

East Coast 70cm NET Participants per State
 (Circled)

Published by the Southeastern VHF Society

"...Meeting the Technological Challenge..."

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This month we will be trying several new ideas and a modified format. Ed Fitch, W00HU, who writes the 432 News in the upper midwest offered an excellent suggestion. He pointed out how readers might skip over new info if spread among repeat newcomer's columns. An excellent suggestion. What I would like to try is putting the newcomers info and historical repeat info in the next issue of the newsletter leaving more room this month for features. We were running quite tight for space. I hope 5 pages makes it thru the mail to all of you. I had to cut articles on a simple EME antenna elevation rotor/readout scheme I'm working on and a short article on PIN diode losses in the IC211/551/451/251.

Three Years of East Coast 70cm NETs

Few ideas in my life have been as successful or as rewarding as the founding of the East Coast 70 cm NET. Today activity in the southeast has truly become self sustaining. In some areas, Atlanta for one, 432 activity exceeds 2m SSB activity.

As we enter our fourth year, growth is still very evident as the accompanying graphs show. As of November 11, '82 the totals reached 174 different stations in 18 states joining the NET over the years. Truly the activity is there, it merely takes some way of focusing and crystalizing it.

Instrumental in our success story is the team of Al Ross K4CAW and Dexter McIntyre WA4ZIA as Net Control Stations. Both stations have shown the consistency and skill which makes weekly participation by many stations possible. Al of course draws from his experience calling the nation's largest and longest lived 2m NET each Tuesday at 9PM on 144.250. Both stations are four yagi, kilowatt, GaAsFET equipped stations with almost incredible receiving capabilities.

Some who have not heard the NET scoff at our figures and use the logic that the outlying stations relay in many of the NET participants. This is true only for the weakest stations. We presently are aided by: W5HUR in FLA, WD4MBK in Atlanta, W4GJO in northwest GA, and hopefully soon several in NewEngland. But generally speaking the NCS stations can hear stations each week out into FLA, Mississippi, Ohio, and CT. A couple of weeks ago WA4GAI in Atlanta got on with a few watts to a discone in his attic and Dexter could hear an occasional word.

As the Net grows we stretch out the total time longer and longer with good and bad effects. The good effect is that it puts us into the Central time zone about 9PM their time. The bad effect is that it puts us into NewEngland after 10PM EDT/EST losing some of the early to bed crowd. Present schedule:

- FLA 9:15-9:25
 - Atlanta 9:40
 - Chatanooga 9:50
 - Kentucky 10:00
 - Ohio 10:10
 - West PA 10:15
 - EPA, NJ 10:20
 - NY,CT,VA 10:25
 - backtrack 10:30
 - Net closes 11:00
- Remember
 432.090 at 9PM EST/EDT
 WEDNESDAY
 Do your part for 432 on
 NET night and anytime.

East Coast 70 cm NET Participation Award

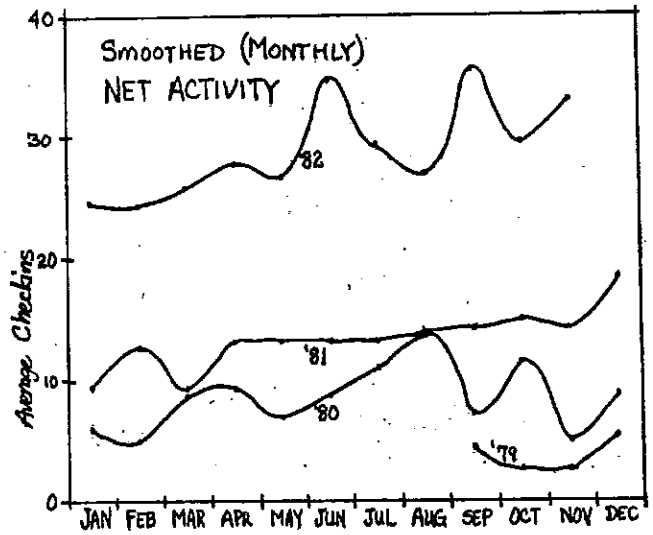
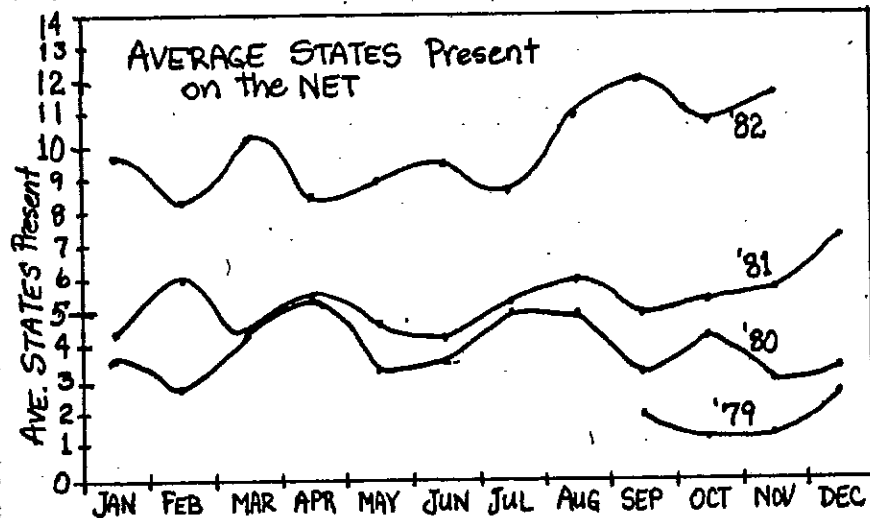
If all goes according to plan we've come up with a new award for our 174 net members to reach for. Its a Southeastern VHF Society award for UHF activity. (That's right folks, we haven't even set a name for it yet.) There will probably be several ways to earn the award, none being particularly easy.

Our initial idea came from NCS WA4ZIA who wanted to cause incentive for someone to try and make the NET each week. So we came up with working the NET 100 times as one way to get our unnamed award. We have a couple of stations who qualify right now (not NCS either).

So, help come up with a name for our award. And while you're at it, got any other ways to earn it?

To say that the NET is doing well would be an understatement. I think participation is in it's seasonal after Sept VHF Contest slump now but average nets are still in the 30+ checkins in 11 or 12 states category. Perhaps our finest hour came in June when we had 46 checkins in one night. At that time we had about 140 people on our net member list. A percentage that high is seldom ever reached even on two meter nets. I thank you all for your loyal participation. Keep up the good work as you all realize that this is what makes the Net such a success.

Below you'll find some graphs I recently compiled from our history of the Net data. I found some very interesting correlations. Now that we are three years old and still going strong the data is beginning to mean something. For instance we for some reason can expect a peak in Net attendance around April 1, early June and Sept. The June and Sept dates of course correspond to the time around those two contests (Yes they really do apparently turn the equipment off after these contests, not to return until the next one. Let's break this habit.) Checkins are relatively constant during April/May, August, and Nov/Dec.



As you can see, once we got the people in other states aware of when and where to look for the net the state totals rose irrespective of the time of year. Winter doesn't kill propagation, lack of activity in winter kills propagation. We can fix that can't we?

Winter seems to bring a smoothing of the enhancements into more or less steady conditions punctuated only by scatter enhanced by airplanes.

A Question of Motives. by WD4MBK

Charles Osborne

Many of you have asked me: "Why are you such an ardent promoter of UHF and experimentation". Perhaps I'll answer like a politician, "because I didn't like the way it was being done by others." No, let's turn the tables, I must ask why are you here? Ask yourself, why work so hard for VHF in general? Certainly not for the glory, there's precious little, if any of that. For the money? You know something I don't then. Mine's all outflow. Perhaps it's to prove something to yourself. Now there's an answer with potential.

Bruce Randall, WD4JQV, answered the question in a unique way. He said: "We're meeting the technological challenge." I like that. It sums up the personal goals of many of us very clearly. "...Meeting the technological challenge." I think Bruce may have just given the SE VHF Soc a motto. What do you think?

One of our goals personally as editor of this newsletter is to help others through ideas and encouragement of the creative potential we all have. Perhaps I'm a bit harsh on myself but I ask each day: "Am I doing all I can to advance the art?" We must each do our part to not passively live out each day just as the one before. Doing our part no matter how small can involve things as trivial as reading a bit about propagation or technical matters. It's this type of knowledge which lies dormant until in a flash of intuition we are able to draw a conclusion from seemingly unrelated events in daily life. This ability is our power above all else, the ability to go beyond the assembled pieces of the puzzle, to intuitively draw a conclusion which is more than the sum of its parts. We each have the power to come up with ideas that may have never been expressed before by anyone.

A common problem today is "technological surrender": a fear of the complexity of one's equipment and a resignation that the day of the Amateur Experimenter has come and gone. True, we can no longer build equipment capable of competing with the tremendous value in Japanese ham radios. I prefer to accept this and go on to develop the peripheral equipment to best utilize these radios. This is an area where we CAN move forward in computers and technology. Do your part to help us all grow away from the "appliance operator" trap.

A 45 element 1296 MHz Loop Yagi

I recently received this loop yagi design from Bill Seabreeze W3IY. It was written up by W3CXU using data supplied by W1JR and from his own experimentation.

Gain should be about 22 dBi, comparing favorably with a 4-5 foot dish, yet with much less tower mounting trouble and wind loadings.

Boom 12 feet long to use std tubing length. Material used 6061ST-6, 1" OD x .058" wall x12'.

Element lengths and spacings should be very carefully measured with a vernier caliper +/- .015" (Remember a 1 % error is 13 MHz). Spacings:

- Refl #2 .25" from end of tube
- Refl #1 2.685 from Refl # 2
- Driven 4.05 "
- Dir #1 5.17 "
- Dir #2 6.00 "
- Dir #3 7.78 "
- Dir #4 9.56 "
- Dir #5 1.25 from Dir #4
- Dir #6 3.56 "
- Dir #7 3.56 from Dir #6
- Dir #8 through Dir #42 all 3.56" from adjacent element.

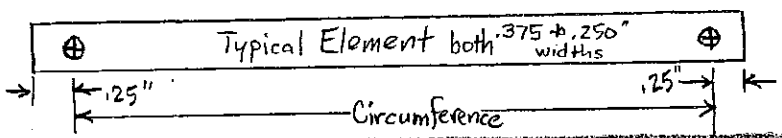
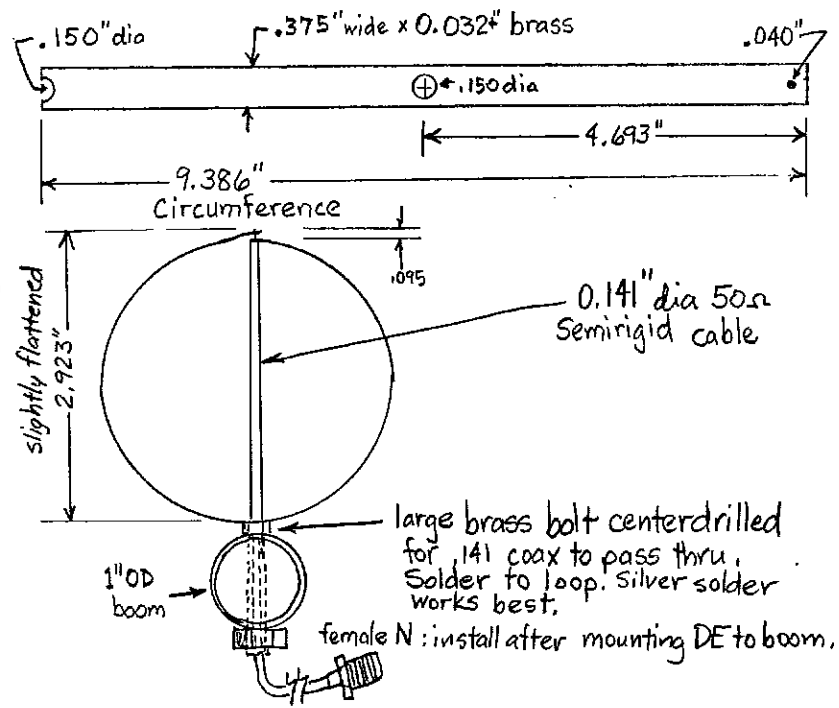
Element	Circumference	Width of .032" mtl
Refl #2	9.794"	.375"
Refl #1	9.850	.250
Dir 1-4	8.405	.250
Dir 5-12	8.356	.375
Dir 13-18	8.102	.375
Dir 19-42	7.799	.375

Form elements around a 2-3" dia form after drilling. Mount elements with stainless 4-40 hardware. Sand drilled areas as they are high current point. Use polyurethane varnish to protect. Dow silicon grease on mating surfaces will also enhance connection by preventing future corrosion.

Several versions of the driven element have been seen. I think using .141" dia copper semirigid cable to feed it is mechanically best. If you plan to stack several of these antennas, be sure to feed the center conductor to the same side of the loop on all of them. Also 432 power dividers provide a good 3/4 wave match at 1296 and are much easier to find and construct than the 3' tall ones for 23cm. SWR on the antenna can be tuned by slight bendings of Dir 1 and 2 toward or away from Driven el. In some cases a .375" wide Refl 1 will help also.

To use heavier element material, say .063" thick, increase element lengths by 0.6 percent. Mount the antenna away from large masts that can ruin the pattern. See you on 23 cm.

DRIVEN Element



Next Issue

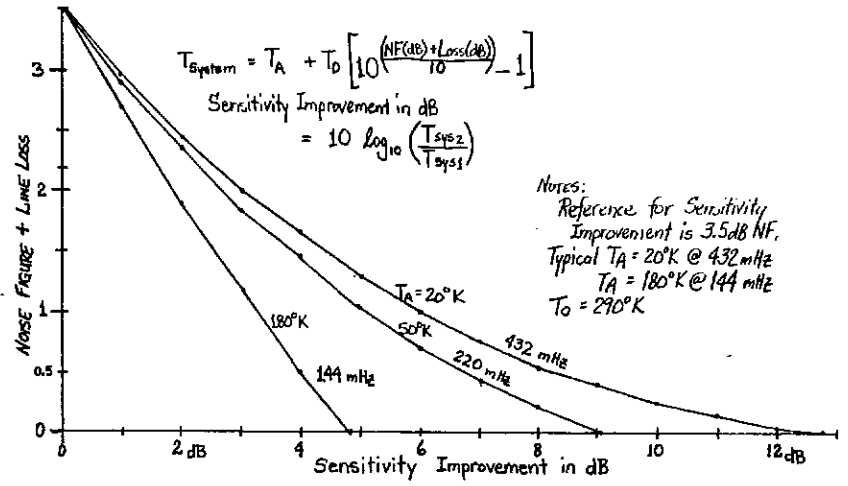
Hopefully we'll have some information for you on a special tripler WD4JQV is using on 432. Bruce has a technique for tripling up from 2m and ending up on 432 with DSB. While on 432 tripling is waining in popularity, on 1296, or more particularly 1269 OSCAR Phase IIIB, this may be the key to getting many people on the air inexpensively. The intriguing point about Bruce's technique is that it does NOT use the elaborate predestorting techniques written up in magazines a few years ago. I don't think I've ever talked to anyone moved to try those elaborate tricks just to get a tripled intelligible signal. Those of us who have talked with Bruce on the air on 432 have marveled at the punch and clarity his signal has. Believe it or not he is using a 2C39 tripler and some OF AMPS to achieve these results. With 800 kHz of transponder space on the mode X Oscar a few DSB signals should be welcome. Bruce has not finished the 432 to 1296 tripler version of his scheme yet but stay tuned for further details.

Hopefully I'll have good news on my solid state transverter for 1296 next issue as well. One problem I've had with it is finding parts that won't be impossible to at least mail order. Cost is another factor. My original ideas lead to \$80 just to get from mixer level to 1w. See this issue for an update on a cheaper method that's somewhat easier to construct as well.

Lower Noise Figure ALWAYS Improves Signal to Noise (WBSLUA, Al Ward, Central States Conf. '82)

Al gave an excellent presentation on the effects of lowering noise figure below the theoretical limits often mentioned (1dB for 432 and 2 dB NF for 2m). He found that there was always something to be gained. 0.3 dB Noise Figure preamps do indeed give signal to noise improvements that are significant relative to their costs. [See graph] In the graph we add noise figure + line loss between preamp and antenna. Any change in the overall dB arrived at will cause a corresponding change in signal to noise in the received signal.

For example: A 0.5 dB NF preamp in the station with 3 dB of line loss. Moving the preamp to the antenna gives a 3 dB improvement in noise figure but an 8.35 dB improvement in signal to noise !! (on 432 MHz).



Nonetheless keep me posted of any significant happenings or neat projects you'd like to share. Fairly short items like Bruce's relay sequencer this issue or the GaAsFET preamp in issue #1 are particularly good. QST no longer seems to carry this type of up to date info anymore so someone has to lest the general public think 40673 preamps are state of the art. While we're knifing QST, how many 1296 transmit articles do you remember? Right, lots of receiver ideas archaic though they are. I wonder who they plan to listen for. Ham Radio pledged a good block of coverage to 1296 SSB a few years ago but precious little lately. It's little wonder the Europeans are working 700 + mile paths on 10.5 GHz with the exposure and construction projects everywhere in their literature. At our present rates and attitudes I expect QST to have 10 GHz SSB construction plans about 1993. By then the Europeans will be doing SSB EME on 24 GHz and 24 GHz SSB handhelds going thru satellites worldwide no doubt. Wonder if they'll have anything but listeners in the USA? Read Dave's editorial in the October QST p.9. No wonder they have no modern construction articles, they think they're doing a good job! Unfortunately they are so late at updating their VHF Manual and Antenna Manual with recent developments that very few people want to be associated with the losing team. Hence no input articles, thus no new books. Catch-22! Having heard of many good articles that were submitted by some of my readers and even having copies of some I can only say they get what they deserve.

If you are a serious VHFer a good publication out of Europe (go with the smart team right?) is VHF Communications magazine. It is distributed by Selecto Inc. (372d Bel Marin Keys Blvd, Novato, CA 94947) for about \$20 per year. Not cheap, but worth it when you're in the UHF desert of North America.

From the Editor...

I'm overwhelmed by the confidence and support you've all given to the newsletter this year. Southeastern VHF Society Membership is approaching 90 people with over 25 of you contributing far in excess of the \$ 4 we initially requested. It really helps to feel that kind of strong interest and backing. We'll be able to send out about 200 newsletters this time, many go to other newsletter editors and ARRL officials who are kept up to date perhaps a little better thanks to us.

Thanks for all the letters of praise as well. I've got an inch thick file of them and more importantly an equal number of new friends with widely varying interests to draw upon for news and info.

We mentioned the possibility of a VHF Conference type set together next summer with the Atlanta Hamfest as a bonus attraction. We now have the dates: June 18-19, '83. The only question is the date of the June VHF Contest. If it falls on that same weekend there's no use having a VHF Conference, right?

As you may have noticed we don't publish any run downs of past openings and reported contacts. We feel this is a waste of space unless it's something quite unusual. QST, SMIRK, and SWOT all devote a tremendous portion of their content to this at the expense of actual help and concrete information. They do an all too thorough job so we'll not add to it with month old openings and "wish you'd been there" comments to rub it in if you weren't.

Antenna Relay Sequence Control

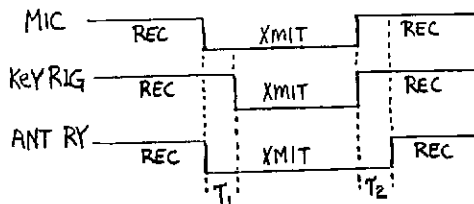
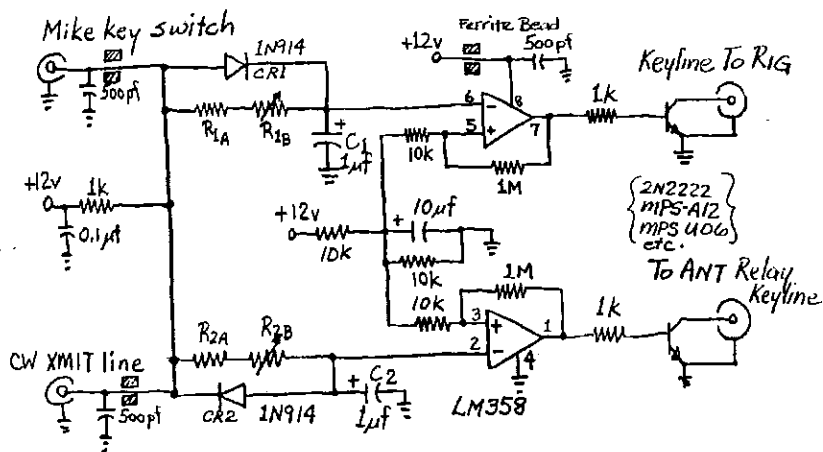
Often amateur VHF/UHF setups have improper relay sequencing. My homebuilt 432 transmitter put a momentary shot of approximately 30mw into the receiver upon keying the transmitter. After losing one MRF901, the circuit in Fig.1 was devised.

R1C1 set the delay time before keying the transceiver; the antenna relay however keys almost instantly because CR2 discharges C2 through the switch. Upon releasing the mike switch, R2C2 sets a delay time before the antenna relay releases; there is no delay in unkeying the transceiver because of CR1. Fig.2 shows the operating sequence for this circuit. Q1 and Q2 can key DC relays up to 300mA coil current and 28v coil voltage. For larger currents they should be replaced with darlington transistors of appropriate ratings. Any relays need clamp diodes to protect Q1/Q2. In my setup Q2 drives a small 12v relay which then keys the 115VAC antenna relay.

Q2 could also key a transverter or a receiver mute line as well as the antenna relay but the source of RF power must be keyed by Q1. This circuit saves antenna relay contacts as well as protecting receiver front ends. Let's stamp out HOT SWITCHING.

Bruce Randall WD4JQV

ED: Most relays take approx. 15 msec to settle. Remember that these times add if you key one relay with another. Most opamps should work. The LM358s were used because they can swing almost rail to rail in supply voltage at the outputs. All mods should be looked at on an oscilloscope to insure that the timing sequences are proper.]



$$T_1 = 0.7 R_1 C_1$$

$$T_2 = 0.7 R_2 C_2$$

(100kΩ)(10μF)(.7) = 70ms

Delays.. Delays.. Delays

I hope you'll forgive my tardiness in preparing this newsletter. I trust the result somewhat makes up for it.

I particularly wanted to get to certain conclusions on the 1296 SSB Transverter project in time for this letter.

Among my excuses are several unavoidable problems. I lost two weeks worth of time on the directory/mailling list. I went to update my backup disc with our latest main copy version only to find that it had a fatal error in the directory. The periles of modern technology I suppose. I don't think we lost anythings.

By the way, the Directory is nearing completion. The file of text on the computer has topped 40k bytes or about 20 pages of tightly worded data on 432 ops in the eastern US. I plan to update some addresses when the new callbook comes out shortly and then begin working out a way to print it economically.

If you don't have your station info in with us [see form on last page for details] in time for this issue it may be next year before we attempt a mailing to members again. Remember, it won't be cheap to mail, so only dues paid members at the time of mailing will receive one. It's just another reason to join the Southeastern VHF Society by the first of the year.

Southeastern VHF Society Members as of Nov.20, '82

WA3NZL	MD*	K2CBA	NY*	W5HUG	FL*	WOFY	MO
WB4JGG	TN*	W2GN	NY	W1GXT	MA	K3MKZ	PA**
WA3EOD	MD*	WA4GVE	VA**	NA4I	GA*	WANUS	NC*
W4DDW	FL*	KC4ZZ	VA	K5FF	NH	WA4CBX	TN**
K3WHC	PA	W4NFR	VA	W5FF	NH	W5UKQ	LA
K1OW	MO	K4QIF	VA	K4PKV	NC	W4ZPG	GA*
WB4IZR	GA**	K5JRH	TX*	WB4NXY	KY	W5LDV	TX
W4GJD	GA	W3GHR	PA	W6ECB	SC*		
K4EJD	TN	WA4COG	AL	NI4Z	FL		
W4SVJB	TX	WA4DFS	TN*	K3OCQ	PA*		
N4JS	MS*	WA4HG	GA	W2KFC	VA		
W4DFAB	FL	W8HFA	NI*	W8DJY	OH		
W4VHH	GA**	KA4CKI	VA	N0KV	VA		
W4HAL	FL**	N5BAR	GA	WA4QYK	TN		
W4ENB	FL	WB4GTB	GA	K4NTD	FL*		
W4HJZ	NC	WB2QNA	NJ	K9HMB	IL**		
W3IY	VA	W3IMI	MD	W8FYN	FL		
WB4HIE	NC	W3CXU	PA**	K4RV	SC		
WA4ZIA	NC	WA4HVI	SC	AA4Q	FL		
N4EQT	KY	W3RUE	PA	K3ARN	MD**		
W4CBV	DE	WA6CRA	VA	N4GJV	NC*		
K3HZO	MD	WA4GHK	FL	WA4GBE	TX*		
KBWW	OH	NT4T	NC**	N3FL	MD		

Stations with
*Contributed
greater than \$5.

Stations with "**",
contributed
greater than \$10

In support of
the SE VHF Soc.

Many TNX
to ALL.

Hope you enjoy this issue. Fortunately doing it on a quarterly basis allows me more time to followup on possible problems in articles, find vendors for parts, and write and rewrite for best clarity. Keep those ideas and articles coming in! 73, C. Osborne WD4MBK

Lately we've been hearing more and more about government 70cm radars and their restricted zones being expanded.

PAVE PAWS is the Air Force code name for its new over-the-horizon Phased Array Warning System used to detect and track ballistic missiles launched from ships and submarines up to 3,000 nautical miles from US shores. It's secondary function is to track other objects in space for the Air Force Spacetrack System. These systems are part of the nation's early warning system sending info to the North American Air Defense Command (NORAD), the Strategic Air Command (SAC), and the National Military Command Centers.

These radars utilize fixed antennas 102 feet in diameter. The antenna consists of a phased array of 5,354 crossed-dipole antennas. Focus and direction of the beam is controlled by varying the phase of the drive signals to the antennas. The PAVE PAWS at Otis AFB for instance has two antennas facing 120 degrees apart covering 347-227 deg azimuth across the north and east quadrants. In normal mode the beam is 3° above the horizon but it can be aimed 3° to 85° elevation. PAVE PAWS uses 24 different assigned frequencies in the range 420-450 MHz. Each of 1792 active radiators in the array have their own 322 watt solid state transmit/receive modules (Look on the bright side, maybe we'll start seeing these on the surplus market). Total Effective Radiated Power (ERP) from the array = 580 kW.

Most of the Amateur concern arises over the 50w DC input limitations imposed around most bases with PAVE PAWS recently. What we fail to realize is that they are merely collecting the names, addresses, phone numbers, and equipment description by assigning waivers thru the FCC and Air Force. This will help the Air Force maintain a file of active operators in the area to refer to in case of our interference to the operation of the early warning system. We are at the mercy of the Air Force coordinator who OKs the waivers. So far most cases I've heard of have been OKed speedily for ERPs up to even EME levels.

Keep in mind that we are talking about our national security. I hope they realize that just by keeping out of the 431.5-437 MHz area they'll probably never cross our path or vice versa. (Information was provided by Lewis Collins W1GXT of the NE VHF Assoc. Further info is available from Defense Documentation Center report ADA072333 unclassified distribution).

If any of you have details to add please send them. How well for instance do noise blankers handle the PAVE-PAWS pulses. Normal radar must be 30 dB over S9 before I even hear it on my IC551/MMT432-50S system.

1296 MHz SSB/CW Transverter Update

I ran into a stumbling block with last issue's transverter idea. The cost of devices to go from 1 mw to 1 watt was over \$80. I meanwhile got some excellent European articles from W3IY which may solve our worries. I'm trying one of the mixer schemes they use. So far the busses have it. The mixer techniques they use are extremely high level mixers with say 1-2 watt local oscillators! By use of LOs this powerful the transverted RF power out can be as good as 7 dB below LO power. If this ploy works, we will have saved about \$60 per unit that would have went toward the 100 mw power stages.

The trick is in developing your high power LO at 384 MHz not 1152. I'm using the same type finals used in the microwave modules transverter to get 10 watts of 384 MHz LO. This then hits a standard tripler/filter for upconversion to 1152. LO will end up somewhere in the 1-2 watt range. 144 MHz drive could then be up to about 500mw for a resulting 1296 output of about 100 mw. This then is an excellent level to work from either with 2C39s or solid state. The devices I have in mind for the 100mw to 1w stages are reasonably priced (under \$25 ea.).

At Central States VHF Conference WB9SNR handed out some interesting designs using NEC devices to go from 60mw-in to 10w-out using three transistors:

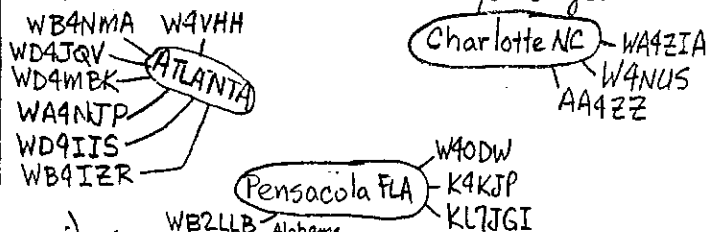
NE080190	(\$12.25)	gain 11dB	1 watt out
NE080490	(\$16.25)	6+dB	4 watts out
NE081090	(\$19.50)	6 dB	10 watts out

I also won a pair of SD1511 transistors with a 1296 design capable of 20 watts out.

The SD1520s I mentioned earlier proved to be a bit high for 1watt devices at \$30 each.

This still beats the prices on most 1296 linear amps by a wide margin. Generally a commercial transverter plus 10 watt amp plus the GaAsFET preamp will put you in the \$600+ neighborhood. Wow! Just 10watts and we're already broke. My transverter scheme will likely cost about \$300-\$350 to get you there, maybe less.

Small clusters of activity are developing on 1296 in the Southeast much like 432 did 8 or 10 years ago:



* WA4ZIA (NC) first state on 1296 was MD, then CT, NC, TN (10 watts quasi) AL in November. *

East Coast 70 cm NET Roster of Participants

Stations are listed in order of initial appearance on NET logs.

- 1. WAATC NC 27. AA400 NC 53. WA3EQD MD 74. N4IF VA 96. WB3LJK MD 118. KA4CKI VA 140. K1PXE CT 162. KA3AQS MD
- 2. WA4GBE NC 28. W4HJZ NC 54. W4NFR VA 75. WA4CRX TN 97. K4EJQ TN 119. KC4P AL 141. W5RCI MISS 163. K4GZD NC
- 3. K4CAW NC 29. K4LNU SC 55. W2KFC VA 76. W4GJD GA 98. KA3EQD MD 120. W4ENB FL 142. W5UCY MISS 164. W3UN MD
- 4. W3LUS PA 30. WD4LGR NC 56. WA3NZL MD 77. WB4HIE NC 99. KC4EG KY 121. K4DZP FL 143. K4AZA FLA 165. W3WFM MD
- 5. W3IP MD 31. WA4LDU SC 57. W3IWP PA 78. W5HUQ FLA 100. W4ODW FL 122. NOKV VA 144. WB4E1Y VA 166. N4GLT VA
- 6. W30UX MD 32. WA1NGR DEL 58. WD4IIS GA 79. W4ZPG GA 101. N4EQT KY 123. N3FL MD 145. W4DUH GA 167. N4GJV NC
- 7. W4FJ VA 33. WA4ZIA NC 59. W3HQT PA 80. W2GU TN 102. W4END NC 124. N4CX VA 146. W6ECB SC 168. WD4JEJ SC
- 8. WD4CXU VA 34. K2UYH NJ 60. K4PKV NC 81. W30Z MD 103. WA3FFC PA 125. K3WHC PA 147. NA4I GA 169. WA4GAI GA
- 9. WA4SBC VA 35. WD4SGW GA 61. W3GNR MD 82. W3RUE PA 104. WA40WC FL 126. N4EHN FL 148. WB2RVX NJ 170. W4NUS NC
- 10. K4QIF VA 36. WB4EXW NC 62. K3QCC PA 83. W4DJD GA 105. W4WSR FL 127. WA4MVI SC 149. K4JO NC 171. W4UDH KY
- 11. W4ISS GA 37. K4GHJ SC 63. W3CGV DEL 84. WAHGH GA 106. N4HZ FL 128. N3BHS PA 150. K4GUU ALA 172. K3SZY PA
- 12. W4VHH GA 38. W4USW SC 64. W3DBK MD 85. W4BZHE OH 107. WB4AKL FL 129. WA4OFS FL 151. WD4HAL FLA 173. W4CFS FLA
- 13. K3LFD MD 39. K3HZD MD 65. N3DA PA 86. K8WW OH 108. W2EIF NJ 130. WD4FAB FL 152. N4ELQ KY 174. K4PDR TN
- 14. K4GL SC 40. WA2DPU NJ 66. WD4MBK GA 87. W3ZZ MD 109. WA4GHK FL 131. W8FYN FL 153. N5BAR GA 175. W8BZTV WVA
- 15. W4FMN NC 41. K2GQX NJ 67. N4DT SC 88. K3ARN MD 110. W8BQXR FL 132. KL7JGI FL 154. WB2LLB ALA 176. W4DFK VA
- 16. WB4IZR GA 42. WB2SZK NJ 68. AB4L VA 89. WB3CZG PA 111. WB4NXY KY 133. K4KJP FL 155. AA4ZZ NC
- 17. N4CD VA 43. WB4NMA GA 69. W8UT WVA 90. K8BRQ OH 112. WD4JQV GA 134. W4UUF FL 156. WA4LIT ALA
- 18. K2R1W NY 44. WD4MUD VA 70. WB4GTB GA 91. NI4Z FLA 113. WA4EWA AL 135. W4EQR FL 157. W8Y10 NICH
- 19. WA4QYH GA 45. WA4LBT NC 71. N7BO SC 92. K4NTD FLA 114. WA4VWR TN 136. W4HDX FL 158. W4YYS ALA
- 20. WA4QYK TN 46. N4CNN VA 72. WA4GVE VA 93. WA4CQG ALA 115. K2JWE NJ 137. W6OTE GA 159. K4LHB VA
- 21. WA4PGI VA 47. WD4AGO VA 73. K5ZRR GA 94. WB2RJL FL 116. N2NB NY 138. W3GGR MD 160. W2VC NJ
- 22. K4QKR VA 48. AB2Y NJ 95. W8DJY OH 117. K4HWG VA 139. N4DUW GA 161. KA21NY NJ
- 23. WB4TQD NC 49. K4AK NC 162. KA3AQS MD
- 24. WA4NJP GA 50. W3CXU PA 163. K4GZD NC
- 25. K4KAE SC 51. WB4EFZ SC 164. W3UN MD
- 26. WD4EXH VA 52. W3IY VA 165. W3WFM MD

*Giving the NET
176 stations
in 18 states!
No END in sight!*

In fairness to the SEVHF Soc members who support the newsletter, those who have not paid the \$4 minimum membership fee will no longer receive a newsletter on a regular basis. This will free up many copies of the newsletter to be sent to new possible members. Check the member list elsewhere in the newsletter to verify that I have you on the roster if you've paid. Please do your part in setting us new members by copying the newsletter for distribution to your friends.

Material in the newsletter is not copyrighted in any sense so it may be duplicated freely if credit is given to the Southeastern VHF Society and the article's author. We obviously do NOT make any guarantees on the information presented. Use at your discretion in the interest of experimentation. Please keep us posted of modifications and your successes.

Southeastern VHF Society Membership Form.....

Membership \$4 made payable to: Charles Osborne, WD4MBK, 131 Saratosa Dr., Lawrenceville, GA 30245
Do NOT send SASE! Please fill out the information below as completely as possible for inclusion in the 432 Activity Directory. We are also including notes if on 220/1296/... Phone is optional but helpful sometimes (it will be omitted from Directory if so indicated). Please list info on antennas, power, presmp devices used, transverter or equipment.

NAME.....Call.....Phone(.....).....

Address.....State.....ZIP.....

Longitude.....Latitude.....Equipment:

NEC GaAsFETs/power devices are available from: SPARTECH ASSOCIATES, POBox 1225, Smyrna, GA 30081. Ph(404)432-3644. They will process small orders for \$5/order handling fee. Some prices presently: NE21889 \$32, NE72089 \$15, NE13789 \$64, NE64535 \$8.50, NE71083 \$70 (0.3 micron gate!), NE70083-4 \$34.50 (0.8dBNF @ 4dc), NE080190 \$12.25 (1W 1296), NE080490 \$16.25 (4W 1296), NE081090 \$19.50 (10W 1296)

RF Gain Ltd., 100 Merrick Rd., Rockville Center, NY 11570 Ph(800)645-2322 seems to be an excellent source of CTC, Motorola, and other RF power devices. Their biggest selling point is speed. I ordered a final and driver for a Microwave Module MMT432-505 and got them in 6 days! \$30 minimum.

Cushcraft Lunar

704-634-3751

LUNAR, MICROWAVE MODULES, ARCOS, ASTRON, KLM
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(717) 868-6565
M - F after 6:00 p.m.
Weekends Anytime!

K4GMJ Maurey McMillan of Greenville SC distributes the 19el RIW yagi for 432MHz. Maurey also carries power dividers and a variety of other VHF related items. [253 Providence Square, Greenville, SC 29615, ph(803)288-4671 evenings + weekends.]

VE3CRU, Hans Peters, Box 6286 Station "A", Toronto Canada M5W 1P3
ph(416)759-5562. Sells Microwave Modules at very good prices. Give him a call for latest info.