

## **§1.1307(b)(1) & §2.1091 - RF EXPOSURE**

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According to §15.247(e)(1) & 15.407 and §1.1307(b)(1), 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 level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

### Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
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
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power density

### **MPE Prediction**

Prediction 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

P = power input to 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

802.11a

5250 – 5350 MHz:

Maximum peak output power at antenna input terminal: 22.19 (dBm)

Maximum peak output power at antenna input terminal: 165.58 (mW)

Prediction frequency: 5300 (MHz)

Antenna Gain (typical): 17.0 (dBi)

antenna gain: 50.12 (numeric)

Prediction distance: 26 (cm)

Power density at prediction frequency at 26 cm: 0.977 (mW/cm<sup>2</sup>)

MPE limit for uncontrolled exposure at prediction frequency: 1.0 (mW/cm<sup>2</sup>)

5745-5825 MHz:

Maximum peak output power at antenna input terminal: 7.8 (dBm)

Maximum peak output power at antenna input terminal: 6.026 (mW)

Prediction frequency: 5745 (MHz)

Antenna Gain (typical): 33.4 (dBi)

antenna gain: 2187.76 (numeric)

Prediction distance: 32.8 (cm)

Power density at prediction frequency at 32.8 cm:  $0.976 \text{ (mW/cm}^2\text{)}$

MPE limit for uncontrolled exposure at prediction frequency:  $1.0 \text{ (mW/cm}^2\text{)}$

### **Test Result**

The EUT is of fixed outdoor installation, point -to-point or point-to-multipoint.  $1\text{mW/ cm}^2$  limit applies. The prediction distance for the 5GHz antenna is 32.8 cm.