

***An Interesting Lesson Learned: (Or you're not so smart after all, Buchanan)***

Taking some of my own advice I decided to build a trap antenna for 40 and 80M using the traps I built a couple of months ago out of PVC pipe and some RG8X coax. I measured it all up and attached one leg of the antenna to my grounded tower and stretched it out across the yard above the ground. It all came out to be nicely resonant where I wanted it, so I measured the other leg, and it too was resonant and so I put them on a nice centre insulator and pulled the antenna up on the side of the tower with the rope through the pulley off the side. Then I measured it again in the shack to see what it looked like. Hmm? Something's very wrong here. The antenna wasn't resonant on any of the bands for some reason. In fact, it was resonant on 160M and a bunch of other frequencies not even close to what it was designed for or originally measured.

So, what in the world happened, you ask? Was I going to be able to figure this out? In fact, it doesn't make any sense at all, so I re-ran the tests while the antenna



was closer to the ground, and it measured correctly once again but when I hoisted it back into the air it was way off. Something was causing it to become detuned when it was in the air. It was at that moment that I decided to test the other antenna that was adjacent to it as well. That was the delta loop and I tested it and the new antenna while it was both up and down and noticed that the resonant frequency of the delta loop changed when the other one was near it. Duh! Of course, it did. It was acting like a trap and causing the delta loop's transmitted

and received signal to be changed as well. I had noticed that receiving on it had been affected negatively earlier with another antenna next to it too and thought that perhaps it was just conditions, although I had received really poor receiving reports while on it too and the Butternut vertical worked well. It was so diminished that I

had resorted to using the Butternut as my receiving antenna and the delta loop as the transmitting. So, the problem was apparently the proximity of the new antenna to the delta loop.



This shows where the feed is to the delta loop at the top of my 30' tower. The other antenna was mounted just below this one.

What to do, you ask? I took my vhf and uhf antennas off the roof mounted tripod and put them on another tripod that was a bit lower on my garage roof instead. Then I mounted a new 10' mast into the tripod on the top of the roof with a pulley and rope on it and installed the new antenna on it. It is not as high as I like but works ok but could be better but was resonant where it should be. The delta loop receive characteristics were vastly improved on all bands but especially on 80M and 40M. The new antenna's characteristics are much better too and working as well as can be expected for an inverted V antenna at 28'.

So, a lesson learned on not to mount two resonant antennas too close together because they will affect one another badly as was the case here. Now I am putting

good signals out on 80M again and I hear everyone with much a lower noise floor as well. Problem solved. The morrow of the story is to remember that antennas are sympathetic to each other and if you have another antenna that is a few feet from another, they will both affect each other. Keep your antennas separated as much as possible and test them carefully to make sure they are not being adversely affected by their proximity. Both antennas work all bands too with a 50 ohm lead and I am going to work on a better trap for the new one when I get some time and get it working the way I want it to. Another weekend project. I think I might make a trap out of some coil stock I have and some coax as a high voltage capacitor and get the reactance up to about 500 ohms perhaps. That will get the Q up to where I want it.

73

Tom VE6ARG