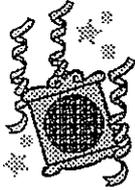


MT. AIRY V.H.F. RADIO CLUB, INC.

CHEESE

BITS



W3CCX CLUB MEMORIAL CALL



ARRL
Affiliated
Club



Volume XLIV

January 2002

Number 1

De Olde Frozen Pumpkin Letter December, 2001

I don't know where the time goes. The January contest is almost upon us, and the same story applies this year as any in the past. I'm not ready yet, I've been building for months, and the paperwork is late! But I will be ready, I'll finally have everything complete, and everyone will get the contest package, come hell or high water! The date of the ARRL January VHF Sweepstakes is 1900 UTC Saturday 19 January 2002 through 0400 UTC Monday 21 January 2002. Lot's of buildup has been going on.

The appearance of the 40W Toshiba amps has spurred a lot of guys adding this band, or improving what they already have. There are some STRONG stations on this band now, and they should be easy to work. AA2UK's big effort in FM29 should help make that grid available for some who couldn't find it before on the mid microwave bands. The effort really shows. Bill I can't believe you put all that together in 3 months. I'm sure father and son rovers K1DS/R and N1XKT/R will be out there weather permitting or not, having a great time. I'm anticipating working them from more grids and on more bands this year than ever before. Have your laser communicators ready, because these guys will be making the grand tour at some point. Major improvements at AA3GN should also make this station easier to work on all bands through 10GHz. I've been so busy in the shack building that I haven't had much time to operate. I'm missing all of this great 6M F2! But occasional chats on the CCX repeater, and follow-up on the air testing, have been very encouraging. Why just the other night WA3DRC and I were running some tests on 3.4GHz, with S9+40+ signals. We then wanted to check 432 and we were using 3.4 as an intercom. N3NGE and I had pretty much done the same thing week before. As well as W3RJW and W3KM. This band really works! I know lots of guys are also putting in major efforts to add bands and improving existing ones. It all comes down to this: there will be a lot more contacts to be made, more multipliers to be had, and an opportunity to earn a personal best score for yourself and the club as well.

There will be several club multi-ops running this year. As usual K3EOD will be running from Vineland, NJ, W0RSJ from Easton, and perhaps A1, N3ITT from Ottsville. If you can't operate your station this year, by all means get in touch with one of these guys and arrange to help out. Multi-ops can, however, eat up our log count. Meeting the 51 log minimum to compete in unlimited is always a challenge. A good way to help us out here is for the multi-ops to send out a rover or portable station to generate an additional log. Or, if you're helping out part time at a multi, work some guys from home or the mobile while shuttling to the station. If you work your multi, however, it can only go in the log on contacts above 2GHz. So far this year, the log count looks a little light. But isn't this always the case? We scratch and claw and make sure everyone gets on and turns in a log. Put it on toilet paper if you have to. I don't want to hear any excuses. If you need help with anything, just ask. It's getting cold and late, but we still may be able to fix those last minute things.

Rule update - logging: This year as in the last, the league is requiring any computer generated log to be submitted in machine readable form. In addition, the format of the log has changed. Most computer logging programs now can output the required Cabrillo file. We are encouraging you this year to please send your log to the league yourself, whether you use e-mail, floppy, or handwritten paper logs. And please check your logs carefully for errors before sending them in. Again, I have extra copies of the questionnaires here, along with the teams lists and rules. If you can not receive your contest packet by e-mail and can not pick it up at the December or January meetings and need it mailed to you, Please let either Joe AA3GN or Chris N3PLM know. We don't want to miss anyone this year. Thanks! Joe - AA3GN 2002 January Contest Chairman, Chris Getman, N3PLM, co-chair

January Board of Directors Meeting, Thursday, January 10, 2002 at QTH of Joe Taylor, K1JT, see p9

January Regular Club Meeting, Thursday, January 17, 2002 at Southampton Free Library, 947 E. Street Road 8PM. WA3RLT will review his computer analysis of last year's contest. All members and guests welcome

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PACKRAT 222 MHz REPEATER - W3CCX/R

222.98/224.58 MHz, Churchville, PA

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HAMARAMA: W3KJ 215-256-1464

VHF Conference: KB3XG 610-584-2489

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	WA3EHD/K3EOD
8:00 PM	144.150 MHz	N3ITT
8:30 PM	222.125 MHz	W2SJ/N3EXA
8:30 PM	224.58R MHz	W3GXB
9:00 PM	432.110 MHz	W3RJW
9:30 PM	1296.100 MHz	WA3NUF
10:00 PM	903.100 MHz	N3AOG

THURSDAY NIGHT NETS (1st & 4th of the month)

9:30 PM 2304.100 MHz W3KJ, & go to 3.4G & up after

Editor's Column

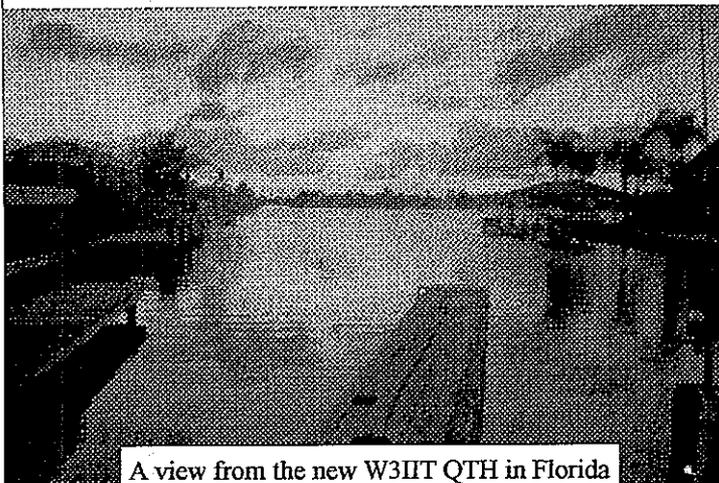
I made my New Year's resolutions following the billboard of the two cows hanging the sign, "Eat More Chikin." So here goes my "Do More Hammin'" list:

1. I will install the WSJT program on my newly acquired (used) laptop in the rover and attempt some MS contacts this year.
2. I will complete the installation of the additional microwave amps and preamps in the rover.
3. I will get out and operate several of the microwave activity sessions (Thanks, W3IY)
4. I will get a better antenna installed in my attic for some low-band activity contesting.
5. I will really get the 4th harmonic, N1XKT, to upgrade to General Class (or perhaps that has to be his resolution).
6. I will continue to press the XYL to get her codeless ticket and join me in the rover. (She already committed to doing some driving.)

At the recent Board of Directors meeting we had an overflow crowd, with folks at AA3GN's QTH overflowing from the living room into the dining area and kitchen. Several were there to assure their two meeting attendance, while others who are regulars attended to the routine business, and an important decision was made regarding a dues increase for this year. In addition, we discussed fiscal responsibility and the importance of budget planning in order to maintain financial stability. In practical terms, it means that dues will be \$20/year, and that activities with a cost will be balanced with activities that have an income. Areas that can be managed more cost-efficiently were evaluated, and several positive ideas were considered, including reducing some of the award costs, and obtaining their sponsorship. First to volunteer to sponsor an award was Bill, WORSJ. Sponsors' names will be widely publicized, so get yours to our president, Brian, N3EXA promptly, as the VHF SS is upon us.

There has been a stream of congratulatory notes on various reflectors for Tom's (WA1MBA) new Microwave column in QST. Personally, having been a subscriber and reader of QST for the past 40 years, I have enjoyed each and every one of the transitions and modernization, as well as the retro articles. I sort of parallels my interests...started as a novice and needed that ARC-5 conversion stuff, along with the 6AG7 crystal oscillator. Although I purchased a Handbook every 10 years or so, and filled in with plenty of the monographs on antennas, satellite and VHF, there was a lot of technical stuff that I just never got into. Although I kept back issues for a while, they didn't get the attention they deserved, and I sold them off for a couple of bucks per year at hamfests. I mostly consider myself an appliance operator, and proud of it, as I can claim some competence in operating and contesting. On the other hand, I hardly know all the computer functions of my rigs, and concentrate on what I enjoy best, at this time. It is hard for me to understand those who posted comments about their perspectives of the microwaves and where hamdom and QST should be headed. Sure, VHF is fun, challenging and still a frontier. But so is <<put your own favorite past and present and future radio topics here>>. I do want to add my favorable comments to the introduction of this column in QST, and hope that all publications get more contributions from those folks who are technically inclined, to help those of us who aren't to keep in touch, get stimulated, and learn.

May you all enjoy health and happiness, peace and prosperity in the New Year, and send me an article! 73, Rick, K1DS



A view from the new W3IIT QTH in Florida

Dues Increase

It has been several years since the cost of membership dues has been increased. Given the careful audit of the past few years budgets, it is necessary to increase the membership dues to \$20 per year. Please bring your dues check or cash to the meeting, or mail a check to our Treasurer:

Dave Mascaro, W3KM
1603 Mink Road
Ottsville, PA 18942

WANTED AWARDS CHAIRPERSON

Successful candidate will be a Packrat willing to work with the Board and officers to obtain awards for contest and club achievement. No experience needed. Call for immediate assignment.

N3EXA Brian Taylor
n3exa@enter.net
215-257-6303

WANTED CONTRIBUTIONS TO CHEESEBITS

Your reports, writings, technical articles, experiments, successes, failures, Hard copy or email accepted. Rick1ds@hotmail.com

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The Packrats are seeking personal, professional or commercial sponsors for the Packrats contest and club achievement awards. Suggested amounts are \$25 to \$75. Your sponsorship will be widely publicized through CheeseBits and at other Packrat functions, including ARRL Night, when the awards themselves are distributed. Be among the first to claim this opportunity. To date, the First Place Single-Op Award will be sponsored by Bill, W0RSJ. Contact our president to select an award sponsorship or discuss.

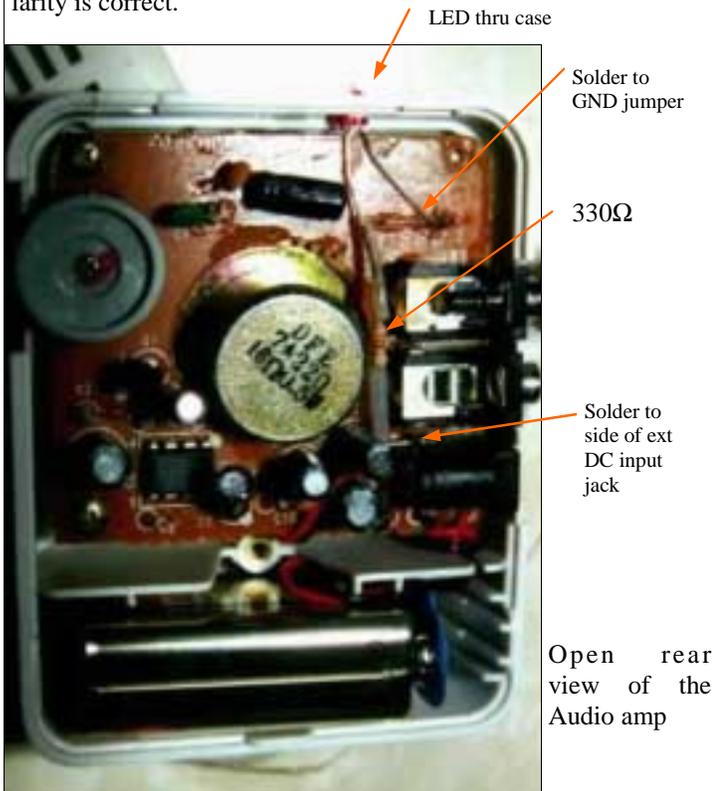
N3EXA Brian Taylor -- n3exa@enter.net 215-257-6303

January 2002

SUN	MON	TUE	WED	THU	FRI	SAT
	Mondays are Net Nights. See P2 for times and freqs and net control starting 7:30pm	1 HAPPY NEW YEAR	2	3 Pack Rat Web Site: http://www.ij.net/packrats	4	5 Microwave Activity am-432 & up Get on air and test ur gear!
6	7 Microwave Activity pm-432 & up Get on air and test ur gear!	8	9	10 BOD meeting at QTH of K1JT, 8p—see map p9	11 Use these days and nights for final station prep and making skeds	12 Use these days and nights for final station prep and making skeds
13 Use these days and nights for final station prep and making skeds	14 Mondays are Net Nights. See P2 for times and freqs and net control starting 7:30pm	15 Use these days and nights for final station prep and making skeds	16 Use these days and nights for final station prep and making skeds	17 Club Meeting WA3RLT computer statistical analysis of contest activity	18 Get extra sleep in preparation for the VHF SS starting tomorrow	19 This is it—C U on the air starting 1900 UTC VHF SS
20 This is it—C U on the air—ends at 0300 UTC 1-21 VHF SS	21 Mondays are Net Nights. See P2 for times and freqs and net control starting 7:30pm	22	23 Start preparing your "Crying Towel" talk for the Feb meeting	24	25	26
27	28 Mondays are Net Nights. See P2 for times and freqs and net control starting 7:30pm	29	30 Pack Rat Web Site: http://www.ij.net/packrats	31	March Club Meeting: Homebrew Night	April Club Meeting: ARRL & Awards Night

Laser Communicator Extras

Most of all the folks who completed their Laser Communicators at the November meeting now need to set these up in a mechanically stable fashion for communicating. In addition, many will have 2 “left-over” parts, an LED and a 330Ω 1/4w resistor. This LED and resistor were to serve as a pilot indicator for the receiver audio amp, as a visual indicator of battery power on, and to remind you to turn it off when unused to preserve battery life. In order to install this simple modification, open the rear cover of the audio amp by unscrewing the single phillips screw. Locate the two points where switched DC voltage can be obtained: the positive from the side of the external DC input jack, and the negative from the small jumper visible on the upper right of the circuit board (see photo). Find a suitable drill bit that will make a hole in the casing for a simple force fit of the LED through the top of the case. Plan for enough clearance for the drill bit to avoid encountering any of the circuit board. Trial fit the LED in place, and if OK, place the resistor in position, and shape and trim the leads of the resistor and LED for soldering. Use some insulation to cover the bare leads. Make sure the LED polarity is correct.

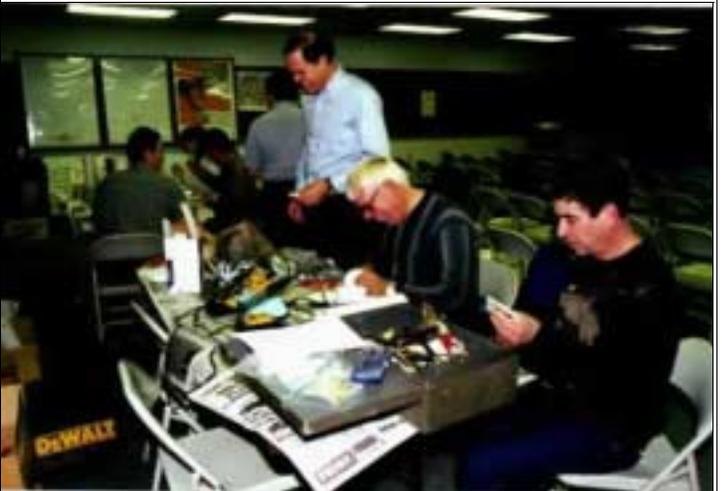


Next, a method of firm mounting for the transmitter and receiver needs to be devised. One of the things that everyone will need are some rubber bands to strap the laser pen to the end of the aiming rail, and also a band or two to link the rail to the short aluminum angle to provide some return resistance for the azimuth adjustment screw. Select fresh rubber to provide some modest tension over about 1 cm of travel. Coarser aiming will be done by adjusting the position of the entire assembly, preferably on a mount of a sturdy camera tripod. For those who used a 2X4 for mounting the aiming rail, this simply takes the determination of the center balance point, and drilling a pilot hole, so that the screw from the base of the mount can firmly be attached. For the receiver, it is best to have a separate mounting scheme, so it can

be moved independently to capture the incoming signal without moving the transmitter beam. If you use the PVC cap with its velcro attachment to the audio amp without the 12” hood, it can generally stand alone on any surface. Others might want to fashion an adjustable stand, or use another tripod, as once the 12” hood is attached, it could use a strap or two circumferentially to hold it in place. Keeping the two units separately also allows for testing of your own unit.



K1JT, KA3MGB and WA3IUUV work on their rigs with an unidentified assistant-



WA3RLT, W2SJ and W3ITT assemble their communicators



KB3BBR, WA3DRC and W2PED are happily at work

New Millimeter Band NA Record

(via the Microwave Internet Reflector and W2SZ website, and printed with permission from WA1ZMS)

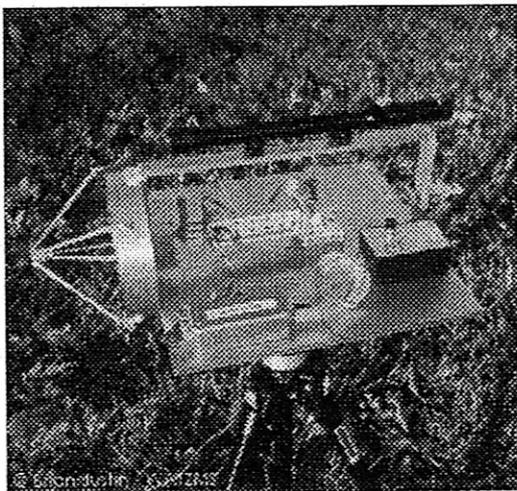
Hi all and happy holidays-I'd like to claim what I believe are a pair of North American DX records for the upper two amateur radio allocations, that being 241GHz and 322GHz.

At 01:45z on Dec 15th, 2001 a QSO was made between W2SZ/4 (op:WA1ZMS) and WA4RTS/4 on the 322GHz band over a whopping distance of .05Km. Both stations were located in FM07ji. I know it's not much as far as DX is concerned, but it's on par with DB6NT's 411GHz DX record and is a North American first for the >300GHz band, excluding light.

About an hour later..... At 02:35z on Dec 15th, 2001 a QSO was made between W2SZ/4 (op:WA1ZMS) located at 37-21-13N 79-10-15W (FM07ji) and WA4RTS/4 located at 37-21-49N 79-10-19W (FM07ji) on 241GHz over a distance of 1.1Km. This is a North American first for the band and a new NA record at the same time.

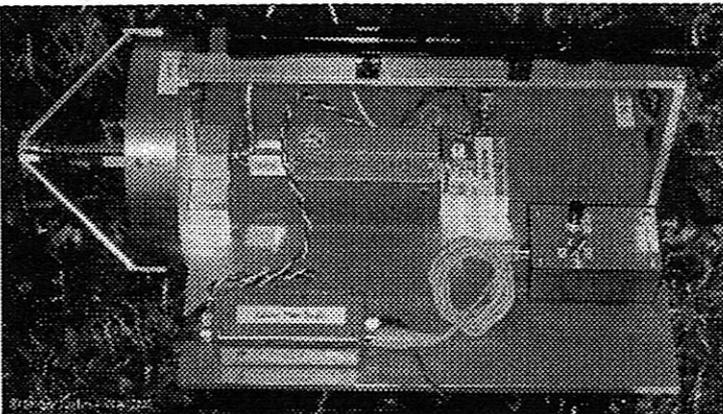
Both of the about QSOs were made using MCW and wideband FM IF receivers. Power output on 322GHz is estimated to be just a few microwatts while on 241GHz the power is a measured 0.75mW. The stations are constructed of 80.6GHz free running Gunn oscillators driving GaAs diode triplers (Univ of Virginia design) to give output on the 241GHz band. The triplers have a tiny amount of 4th harmonic output which was used for the 322GHz QSO. Both stations use homebrew 6 inch parabolic dishes with hyperbolic sub-reflectors. It is hoped that the Gunns will be phase locked in the future allowing the use of narrow band modulation thus resulting in better DX.

I'd like to also thank Pete, W4WWQ and Geep, WA4RTS for their help with tonight's QSOs. 73, Brian, WA1ZMS walzms@arrl.net

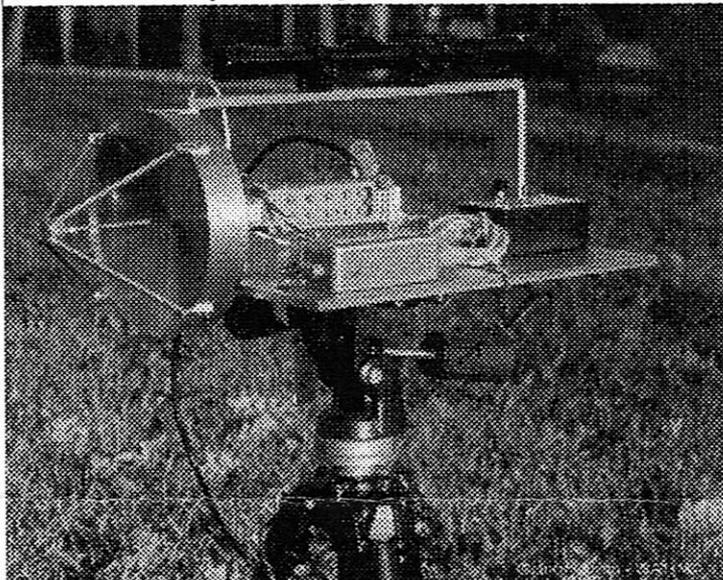


Wx at time of QSOs: Temp 13.8C R.H 55%
Dew Point 5C Loss at 241GHz: 2.87dB/km
Loss at 322GHz: 16.9dB/km

The primary problem is that the phase noise from the free running 80.6GHz Gunn source is so high to start off with, that the resulting signal after X3 multiplication is about 500KHz wide! The widest RX IF I had was 200KHz, so most of the signal power was outside the RX passband. The hope is to get that under control some day by phase locking the Gunn sources to crystal oscillators.



WA1ZMS Photos, reproduced with permission 241 / 322 GHz transceivers



JAS SMASH WORLD 75GHZ RECORD

(from the web via Peter Day, G3PHO)

The following news was just sent to me by JA1ELV/2; not sure whether it has been on the reflector already...On 16 November 2001, at 1310 Japanese standard time, JA1ELV/2, located in PM95JI, worked JA1KVN/1 in QM06BF, on 75GHz SSB for a new world record of 151 kilometres, just 6km more than that set up earlier this year by Will, W0EOM and Bob, KF6KVG. JA1ELV/P was heard at RS45 while he copied JA1KVN/1 at RS43. JA1ELV/1 had 3mW output to a 50cm dish and was located at just under 2000 metres asl on the side of Mt. Fuji. JA1KVN/1 had 1mW output to an 80cm dish and was located 296 metres asl on the the slopes of Mt. Tsukuba. The low relative humidity (around 42%) and fine weather obviously helped a lot!

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

Our Packrat webmaster, Ron, W3RJW, has cleaned up the links on the website and updated most of the email addresses. There is a host of archive material, in addition to very helpful links to current technical sources and sales sites. Drop by the site and scan it, and let our webmaster know your appreciation for the fine job he's doing! Thanks, Ron!!

3456 Amplifier Notes

(by John Jaminet, W3HMS, via the web)

13 Dec 2001

1. Introduction. This paper was created from several messages received on the Internet Lists in September/October 2001 by Steve at DEMI, and K1DS. Important new info was received from Owen, K6LEW in November 2001 on the importance of voltage regulation and it is now incorporated in the text.

2. Checklist for Putting the New 3.456 GHz Toshiba Amplifiers on the Air.

There are two models:

- a. 20 Watts output @ 3.456 GHz with 1 mW input.
- b. 40 Watts output @ 3.456 GHz with 1 mW input.

Voltage: + 12.6 VDC (exactly)

3. Vendor Info on the 20 Watt Amplifier

This is a Toshiba 20W Linear Microwave Amplifier for use in the 3.44 to 3.68 GHz range. It is sold in the original manufacturers packaging.

Heat sinking: Required...it gets hot..

Size: 5" x 8" x 1"

Weight: About 2 pounds.

Input power: For full output, this is about 1 milliwatt or 0dBm.

Specifications: The specs on these amps are very "tight" and are typically as follows:

Linear Gain = 42.5dB; Gain: Ripple = .1dB

Linearity is -45dB; Return Loss (in and out)= 25dB;

DC Power Supply current: Typically +12 VDC at 10.6 amps.

Power Jack: The DC power and control connector is a DB-15 male.

DB-25 Pinout:

The ground is made from pins 3,7,10,11 connected together. The +12VDC lead is made from pins 1,2,12,13 connected together. All VCC and ground pins need to be connected to handle the 10.6 amps.

Pin 9 is the enable pin (TTL) which must be connected to ground in transmit to switch the internal power supply on.

When pin 9 is not grounded, the 12 VDC supply draws about 15 ma. and the amp is in stand-by mode.

This is a Class A amp and as a linear amp, it will draw about 10.6 amps with no signal input.

Pins 4,5,8,15 are assorted alarm output pins low true....no more is known..

4. The 40 Watt Amplifier

This is a new Toshiba UM2683A 40W Linear Microwave Amplifier for use in the 3.4 to 3.6GHz range. It is sold in the original manufacturers packaging. This amplifier differs from the "2683B" "20W" version on other auctions because there is a TMD0305-2 MMIC instead of the discrete circuitry in the front end. The TMD305-2 part is a 3.4-5.1GHz amp with 2 watt output and 22dB Power Gain. Turning the two pot's at the far left on the lower board in the photo fully clockwise (shutting down the attenuator) and peaking the power with the third pot (2nd and 3rd stage bias) yielded 46dBm, 40 watts @ 3.456GHz using 12.0 - 12.6vdc (as measured at the connector) with about 0dBm input power. Power supply requirement is 12.6VDC @ 15amps after readjusting gain and bias. Heat sinking is required. The size of these units is 5 x 8 x 1 inch and weight is almost 2 pounds. Input power required for full output is about 0dBm. DC power and control connector is a DB-15 male. Pinout is as follows: Ground are pins 3,7,10,11; +12VDC are pins 1,2,12,13; All VCC and ground pins need to be connected to handle the 15 amps.

Pin 9 is the enable pin (TTL) which must be grounded to switch the internal supply on. When not grounded, the 12 VDC supply draws only about 15 ma. and the amp is in a stand-by mode. Since this is a linear amp, it will draw about 14-15 amps without signal input. Pins 4,5,8,15 are assorted alarm output pins low true...no more is known. Only new amps are being shipped.

5. Overall System View

When the amplifier is integrated into a system such that relays, etc. are involved, the TX mode requires that the amplifier Pin 9, the PTT, be grounded for the amplifier to amplify, i.e. turns on the power supply built into the amplifier. For RX, removing ground from Pin 9 places the amplifier into standby, drawing perhaps as much as 15 ma, while the T/R relays all reposition for receive. There is no feed-through via the amp. Changing from RX to TX involves just grounding Pin 9. There are no relays internal to the amplifier for switching RF between RX and TX, hence, external relays for switching between RX and TX are required.

6. Critical Voltage Levels

Please refer to Step 14 (below) which is VERY critical. These amplifiers, especially the 40 W version, will go into "foldback" and be hard to recognize in so doing. The 12.6 VDC +/- 0.2 is critical because the output FET regulator has an extremely narrow window due to the heavy current drain. If you allow your primary voltage to get outside of this window, the FET bias voltage, as adjusted by R 150 as measured on Pin 1 of the regulator interconnect to the amp section, you will note the need for drive in excess of 0 dbm for 40 dbm output (40 W). This is not good and indicates foldback which generates excess heat causing the "final" to generate more heat than it should.

These amps should draw 15 amps key down, not 14 amps, though some do vary. The set-up is simple enough but it has been necessary for several amps to be readjusted. This is because some operators did not see the importance of the relationship between the primary voltage at 12.6 VDC and the 10.3 VDC from the regulator controlled by R 150 and measured at Pin 1. This 12.6 VDC should be measured inside the unit with the cover off while the amp is under load, i.e. key down or Pin 9 grounded on the sub-miniature DB 15.

NOTE: You do NOT need any RF drive for this set up as the amp runs in Class A. If you have a power supply with remote sensing use it. If it does either voltage or current drain sensing, use voltage sensing. The voltage MUST stay steady at 12.6 VDC or something will surely be damaged, most probably the regulator, to be followed shortly thereafter by the costly output FET. It is not necessary to monitor the drive level if you have reliable and repeatable equipment for the "exciter". Once you establish 0 dbm at the input port to the amplifier it should stay adjusted. If somehow the equipment is not reliable as to its output, and there is time to adjust, then monitoring the input level would be necessary. Most modern transmitting equipment of today is reliable such that once power levels are set, the input level to the amp should remain set.

One could easily think about installing two VDC measurement jacks and make R 150 an external pot so as to monitor and adjust both the 12.6 and 10.3 VDC (at the VR) levels. NO, the better choice is to monitor the output from a known and acceptable starting level. If you see the output begin to vary, then it is time to check the input level. To clarify this point, R 150 adjusts the output of the regulator BUT it does so in a very narrow window based on the primary *(continued on next page)*

input voltage of 12.6 VDC and the amount of current being drawn and R 138 will adjust this on the 40 W version.

In summary, this is to say that R 150 adjusts for 10.3 VDC ONLY when the primary voltage is 12.6 VDC with the amp under load (Pin 9 grounded) and the amp is drawing current. If 12.6 VDC in either direction is exceeded by about 0.3 - 0.4 VDC, adjusting R 150 will NOT regain 10.3 VDC. Thus, make absolutely certain you have sufficient heat sinking mounted to the amp for any tests or operation. The devices in this amp are extremely expensive and will not accept much heat. This amp gets VERY hot very quickly without a heat sink attached. One could also use a muffin fan blowing across the heat sink. One of the "alarm" functions available on the subminiature DB 15 appears to provide a "temperature" alarm. It is not known what the temperature should be when this function is energized but there is a voltage on one of the alarm lines that appears to relate to an increase in temperature. This amp does not self protect, i.e. shut down, so be very careful !!! Perhaps the voltage could be used to control a relay which would remove PTT-ON from pin 9 but we do not know how much current it can handle. It may not be enough to control a relay, but it might control a NPNB transistor which could in turn control a relay, but this is not sure.

7. Conversion Steps.

Obtain power plug DB-15 male at RS or other. RS # is 276-1502 for about \$2.00 _____ (check off each step as you complete it)

Find and install heat sink size about 5" by 8"(size of amp) or larger and muffin fan if desired _____

Calculate and obtain the attenuator value needed if you have more than 1 mw output from your rig. (FYI, the DB6NT units have about 200+ mw output and I will use 24 db of attenuation.)

Connect DB 15 power plug pins # 3,7,10,11 to ground _____

Connect DB 15 power plug pins 1,2,12,13 as the + 12.6 VDC lead usable at 15 amps load _____

Connect a switch or relay to ground pin #9 for XMT _____

Install antenna relay and necessary D.C. power _____

Remove cover to see the 4 pots R217, R210, R136 on 20 watt model, R138 on the 40 watt model, and R150. These first 3 are the first 3 counting from the left and R 150 is directly to the right of the voltage regulator _____

Counting from left, turn pots R217 and R 210 fully clockwise _____

Connect exactly + 12.6 VDC power and power up _____

Measure +12.6 VDC at pin 4 on P6 to ground _____

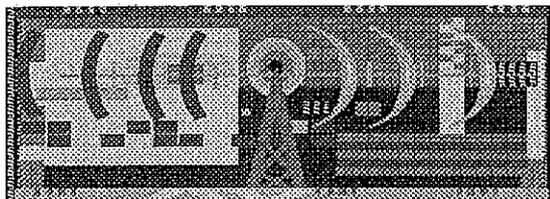
Connect input signal on 3.456.1 GHz at the level of 1 mw or 0 DBM _____

Monitor supply current and regulate to 15.0 amps with R138 on 40 W model and R136 on 20 W model _____

If needed, adjust R150 for 10.3 VDC (**CRITICAL**) on right hand pins of P3 _____

Peak the power output with the third pot (This is R 136 or R 138) to yield 40 watts output _____ **END**

If there is any new info for inclusion, pls advise by this list or EMAIL me directly. **W3HMS**



Contest Club List

(from ARRL website)

One of the exciting parts of contesting is participation in the ARRL Affiliated Club Competition. We are happy to provide a list of clubs whose members have been active in recent ARRL events. Please use the club name as it appears on this list. This helps because several clubs may use the same acronym. No abbreviations please. We have attempted to include all contest-active clubs. If you do not find your club on this list, or if you are not certain if the club listed is yours, please contact the ARRL Contest Branch at contests@arrl.org We will be happy to answer your Affiliated Club Questions. Thanks and 73

Packrats: When you begin your log, be sure to include the following as the "official" club name in the Club Participation section:

Mt Airy VHF Radio Club

Club Aggregate Score Info

(from the web-VHF Contesting Reflector)

As we progress with the ARRL Contest Robot project, we are able to add some new features, which will help all of us towards our goal of the most accurate results possible. To that end, we have today posted on the ARRL Contest Branch web page a list of clubs that have participated in ARRL contest events in recent years. In order for the robot to process your entry properly and count it towards your club's total, it needs to have some type of standard designator for each club. You will find our list at <http://www.arrl.org/contests/club-list.html>

If you can't determine which entry is your club, please contact me. We can adjust the full club names when necessary. If you don't see your club listed get in touch with me as well. We can edit the list to add new clubs. Keep in mind this is not intended to be an exhaustive list of all ARRL affiliated clubs. It is simply a list of clubs that have been participating in the ARRL Affiliated Club Competitions and Field Days in the past few years.

It was suggested that a list of abbreviations be added to the list. We have not done this at this time for the simple reason that some clubs might share the same acronym with a different club in another area. For example, the Greenville ARC and the Greenwich ARC might both use GARC - but our robot wouldn't know the difference. If we used GARC for the Greenville ARC and GrARC for the Greenwich Club, there would be cases where the Greenwich club would complain "that isn't our club abbreviation" or would still use what they traditionally use anyway. To keep possible problems to a minimum, we have chosen to go with full club names (with a few abbreviations such as ARC, Cty, Assoc. etc).

While we realize it isn't the perfect solution to the problem or the solution some would have chosen, it is a system that works within the framework of the database programs we use at the Contest Branch at ARRL Headquarters. Please help spread the word to your friends, local reflectors, etc. If you have questions, please feel free to contact me directly at contests@arrl.org or by phone at 860-594-0232 Thanks and 73,

Dan Henderson, N1ND ARRL Contest Branch Manager

JANUARY 2001 VHF CONTEST REPORT

N3EXA displayed the gavel won by the Pack Rats for their first place finish in the unlimited category at the November Meeting. The gavels are kept on display boards and brought to the various public activities for display. You gotta operate and turn in your logs in order for the club to keep up its winning tradition.

C U on the air in January.

HAMFEST CALENDAR

April 6-7, 2002 Maryland State Fair Grounds, Timonium, MD
Baltimore Amateur Radio Club <http://www.gbhc.org>
Contact: James Green, WB3DJU, PO Box 95, Timonium, MD 21094
Phone: 410-426-3378 Email: <w3ft@juno.com>

May 5, 2002 Wrightstown Grange Fair Grounds, Wrightstown
(Bucks County) PA Warminster Amateur Radio Club
<http://www.k3dn.org>
Contact: Bill Strunk, K3ZMA, 2 South Valley View Rd, Line Lexington,
PA 18932 Phone: 215-822-0749 Email: <k3zma@aol.com>

May 31 - Jun 2, 2002 Atlantic Division Conv. Rochester
(Henrietta), NY Rochester Amateur Radio Asso.
<http://www.rochesterhamfest.org>
Contact: Harold Smith, K2HC, 300 White Spruce Blvd., Rochester, NY
14623 Phone: 716-424-7184 Email: <harold@rochesterhamfest.org>

Look at <http://www.qsl.net/w2vtm/hamfest.html> for additional listings

A Note from W3IY on Microwave Activity Sessions

Thanks to all the participants, it was another fun microwave outing on Monday evening. Worked a bunch of guys on lotsa bands. Highlights included: WA3NUF D,9,E,F; W4DEX D,9; WA8RJF D,9; VE3TFU D, almost E; W4TO B (looong path to EM77); AA2UK B,D,9,E,F,I (new one on 10G for me!); K1UHF D, E (new one on 1296!); K4RTS D,E (shooting over the Blue Ridge!) K1RZ D,E,F; copied NE8I on 432, but the QSB wave timing wasn't there. Conditions seemed enchanced to me, es K4QI said the same. Some really nice QSB waves to the west deserve some more surfing. There was actually QRM on 23cm...fantastic!! It was great shooting the breeze with old friends, as well. Several guys were not aware of the Microwave_Activity_Days plans... spread the word about the 1st Sat morning es following Mon evening! Next time we will be in the serious checkout mode for the Jan SS on 5 January, 2002!! Be there!!

Tax es 73 to all Bill W3IY/R



Correspondence

WOW! What a jammed pack version of CB! Tons of content. I love it! thanks for all of the hard work on the laser project. The build session was great. Are you filling the "Heathkit void?" Maybe a business OP...Ed, WA3DRC

I really appreciate receiving the Cheese Bits, as it is one of the ways I am able to keep up with what is going on in the VHF/UHF contesting community. My best Holiday regards to all of the Pack Rats.

73 Dan Henderson, N1ND ARRL Contest Branch Manager

You're doing a Fantastic Job on CheeseBits- just wanted to say thanx for the job well done! **John Kedziora Systems Engineering**

The latest issue of Cheese Bits was a super job. Congratulations and many thanks for including the Press Release about the Foundation for Amateur Radio's scholarship program. The Radio Club of America has combined their 5 awards @ \$1000 each to one @ \$5000 and QCWA has 16 awards (5@\$1500 and 11@\$1000). Please don't hesitate to rerun and have it announced at the PackRats club meetings. I have some very fond memories of those meetings when I was an ARRL Director.

73 & Season's Greetings to all Hugh W3ABC.

I again had a problem displaying this month's cheesebits, with the same error message. So, I figured it was time to upgrade the Acrobat file. I had version 3.0. I downloaded v 5.0 (8-Mbytes, about 50 minutes). That solved the problem. All works well now. In case anyone else is having difficulty, tell them the same thing. By the way, very good edition! **73, Bert, K3IUU**

There is a new 222 Beacon in SNJ on Bill's tower. It's on 10 watts to a KB6Q loop at 300' the frequency is 222.055. If you hear it I would like some reports. **Take care. Bill AA2UK**

Backscatter has spoken. He has not put on a heavy winter coat. It will be a mild to average winter, definitely not severe. I also post 6 and 10 meter dx spots, last 100, on my web page, everyone is welcome to use it www.w3or.com **73 Ron Allen W3OR**

Deepest sympathies to Ron Allen from the Board of Directors and the club membership on the recent passing of his mother.

Websites to Visit

(from W3IIT) Luis Cupido CT1DMK—My 24GHz stuff is at:
<http://escriba.cfn.ist.utl.pt/cupid>

The URL listed below might be a good one to reference in 'bits. It gives a "real (although computer generated)" comparison of antennas without manufacturers claims to specs. 73, Harry, W3IIT

<http://www.newsvhf.com/2m-yagis.html>

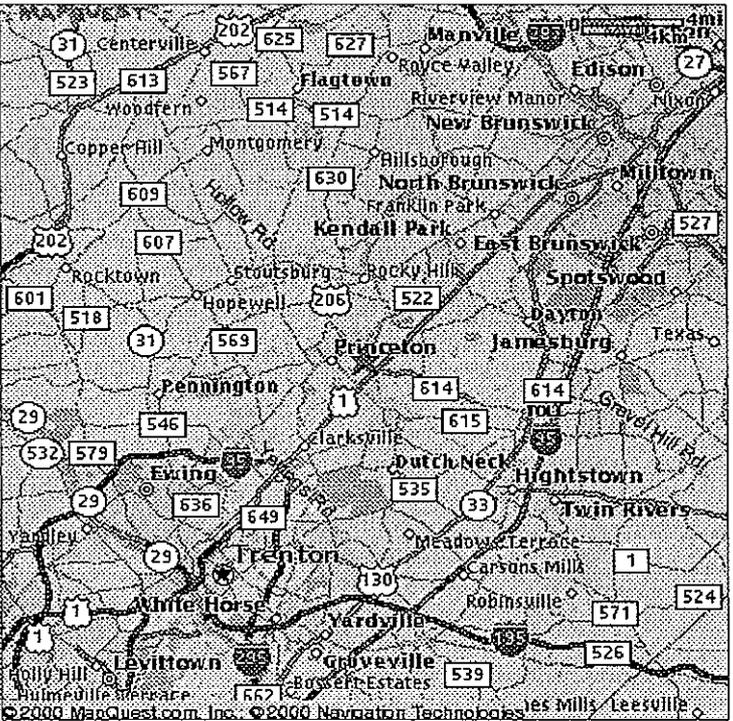
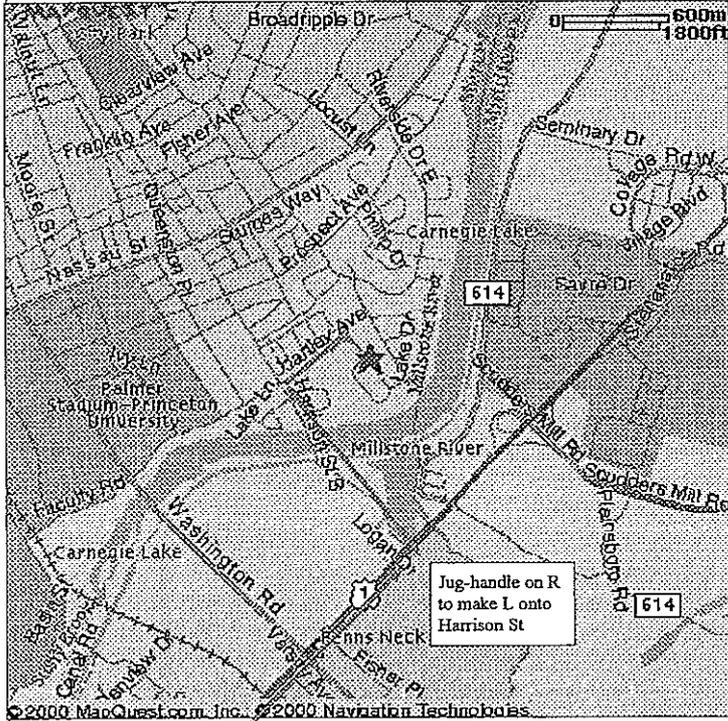
(The following two sites courtesy of W2EV) LASER communications during the Daytime? Bouncing off of clouds?

<http://www.qsl.net/k3pgp/Construction/Frontend/frontend.htm>

For some interesting infra-red communications check out:
<http://atrey.karlin.mff.cuni.cz/~clock/twibright/ronja/>

Board of Directors Meeting, Thursday, Jan 10, 2002 at 8 PM
 JOSEPH H TAYLOR, JR — K1JT
 272 HARTLEY AVE
 PRINCETON NJ 08540

Several of us may want to carpool, contact fellow board members
 in your neighborhood for the ride to Princeton, NJ.



The most straightforward route is to take 195 into New Jersey just above Trenton, and continue to the US Route 1 exit. Follow Route 1 northeast for 5.2 miles to the Harrison Street exit. (You will pass by two other Princeton exits at Washington Road and Alexander Street.) Exit right and go around the jug-handle to make a left turn onto Harrison Street; follow Harrison to the next traffic light, and turn right onto Hartley Avenue. Go straight ahead to where Hartley makes a right turn; number 272 is the sixth house on the left, and the lights will be on. Joe-K1JT

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Prez-Sez

Year 2001 is in the books and we are starting a new year. Last Jan contest we had ice conditions and relatively low scores but very good participation. This year lets hope and pray for better weather and just as much participation and enthusiasm. This January contest is what we have built or reputation on, being the BEST VHF/UHF/SHF CLUB in the country. It takes effort from each of us, not just a few, we all need to pull together as brother Packrats and prove again this year that we are the best.

I do hope you all had a great holiday and if you have some time off make sure all your stuff is working, clean up the shack, check your clock, check your rotor, check your frequency, check, check, check.

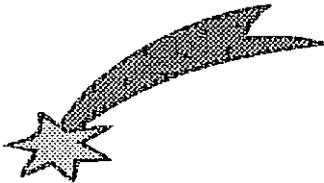
Joe Landis AA3GN is putting together contest teams it is the team captan's job to see that his team is ready and to help secure necessary equipment or expertise when needed. Don't be to proud to ask for help or to borrow equipment, get on the repeater, the phone, email, whatever one of us may have what you need and you may have what we need.

Let us all make year 2002 a better year for THE MOUNT AIRY VHF RADIO CLUB.

We have very good meetings coming up including home brew night, ARRL night, this January. Ben, WA3RLT, will give us a talk on our own contest productivity using last years contest logs. This is a very informative meeting and can be used as a tool to better refine our skills.

As you know our budget committee has been working with the board and the board voted to raise dues to \$20 per year, this does not solve all our budget issues but will help. We still have work to do.

Well good luck guys you know what you have to do. Keep an accurate log, work all the weak ones, work all fellow Packrats, basically let's kick butt. 73 Brian N3EXA



WSJT-MS Happenings

The popularity of meteor scatter communications using the WSJT software continues to grow. The list of active stations in North America is now well over 200. Most of the activity is on 2 meters, but 6 meters is even easier and a growing number of MS QSOs have been made on 222 MHz. Some ops even made a meteor scatter QSO on 432 MHz with WSJT recently; The hams who worked each other on 432 MHz meteor scatter actually pulled a rare triple play. It was K1VOW (in AZ, DM25) and N7CZ (MT, DN47). They're about 900 miles apart. On December 12 (one day before the predicted peak of the Geminids meteor shower) they worked each other on successfully on 144, 222, and 432 MHz. Bob, N7CZ, says he's very sorry that he didn't save the audio files from the 432 MHz QSO, but at the time he didn't realize they were doing anything special! My modest station has now worked 42 grids on 2 meters with this mode, at distances of 500 to 1325 miles, in about six months. It's a great way of keeping the bands active during the months when enhanced tropo or sporadic E are rare to nonexistent. -- 73, Joe, K1JT

The Life of a Ham

Via the web from Herb Krumich; wa2fgk@epix.net

Holy crow, we have a sked with North Dakota during the upcoming Leonids but our amp that was promised us is not here yet. Only a week to go and a phone call is a must. The call goes in to our mentor Bill Ashby, K2TKN. We ask how is it coming? His response, "I will have it for you". Days go by and we have heard nothing from Bill. We call again. His reply "don't worry I will get it done."

Finally we receive a call from Bill. Pick it up in the morning. Katie will be home. Up I go to Pluckemin, N.J. Katie with a smile opens the door and on the floor is a brand new home brew two meter KW amp. Wow, my face is glowing. In conversation, Katie tells me Bill started on the amp ten hours ago. He stayed up all night and built us a full KW with power supply in one evening. The amazing thing he did it for free. For us there will never be another Bill Ashby, God rest his soul. During the day, we hook up all switching. Our Gonset Sidewinder is driving the amp to full power. Out W2AZL 417A converter is glowing with our Hammarlund receiver. We only have one problem. Our rotor is not turning our array. Stuck in one direction, it is a must to climb the tower and loosen the mast to turn our four big Telrex 15 element yagis towards North Dakota. Finally we are ready for the quest of a new state.

The next morning we are up in plenty of time. Tuning our magnificent system we are on frequency for our sked. We will be using the call WA2FGK with K2LNS at the operating position. Bang, within minutes our contact is complete. So excited in disbelief that K0ALL was so loud. I start calling CQ with not much expectations. Since our antenna was stuck almost north west. Unbelievable as it might seem, we worked many stations from W0 land to Texas and as far south as Florida. The signals had the symptoms of tropo but had tremendous meteor bursts on top. Constant signals from all over were logged that day. As you have guessed, this was 35 years ago.

Our team WA2FGK as engineer and K2LNS operator has survived all these years. Andy still builds and adds to the UHF and microwave bands and Herb continues to operate. The last year has been very difficult keeping the station on the air due to work schedules, but the year 2002 should be the best yet. The reason for this story is to bring up our latest state. We moved to the Pocono Mountains fifteen years ago. In putting up a new antenna for 144 mc., we decided to elevate our four 17B2's. With WAC on two meters complete, our next accomplishment will be trying for WAS. In two years we moved up to 43 states. The 43rd being K0GU on his moonrise. Big signals off the moon from Colorado. The last state reachable from Pennsylvania on scatter was North Dakota. The first station I can think of is our friend K0ALL. With an E mail, Ron agrees to give it a shot. We try two different showers. I believe we could have made it in the Perseids but our sked time was hours from the peak. I call Ron and ask for a sked during the Leonids. This guy is ready to go. We plan on 10:00Z. Only one problem, my Omni 6 is locked in the CW mode. Worst than that it is sometimes jumping frequency. I call Ron on the landline and ask him if we could try CW. His response was "REAL HAMS USE CW". Two minutes before our sked I fire up the 8877 into our 4 17B2's. Everything looks good. I release the transmit switch and prepare to call Ron. Hoping to get a few pings to start. Nothing could be further than the truth. He tells me he was listening to me tune up with solid copy. First transmission creates our QSO. Solid 559 copy.

Thirty five years has passed and Ron K0ALL has me still smiling. State number 44 is now complete. This story is a tribute to my friend Andy WA2FGK and our deceased mentor K2 twenty kinds of noise. K2LNS station manager for WA2FGK

TAKE A NUMBER: FRN NOW MANDATORY

(Via ARRL web bulletin)

Anyone filing an Amateur Radio application now will be asked to supply a 10-digit FCC Registration Number (FRN) issued by the FCC's new Commission Registration System, or CORES. The requirement applies to FCC applications filed on-line or on paper. The FCC also has supplanted Universal Licensing System (ULS) registration with "CORES/Call Sign" registration, so applicants no longer need to register separately in both systems.

Most, if not all, hams who registered previously with the ULS already have an FRN, although they may not know it yet. The FCC just completed another cross-registration to include those already on the ULS books within the CORES "entity registration" database, and another is scheduled. Amateurs can learn their FRNs by doing a license search on the FCC's Universal Licensing System page <<http://wireless.fcc.gov/uls/>>. FRNs also are displayed via the ARRL call sign server on ARRLWeb <<http://www.arrl.org/>>.

The FCC has updated its ULS page <<http://wireless.fcc.gov/uls/>> to reflect the new reality and to make the page a bit less confusing. Amateurs not yet registered in CORES who click "CORES/Call Sign" registration will be redirected to the CORES site to complete that process. Amateurs who click "Online Filing" are advised to proceed to CORES to register if they do not already have an FRN, then return to ULS for filing.

Those filing on-line applications now are asked to supply either an FRN or a Taxpayer Identification Number (TIN--a Social Security Number for an individual) plus a password, typically the same for both CORES and ULS.

The process is a bit more daunting for new club station applicants, who now will be asked to register in CORES as business entities. Such applicants also may file with a Club Station Call Sign Administrator using Form NCVEC 605 and simply leave the FRN field blank. ARRL VEC Manager Bart Jahnke, W9JJ, says that in those cases, the Club Station Call Sign Administrator (CSCSA), such as ARRL, will register the club station entity in CORES on the applicant's behalf.

The FCC also now only accept FCC Form 159 (Remittance Advice) dated February 2000 or later, which requires providing an FRN. A copy of the acceptable version is available on the FCC Web site <<http://www.fcc.gov/fees/>>. At the left side of the page, click on "Form 159".

For more information about the Commission Registration System or on obtaining an FRN, contact the CORES Help Desk, 877-480-3201, cores@fcc.gov.

AO-40 Transponder Hiatus Looms

(ARLS019)

Necessary adjustments to AO-40's attitude to compensate for unfavorable sun angles over the next several months will silence the satellite's transponders for a while. Recent reports indicate that AO-40 continues to operate well, providing coverage between many parts of the world.

A scheduled attitude shift to compensate for the unfavorable sun angle will leave AO-40's antennas pointing away from Earth until next spring and lead to a transponder shutdown

period that could start as soon as late December. The satellite is currently in a long period during which Earth eclipses the sun near perigee--its point closest to Earth. AO-40 relies on solar panels for its power.

Command station team member Stacey Mills, W4SM, said that testing and development continue on AO-40's three-axis control system, to account for significant changes in the final orbit, the so-called "mystery effect" and the loss of some sensors. But he said that three-axis control would not be ready in time to avoid the unfavorable solar-angle season, so AO-40 will remain in spin mode, with attitude controlled by onboard magnetorquers. The onboard magnetorquing system--which consists of solenoid coils--makes use of Earth's magnetic field to control the spacecraft's spin and orientation.

"Within a few weeks, we will have to change ALAT (AO-40's attitude with respect to Earth) dramatically, probably to about -50 degrees, to allow the sun to pass us by for about three months," he explained. The resulting high "squint angle" will render the S2 transmitter ineffective for transponder use, and the passbands will be shut off temporarily.

Mills estimated that ground controllers may need to start shifting the satellite's attitude starting sometime just before Christmas. He didn't expect a favorable sun angle that would again allow pointing AO-40 directly toward Earth (ALON/ALAT 0/0) until mid-April. "It's possible that we can leave the transponders on during the first part of the move and turn them back on slightly before April 15 as we start back toward 0/0," Mills said, "but you can figure that things will be sub-optimal from about Christmas until April 15."

During the transponder shutdown period, Mills pointed out, telemetry also will be harder to come by. He urged AO-40 telemetry gatherers to be as active as possible during the transponder downtime.

The current AO-40 transponder operating schedule and more information are available via the AMSAT Web site,

<http://www.amsat.org>

Movin' Your Cheese (buy-sell)

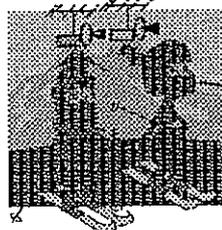
I'm looking for a 15-20' piece of EW-90 elliptical waveguide for 10 GHz. EW-122 would also do. I am also looking for a WR-90 pressure window. Thanks, Paul WA3GFZ
dogface@HOME.COM

Packrat Box Scores

This space has been reserved in future editions of CheeseBits for the publication of the Packrat band accomplishments. We have already started to receive reports from club members, and in the next edition I hope to be able to start with some of the results on 50, 144, 222 and 432. Please send your report now (review those logs!) in the following format:

Band; States; DXCC; Grids; Best DX in Km

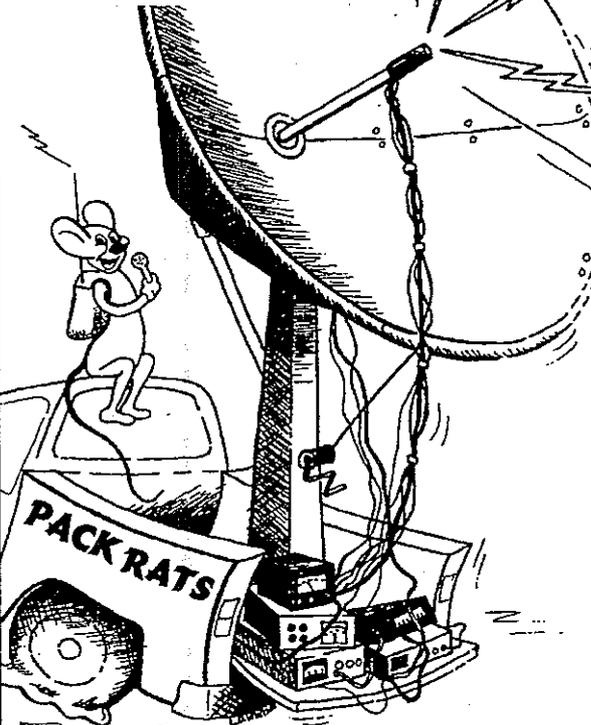
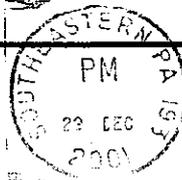
Any simple listing useful via email to rick1ds@hotmail.com



Do you really think these rovers take these winter contests seriously?

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Blue Bell, PA 19422

MEETING NOTICE

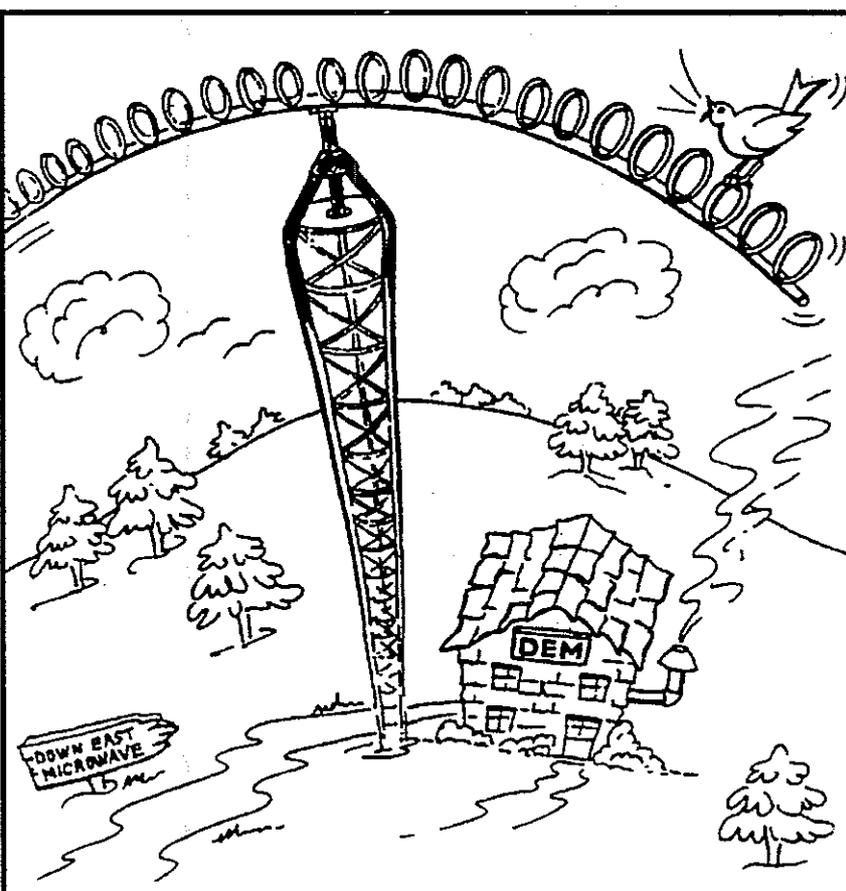


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