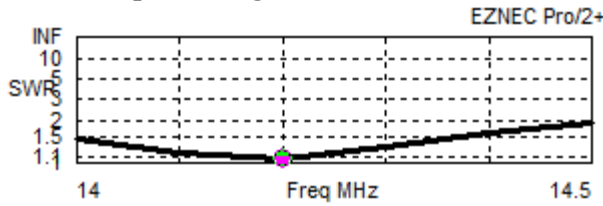


Just the Facts 146: HF Antenna 20-M Comparison

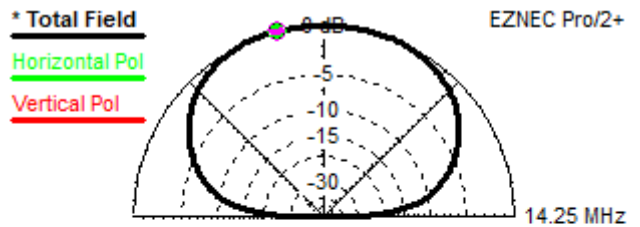
Dr. Marc and Rosemary © 231228

Feedpoint is 30'. Feedpoint $< \lambda$ pattern will be distorted.

Invert V Apex 90 degree



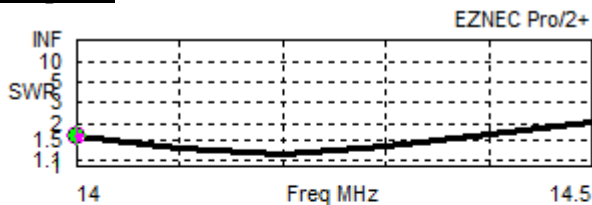
Freq 14.2 MHz Source # 1
 SWR 1.066 Z0 50 ohms
 Z 51.49 at 3.26 deg.
 = 51.4 + j 2.924 ohms
 Refl Coeff 0.03197 at 62.73 deg.
 = 0.01465 + j 0.02842
 Ret Loss 29.9 dB



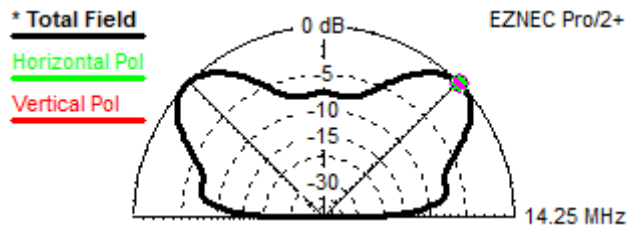
* Total Field
 Horizontal Pol
 Vertical Pol
 Elevation Plot Cursor Elev 104.0 deg.
 Azimuth Angle 0.0 deg. Gain 1.64 dBi
 Outer Ring 1.64 dBi 0.0 dBmax

Slice Max Gain 1.64 dBi @ Elev Angle = 104.0 deg.
 Beamwidth 114.6 deg.; -3dB @ 32.7, 147.3 deg.
 Sidelobe Gain 1.63 dBi @ Elev Angle = 77.0 deg.
 Front/Sidelobe 0.01 dB

Proper V



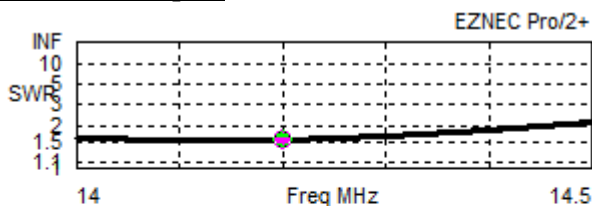
Freq 14 MHz Source # 1
 SWR 1.62 Z0 50 ohms
 Z 44.8 at -25.98 deg.
 = 40.27 - j 19.62 ohms
 Refl Coeff 0.2371 at -104.1 deg.
 = -0.05775 - j 0.2299
 Ret Loss 12.5 dB



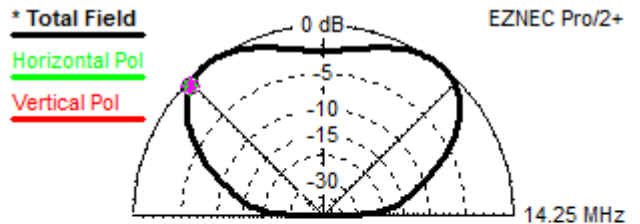
* Total Field
 Horizontal Pol
 Vertical Pol
 Elevation Plot Cursor Elev 44.0 deg.
 Azimuth Angle 0.0 deg. Gain 1.35 dBi
 Outer Ring 1.35 dBi 0.0 dBmax

Slice Max Gain 1.35 dBi @ Elev Angle = 44.0 deg.
 Beamwidth 31.1 deg.; -3dB @ 29.1, 60.2 deg.
 Sidelobe Gain 1.35 dBi @ Elev Angle = 136.0 deg.
 Front/Sidelobe 0.0 dB

Horizontal Dipole



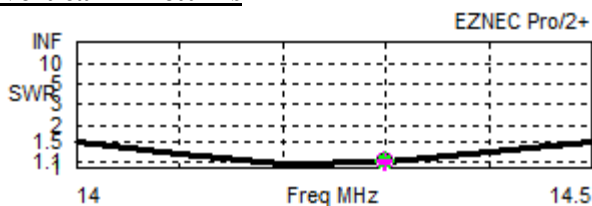
Freq 14.2 MHz Source # 1
 SWR 1.59 Z0 50 ohms
 Z 79.29 at 3.95 deg.
 = 79.1 + j 5.465 ohms
 Refl Coeff 0.2291 at 8.21 deg.
 = 0.2268 + j 0.03273
 Ret Loss 12.8 dB



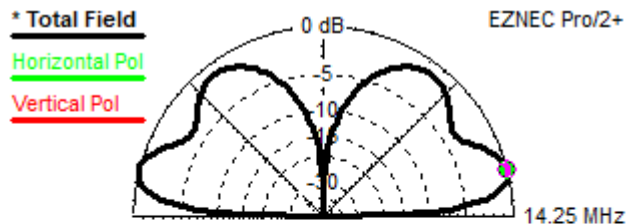
* Total Field
 Horizontal Pol
 Vertical Pol
 Elevation Plot Cursor Elev 127.0 deg.
 Azimuth Angle 0.0 deg. Gain 0.3 dBi
 Outer Ring 0.84 dBi -0.54 dBmax

Slice Max Gain 0.84 dBi @ Elev Angle = 127.0 deg.
 Beamwidth 114.2 deg.; -3dB @ 32.9, 147.1 deg.
 Sidelobe Gain 0.83 dBi @ Elev Angle = 53.0 deg.
 Front/Sidelobe 0.01 dB

Vertical - 2 returns



Freq 14.3 MHz Source # 1
 SWR 1.098 Z0 50 ohms
 Z 51.03 at 5.21 deg.
 = 50.82 + j 4.631 ohms
 Refl Coeff 0.0466 at 77.36 deg.
 = 0.0102 + j 0.04547
 Ret Loss 26.6 dB



* Total Field
 Horizontal Pol
 Vertical Pol
 Elevation Plot Cursor Elev 14.0 deg.
 Azimuth Angle 0.0 deg. Gain 0.73 dBi
 Outer Ring 0.73 dBi 0.0 dBmax

Slice Max Gain 0.73 dBi @ Elev Angle = 14.0 deg.
 Beamwidth 22.3 deg.; -3dB @ 5.7, 28.0 deg.
 Sidelobe Gain 0.73 dBi @ Elev Angle = 166.0 deg.
 Front/Sidelobe 0.0 dB