

# MPE Prediction

FCC Rule: 15.247(b)(5)

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission’s guidelines. See §1.1307(b)(1) of this Chapter.

## LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average time (minutes)
<b>(A)Limits For Occupational / Control Exposures</b>				
30-300	61.4	0.613	1.0	6
300-1500	...	...	F/300	6
1500-100,000	...	...	5	6
<b>(B)Limits For General Population / Uncontrolled Exposure</b>				
30-300	27.5	0.073	0.2	30
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

## Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal:	13.11 (dBm)
Maximum peak output power at antenna input terminal:	20.46445 (mW)
Antenna gain (maximal):	2.0 (dBi)
Prediction distance:	20 (cm)
Prediction frequency:	2462 (MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1.0 (mW/cm <sup>2</sup> )
Power density at prediction frequency:	0.006 (mW/cm <sup>2</sup> )

The manual instruct the user to install and operate the device in a minimum distance of 20 cm between antenna and the users body.