

Exhibit 3d  
FCC 442, Block 15, pg 4

**Antenna characteristics/calculations:**

60-foot tower, base loaded with  $3 + j940$  ohm load, 100-foot flat top,  
4 radials, 0.5 MHz

Source impedance:  $6.1 + j 0.1$  ohms  
Gain: -5.3 dBi, -3.1dBd

For 100 watts transmit power:

14.7 dBW EIRP (29.5 W)  
12.6 dBW ERP (18.0 W)

This represents about the maximum antenna gain that should be practical  
at non-commercial installations for this frequency.

Antenna Pictorial:  
Source impedance:  
EZNEC/4 Ver. 4.0

60-ft vertical, 100-ft top section

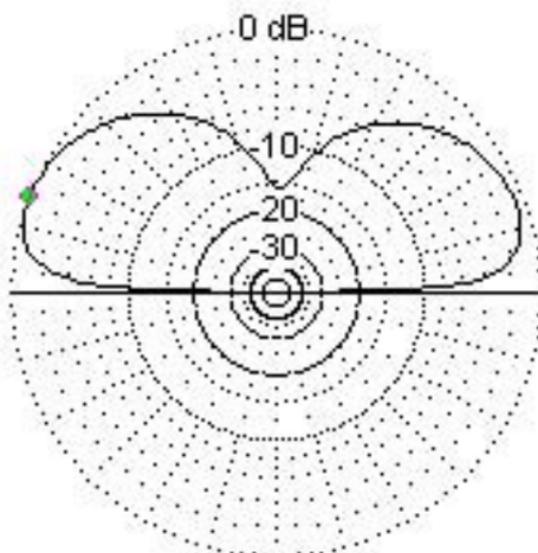
----- SOURCE DATA -----

Frequency	= 0.5 MHz
Source 1 Voltage	= 78.21 V. at 0.0 deg.
Current	= 12.79 A. at -0.94 deg.
Impedance	= $6.116 + J 0.1002$ ohms
Power	= 1000 watts
SWR (50 ohm system)	= 8.176 (75 ohm system) = 12.264

Pattern:  
3D

**\* Total Field**

EZNEC/4



0.5 MHz

Elevation Plot		Cursor Elev	159.0 deg.
Azimuth Angle	78.0 deg.	Gain	-5.3 dBi
Outer Ring	-5.3 dBi		0.0 dBmax
			0.0 dBmax3D
3D Max Gain	-5.3 dBi		
Slice Max Gain	-5.3 dBi @ Elev Angle = 159.0 deg.		
Beamwidth	49.1 deg.; -3dB @ 126.0, 175.1 deg.		
Sidelobe Gain	-5.89 dBi @ Elev Angle = 21.0 deg.		
Front/Sidelobe	0.59 dB		

