Reflected W Beam

model of a reflected W beam for 40/30/20m
feeding from the bottom via low impedance line
lengths for elements 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	7,70	7,85	19	14
20	5,58	5,66	16	11

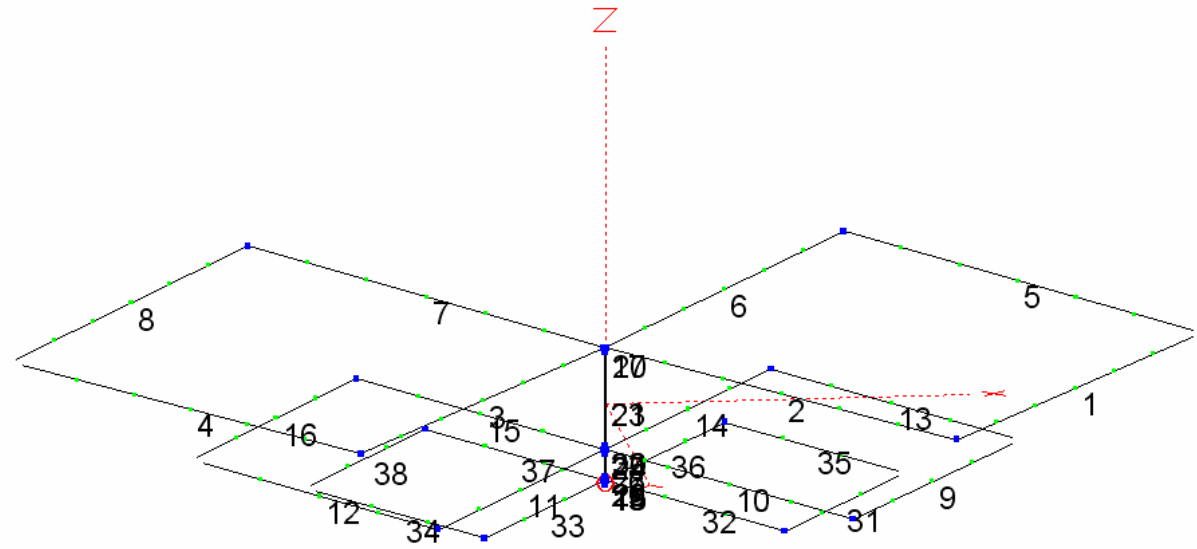
distances between elements:

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

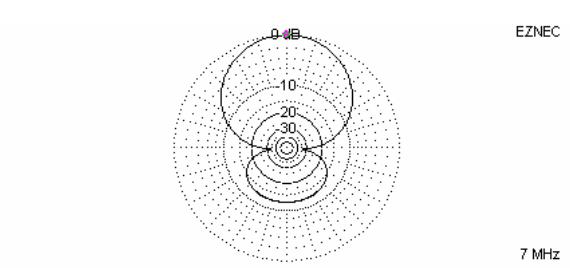
wire: 1,5cm² noninsulated

all results in free space, no losses

EZNEC

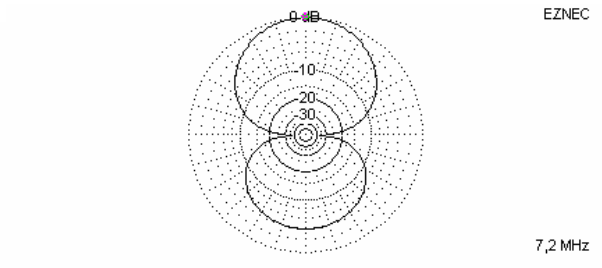


7 MHz



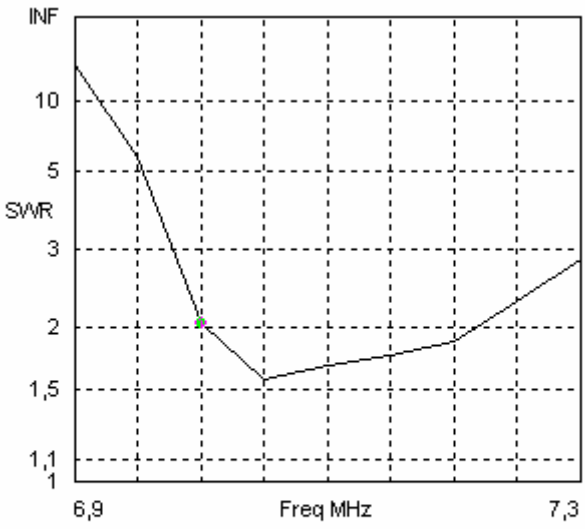
Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	6,05 dBi
Outer Ring	6,05dBi		0,0 dBmax

Slice Max Gain	6,05 dBi @ Az Angle = 90,0 deg.
Front/Back	12,56 dB
Beamwidth	80,8 deg.; -3dB @ 49,6, 130,4 deg.
Sidelobe Gain	-6,51 dBi @ Az Angle = 270,0 deg.
Front/Sidelobe	12,56 dB



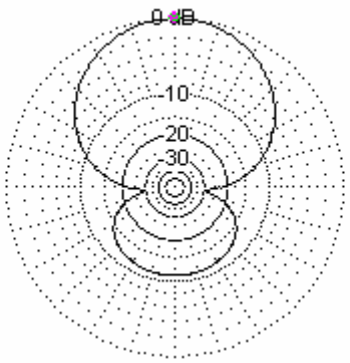
Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	4,33 dBi
Outer Ring	4,33dBi		0,0 dBmax

Slice Max Gain	4,33 dBi @ Az Angle = 90,0 deg.
Front/Back	3,79 dB
Beamwidth	85,8 deg.; -3dB @ 47,1, 132,9 deg.
Sidelobe Gain	0,54 dBi @ Az Angle = 270,0 deg.
Front/Sidelobe	3,79 dB



Freq	7 MHz	Source #	1
SWR	2,03	Z0	50 ohms
Z	24,71 + j 1,577 ohms		
Refl Coeff	0,3391 at 175,22 deg.		

10,1 MHz

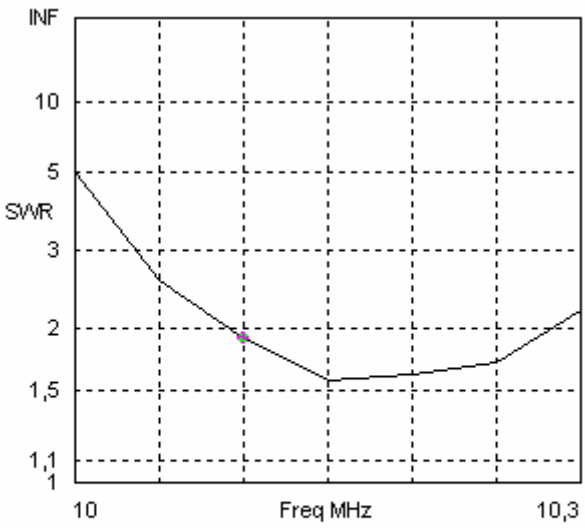


EZNEC

10,1 MHz

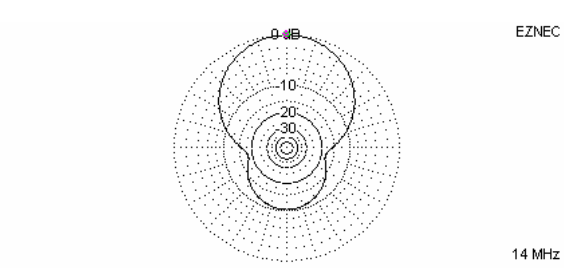
Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	5,6 dBi
Outer Ring	5,6dBi		0,0 dBmax

Slice Max Gain	5,6 dBi @ Az Angle = 90,0 deg.
Front/Back	11,18 dB
Beamwidth	83,2 deg.; -3dB @ 48,4, 131,6 deg.
Sidelobe Gain	-5,58 dBi @ Az Angle = 270,0 deg.
Front/Sidelobe	11,18 dB

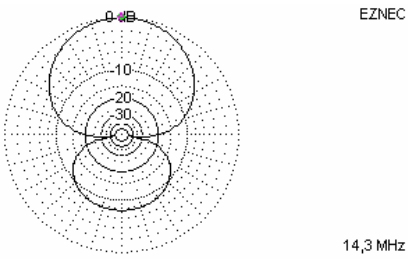


Freq	10,1 MHz	Source #	1
SWR	1,9	Z0	50 ohms
Z	44,2 + j 30,07 ohms		
Refl Coeff	0,3097 at 83,22 deg.		

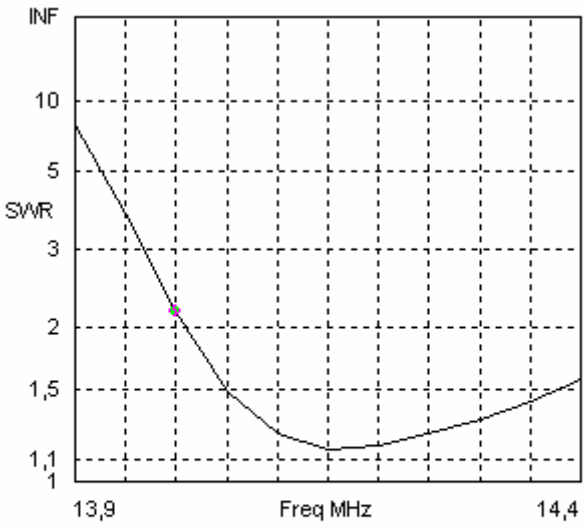
14 MHz



Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	6,88 dBi
Outer Ring	6,88dBi		0,0 dBmax
Slice Max Gain	6,88 dBi @ Az Angle = 90,0 deg.		
Front/Back	10,36 dB		
Beamwidth	83,8 deg.; -3dB @ 48,1, 131,9 deg.		
Sidelobe Gain	-3,48 dBi @ Az Angle = 270,0 deg.		
Front/Sidelobe	10,36 dB		



Azimuth Plot		Cursor Az	90,0 deg.
Elevation Angle	0,0 deg.	Gain	5,29 dBi
Outer Ring	5,29dBi		0,0 dBmax
Slice Max Gain	5,29 dBi @ Az Angle = 90,0 deg.		
Front/Back	7,57 dB		
Beamwidth	89,2 deg.; -3dB @ 45,4, 134,6 deg.		
Sidelobe Gain	-2,28 dBi @ Az Angle = 270,0 deg.		
Front/Sidelobe	7,57 dB		



Freq	14 MHz	Source #	1
SWR	2,15	Z0	50 ohms
Z	25,26 + j 12,65 ohms		
Refl Coeff	0,3641 at 143,39 deg.		