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 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
300-1,500	--	--	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 11. Limits for Maximum Permissible Exposure

Note: F=Frequency in MHz

Test Results: MPE Limit Calculation: the EUT's operating frequencies @ 902 - 928 MHz; conducted power = 12.52 dBm (peak) with maximum antenna gain of 2.7 dBi. Therefore, maximum limit for Uncontrolled exposure: 0.619 mW/ cm ² or 6.19 W/m ²

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

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

P = Power Input to antenna (0.018 Watts)
G = Antenna Gain (1.86 numeric)
R = distance to the center of radiation of antenna (in meter) = 0.20 m
$S = (0.018 * 1.86)/ (4\pi * 0.2^2) = 0.067$ W/m²

Therefore, at 20 cm the spectral power density is less than the 6.19 W/m² limit for uncontrolled exposure.

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