

**FCC §1.1307 (b)(1) & §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)****Applicable Standard**

According to FCC Part 2.1091 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.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
<b>Frequency Range (MHz)</b>	<b>Electric Field Strength (V/m)</b>	<b>Magnetic Field Strength (A/m)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>Averaging Time (minutes)</b>
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 Calculation**

Predication of MPE at a given distance, equation from OET Bulletin 65, Edition 97-01

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

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 = 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);

<b>Band</b>	<b>Antenna Gain</b>		<b>Conducted Power</b>				<b>Time-Averaged Transmit Power (mW)</b>	<b>Evaluation Distance (cm)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>MPE Limit (mW/cm<sup>2</sup>)</b>
	<b>(dBi)</b>	<b>(numeric)</b>	<b>Slot No.</b>	<b>(dBm)</b>	<b>(mW)</b>	<b>Duty Factor</b>				
GSM850	2.0	1.58	1 slot	33.1	2042	1/8	255.25	20	0.08	0.55
	2.0	1.58	2 slot	33.1	2042	1/4	510.5	20	0.16	0.55
PCS1900	2.0	1.58	1 slot	30.5	1122	1/8	140.25	20	0.04	1.0
	2.0	1.58	2 slot	30.3	1072	1/4	268	20	0.08	1.0

**Result:**

The MPE meets FCC limit at 20 cm distance.