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

Report No.: RSZ171031010-00E

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.

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 ²)	Averaging time (minutes)
	(A) Limits for (Occupational/Controlled Expo	sure	,
0.3-3.0	614	1.63	*100	6
3.0-30	1842/1	4.89/1	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
	(B) Limits for Gene	ral Population/Uncontrolled I	xposure	
0.3-1.34	614	1.63	*100	30
1.34-30	824/1	2.19/1	*180/f ²	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

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)

For Occupational/controlled exposure:

Frequency (MHz)	Antenna Gain		Max Tune-up Power		Evaluation	Power	MPE Limit
	(dBi)	(numeric)	(dBm)	(mW)	Distance (cm)	Density (mW/cm ²)	(mW/cm ²)
758-775	4	2.51	34	2512	20	1.26	2.53
851-862	4	2.51	34	2512	20	1.26	2.84

Radiation Exposure Statement:

To comply with FCC RF exposure requirements, a minimum separation distance of 20cm is required between the antenna and the persons, and the available max antenna gain must not exceed 4 dBi

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