5. RF EXPOSURE EVALUATION

5.1 MAXIMUM PERMISSIBLE EXPOSURE (MPE)

5.1.1 Applicable Standard

According to 1.1310, 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)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

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

5.1.2 MPE Calculation

Prediction of power density at the distance of the applicable MPE limit

$$S = PG/4\pi R^2$$

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

5.1.3 Calculated Result

Frequency (MHz)	Maximum Average Output Power Including Tune-up Tolerance (dBm)	Maximum Allowable Antenna Gain (dBi)	Cable Loss (dB)	Operating Duty Cycle (%)	Evaluation Distance (cm)	Power Density (mW/cm^2)	Power Density Limit (mW/cm^2)
156.025-157.425	43.98	9	1	50	221	0.129	0.2

Note: Maximum target power is 25 W

Result: Device meet MPE requirement at 221 cm distance away from Antenna to human body.

***** END OF REPORT *****