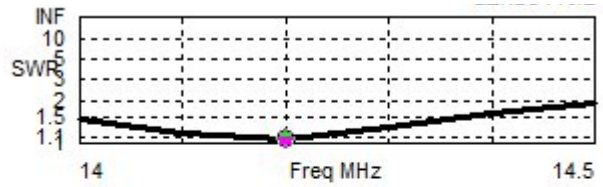
Ham 146 - Hf orientation patterns

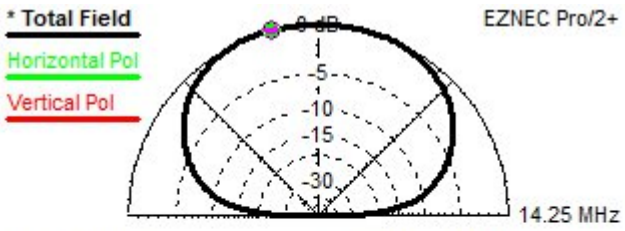
Dr. Marc & Rosemary Durham, Theway Labs, Bixby, OK © 250102

Invert V Apex 90 degree

Feed-point is 30'. Feed is <λ.



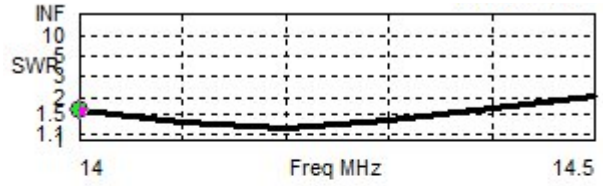
Freq	14.2 MHz	Source #	1
SWR	**1.066**	Z0	50 ohms
Z	51.49 at 3.26 deg.		
	= 51.4 + j 2.924 ohms		
Refl Coeff	0.03197 at 62.73 deg.		
	= 0.01465 + j 0.02842		
Ret Loss	29.9 dB		



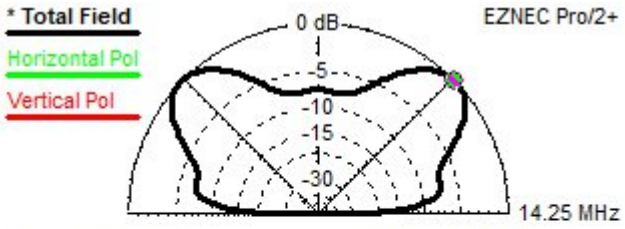
Elevation Plot		Cursor Elev	104.0 deg.
Azimuth Angle	0.0 deg.	Gain	1.64 dBi
Outer Ring	1.64 dBi		0.0 dBmax

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



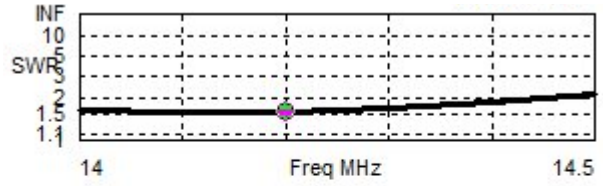
Freq	14 MHz	Source #	1
SWR	**1.62**	Z0	50 ohms
Z	44.8 at -25.98 deg.		
	= 40.27 - j 19.62 ohms		
Refl Coeff	0.2371 at -104.1 deg.		
	= -0.05775 - j 0.2299		
Ret Loss	12.5 dB		



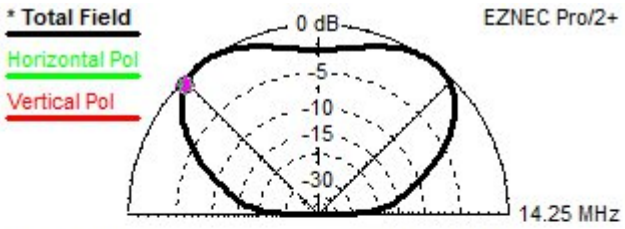
Elevation Plot		Cursor Elev	44.0 deg.
Azimuth Angle	0.0 deg.	Gain	1.35 dBi
Outer Ring	1.35 dBi		0.0 dBmax

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



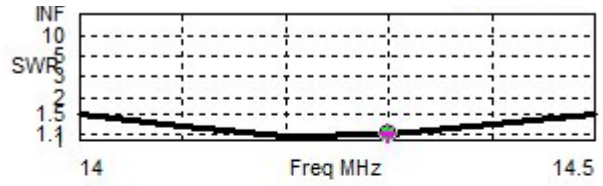
Freq	14.2 MHz	Source #	1
SWR	**1.59**	Z0	50 ohms
Z	79.29 at 3.95 deg.		
	= 79.1 + j 5.465 ohms		
Refl Coeff	0.2291 at 8.21 deg.		
	= 0.2268 + j 0.03273		
Ret Loss	12.8 dB		



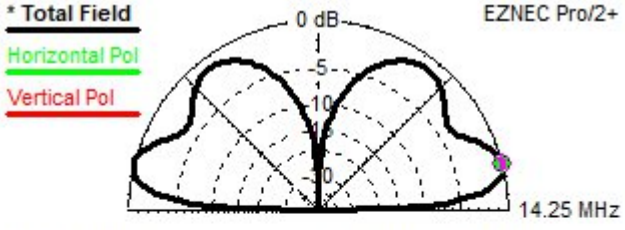
Elevation Plot		Cursor Elev	136.0 deg.
Azimuth Angle	0.0 deg.	Gain	0.3 dBi
Outer Ring	0.84 dBi		-0.54 dBmax

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		



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