

# 3/4 Inverted "U" for 160m

*Be heard on the Gentlemen's Band.*

by Alan Hoffmaster WA3EKL

**T**welve years ago, when I decided to start some serious contesting, I immediately realized that I needed a good 160 meter antenna. That presented a problem, since my backyard was 63 feet wide and 140 feet deep.

About 60 feet from the house, my one lonely 65-foot guyed tower stood. Hanging from one end was a 20-foot pressure treated 2 x 4 with a 75 meter inverted vee; hanging off the other end was a 40 meter inverted vee. A 3-element, 75 meter sloper array hung from the top. A tribander and monoband antennas were living at the top, as well as down the sides, of my tower.

## Experimenting with Shunt Feed

After reading a considerable amount on 160 meter antennas, I first decided to shunt-feed the tower. The shunt consisted of a #10 copper wire that ran parallel to the tower and stood off from it by four feet. The top of the wire attached to an aluminum pipe, grounded to the tower at fifty feet up. I fed the bottom end of the wire with 50Ω coax through a 250 pF capacitor. I attached the shield of the coax to six radials strung out in the yard. With this system, I could cover about 50 kHz without going over 2:1 SWR. The antenna got out, but that's all I can give it.

According to the material I read, mounting a tribander or monobander at the top of the tower would make the tower "look" longer, and make it easier to load on 160 meters. My experience, however, didn't bear this out at all. In the course of some years, I had seven different configurations at the top of my tower, ranging from two stacked beams, to nothing but the mast pole jutting up seven feet

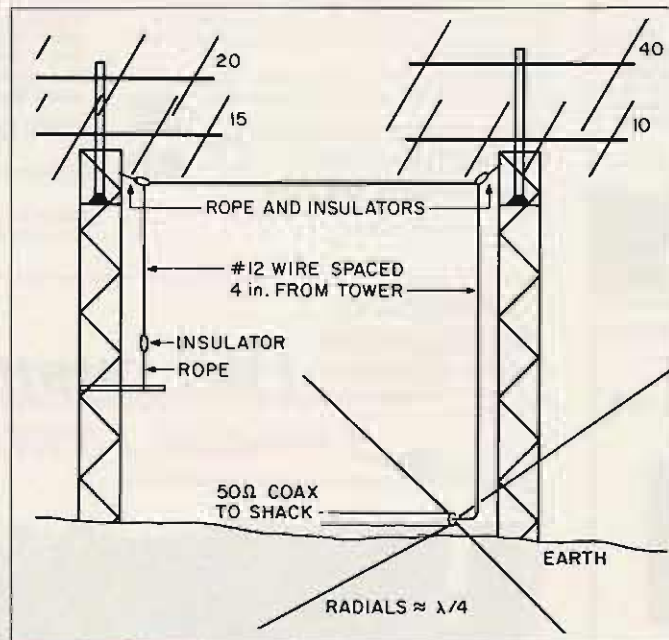


Diagram of WA3EKL's 160m inverted "U" antenna.

from the top plate. None of these combinations ever affected the 160 meter shunt feed system!

## Simpler Way to 160

About five years ago, I installed another tower 55 feet away from my original tower.

**"I can tune from  
1.8 MHz to 1.9 MHz  
without going over  
1.8:1 SWR."**

See the figure. I cut a  $\frac{1}{4}$ -wavelength of #12 copper wire for 160 meters and connected one end directly to the center conductor of a

piece of coax that went to the transmitter. The coax shield attached to the same ground radial system I used for the shunt system.


I strung the wire 65 feet up the side of the original tower to the top, four inches from the tower, then across the sky, parallel with the ground, to the other tower and down the side of this tower, also standing it off by four inches. I insulated the wire from both towers using rope and pieces of wood.

The first SWR check indicated resonance out of the top of the band, so I added about twenty feet of wire to the free end. The SWR was now 1:1 at 1.850 MHz. I can tune from 1.8 MHz to 1.9 MHz without going over 1.8:1 SWR.

I had found a solution: the inverted U, a modification of the old inverted L.

## Good DXing

The antenna works extremely well. During DX contests I can work anything I can hear. In fact, it is a bit of an alligator. The DXers hear me better than I hear them.

If you are going to try this antenna, I would suggest that you raise the first vertical section of wire to the highest support you can find. Then stretch the rest of the wire to the next highest support you can find. If you have any wire left over, let it hang down on a weight, or tie it off with a rope. To tune the antenna, add or subtract wire to this end. Good luck, and I hope I hear you on the top band! 

*Alan Hoffmaster WA3EKL has been a ham for 25 years, and he enjoys creating and testing antenna systems. His address is 929 Andrews Road, Glen Burnie, MD 21061.*