

W3EDP Antenna

By

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W3EDP Antenna Overview

In the 1936 March issue of QST, Yardley Beers, W3AWH, described an antenna designed by his friend, Mr. H. J. Siegel, **W3EDP**. The design was based on the end-fed zep antenna as once trailed from Zeppelin Airships.

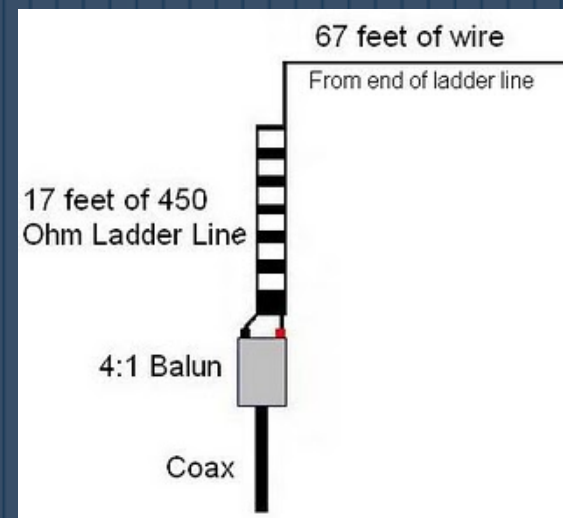
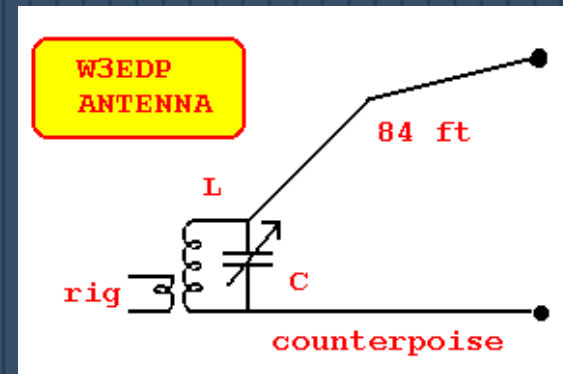
The original design called for a 17 ft. counterpoise , a 67 ft. radiator and a matching unit to couple the antenna to the radio.



W3EDP Antenna Overview

The Frontenac Radio Group located in Ontario Canada uses a modified **W3EDP** Antenna for their field operations.

Instead of using a tuning capacitor and coils for each band as H.J. Siegel, they attach the antenna to a balun and use coax to connect the antenna to the tuner.



W3EDP Antenna Overview

- Simple design
- Inexpensive
- Easy to deploy
- Portable
- It works!



W3EDP Antenna on the Bands

- On 20 Meters it is 1.5 wavelengths
- On 40 Meters it is $5/8$ wavelength
- On 80 Meters it is slightly less than $3/8$ wavelength

I experimented alternating between a 67 ft (original design) and an 85 ft long wire radiator. Both wires tuned 10 – 80 meters. The 85 ft wire tuned 10 - 160 meters. Performance may vary with your working conditions.

Overall, the antenna seemed to perform the best on 40 – 10 meters.

W3EDP Antenna QSO's

Band	Location	Distance	RS
40 Meters	BMT/Colmesneil	70 Miles	59
75 Meters	BMT/Colmesneil	70 Miles	59
15 Meters	El Salvador	1,250 Miles	59
20 Meters	California	1,405 Miles	59
20 Meters	Venezuela	2,165 Miles	57
20 Meters	Arizona	1,097 Miles	59
160 Meters	Brenham Texas	155 Miles	59
15 Meters	California	1,600 Miles	59
40 Meters	Kansas	600 Miles	59
40 Meters	Tennessee	839 Miles	59

W3EDP Antenna Design/Materials

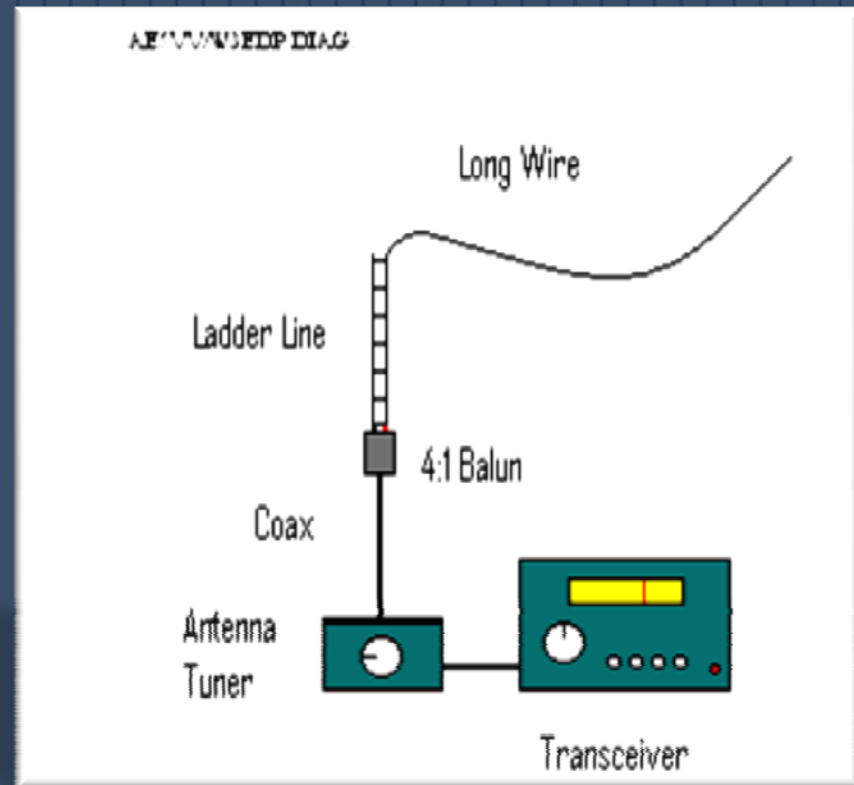
Materials:

17 ft of 450 ohm ladder line at \$0.28 per ft – \$4.76

68 ft of 16 or 18 gauge wire at approximately \$0.08 per ft. - \$5.44

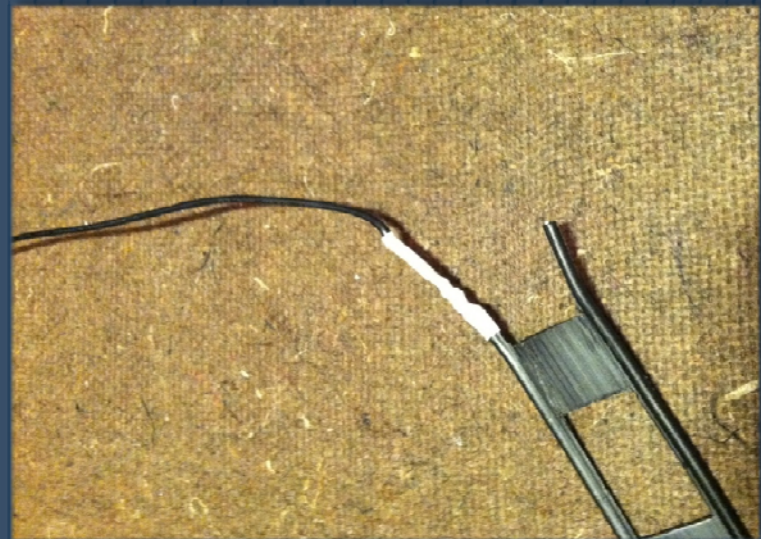
Misc. (junk box supplies)
small piece of heat shrink tubing and an 8 inch piece of ½ inch CPVC pipe

Total - \$10.20



W3EDP Antenna Assembly

- 1.** Cut a piece of 450 ohm ladder line 17 ft long.
- 2.** Cut a piece of 16 or 18 gauge wire 67 ft, 4 inches long.
- 3.** Strip $\frac{1}{2}$ inch of insulation from both ends of the ladder line and one end of the 16 gauge wire. Slip a piece of heat shrink tubing onto the 16 gauge wire. Solder the wire to one leg of the ladder line. Slide heat shrink tubing over solder connection and heat to shrink.



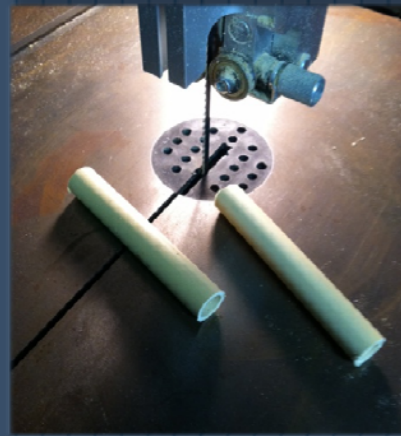
W3EDP Antenna Assembly

4. Cut the CPVC pipe into 2 pieces each 4 inches long.

5. Take one of the 4 inch pieces of CPVC pipe and drill a $\frac{3}{16}$ inch hole through the pipe $\frac{1}{2}$ inch from one end.

6. Cut a slit in the pipe centered between the hole you drilled approximately $2\frac{3}{4}$ inches long. Set the pipe aside.

7. Take the other 4 inch piece of CPVC pipe and drill a $\frac{3}{16}$ inch hole through the pipe $\frac{1}{2}$ inch from each end.



W3EDP Antenna Assembly

8. Insert the CPVC pipe with the slit into the ladder line as shown in the photograph.



9. Take the unfastened end of the 16 gauge wire and insert 4 inches through the holes on one end of the remaining CPVC pipe. Wrap the wire around itself.



W3EDP Antenna Deployment

You will need:

- ❑ 4:1 balun
- ❑ string to secure the antenna
- ❑ coax to connect to your tuner



Attach the feed point of the ladder line with the long wire radiator to the positive side of the balun. Attach the other leg of the ladder line feed point to the negative side of the balun. Connect the balun to your tuner. The length of coax from the balun to the tuner is not critical.

The antenna can be used as a sloper, stretched out like a wire trailing a zeppelin, or as an inverted “L” with the ladder line portion running vertical and the long wire horizontal. It can be used as an NVIS or as elevated as high as you like.

I have used the antenna successfully as an inverted “L” with the ladder line running vertical and the long wire horizontal. I have also used the antenna from a second story window running completely horizontal in a zeppelin fashion.

W3EDP Antenna Reference

For the original W3EDP antenna, see Yardley Beers, W3AWH, "An Unorthodox Antenna," QST, March 1936, pp 32-33. A modern description is in Heys, Practical Wire Antennas (cited above), pp 33-34.



W3EDP Antenna

In closing...

A detailed analysis was not made of this antenna, only general considerations and observations. Your success is contingent upon the antenna installation and your station/working conditions. The radiation pattern and the take off angle depend on how the portions of the antenna are deployed (ratio of the vertical vs. horizontal). Generally, a longer vertical part means lower take off angle with nearly omni-directional pattern and good DX properties. A lower antenna with less vertical and longer horizontal part results in nearly NVIS radiation which is good for local communication.

Thank you, AE5VV is now

QRT