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

Report No.: RDG171207019-00A

Applicable Standard

According to subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for Occupational/Controlled Exposure

Limits for occupational/Controlled Exposure								
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	Averaging Time (Minutes)				
0.3-1.34	614	1.63	*(100)	6				
1.34-30	1842/f	4.89/f	*(900/f ²)	6				
30-300	61.4	0.163	1.0	6				
300-1500	/	/	f/300	6				
1500-100,000	/	/	5.0	6				

f = frequency in MHz

Result

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Frequency	Antenna Gain		Max average output power	Evaluation Distance	Power Density	MPE Limit
(MHz)	(dBi)	(numeric)	(mW)	(cm)	(mW/cm^2)	(mW/cm ²)
450-512	5.5	3.55	28117	80	1.24	1.50

Note: Max tune-up output power is 47.5dBm (56234 mW), the duty cycle is 50%. So the average power is 28117 mW.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 80cm from nearby persons.

Result: Compliance

^{* =} Plane-wave equivalent power density