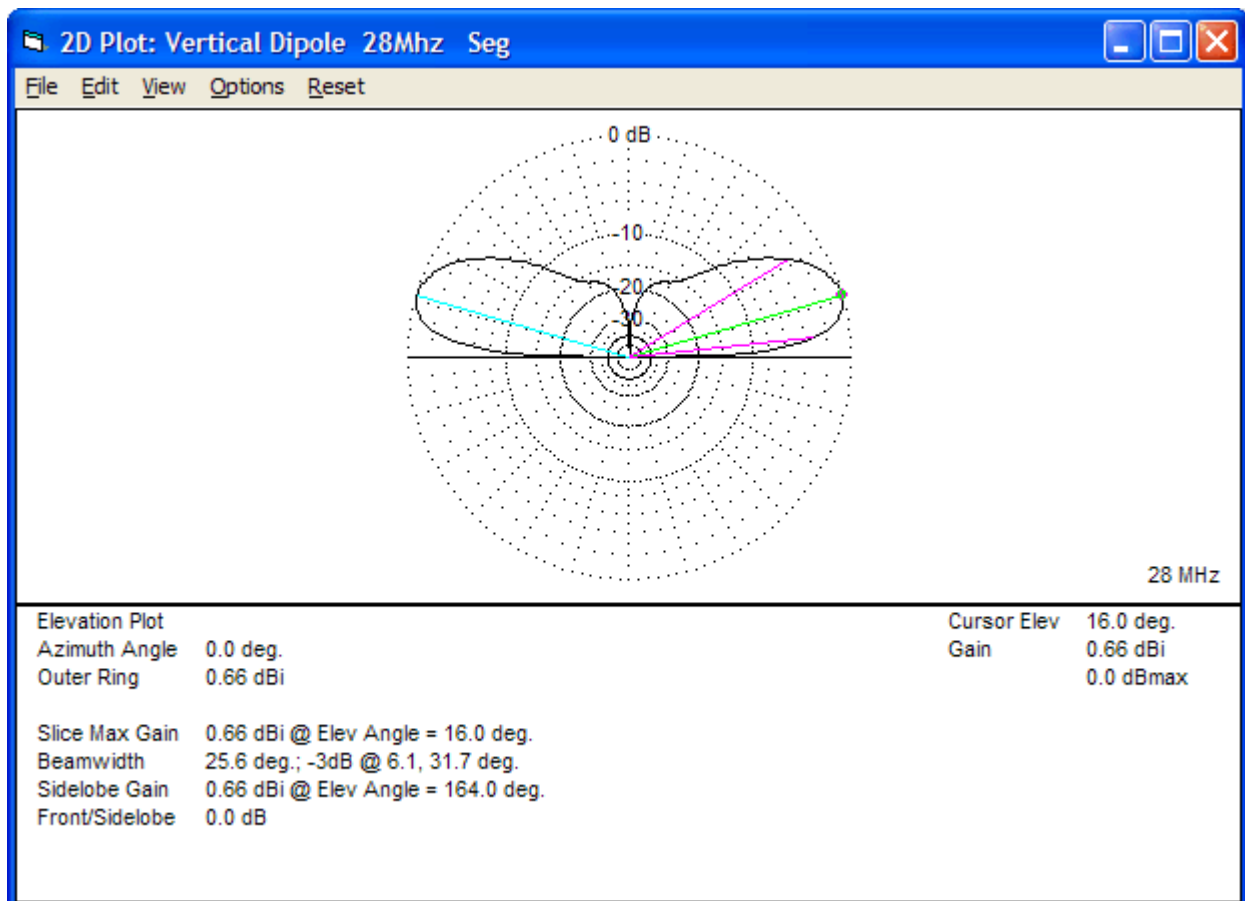


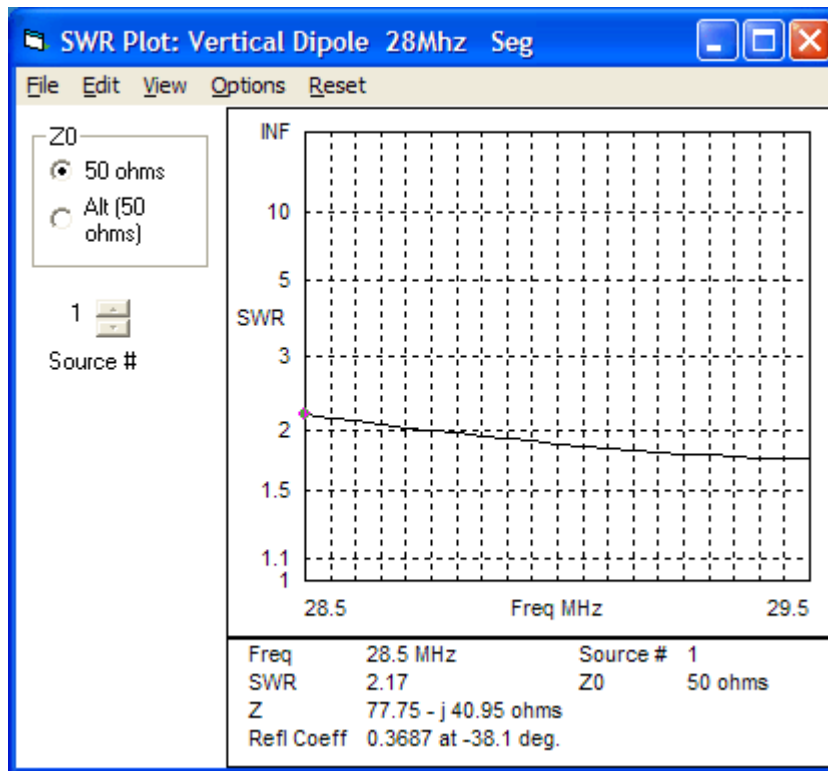
10M Vertical Dipole

WB5CXC

After reading an article by N2UHC on a 10M vertical dipole I decided to build my own. The antenna in the article was made from electrical conduit. I had some problems with the electrical conduit as it was very hard to tune. I have built several of the Copper Cactus 2M antennas and have also been building EH antennas, so I decided to use similar building methods and material for my 10M vertical dipole (copper pipe and PVC pipe). I used 3/4" copper pipe for it's rigidity and the 1/2" copper pipe allows for adjustment.

I began by modeling the antenna using EZNEC. I decided to mount the antenna close to the ground. This gives the antenna a low angle of radiation. You can notice that you have a decrease in the gain but I think the low angle of radiation will make up for the loss in gain.





- 3/4" x 10' Copper Pipe Home Depot/Lowes
- 1/2" x 10' Copper Pipe Home Depot/Lowes
- 1 1/2" PVC Sch. 40 Home Depot/Lowes
- 3/4 x 1/2 Copper Reducer (2) Home Depot/Lowes
- # 6 or #8 - 1/2" Sheet Metal Screws Home Depot/Lowes
- Hose Clamps

Start by cutting the 3/4" copper pipe in two 5' sections. On one of the section mark 1', 2', and 3'. At the marks drill a 3/8" hole through the tubing on one side. All the hole should be lined up. On the other section mark at 6" and 1' and drill 3/8" holes through the tubing on one side. These holes will be used for mounting the copper pipe to the PVC pipe.

The 2 reducers have to be modified. Using a hack saw cut a groove in the 1/2" end down to the 3/4" section. This will give the hose clamp room to compress the reducer and hold the 1/2" pipe. Now on the inside of each reducer you will find a little tit. This is used to stop the pipe at the correct location when using it for plumbing. Using a file remove this tit so the 1/2" pipe can slide down into the 3/4" pipe. Solder the reducer onto the 3/4" pipe. On the section that has two holes, solder the reducer on the opposite end.

Cut the 2 - 3' section of the 1/2" copper pipe. This will be used for the ends of the antenna. Slide the

1/2" pipe into the reducers leaving about 2' exposed and secure using the hose clamps.

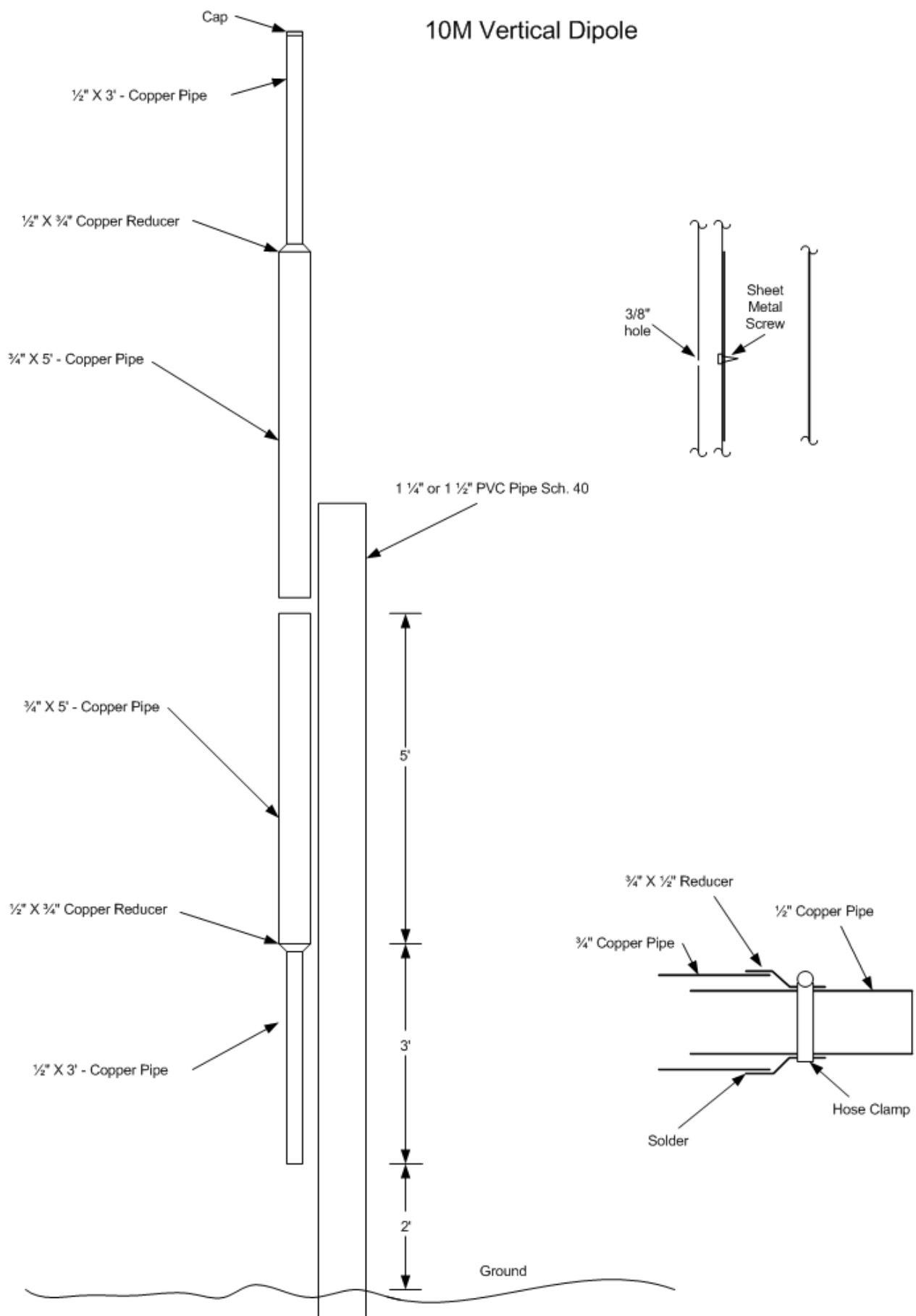
Lay out the PVC pipe and the two sections of the antennas. The spacing between the two sections should be approximately 1". Drill a hole through the other side of the tubing where you have the 3/8" holes. This hole should be sized so the sheet metal screw will rotate freely. Now place the copper pipe and PVC pipe according to the drawing. The PVC should extend approximately 14" above the center of the dipole. Using a 1/8" drill bit drill through the hole in the copper pipe into the PVC. Fasten the copper pipe to the PVC pipe using the sheet metal screws.

Now mount the coax to the antenna. The braid of the coax should be on the section closest to the ground. There are many ways to connect the coax to the antenna (using screws, soldering, etc.).

Mount the antenna using the PVC pipe. Mounting solutions is up to you. The antenna may be tied down with non-conduction rope. This will give it more stability.

After mounting the antenna, connect it to your rig and tune the short pieces (1/2") to obtain the best SWR. As can be seen from the SWR plot the 2:1 bandwidth is over 1 Mhz.

10M Vertical Dipole



10M Vertical Dipole drawing in pdf format

[10Mvert dipole.pdf](#)

6M Vertical Dipole

Make a 6M vertical dipole using the same model except the 3/4" pipe sections are 3' long and the 1/2" pipe section are 3' long with 1 1/2' exposed. Antenna would be ~ 2 1/2' above ground to 11 1/2'. I started with the antenna at 2 feet above ground similar to the 10M antenna but after tuning the 1/2" copper pipe ended up being 1 1/2 feet instead of 2 feet.