

The Quagi Revisited

Ken Kent

KA2LIM

Getting back on the air in 2001 after being off the air for over 8 years , I put up my old 6M and 2M antennas. I was not happy with the performance of the 2M antenna. I knew about the Quagi for many years but had never built or used one. So I took what I had and turned it into a 15 element Quagi.

The performance was so much improved over what I had been using, that I eventually built more Quagi's for other bands and the rest is history.

Since that early start with a quagi, I have built many for others as well as myself and everyone has been happy with "their quagi".

At the K2LIM contest station, we many combinations of antennas on the bottom 4 bands which of course included quagis. We began to notice that in many instances, the Quagi was hearing better than the many different yagi's and in many cases was the only antenna the the contact could be completed on.

In the summer of 2018 I started to build a 15 element Yagi, to install on my tower at home, right under the 15 element Quagi to do an "as close to true" evaluation of a Quagi vs a Yagi, because I just wanted to know what the results would be .

The constructions along with photos are in my presentation for the conference. All components are exactly the same except the reflector and driven element.

So I then decided to build a 5 element Quagi, with most of the components being available at the local hardware store that anyone can build to learn something and have some fun for not much money. Below is the parts list, photos of some components, links to sites for a couple of components not available locally, and the dimensions.

Start building and have some fun.

**Build a Quagi for:
Roving
or
Portable operating
or
Home (limited space)
and/or
(EME)**

Material list for a 5 element Quagi:

Hardware store	
• Boom – 1" x 10' pvc	\$5.00
• #12 <u>solid</u> copper <u>wire@.33/ft</u> 15'	\$4.95
• Vinal tubing (3/8"od x 1/4"id) 1'	\$.35
• Vinal tubing (5/15"od x 3/16"id) 1'	\$.25

Other sources:



Arrow Nock (pack of 10) (Field & Stream)

\$8.63

- Fiberglass rod $\frac{1}{4}$ " x 5' @ \$2.89 x 2 (ZORO) \$5.80
- <https://www.zoro.com/search?q=1%2F4%20fiberglass%20rod&gclid=CjwKCAiAsoviBRAoEiwATm8OYNc8Huo2FIJhTMaWm40FOi1Ech8oe4qyR8XAwet7TqupH9Dw0g9laBoCdSIQAvD BwE&gclidsrc=aw.ds>
- Aluminum rod (6061) $\frac{3}{16}$ " x 6' @ \$5.13 x 5 (MSC) (3) \$15.39
- <https://www.mscdirect.com/browse/tn/?searchterm=3%2F16%22+ALUMINUM+ROD&hdrsrh=true>
- Aluminum plate $\frac{1}{8}$ "x4"x8" ebay \$15.79
- Muffler clamps 2-2", 2- \$2 ea (auto parts store) \$ 4.00
- total for 1 Quagi \$60.16

measure, mark and drill the boom



Dimensions for 5 element Quagi

Boom length - 66"

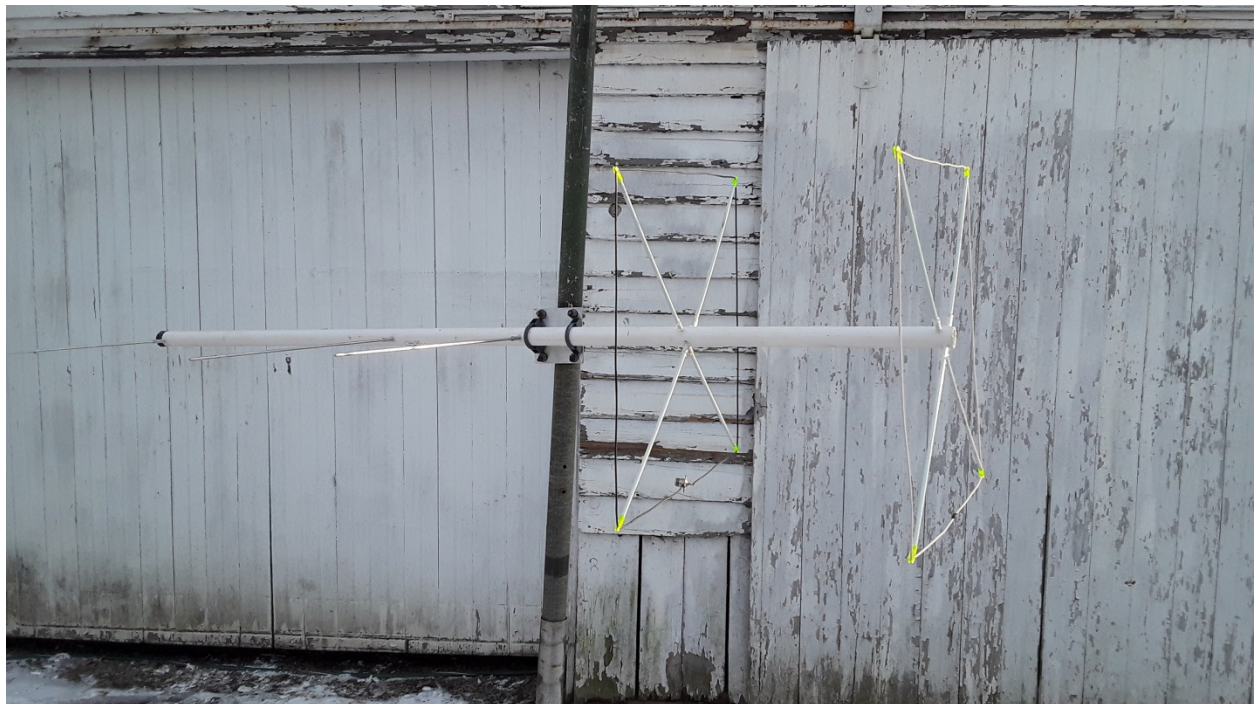
element	<u>element length</u>	<u>spacing from reflector</u>
reflector	85 13/16"	0
driven	82 13/16"	20 1/2"
D1	36 3/4"	29 3/4"
D2	35 3/4"	41 3/8"
D3	35 5/8"	65"

Free Space calculation

gain – 10.31 dBi

F/B - 21.45 db

The tubing is cut to 1" lengths and is slid over the elements and fiber glass spreaders for the reflector and driven quad to keep them from moving on the boom.



A longer Quagi is just a matter of adding more directors – the front is no different than a Yagi. The Quagi is an antenna you can easily build and get good results at a good price.