

## 7 - RF EXPOSURE

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According to §15.247(b)(4) 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 §2.1093 RF exposure is calculated.

### Limits for Maximum Permissive Exposure (MPE)

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
1500-15000	/	/	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

Maximum peak output power at antenna input terminal: 23 (dBm)

Maximum peak output power at antenna input terminal: 200 (mW)

Prediction distance: 20 (cm)

Predication frequency: 2400 (MHz)

Antenna Gain (typical): 12 (dBi)

Maximum antenna gain: 15.85 (numeric)

Power density at predication frequency at 20 cm: 0.63 (mW/cm<sup>2</sup>)

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

### **Test Result**

The EUT is defined as mobile equipment. The predicted power density level is 0.63 mW/cm<sup>2</sup> at 20cm distance, which is below the uncontrolled exposure limit of 1.0 mW/cm<sup>2</sup> at 2400 MHz.