

## **§1.1307(b)(1), §2.1091 & 101.1525 - RF EXPOSURE**

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**

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

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

### 71.5 Ghz Transmitter

Maximum peak output power at antenna input terminal: 9 (dBm)

Maximum peak output power at antenna input terminal: 7.9(mW)

Predication distance: 120 (cm)

Predication frequency: 71500 (MHz)

Antenna Gain (typical): 43 (dBi)

antenna gain: 19952.6 (numeric)

Power density at predication frequency at 120 cm: 0.871 (mW/cm<sup>2</sup>)

MPE limit for uncontrolled exposure at prediction frequency: 1 (mW/cm<sup>2</sup>)

### 74.9 Ghz Transmitter

Maximum peak output power at antenna input terminal: 8.8 (dBm)

Maximum peak output power at antenna input terminal: 7.59 (mW)

Predication distance: 120 (cm)

Predication frequency: 74900 (MHz)

Antenna Gain (typical): 43 (dBi)

antenna gain: 19952.6 (numeric)

Power density at predication frequency at 20 cm: 0.837 (mW/cm<sup>2</sup>)

MPE limit for uncontrolled exposure at prediction frequency: 1 (mW/cm<sup>2</sup>)

### **Test Result**

The EUT is a mobile device. The power density level at 120 cm is 0.871 mW/cm<sup>2</sup> and 0.837 mW/cm<sup>2</sup>, which is below the uncontrolled exposure limit of 1 mW/cm<sup>2</sup>.