

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.

## Limit

Limits for general population/Uncontrolled exposure

Frequency Range [MHz]	Electric Field Strength (E) [V/m]	Magnetic Field Strength (H) [A/m]	Power Density (S) [mW/cm <sup>2</sup> ]	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S [minutes]
0.3 - 1.34	614	1.63	(100)	30
1.34 - 30	824/f	2.19/f	(180/f <sup>2</sup> )	30
30 - 300	27.5	0.073	0.2	30
300 - 1 500	--	--	f/1 500	30
1 500 - 100 000	--	--	1.0	30

f = frequency in MHz

\*Plane-wave equivalent power density

## MPE Prediction

Predication of MPE limit at a given distance.

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

$$S = PG / 4\pi R^2$$

Where: S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW)

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 (appropriate units, e.g., cm)

- 802.11b mode

Maximum peak output power at antenna input : 0.35 dBm (1.084 mW)  
Prediction distance : 20 cm  
Predication frequency : 2 472 MHz  
Antenna gain(Max) : 3.10 dBi (2.04 numeric)  
Power density at predication frequency at 20 cm : 0.000440 mW/cm<sup>2</sup>

MPE Limit for : 1 mW/cm<sup>2</sup>

- 802.11g mode

Maximum peak output power at antenna input : -2.93 dBm (0.509 mW)  
Prediction distance : 20 cm  
Predication frequency : 2 472 MHz  
Antenna gain(Max) : 3.10 dBi (2.04 numeric)  
Power density at predication frequency at 20 cm : 0.000206 mW/cm<sup>2</sup>

MPE Limit for : 1 mW/cm<sup>2</sup>

- 802.11n(HT20) mode

Maximum peak output power at antenna input : -3.32 dBm (0.466 mW)  
Prediction distance : 20 cm  
Predication frequency : 2 472 MHz  
Antenna gain(Max) : 3.10 dBi (2.04 numeric)  
Power density at predication frequency at 20 cm : 0.000189 mW/cm<sup>2</sup>

MPE Limit for : 1 mW/cm<sup>2</sup>

- 802.11n(HT40) mode

Maximum peak output power at antenna input : -3.32 dBm (0.466 mW)  
Prediction distance : 20 cm  
Predication frequency : 2 422 MHz  
Antenna gain(Max) : 3.10 dBi (2.04 numeric)  
Power density at predication frequency at 20 cm : 0.000189 mW/cm<sup>2</sup>

MPE Limit for : 1 mW/cm<sup>2</sup>

### Test Result

The power density level at 20 cm is 0.000440 mW/cm<sup>2</sup>, 0.000206 mW/cm<sup>2</sup>, 0.000189 mW/cm<sup>2</sup> and 0.000189 mW/cm<sup>2</sup> which is below the uncontrolled exposure limit of 1 mW/cm<sup>2</sup> at 2 412 MHz to 2 472 MHz.