

**The SETI League, Inc.**

User specifies variables shown in

**Bold**

**Cylindrical Waveguide  
Feedhorn Analysis**

Freq =	<b>1.42</b>	GHz ;	21.1 cm	Wavelength	
Waveguide Diameter =	<b>5.45</b>	in =	13.8 cm		
TE <sub>11</sub> Cutoff =	1.27	GHz ;	23.6 cm	Wavelength	Margin = 12 %
TM <sub>01</sub> Cutoff =	1.66	GHz ;	18.1 cm	Wavelength	Margin = 14 %
Guide Wavelength =	18.61	in =	47.3 cm		
Probe placement =	4.65	in =	11.8 cm		
Feedhorn Length =	13.96	in =	35.5 cm		
Z <sub>0</sub> =	844	ohms;	2.24	vswr	
Choke Ring Depth =	4.16	in =	10.6 cm		
Choke Ring Diameter =	13.77	in =	35.0 cm		
Dish F/D Ratio =	<b>0.3</b>	(Valid range: 0.25 to 0.50)			
Feedhorn Placement:	focal point of reflector falls inside lip of feedhorn by				
	0.50	in =	1.3 cm		
Choke Ring Placement:	distance from front of feedhorn to back of choke ring, for				
Max. Gain (10 dB taper)	5.23	in =	13.3 cm =	0.63	Wavelengths
Min. Noise (15 dB taper)	4.82	in =	12.2 cm =	0.58	Wavelengths

revised 15 June 2004