## FCC §15.247 (I) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

## **Applicable Standard**

According to subpart 15.247 (i) and subpart 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 General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure									
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	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

## Result

## **Calculated Formulary:**

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

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)

For worst case:

Frequency (MHz)	Antenna Gain		Tune up conducted power		Evaluation Distance	Power Density	MPE Limit
	(dBi)	(numeric)	(dBm)	(mW)	(cm)	$(mW/cm^2)$	(mW/cm <sup>2</sup> )
2412-2462	3	2.0	12	15.85	20	0.006	1

Note: To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

**Result: Pass** 

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