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

Applicable Standard

According to 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 Maximum Permissible Exposure (MPE)

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;

Calculation Formula:

Prediction of Power Density at the distance of the applicable MPE Limit

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
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);

MPE Results

Frequency (MHz)	Antenna Gain		Maximum Time-average output power including Tune-up Tolerance (mW)	Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
	(dBi)	(numeric)				
400-470	5	3.16	12500	50	1.26	1.33

Note:
The Maximum output power including Tune-up Tolerance is 25W, and the device employs PTT function(50% duty cycle), so the time-average power is 12.5W.
The maximum antenna gain is 5dBi, which was declared by manufacturer.

Result: The device meet FCC MPE at minimum distance 50 cm.