPS et al in ry the path for 24GHz. We were joined later in the afternoon by W3KJ, and he was able to work those NE mountain teams also in quick order as the activity was slowing a bit. I managed to work 10 grids while Paul collected 9, so we'll be busy doing some QSL'ing to get our 10GHz VUCC's from this spot.

Station improvements included my new dual feed, dish, cabling and connectors. WA3GFZ added new cabling, an improved mast mount and aiming compass rose, and a commercial 2' dish with shepherds' crook feed, which gave him great reception and signal reports. W3KJ added a rotor to allow him to have his station controls all in the rear seat of his Avalanche, and ease the dash between controls a bit.

Murphy paid me a short visit as the spring loaded rotor control for "right" died early Sunday morning. Luckily that was an easy field fix, using a spare PTT button switch from the GFZ toolbox. I was also able to compare some of my reception to the other stations, and tweaked the feed position in an attempt to improve sigs. This will need more attention for optimization. I also am debating the issue of adding a 10G preamp—with the DEMI 2db NF transverter mounted behind the dish—will it be worth it? I'd appreciate your experienced opinions. One of the disappointments of the day was not being able to work Phil, K3TUF, who got his 10G gear on the air and went out to FN10. I'm looking forward to seeing the pictures and how they got 50' in the air to try and get over the trees. Was it the bucket truck trick? The K2GE team had not heard anything from the Rochester area on the liaison frequencies by the time we packed up from Camelback.

We certainly appreciated all the QSOs and signal reports from WA3NUF, K2TXB, W3SZ, and N3NGE, and hope that on the second weekend, Sept 17-18 that we'll hear more of you active on the band. The NE gang was surely very active for this

PACKRATS HAMFEST 10 October 2004

Plan to attend and help . Contact WA3DRC—Ed Finn - Help is needed for all areas from Setup, PA, front gate and clean-up. Pray for a warm day and sunny skies

Paul Wade W1GHZ presenting some wisdom on Microwave dishes and feeds to EMEers photo by K1DS

WHATS HAPPENING

A LISTING OF INTERESTING EVENTS

Thanks to Harry W3IIT for his input

9 Sept 2004, Packrat BOD Meeting at Dave Fleming's KB3HCL, Huntington Valley

Sept 10-12, The 2004 TAPR/ARRL Digital Communications Conference at the Airport Holiday Inn in Des Moines, Iowa. You'll find more conference information on the Web at http://www.tapr.org/dcc/.

11-13 Sept 2004, SEPTEMBER VHF QSO Party. For rules, see page 107 of the August issue of QST. W3KJ - Joe Keer is coordinator *THIS IS A CLUB SCORED EVENT ... Submit your logs*

11-12 Sept 2004, Maryland/DC Section Convention Foundation for Amateur Radio Hamfest at Gaithersburg, MD. For info: http://www.amateurradio-far.org or Dan Blasberg, KA8YPY, Phone: 301-345-7381, Email: ka8ypy@arrl.net.

11 Sept 2004, Pocono ARK & Eastern PA ARA Hamfest at Bartonsville, PA. For information check http://www.qsl.net/n3is/hamfest.htm or contact Bill Connelly, W3MJ, Phone: 570-424-0845 , Email: w3mj@ptd.net

16 Sept 2004, Packrat Meeting 2000 hrs (8PM) at Southampton Public Library—KF6AJ will speak on APPLICATIONS OF NON-RADIATING RF

18 Sep 2004, York Hamfest Foundation Hamfest . For more info check ttp://www.yorkhamfest.org or Jim Shultz, W3MYK, 1267 Wiltshire Drive, York, PA 17403, Phone: 717-812-0037 , Email: jimpat31@suscom.net.

18 & 19 Sept 2004, ARRL 10 GHz and up CONTEST (Part 2) 0600 to 1300 each day

20 Sept 2004, 144 MHz FALL SPRINT 1900 to 2300 Local time

28 Sept 2004, 222 MHz FALL SPRINT 1900 to 2300 Local Time

*1-2 Oct 2004 * Pacific Northwest VHF+ Conference* sponsored by the Pacific Northwest VHF Society, http://www.pnwvhfs.org/events.htm or contact Jim Aguirre, W7DHC, PO Box 527, Preston, WA 98050, Phone: 425-222-6149 , Email: secretary@pnwvhfs.org

6 Oct 2004, 432 MHz FALL SPRINT 1900 to 2300 Local time

10 Oct 2004 Hamarama at Wrightstown, PA. For information, check http://members.ij.net/packrats/latest.htm or Ed Finn, WA3DRC, Email: packrats_w3ccx@yahoo.com

14 Oct. Packrat BOD meeting

15 & 16 Oct 2004, MICROWAVE UPDATE 2004, Dallas Texas *for details see article starting on page 5*

16 Oct 2004, MICROWAVE FALL SPRINT 0600 to 1300 Local time

17 Oct 2004 + RF Hill ARC Hamfest at Sellersville, PA . For information check http://www.rfhill.ampr.org or Cathy Soete, PO Box 336, Perkasie, PA 18944, Phone: 215-723-7294. , Email: wa3ylq@comcast.net

21 Oct 2004 Packrat Meeting—K1JT -Joe Taylor more on DIGITAL WEAK SIGNAL PROGRAMS

23 Oct 2004, 50 MHz FALL SPRINT 2300 on 23 Oct to 0300 24 Oct

23 October 2004 **Amateur Radio Emergency Communication Conference** sponsored by the Susquehanna Valley EmComm Organization (Snyder Co. ARES/RACES & Northumberland Co. ARES) at the PA Career Link Building, 713 Bridge St. Selinsgrove, PA. 17870 from 9:00 am until 5:00 pm.

29, 30 and 31 January 2005 JANUARY VHF SWEEPSTAKES 2005 *(That's right the last weekend in January)* We have a tradition to uphold—get going on all those repairs, construction and antenna projects. AA2UK Bill Lentz, Chairman.

"The most important single ingredient in the formula of success is knowing how to get along with people."

Theodore Roosevelt

UHF Contest Soapbox

event and provided a lot of fun and challenge.

Joe Keer W3KJ reported: I had broken the station down after the June contest in the hopes of going out roving for the UHF contest. The proliferation of foliage at the home QTH made things even tougher on the microwave bands this year. However, I didn't get the rover put together in time, so Friday PM and Saturday AM were spent reconnecting feedlines, replacing 1/2" hardline connectors and trying to remember where all the N3FTI LPT interface wires were supposed to go. Never did get 3456 running, but had 6 bands up thru 10 GHz QRV. Sometime on Sunday AM, during a sked, I realized that I no longer had a 903 receiver! Couldn't hear even a single cell phone, let alone the W3CCX beacon. So we were now down to 5 working bands. Conditions were lousy - almost no tropo the entire weekend, and the EME conference in Trenton kept many UHF stalwarts off the air. Rick, K1DS/R drove his rover to the conference and operated from there. Thanks Rick! The high point of the weekend was working Jeff K1TEO on 10 GHz with 579 signals. Looking forward to the 10G and up test and perhaps a September rover operation. **Keep the UHF contest alive!**

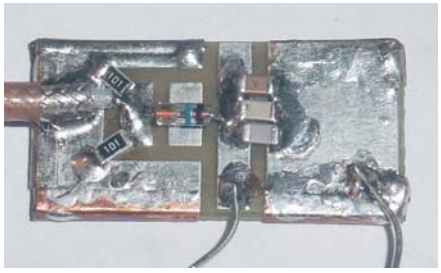
p.s. Packrats: *Please operate the September contest on all the bands you have !!!*

73, Joe -- W3KJ

A SIMPLE DIODE DETECTOR *Continued*

to1300 MHz. Adding a further capacitor will lower the LF limit. If required a chart can be drawn to convert the volts to power in mW, using the formula.

P (in mW) = 1000 x $[(V + 0.25)^2 / 100]$



Component list for diode detector:

Hot carrier Schottky diode HP5082-2835 (or similar)

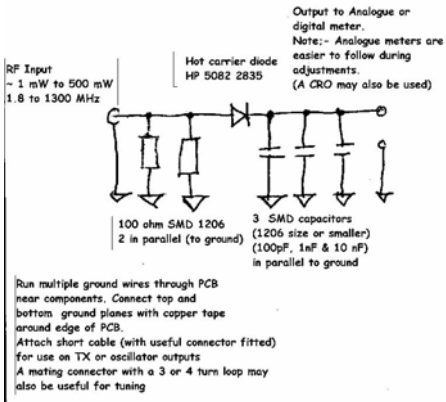
100 ohm SMD 1206 resistors. (2 off)

100 pF SMD 1206

1nF SMD 1206

10nF SMD 1206

Offcut of double sided PCB 1.6mm (Run wires through PCB near the resistors and capacitors)



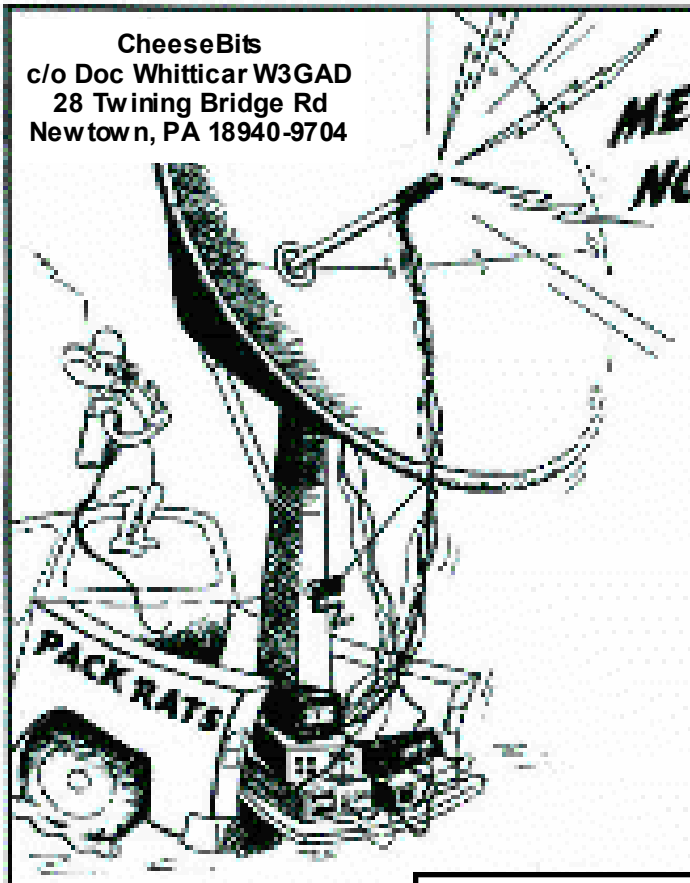
Thank you

Comments may be sent to Kevin ZL1UJG at rfman@xtra.co.nz

Editors note:

This is what they sent me. I'll have a good drawing and more easily read notes next month de W3GAD

CheeseBits
c/o Doc Whitticar W3GAD
28 Twining Bridge Rd
Newtown, PA 18940-9704



COMING EVENTS

9 September Board of Directors @ KB3HCL Dave Fleming, Huntington Valley, PA

16 September—Regular meeting—KF6AJ Steve Simon will talk about NON-Radiating RF Applications

20 September 144 MHz Sprint

28 September 222 MHz Sprint

6 October 432 Sprint

10 October PACKRATS HAMARAMA
Middletown Grange Fair Grounds

FIRST CLASS

MT. AIRY VHF RADIO CLUB, INC.