5 FCC §2.1091 - RF Exposure

5.1 Applicable Standards

According to FCC §2.1091 and §1.1310 Table 1 below sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields.

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	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

5.2 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

5.3 MPE Results

Maximum peak output power at antenna input terminal (dBm):	20.63
Maximum peak output power at antenna input terminal (mW):	115.611
Prediction distance (cm):	20
Prediction frequency (MHz):	2450
Maximum Antenna Gain, typical (dBi):	6
Maximum Antenna Gain (numeric):	3.981
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.092
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 20 cm is 0.092 mW/cm^2. Limit is 1.0 mW/cm^2.

Note: Customer wanted to leave the manual statement of 30 cm separation distance. So based on the 30 cm separation request, the maximum power density is 0.041 mW/cm^2. Pass the limit of 1.0 mW/ cm^2.