

2 Meter Tape measure antenna : Lots of links to other similar sites at bottom <http://www.instructables.com/id/The-Tape-Measure-Antenna/> is a good one



Are you looking for an easy kid friendly project? Are you looking for a project to encourage a new generation of ham radio operators?

This project is unusual, so it's something that will certainly capture the attention of anyone, particularly a kid. It's an antenna built out of PVC pipe, a tape measure and a handful of hose clamps.

This antenna is designed for two-meter operations, which, for a newbie ham operator, is one of the bands available under the Technician license in the US. Plus it's easy to build and gives a great opportunity to teach several subjects with a hands-on approach.

Disclaimer: This project isn't new; it's not even my idea or design. I used the design from Joe Leggios (WB2HOL). The plans to his antenna are [here](#).

### **Project Background**

My nephew recently expressed interest in earning his Technician class amateur radio license. While some people discount the Technician level license of amateur radio as "ridiculously simple" (including a well known conservative talk radio personality) it's not so easy for an eight-year old. It requires comprehension of concepts that they still have yet to cover in school. Topics like basic algebra and principals of electricity.

When I set out to find a project, I was looking for something unusual that would grab his attention but something that was easy, fast and required few tools or skills. And I wanted it to be cheap. There is a total of \$20 in materials in this antenna, assuming everything is purchased specifically for this project and not scavenged or salvaged parts.

The fundamentals of antennas is the one area I've been finding difficult to teach my nephew. Mostly because I refuse to "teach the test". I want him to fully understand the material, not just pass a test. And I have found that I have had to teach him basic algebra in the process.

This project was perfect as I could scale it up or down as a lesson in a number of ways. Which is to say you can use the plans to build a perfectly workable antenna, or, you can use the formula for a Yagi antenna to modify the design. In my case, my nephew and I used the plans from WB2HOL, but we worked through the math to come up with element lengths.

And, in the end, we built something useable for when he earns his Technician class license.

### **Materials List**

- 3/4" Schedule 40 PVC Pipe - at least 25"
- 6 hose clams big enough to fit around the PVC pipe
- 1 3/4" PVC tee
- 2 3/4" PVC crosses
- 8' RG-58 cable with a connector attached to one side. I soldered a female BNC to mine.
- 5" wire. I used 18 gauge solid copper wire, but I'm told anything works.
- Rosin core solder
- Tape measure with 1" wide tape
- PVC glue

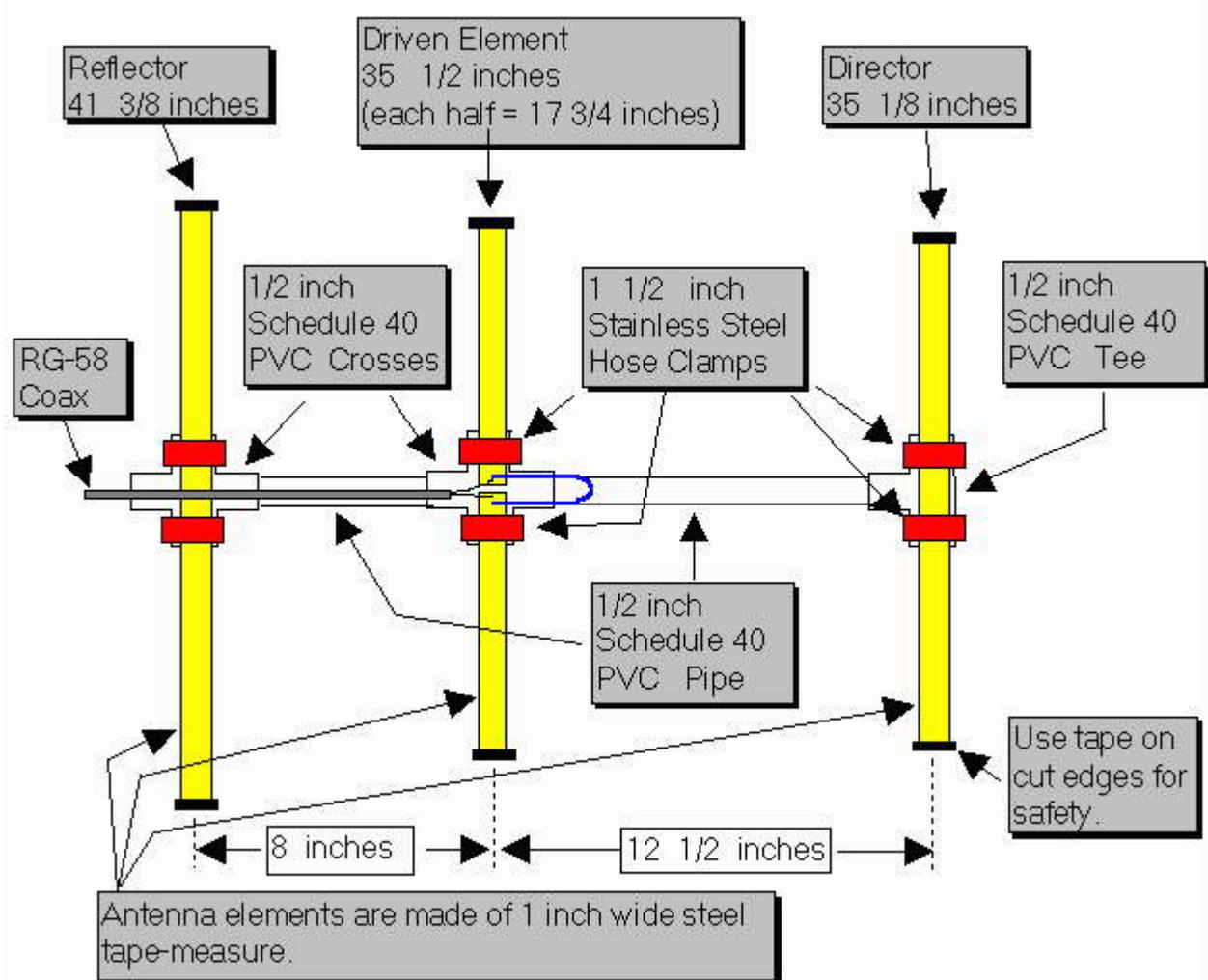
### **Tools Needed**

- Soldering iron
- Tape measure
- Pipe cutters
- Wire stripper
- Shears or scissors
- Sand paper
- SWR Meter
- Screwdriver or wrench for tightening the hose clamps

An inch between the ends of the driven elements seemed to work pretty well for me in this design. When I moved the driven elements closer or farther from each other, the SWR changed, and not in good ways. At exactly an inch, I had just a touch over 1:1 but under 1.1:1 on the SWR meter at the frequency the elements were cut for.

+++++[ another link and antenna ]+++++  
[http://theeggios.net/wb2hol/projects/rdf/tape\\_bm.htm](http://theeggios.net/wb2hol/projects/rdf/tape_bm.htm) is the web site of diagram below

[http://theeggios.net/wb2hol/projects/rdf/tape\\_bm.htm](http://theeggios.net/wb2hol/projects/rdf/tape_bm.htm) (some use 3/4" and others 1/2" PVC Schedule 40)



+++++[ LINKS ]++++

<http://www.instructables.com/id/The-Tape-Measure-Antenna/>

[http://theleggios.net/wb2hol/projects/rdf/tape\\_bm.htm](http://theleggios.net/wb2hol/projects/rdf/tape_bm.htm)

[http://www.k7mem.com/Electronic\\_Notebook/antennas/yagi\\_vhf\\_quick.html](http://www.k7mem.com/Electronic_Notebook/antennas/yagi_vhf_quick.html)

<http://nt1k.com/blog/2012/vhf-3el-tape-measure-yagi/>

<http://www.ccars.org/Projects/TapeYagi/index.htm>

<http://www.ccars.org/projects/TapeYagi/Tape%20Yagi%20Calculator.ods>

<http://open-circuit.co.uk/wp/wb-yagi/>

<http://ccars.org/projects/tapeyagi/>

<https://www.youtube.com/watch?v=X6FYQc0vyVw> Video shows how he did it

<http://www.qsl.net/ws1sm/projects.html> lots of projects here, scroll down list on page to the tape measure antenna

<https://forums.qrz.com/showthread.php?290223-VHF-Direction-Finding-Yagi-Beam-Antenna-for-2-Meter-2m> **BUY ONE ALREADY MADE**

<http://www.katyars.com/2012/05/16/tape-measure-yagi-antenna/>

[http://pages.videotron.com/ve2jmk/tape\\_bm.htm](http://pages.videotron.com/ve2jmk/tape_bm.htm)

[http://www.kc0tks.org/index.php?option=com\\_content&task=view&id=34&Itemid=42](http://www.kc0tks.org/index.php?option=com_content&task=view&id=34&Itemid=42) <http://www.open-circuit.co.uk/tape.php>

<http://www.n2ki.com/HVDFA/Stuff/flexbeam.html>