

Appendix B. Maximum Permissible Exposure

1. Maximum Permissible Exposure

1.1. Limit of Maximum Permissible Exposure

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.

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
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 1: f = frequency in MHz ; *Plane-wave equivalent power density				
Note 2: For the applicable limit, see FCC 1.1310				

1.2. MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$$

E = Electric field (V/m)

G = EUT Antenna numeric gain (numeric)

The formula can be changed to

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

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

P = RF output power (W)

d = Separation distance between radiator and human body (m)

1.3. Result of Maximum Permissible Exposure

Exposure Environment	General Population / Uncontrolled Exposure					
Temp	23℃		Humidity	61%		
Test Engineer	Serway Li		Test Date	Oct. 10, 2014 ~ Oct. 18, 2014		
Test results						
Maximum EIPR Power of Test Frequency (GHz)	Average EIRP Power (dBm)	Average EIRP Power (mW)	Power Density (S) (mW/cm²)	Separation Distance (cm)	Limit of Power Density (S) (mW/cm²)	
LRP 60.16 GHz	18.32	67.89	0.014	20	1.00	
MRP 60.48 GHz	24.30	269.41	0.054	20	1.00	
HRP 60.48 GHz	26.94	494.77	0.098	20	1.00	