

2M - MOXON - 2 Element Beam

Moxon antennas are a two element beams that have the bent elements. They are reduced sized due to the bent elements, they also have similar gain to a 3 element yagi. They have broad beam width, and excellent Front to Back ratio (F/B).

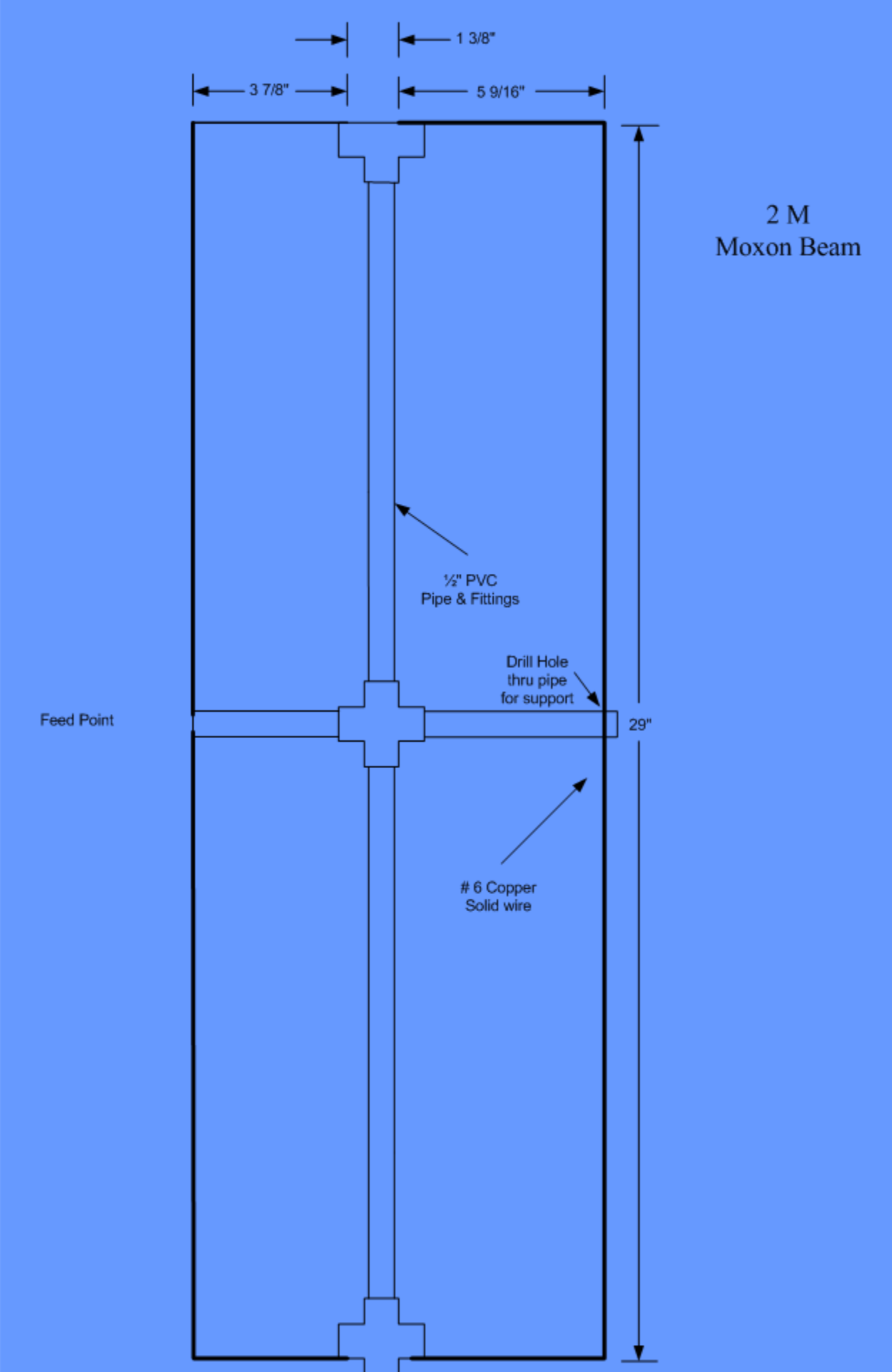
I started with the Moxon Retrangle Generator (shown below). It will calculate the needed diminsions for the antenna. You insert the frequency and size of the element (wire size or tubing size in inches). In this case I'm calculating the antenna for 146 Mhz and I'm using #8 copper wire (#8 copper wire will hold it's shape/diminsions).

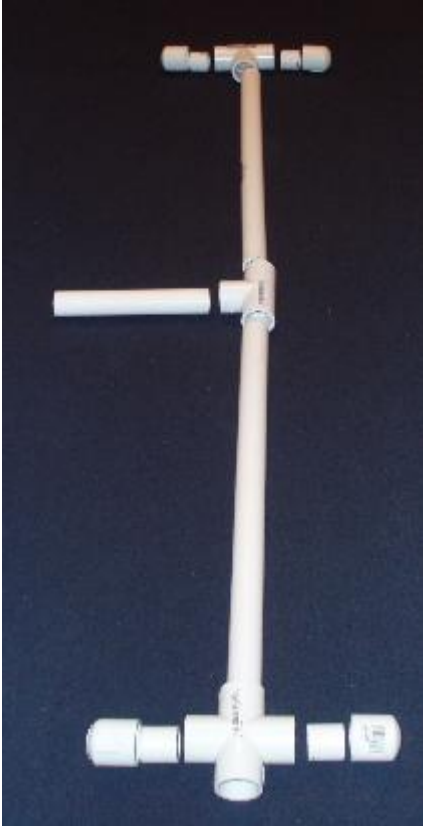
This is a great antenna for emergency use. Our ARES group have built these antenna for two years (we have one meeting a year to build emergency antennas).

We will use the above dimensions for our antenna. We will use 1/2" PVC sch. 40 piping and fittings. The PVC items are readily available from the local hardware store and are very inexpensive.

Down load Moxon RectriangleGenerator here:

	Bill of Material
2	1/2" PVC TEEs
1	1/2" PVC Cross
4	1/2" PVC Caps
5'	1/2" PVC Pipe Sch. 40 (white)
7'	# 8 Solid Copper wire (Bare)
10'	RG-58 Coax
1	PL-259 & UG-175





Cut PVC Parts - 2M Moxon



Detail of End Pieces



Drill a hole in each of the Caps using a # 17 drill ($\sim 1/8"$). Cut two pieces of PVC pipe $\sim 3/4"$ long, these will be used to connect the Caps to the TEE and the Cross. Coat the shot PVC pipe and inside of the Caps with PVC cleaner (purple indications). Apply PVC cement to the inside of the Cap and insert a PVC pipe 1/2 way into the Cap.



Glue the end pieces into the TEE and a Cross.



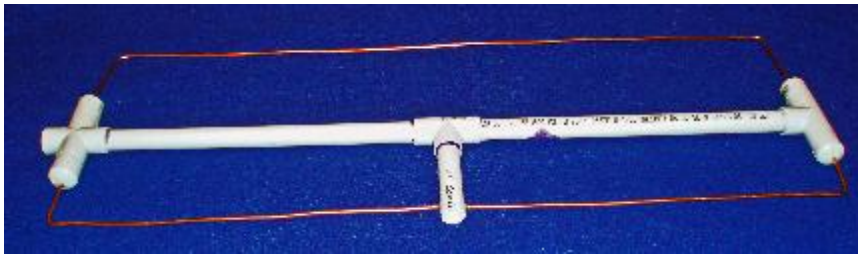
Mark the ends for the center spacing. These marking will be used later to mark the wire so we know how far inside the fitting the wire extends. This is a pretty precise measurement if you want to get the best out of the design.

When both end have been marked assembly one half of the antenna. Measure the 29" long so you should have 14 1/2" from the center to the hole in the end cap. I turned the Tee so I could get a good measurement and marked the pipe. I turned the Tee around correctly and glued the Tee onto the pipe.

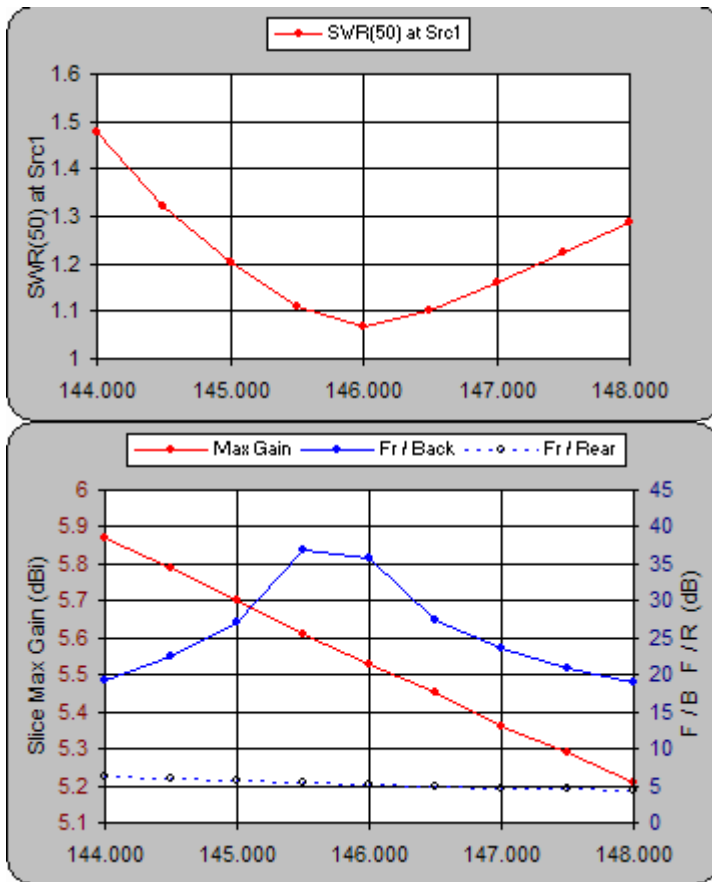


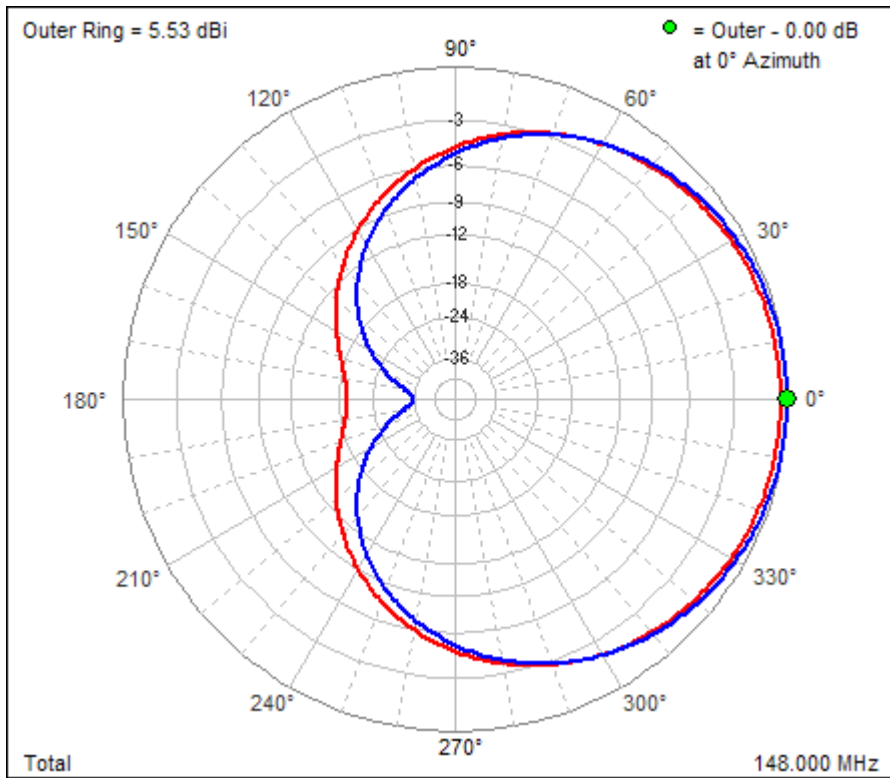
When the PVC frame is completed the wires will be attached. Bend the wires according to the design figures. You will have to mark the wires to indicate how far they will be inserted into the PVC caps.

Insert the wires into the frame and we will glue them in using a hot glue gun or epoxy glue.



Completed 2M Moxon Antenna





Gain - **Red** - Left side scale Front-to-Back Ratio - **Blue** - Right side scale

Antenna Pattern

Blue - 146 Mhz

Red - 148 Mhz