FCC §1.1310 & §2.1091 –MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to §2.1091 and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

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

Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time |E|, |H| or S (minutes)**
0.3- 3.0	614	1.63	(100)*	6
3.0 - 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	6

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

Calculated Formulary:

Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = 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);

Calculated Data:

For worst case:

Frequency Range (MHz)	Antenna Gain (dBi)	coaxial Cable loss (dB)	Antenna Gain-coaxial Cable loss		Tune-up Conducted Power		Duty cycle	Evaluation Distance (cm)	Power Density (mW/cm^2)	Power Density Limit (mW/cm^2)
			(dBi)	(numeric)	(dBm)	(mW)				
138-174	5.5	0.8	4.7	2.95	43.00	19952.62	50%	50	0.9371	1.0
400-480	5.5	0.8	4.7	2.95	43.00	19952.62	50%	50	0.9371	1.3

Note:

1.The tune-up output power was declared by the Manufacturer.
2. The typical max antenna gain is 5.5dBi was provided by the Manufacturer

Antenna Type	Antenna Gain
Monopole antenna	5.5

3.typical use qualifies for a maximum duty cycle is 50%
4.A typical installation consists of system with a coaxial cable has a loss 0.8 dB.

Result: The device meets FCC MPE at 50cm distance