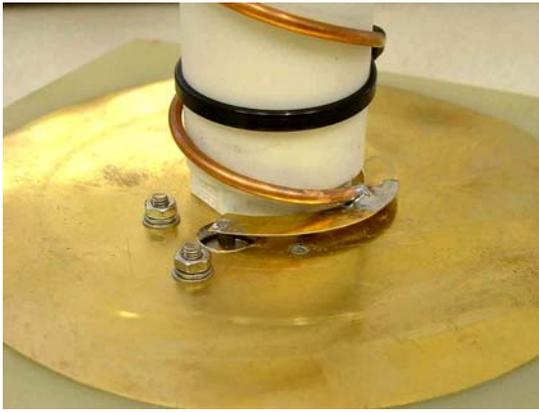


2.5 GHz High Gain Helical Antenna

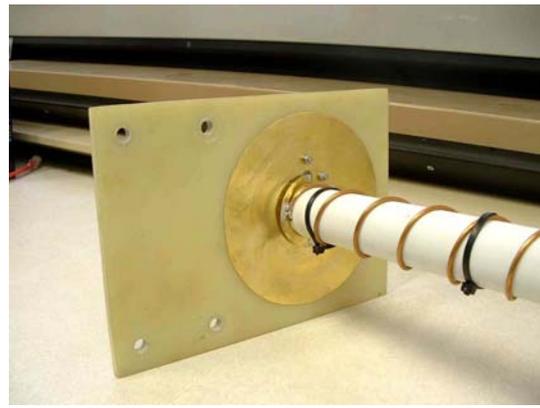
Before I had access to DSL in our neighborhood, my only alternative was a very slow modem mode over existing phone lines. My mother in law lived 1.5 miles away from me, as the crow flies, and had access to cable internet. It was a direct line of sight path. Digging around on the internet I found a high gain helical antenna that looked like a good candidate to build. I built two of them and tested them to 5+ miles at excellent speeds, so I was confident at the 1.5 mile path I needed. I used unmodified off the shelf D-Link access points for the interface. I did not use the Symphony PCI card the author used. The complete article for the construction of the antennas is at the end of this document. All the dimensions are in metric, and I followed them closely. I only modified the way he mounted the finished product, and coated it with enamel paint to keep the UV from breaking down the materials, and used 18" long Type N male to reverse SMA pigtailed for connection to the access points. I also used thin brass for the fabricated antenna elements. I mounted the access points at the antennas for minimal loss. If you make them, be sure to wind both helices in the same direction, or the polarization will not match reducing the effective distance dramatically.



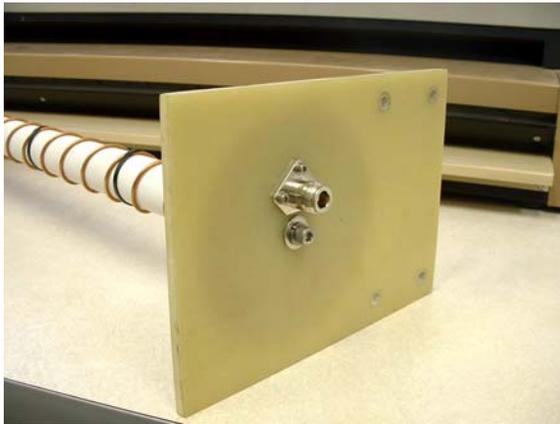
Field testing



Drive point



Director details



Type N termination



Access points



Waterproof box and mounting at far end
Arrow showing the other link 1.5 miles away.



Waterproof box and mounting at far end

Helix antenna for Symphony Card

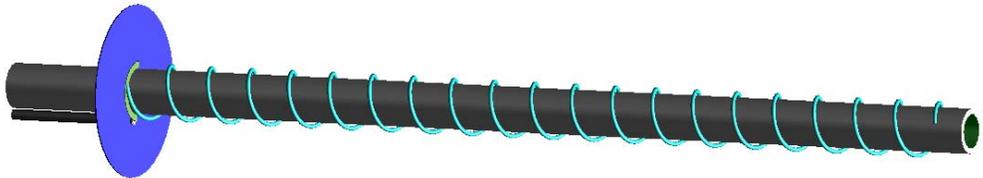
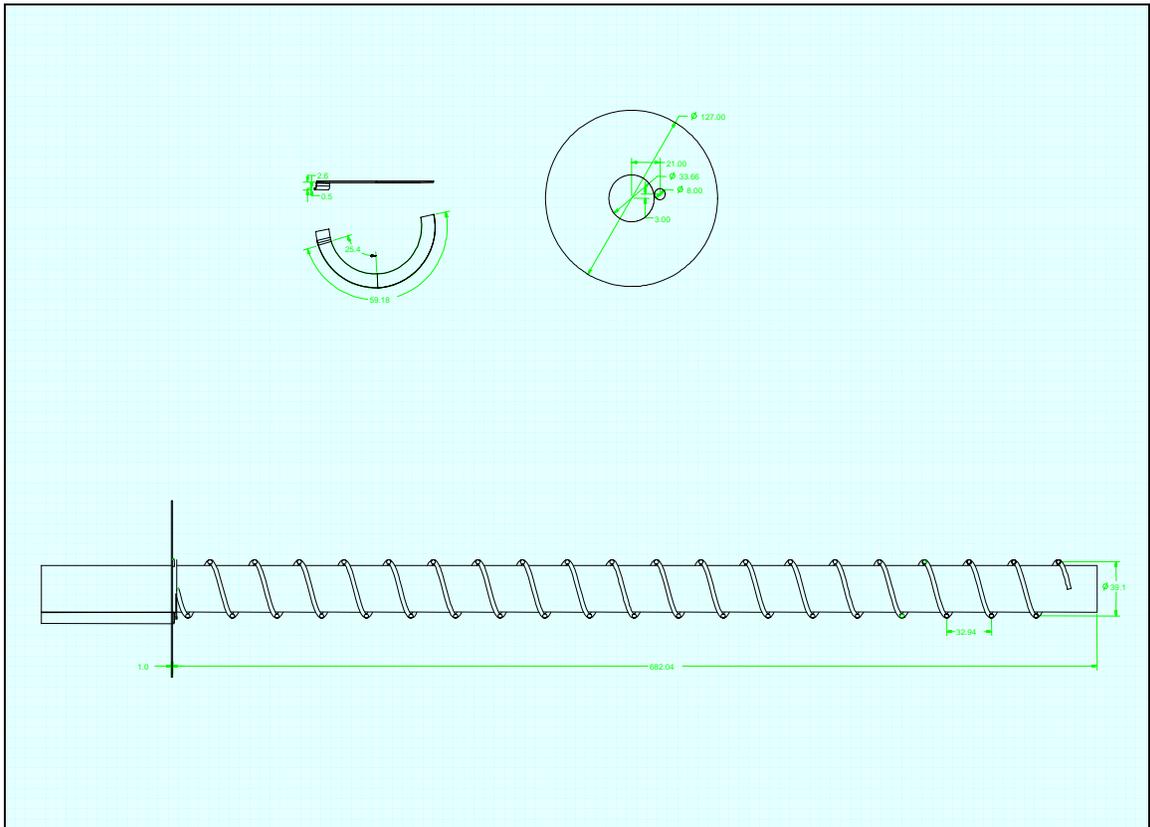
Version 1.0

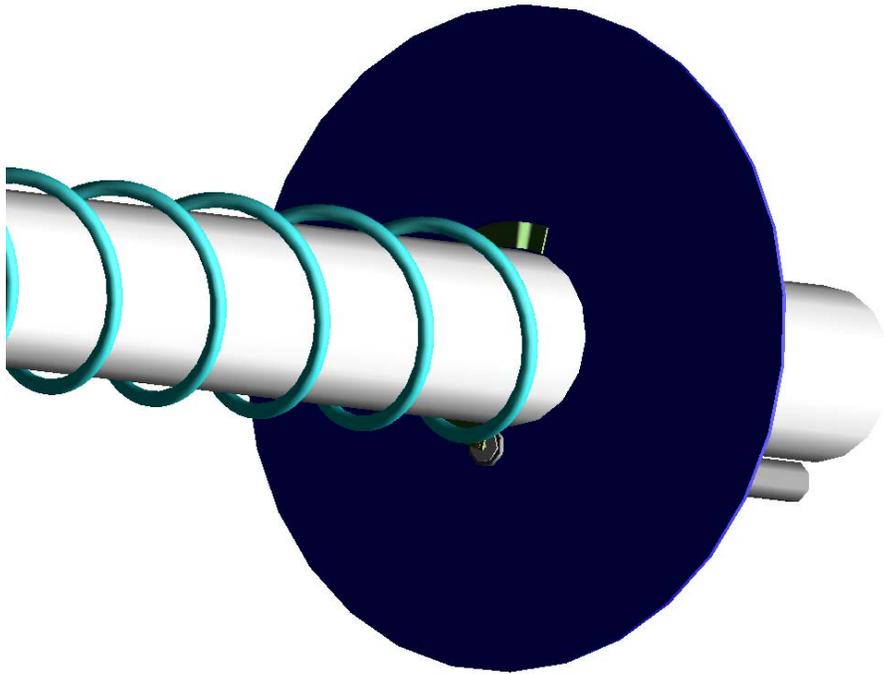
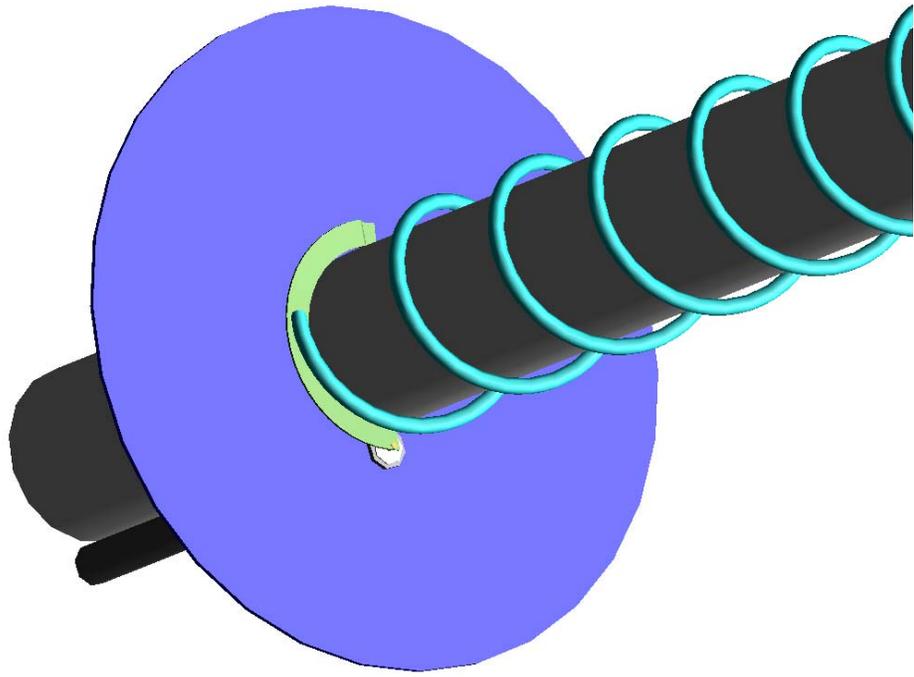
Krakow, 20 December 2000

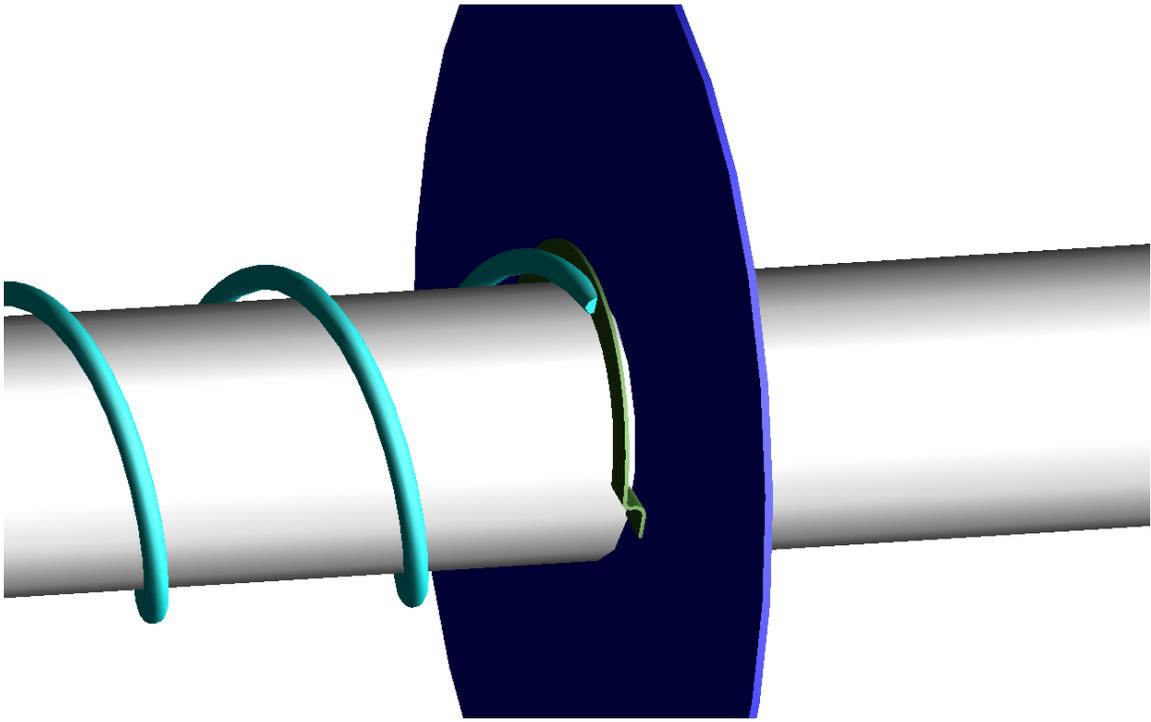
The antenna design is based on William Briles (w0oqc) design. It was recalculated for 2.440 MHz and different materials. Theoretically its gain is about 19.5 dB. Increasing number of turns from 20 to 30, total antenna gain will increase to 20.5 dB. All technical details like element dimensions, diameters etc. are placed on the drawings (all dimensions are expressed in millimeters).

To build this antenna I have used PCV 1-inch pipe, 2.5 mm cooper wire and 1 mm zinc coated tin plate.

If you have any questions regarding this design fill free contact me via e-mail.







Some pictures of real design (beta 0 – tested and working fine)

Note: Notice that in my beta0 version the helix has different turns direction.

This is incorrect – but it is beta. It is very important to have the same turn's direction in the antennas working together (point to pint connections).

