

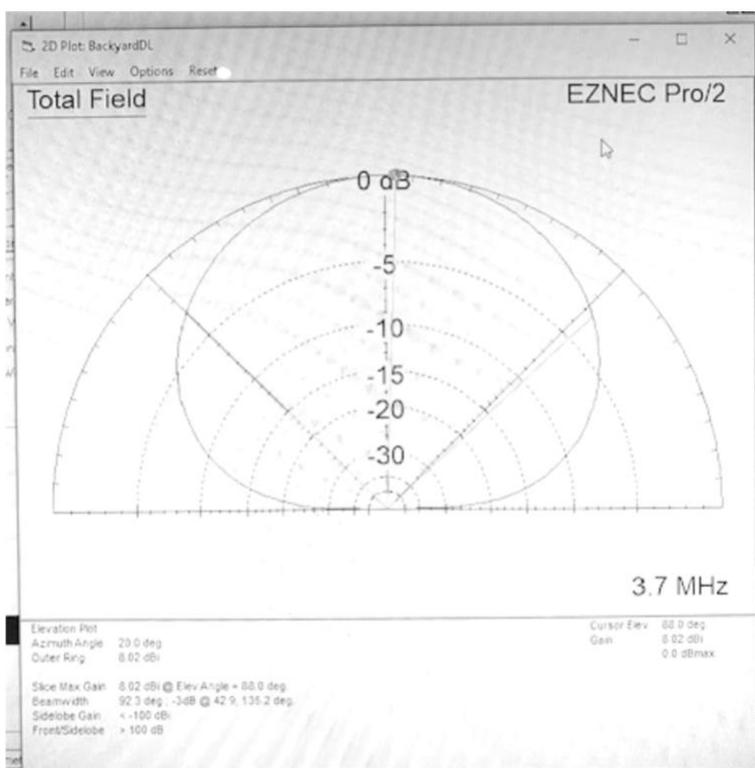
Wow! Great Weather for Antenna Maintenance

First, I want to apologize for the lousy photography in this article. I'll do better next time, LOL.

Yes indeed it is nice out right now in Southern Alberta so I'm going to take advantage of it and do some antenna maintenance. I took my little Christmas present up for a flight to look at all the connections and pulleys at the top of my trees and it worked perfectly even in the wind. I got a little DJI Micro SE and what a great tool for inspecting things from the ground. It is so darned easy to fly and fits in the palm of your hand. It weighs 249 grams so doesn't require a license to fly it. Of course you should read and understand the rules of the road when it comes to drone flying, so, do your due diligence and if you can, take the flight training course from your local supplier. You can find one near you on this

site: <https://tc.canada.ca/en/aviation/drone-safety/drone-pilot-licensing/find-drone-flight-school>

Anyway, the antennas are still up and this weekend I will be making a change to my delta loop once again and will change it from being a horizontally polarized antenna

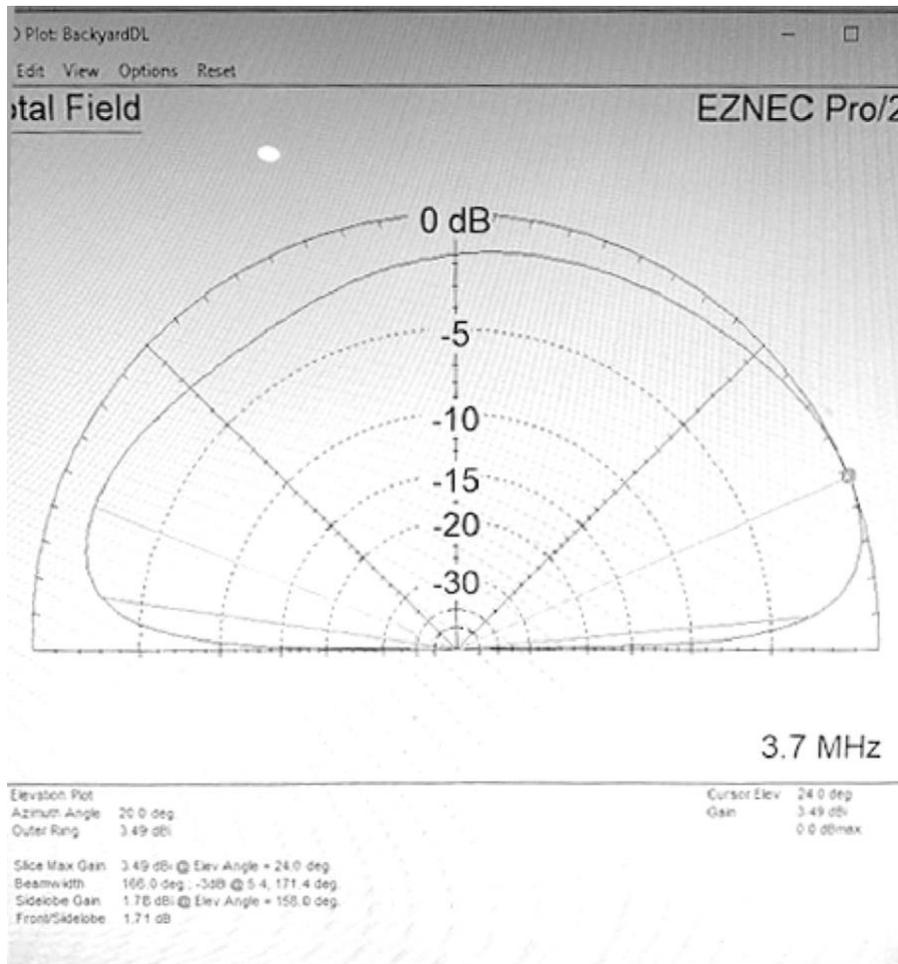


to a vertically polarized antenna by changing the feed point location. The feed point at this moment is at the apex which is about 50 feet up with it sloping down to being 12 feet from the ground at each end. So yes, it is on an angle sloping to the south. The total length is 270 feet with 130 feet on the bottom leg and two 70 ft legs to the apex. The power for this antenna when being fed from the middle of the bottom leg or at the apex is primarily straight up. Here is a plot of what it looks like:

So, as you can see the power is being directed primarily straight up with a gain of about 8 dBi. That's great if you want to heat up the atmosphere or a plane passing through it. However, remember we want to actually have a low angle of radiation to get signals out into the ether effectively if we want to talk to anyone beyond our backyard that is.

(By the way, for those of you that may have forgotten, there is no ether out there, unless you read about radio from a text written in the early part of the last century when they didn't know any better. Here's a link to an interesting book of only a mere 408 pages that tells you how it is in those days: <https://worldradiohistory.com/BOOKSHELF-ARH/History/The-Story-of-Radio-Orrin-Dunlap-1935.pdf>.)

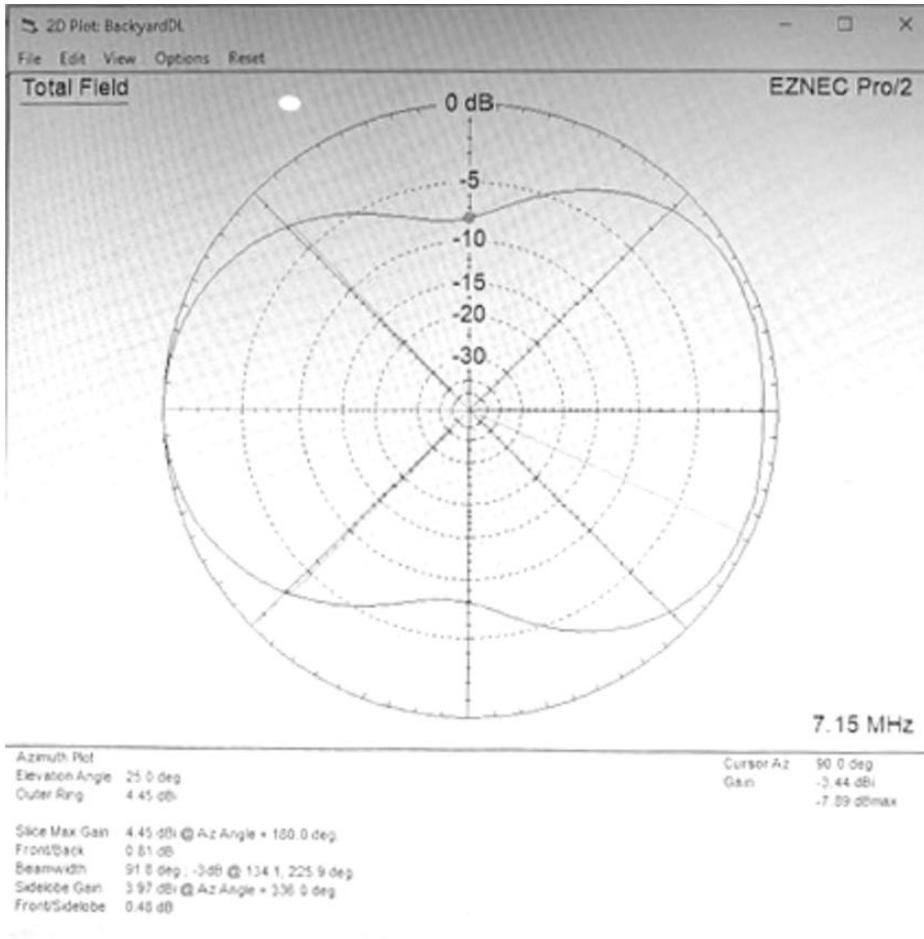
If you look at the plot above you will see that the amount of signal from your antenna drops precipitously at about 25 degrees. In fact it is down to only 1.39 dBi. At 20 degree it's down to -0.34 dBi. Hmm? Not so good. So let's see what a corner fed delta loop looks like instead.



Now that looks a lot better doesn't it? Look at the point on the right. It is sitting at maximum gain of 3.49 dBi at 24 degrees above the earth. Does that spell significant gain heading up to bounce off the atmosphere at a low angle of radiation? Of course, it does. Woopee!

I like to check into a net on 40 meters every day and most

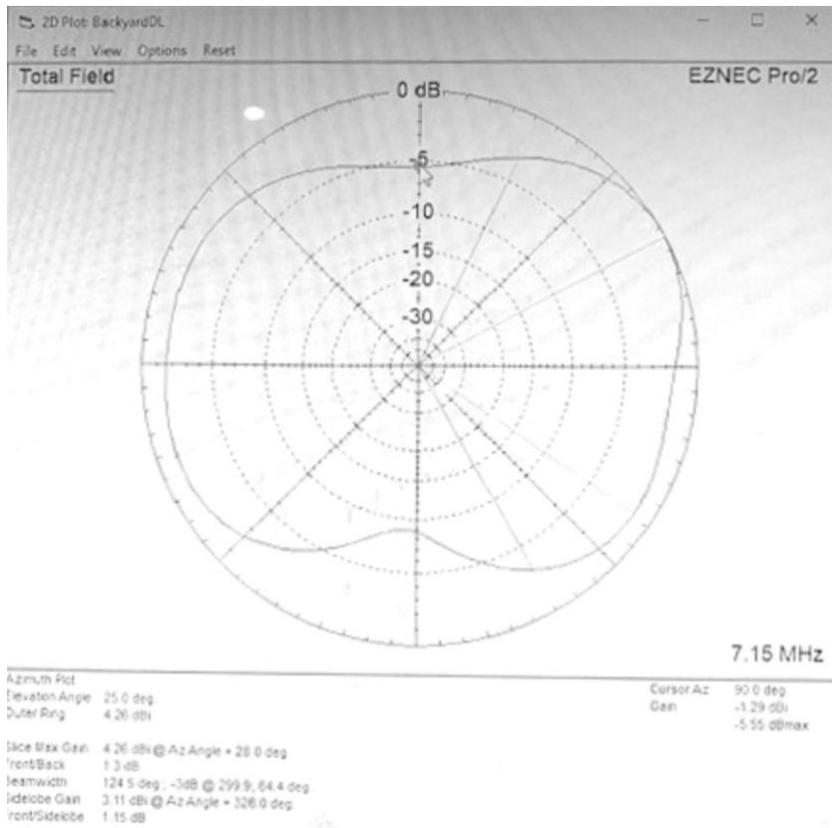
of the net control stations are in British Columbia, west of me. I had always wondered why they had difficulty hearing me until I looked at the pattern from the horizontally polarized delta loop on 40 meters. Here it is:



As you can see the signal at 90 degrees which at my location is west is down - 3.44 dBi on the apex fed delta loop. No wonder it doesn't work. I use my off centre fed dipole for working the west coast.

the delta loop corner fed instead:

Now let's look at



Now that looks a bit better. It is still down from maximum -1.29 dBi looking north but that certainly gives us a better pattern to work with than we had before so signals should be much better. If I am working someone to the north west on 40M with this antenna the gain is 4.26 dBi at 41 degrees so that will improve my chances of working Japan and other Asian countries and northern B.C.

By the way, I use

EZNEC to do my antenna plotting and design. You can download EZNEC Pro/2 v. 6.0 for free now. It only works on a PC but is a comprehensive tool for building antennas that work. You can go to <https://www.eznec.com/> for the free version. Give it a try to find out what your antennas are actually capable of doing.

73

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