PACK RATS'

SCANNED TO PDF BY BERT, K3IUV.

CHEESE BITS

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

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

VOLUME XXXIII JUNE 1991 NUMBER 6

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THE PREZ SEZ

WARC '92 was explained in detail by our special guest speaker, Dave Sumner K1ZZ, at our ARRL Night meeting. From all of the information conveyed to the Pack Rats, it seems that the League is right up front on preparing for the event. We can see now why it costs so much to get involved with this effort to save our bands internationally. Please write to your local congressman and tell him to support HR-73 so that we can get our amateur frequencies preserved here in the USA.

Get on the air during the June VHF Contest weekend of June 8 through June 10 and work the club station, W3CCX, up on Camelback Mountain in the Poconos. Also, come out if you can for a few hours of operating and moral support. Travel north up the N.E. extension of the Pennsylvania Turnpike to the Lehigh Valley/Allentown exit. Go east on Route 22 to Route 33. Pick up Route 33 northbound to Route 80 and go west on 80 one exit, Tannersville. Then follow the signs to Camelback. I hope to see some new faces this year. Come on out and get the spirit (or spirits) HI!

Come to the June general club meeting and vote for renewed club enthusiasm. We need fresh leadership for the coming years. That new idea you had to spark interest in the club would be warmly received. Nominate someone for office, even volunteer yourself for a job with the Pack Rats. Don't be shy... leap out there!!

Take note everyone: HAMARAMA IS AT A NEW LOCATION. The 1991 Pack Rat hamfest will be held at the CHERRY HILL RACETRACK on Sunday, October 6. There's plenty of parking and room for all. The racetrack is easy to find, it's noted on any road map, and is easy to get to from anywhere. The VHF CONFERENCE will be held at the Cherry Hill Holiday Inn, on Route 70, across from the track. Spread the word of the move to everyone on the air and at any hamfests which you attend this summer. Kudo's to K3EOD, who is doing a great job in organizing Hamarama 1991!

It's been two years already and this is my last president's message. I've had a lot to say and now it's time for another point of view. It's been nice chatting with you all. Enjoy the summer and get those new arrays and microwave antennas up to chase the tropo. I look forward to working some of you in the August UHF contest.

73, and listen for the weak ones!
David Hackford, N3CX

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DEADLINE FOR ARTICLES AND SWAP SHOP IS THE 20TH DAY OF THE MONTH. NON-COMMERCIAL SWAP SHOP ITEMS - FREE OF CHARGE.

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PACK RAT 220 FM REPEATER - W3CCX/RPTR
222.98/224.58 MHz, CHURCHVILLE, PA

OFFICERS: 1990 - 1991
PRESIDENT: N3CX DAVE HACKFORD
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WA3NUF PHIL MIGUELEZ (1 YR)
WA3AXV RON WHITSEL (2 YRS)
K3EOD AL BOBLITT (2 YRS)

MONDAY NIGHT NETS	NET CONTROL
7:30 PM - 50.125	W3CL
8:00 PM - 144.150	W2EIF
8:30 PM - 220.125	WC2K
8:30 PM - 224.58/R	K3ACR
9:00 PM - 432.110	WA3AXV
9:30 PM - 1296.100	WA3NUF
10:00 PM - 903.100	N3CX

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KB3XG, JOHN SORTOR
(215) 766-2643

HAMARAMA CHAIRMAN:
W3ZD, DAVE ZIMMERMAN
(215) 675-4539

CALENDAR OF COMING EVENTS

By Harry Brown, W3IIT

JUNE

7 The Arietids Meteor Shower predicted peak will be at 2017 UTC

8-10 ARRL June VHF QSO Party. See May QST page 94 for rules. W3CCX will be operating from Camelback Mountain, FN21, near Tannersville, Pa, on all amateur bands 50 MHz through 24 GHz. Note the new competition categories which include "Rover" and "Limited Multi-op". Fire-up the gear and work the W3CCX gang on the mountaintop.

9 Six Meter Club of Chicago Hamfest at Santa Fe Park in Willow Springs, Illinois.

13 Pack Rat Board of Directors meeting. Meeting location to be announced.

14 Flag Day

15 The Raritan Valley New Jersey (Warren County) Radio Club Hamfest will be held at the Watchung Hills High School. Talk-in on 146.025/.625 and .52.

15 The Skyline ARC Hamfest will be held at the Cortland County Fairgrounds in Cortland, NY. Talk-in on 147.825/.225.

16 Fathers Day

16 The Frederick Amateur Radio Club Hamfest will be held at the Frederick County Fairgrounds in Frederick, Maryland. Talk-in on 147.66/.06 and 147.13/.73.

20 Pack Rat general membership meeting at the Southampton Free Library on Street Road in Southampton, Pa. Annual election of club officers and a June Contest report. All VHFers welcome.

21 +/- 1 month, look for openings to Europe on 6 meters.

22-23 ARRL Field Day. See May QST page 93 for rules.

29 Major Armstrong ARC Hamfest at the Palisades Park, NY. Talk-in on 222.64 and 146.52.

LADIES NIGHT BANQUET A SUCCESS

The annual Pack Rat Ladies Night Banquet was well-attended and a pleasure to attend at the new location. The Mill Race Inn provided a comfortable atmosphere and very good food. The service was good, once they became acquainted with us as a group. Awards were presented to the following:

Mario Award - Dick Comly, N3AOG for technical excellence and contributions to the Pack Rats.
Pack Rat of the Year - Rick Connor, WC2K
January VHF Contest Single Operators: 1st Place WC2K, 2nd WA3NUF, 3rd WB3JYO
January VHF Contest Multi Operators: 1st Place WA3AXV, 2nd W3KKN, 3rd K3ECD
Homebrew Night Plaques: N3AOG, N3EVV, N3CX, WB3JYO

SEE YOU ALL AT LADIES NIGHT 1992!

PROPAGATION REPORT

By Paul Drexler, WB3JYO

Activity and propagation are beginning to improve quickly as we enter the summer E-skip season and tropo weather has arrived. On the evening of May 13, conditions on 144 MHz and up improved as the night went on. A healthy duct developed up and down the coast providing communications to Maine and Georgia from our area. On May 16, another inversion set up on the coast and provided 12 hours of good tropo QSO's. W3IP had his improved 2.3 GHz station on the air that evening and he's working very well. The kick-off for 6-meter E-skip began on the 19th of May, with stations from the West Coast (double hop) as well as Midwest working into the Philadelphia area.

As F2 conditions decrease, 10 meter openings have become few. Solid weeks of no DX have been reported for May. This situation is sure to bring many VHFers back to the world above 50 MHz. Many VHF/UHFers have been spending their operating time on 10 for the last three years. Look for an upsurge in activity on the bands!

Included in this issue is an interesting article reprinted from Harry KA3B's 50 MHz DX Bulletin. The article, written by Shel Remington NI6E/KH6, discusses the myths and often confused application of WWV numbers with propagation. Shel is an authority on the subject by virtue of many years of study and operating on 6. Thanks to Harry Schools and Shel Remington for the interesting piece.

Next month, we'll be discussing the propagation and activity of the June VHF Contest. Until then, keep an ear to the bands and work us at W3CCX! CU on the bands!

SLATE OF CLUB OFFICERS FOR 1991/92

The nominating committee has offered the following slate of candidates for officers in the Mt. Airy VHF Radio Club. Nominations will be open at the June meeting to accept additional candidates. You are encouraged to nominate from the floor or volunteer yourself for an official club post:

President:	Bill Murphy, W0RSJ
Vice President:	Bob Fischer, WB2YEH
Treasurer:	Bruce Loss, WA3YUE
	Dave Mascaro, WA3JUF
Secretary:	Walt Zumbach, WA3AQA
Corres. Secretary:	Paul Drexler, WB3JYO
Director:	Dick Comly, N3AOG
Director:	Bill Jaxheimer, K3ESJ

PLEASE COME OUT TO THE MEETING OF JUNE 20, 1991 AND VOTE FOR YOUR LEADERSHIP!

CLUB DATA BASE INFORMATION NEEDED

Dave, WA3JUF, keeps an acurate and updated data base on Pack Rat member information. Included are the FCC license expiration dates for your tickets. From time to time, a list of soon-to-expire licenses will be printed in Cheese Bits to remind you to renew. The following members are requested to supply the expiration dates to Dave: W3CJU, WA3EHD, W3FGQ, WA2GFP, WB3HHO, WA3IWT, KA3KSD, K1PXE, W3R2U WB8ZAR, K3ZPN, K3EBZ, N3EVV, WB2GEZ, W1HDQ, K3HW, WA1KIR, K3KTY, KB3QM, K3VEQ, and KC7ZK. With license terms stretched to 10 year periods, it'd real easy to forget or overlook renewal.

SWAP SHOP

WANTED: 220 FM, 10 watt, xtal mobile rig.
CONTACT: Ed Barbacow, K3ZCY
330 Ceylon Road
Carmichaels, Pa. 15320

AVAILABLE: miscellaneous ham gear and electronic parts, FREE to Pack Rats!
CONTACT: Ed Kushner, W3HKZ
2212 Oakwyn Rd.
Lafayette Hill, Pa.
(215) 825-0775

FOR SALE: Heliax, new and used, 7/8" and 1/2", N and UHF conns. Weather-proof enclosures for tower-mounted gear. 12V 10A power supplies, 5V 80A power supplies. 6ft dishes .4 f/D. LNA's, MaCom 5 GHz phase locked sources, LNA's, 5ft grid pack dish with 900 MHz feed, Hustler "Cliff Dweller" 80/40 dipole
CONTACT: Rick Connor, WC2K
(609) 268-0736 (h)
(609) 783-4808 (w)

FOR SALE: SHF Systems 903 xvrtr kit still in the bag, never built, $75. Yasue FT221R 2M multimode fixed station rig, $200.
CONTACT: Mark Adams, WB2JHG
(609) 654-4441

FOR SALE: Yasue FT-726R w/50, 144, 432 modules + MD-1 mic, $830. Dentron Clipperton T tuner, 160-10 $125. Dentron Clipperton L KW amp $225. 80-10m vertical $75. 144 MHz Junior Boomer $30. F9FT 432 yagi $30 Telex/Hygain 35ft crank-up tower #HG35MT2 w/house brkt, you take away for $250. Bird 43 w/case $125. Bird slugs - 1000C and 1000D $25ea. Ham IV rotator + control box $120.
CONTACT: Dave Hackford, N3CX
(215) 483-2030 (w)
(215) 679-7293 (h)

COMMERCIAL AD

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.

JUNE CONTEST PLANS

Leave for Camelback Mountain 0900 June 7, 1991 from Warminster, Pa area. Drive time approximately 90 minutes to the Forty-Five Diner. Arrive at the diner at 1100 for breakfast. Those meeting at WA3NUF's arrive at his QTH at 0800.

Directions: 309-N to 22-E, 22-E to 33-N, 33-N to 80-W, 80-W for 1.5 to 2 miles to exit 715, Tannersville. At the end of the exit ramp, turn left to the Forty Five diner for breakfast. If your going direct to site: Turn right at end of ramp and go 1/4 mile then turn at next left, look for signs to Camelback. Follow signs for Camelback Lodge and ski resorts. Go past ski resorts and Alpine Slide resorts. Follow road and signs to the top, road ends at W3CCX site.

Camelback Mountain - 75 deg 21 min West X 41 deg 03 min North.
Located in Big Pocono State Park GRID FN21QB

COMMENTS ON THE IRRELEVANCE OF THE "WWV NUMBERS" TO 6M F2 PROPAGATION

by Shel Remington NI6R/KH6, Box 1222, Keaau, HI 96749 30 November 1990

I enjoyed the item by GJ4ICD in the December 1990 KA3B 6-Meter Report, and I certainly agree that the 'panic...to get the latest [WWV] Solar Figures' is unwarranted, and in fact it causes needless QRM and clutter on 28.885. Regular participants on that frequency have already heard me state some of the following, but it seems worthwhile to get it into print once and for all.

Geoff is correct in that anyone who takes the time to graph the daily 2800 MHz solar flux as a function of any aspect of F2 propagation on 50 MHz soon realizes that these two variables are generally *not* correlated. It has become a source of some amusement when naive 6-meter operators are overheard to say, "Gee, the flux is over 200, so why don't we have any F2 openings?" or the converse, "But the flux is only 140, how come the band is red hot today?" Being one of those privileged to monitor 28.885 for many hours every day, I can't help but notice that the number of people reporting new countries being worked on 6m often appears to be *inversely* proportional to the daily solar flux, quite the opposite of what we have been led to expect. The Flux Cult has become so pervasive that, in a triumph of lily-gilding (where the lily is made out of hole cloth), one manufacturer of amateur equipment is now selling an expensive transceiver (see QST Nov.1990 page 33) that incorporates a digital clock which chimes at :16 past each hour to warn the user to check the upcoming WWV solar/geomagnetic report! The whole concept is reminiscent of numerology or astrology or any number of other pseudo-sciences, in which the adherents are so boggled by the true complexity of Nature that they embrace anything which appears to offer simplicity.

To see how this situation arose, we need to step back a couple of decades. In several landmark articles in QST starting with the 'DXers Crystal Ball' series, Ed Tilton W1HDQ explored the possibility of predicting F-region propagation by means of methods accessible to amateurs. Initially, this concentrated on visual sunspot observation. While sunspot activity is very interesting from an astronomical viewpoint, it soon became apparent that radio amateurs, by and large, were not motivated to invest in the needed optics and take the time to make daily sunspot observations. This is unfortunate for astronomy because the AAVSO American Sunspot Number program is one of the few ongoing projects in which amateurs are making a significant contribution to the field. Anyway, Ed soon decided that since the 2800 MHz Ottawa solar flux is broadcast daily on WWV and thus accessible by anyone with a shortwave receiver, it might make a good substitute for the SSN. After all, anyone who examines a long-term smoothed graph of SSN versus flux can't help but notice that they track closely, and furthermore they both peak around the years when the F-region MUFs are at a maximum (e.g., 1958). Graphs and formulae were then published showing the mathematical relationship between smoothed SSN and smoothed flux, and these are reasonably accurate although not exact. DXers who had copies of the old CRPL books showing smoothed global F2 MUF distributions as a function of smoothed SSN could now use flux information, it appeared, for predictions. With the advent of personal computers, software was written based on the CRPL database and this software was welcomed with open arms because it was so convenient. Some writers proceeded to publish tables showing that for each historical sunspot maximum, the beginning and end of widespread F2 openings at 50 MHz coincided with a particular level of smoothed SSN and flux, and this led to the widespread belief in the magic flux level of 200 for 6m DX.

All of these developments were logical and properly rooted in scientific fact. But obviously something is wrong because, as noted above, the obsessive checking of the daily WWV flux number has failed to produce any improvement in our prediction ability. What happened is that somewhere along the way (actually, many writers seem to have independently made the same fatal error), the critical adjective "smoothed" was omitted. This concept of **smoothing** means that the data are averaged over a 13-month period centered on the date in question, which unfortunately means that smoothed numbers are not available until 6.5 months later. And close inspection of the data archives reveals that, while the smoothed variables do track closely, the (unsmoothed) daily variables do *not*. When looked at on a daily or other short-term basis, the flux diverges wildly from the SSN and both of them diverge from the levels of F-region ionization. The CRPL database was never intended to be used with daily SSN, and its accuracy when used that way is so poor as to render it almost useless. The same applies to all PC prediction software, and to the 200-flux "magic number."

The reason why daily 2800 MHz flux and SSN fail to predict daily ionization is that those two wavelengths of solar radiation are spectrally far away from the wavelengths that actually excite the ionosphere. The flux wavelength is about 0.1 meter; the sunspot number is observed in the visual spectrum around 0.7 micrometer; while the F-region is primarily ionized by ultraviolet radiation around 0.03 micrometer. Note that these wavelengths differ by orders of magnitude! Since the spectral distribution of solar output varies tremendously (and unpredictably) with time, it is quite possible for the radio flux or SSN to be constant while the UV fluctuates, or vice versa. Unfortunately for amateur observers, Earth's atmosphere is totally opaque in the short UV range, so measurements of such radiation can only be made from above the atmosphere. Satellite UV data are available at NOAA SEL, so perhaps they could be petitioned to make such

data available via WWV, and while they're at it, they could start giving us more data on the intensity of flares, the disappearance of filaments, and coronal hole activity. Meanwhile, the NOAA SEL BBS at 303-497-5000 (see QST Nov. 1990 p.41) does include some items that should be more useful, at least, than the WWV flux: the X-ray background level and the proton fluence are both listed under option A, sub-item E "daily indices." Anyone with a modem who connects to that BBS could do us all a favor by relaying those items on 28.885. It would be wonderful if someone in the Denver/Boulder area could make such calls on a daily basis, since it would be a local call from that area.

The WWV flux may not be *totally* useless. Several 6m DXers have observed that F2 MUFs tend to be elevated, beginning roughly 3 days after the flux peaks, and ending roughly when the flux bottoms out, in its 27-day periodicity. So it is the trend of the flux, rather than its actual value, that seems at least a little bit useful. Another item mentioned on WWV is the "solar activity for the last 24 hours," which is based on X-ray fluence, although it's given on a very coarse 5-point scale from very low to very high. I believe that the x-ray activity has more in common with the short UV than the radio flux does, so that little item may actually be the most useful in the whole WWV report. Certainly the WWV predictions "for the next 24 hours" for both solar and geomagnetic activity are nothing but crude guesses and rarely prove accurate if those variables do anything but hold still.

As for the magnetic indices, again there seems to be an ill-founded belief that "the quieter, the better," as Geoff points out. This appears to have begun with articles in CQ Magazine by a writer who shall remain nameless, in which formulae and graphs were published proclaiming such a relationship. And again, the idea has been perpetuated in recent propagation software. It is clear that, at 50 MHz at least, prolonged periods of geomagnetic quiet actually appear to suppress the F2 MUF, a factor which I believe was at least partly responsible for the very poor conditions in November 1990. The one exception seems to be transpolar paths, where anything but extreme quiet appears to preclude F2 propagation. On the other hand, a really major geomagnetic storm with A-indices exceeding, say, 80 or 100, also suppresses normal F2 (for example, the storm of 13 March 1989), but when such a storm is subsiding, there can be spectacular F2 openings worldwide. So it appears that intermediate A- and K-indices may be the best. But even so, 2 dates with identical indices can differ dramatically; perhaps the aforementioned proton fluence data on the SEL BBS can help sort this out.

Finally, those attempting analysis of past events should be aware that the WWV numbers are preliminary. The final data are published in the monthly Solar-Geophysical Data, and reprinted in the Journal of Geophysical Research, section A, available in many university libraries, and also, of course, they are archived in Boulder and at other World Data Centers. Certainly the 1800 UTC Boulder A-index so favored by the cultists should never be used for serious analysis, because, as stated by WWV, that is a preliminary number encompassing only an 18-hour period, and it is usually changed at 2400 UTC to a semi-final value. Likewise, all the magnetic indices on WWV are local Boulder numbers, and should be supplanted by the final Planetary indices as given in SGD and JGR. Anyone using the formulae for conversion of flux to SSN or vice versa should keep in mind that such formulae are crude empirical approximations of a relationship which is not a simple function, so please leave off the decimals. For use with prediction software, the best numbers are the predicted smoothed monthly sunspot numbers issued by A. Koeckelenburgh of the Sunspot Index Data Center in Brussels; these are published in Sky & Telescope every month and tend to be quite accurate. This number for January 1991 is 134.

The most powerful predictor at this point seems to be that actual 50 MHz F2 propagation events are most likely to recur at 27-day intervals. This has, of course, been known for several decades, but often seems to be overlooked by modern 6m DXers in the rush to get the WWV flux. I have found it to be surprisingly useful during Cycle 22.

Geoff raised several other points. On the matter of backscatter, or more accurately sidescatter, I get lots of it at my geomagnetic dip latitude, and it always fits a certain pattern. Signals are weak and diffuse, whether the distances are short or long (such as ZC4-KH6 and 6W1-KH6), and the poorly-equipped stations, along with those who insist on using SSB, are never heard. The stations at both ends generally do have strong reception to the intermediate point to which the antennas are pointed if there is any activity there (South America in the 2 cases cited above). These are all hallmarks of scatter. By great contrast, the true long-path openings I've witnessed (and heard described) show strong, clear signals, even from the small stations, and the antenna bearings never deviate noticeably from the great-circle long path azimuth. Added to all this, I cannot imagine any mechanism which might account for strong-signal bent paths, so it's not surprising that they don't seem to exist, at least not at these frequencies.

On the matter of widespread sporadic-E, I'm not going to touch that one! But it reminds me that many times in this sunspot maximum, there have been sudden almost global onsets of 6m F2, simultaneously (e.g., within a 5-minute period). And almost as suddenly, the band dies, everywhere simultaneously. Apparently the cause must be some burst of UV from the sun which briefly enhances the MUF over the entire sunward hemisphere. And does 28.885 ever get clogged up on those occasions...

RECEIVER REVIEW BY K1FO
from the "432 EME Newsletter"

I've had the opportunity over the last year to play with several of the new expensive HF radios and here is my opinion of using them for EME and weak sigs:

YAESUE FT-1000: Excellent receiver, has awesome selectivity and blocking range plus good AGC. Both the variable bandwidth tuning and IF shift work well. My only complaints are: its relatively high harmonic distortion in the receive audio (an external audio low pass filter cleans the audio up quite a bit), audio hiss and sub-standard noise blanker performance (it would reduce but not completely eliminate radar noise). The PLL is mostly free from "clicks and pops" (the only ones in the lower part of 10 meters are at 28.000 and 28.180 MHz). Phase noise is not as low as the TS-850S or the IC-781, but is still very good. The radio must be modified for low-level output to transverter but does have an easy place to tap out a variable transverter TX signal (+20 dBm max). Tunes CW in the USB mode.
KENWOOD TS-850S: Very good receiver, excellent AGC, clean audio (low distortion and low hiss), very good noise blanker. Very, very quiet PLL, almost completely free from pops, clicks, and birdies (there are none of these between 27.500 and 29.493 MHz). Only the IC-781 had lower phase noise. A variable transverter output (up to 17 dBm) is provided but no receive converter input (they say to use the main antenna jack) is included. A nice feature that the TS-850 and the TS-950 have is that IF filter selection is independent of the mode, so you can use the 12 KHz FM filters with the SSB detector for Sun noise measurements. I did not try the optional digital processor. Tunes CW in either USB or LSB modes (operator selectable).
KENWOOD TS-950SD: A major dissapointment; the receiver was completely dead on EME until I disconneccted the digital processor (it introduced aliasing noise) and quit using the CW audio peaking filter (it is also digital and produces its own noise and birdies). Even then, the receiver was just acceptable. It had numerous PLL "pops" (at least every 10 KHz) which made tuning for weak signals annoying. K1RQG also has tried a TS-950SD and was not impressed either. Input-output jacks for transverters are provided. Tunes CW in USB mode.
ICOM IC-781: Great on HF, but a disappointment on EME and tropo due to very compressed AGC action on weak signals. This AGC compression made it very hard (and tiresome) to copy EME signals. Very quiet PLL. Tunes CW in LSB mode which is a pain on VHF/UHF when switching between CW and SSB. Has a convenient transverter input/output switching set-up.
ICOM IC-765: Same AGC problem as IC-781, PLL not as quiet as IC-781, tunes CW in LSB, and has good transverter connections.
TEN-TEC OMNI-V: Very good CW receiver, excellent AGC, but awkward to operate compared to other equipment. Tunes CW on LSB and the transverter output is fixed at +10 dBm. It uses crystal LO oscillators so phase noise is extremely low. The noise blanker is OK but not great.

As a comparison, for the last 10 years, I've been using a Drake TR-7 xcvr and R7 reciver. The Drake has a great noise blanker and excellent AGC action on weak signals. The pass band tuning and IF filters also are very good. For EME reception, the only radios from the above list that I would consider replacing my Drake equipment with is the FT-1000 and the TS-850. Although the Omni-V heard EME signals as well as any other receiver, it was too inconvenient to operate.

25th ANNUAL CENTRAL STATES VHF SOCIETY CONFERENCE

THURSDAY JULY 25th THROUGH SUNDAY JULY 28th

SHERATON INN - CEDAR RAPIDS, IOWA

This is your chance to attend the most educational and popular event of the year. You don't want to miss this years CSVHFS conference. Meet and learn from the leaders in the field on a variety of VHF/UHF subjects. Bring that favorite preamp or antenna and find out how good it really is! Find out how easy it is to put together a station to get on that next band! See what it takes to homebrew that next VHF/UHF transverter! Learn how to make that computer design your next antenna!

This is a must-attend event for the experienced and in-experienced VHF/UHF operator. Lectures and activities begin Thursday evening and include a first-class family program. Make your plans now to attend. Bring the family and enjoy a great weekend in Cedar Rapids.

TOPICS	ACTIVITIES
MAXWELL WITHOUT TEARS BY DR. PAUL SHUCH - N6TX	AMANA COLONIES SHOPPING TOUR
10 GHZ PORTABLE EME DEMONSTRATION BY JIM VOGLER - WA7CJO	VHF/UHF/SHF PREAMP NOISE FIGURE CONTEST
GaAsFET MMIC DESIGNS BY DR. DAVE OLIVER	FRIDAY EVENING FLEA-MARKET
ISOLATORS/CIRCULATORS BY KENT BRITAIN - WA5VJB	144-MHz THRU 24-GHz ANTENNA GAIN MEASURING
1296 PQRTABLE EME DEMOSTRATION BY MARC THORSON - WBØTEM	DOOR PRIZES
220-MHz STATION DIRECTORY BY PETE BEEDLOW - NN9K	SATURDAY EVENING BANQUET
COMPUTER-AIDED ANTENNA DESIGN	KOLONA SHOPPING/TOUR
PA CAVITY POWER AMPLIFIER DESIGN BY BUZZ MIKLOS - WA4GPM	LADIES FRIDAY EVENING FLEA-MARKET
VHF/UHF BANDPASS FILTERS	ROCKWELL-COLLINS SURPLUS STORE
HOMEBREW TRANSVERTERS	ROCKWELL-COLLINS HF STATION TOUR

CSVHFS PRESIDENT: ROD BLOCKSOME - KØDAS VICE-PRESIDENT: RON NEYENS - NØCIH
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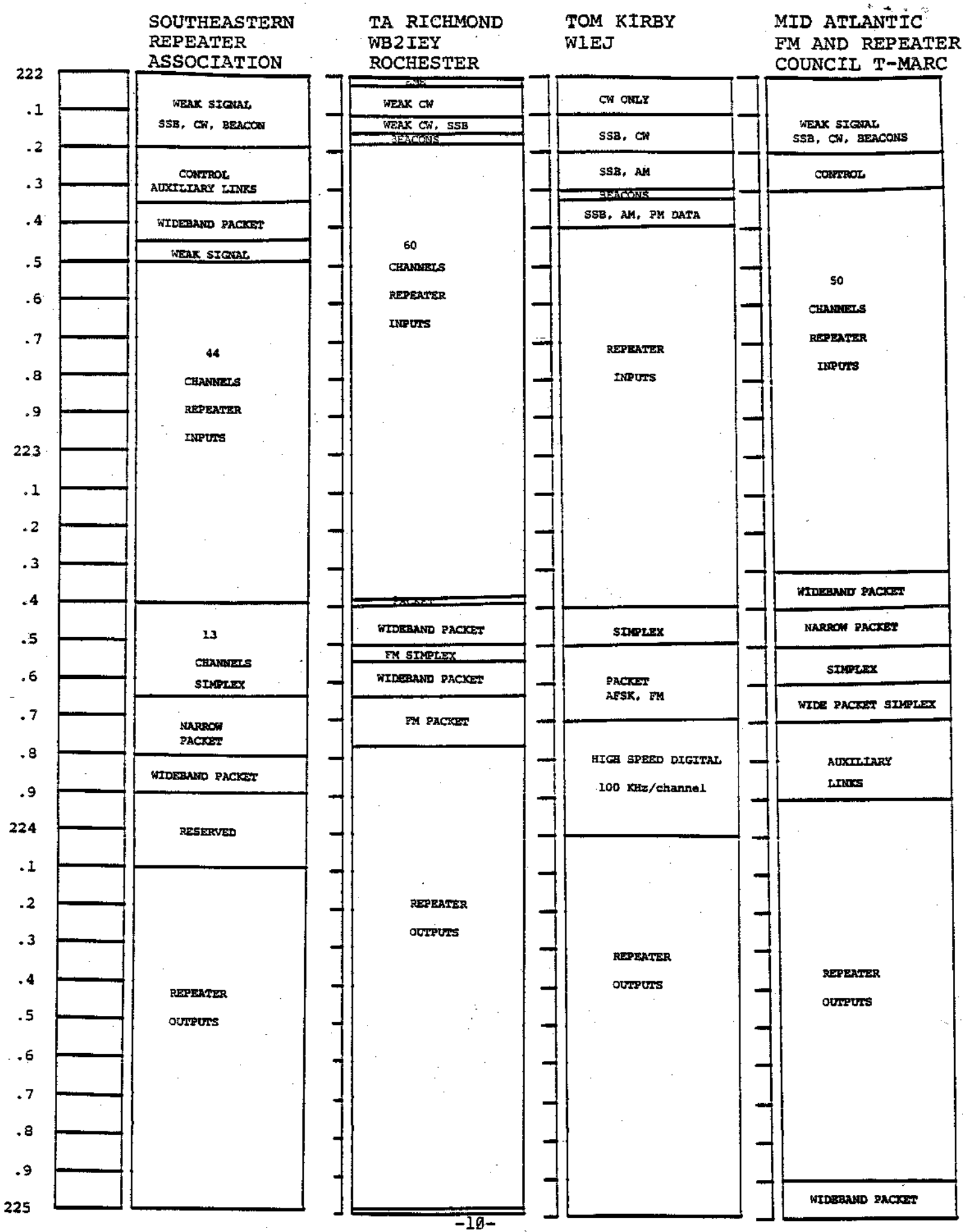

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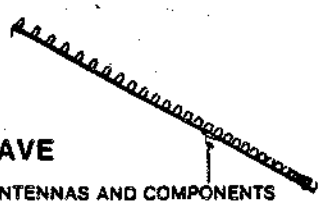
DOWN EAST MICROWAVE



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