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/cm2)	Average time (minutes)
(A)Limits For Occupational / Control Exposures				
30-300	61.4	0.613	1.0	6
300-1500	…	…	F/300	6
1500-100,000	…	…	5	6
(B)Limits For General Population / Uncontrolled Exposure				
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:	15.85 (dBm)
Maximum peak output power at antenna input terminal:	38.459 (mW)
Antenna gain(maximal):	2.0 (dBi)
Prediction distance:	20 (cm)
Prediction frequency:	2412 (MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1.0 (mW/cm²)
Power density at prediction frequency:	0.012241 (mW/cm²)

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