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PACK RATS

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

CHEESE BITS



MT. AIRY VHF RADIO CLUB, INC., PHILADELPHIA, PENNSYLVANIA ARNS
 50.125, 144.150, 220.125, 432.110, 1296.110 Mhz W3CCX - Repeater 222.98/224.58 Mhz
 Affiliated Club: AMERICAN RADIO RELAY LEAGUE
 Meetings: Third Thursday of each month at 8:00 P.M.
 Southampton Free Library, 947 E. Street Road
 Southampton, Pennsylvania 19866

VOLUME XXVI

APRIL, 1987

NUMBER 4

THE EDITOR SEZ

Our President, Gary Hitchner, WA2QMY, was unable to attend our March meeting, so N2SB Bob Cook the Vice Prez officiated. Thank you Bob - you did a nice job.

The guest speaker K2TD, Tom DeMeis of the FAA, gave an illustrated lecture on modern day airport and long range Radar. It brought back nostalgia to many of our members who were involved with military Radar years past and brought our younger Pack-Rats up to date.

The Spruce Knob Expedition for the June VHF Contest was discussed by numero uno, Ron Whitsel, WA3AXV. The trip is a four day trip and members are urged to participate if they are prepared to help set-up and operate on assigned bands. A great way to spend a week-end on the mountain.

Rick Connor, WB2NPE urged the group to prepare their comments reference the possible loss of the first two megahertz of the 220 Mhz band. Send a minimum of five copies of your letter to the FCC. The Docket 87-14 deadline is April 6, 1987 so you still have time to answer when you receive this issue of Cheese-Bits. Rick gave out copies of his well prepared club answer to the Docket.

Please mark your calendar for Ladies Nite on May 30, 1987. Doc, K3GAS is preparing a fine evening program of fun at the Warrington Motor Lodge.

A friendly reminder - daylight saving starts the first Sunday in April this year - Spring forward.

73, Harry, W3CL

* * *

"THE FCC GIVETH...AND THE FCC TAKETH AWAY!"

By Joe Schroeder, W9JUV

" Excitment over Novice enhancement was still growing -- in fact, the news was still being spread -- when the FCC dropped the other shoe. . .squarely on 220 Mhz. In a Notice of Proposed Rule Making dated just two days after the Report and Order on Novice Enhancement, the Commission proposed reallocating 220-222 Mhz to land mobile service use only!

As justification, the FCC cites "light loading" of the band in comparison to 2 meters, using ARRL's Repeater Directory listings as evidence. Even assuming this "evidence" is accurate (which it isn't, since the 220-MHz band supports many control links and a large, dynamic, and growing number of packet and other data communication users who've come to

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We operate on an exchange basis with other publications. Anything that is printed in CHEESE BITS may be reprinted, unless otherwise stated, provided that proper credit is given.

SWAP SHOP ITEMS - NO CHARGE

DEADLINE FOR ARTICLES IS THE GENERAL MEMBERSHIP MEETING: THE THIRD THURSDAY OF THE MONTH.

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W3CL, HARRY B. STEIN

MONDAY NIGHT NETS

7:30 PM - 50.125 MHZ
8:00 PM - 144.150 MHZ
8:30 PM - 222.98/224.58 MHZ
8:45 PM - 220.125 MHZ
9:00 PM - 432.110 MHZ
9:30 PM - 1296.1 MHZ

NET CONTROL

W3CL
W2EIF
K3GAS
KS2T
K3IUU/K1PXE
- - -

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CALENDAR OF COMING EVENTS

By Harry Brown, W3IIT

APRIL

- 5 Daylite Saving Time starts - Spring forward.
- 5 14th Annual Lancaster Hamfest. New location at the Overlook Roller Rink, one mile N. of Rte. 30/501 intersection on Rte. 501. Talk-in on 146.01/.61 and 147.615/.015.
- 5 Willingboro Repeater Group Hamfest at the Holiday Lakes on Rte. 130 and Creek Rd. Talk-in on 146.925 and 146.52.
- 9 Packrat Board of Directors Meeting at the QTH of WB3DNI at 8 P.M. Call 672-5289 for directions.
- 11-12 Trenton Computer Festival '87 - Trenton State College, Trenton, N.J.
- 13 2 Meter Sprint 7 P.M. to 11 P.M. See April QST Page 97 for rules.
- 15 Birthday of Leonardo da Vinci
- 18 EME Perigee
- 16 Packrat Meeting at the Southampton Free Library on St. Rd. in Southampton, Pa. Program will be announced on the Monday Nite Nets. All interested VHF'ers are welcome. Bring along your on the air buddies and show them that we do a lot more than contest. The meeting starts promptly at 8:00 P.M.
- 21 220 Mhz Sprint, 7 P.M. to 11 P.M.
- 22 Predicted peak of the Lyrids meteor shower at 1100 UTC.
- 24-26 Dayton Hamvention. Anyone going to Dayton and needing a room, call Bill, K3ESJ 215-348-4163 after 5 P.M.
- 27 Birthday of Samuel Morse
- 29 432 Mhz Sprint, 7 P.M. to 11 P.M.
- 29 QCWA, Delaware Valley Chapter Luncheon meeting at Manny's Place, Bristol, Pa.

NOTICES

Did you get your comments to the FCC Reference the 220 Mhz situation. (Docket 87-14 - minimum 5 copies). Do so before the deadline April 6, 1987. (see additional information in this issue of Cheese-Bits).

Mark your Calander - Ladies Nite May 30, 1987 at the Warrington Motor Lodge, Warrington, Pa.

THE SPRING SPRINTS ARE COMING THIS MONTH ... GET READY TO PARTICIPATE ...
IT IS A FUN EVENING . THE SCHEDULES APPEAR ABOVE IN COMING EVENTS.

* * *

VISITORS - MARCH 19, 1987 MEETING

K3BRS - Al - Lanham, MD
W3AJS - Ed - Orelan, Pa.

K3TD - Tom - Delran, N.J.

* * *

TID BITS

Sunspot No. for February 1987 = 4.0. Smoothed No. for August 1986 = 14.5.

Our old friend George Korn, K3GFF and his wife Ruth were in a serious auto accident back in April last year. Ruth came out of it with minor injuries but George is just coming around now a year later. Take care folks.

The Eastlink Amateur Radio Information Network meets on Wednesday evenings at 7:30 P.M. with local news and rebroadcasts taped Westlink News. The following repeaters carry the news - 444.2 Mhz, WA3BXW; from K2QLJ on 145.47 and 147.15 Mhz; from Trenton, N.J. on 146.67 and 442.65 Mhz. (Thanks WB2VLA)

Activity on the Pack-Rat Monday Nite Nets has picked up materially. On March 23rd on 144.150 W2EIF worked 27 stations; WB2NPE on the low end 220.125 Mhz worked 15 stations from Maine to North Carolina.

Tom DeMeis, K2TD of Delran, N.J. gave a most interesting talk on long range and airport Radar at our March 19th meeting.

Old friends of the Pack-Rats became silent keys - Art Collins, W0CXX; John Wolf, W3IMU.

* * *

THE FCC GIVETH ...AND THE FCC TAKETH AWAY CONTINUED FROM PAGE 1

220 Mhz because 2 meters couldn't accomodate them). It's obvious the Commission's right hand doesn't know what its left is doing. You don't give 80,000 new users access to a finite band of frequencies, then cut that band by 40 percent! It's worth noting, at this point, that this proposal did not come from the FCC's Personal Radio Bureau, where Amateur Radio and our problems are well known and appreciated, but from the Office of Engineering and Technology, where they obviously are not! "

(FROM HAM RADIO MAGAZINE VIA WESTLINK REPORT)

* * *

WIAW OPEN HOUSE MAY 31

ARRL Headquarters and WIAW, the Hiram Percy Maxim Memorial Station, will be open on Sunday, May 31, from 10 AM to 4 PM. If your club or group would like to schedule a visit to Headquarters this date, please notify the Membership Communications Service Office. Be sure to bring a copy of your operator's license if you'd like to operate WIAW. (from The ARRL Letter dated March 10, 1987)

Note: The Pack-Rats visited Headquarters many years ago when the Newington facility was first built. Then again when we sponsored the "buck a brick" campaign. We had a wonderful time on both visits.

"SWAP SHOP"

COMMERCIAL AD

WANTED: ICOM IC-560 mobile 6 meter rig; Any Regency HR-6's (cheap).

CONTACT: Harry, KA3B
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CONTACT: Doc, K3GAS
Phone: 215-635-1078

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CONTACT: Tony Musero, K3UKW
Phone: 215-271-8898

A used equipment list is available.

COMMERCIAL AD

LOOP YAGIS: 902 Mhz and 1296 Mhz \$77 kit, \$93 assembled and tested. 2304 Mhz \$67 kit and \$80 assembled. Also, 2 and 4 way power dividers and stacking frames. LINEAR AMPLIFIERS: 1296 10W in 35 watts out \$295, 1W in 18W out \$245. Call for special Pack Rat discounts and prices on complete arrays! New!!! Microwave Transverters and preamps by LMW ELECTRONICS. 2304 Mhz deluxe transverter Model 2304 TRV2D; 144 Mhz I.F. Power out 2 watts, includes separate GaAs FET preamp, NF 1 dB and built in T/R sequencing circuit, relative output meter and built in I.F. Attenuator to match inputs from 100 MW to 10 watts. Price complete \$569; 1296 Mhz deluxe transverter, model 1296TRV6D similar to 2304 unit 6-7 watts out, .7dB N.F. price: \$489. Stripped down versions available at lower cost also available in kit form. 902 Mhz version coming soon. Universal Local Oscillator Kit model ULO. Multiple outputs in 1 and 1.2 Ghz range depending on xtal. \$33.75 less xtal. Write to obtain complete catalog. DOWN EAST MICROWAVE, Bill Olson, W3HQT, Box 1655A, RFD #1, Bernham, ME 04922, Phone: 207-948-3741.

* * *

Southern California SIX METER CLUB - announces - OUR 10 METER NET

Tuesday - 8:30 pm (pst) - 28,400 SSB

For Novice Enhancement we have started the L) Meter net. Novice Enhancement took effect on March 21, 1987 at 0001 UTC (4:00 pm local time on Friday, March 20th) We encourage all Novice operators to check in with us on Tuesday evenings on 28.400 at 8:30 PM (PST). The Southern California Six Meter Club announces most happenings regarding amateur radio in general, not just six meters. Our technical advisors and officers will help with any problems you may be facing with setting up your station - antennas, TVI, grounding, etc. Please join us.

SIX METER NETS - Tuesdays at 8:00 pm on 50.150 SSB, Thursday at 8:00 pm on 52.28 FM; Thursday at 9:00 pm On 50.300 FM simplex.

* * *

PRESS RELEASE

13th Annual Eastern VHF/UHF/SHF Conference

The 13th Annual Eastern VHF/UHF Conference will be held May 15-17, 1987 at Rivier College, Nashua, New Hampshire. Rivier College is located near Route 3 a short distance north of the Massachusetts border.

The program features a Friday night hospitality room including an informal "swap-fest", technical talks by well-known VHFers on Saturday, "rap sessions" for the various VHF/UHF bands, noise figure and antenna gain measurements on Sunday, and other activities of interest to the VHF/UHF experimenter and operator.

To preregister, send \$14.00 to David Knight, KA1DT, 15 Oakdale Ave., Nashua, NH 03062 before May 4. Registration at the door is \$20.00. The Saturday night banquet is \$15.00, also payable before May 4. Again this year, a special registration rate of \$10.00 is available for any first-time attendee.

In recognition of the new VHF/UHF privileges for Novice class licensees, a special feature of this year's conference is half-price registration (\$7.00) for Novices. Novices will be required to show their license in order to take advantage of this reduced rate.

Housing will be available in dormitory rooms at the college. The rates, which include a buffet breakfast are \$17.00 single, \$29.00 double (twin beds) per night. Those wishing accommodations in the dormitory must include payment at the time of preregistration. Make all checks payable to "Eastern VHF/UHF Conference." For those wishing to make their own housing arrangements, there are numerous hotels and motels nearby. A map of the area will be available.

The 13th Eastern VHF/UHF/SHF Conference is sponsored by the Northeast VHF Association. The conference chairman is Thomas Kirby, W1EJ, who is ably assisted by a staff of volunteers from the New England VHF community.

-30-

Point of Contact:
Lewis D. Collins, W1GXT
Publicity Chairman
Eastern VHF/UHF/SHF Conference
10 Marshall Terrace
Wayland, MA 01778
617-358-2854 (6 to 10 PM EST)

Here is an interesting filter design that has excellent performance and is easy to construct. The original design (described in Reference 1) was for the 1296 Mhz band. Simple linear scaling of all dimensions produced a working configuration for 900 Mhz. There is enough selectivity to allow the use of a 28 or 29 Mhz IF when up or down converting to the 903 Mhz band. Insertion loss is less than 2dB and rejection of an 874 Mhz L.O. signal is -30dB. The 845 Mhz image signal is down -45dB. This is sufficient when using a DBM that will further isolate the L.O. signal by at least 20dB. Some ideas for the use of this filter will appear in future issues of this publication.

The really unique feature of this filter is the use of UT-141 semi-rigid coaxial cable for the filter elements. This provides a readily available source of material and also forms the basis for the construction of high quality capacitors to tune each element. By first completely removing the center conductor from the coaxial cable element, and then partially reinserting the conductor back into the high impedance end of each element, a high Q, coaxial capacitor is formed. An excellent description of the construction and tuning technique is presented in Reference 1.

A drilling template for the body of the 900 Mhz filter is shown in figure 1. The use of .015" to .025" brass or copper sheet is advised. No designs were constructed or tested using PC board and its use is not recommended. After drilling to specification, the sheet metal is bent into a "square U" shape and the elements soldered as described in Reference 1. Connectors may be soldered to the body of the filter or connections to the 50 Ω tap points may be made directly from a PC board stripline. The filter can be soldered directly to a PC board (which will form the fourth side of the "box") or a cover can be fabricated to make the filter stand alone. Either method works fine. Do not cover the ends of the filter.

Reference 1 - 1986 ARRL Handbook, "1296 Transverter", Page 32-21.

HINTS AND BITS

There is a problem with some of the Icom IC-451A 432 MHz transceivers that shows up when an external preamplifier is used.

I hooked up a GaAsFET preamp to my IC-451A using hard keying of the DPDT relays. Intermittantly the preamp would fail. It would work sometimes for days and other times it would blow after keying the mic without any output. DC problems were eliminated by running the preamp on NI-CADs.

The problem is that the Hybrid transmit module in the rig would oscillate intermittantly when going back to the receive mode. This hefty oscillation 'turns on' the Pin diode antenna changeover switch and gets into the output of the preamp.

Rather than tackling the problem, I installed a circulator in the output line of the preamp that sends the RF oscillation into a dump load.

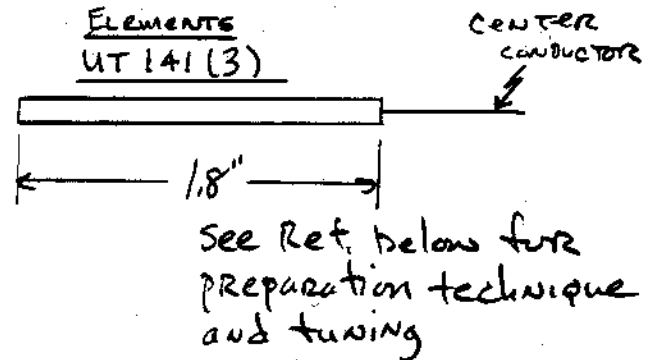
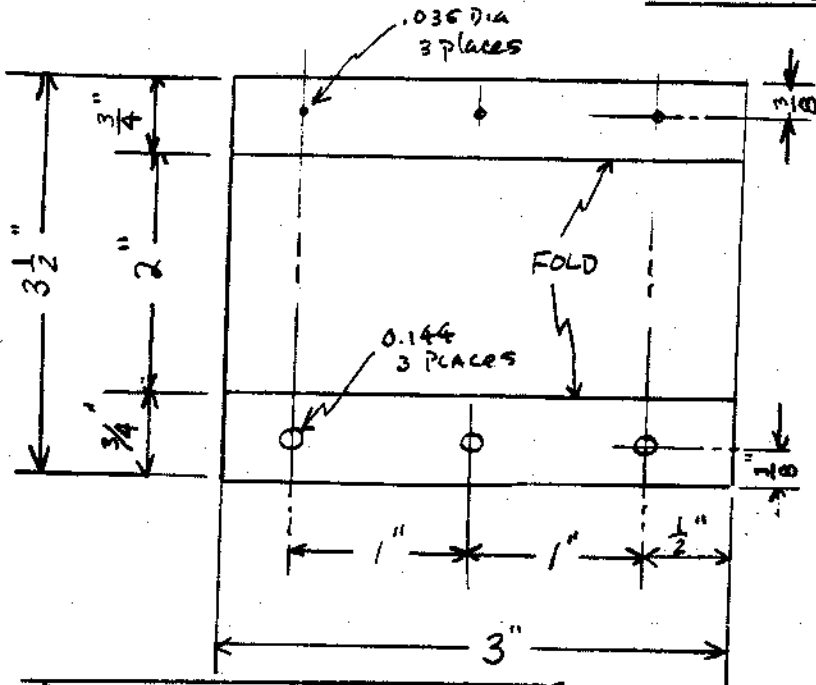
Another solution would be to break the RX line between the Pin diode switch and the RX board and wire up the spare connectors on the rear apron to accept the preamp.

FROM THE DESK OF WABAKU

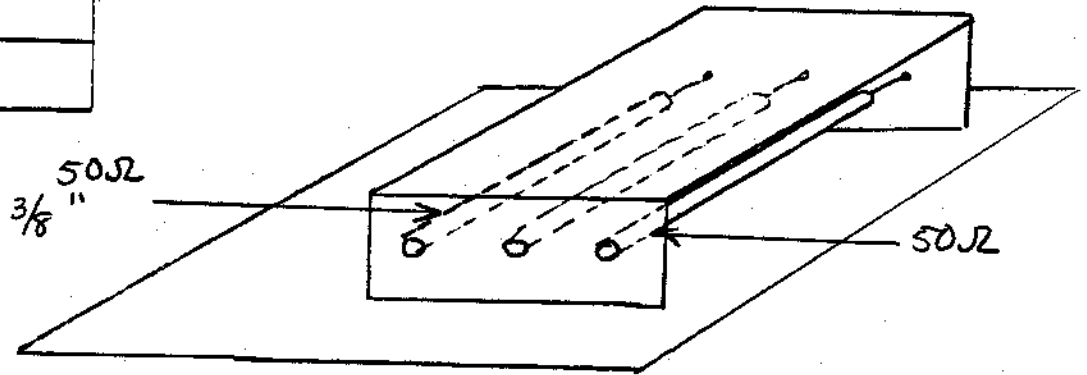
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903 MHz Filter

MAT'L - .025 BRASS



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Insertion Loss < 2db	



REFERENCE: 1986 ARRL HANDBOOK, PAGE 32-21

1/87

HF - VHF - UHF - SHF

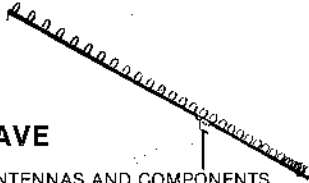
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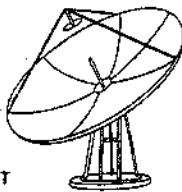
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