

## MPE Evaluation

### FCC

Maximum exposure limits from CFR 47, FCC Part 1.1310:

Table 1—Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz \* = Plane-wave equivalent power density

Table 2 – Power Density Calculations, FCC

Occupational/Controlled	
General Population/uncontrolled	1

Transmitter	Frequency	Antenna Gain	Power	Power (conducted) +10% for tolerance	Power Density	Limit at specified distance	% of limit	Highest	Total
	MHz	numerical	mW	mW	mW/cm <sup>2</sup>	mW/cm <sup>2</sup>			
1	905.6	2	9.55	10.505	0.0042	0.6037	0.0069	1	0.693%
1	915	2	9.40	10.340	0.0041	0.6100	0.0067		
1	924.4	2	8.63	9.493	0.0038	0.6163	0.0061		
								<b>TOTAL</b>	<b>0.69%</b>

Distance	20	cm
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PASS?	YES
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Note: The user’s manual will stipulate that a 20cm distance from the user is to be maintained.

\*Antenna gain was unknown so EIRP measurements were used. Antenna gain was set to 1

The power density is calculated as shown below:

$$S = (P \times G) / (4 \times \pi \times d^2) - \text{used to calculate exposure at 20 cm}$$

$$d = \sqrt{(S / (P \times G) \times 4 \times \pi)} - \text{used to calculate minimum distance to meet limits}$$

- S= power density
- P = transmitter conducted power (in mW)
- G = antenna numeric gain
- D = distance to radiation center (20 cm)