

Antenna Type

	2FT Parab.	4FT Parab	6FT Parab	8FT Parab	10FT Parab	1FT Flat
Diameter, D in ft	2	4	6	8	10	1.41
Diameter, D in m	0.61	1.22	1.83	2.44	3.05	0.43
Near Field Region, Rnf in ft	5.9	23.59	53.08	94.36	147.43	2.93
Near Field Region, Rnf in m	1.8	7.19	16.18	28.76	44.94	0.89
Gain, G in dBi	29	35	38	41	42.5	23
Efficiency, n	0.58	0.58	0.51	0.57	0.52	0.55
Power Density, Wnf in mW/cm2	0.8	0.2	0.08	0.05	0.03	1.52
Power Density at 5ft, Wff in mW/cm2	N/A	N/A	N/A	N/A	N/A	0.89072

Based on OET Bulletin 65 formulas:

Near Field Power Density: $W_{nf} = 16nP/\pi D^2$

Near Field region(ft): $R_{nf} = D^2 F / 3.934$

Transition Field Power Density: $W_{ff} = W_{nf} R_{nf} / R$

Efficiency for parabolic antennas: $n = (G * (\text{wavelength})^2) / ((\pi D^2) / 4)$

For flat panel antennas efficiency was considered $n = 0.55$

All calculations were made at $F = 5.8\text{GHz}$ and $P = 1000\text{mW}$

2FT Flat

2.82

0.86

11.72

3.57

28

0.55

0.38

N/A