9. RF EXPOSURE TEST

9.1 RF EXPOSURE REQUIREMENTS / LIMIT:
§**1.1307(b)(1) and** §**1.1307(b)(2):** 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.

§**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. 2.1093 of this chapter.

(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 $|E|^2,|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	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 $|E|^2,|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

9.1.1 MPE CALCULATION METHOD

MPE Limit Calculation: EUT's operating freqencies @ **902-928**MHz;

Highest conducted power = **29.67**dBm (peak) therefore,

Limit for Uncontrolled exposure: **0.6** mW/ cm^2 or **10** mW/ cm^2

EUT maximum antenna gain =**5.43** dBi.

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

S = PG / 4 π R^2 or R = $\sqrt{}$ PG / 4 π S where,

S = Power Density (**0.6** mW/ cm^2)

P = Power Input to antenna (**926.83**mW)

G = Antenna Gain (**3.49** numeric)

R = (926.83*3.49/4*3.14*0.6) $^{1/2}$ = (3234.63*7.536) $^{1/2}$ = **20.7 cm**