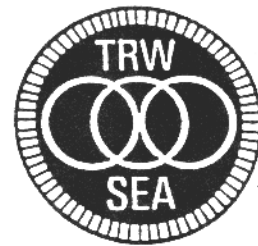




CROSSTALK



A Publication of the TRW Amateur Radio Club

JANUARY 1995 CALENDAR

Every Monday: DCS Net on 145.32 Repeater at 7:30 PM

Every Wednesday: Emergency Communications Team Net on 145.32 Repeater at Noon

Every Thursday: Club Net on 145.32 Repeater at 7 PM, Club news, etc.

Every Friday: Club Breakfast in Bldg S cafeteria, 7-8 AM

Jan 3: Executive Board Meeting, E2/1200, 5:30 PM

Jan 10: Emergency Communications Team Meeting, R3/1413, Noon

Jan 10: Club Meeting, 5:30 PM at Petrelli's

Jan 20: Technical Chairman's Meeting, Bldg S Shack, Noon

Jan 21-22: ARRL VHF Sweepstakes

Jan 28: Swap Meet, Parking lot, NW corner of Aviation & Marine, 7-11:30 AM, T-HUNT at Noon

EDITORS NOTES: The deadline for CROSSTALK submissions is the executive board meeting on the first Tuesday of each month. If you have something and will be later than that please call and I will try to accommodate you.

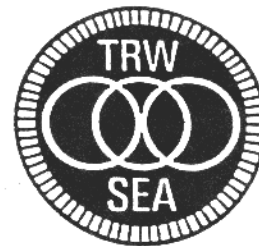
ELECTION RESULTS

The club officers for 1995 are as follows:

President:	Frank Cartier, WA6RAY
Vice President:	Ray Enriquez, KD6IGI
Secretary:	Bill Shanney, KJ6GR
Treasurer:	Young Ryu, AB6UP

The race for VP was very close with Ray winning by only a few votes. Ray unseated Bryan DeAro, KN6OW who did an outstanding job in 1994 and continues to run the club training program.

HAPPY NEW YEAR



AMATEUR RADIO LICENSE CLASS!!

**THE TRW AMATEUR RADIO CLUB - W6TRW- WILL BE
STARTING A AMATEUR RADIO (HAM) LICENSE
CLASS. THIS CLASS WILL COVER ALL
INFORMATION NEEDED TO PASS THE NOVICE AND
TECHNICIAN CLASS TEST**

!!NO MORSE CODE NEEDED!!

**THE START DATE WILL BE TUESDAY THE 10TH OF
JANUARY '95 AND WILL MEET EVERY TUESDAY AND
THURSDAY FROM 5:30 PM TILL 7:30 PM
FOR APPROXIMATELY 6 WEEKS**

FOR INFORMATION/REGISTRATION CONTACT:

**BRYAN A DE ARO
M-F 07:00/4:00
(310) 812-4789
(VOICE MAIL)**

MORSE CODE CLASSES

Does CW strike fear into your heart? Would you like to upgrade but "The Code" is a road block? Bryan, KN6OW would like to help, he wants to know how many members would be interested in a class. He is thinking about two nights a week for about one hour. Both beginners and those who want to upgrade will be accomodated. Call Brian on x24789 (7-4) or (310)962-3902 (evenings) for info.

More on 80 Meter Antennas for Field Day

Last month I outlined the requirements for an 80 meter Field Day antenna system and showed how a combination of a single inverted vee and a 2 element vertical array meet them. This month I'll take a look at using an array of horizontal wire elements (suggested by Bob Hume, KG6B) and a full wave loop.

Horizontally polarized antennas need to be high in the air to provide gain at low elevation angles. We can't reasonably expect to put antennas up higher than 60 feet for a portable operation such as Field Day so I used this as my starting point. I ruled out KG6B's idea of a parasitic array (i.e.: One driven element and a director) since it is narrow band and we want to work both phone and CW on 80 meters. A driven array like a W8JK antenna operates over a wide bandwidth, the feed point impedance changes but this can be easily accommodated with a transmatch. The W8JK also has more gain at low elevation angles than a parasitic array when mounted less than one half wavelength high.

To minimize mechanical complexity inverted vee elements were used in the driven array. Figures 1, 2, and 3 show the elevation patterns for driven arrays with 180° phasing and $\lambda/8$ spacing (W8JK), 180° phasing and $\lambda/4$ spacing and 135° phasing and $\lambda/4$ spacing. At first glance Figure 3 looks like the winner but a careful look at the gain at 10° elevation puts Figure 1 (W8JK) ahead by about a dB. The 180° phasing is also easier to implement.

I have also read about many Field Day setups using full wave loops on 80 meters. My personal experience shows that loops are excellent performers if they are high in the air and low noise for receiving when horizontally polarized. A vertical full wave loop with its top wire at 60' and bottom wire at 20' was analyzed. Figures 4 and 5 show the elevation patterns with the feedpoint in the center of the lower horizontal wire and one of the lower corners respectively. The corner fed loop definitely has the advantage for radiation angles below 20°.

A summary of the gain at 10° elevation for the antennas analyzed in this article and those from the November 1994 article are presented in Figure 6. The pros and cons of the top three performers are shown in Figure 7. Since QRN is a problem in summer* the horizontally polarized W8JK would be my first choice, followed by the loop and then the vertical array. Since both the W8JK and the loop require two 60' supports the W8JK wins.

Let me know if you have any other ideas for improved 80 meter performance in 1995. Some of you have been hams a long time and have worked many Field Days. What is your experience on 80 meters, should we be worrying about 10° elevation gain for the W1, W2 and W3 call areas or are these too hard to work due to QRN? I'd appreciate your comments.

*Most QRN is vertically polarized. This includes man made noise and lightning storms. Using a horizontal antenna usually reduces QRN by one or two S-units on the 80 meter band. An alternative is to use a separate receive only antenna like a small loop which can be very effective by nulling the noise source.

BBM Inv-Vee Beam

0 dB

ELNEC 3.02

10-17-1994 20:06:37
Freq = 3.55 MHz

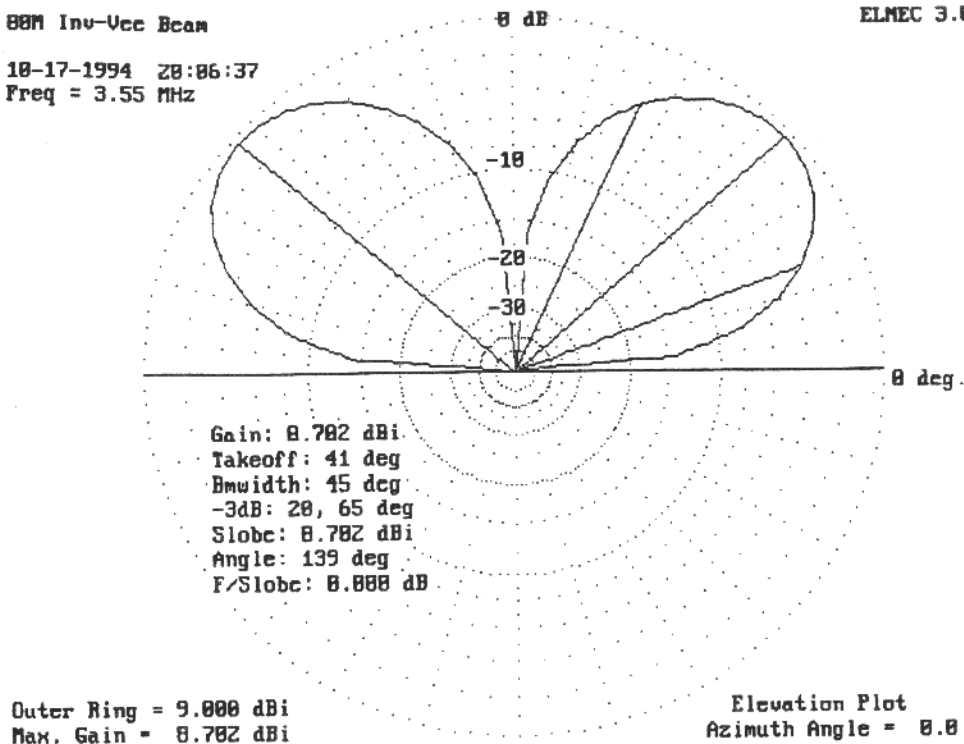


Figure 1. Elevation pattern for a two element Inverted vee array with 180° phasing and $\lambda/8$ spacing

BBM Inv-Vee Beam

0 dB

ELNEC 3.02

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Freq = 3.55 MHz

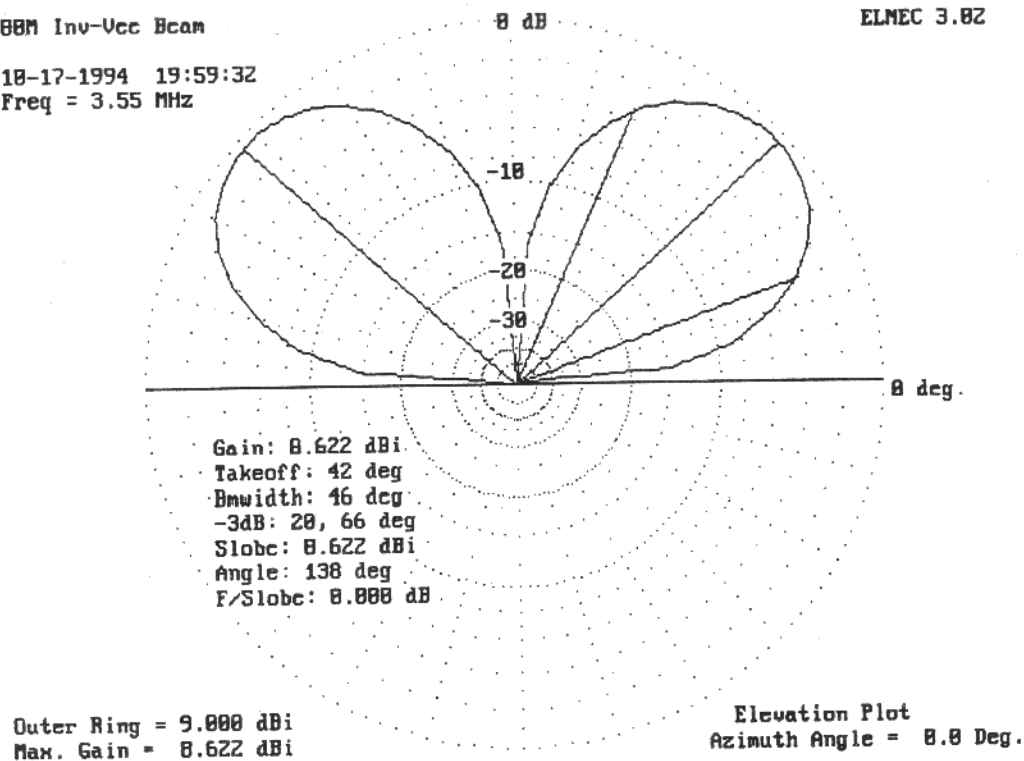


Figure 2. Elevation pattern for a two element Inverted vee array with 180° phasing and $\lambda/4$ spacing

18-17-1994 20:03:21
 Freq = 3.55 MHz

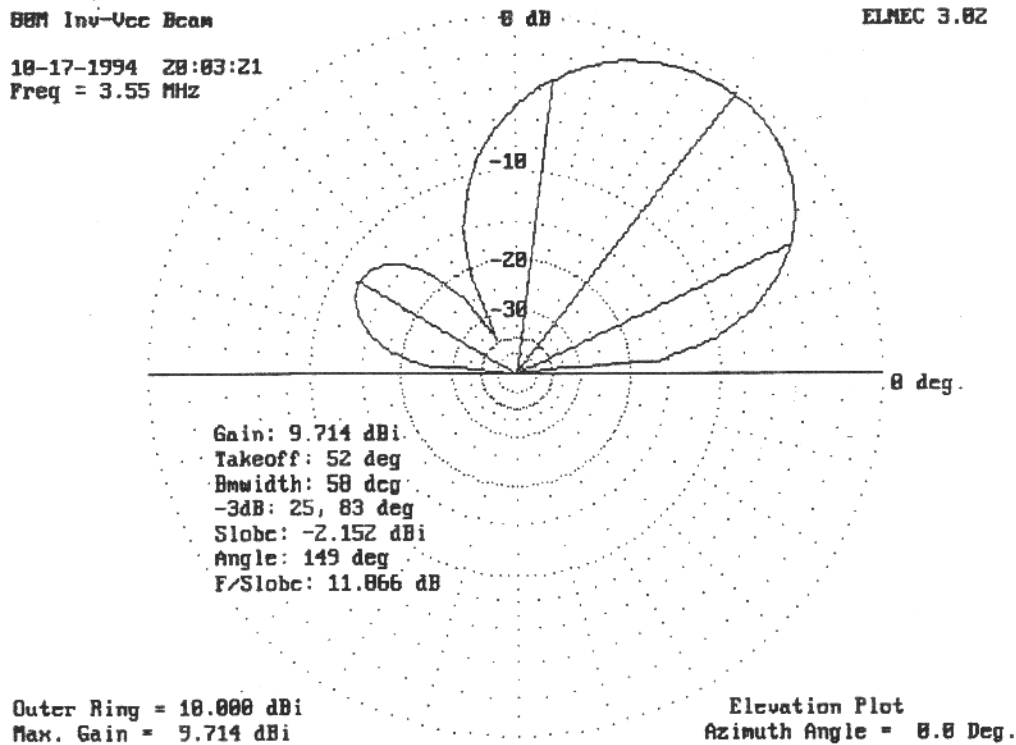


Figure 3. Elevation pattern for a two element Inverted vee array with 135° phasing and $\lambda/4$ spacing

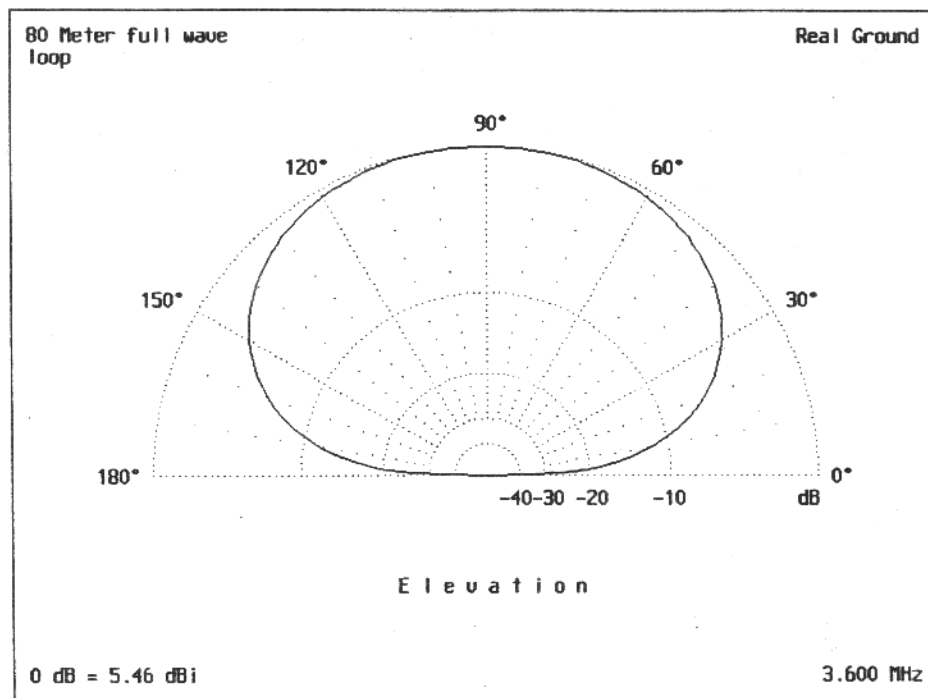


Figure 4. Elevation pattern for a vertical full wave loop. Feedpoint at the center of the lower horizontal wire.

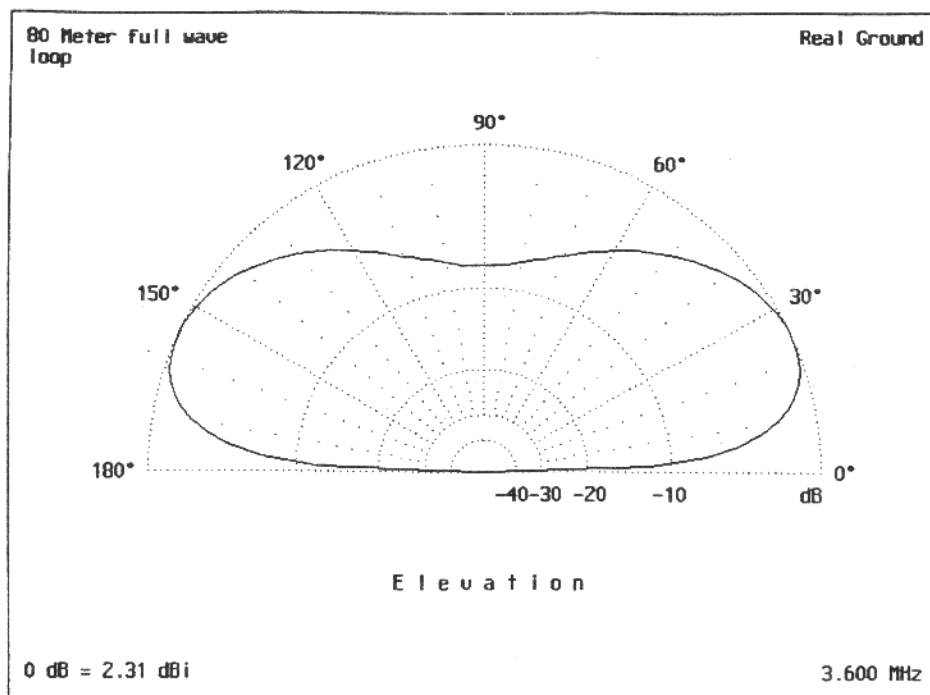


Figure 5. Elevation pattern for a vertical full wave loop. Feedpoint at either lower corner.

<u>Antenna</u>	<u>Gain at 10° Elevation</u>
Inverted Vee, Driven array	
180° phasing, $\lambda/4$ spacing	0 dBi
135° phasing, $\lambda/4$ spacing	-0.5 dBi
180° phasing, $\lambda/8$ spacing (W8JK)	0.7 dBi
Vertical Full Way Loop (up 60')	
Horizontal Center Fed	-6
Corner Fed	0.3
Inverted Vee @ 50'	-7
2 element elevated Vert Array	1 dBi

Figure 6. 80M Field Day Antenna Performance Comparison

<u>Design</u>	<u>Pros</u>	<u>Cons</u>
W8JK Inverted Vee array	<ul style="list-style-type: none"> • High Angle Null helps reduce local QRM • Horizontal Polarization has lower QRN • Remove Feed from one element and an inverted vee remains for local contacts 	<ul style="list-style-type: none"> • Requires two 60' supports
Corner fed loop	<ul style="list-style-type: none"> • Lower QRN than a vertical • Moving feedpoint to center provides high angle very low noise antenna for local contacts 	<ul style="list-style-type: none"> • Requires two 60' supports
2 element vertical array	<ul style="list-style-type: none"> • High angle null helps reduce local QRM • No towers required 	<ul style="list-style-type: none"> • Vertical Polarization has higher QRN • Separate high angle antenna required for local contacts

Figure 7. Comparison of 80 meter antennas with the best performance at 10° elevation

For Sale:

Ten Tec Argonaut II QRP Transceiver, 5 watts out on all bands 160-10 meters, general coverage receiver. \$900/obo. Excellent condition.

Call Bill Shanney, KJ6GR (310) 542-9899 evenings after 6 p.m.

For Sale Craig Talbott Wk: (310) 812-7522 Hm: (714) 897-8370

Yaesu G400RC ant. rotor; never used, in box; \$225 / \$125
(Rot torq: 521 in-lbs, Static braking torq: 1740 in-lbs)

Bencher BY-2 (chrome) Iambic paddle, like new, in box \$90 / \$50

FOR SALE:

Wilson ST-77B 77' tubular telescoping self supporting tower complete with heavy duty base T2X rotator. \$2000 complete package.

KLM KT-34XA 6-element tri-band YAGI antenna complete on the ground. Very good condition. \$200

Call Bill Wysock, N6UXW (818) 359-1373 any time after 5:00 p.m. or (310) 336-6340 before 2:00 p.m. weekdays.