APPENDIX L

: MAXIMUM PERMISSIBLE EXPOSURE

Maximum Permissible Exposure

1.1 Applicable Standard

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 limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device

(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/cm2)	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 ~ 1,500			f/300	6
1,500 ~ 100,000			5.0	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/cm2)	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 ~ 1,500			f/1500	30
1,500 ~ 100,000			1.0	30

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

1.2 MPE Calculation Method

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d}$$ Power Density: $$Pd(W/m^2) = \frac{E^2}{377}$$

E = Electric field (V/m)
P = Peak RF output power (W)
G = EUT Antenna numeric gain (numeric)
d = Separation distance between radiator and human body (m)
The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

1.3 Calculated Result and Limit

Antenna type: chip antenna

Antenna gain (dBi)	Antenna gain (numeric)	Peak output power (dBm)	Peak output power (mW)	Power Density (s) (mW/cm^2)	Limit of Power density (S) (mW/cm^2)
3.50	2.24	15.85	38.00	0.016 924	1