3.5 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 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 Section 1.1307 (b), except in the case of portable devices which shall be evaluated according to the provisions of Section 2.1903 of this chapter.

Frequency Range (MHz)	Electric Field Stretgh (V/m)	Magnetic Field Stregth (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
300-1,500	--	--	F/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population/Uncontrolled Exposure				
30-300	27.5	0.073	0.2	30
300-1,500	--	--	F/1,500	30
1,500-100,000	--	--	1.0	30

Table 18. Limits for Maximum Permissible Exposure

Note: F=Frequency in MHz

Test Results: MPE Limit Calculation:

EUT's lowest frequency channel @ _2400_ MHz;
Limit for Uncontrolled exposure: _1_ mW/cm^2

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

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

where,

S = Power Density mW/m^2
P = Power Input to antenna mili Watts
G = Numeric Antenna Gain
R = Distance to the center of radiation of the antenna (20 cm for Mobile minimum distance)

Antenna Numeric Gain = $10^{dBi/10}$

Power at antenna port = 0.297 mW

Antenna Gain = 5 dBi

Numeric antenna gain = $10^{5/10} = 3.16$

$S = (0.297)(3.16) / 4(3.1416)(20)^2$

$S = 0.000187$ mW/cm^2

Therefore, EUT meets the Uncontrolled Exposure limit.

Test Engineer: Len Knight

Test Date: 03/27/2006