Reflected W Beam

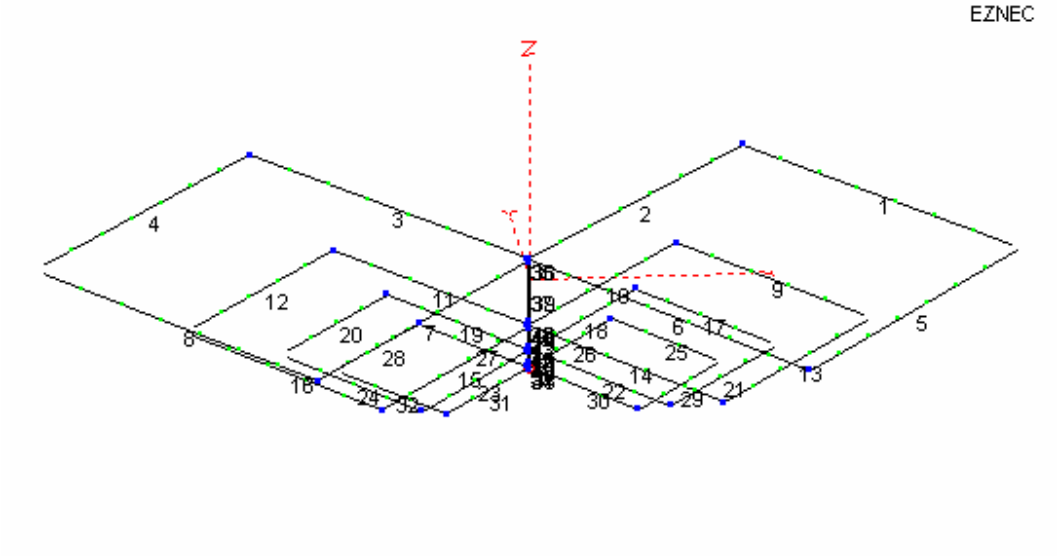
model of a reflected W beam for 40/30/20/17m
feeding from the bottom via low impedance line
lengths for elemts and isolators:

band	half driven elem. (m)	half reflector (m)	isolator dr.ele. (cm)	isol. refl. (cm)
40	10,52	11,34	19	14
30	7,58	7,85	19	14
20	5,58	5,66	16	11
17	4,31	4,38	13	9

distances between the wire elements:

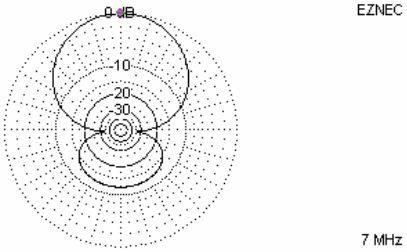
40/30m	100cm
30/20m	30cm
20/17m	20cm

wires noninsulated copper 1,5 cm²

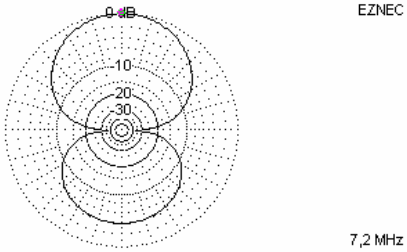


Design by DL7IO, Holger Hannemann, www.dl7io.de, dl7io@qsl.net

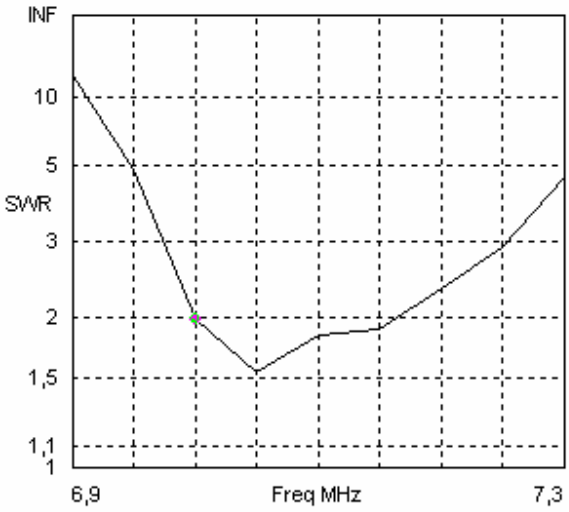
7 MHz



Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	6,02 dBi
Outer Ring	6,02dBi		0,0 dBmax
Slice Max Gain	6,02 dBi @ Az Angle = 90,0 deg.		
Front/Back	12,25 dB		
Beamwidth	81,0 deg.; -3dB @ 49,5, 130,5 deg.		
Sidelobe Gain	-6,23 dBi @ Az Angle = 270,0 deg.		
Front/Sidelobe	12,25 dB		

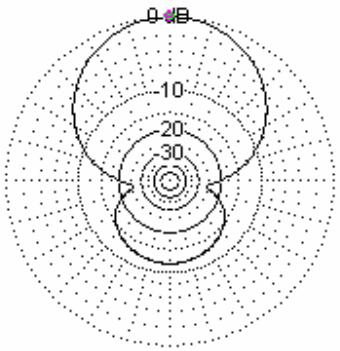


Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	4,26 dBi
Outer Ring	4,26dBi		0,0 dBmax
Slice Max Gain	4,26 dBi @ Az Angle = 90,0 deg.		
Front/Back	3,8 dB		
Beamwidth	86,0 deg.; -3dB @ 47,0, 133,0 deg.		
Sidelobe Gain	0,45 dBi @ Az Angle = 270,0 deg.		
Front/Sidelobe	3,8 dB		



Freq	7 MHz	Source #	1
SWR	1,98	Z0	50 ohms
Z	28,91 + j 15,91 ohms		
Refl Coeff	0,3282 at 131,57 deg.		

10,1 MHz

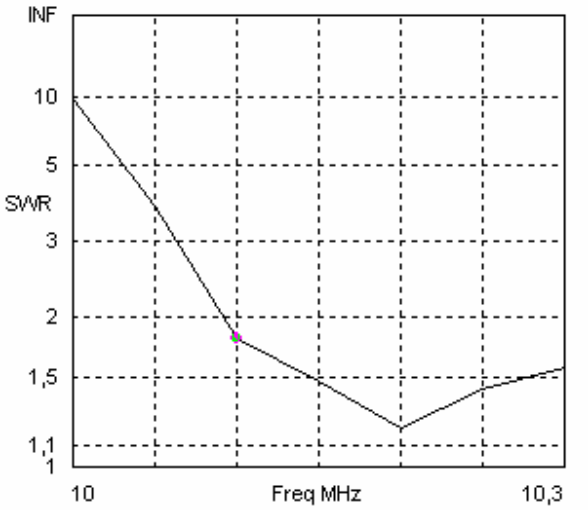


EZNEC

10,1 MHz

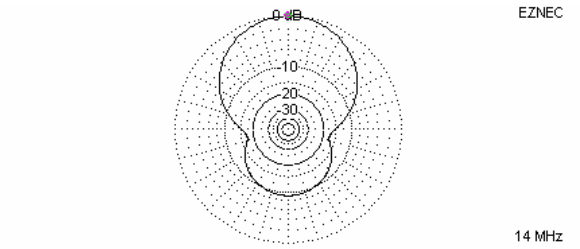
Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	5,61 dBi
Outer Ring	5,61dBi		0,0 dBmax

Slice Max Gain	5,61 dBi @ Az Angle = 90,0 deg.
Front/Back	11,81 dB
Beamwidth	82,0 deg.; -3dB @ 49,0, 131,0 deg.
Sidelobe Gain	-6,2 dBi @ Az Angle = 270,0 deg.
Front/Sidelobe	11,81 dB

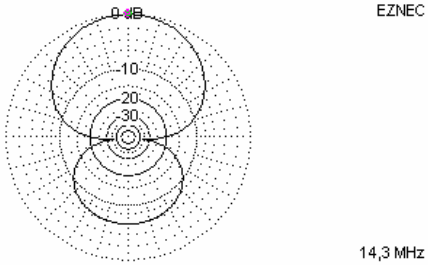


Freq	10,1 MHz	Source #	1
SWR	1,8	Z0	50 ohms
Z	29,01 + j 8,76 ohms		
Refl Coeff	0,2861 at 151,02 deg.		

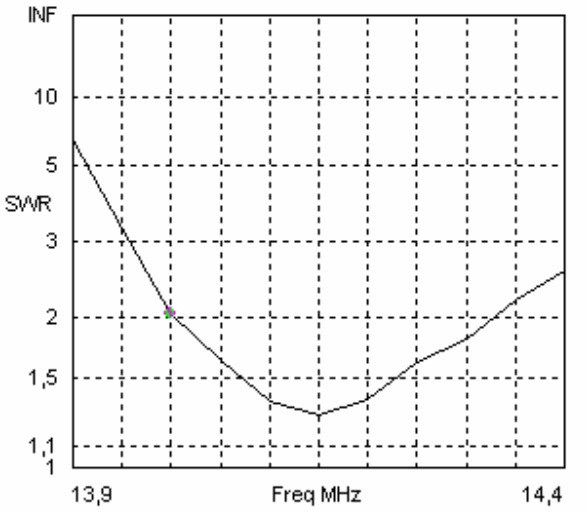
14 MHz



Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	5,65 dBi
Outer Ring	5,65dBi		0,0 dBmax
Slice Max Gain	5,65 dBi @ Az Angle = 90,0 deg.		
Front/Back	9,23 dB		
Beamwidth	85,4 deg.; -3dB @ 47,3, 132,7 deg.		
Sidelobe Gain	-3,58 dBi @ Az Angle = 270,0 deg.		
Front/Sidelobe	9,23 dB		

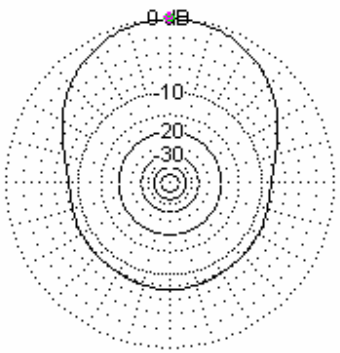


Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	4,35 dBi
Outer Ring	4,35dBi		0,0 dBmax
Slice Max Gain	4,35 dBi @ Az Angle = 90,0 deg.		
Front/Back	5,88 dB		
Beamwidth	90,6 deg.; -3dB @ 44,7, 135,3 deg.		
Sidelobe Gain	-1,53 dBi @ Az Angle = 270,0 deg.		
Front/Sidelobe	5,88 dB		



Freq	14 MHz	Source #	1
SWR	2,03	Z0	50 ohms
Z	46,48 + j 34,62 ohms		
Refl Coeff	0,3395 at 76,06 deg.		

18 MHz

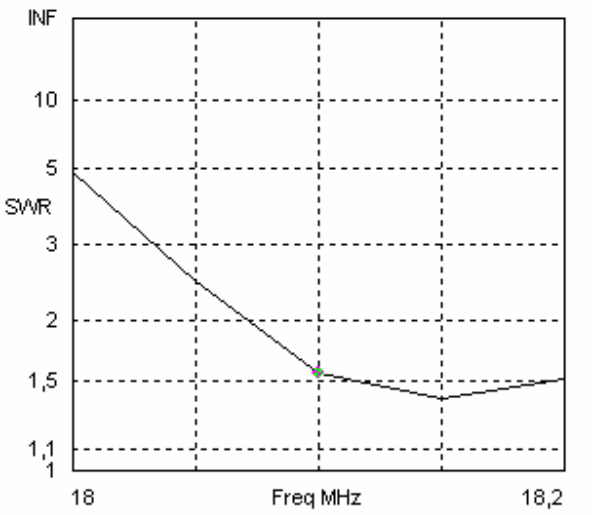


EZNEC

18,1 MHz

Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	6,02 dBi
Outer Ring	6,02dBi		0,0 dBmax

Slice Max Gain	6,02 dBi @ Az Angle = 90,0 deg.
Front/Back	7,44 dB
Beamwidth	95,0 deg.; -3dB @ 42,5, 137,5 deg.
Sidelobe Gain	-1,41 dBi @ Az Angle = 270,0 deg.
Front/Sidelobe	7,44 dB



Freq	18,1 MHz	Source #	1
SWR	1,54	Z0	50 ohms
Z	32,71 - j 3,756 ohms		
Refl Coeff	0,2137 at -165,14 deg.		