



CROSSTALK



A Publication of the TRW Amateur Radio Club

NOVEMBER 1994 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

Nov 1: Executive Board Meeting, E2/1200, 5:30 PM

Nov 5-7: ARRL CW Sweepstakes

Nov 8: Emergency Communications Team Meeting, R3/1413, Noon

Nov 18: Technical Chairman's Meeting, Bldg S Shack, Noon

Nov 19: **TRW ARC BANQUET** at Charlie Brown's, Redondo Beach, 6 PM

Nov 19-21: ARRL SSB Sweepstakes

Nov 26-27: CQ WW DX Contest, CW

Nov 26: 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.

ELECTIONS: It's getting close to the end of the year and that means the election of club officers. If you would like to run for office please contact one of the current officers. As far as I know all offices are up for grabs and the present group would welcome some competition (and relief!). There is one board meeting a month where the club's business is transacted so the extra work is minimal but the satisfaction is great.

HAPPY THANKSGIVING

W6TRW SEPTEMBER 1994 ARRL VHF QSO PARTY SCORE

GRID SQUARE: DM03

MODE: SSB/FM

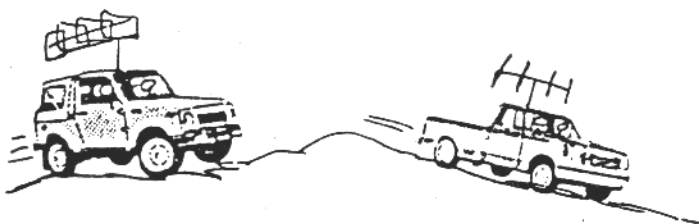
CLASS: Multioperator

BAND	QSO	QSO PTS	GRIDS
50	33	33	9
144	68	68	11
220	24	48	5
432	39	78	5
903	0	0	0
1.2	6	18	3
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Totals	170	245	33 => 8,085

OPERATORS:

KB6TVJ	MIKE ZINGERY
KD6IGI	RAY ENRIQUEZ
KD6WYQ	BOB BRIGGS
KE6BJD	STEVE McCLENDON
KE6JFT	STEVE QUINTUS
WA6MPF	DAVID LEE

TRW SWAP MEET "TRANSMITTER HUNT"



- o BEGINNER HUNT
- o WITHIN 1 MILE OF SWAP MEET
- o USE YOUR HANDHELD, MOBLLE, ETC...
- o HUNT LASTS ABOUT 1 HOUR

PRIZE FOR FIRST TO FIND



CHECK IN AT THE TRW EMERGENCY COMMUNICATION VAN
OR INQUIRE ON THE TRW 2 MTR. REPEATER (145.320MHZ)

T-HUNT STARTS
AT 12:00 NOON
ON 144.720 MHZ
(INPUT TO TRW REPEATER)

Newcomers Guide to Mastering Morse Code

by Bill Shanney, KJ6GR

There are many reasons for learning Morse code, the most important being access to the popular HF bands. Ask any novice or tech-plus operator about the fun of operating 10 meters near the peak of the solar cycle. It is also true that Morse code transmissions can provide communication when other modes fail since it has narrow bandwidth and the brain is a great filter. I personally find Morse code very relaxing, it has a musical quality and takes my mind off daily problems. Most people who give Morse code a good try enjoy it and derive pleasure from it like any learned skill. The only thing I suggest is giving it a try.

There are many techniques for learning the code. I'll review the ones I'm familiar with and introduce some common pitfalls. The first suggestion I have is "DO NOT MEMORIZE MORSE CODE FROM A PAPER COPY." If you do memorize it, you will be trying to visualize each letter sent instead of simply recognizing the sound of each character. Morse code is a listening skill not a visual one. I also suggest that you put your pencil away until you can easily recognize all of the required Morse characters. Trying to learn the characters and write at the same time complicates the process. The Farnsworth method of sending the characters faster than normal at low code speeds is preferred for learning. This teaches you to recognize the characters at higher speed and provides more think time between them. Most VE sessions use Farnsworth sent code and I've observed that those who do not learn this way have more trouble on their tests. Increasing your code speed is also easier when you learn this way.

There are many excellent tapes and computer programs available for learning Morse code. The only caution I have is make sure the Farnsworth method is used, one major brand of tapes does not, so ask or listen before you buy. Most computer programs are public domain (i.e.: free) and allow you to select character and word speed independently. If you are having difficulty with one teaching style try another. There is no substitute for practice, set aside 20-30 minutes each day to practice. Don't practice when tired, preoccupied or upset. Get some rest and/or exercise and come back when you feel refreshed. It is important to feel positive about learning a new skill. It is usually better to over-do the number of practice sessions when learning the characters.

You do need to pick up the pencil after a while and write down what you are hearing since one objective is to pass the Morse code examination. Once you feel comfortable doing this it is not necessary to write at all your practice sessions. Your code speed will increase faster if you learn to recognize words, again by their sound or rhythm not as written. Simply listening to tapes or on the air code practice transmissions like W1AW and forming words in your head is very beneficial. High speed CW operators recognize words and abbreviations and don't concentrate on each letter.

Now I've talked about learning to receive but what about sending. Learn to send after you are comfortable receiving. It is important that you know what well formed characters sound like before you try to send them. Now some old timers will tell you that a hand key is the way to get started but I don't agree.

Using a hand key (or a bug for that matter) was a necessity in the "good old days" but technology has provided us with more modern tools. I prefer an electronic keyer. These circuits create strings of perfectly formed dots and dashes when activated by pressing a key or paddle to the right or left. A little practice will have you sending good Morse without effort. An easier route is to use a keyboard, simply type in the text and let it do all the work. You can use your PC and a multi-mode TNC or a dedicated Morse keyboard for this purpose. Remember though that in an emergency a keyer can run off a small battery but your keyboard can not.

Once you have mastered the code and upgraded, you should at least give CW on HF a try before your new found skill atrophies. It's not necessary to invest a lot of money to get on HF. A QRP rig kit can be purchased for as little as \$20. Good, used HF rigs are available for \$300-\$500. Ask around and you may be able to borrow a rig for a while, many hams have backup rigs. You can also use the club shack or operate at a friends shack. There are no good excuses for not trying. I'll be happy to help any newcomer get through that first CW QSO.

I know many of you enjoy contesting. One way to increase your code speed is to operate in a CW contest. The ARRL sponsored Novice Roundup is an excellent start since most operators will be sending slowly. The ARRL sweepstakes is another popular contest with activity in the novice bands. If you don't have novice HF CW privileges try to find a ham who does and guest operate at his or her QTH. Remember they must be present as the control operator.

Don't be intimidated by very high speed operators, look for slower operators to call or simply call CQ yourself. Contesters want points and will slow down to work you especially later in the contest when QSO counts dwindle. Many experienced contesters feel that lower speeds are better, since very high speeds discourage many responses. After the first few contacts you will begin to feel more confident and relaxed (well, maybe). The excitement of the contest may help overcome your fear of higher speed CW. Keep in mind your goal is to increase your code speed not win the contest. Many operators claim they passed their 13 WPM code test as a direct result of contesting.

Your code proficiency and speed will increase in direct proportion to the amount of time you spend on the air. There are slow speed nets to help newcomers. I have found CW operators to be more patient and helpful than phone operators. A very encouraging sign to me is the number of recently licensed hams who are active on CW. They are enjoying this aspect of amateur radio, why not give it a try.

For Sale:

- Ten Tec Argonaut II QRP Transceiver, 5 watts out on all bands 160-10 meters, general coverage receiver. \$1000 . Excellent condition.
- Kent Iambic Paddle Key. Excellent Cond. \$50.

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

80 Meter Antenna Selection for Field Day

by Bill Shanney, KJ6GR

The declining solar flux results in lower QSO totals on the higher frequency bands since openings are shorter and less frequent. Successful Field Day teams put extra emphasis on the low bands to achieve higher scores. The improvement in the 40 meter SSB score for W6TRW this year is an example of the use of this strategy. We purchased a 40 meter 2 element Yagi and it sure helped our score.

1995 high band propagation may be worse than this year so increased emphasis should be put on 80 meters. Using IONSOUND 4.0¹, I performed a study of propagation to the nine other call districts in the U.S. on 80 meters using a Solar Flux of 75. IONSOUND calculates the possible ionospheric hops, the required antenna elevation angles and the signal-to-noise ratio on the path. Figure 1 shows the UTC times when the signal-to-noise was greater than 0 dB and the elevation angles of the ionospheric skip modes that show high probability of propagation.

Call Area	Time (UTC)	Elevation Angle
W1	0400 - 0900	10°
W2	0400 - 0900	11°
W3	0400 - 0900	12°
W4	0300 - 1000	3 or 16°
W5	0300 - 1200	11 or 27°
W6	-	90°
W7	0200 - 1400	28 or 48°
W8	0300 - 1100	15 or 24°
W9	0300 - 1000	18°
W0	0300 - 1000	10 or 25°

Figure 1. IONSOUND 80 meter propagation predictions
for the month of June with a solar flux of 75 (from
Torrance, CA)

Our local call areas, W5, W6, W7 and W0, can be easily worked with a low inverted vee. The apex needs to be up 45 to 50 feet to minimize ground losses. This simple antenna has a broadside radiation pattern that peaks straight up and is 1 S-unit down at about 25° elevation (Figure 2a). It even has useful high angle radiation off the ends (Figure 2b).

The W4, W8 and W9 call areas require antennas with good performance in the 15 to 18° range. A vertical over average ground has a broad gain peak at 25° (10° - 35°), making it a good choice. A single vertical has low gain (near 0dBi) but an array of two or three has 3 to 5 dB gain. The patterns shown in Figure 3 for a two element vertical array also exhibit useful rejection of signals and noise from unwanted directions which will help us in receiving.

¹ - IONSOUND, Version 4 by Jacob Handwerker, W1FM, 17 Pine Knoll Road, Lexington, MA 02173.
The same data is available using CAPMAN, Lucas Radio, 2900 Valmont Rd. Suite H, Boulder, CO 80301

A close look at the pattern for the array shows less than 3 dB gain reduction at a 10° elevation angle. This meets the requirements for propagation to the northeastern call areas, W1, W2, and W3. A ground mounted vertical requires an extensive radial system to minimize ground losses. This can also be accomplished using elevated verticals with four radials. Mounting the verticals and radials up 8 feet will keep the wires high enough to prevent accidental contact.

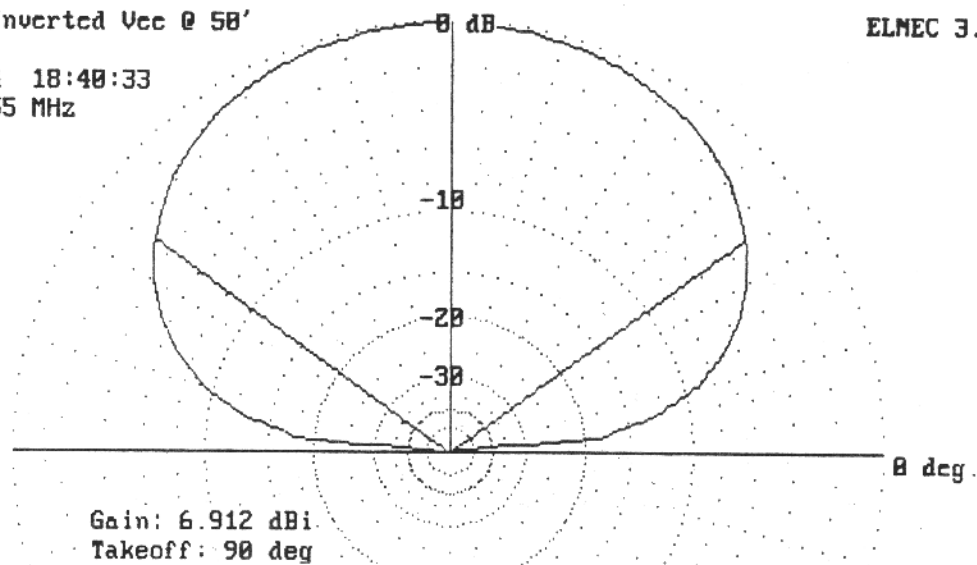
The combination of a low inverted vee and a simple vertical array have been shown to meet our Field Day needs for 80 meters. The mechanics of installation are straightforward. This is my suggestion for 1995 FD, if any of you have one send it to me and I'll be happy to analyze it and publish the results if they are good. Next month I'll show you the results of an idea from Bob Hume, KG6B that I modified slightly.

88 Meter Inverted Vee @ 50'

ELNEC 3.82

09-27-1994 18:40:33

Freq = 3.55 MHz



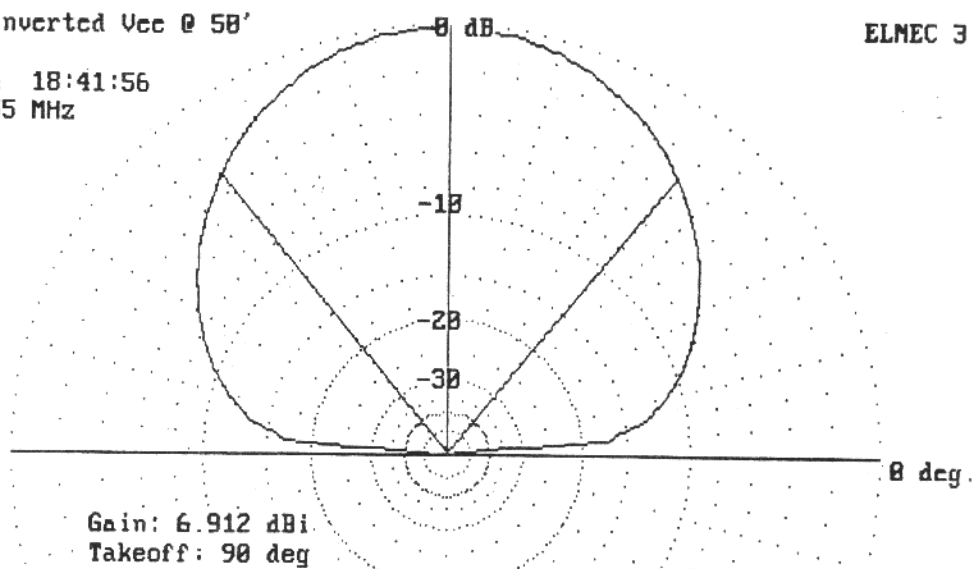
a) Broadside Elevation Pattern

88 Meter Inverted Vee @ 50'

ELNEC 3.82

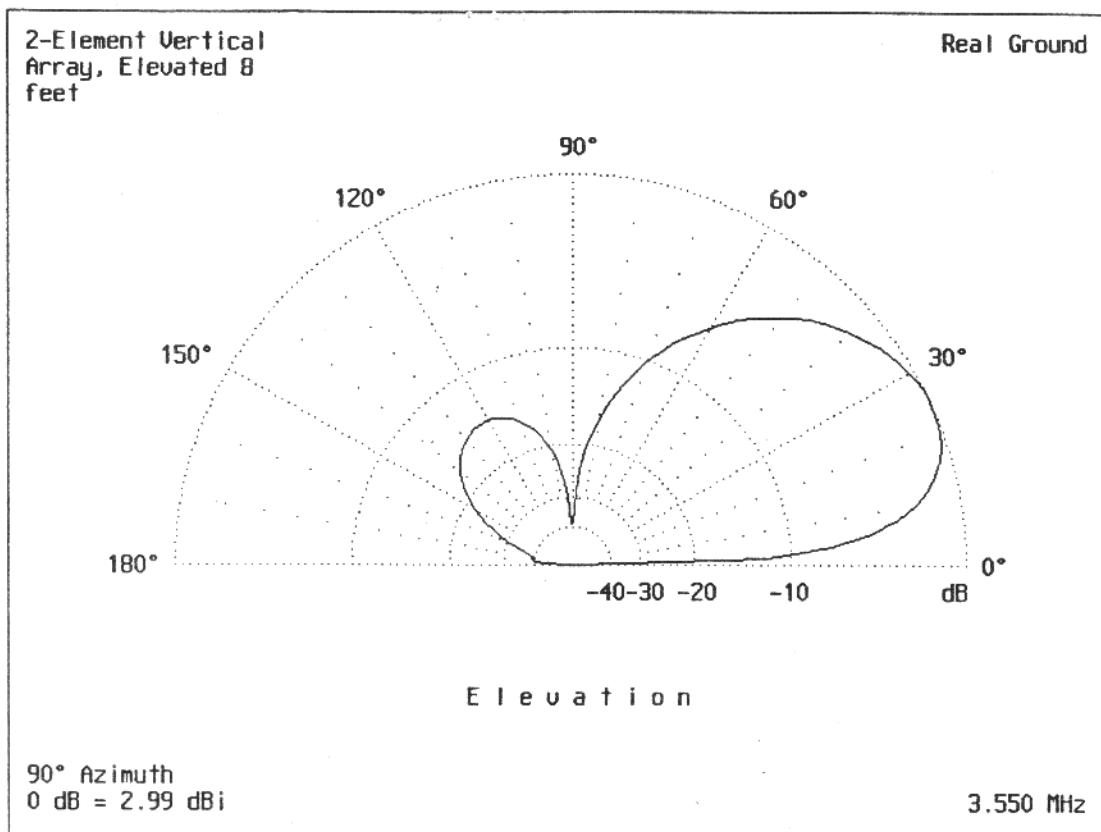
09-27-1994 18:41:56

Freq = 3.55 MHz

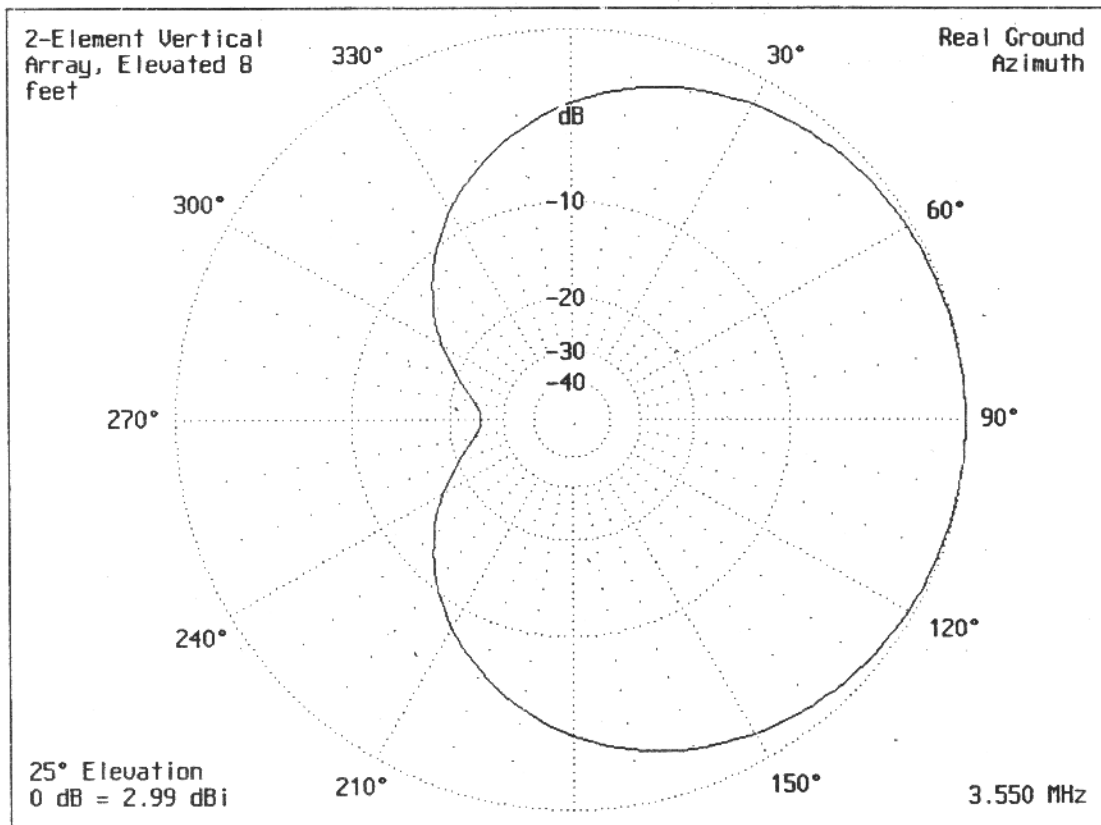


b) End-Fire Elevation Pattern

Figure 2 - 80 Meter Inverted Vee at 50 feet (ends up 20 feet)



a) Elevation Pattern. Gain is in the direction of the phase lagging element.



b) Azimuth Pattern at peak gain of 25°

Figure 3 - 80 Meter 2 Element Vertical Array with Quarter wave spacing, fed 90° out of phase and elevated 8 feet.