

**PACK RATS'**



**PACK RATS**

CLUB CALL: W3CCX

# CHEESE BITS



MT. AIRY VHF RADIO CLUB, INC.

MT. AIRY VHF RADIO CLUB., "THE PACK RATS", PHILADELPHIA, PENNSYLVANIA W3CCX  
NET FREQUENCIES: 50.125, 144.150, 220.125, 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 19866

VOLUME XXXII

SEPTEMBER 1990

NUMBER 9

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### THE PREZ SEZ

I want to thank everyone that came to the picnic for such a good time and great food. This year we had a great turn-out.

Don't forget to plan for the September contest on the weekend of the 8th-9th. Also, don't forget our big yearly VHF Conference and Hamarama Hamfest on October 6-7. Dave, W3ZD, would like to hear from members of the club that would like to help out with the flea market. Please call Dave as soon as possible.

Before the weather turns, let members of the club know if you need help with antenna or tower projects!

We have some good programs instore for our entertainment this fall thanks to Bob, WB2YEH. Come out to a meeting and bring a friend. The September program will cover the subject of restoring antique radios.

The club directors would like to hear suggestions on club projects for this fall and winter. The "Cheese Bits" editor would like to hear what you'd like to see more or less of in the newsletter. Communicate your ideas to a club officer.

That's it for now; sharpen those chains.

73 and listen for the weak ones,  
Dave, N3CX



## CALENDAR OF COMING EVENTS

By Harry Brown, W3IIT

### SEPTEMBER

- 3 Labor Day
- 8-10 ARRL September VHF QSO Party. Starts 1800 UTC Saturday and continues through 0300 UTC Monday. See August QST, page 82 for rules. Fire up the station and at least give out a few points.
- 9 Gaithersburg Hamfest, Gaithersburg, Maryland.
- 13 Mt Airy VHF Radio Club Board of Directors meeting will be held at the QTH of Ron, WA3AXV. Call 215-355-5730 for directions. Meeting starts promptly at 8 PM. All interested club members invited.
- 15-16 ARRL 10 GHz Cumulative Contest. See June QST, page 82 for rules. This is the first of two weekends for the event.
- 16 South Jersey Radio Association Hamfest at the Pennsauken High School in Pennsauken, NJ. Talk-in: 145.29/144.69 rptr.
- 20 Pack Rat general membership meeting -first regular indoor meeting of the fall season -back at the Southampton Free Library on Street Road in Southampton, Pa. Program: Stan Hojnacki, WA2NPL will give a talk on antique radio restoration. All members and interested VHFers are invited to meet and share with us. Meeting starts at 8 PM.
- 20 Rosh Hashanah
- 22 Rochester Hamfest at the Erie County Fairgrounds in Hamburg, NY
- 23 The Hall of Science ARC Hamfest will be held at the New York Hall of Science parking lot, Flushing Meadow Park, Queens, NY. Talk-in: 144.300 and 223.600.
- 29 Yom Kippur
- 29 Elmira International Hamfest/Computerfest will be held at the Chemung County Fairgrounds, Horseheads, NY.

### OCTOBER

- 6 Mid-Atlantic VHF Conference, presented by the Pack Rats, will be held at the Warrington Motor Inn, Route 611 and Street Road, Warrington, Pa. Admission: \$8 in advance or \$10 at the door; includes Hamarama ticket.
- 7 Mt. Airy VHF Radio Club HAMARAMA will be held at the Bucks County Drive-in theater, Route 611 and Street Road, Warrington, Pa. Admission is \$5/person or \$8/carload. Please ride with a buddy.

#### ALL MEMBERS & SUBSCRIBERS, PLEASE NOTE:

If your mailing label is in red print, your subscription to Cheese Bits has or will soon expire. See page 2 for renewal information. Thank you.

## PROPAGATION REPORT

By Paul Drexler, WB3JYO

### JULY

The solar flux continues to be somewhat stagnant with the index hovering in the 140 region during most of the past month. Hopefully, the Sun will come alive and produce some more 6 meter F2 this fall. Has the cycle peaked? We'll soon find out! Sporadic E season has been evident, however, with openings on 6 and at least one on 2 to keep VHF spirits alive.

Tropo was the provider of action for a July 4th opening which got under way on the eve of Independence Day. N2SB worked into NC, SC, TN, and IN on 2 and 432 with excellent signals; the opening apparently started around 0300z and lasted almost 10 hours! Bob QSO'ed EM75, EM95, EN60, and EN70 in between working on his kitchen ceiling. Bob reports that activity was rather low despite the holiday. WC2K worked K9MRI, EN70, IN, and N8DJB, EN81, OH, on 903 MHz for new ones on that band. Signals on 33cm ran 559 with both stations. K9MRI and N8DJB were begging for contacts - no other Pack Rats around.

Dave, N3CX, notes that tropo was up again on July 6,7 as he copied the WA4PGI/B 432 MHz Roanoke, Va. beacon. The K3IVO 1296 MHz beacon (FM19) was at S7, but nobody on from the south!

E-skip crept up to 2-meters on the 8th of July and N2SB worked into W5, W8, and W0 land with K5UR, EM35, AR, his best DX. Bob observed that the New England boys got a much bigger share of the opening, which explains why he got more of his ceiling work done on that day.

Some 6-meter E-skip is in as this is written, with good signals from VE1QX FN76 and VELMR FN84 pounding through. As the summer sporadic E season wraps up, be on the look-out for good late summer tropo and activity during the UHF and September VHF contest. CU on the bands!

### AUGUST

The solar flux has continued to remain stagnant during the month of August with the exception of two readings of 315. Experts claim that these SFI values were caused by the effect of solar flares which occurred at the WWV measuring time and are not significant to radio propagation. There is considerable difference of opinion among the propagation experts as to when the Cycle 22 peak occurred and at what level. As reported in August CQ Magazine, the Royal Observatory of Belgium reports the peak occurring in July 1989, whereas Boulder, Colorado has reported the peak to be during February 1990. Whichever theory you believe, solar activity and 6-meter long haul DX is now on a decline.

August has always been a pretty stale month for the VHF/UHF enthusiast - this August has been no exception. There is little to report except for the conditions of the August UHF contest on the 4th. If you operated, you were treated to a decent tropo enhancement which extended from Maine to Virginia and provided propagation up through the microwave bands. N3AOG, WB3DNI, WA3JUF, and WB3DNI deployed the 'AOG "super rover" on Camelback mountain and worked lots of DX as well as locals on the UHF/SHF bands. Their best catch was KD5RO, FN13, on 3456 MHz with 'AOG running only 10 mw to the 8 ft. dish! Another outing is scheduled for the September contest. WC2K worked WB1PKF, FN42, on 3456 for state grid #4 on that band. Rick's hoping to work #5 and complete VUCC during the Sept event.

The Persids meteor shower was about average as meteor propagation goes. As the Sun spots decline over the next couple of years, meteor scatter success will increase.

Hope to see you in the September Contest!

### SWAP SHOP

**FOR SALE:** Plasma power supplies, 13.56 MHz 2KW output, uses 3 4-500 in parallel. Complete with full metering & 4.2KV DC supplies. Available with or without tubes. Also available are vacuum variable caps for use in modifying above amps.

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203-746-1459

**WANTED:** 6 Meter yagi. 3 - 6 elements.

**FOR SALE:** Cushcraft 10el twist yagi for 2 meters. Best offer.

**CONTACT:** Norm Williams, W2SPN  
609-848-4949

**AVAILABLE:** Receiver R-854/URM-7 field intensity measuring set. A receiver with two tuning units covering 20-400 MHz. Call and come get it. It's free.

**CONTACT:** Jack Power, W2AXU  
609-882-8811

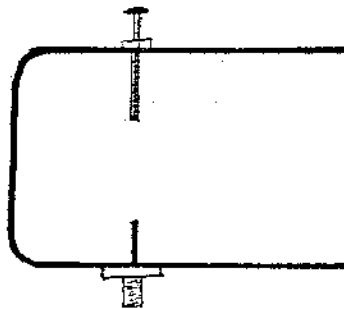
### COMMERCIAL ADS

LOOP YAGIS: 902 MHz 33 element \$89 kit, \$109 assembled and tested. 1296 MHz 45 element \$89 kit, \$109 assembled and tested. 1296 MHz 55 element "Super Looper" \$99 kit, \$124 assembled and tested. 2304 MHz 45 element \$75 kit, \$89 assembled and tested. Also available: element and hardware kits for above. 2 and 4-way power dividers. Discount on complete arrays. Solid state linear power amps, 13 VDC: 1296 - 8W in 35W out \$315, 1W in 20W out \$265, 4W in 70W out \$695. GaAs FET preamps: 902 MHz .8dB NF \$90, 1296 MHz .8dB \$90, 2304 MHz 1 dB max NF \$140. SHF SYSTEMS no-tune transverter kits, w/144 MHz IF now available for 903 through 3456 MHz. Write or call for complete catalog. DOWN EAST MICROWAVE, Bill Olson, W3HQT, Box 2301 RR-1, Troy, Maine 04907. For information and orders telephone (207) 948-3741.

### A 10.3 GHz FEEDHORN

By Chuck Steer, WA3IAC

The following feed was built as a follow-up to my 10.3 GHz transverter. This feed was constructed with parts available from the local hardware store, and a short piece of hardline. Dimensions are in inches. Built as shown, the return loss is 16.5 to 17 dB at 10.3 - 10.4 GHz., measured with an HP-8510B meter.



Inside diameter = 0.78    Length = 1.6    Probe length = 0.2  
Probe distance from back wall = 0.2

2-56 x .5" tuning screw is located 0.2" from back wall and 180 degs from the probe. Adjust for lowest VSWR

## TID BITS

- W3CL, Harry Stein, is recovered and back in action. He writes, "Many thanks for all the cards, telcons, and personal good wishes for my recovery from recent surgery. It is wonderful to have so many good friends." Harry was out to the Board meeting and White Elephant Sale and has returned to full duty as 6-meter NCS.
- The July Board of Directors meeting was hosted by Jay, KS2T, and was a FB event. Attendees enjoyed a tour of the antenna farm and grounds and a fine luncheon was provided by Jay's sister. Thanks to the Miller's for the warm hospitality.
- The growing season is well under way here in the Northeast with steel and aluminum ranking the #1 bumper crop. The antenna farms at N2SB, WB3JYO, and K3ESJ are coming into full blossom; should be a big harvest in the 1991 contest
- Dan, ex-N2ASC has recently upgraded and has the new callsign WX2Y. He's been busy chasing HF DX along with former Rat Prez NF2L.
- WA3FOF, Ralph, has attained the amateur license class of Extra. Congratulations, Ralph, guess all of those 6-meter CW practice sessions with Marv finally paid paid off!
- If you have not signed up for a Hamarama detail, please notify one of the following: W3ZD Chairman, WB3DNI Registration, K3HW Buyers Parking, WA3OMY Tailgate Parking, WA3NUF Tailgate collection, W3HMD Ticket Sales. Many Pack Rats don't realize that the proceeds from Hamarama are necessary to operate the club. Our yearly dues are not sufficient to even cover the cost of Cheese Bits! The work involved is not hard when the turn-out of help is good. Please consider the guys who will be investing their time for you, and come out to relieve them for an hour. OK?..... PERFECT!
- Vice Prez Bob, WB2YEH has been hard at work rounding up new advertisers for Cheese Bits. You'll be seeing ads from SSB Electronics, Rutland Arrays, CATS Rotor Service, the RF Connection, Hamtronics-Trevoise, and Spectrum International beginning next month. Bob has also secured programs for the next several club meetings. This guy's a hard-working Rat! Thanks Bob.

## CHANGES FOR THE DIRECTORY

Please make the following changes in your 1990 Pack Rat Directory:

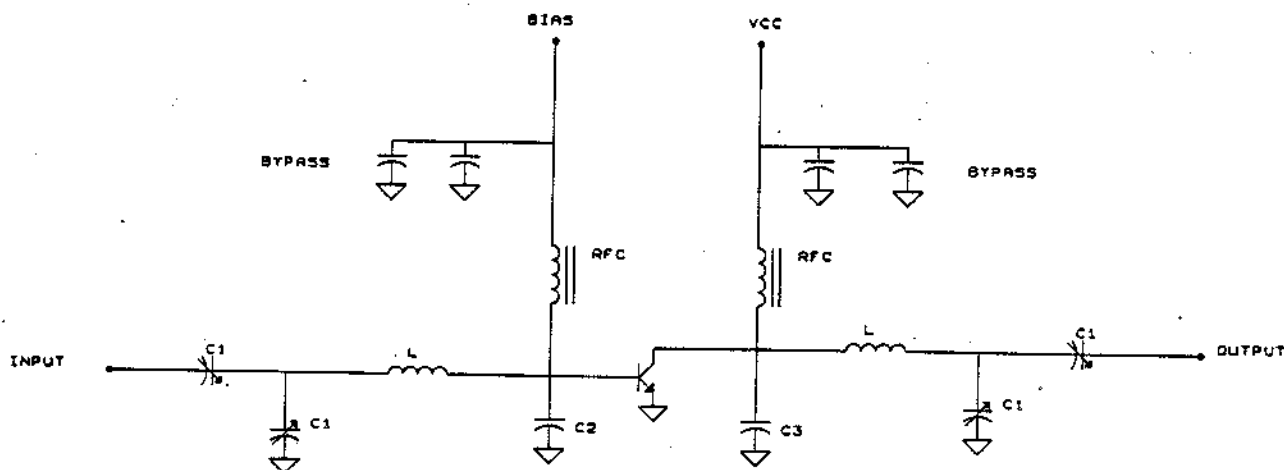
N2ASC now WX2Y

W3HK changes: 1737 Scattergood Street  
Philadelphia, Pa. 19124  
215-288-0325  
XYL - Alburta

W3AJF changes: 1264 Ft. Washington Ave.  
Apartment S-15  
Ft. Washington, Pa. 19034  
215-628-4208

## VHF/UHF AMPLIFIER MATCHING NETWORK COOKBOOK

The cookbook below may be used to design your own power amplifier from 50 thru 432 MHz. Values are for amplifiers in the 10 to 50 watt range. For lower power amplifiers eliminate C2 and C3; for power levels greater than 50 watts make the inductors smaller. Unelco "book" type capacitors are suggested for C2 and C3; silvered mica capacitors may be substituted. ARCO compression trimmers are suggested for C1. Note that the BIAS and VCC lines require two bypass capacitors in parallel. Use a silvered mica or book capacitor for a high frequency bypass (example: 500 pF for 144 MHz, 100 pF for 432 MHz) as well as a low frequency bypass (0.1 or 1uF tantalum). To make things simpler the base choke can often be a Ferronics VK-200 wideband ferrite choke.



FREQ	L	C1	C2	C3	RFC
50	5T #20 3/8" ID	50-300pF	150pF	200pF	10T #20 ON 100 OHM RESISTOR
144	3T #20 1/8" ID	10-100	100	150	8T #20 ON 100 OHM RESISTOR
220	1T #20 1/8" ID	7-40	47	56	6T #20 ON 100 OHM RESISTOR
432	1/4" ID HAIRPIN LOOP	4-20	22	33	VK-200 CHOKE

Use the values from the table as a starting point. Use your favorite bias circuit, apply RF and tune the input match for lowest input VSWR and then the output for maximum power.

WB3JYO 9-89

## "A" AND "K" INDICIES RELATIONSHIP

The solar flux is a measure of the intensity of solar electromagnetic radiation. A number of different frequencies are monitored by the Algonquin Radio Observatory in Ottawa. The measurement at 2695 MHz is normally reported. The SFI has a range of about 60 - 400 units. There is a positive correlation to both the sunspot number and the maximum usable frequency (MUF). The solar flux is reported on a daily basis, updated at 1818 UTC.

The "A" index, measured at Fredericksburg, Va. is a measurement of geomagnetic activity ranging from 0 (extremely quiet) to 400 (very disturbed) units. The "A" index is also reported on a daily basis, updated at 1818 UTC.

There have been a few occasions when the solar flux and "A" counts have been changed between 1818 UTC and three to six hours later. The updated accounts seem to occur when there is extra-ordinary activity, and more analysis yields more accurate data.

The "K" index is a quasi-logarithmic index of geomagnetic activity, ranging from 0 to 9 units, taken at Boulder, Colorado. It is updated every three hours.

Solar activity is described by WWV during the broadcasts as very low, low, moderate, high, and very high. A forecast in these terms is also part of the hourly broadcast. The terms relate to the regions on the solar disk capable of producing disruptive flares.

Broadcasts which include reports of the indicies occur daily at 18 minutes past the hour and are transmitted on all WWV frequencies. The reports are useful to VHFers in determining possible conditions for 6-meter F-2 DX as well as 50 MHz and up aurora. 6-meter DXers look for A index <15, K index <3, and SFI >190; if these values are present concurrently, you can bet on 6-meter DX. SFI does not play a significant part in the occurrence of aurora, however the A and the K are good indicators. When the K exceeds 4 and the A increases concurrently to greater than 25, look for aurora on all bands above 50 MHz. TNX "Ka-Chunker"

## YET ANOTHER RFI POTENTIAL

From the wonderful world of consumer electronic gizmos comes a new potential hassle for the UHFer. DAK Industries, a company which markets a vast assortment of home electronics wizardry by mail order, illustrates the "Pirate TV Station" on the back cover of their Summer '90 catalog. "Transmit a blockbuster video from your family room VCR to the TV in your upstairs bedroom. Grab a ball game from cable and beam it to a TV in your workshop. And, telecast a 'live' show from your camcorder (or security camera) to your kitchen TV. Now you can legally broadcast through-the-air on the just-released 910 - 928 MHz frequencies to any TV in your home", boasts the full page color ad. "The Pirate TV Station is FCC approved, and has just been made legal in all 50 states. [It has] an operating range of up to 100 feet." Price is \$99.95; extra receivers cost \$69.90.

Who will be the first 903 Pack Rat to get one in his neighborhood? Gee, pretty soon, none of us will have listed telephone numbers!

## 1296 "EAST COAST NET" REMINDER

The East Coast 1296 Net - 1296.090 MHz. WA4ZIA, Dexter McIntyre, EM95, is net control from Charlotte, North Carolina area. Wednesday nights at 9:30 PM eastern time, Dexter checks in locals first. At 10:00, Dexter turns the net over to K4CAW Al, FM06, Greensboro, North Carolina, who looks northeast until about 10:15. If you hear them, call. If you don't, call anyway! Maybe they'll hear you. TNX K4CAW



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