§2.1091 – RF EXPOSURE

Applicable Standards

§ 2.1091

(a) Requirements of this section are a consequence of Commission responsibilities under the National Environmental Policy Act to evaluate the environmental significance of its actions. See subpart I of part 1 of this

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

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)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	842/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	30

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

MPE Prediction

Predication of MPE limit at a given distance

Equation from OET Bulletin 65, Edition 97-01

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

Where: S = power density
P = power input to antenna
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

Conclusion

Maximum peak output power at antenna input terminal:	36.85 (dBm)
Maximum peak output power at antenna input terminal:	4841.72 (mW)
Prediction distance:	50 (cm)
Prediction frequency:	150.7125 (MHz)
Antenna Gain (typical):	0 (dBi)
antenna gain:	1 (numeric)
Power density at predication frequency at 50 cm:	0.154 (mW/cm^2)

MPE limit for uncontrolled exposure at prediction frequency: 0.2 (mW/cm^2)

The Power density at prediction distance of 50 cm does not exceed the limit 0.2 mW/ cm^2 Therefore, the exposure condition is compliant with FCC Rules.