RF Exposure Statement

FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) 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 $\lvert E\rvert^2$, $\lvert H\rvert^2$ 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

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\lvert E\rvert^2$, $\lvert H\rvert^2$ or S (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

NOTE 1: See Section 1 for discussion of exposure categories.

NOTE 2: The averaging time for General Population/Uncontrolled exposure to fixed transmitters is not applicable for mobile and portable transmitters. See 47 CFR §§2.1091 and 2.1093 on source-based time-averaging requirements for mobile and portable transmitters.

1.   Standard Applicable

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

When using the 12" dipole antenna this device becomes a <u>mobile device</u>.

2. **Measurement Result:**

Using the formula:

$$S = (P \text{ X } G) / (4 \text{ X } _{Pie} \text{ X } 20^2)$$

where:

S = power density
P = transmitter conducted power in (mW)
G = antenna numeric gain
d = distance to radiation center (cm^2)

Worst case is at 578 MHz with a max peak output power of 25.79 dBm (379.31 mW)
EIRP = ERP times 1.64 = 622.07 mW.

$$(622.07 \text{ X } 1) / (4 \text{ X } \pi \text{ X } 20^2) = 0.1238 \text{ mW/cm}^2$$

THRESHOLD

At 578 MHz the worst case for the low threshold equals f/1500 = (.385 mW/cm^2)

NOTE:

> Any frequency below or equal to 1 GHz, ERP measurements are used.
> All frequencies greater than 1GHz, EIRP measurements are used.

To determine the worst case level to be use for the RF exposure statement, when possible we will make RF conducted at the antenna terminal measurements and ERP/EIRP measurements. The higher of the two measurements will be used. If using the ERP RF substitution method, the antenna gain is added, subtracting out the ½λ dipole.