

# PACK RATS'



**PACK RATS**

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

# CHEESE BITS



MT. AIRY VHF RADIO CLUB, "THE PACK RATS", PHILADELPHIA, PA. W3CCX  
NET FREQUENCIES: 50.150, 144.150, 222.125, 224.58/222.98, 432.110, 903.100, 1296.100 MHz  
AFFILIATED CLUB: AMERICAN RADIO RELAY LEAGUE ARNS

Meetings: Third Thursday of each month at 8:00 PM  
Southampton Free Library, 947 E. Street Road  
Southampton, Pennsylvania 18966

SCANNED TO PDF BY BERT, K3IUV, 2013

VOLUME XXXVII

November 1995

Number 9

## THE PREZ SEZ

Where do all the Packrats operate? As a Monday night net regular control station for the last 7 or 8 years I can't count the number of times I have been asked that question by out of the area check in stations. The simple truth is that we don't get on the air very often. Fortunately or unfortunately I am old enough to remember when you could get on any band ( 6M -432) at almost any time of the evening and find a QSO taking place or know that your CQ would be answered within 3-4 calls. That was a long time ago. Today, unless there is a contest or a net operation such as we provide on Monday nights, you need a mast mounted preamp to find a QSO taking place. The bands seem vacant and it's easy to understand how the change occurred when you look at the wide range of choices we all face on how to spend our time. Many families have both parents working today and so returning from work means kids and dinner and shopping and catching up with the hundreds of chores that we never seem to get finished. By the time you're through all of the above, if you're still awake, there is always some event taking place or special on TV, cable or now the InterNet. Who has time to operate? Too many of us do the majority of their operating on FM going back and forth to work.

Well it seems that nature really does abhor a vacuum, and over the past few years I have observed a change in the way VHF/UHF operators use their limited time on the air. Every night between 10 - 11 PM many of the well known vhf'ers all along the north east corridor tend to gather on 2 meters and start calling CQ, or making skeds for the higher bands, or just take time to say hello and ragchew. Sure enough, the weak signal DX goes where the activity is and I have heard more new stations show up at 10 PM than at any other time. Don't expect to hear a pile-up. You may only hear a sole station calling CQ West, but when something new pops up all the SWL's come out of the woodwork. Take a chance, call CQ and rediscover the fun you had back in the good old days. There is activity on the bands! We just need to adapt our busy schedules to take part in it.

The January contest is coming and the club intends to make every effort to regain premier status. But only with your help. One of the easiest (and maybe profitable) ways you can help is to take a look at your pile of unused equipment that you plan to sell someday and bring it to the next meeting. We are expanding the silent auction flea market at the back of the room to help members prepare for January. So bring in your old spare antenna, LNA, keyer, etc. and help the club contest effort at the same time.

73, Phil, WA3NUF

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 (215) 355-5730

**PACKRAT 222 MHz REPEATER - W3CCX/RPTR**

222.98/224.58 MHz, Churchville, PA

**OFFICERS: 1993-1994**


|            |         |                         |
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|            | N3OZO,  | Don Schwartzkopf (2 YR) |
|            | WB3KRW, | Steve Dallas (2 YR)     |

**MONDAY NIGHT NETS**

| <u>TIME</u> | <u>FREQ.</u> | <u>NET CONTROL</u> |
|-------------|--------------|--------------------|
| 7:30 PM     | 50.150 MHz   | K3EOD              |
| 8:00 PM     | 144.150 MHz  | W2EIF              |
| 8:30 PM     | 222.125 MHz  | WB2YEH             |
| 8:30 PM     | 224.58R MHz  | K3ACR              |
| 9:00 PM     | 432.110 MHz  | WA3AXV             |
| 9:30 PM     | 1296.100 MHz | WA3NUF             |
| 10:00 PM    | 903.100 MHz  | N3AOG              |

**COMMITTEE CHAIRMEN**

LADIES' NIGHT: WA3YUE 610-630-1875  
 JUNE CONTEST: WB3DNI 215-672-5289  
 HAMARAMA: WB3JYO 609-538-1687  
 VHF CONFERENCE: KB3XG 610-584-2489



THE AMERICAN RADIO RELAY LEAGUE

**QST**

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**Lynne D. Whitsel**

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Churchville, PA 18466  
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## Calendar of Coming Events - November 1995

- 4-5 Second Weekend of the ARRL International EME Competition. See Sept. QST page 124 for rules.
- 4-5 ARRL November CW Sweepstakes. See Oct. QST, page 125 for rules.
- 6 Check into the 6 Meter Net on 50.150 MHz at 7:30 PM EST.
- 6 Check into the 903 MHz Net on 903.100 MHz at 10:00 PM EST.
- 7 **Election Day**
- 9 **Packrat board of directors meeting** at the QTH of Phil, WA2NUF.. Call 215-675-4277 for directions. All interested parties invited.
- 11 **Veterans Day**
- 11 Central Pennsylvania Repeater Assn Hershey Hamfest at the Hershey Armory, 28th Infantry off 422 on Baum Ave., Hershey, PA. TI on 145.47(-) and 145.29(-). VE Testing.
- 13 Check into the 2 Meter Net on 144.150 MHz at 8:00 PM EST.
- 13 Check into the 1296 MHz Net on 1296.100 MHz at 10:00 PM EST.
- 16 **Regular meeting of the Mt. Airy VHF Radio Club** at the Southampton Free Library on Street Rd. in Southampton, Pa. The scheduled speaker will be Bill, AA2UK, on Microwave Surveillance Systems. All VHFers are encouraged to come and enjoy the evening with us. You need not be a member. Do you need to attend this meeting to qualify for club contest minimum attendance? Come anyway and bring a friend.
- 17 Predicted peak of the **Leonids meteor shower** at 2233 UTC.
- 18-19 ARRL November Phone Sweepstakes. See Oct. QST, page 125 for rules.
- 20 Check into the 220 MHz Net on 222.125 MHz or 224.58/R at 8:30 PM EST.
- 23 **Thanksgiving**
- 25-26 CQ World-Wide DX Contest - CW. See Oct. QST, page 127 for rules.
- 27 Check into the 432 MHz Net on 432.110 MHz at 9:00 PM EST.
- 27 Check into the 903 MHz Net on 903.100 MHz at 10:00 PM EST.

### HAMARAMA 95 UPDATE

by Paul Drexler, WB3JYO

Well, The Packrats were fortunate to have one more year of operation at our favorite endangered Bucks County Drive-In! Excellent weather and plain old hard work by our Advertising Committee helped us break last year's attendance levels. The Vendor Parking situation was much improved this year thanks to Gary, WA2OMY's leadership. Our proceeds will enable us to pursue all of the club activities we enjoy.

Thanks to all of the following who made this year's hamfest a success: WA3JUF, KB3IB, K3EOD, W3KKN, WA3EHD, K3MFI, WA3AQA, N3AOG, WB3DNI, AA2UK, N3ITT, N3DQZ, WA3YUE, WB3KRW, KU3A, K3GNC, W3GXB, N3EXA, N3NGE, K3EBZ, K3ESJ, WA2LTM (one step closer to membership privileges, HI!), WA3NUF, WA3YUE, WB2YEH, WA3IAC, K3PHY, WB2VLA, W3ITT, WB8ZAR, N3DEQ, W3GXB, N3OZO, and W3GAD

### New Member

**Dave Dabell, WA3U**, 2 Memory Lane, Newark, Delaware, 19702 was voted to membership at the October meeting. Dave operates 144, 222, and 432 MHz running 100 to 150 watts on each band. Dave can be reached at (302) 834-9706 (H) and (302) 695-2688(W)

## Visitors at the October Meeting

Dave Dabell, WA3U, Newark Delaware  
Joe Landis, AA3GN, Lansdale, Pa.  
Russell Tobias, KB3UI, Huntington Valley, Pa.  
Rick Phillips, KB3PD, Newark, Delaware  
Dave Grebe, WA3PEB, North Wales, Pa.  
Phil Isard, WF3W, Berhayres, Pa.  
Bill Nicholson, W3KOC, Willowgrove, Pa.

## Packrat Notes

For the Mid Atlantic States VHF Conference, a reprint of the best articles from Cheesebits over the last 3 or so years was published. A limited number are available on a first come, first served basis. The price is \$12.00 per copy, postpaid. For a copy send a check made out to the Mt. Airy VHF Radio Club to Dave Mascaro, WA3JUF, Treasurer, 1603 Mink Road, Ottsville, PA. 18942. The table of contents of Packrat Notes and the authors are:

| <u>Area</u>   | <u>Article</u>   | <u>Author</u>  |
|---------------|--|--|
| ANTENNAS      | Parabolic Antennas and Their Feeds<br>902/903 MHz DL6WU Yagi Match<br>The Strength of Masts  | Dick Comly, N3AOG<br>Dave Hackford, N3CX<br>Dick Comley, N3AOG   |
| AMPLIFIERS    | Driving Solid State Amps<br>Parallel MMIC's<br>More AM-6154/55 PROBLEMS  | Dave Mascaro, WA3JUF<br>John Sortor, KB3XG<br>Ron Whitsel, WA3AXV  |
| TRANSVERTERS  | A "Crunch-Proof" 144 MHz Transverter<br>Building No-Tune Transverters<br>10 GHz Transverter, "All the Boring Details"  | Paul Drexler, WB3JYO<br>Dave Mascaro, WA3JUF<br>John Sortor, KB3XG   |
| MEASUREMENTS  | Microwave RF Power Monitor<br>Cheap Microwave Detector   | Dave Mascaro, WA3JUF<br>John Sortor KB3XG  |
| MODIFICATIONS | High Level Mixer/LO Modifications<br>for the 903 MHz No-Tune Transverter<br>The AM-6154/55 on 222 MHz<br>Phase Lock Loop Source Modifications  | Dave Hackford, N3CX<br>Ron Whitsel, WA3AXV<br>Dave Mascaro, WA3JUF   |
| HINTS & KINKS | 3456 MHz Isolator/Circulator<br>Hybrid Power Splitters<br>Coaxial Antenna Relays<br>2 Meter IF Load/Attenuator<br>IF Switching<br>More Pipe Cap Mania<br>Temperature Compensation for Crystals | Dave Mascaro, WA3JUF<br>Chuck Steer, WA3IAC<br>Dave Mascaro, WA3JUF<br>Dave Mascaro, WA3JUF<br>Gary Hitchner, WA2OMY<br>John Sortor, KB3XG<br>Dave Mascaro, WA3JUF |

## SWAP SHOP

(send all ads to the editor)

**FOR SALE:** 1996 Callbooks (paper), the 1996 Callbook on-CD-ROM (brand-new: 250+ countries on 1 disk!) & new Buckmasters. Callbooks are \$24 each, \$48 a set (plus \$3 shipping per TOTAL order). The Callbook-on-CD-ROM is \$33 + \$3 shipping. + The Oct '95 Buckmaster is \$36 + \$3 shipping. Contact: Mike Klein, KC3NE at (215-854-5514).

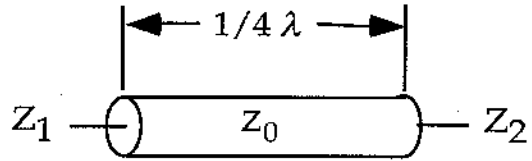
**FOR SALE:** Pair 903 MHz 33 Ele. Loop Yagis with Power Divider, \$100.00; Azden PCS-3000 2m FM Transceiver/Remote Cable Kit, \$120.00; KLM 8 Element 2m Yagi, \$15.00; Austin 2m/220/450 Triband Vertical 5 Feet Long, \$50.00; 10 Foot Fiberglass Dish, \$100.00; Lowance X-50 Depth/Fishfinder Sonar, \$100.00. All items Pick-up Only. Contact WA3AXV Ron Whitsel 215-355-5730 After 5 P.M..

**FOR SALE:** 10 Watt 5.7 GHz TWT with documentation \$30. Hygain V2S 2M FM ant \$20. Hygain V3S 220 FM ant \$20. KLM 2M 4 ele yagi \$15. Phil Miguez WA3NUF, 215-830-5508 work, 215-675-4277.

# Stripline Power Dividers

## •Using Waveguide•

Ron Whitsel WA3AXV



One of the ways to improve the over all performance of any radio station is to put up bigger antennas. Antenna improvements affect both the transmitted and received signal and thus increase your operating range. Once you reach a certain point, the only practical way to get "bigger" antennas is to put up multiple antennas phased in such a way so that the total gain of the array increases (hopefully). For VHF and above this usually requires the ubiquitous power divider.

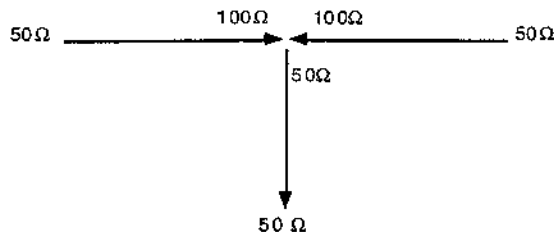
Over the years I have built power dividers using coaxial cable or round copper tubing to achieve the necessary matching of the various antennas in an array. Recently, I have been using waveguide to construct 2 and 4 way power dividers. The waveguide has the advantage of being rectangular which greatly facilitates the attachment of the coaxial cable connectors. It is also made of copper, unlike power dividers made of square or rectangular aluminum tubing, which means the whole assembly can be soldered for long lasting, waterproof, electrical connections.

A few words on how power dividers work is in order. Once you understand the simple theory of operation of a power divider (combiner also) then you may come up with another way of building  $1/4 \lambda$  transmission line transformers that better suits your needs or available materials list. The basic objective is to build transmission lines with the proper characteristic impedance to match two different RF impedances. The shape or size of the transmission line doesn't matter as long as it is the right impedance.

The two most common configurations are intended to combine either 2 or 4 antennas, each with a nominal impedance of 50 ohms. If you were to merely connect 2 antennas with equal lengths of 50 ohm cable together the resulting impedance at the joined ends would be 25 ohms. This really isn't too bad, but we can do better. If we could somehow "transform" the 50 ohms at the end of each cable to 100 ohms, then when we joined the new ends together we would be back to 50 ohms (The impedances combine like resistors in parallel). Such a impedance transforming device is an electrical (compensated for the velocity factor of the transmission line)  $1/4 \lambda$  (at the frequency of interest) piece of transmission line having a characteristic impedance ( $Z_0$ ) determined by the following equation:

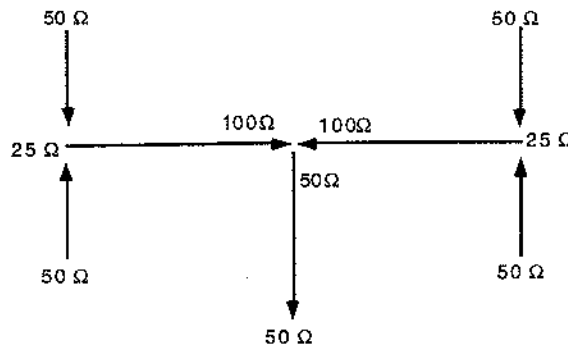
$$Z_0 = \sqrt{Z1 * Z2} \quad \text{Where } Z1=\text{Input Impedance, } Z2=\text{Output Impedance}$$

In the above example we want to take the 50 ohms at the end of the cable and 'step it up' to 100 ohms. The formula predicts that if the  $1/4 \lambda$  transmission line impedance is  $\sqrt{50 * 100}$  or 70.7 ohms then we will achieve the desired results (See diagram below). This 'transformer' effect also works with any odd number of quarterwaves (i.e.  $3/4 \lambda, 5/4 \lambda, 7/4 \lambda$  etc.). Aha! So this is why we used to use RG-11 (75 ohms) to match two antennas in the good old days. The trick was to get the RG-11 the right length (Odd number of electrical quarters waves). In this case the whole piece of RG-11 was the transformer. If we are using a power divider, then the only requirement is that all the 50 ohm 'phasing' lines have to be the same length, any length, but all the same. Much easier!



Two Way Power Divider

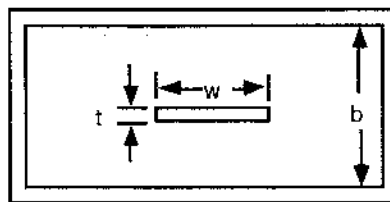
In the case of 4 antennas, if we connect two of the antenna feeds together with equal lengths of 50 ohm cable then the impedance at this point is 25 ohms. The transformer has to then step up this 25 ohm load to 100 ohms. Thus when we connect the transformed 100 ohms from the other two antennas, the resulting impedance at the center will be back to 50 ohms (See diagram below). The transformers required must have a characteristic of impedance of 50 ohms ( $Z_0 = \sqrt{25 * 100} = 50\text{ohms}$ ). Once again this could all be done with coaxial cables of the proper length, but it is much easier with a power divider.



**Four Way Power Divider**

What is described here is just one way of building power dividers. There are other configurations such as having two or four antennas connected to one end of a power divider and use a single  $1/4 \lambda$  transformer to step up to 50 ohms. The theory is the same for all cases, just different numbers. I think you will find the construction of the actual device is easier in the configurations described here.

Below is an end view of a stripline transmission line. In typical stripline applications the sides are not present. When used as a power divider, the presence of the sides of the waveguide do not effect the results because of the distance from the center conductor. Eagleware RF design software was used to calculate the width of the center conductor ( $w$ ) that is required to achieve the 70 and 50 ohm characteristic impedances needed for the 2 and 4 way power dividers. Calculations are provided for .031" and .062" thick ( $t$ ) material. Use brass shim stock or hobby brass for the center conductors. The thicker material may be necessary only if you contemplate using this technique on the "DC" bands, 220 MHz and below. For 432 and above use the  $1/32"$  (.031") stock. I used WR-90 waveguide (.90"x.40" Inside) for all my power dividers. The smaller dimension is designated as " $b$ " in the diagram below. Dimensions are also provided for WR-75 (.750"x.375") and WR-62 (.622"x.311") guide if that's what you have around. The smaller size guides, in fact, would be desirable for 2304 and 3456 MHz where SMA connectors should be used.



**End View of Waveguide with Center Conductor**

The table below gives the dimensions for the center conductor width ( $w$ ) depending on the type of waveguide used and whether a 2 or 4 way divider is being constructed. Keep in mind that the

characteristic impedance is dependent only on the physical dimensions of the guide and center conductor. The frequency of operation is determined by the length of the center conductor.

Center Conductor Width

|        | WR-90   |         | WR-75   |         | WR-62   |         |
|--------|---------|---------|---------|---------|---------|---------|
|        | t=.031" | t=.062" | t=.031" | t=.062" | t=.031" | t=.062" |
| 50 Ohm | w=.490" | w=.420" | w=.450" | w=.380" | w=.360" | w=.290" |
| 70 Ohm | w=.290" | w=.240" | w=.270" | w=.220" | w=.210" | w=.160" |

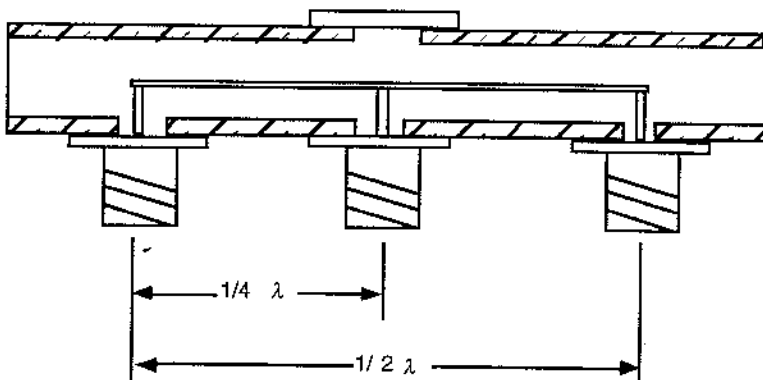
The length of the center conductor is a  $1/2 \lambda$  since these power dividers are actually two  $1/4 \lambda$  transmission line sections in parallel. The table below gives the center conductor length (air dielectric) for the bands where stacked antennas are likely to be used. For the 2304 and 3456 bands I recommend building power dividers for  $1/3$  the frequency. Remember these transformers work on all odd multiples of a quarter wavelength, so a power divider built for 432 MHz will work just fine on 1296 MHz. Likewise, 768 MHz for 2304 MHz and 1152 MHz for 3456 MHz. The dimension for the higher frequencies get quite small and building becomes difficult. The larger size of the lower frequency version makes them much easier to build. Note: These devices tend to be rather low Q, so don't worry about small dimensional errors.

Center Conductor Length

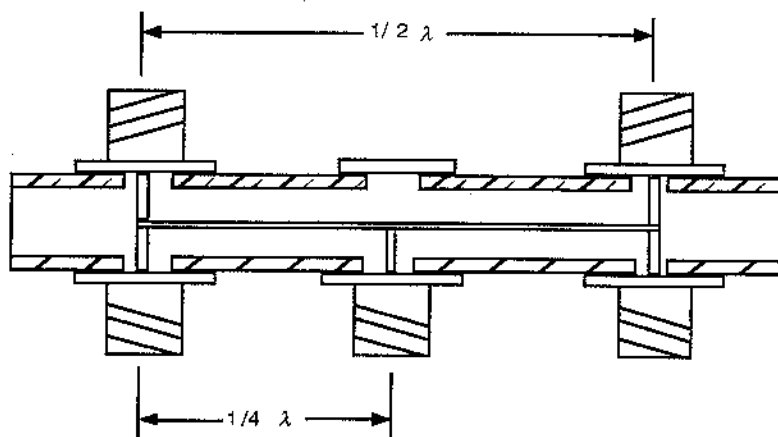
|               | 50 MHz | 144 MHz | 222 MHz | 432 MHz | 903 MHz | 1296 MHz | 2304 MHz<br>(768 MHz) | 3456 MHz<br>(1152 MHz) |
|---------------|--------|---------|---------|---------|---------|----------|-----------------------|------------------------|
| $1/2 \lambda$ | 118"   | 40.9"   | 26.6"   | 13.66"  | 6.53"   | 4.55"    | 2.56"<br>(7.68")      | 1.71"<br>(5.13")       |
| $1/4 \lambda$ | 59"    | 20.5"   | 13.3"   | 6.83"   | 3.26"   | 2.27"    | 1.28"<br>(3.84")      | 0.85"<br>(2.56")       |

\* 432 Dimensions Work Also

The length of the actual piece of waveguide used is not critical. It can be any length that allows for easy mounting of the RF connectors. The ends can be open or closed. Since weather is probably a concern you should seal the ends. One of the easiest ways is fit a small piece of wood in the opening and seal with RTV. If you feel ambitious you can fit a cap made from copper or brass and solder it in place. Remember there is no need for this end cap to be conductive.



Side View, Cross Section of Two-Way Power Divider



Side View, Cross Section of 4-Way Power Divider

Either power divider is constructed in the same manner. The outside connectors are located  $1/2 \lambda$  apart for the frequency desired. Drill holes that will provide clearance ( $\approx 0.625''$ ) for the small 'lip' on "N" jacks (Drill through both sides of the waveguide for the four-way) or drill smaller holes ( $\approx 0.25''$ ) if SMA jacks are utilized. Locate the center between the outside connectors and drill through both sides of the waveguide. The hole opposite the antenna connector will allow soldering the center pin of the

connector to the center conductor. This hole has to be covered with a small piece of copper or brass after the power divider is assembled.

**CAUTION: Use Eye Protection!**

After all the holes are drilled, its time to break out the heavy heat. This is not a job for any kind of wimpy soldering iron; a propane torch is required. I have had the best luck with plumbers solder (no acid core and use 'real' lead-tin) and paste solder flux. Shine up all the copper or brass parts with emery paper and lightly coat the areas to be soldered with flux. Put a small amount of flux on the base of the connectors and place in position. Do all three connectors on one side at once. Heat the waveguide until the solder starts to flow under the connector. If the solder doesn't flow freely then there is not enough heat or the parts are "dirty" or oxidized.

**CAUTION: ALL PARTS ARE VERY HOT AT THIS POINT!**

SMA connectors can be mounted this way, but be careful for the gold conductive surface is an extremely thin 'flash' coat that is easily damaged. Once the gold is gone you will not be able to solder the connector. An alternative method for the SMAs is to heat the body of the power divider (leave the connectors off) with the torch and when very hot use a soldering iron and 60/40 solder to solder the connectors just like you were soldering to a PC board. Still use the acid flux to prevent the heated copper from oxidizing while it is being heated.

Once the connectors are soldered on one side its time to install the center conductor. A hole drilled in the center of the brass strip (tight fit on center pin) will facilitate soldering the center pin of the center connector. You may have to trim the ends of the connector pins so that the center conductor is positioned in the center of the small dimension of the waveguide. Position the center conductor inside the waveguide and centered on the three connector pins. Solder the center pin first through the access hole and then the end pins through the open ends of the wave guide. Once this is done its time to turn the power divider over and solder the connectors on the other side if building the four-way and to cover the access hole for both the 2 and 4 way. Use the same procedure as above.

Clean off the excess flux as best you can. Commercial flux remover in a spray can seems to work on either the acid or rosin flux residue. Be careful and use eye protection for all phases of construction and clean up. It is easier to clean off the flux before it fully cools. If you do the cleaning while there is still a little residual heat in the waveguide it will go a lot easier.

Finish up the power divider by covering the ends as discussed above. A coat of paint is optional. Attach equal lengths of 50 ohm cable to all antennas and call CQ.



# JANUARY CONTEST - HELP, NEEDS, & EQUIPMENT

By: Al Shepard, N3ITT, Chairman, January Contest Committee

The results of the preliminary survey are in and tabulated per the attached chart. The chart represents actual commitments of people to help and provide equipment. Feel free to contact those offering help directly or check through your contest coordinator. If you need something not listed, call me or your coordinator. If you dig out that working or nearly working spare rig out of the closet, contact me or your coordinator so that someone can get it on the air. Don't forget antennas too! The dinky 20 element yagi that you no longer use may be just what your fellow rat is looking for.

1996 January VHF SS

| Call Sign | Technical Help, Info and Components | Tower Work Help *grnd man only | Help / Equipment Available  | Help / Equipment Needed                 |
|-----------|-------------------------------------|--------------------------------|-----------------------------|---|
| KU3A      |                                     | X                              |                             | Ant work, feedline                      |
| N3AOG     | X                                   |                                | Machining, test equip       |   |
| WA3AXV    | X                                   |                                |                             |   |
| WB3DNI    | X                                   | X                              |                             |   |
| N3DQZ     | X                                   | X                              |                             |   |
| K3EBZ     |                                     |                                |                             |   |
| WA3EHD    | X                                   | X *                            | 25w 2m FM Rig               | Work on 1296 rig, antenna work          |
| W2EIF     | X                                   |                                |                             |   |
| K3EOD     |                                     | X *                            |                             | Antenna/tower work                      |
| K3ESJ     | X                                   |                                |                             |   |
| N3EXA     | X                                   | X                              |                             |   |
| W3GAD     |                                     | X                              | Tower climbing belt         | Antenna work                            |
| WA2GFP    | X                                   |                                | Call for help               | Roof tower/Ant work                     |
| K3GNC     |                                     |                                | 50 MHz xvtr, needs work     | 8930 tubes                              |
| N3GSA     |                                     | X                              |                             |   |
| W3GXB     | X                                   | X *                            |                             | Repair rotor cable on tower             |
| W3IIT     | X                                   |                                | Loan: 3 Midland 220 FM rigs | Tree trimming-tree eating 6M beam       |
| N3ITT     |                                     | X                              |                             | Help getting on 2.3 GHz                 |
| K3IUV     |                                     |                                |                             | Spare 5894                              |
| WA3JUF    | X                                   | X *                            | Ants: 222, 446, and 903     |   |
| WB3JYO    | X                                   | X                              | Possible 1296 Xvtr          |   |
| WC2K      | X                                   | X                              |                             |   |
| K3MFI     |                                     | X                              |                             | Check 1296 coax, LNA switching, 220 rig |
| N3NIA     |                                     |                                | FN01 50 thru 432 MHz        |   |
| N3NGE     | X                                   | X                              |                             |   |
| WA3NUF    | X                                   | X                              |                             |   |
| WA2OMY    | X                                   | X                              |                             |   |
| N3OZO     | X                                   | X                              |                             |   |
| KB3QM     |                                     |                                |                             | Need tower work - since May             |
| WA3RLT    |                                     | X                              |                             |   |
| W0RSJ     | X                                   |                                |                             | Operator for multi-op, 903 MHz rig      |
| N2SB      | X                                   |                                |                             |   |
| WA3U      | X                                   | X                              |                             |   |
| AA2UK     | X                                   | X                              |                             |   |
| KB3XG     | X                                   | X                              | Will build no-tunes !       | Need to raise 2 tilt over towers        |
| WB2YEH    | X                                   | X                              | Loan: IC-502A 3W SSB        | Help to get on 5.7 GHz                  |
| K3LOM     |                                     | X                              | Loan 3 ea. 13-509 220 FM**  | See W3IIT/WB3DNI for tower work coord   |
|           |                                     |                                | ** See W3IIT                |   |

## TID BITS

TNX to WB3KRW, the Pack Rat Beacons are once again sending an ID on 903 and 2304. Signal strength seems about the same as before the old brick-on-the-key test. The 1296 beacon is still down awaiting resolution of a local TVROI problem. de WA3AXV.

Atlantic Division Director, Hugh, W3ABC is available via e-mail at w3abc@arrl.org. Vice Director Kay, WT3P, is available at wt3p@arrl.org.

The Maryland/DC Section Home Page is available for those of you with World Wide Web capabilities (virtually everyone on Prodigy and AOL) at <http://www.seas.gwu.edu/student/hanir/mdc/index.html>.

The HAMARAMA Vendor prize of \$50.00 cash went to John Dombleski, N2OJY, and the Main Door Prize of a \$300.00 gift certificate to Ham Radio Outlet was won by Bill Arms, N3MUM.

## VHF+ PROPAGATION & ACTIVITY REPORT- AUGUST 1995

By Jerome Byrd, K3GNC

October has been a good month for propagation on the VHF+ bands. The author has been rebuilding his station, partly by choice, partly from necessity. The opportunity to work new grids has gone unchallenged! This column will become skimpy during the coming winter months, so look for a multi-part article on the "Misunderstood World of Brute Force VHF+ Propagation".

| <u>FREQ.&gt;</u> | <u>DATE</u>              | <u>ACTIVITY</u>  |
|------------------|--------------------------|--|
| 144 MHz Up       | 9/30/95<br>to<br>10/2/95 | Band wide open to the Southwest - (TN, KY, OH, WVA...). I am sure it was a nice opening but I am glad that I missed it, rather than miss the "Mid Atlantic States VHF Conference" and Hamarama.  |
| 144 MHz Up       | 10/9/95<br>&<br>10/10/95 | Band open from MDC to Southwest. WB3F (FM19) worked EL29. Little activity was heard in FM29 & FN20. WZ1V worked into EM63 from FN31 on 10/10. We heard no other 1's or 2's working the duct.   |
| 144-432 !        | 10//18/95                | AURORA! Several strong stations; the furthest heard by the author was EN51. AA2UK (FM29) worked N4PZ (EN52) on 432!!! Packrats N2SB, AA2UK, K3GNC...? were in there pounding brass.  |
| 144...1296       | 10/19/95                 | In-land tropo from CT to SC - GA. Ken, KP4XS (EM84) worked W3ZZ, K1RZ (FM19), WD8BYA (FM18), WZ1V (FN31), K3EW (FN21), K3GNC (FM29) and others. W3ZZ & K1RZ worked Ken on 903 MHz! (WZ1V just missed). WD8BYA and K3GNC worked Ken on 432 and 222 respectfully for a new state and grid. EM73 was represented by WB4YOJ. |

Please let me know about any openings, nets, propagation, etc. Call (215) 226-1418 to leave a message - 24 hours a day.  
CU on the Bands, Jerome, K3GNC

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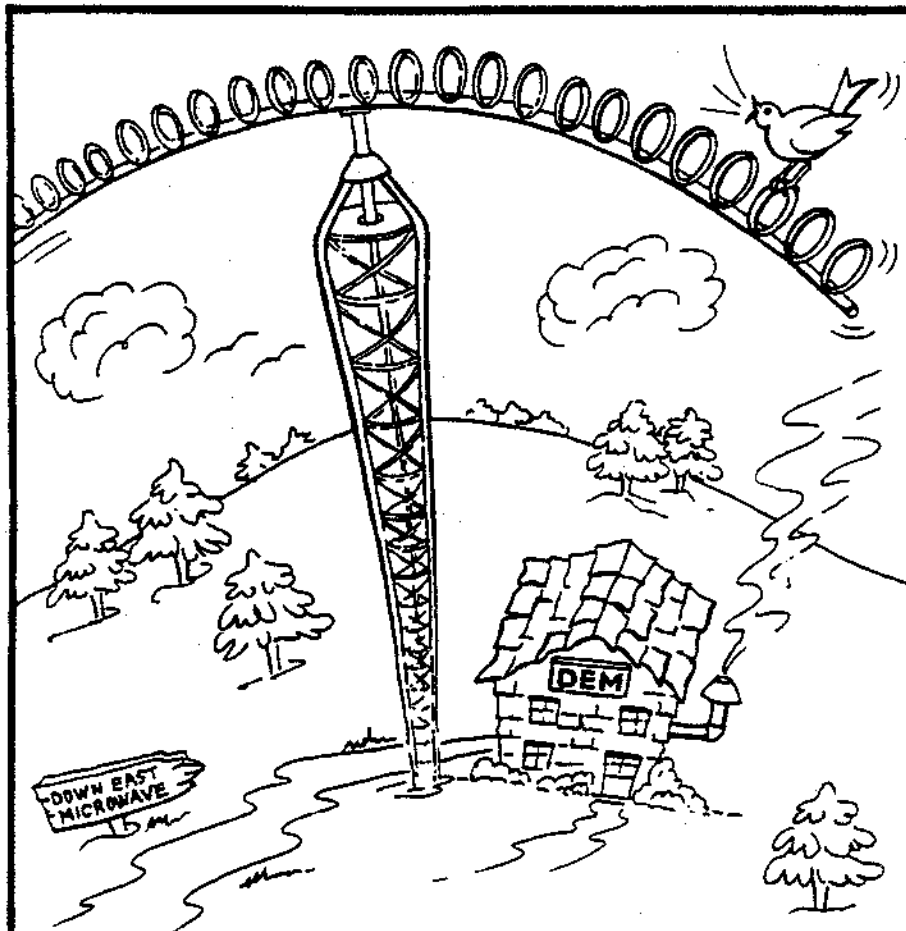


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