

Vertical Loop for 80-6 Meters

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A previous loop article by Steve Ford, WB8IMY (May 2002 QST, "One Stealthy Delta") caught my attention, especially because I've had such favorable results with other loops I've experimented with in the past.

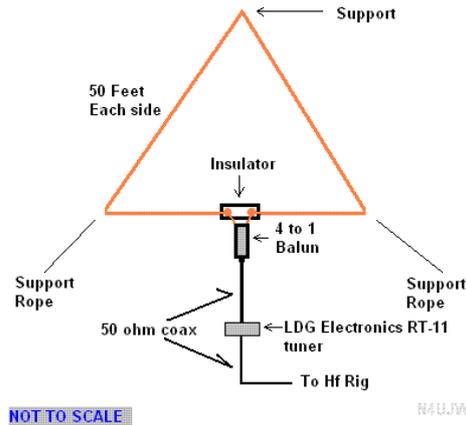
I wanted an "easy to install" loop for my portable island operations.

One that was "long" enough for 80 meter work. I did modify Steve's design a bit to more fit my needs (ie- longer antenna since I'd usually have the real estate on portable outings and I wanted my tuner closer to the rig).

My portable loop is 150 feet long (50 ft per side) and includes a 4:1 balun at the feed point midway on the horizontal side. A short run of RG-8X coax was all I needed to reach my permanently installed tuner in my motor home (it probably would have been better using a minimum coax length of 50 feet?).

The loop only took a few hours to make and the cost was about \$20 for wire (I used #12 solid insulated house wire left over from another project and scrap PVC pipe for the insulators).

Schedule 40 PVC pipe and fittings along with solid insulated wire work better in cold temperatures according to my experience.



Picture a triangle with one pointed end up for the apex and the feed point in the center of the bottom horizontal portion of the loop. It doesn't get much simpler than this. For those of us who like to know how many wavelengths make up this 150 foot long loop (1005 divided by frequency in MHz):

28MHz (4.3 wl), 24 MHz (3.7 wl), 21 MHz (3.2 wl), 18 MHz (2.7 wl), 14 MHz (2.1 wl), 10 MHz (1.5 wl), 7 MHz (1 wl) and 3.5 MHz (.5 wl).

On a long March, 2003 weekend outing, it took me about 2 hours to set up the antenna, mostly because of the irregular shaped campsite I was using with respect to tree spacing and wire always tangles up when I'm around!

I was only able to get the loop apex up about 30 feet (higher is better) and one end of antenna was at 12 feet off the ground and the other was about 6 feet, with the feed point about 7 feet "sloped" away from the apex and bent in one direction (I made the antenna fit the lot).

At a height of 40 feet or higher, the antenna would more resemble a delta loop no doubt! I was confident this "sloping loop" would work fine even though it deviated a bit from the original design of three sides at 40 feet long each and didn't turn out looking exactly like a triangle.

The loop loaded easily on all bands 10-80 meters with my new LDG Electronics RT-11 tuner and old FT-840 transceiver. It may even have loaded on 160 meters but I forgot to try. I don't have 6 meter capability (yet!) so will take Steve's word that it loads on that band as well.

My results were: 15m K4, 17m JA and K0, 20m KL7, K2-K8, UR4 and VE3, 40M K6 and K7, 80M K6 and K7. There just wasn't a lot of DX on, but I managed to work most every station I called.

I also installed my old Hustler 5 BTV vertical to compare with the loop on receive. I knew what the 5BTV could do and wanted to see if the two antennas differed much.

Since my motor home roof is metal, I put the 5BTVs feed point at about 6 inches above the roof for a ground plane effect to avoid installing elevated ground radials or to ground mount it creating a safety hazard. (Close encounters with park rangers can make for short camping trips!)

It only took about 15 minutes to install the 5BTV. (Note: both antennas were mostly pre-assembled to save time in the field). Both the loop and 5BTV received about the same on 80-15 meters in "side-by-side" comparisons throughout the 3 day test. Ten meters was dead each time I checked, so I concentrated on the lower bands. I worked almost the same call areas on the 5BTV as with the loop. On a few occasions, the 5BTV was one to two "s" units better on 20m while the loop was also one to two "s" units stronger a few times on 80m.

I'm sure horizontal to vertical (and vice-versa) polarization characteristics between the other station's antennas and my antennas had much to do with it.

For the most part, both the loop and 5BTV were pretty much even on receive. On a second outing a few weeks later, the bands were more favorable allowing me to work a lot of DX on 17, 40 and 80 meters including KL7, KH6, H44, J88, TG9, JR3, PP5 and others plus many stateside contacts with the loop. I was particularly amazed by band conditions on 17 meters and how easy it was to break big pileups! The loop went up a lot faster too at a more "antenna friendly" camp site!

In conclusion, I was satisfied with the results of my efforts experimenting with both antennas. For long-duration portable outings, or fixed station use (if you have the room), I'd go with the loop antenna simply due to the economics (\$20 for wire vs. about \$150 and up for a commercially made multi-band vertical) and because I'm partial to homebrew wire loop antennas. I highly recommend you read Steve's well prepared article mentioned at the beginning. It laid the ground work for my experimenting.

His Original article link by Steve Ford, WB8IMY (May 2002 QST, "One Stealthy Delta") is below:

www.sgcworld.com/Publications/Articles/237qst0502.pdf