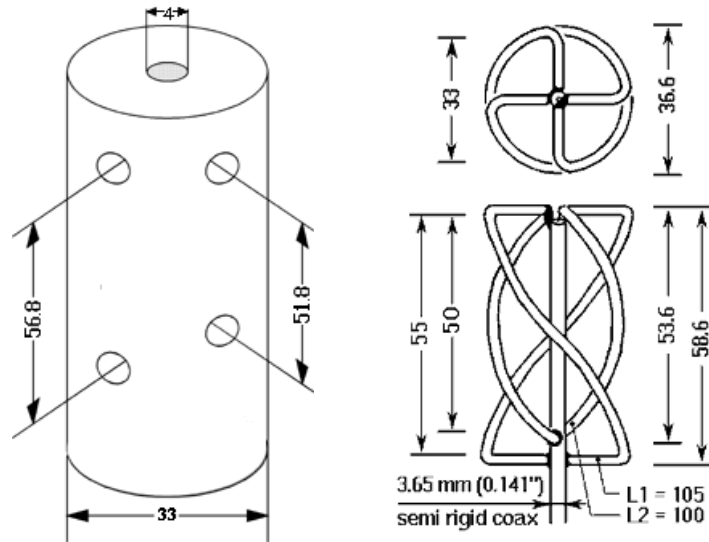


A Home made Helical antenna for a GPS



This antenna is constructed by winding a stiff copper wire around a wooden dowel. The pictures are not drawn to scale!

After drilling the centerhole, leave the drill in the hole. There are 4 separate pieces of wire, of two different lengths. (L1 & L2). They are made of 1.8 mm copper wire. Stick the wire in one of the sideholes, touching the center-drill. Bend it 1/2 of a turn around the dowel, and put it in the corresponding hole. After they have the correct shape, they are soldered to a piece of semi rigid coax.

Note the way this is done. A top view and a side view are shown. All dimensions not mentioned are millimeters. To the left I put the measured inside measurements, to the right the outside measurements.

Please observe the way the wires are connected to the top of the coax cable. The wires at "9" and "12" hours are connected to the outside (the braid), the wires at "3" and "6" connected to the inner conductor.

Most (if not all) Garmin receivers can supply a voltage of 5 V. for an active antenna. This voltage must be blocked in this type of helical antenne with a small condensor. This turned out to be a rather tricky operation. I have a 8.2 pf SMD condensor inside the BNC

connector. This is a very small but fragile capacitor. It is in between the inner conductor of the coax and the pin in the BNC connector.



Another solution is, to mount the capacitor on the top of the antenna. Between the inner conductor and the "3" and "6" hour wires. This is much less trouble, but now it can easily be damaged from the outside. Any C will do between a few and 10 pf, but have the wires as short as possible on this frequency! That's why I used a SMD capacitor, which has no wires at all.

Here is a picture of my Helical.

A description of this type of antenna in the German language appeared in UKW-BERICHT, 4/93, a magazine dedicated to ham radio experiments.

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