

## **Eidolon VHD 13.5m Free standing vertical antenna.**

### **3 in 1 antenna or standard full length**

**This antenna is calculated for a maximum wind of 42 m/sec. = 150km/hour.**

**The antenna is designed to solve the problems with all other 13,5m verticals on the market, that is: 13,5m is too long for all the bands from 30 to 18 MHz and a bit short on 3.5 MHz.**

**To solve these problems, the antenna is broken up into three parts with two fiberglass isolators, one at 6,25m to 6,35m and one at 10,00m to 10,10m.**

**This make it possible to install a coil across the lower isolator, or a switch or both. With the coil, the feed point impedance will be higher and easier to match with a "tuner" on 80m.**

**With just the coil, the antenna will operate only on 80m and 17 to 10 meters.**

**By adding a switch across the coil, the coil can be shorted and the full 13,5m length can be used for on 60 to 20m (of cause on 80m too, but with lower impedance)**

**Across the upper isolator a switch can be installed to improve the performance on preferably the bands 10 to 17m, but also radiation lobe changes take place on the bands 20 to 40m.**

**The antenna need coil/switches installed to advantage of all possibilities.**

**3 add on kits can be delivered:**

**Kit 1.:**

Is a pneumatic switch to put across the isolator at position 6,3m to be able to get lower radiation on the bands 10 -17m. It consist of one air solenoid and one 8KV pneumatic switch and the required length of 3x1mm PU air hose.

**Kit. 2.:**

To be used in connection with kit,1, is a loading coil which also will be placed across the lower isolator to increase the impedance on 80m and at the same time keep the effective length for 10 to 17m the same as with only the switch in use.....

**Kit 3.:**

Contains kit 1 & 2. And an additional pneumatic switch for position 10,05m, and an additional PU hose of required length.

In addition a small compressor and a regulator (preferably with a particle filter and dehumidifier) is needed. The working pressure for the switch is 1bar +/- 0,1bar.

As **all** vertical antennas, this antenna also need radials, either buried or elevated according to installation.

**In all cases the antenna need to have a matching unit at its base.**

A normal installation is either a short ground post or an elevated post if above ground radials are used.

**FOR A SHORT GROUND POST (0,6M ABOVE GROUND) A PIPE WITH A DIAMETER OF: 60,3MM X 6,3MM A LOW COST GALVANIZED PIPE ACCORDING TO P235TR- EN 10217 CAN BE USED**

These diagrams will give you an idea of what the radiation diagrams will look like for the various settings:

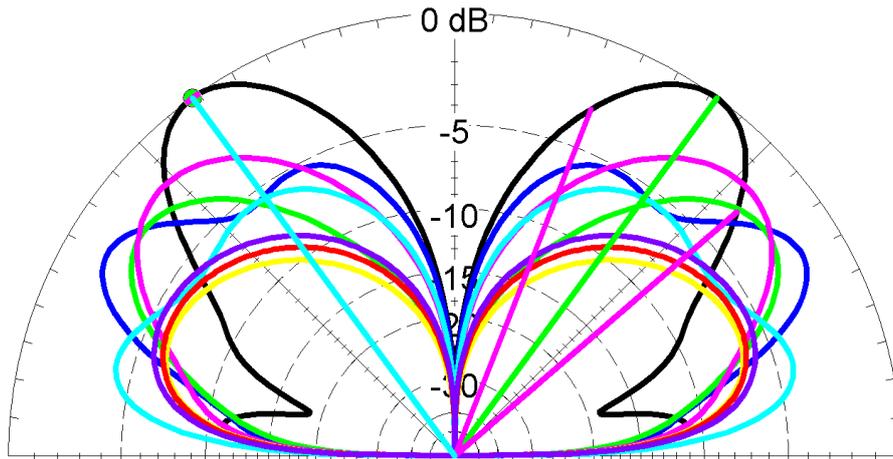
**Total Field**

**\* Primary**

- 24,93
- 21,2
- 18,11
- 14,2
- 7,1
- 5,38
- 3,65

The radiation diagrams for the full length antenna

EZNEC Pro/4



PneumaBeam VS13,5

28,5 MHz

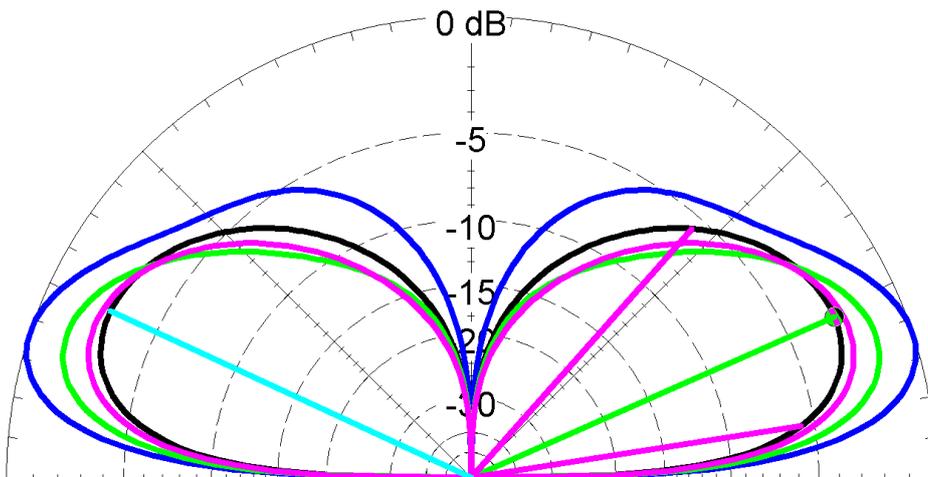
**Total Field**

**\* Primary**

- 28,5
- 24,93
- 21,2

Inductance 16,5uH in position 6,3m and switch at position 10,05m open

EZNEC Pro/4



PneumaBeam VS13,5

18,11 MHz

## Total Field

EZNEC Pro/4

### \* Primary

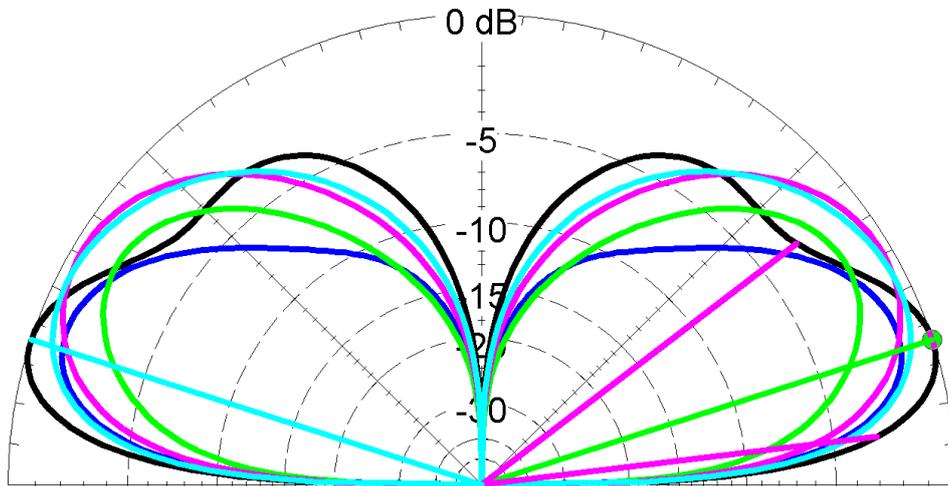
24,93

21,2

18,11

3,65

The radiation diagrams with coil active and upper switch closed/position shorted.



PneumaBeam VS13,5

28,5 MHz



This is just to show the difference between the full 13,5m versus the 10m antenna length

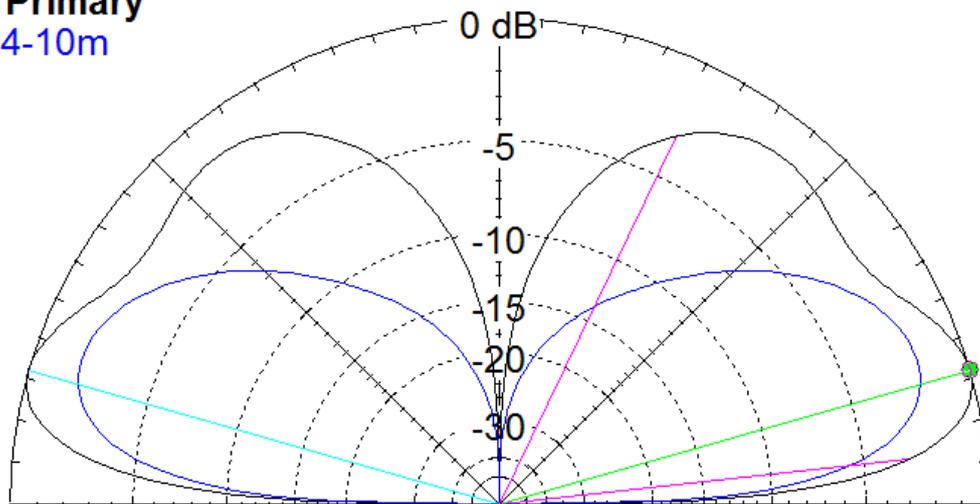


This is just to show the difference between the full 13,5m versus the 10m antenna length

## Total Field

EZNEC Pro/4

\* Primary  
14-10m



14,2 MHz

Elevation Plot  
Bearing 90,0 deg.  
Outer Ring 2,92 dBi

Cursor Elev 16,0 deg.  
Gain 2,92 dBi  
0,0 dBmax

Slice Max Gain 2,92 dBi @ Elev Angle = 16,0 deg.  
Beamwidth 58,1 deg.; -3dB @ 6,3, 64,4 deg.  
Sidelobe Gain 2,92 dBi @ Elev Angle = 164,0 deg.  
Front/Sidelobe 0,0 dB

