

PACK RATS'



CHEESE BITS



CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

MT. AIRY VHF RADIO CLUB, INC., PHILADELPHIA, PENNSYLVANIA
50.125, 144.150, 220.125, 432.110, 1296.110 Mhz, W3CCX - Repeater 222.98/224.58 Mhz

ARNS

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

OCTOBER, 1985

NUMBER 10

THE EDITOR SEZ

Congratulations to our Prez, WB2RVX, Mike Gullo on his recent marriage to Janet, KA2NYF. They spent their honeymoon at Myrtle Beach, S.C. (FM03 that is) during the September contest.

Gary, WA2OMY, our Vice Prez, did an excellent job conducting our September meeting on so short notice. He is also our October 5th Mid-Atlantic States Conference Chairman - everything is ready to go - speakers, lunch, dinner and hospitality suite at the Warrington Motor Lodge.

Lee, K3MXM, Hamarama Chairman has that situation well in hand for Sunday, October 6th. Don't forget that we need volunteers for ticket selling and parking at the 611 Drive-In. Please contact the various Chairmen - in - charge. Doc, K3GAS, registration chairman at the conference, needs your cooperation for advance registration pick-up at the conference desk.

General Electric Engineer James Poloski gave an outstanding talk on their Land Sat system at the September meeting. Slides showing some applications for earth exploration were amazing in the details projected from 500 miles above the planet.

Look for you at the Conference and Hamarama.

73,

Harry, W3CL

* * *

VISITORS, SEPTEMBER 19, 1985 MEETING

James R. Polski, G.E. Co., Valley Forge, Pa.
W3VIR, William Parson, Holland, Pa.
N3EAX, Tom Williams, Summit Hill, Pa.

APPLICATION FOR MEMBERSHIP

N3EAX, Thomas R. Williams
112 W. Fell Street
Summit Hill, Pa. 18250
717-645-7157

CHANGE OF ADDRESS

K2EVW, Richard Subin
P.O. Box 574
Colmar, Pa. 18915
215-368-7813 215-822-2929 Ext. 2596
(Street Address - 1499 Summeytown Pike, Towamencin
Township)

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SWAP SHOP ITEMS - NO CHARGE

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

EDITOR:

W3CL, HARRY B. STEIN
2087 Parkdale Avenue
Glenside, Pa. 19038
215-887-5052

PUBLISHER/SUBSCRIPTION MANAGER:

K3GAS, DOC CUTLER
7815 New Second Street
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215-635-1078

PRINTER:

WB2VLA, DAVID POWER
609-882-1040

TYPIST:

WA3TEM, MARSHA LISSAUER

TRUSTEE OF THE CLUB CALL - W3CCX:

WA3AXV, RONALD WHITSEL
215-355-5730

AWARDS CHAIRMAN:

W2EIF, JOSEPH KILGORE
609-783-9478

CLUB HISTORIAN:

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
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K3GAS
KS2T
K3IUU/KIPXE
- - -

PACK RAT REPEATER 222.98/224.58 MHZ/ W3CCX
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WA3AAJ, JIM WARD (1 Yr)
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CALENDAR OF COMING EVENTS

Syllabus by Lee, K3MXM

OCTOBER

- 5-6 PACK RAT WEEKEND - Saturday, The Conference; Sunday - HAMARAMA. Your help and participation is welcomed and encouraged.
- 8 The famous Chicago fire started by Mrs. O'Leary's cow in 1871
- 10 Board of Directors Meeting - QTH: K3MXM, Lee Cohen, 8242 Brookside Road, Elkins Park, Pa. (215-635-4942). Directors and interested members always welcome. The recap of the Conference and Hamarama
- 12-13 Pennsylvania QSO Party
- 14 Columbus Day
- 17 General Club Meeting - Southampton Free Library, Street Road, Southampton, Pa. 8:00 P.M. Topic: Boyd McClasky of Narco will discuss Program Frequency Synthesis and Phase Locked Loops. He will cover basics along with a handout paper. The Mario Raffle, Frankie's Silent Auction, Free Refreshments. Bring along a friend.
- 26-27 CQ WW Contest - Phone
- 27 RF Hill ARC Hamfest - 8 AM to 2 PM. Penna. National Guard Armory, Rte 152, Sellersville, Pa.
- 27 Lancaster, Pa. Computerfest - 9 AM to 4 PM. Guernsey Sales Pavilion, Rt. 30 & 896.
- 27 Daylight Saving End - Get up early (2 AM), then "Fall Back".
- 29-30 Simulated Emergency Test
- 30 Luncheon Meeting at the Delaware Valley Chapter (#5) of the QCWA, at the Woodbine Inn, off Rte. 73 in Pennsauken, N.J. W5ZMI will give a slide show of his trip to China.
- 31 Halloween - Better have some goodies ready for those kiddies - of all ages....

* * *

BON MOTS FROM LEE

The road to success is always under construction..

The world is full of willing people - some willing to work, the rest willing to let them...

The trouble with being punctual is that no one's there to notice...

So what if your dreams don't come true -neither do your nightmares...

Running into debt isn't so bad - its running into creditors that hurts...

You probably wouldn't worry about what people think of you if you knew how seldom they did...

Nothing receded like success...

I'll give you a second opinion - you're still wrong...

Did you ever notice that traffic goes slower during rush hours...

Compromise always seems to cost more than either the pro or the con...

The best rule when driving through 5 o'clock traffic is to keep from becoming part of the 6 o'clock news.

All of the above are culled from the September 1985 issue - Florida SKIP

NEW PRODUCTS OF INTEREST TO HAMS

By Lyn, W3NSI

1. ICOM VHF/UHF RECEIVER: The Icom R 7000 is due out in late fall of 1985. This receiver looks just like the R71A general coverage HF unit and in fact has many of the same features such as frequency-memory key pad entry, AM, FM, CW, and SSB modes, and a fluorescent frequency display. The R 7000 has continuous coverage from 25 - 2000 Mhz and up to 99 memory channels. Price is reported at \$900 list.
2. ICOM 1296 MHZ MULTI-MODE T/R: The new IC 1271A rig matches the 271 and 471 Icom units for 144 and 432 Mhz. All modes are available including ATV (amateur television). Output is rated at 10 watts and frequency range is 1240 - 1300 Mhz. Other features include scanning, 32 memories, and built in power supply. Price is reported in the \$1000 range.
3. BEARCAT HAND HELD SCANNER: The BC 50XL should be available in most stores as this is published. This is an FM, programmable, 10 channel scanner with the channel # being read out on an LCD screen. Frequency range is 29-54 136-174 and 406-512 Mhz, covering 4 ham bands. Power is provided by 5 pen-cell batteries. This is the lowest priced hand held scanner that can be programmed. Price \$139 (Best catalog)

* * *

FROM THE NORTHEAST VHF NEWS

K1FO 432 MHZ TROPO REPORT: There has been so much tropo this season that I'm getting near the burnout stage. Much of the problem has been finding someone out in DX land when the band is open. There is a dearth of activity in the southeast. It seems that K4QIF in FM16 and K4CAW in FM06 are at the edge of the world. Much of the time I've had to content myself to watch the UHF TV DX and think of the QSO's that might have been.

8-3/4-85 Bands seem good all during the UHF contest; stations of note: K4QKR (FM06) 57, AB4L (FM07) 59, K8ZES/2 59, VE3CRU 59, VE3BFM 57, VE3ASO/VE2 (FN46, 380 mi) 55, worked on 220 Mhz also, K1LPS (FN44) 59, K8WW (EN91) 59, VE1UT 59, K4QIF 59, worked on 1296 MHz also, W3CCX/8 (FM08) 59+, also worked on 220 and 1296 MHz, K4CAW 57, WB9BKC (EN71, 598 mi) 559 nothing heard on 220 MHz, KB8ZW (EN91) 539, NI80 (EN80) heard, couldn't pull through QRM, WA3TTS (EN90) 57, K3QIZ (FN00) 57, W1XX/2 (FN23) worked on 220, 432, and 1296 MHz, KB3QM (FN28, Del.) on 1296 MHz, KQ3R (FN11) on 1296 MHz, W9IP/2 (FN24) heard on 1296 Mhz. Those who pass up the UHF contest sure miss some good grid square DX-peditions!

* * *

TID BITS

Sunspot No. for August 1985 = 10.4. Smoothed No. for February 1985 = 19.1.
Randy Bynum, WB2SZH sends his 73 from West Coast. Will make a meeting in the future.

Welcome back to Hy Ecksel, WB3NDE - Good to see you at the meeting.
A Pack-Rat we haven't seen in years was at the meeting - Bill, W3VIR. Come often!
Our Paul Drexler, WB3JYO was a winner in the Microwave Journal Design Contest. He will receive an IBM Personal Computer as a gift. Congratulations Paul.

Rich Subin, K2EVW has joined the Hilltoppers - He moved from Tenton, N.J. to Kulpville, Pa.

Sorry that W3XO will be unable to participate in the Conference. Mountain Top contesting will be the 9 AM topic by WA3AXV, Ron - includes interesting slides.

W3IY is temporarily off the air. His equipment was destroyed by lightning just before the September Contest.

West Kent Amateur Radio Society

To the Packrats

Trans-Atlantic Two Metre Tests

As you will probably know by now, we had to abandon our site part way through the tests due to weather conditions.

The problem was the weather in Eire, during their worst summer for over twenty years. We were on a site which overlooked the Atlantic Ocean at a very exposed point. We suffered very strong winds up to 60 mph and severe storms and rain. This resulted in the complete destruction of two of our tents beyond repair, with repairable damage to a third. The two metre antennas were at one time leaning at an angle of 45 degrees supported by only one guy wire. This resulted in the need to lower the antennas during the worst winds and the fitting of additional guy wires. The constant rain resulted in severe operating conditions on site.

After much careful consideration, we took the decision to abandon the expedition during Sat. 24 August following four days of operation.

During the operating period, we maintained all but one of the booked skeds with stations in North America. No identified signals were heard, but a total of 5 separate pings were heard at times when North American stations were due to be transmitting. It is unlikely that these pings were from Europe, as our site was effectively screened to the East. It has not been possible to make any positive identification of these pings, so who knows....

This letter is to thank members of the Packrats who participated in the tests. We know that you will be as disappointed as we all were that they had to be abandoned due to the only thing beyond our control - the weather.

Should we decide to attempt a similar expedition in the future we will certainly be in contact with you. In addition, we will pass your name to any other group who may make a similar attempt.

Once again, our thanks for your efforts.
Best 73,

Nigel Peacock, G4KIU/EI2VUK

(Received by W3CL September 14, 1985)

* * *

TID BITS CONTINUED

Jim, WA3AAJ, checked into the 6 meter net on Sept. 23, 1985 via telcon to WB3IGR. He informs us that he was sorry that he couldn't say good-bye in person before leaving for the San Diego, Calif. area. He is surrounded by hills; coyotes and road runners - doesn't think he will do so well on VHF.

Jim, N3AHI reports the group there in Ga. is now officially known as the "4 landers VHF Group, Inc." He believes they hit 3 or 4 nationally in the Sept. VHF QSO party.

Pack-Rat Rich Prim, WA3IWT was interviewed on Channel 3 during the 6 PM and 11 PM news the evening of Sept. 21, 1985. He did an FB PR presentation for Ham Radio in connection with the Mexico earthquake.

We sadly report that K3IFH, Edward Guscin became a silent key September 20, 1985. Condolences to his family.

SWAP SHOP

FOR SALE: 1980 Subaru Brat, 4X4, Brown w/white fiberglass cap. AM/FM stereo cassette, cruise control, 1/2 ton electric winch mounted on hd bumper, fog lights, air horns, pager style alarm, 4 additional new snow tires on rims. Very good condition.

CONTACT: Bruce Loss, WA3YUE
Call evenings after 5 or weekends (215) 947-4166

FOR SALE: Kenwood TR8400 - 440 Mhz, 10W W/P1 and TT in box w/manual \$175; Kenwood VFO 120 (remote VFO) in box w/manual \$75; 3-500Z, new in box \$60; Vacuum variables - Jennings 1500 pf, 5KV \$60; 300 pf, 15 KV - \$50; 500 pf 10 KV \$50; all new. Dayton 4C006 blower, 108 CFM - new in box - \$15; Will ship any item UPS prepaid/insured upon receipt of payment.

CONTACT: Randy Bynum, WB2SZK
3634 Deedham Drive
San Jose, CA 95148
Phone: 408-970-9500 (Daytime)
(3 hr. time difference from E. Coast)
408-274-4869 (After 7 PM)

FOR SALE: 12 in. Conrac black & white monitor w/spare pix tube & schematic \$5. U54 HHT 450 Mhz Motorola FM xcvr - xtals for channel 10 rptr. \$15.

CONTACT: Richard Prim, WA3IWT
Phone: 215-355-1192

FOR SALE: Higain HG 54HD 50 ft. heavy duty galvanized crank-up tower; 2 in. dia. heavy duty steel mast- 15 ft. lg; thrust bearing; 3 coax arms - brand new - never used \$1300. Stored in Reading, Pa. (weight - 600 lbs.)

CONTACT: John Tate, K3KTY
306 23rd Avenue West
Bradeton, FL 33505
Phone: 813-749-1509

WANTED: Mechanical filter for Collins KWM-2.

CONTACT: K2PG, Pinchas Galasso
416 5th Street, Apt. 6
Lakewood, N.J. 08701

WANTED: 6 Ft. relay rack - prefer enclosed cabinet with front & rear doors.

CONTACT: K3JJZ, Elliott Weisman
8533 Algon Avenue
Phila., Pa. 19152
Phone: 302-575-4142 - daytime
215-342-8832 - after 7 PM

FOR SALE: Heath SB 101 23A P.S. \$ SPKR - \$100. Johnson Ranger, Johnson Pacemaker, Dentron Directional Coupler to 150 MH, old Xtal Radio, Spark-Gap Xmtr. National 200 SB Xcvr - \$100. Unusual opportunity so get in touch.

CONTACT: Doc Cutler, K3GAS
Phone: 215 - 635 - 1078

* * *

COMMERCIAL ADS

FOR SALE: Kenwood TS-600 6 meter all mode \$375; Kenwood TS-700SP 2 meter all mode \$425; KLM mobile amp 10 in - 90 out, \$120; Yaesu Ft - 207 HT, spk-mic, chg. \$200; HF GEAR = Icom 730 - xcvr \$375; Icom At-100 automatic ant tuner \$300; Kenwood TS-830s with MC/50 Mc \$600; Kenwood TS-130S \$400; Drake NB7 (new) noise blanker \$65; Drake HS75 head phones (new) \$15; Drake filters SL300/SL500/SL250/SL1000/SL4000/SL6000 @ 50 to 65 eac.
CONTACT: Tony Musero, K3VKW Phone: 215-271-8898.

FOR SALE: 1296 and 2304 Mhz Loop Yagis; 2196 45 element \$85. 2304 45 element, \$75. 2 way and 4 way power dividers and stacking frames available. Also element kits. Available soon 20 and 70 watt solid state linear amplifiers for 1296. Write for info: Bill Olson, W3HQT, Down East Microwave, Box 1655A RFD 1, Burnham, ME 04922 Phone: 207-948-3741.

2.5 Watt Linear for 2.3 GHz.

by Dave Mascaro, WA3JUF

This amplifier is built on 1/32" Teflon double sided pc board. The microstrip circuitry can be etched using Exacto-Etch like I did, or it can be done using either negative or positive photo methods. Exacto-etch is much faster. You can layout and etch a board in half an hour. It takes longer than that for the resist to dry using the photo methods.

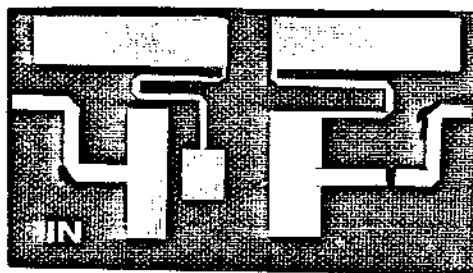
A brass carrier was milled out and the pc board was sweat soldered down to the brass. PC board construction can be used also with similar results. A housing can be built with double sided G-10 PC board by soldering four walls to the microstrip pc board to form a box. The connectors can be soldered to the ground plane side of the circuit with the center pins going thru the board and soldered to the 50 ohm input and output lines. Alternately, the connectors could be mounted in the End Launcher method. The connectors are soldered to the side walls of the box with the center pins soldered to the microstrip input and output lines.

The collector voltage of ≈ 21 vdc is supplied by an LM317 three-terminal voltage regulator. The voltage is adjusted up slowly to ≈ 20 volts and higher till the device idles @ 350-400 ma. This is not critical and can be re-adjusted for maximum power output (Pout) after the amplifier is tuned up.

The amplifier is tuned up by adjusting the size of Z6 and tuning the trimmer cap C2 for max Pout. The input is tuned by adjusting the size of Z2 and tuning the trimmer C1 for best input Return Loss (RTL). Adjusting the microstrip lines is done with an Exacto knife. Bridging the cut with solder restores the line to it's original size if too much is taken off.

As with all amplifiers, good RF grounds are a must. And proper decoupling of the dc lines is important. The Ferrite beads must be used for stability of the amplifier. All the excess copper was etched off the pc board to minimize the effects of RF propagation across the board. This adds to the stability of the amplifier.

At microwave frequencies, it is important to make each stage as stable as possible. When you start cascading stages, these amplifiers have a tendency to oscillate, especially when the same supplies are used. Your amplifier chain should be checked on a Spectrum Analyzer to be sure of it's stability.



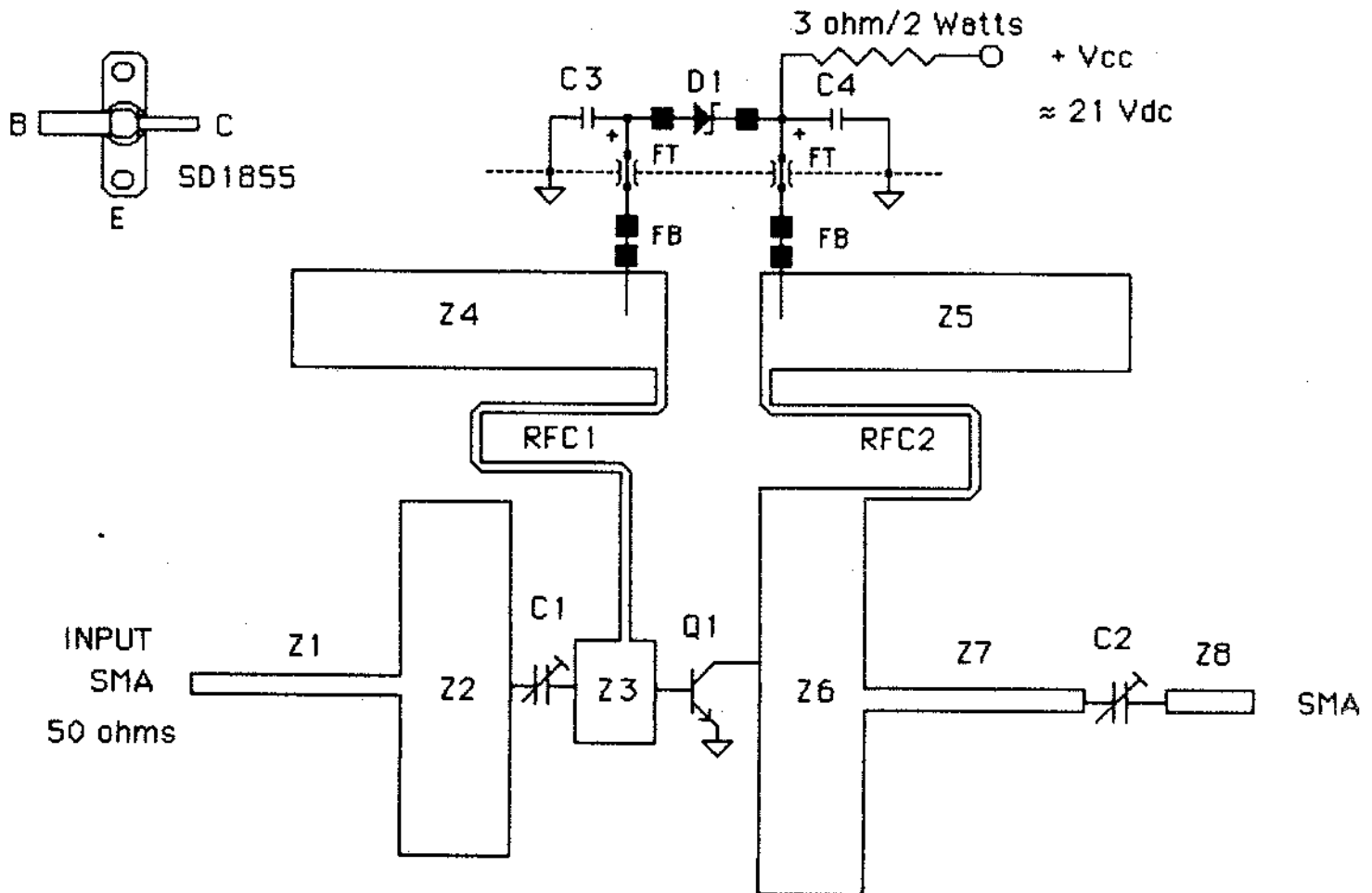
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SD1855

2.5 Watt Class 'A' Linear Amplifier for 2.3 GHz.

Gain > 6 DB

RTL > 20 DB

P sat ≈ 3 Watts



C1,2 3 pf Johanson Gigi-trim capacitor

C3,4 10 ufd/35 vdc (6vdc for C3 ok)

D1 20 volt zener 2N4747A

FB ferrite bead (2 on each FT) (1 on each lead of zener)

FT Feedthru cap, Spectrum Controls Inc.
* SCI 729-303 (or 100 pf)

Q1 Thomson CSF Semiconductor
SD1855 (TCC20L25)

Z1,8 50 ohm line 0.080" wide

Z2 0.2 X 0.65"

Z3 0.25 X 0.30"

Z4,5 RF Short 0.275 X 1.0"

Z6 0.25 X 0.675"

Z7 0.080 X 0.65"

RFC1,2 Choke 0.035 X 1.10"

Board = 1/32" Teflon Er = 2.5

D. Mascaro WA3JUF 1985

T. Kirby W1EJ

Results of Noise Measurements : Eleventh Eastern VHF/UHF Conference

19 May 1985

ALL MEASUREMENTS MADE WITH THE HP 8907 with NOISE FIGURE CORRECTIONS
Noise Head 346A

CALL	DEVICE UNDER TEST & DESCRIPTION	GAIN dB	NOISE FIGURE
BAND 50 MHz:			
W1JR	NE94532 Homebrew	9.12	0.85
WA1AYS	NE41632 "	9.04	1.06
W1JR	NE41632 "	8.8	1.16
Commercial			
WA1AYT	MGF1402 - ARR SP50VDG	25.2	0.65
WA1AYT	(no description) ARR P50VDG	13.6	3.60
BAND 144 MHz:			
VE2DFD	MGF1202 Homebrew	26.0	0.39
W1AIM	MGF1202 "	27.4	0.40
K1WHS	MGF1402 "	12.8	0.43
WA1TFH	NE720 "	22.65	0.46
W2CXY	MGF1202 "	20.4	0.53
WA1AYS	NE41632 "	9.86	1.90
K1BKK	BSK97 "	-11.	-19.
Commercial			
K3MKZ	MGF1202 - SSB Elect. MV144S	26.2	0.38
K3MKZ	MGF1402 - SSB Elect. DX-144	25.15	0.40
W1VD	MGF1402 - ARR P144VDG	24.6	0.42
WA1AYT	MGF1402 - ARR SP144VDG	24.0	0.53
KG6LC	MGF1402 - ARR P144VDG	21.3	0.79
KG6LC	NEC673 - Angle Linear 144--26	21.9	1.10
BAND 220 MHz:			
WA1TFH	MGF1402 Homebrew	24.63	0.41
VE2DFD	MGF1402 "	18.90	0.45
WA1TFH	NE720 "	23.10	0.48
W1JR	ALF-1023 "	20.5	0.87
BAND 432 MHz:			
K1LPS	ALF1023 Homebrew	19.10	0.48
WA1TFH	NE720 "	17.60	0.49
VE3CRU	MGF1202 "	19.14	0.52
WA1TFH	MGF1402 "	18.40	0.53
VE2FUT	MGF1402 "	17.80	0.60
K1LPS	ALF1023 "	16.10	0.60
VE2DFD	MGF1402 "	14.06	0.61
W1JR	D3501 "	16.00	0.66
W1AIM	64535 "	15.40	1.25
W1AIM	BRF91 "	5.03	2.80

Results of Noise Measurements : Eleventh Eastern VHF/UHF Conference

19 May 1985

ALL MEASUREMENTS MADE WITH THE HP 8907 with NOISE FIGURE CORRECTIONS
Noise Head 346A

CALL	DEVICE UNDER TEST & DESCRIPTION	GAIN dB	NOISE FIGURE
BAND 432 MHz:			
Commercial			
W1VD	MGF1412 - ARR Prototype	16.00	0.29
W1VD	MGF1412 - ARR Prototype	17.00	0.32
K1FD	MGF1412 - ARR Prototype	16.60	0.32
W1VD	MGF1412 - ARR Prototype	17.25	0.44
WA1RWU	MGF1412 - SSB Elect.	21.10	0.50
K1FD	MGF1402 - ARR PA432VDG	20.60	0.50
WA1RWU	MGF1412 - ARR Prototype	14.10	0.56
WA1WXV	MGF1402 - SSB Elect.	20.55	0.65
K3MKZ	MGF1402 - Parabolic	18.80	0.82
WA1WXV	MGF1402 - ARR PA432VDG	15.70	1.02
K1LPS	Bipolar - Mostek Mast Mounted	11.90	1.80
WA1WXV	- SSB Elect. K-70001 Conv./ MMT432-435S	33.20	2.72
BAND 902 MHz:			
W1JR	ALF1023 Homebrew	13.10	0.72
W2CXY	MGF1412 "	16.90	0.87
BAND 1296 MHz:			
W1JR	ALF1028 Homebrew	14.82	0.71
W2CXY	MGF1402 "	16.42	0.86
W2VC	MGF1412 "	11.20	1.14
W1AIM	HPHXTR2101 " Bipolar	10.05	3.44
Commercial			
WA1WXV	MGF1411 -	13.70	0.61
K3MKZ	MGF1402 - SSB Elect.	14.55	0.82
W1JR	MSA0135-21 - Avantek Modular Amp.	11.95	4.62
W1JR	MSA-0225-22 - Avantek Modular Amp.	11.51	6.01
BAND 2304 MHz:			
Commercial			
K3MKZ	MGF1202 - SSB Elect. Mixer + LD / 144 MHz IF	16.95	2.47
BAND 3456 MHz:			
Commercial			
K3MKZ	- SSB Elect. Prototype SubHarmonic Mixer + Gas FET PreAmp.	25.50	6.76
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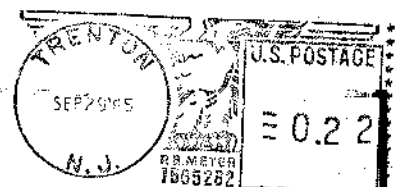
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