

3.6 RF Exposure

RF Exposure Requirements - §15.247(b)(5): 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 levels in excess of the Commission's guidelines.

RF Radiation Exposure Limits: §1.1310: As specified in this section, the Maximum Permissible Exposure (MPE) Limit shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Sec. 1.1307 (b), except in the case of portable devices which shall be evaluated according to the provisions of Sec. 2.1903 of this chapter.

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
(A) Limits for Occupational / Control Exposures				
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				
30 - 300	27.5	0.073	0.2	30
300 - 1500	--	--	F/1500	30
1500 - 100,000	--	--	1.0	30

Table 1. Limits for Maximum Permissible Exposure (MPE)

Note: F = Frequency in MHz

Test Results: MPE Limit Calculation: the EUT's operating frequencies @ 2412 – 2462 MHz; max conducted peak power from 802.11 b/g = 27.97 dBm (628.1 mW) with maximum antenna gain of 8 dBi. Therefore, Limit for Uncontrolled exposure: 1 mW/ cm²

Equation from page 18 of OET 65, Edition 97-01

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

Where, S = Power Density
 P = Power Input to antenna (628.1 mW)
 G = Antenna Gain (6.3 numeric)
 R = distance to the center of radiation of antenna (20 centimeters)

$$S = 628.1 * 6.3 / (4\pi * 20 * 20) = 0.787 \text{ mW/ cm}^2$$

Therefore EUT meets the Uncontrolled Exposure limit
 Note: The maximum output power is in the g mode.

Test Engineer: Dusmantha Tennakoon,

Test Date: September 22, 2006