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My requirements for easy field assembly:

1. Two elements
2. Direct feed with 50 Ω coax (KISS)
3. Insulate the elements from boom for ease of modeling, construction, and matching

Note: A side benefit of this antenna is that it fits, fully assembled, in the bed of my pickup. All that is required is to loosen the screw clamps, extend the 5/8" section of the elements and tighten the screw clamps. The beam is ready!

I have (left over from another project) (from Texas Towers):

1. Two 6' lengths of 3/4" aluminum tubing
2. Two 6' lengths of 5/8" aluminum tubing

Note: This antenna would be a lot lighter if smaller diameter tubing was used. I used what I had on hand.

→ Thirty minutes after I called Roy I get an e-mail with the following information. ←

1. Driven element: 3/4" tubing is 72" long, cut in the middle for feed line attachment; 5/8" tubing extends 17.8335" out of each end of the tubing
2. Reflector: 3/4" tubing is 72" long; 5/8" tubing extends 21.1835" out of each end of the tubing
3. The reflector is spaced 3'10" (center to center) behind the driven element.

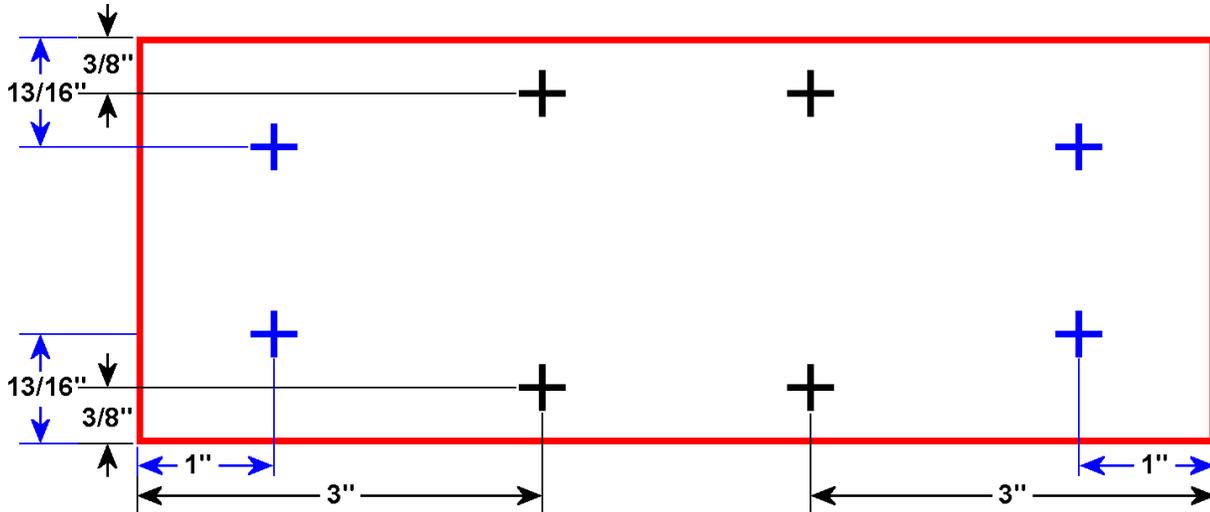
Characteristics (see modeling performance graphs at the end of this article):

1. 50 Ω feed point impedance
2. Gain is 6.6 dbi
3. Front-to-back is 7.5 dbi

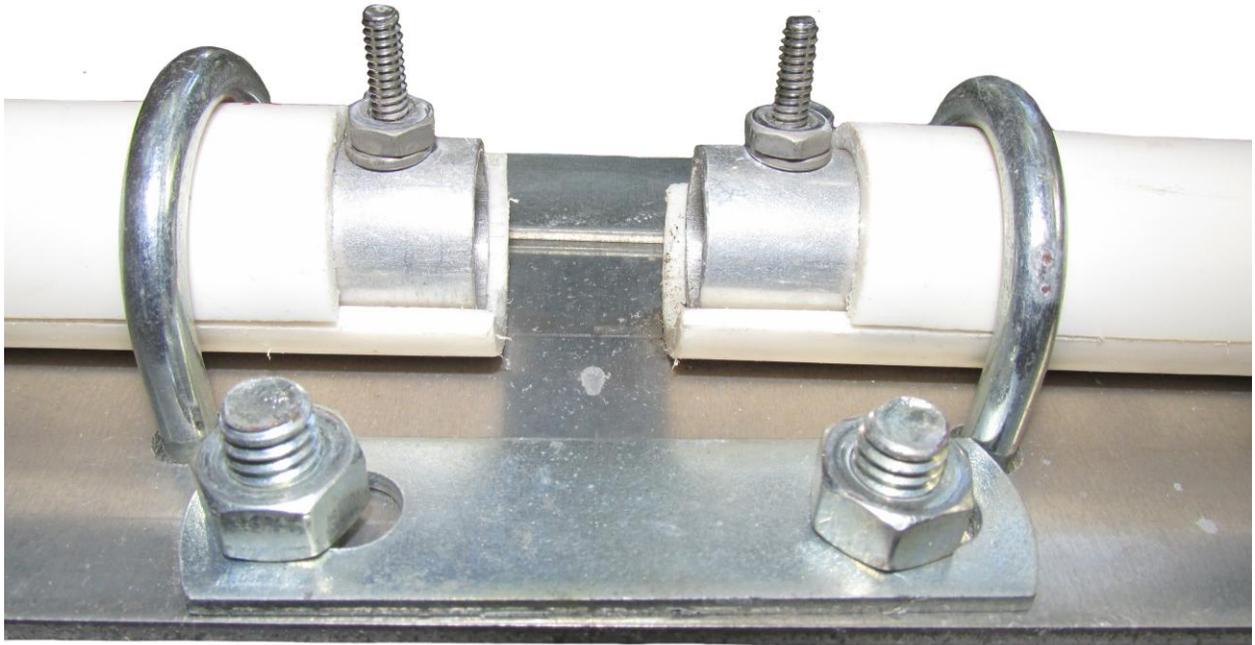
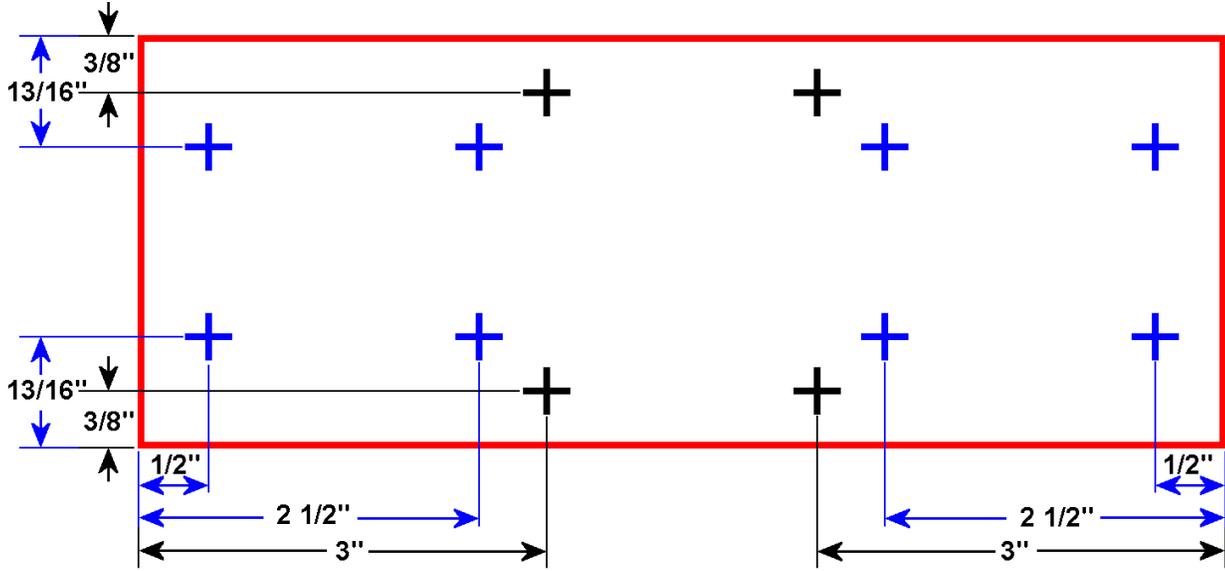
Construction Details:

I am not going to expound on all the minor details of building this antenna but just offer the guidelines I used including a few diagrams and pictures of what I did. Shown below are diagrams and pictures that show the reflector element-to-boom mount and the driven element-to-boom mount. 3/4" i.d. PVC pipe was used to insulate the elements from the boom. The inside diameter was a bit loose and a lengthwise slit was cut into the PVC that would allow the PVC to become tight around the aluminum tubing.

Reflector Details:

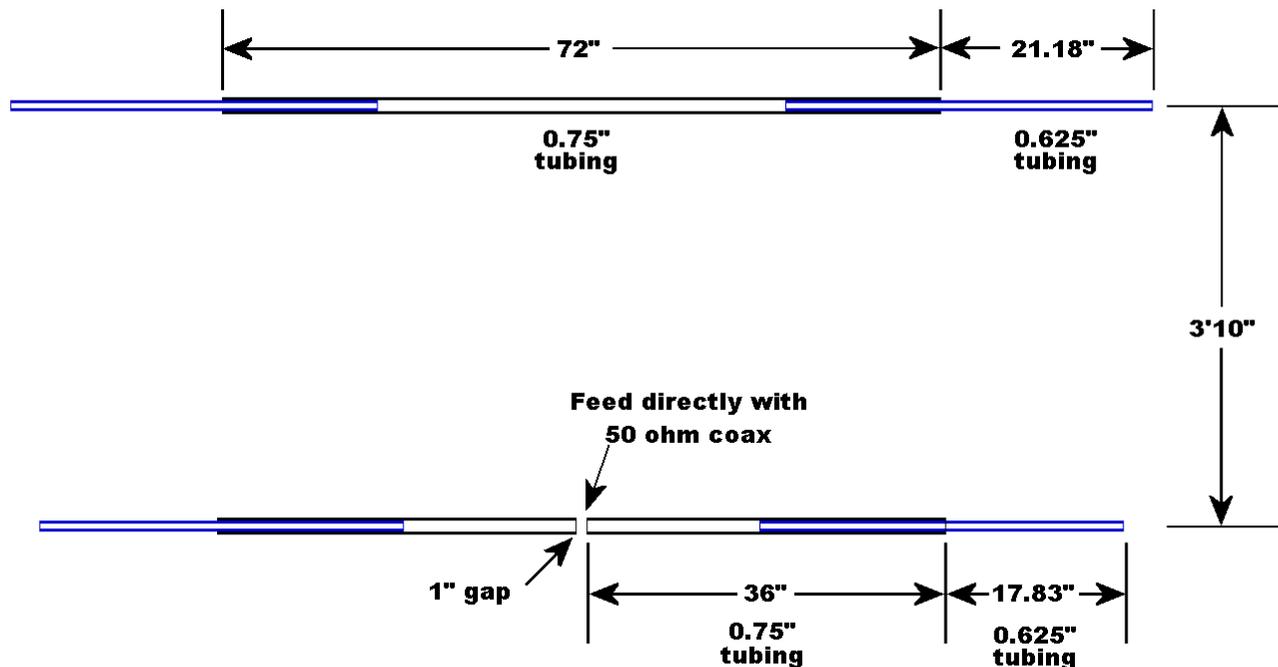


Driven Element Details:



Element Lengths and Element Spacing Details:

One 3/4"X72" aluminum tube is cut into two 36" sections to use for the driven element and the other 3/4"X72" tube is left whole for the reflector element. Both the 5/8"X72" aluminum tubes are cut into 36" lengths. The 3/4" tubes have a 1" slit cut into each end and a compression clamp is used to tighten the ends of the 3/4" tubing on the 5/8" tubing. The 5/8" tubes telescope into the 3/4" tubes as shown below. The reflector dimensions are shown at the top of the diagram and the driven element dimensions are shown at the bottom of the diagram.



Once the antenna was assembled, it was transported to the Alpine, TX field day location, erected, and put on-the-air. The beam is connected to 50Ω through a current balun composed of 6 turns of RG8 around a 4" form. It performed flawlessly and exactly as it should. Lots of 6 meter QSOs were made during field day.

Modeling Graphs from AD5Q:

