

A Simple 40 Meter Vertical for Field Day

For the last 35 years or so I have been a 40 meter CW specialist for Field Day. I have tried a lot of different antennas over the years in efforts to increase the number of contacts made. The bread and butter antenna is a dipole at about 30'. It is good for medium range contacts. I have an NVIS antenna for the really close ones. What is needed is something that works for long distance contacts to the West Coast at night.

Over the years I have tried Yagis, ground mounted verticals with a lot of radials and even a half-square. They all helped, but they took a lot of effort to put up and take down. As the years add up I was looking for something that is easy to put up and helps with the West Coast.

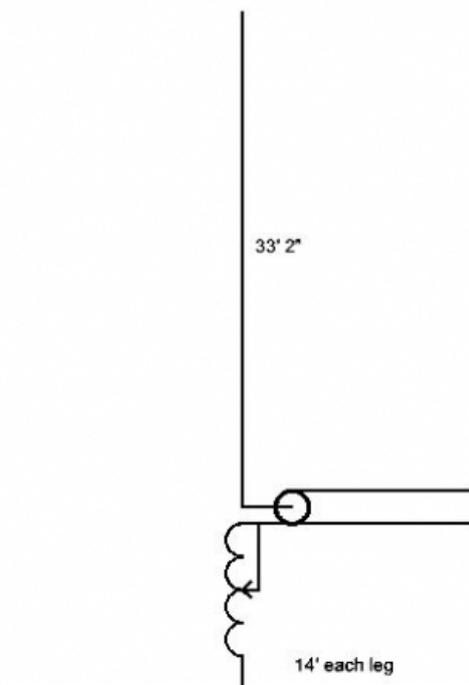
Verticals are good on the low bands for long distances because they have a low angle of radiation. The key to efficiency of verticals is a good ground system. Normally this is accomplished with radial system with 60 or more radials. Installing that many is a lot of work even if you are just laying them on the ground.. One way to get a good ground system without dozens of radials is to use elevated radials. This system uses elevated radials.

The support for this antenna is fiberglass [military mast](#). The 4' sections telescope into each other to the desired height. The vertical section is 33' 2" of #14 stranded wire. It is taped to the mast as it goes up.

The two radials are also made of wire. They are 14' long. Normally radials should be a quarter wave length or longer. The 14' was chosen as a compromise between efficiency and ease of assembly. Down the road I might extend them a few feet. The key is to keep the two radial sections identical.



The Field Day Vertical using fiberglass telescoping mast sections. Excess coax is wound on a plastic coffee can to act as an RF choke.



Schematic of the elevated radial 40 meter vertical.

The elevated radials need to be high enough off the ground so that the ground itself does not become part of the circuit. I go up a mast sections, about 4 feet.

I don't trust going much over 30' with fiberglass mast, so I use 8 sections (32'). This is shorter than the 33' vertical wire, so I tie it over to form an inverted V instead of a true vertical. With the vertical section roughly 2/3 of the length, the majority of the vertical polarization will be intact. I also add a guy ring at the bottom of the top section.

To set up, stretch the vertical wire on the ground. Start telescoping mast sections together next to the wire. The bottom of the vertical wire should be about 6" above the bottom of the bottom mast section. Temporarily tape the wire there. Then stretch the wire along the mast and tape it to the top of the top section. Tie some wire to the lose end.

Next pound a 3-4' pipe half way into the ground where you want the vertical to be. The pipe is not really to support the mast, but to just keep the bottom from sliding.

Fiberglass mast won't tolerate much side stress without splitting, so you can't just walk the mast up. Disassemble the bottom four sections. Place a section of mast over the pipe, then mount the two mast section with the wire over it. Pick up the 3 section mast up over the pipe and rest the bottom on the ground. Put another section of mast over the pipe and mount the 3 sections on top of it. Repeat until you have all the sections up. It helps to have two people, but I have done it by myself. Tape the wire to the mast every section or two.

The bottom of the wire should be just above 4' off the ground at this point. Mount the tuning inductor on the mast and attach the radials and coax.

Stretch out the two radials. Pound another pipe at the end of the radials and slide two mast sections over it. Attach the radials to the top of the mast sections. The weight of the wire will pull the end poles towards the center so use some

nylon string and small stakes to guy the radial masts vertical.

Move the shorting wire on the tuning coil until you get a good match, and you are on the air. I can put the entire antenna up by myself in about 15 minutes. A little help will make it go even faster.

If you have a tall tree, you can support the vertical portion from a branch. With a tree for support, you could use PVC pipe if you don't have any military mast.

This makes a great second antenna. I use a [coax matching network](#) so I can feed either the dipole or vertical, or both antennas at once, with the transmitter seeing 50 ohms in any position.

If you want to improve your Field Day score on 40 meters, consider adding this antenna to your set up.

CW MEMORY KEYS



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Close up of the feed point. The coax connector for the feed line is in the upper right. The antenna is tuned by adjusting the tap on the coil.

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