

Antenna Plans

As always this page is under construction. I will be adding more antennas on in the future.

Contents

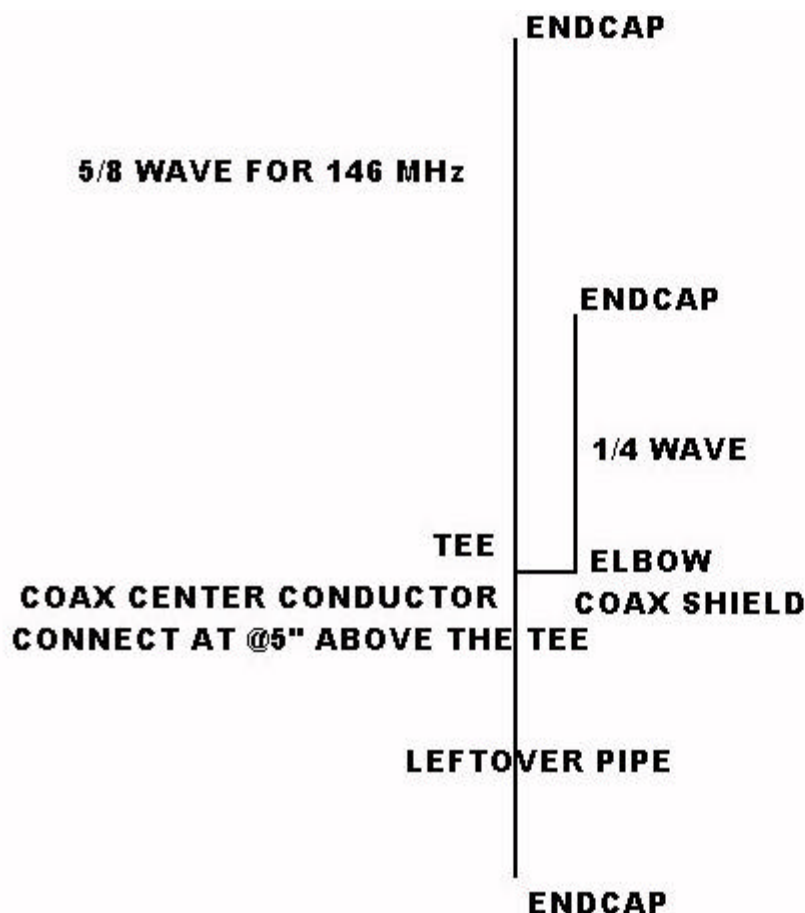
[Copper tube J-pole](#)

[TV Twin-lead J-Pole](#)

A Copper Tube J-pole

by Ed Humphries - N5RCK
edh@hpuerca.atl.hp.com

The following is a description of a J-Pole antenna made from copper pipe. You can use 1/2 inch to 1 inch pipe (wall thickness will affect stiffness/stability AND price, but not performance). Larger diameter pipe increases bandwidth, but 1/2 inch is fine for amateur frequencies. Start with a 10 foot (standard) length of pipe, 1 90 degree (right angle) fitting, 1 "tee" fitting, 2 end-caps, 2 hose clamps (worm-gear adjustable of the appropriate diameter), and your coax (end stripped, braid separated, center conductor stripped, and coax sealant to close opening in coax to keep water out). Use a tube cutter (for best/easiest results) and cut the 10 foot pipe according to the dimensions needed following the diagram below:



For best general purpose use, the 5/8th wave version should be used. The dimensions to cut are: 66 1/2 inches (5/8 + 1/4 matching section), 19 inches (other half of 1/4 matching section), 3/4 inch (joins the tee and the elbow), and the "leftover" 33 3/4 inches that forms the base. Use standard plumbing solder methods to join main section to base using the tee. Use the 3/4 inch piece and the elbow to attach the 19 inch piece. Be careful to keep pieces parallel. This will give you a center frequency of 146 MHz. Attach the coax as shown using the hose clamps. Adjust the SWR at 146 MHz by sliding the connections up or down as needed -- you should be able to reach very close to 1:1 (best to do this in approximately where you intend to use the antenna - the base can be attached directly to a mast by two hose clamps). Try not to be standing right by the antenna!

It has been noted that this design can lead to RF coupling onto the feedline. To avoid this, put a ferrite on the coax at the feedpoint, or use 3 turns (@1") of the coax taped together at the feedpoint.

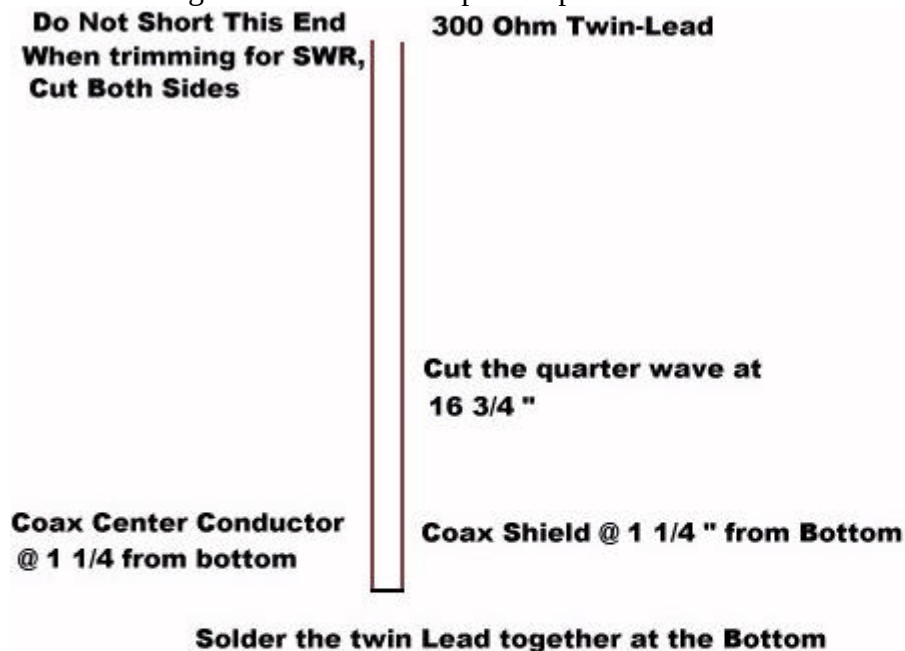
Other center freq. dimensions: (adjust 5/8 section accordingly).
 144 = 19.25 inches, 145 = 19.12, 146 = 19, 147 = 18.86, 148 = 18.73.

[Top of Page](#)

TV Twin-lead J-pole

By Ed Humphries - N5RCK
edh@hpuerca.atl.hp.com

The following is a description of a J-Pole antenna made from 300 ohm TV twin-lead. They have quite a few advantages which include improved performance for 2-meter HTs, portability, and low cost.



1. Start with @54" of TV twin lead (flat, NOT foam core)
2. Strip 1/2" of insulation at bottom and solder wires together.
3. Measure 1 1/4" from soldered wires and strip insulation on both sides. This is the solder point for a coax feedline.
4. Measure 16 3/4" from coax shield solder point and cut out 1/4" notch.
5. Measure 50 1/3" from coax center conductor solder point and trim off twin lead at that point.
6. Feed with a length of RG58U coax. Tape coax at feedpoint to the twin lead for strength and seal coax for weather protection.

It has been noted that this design can lead to rf coupling onto the feedline. To avoid, put ferrite beads on the coax at the feedpoint, or use 3-5 turns of coax (1"-2") taped together at the feedpoint. You may attach an alligator clip to the plastic on the top of the antenna in order to easily hang it. Alternately, punch a hole near the top and use a length of fishing line to hang. This design appears on many BBSs, in club newsletters, and in books; the earliest reference that I know of is a Jan. 1984 D.A.R.C. antenna article by James Burks, KA5QYV.

FYI, the 1/4 wave sections for other center frequencies are:

144 MHz = 17 inches

145 = 16.88

146 = 16.75

147 = 16.65

148 = 16.54

I usually just go ahead and solder the coax in place and trim down to as close to 1:1 vswr as I can get. I use the MFJ vhf antenna analyzer and a frequency counter then afterwards test with a radio and in-line swr/power meter. When done, the antenna should also present 1:1.2-3 vswr in the center of 444MHz band as well (demonstrated on my dual-band meter and Alinco DJ-580). You will need to trim in a 3:1 ratio to maintain the 3/4 to 1/4 wave.

[Top of Page](#)

[Back to N3BUO's Home Page](#)

[Back to N3BUO's Link's Page](#)

Send me a message!

What is your email address (this is so that I may reply):

Enter your message below..

Send the message!

This page accessed 1278 times.

Send mail to [webmaster](#) with questions or comments about this web site.

~ DDGConsultants ~

2306 Grimsley Terrace Mansfield, TX 76063 ~ (817)453-9247

Last modified: 10/9/96 8:36:26 AM

