

Appendix C. Maximum Permissible Exposure

FCC ID: O9C-WL548 Page No. : 1 of 3

Report No.: FR720216-AA

1. 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
300-1500			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/ 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
300-1500			F/1500	30
1500-100,000			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/m²) = $\frac{E^2}{377}$

 $\mathbf{E} = \mathbf{Electric} \ \mathbf{field} \ (V/m)$

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.

FCC ID: O9C-WL548 Page No. : 2 of 3



Report No.: FR720216-AA

1.3. Calculated Result and Limit

For Antenna 1

Antenna Type: Omni directional Antenna

Max Conducted Power for IEEE 802.11a: 14.98dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (\$) (mW/cm²)	Test Result
8	6.3096	14.9800	31.4775	0.039532	1	Complies

For Antenna 2

Antenna Type: Omni directional Antenna

Max Conducted Power for IEEE 802.11a: 16.82dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (\$) (mW/cm²)	Test Result
4	2.5119	16.8200	48.0839	0.024041	1	Complies

For Antenna 4

Antenna Type: Bidirectional Antenna

Max Conducted Power for IEEE 802.11a: 16.34dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
6	3.9811	16.3400	43.0527	0.034115	1	Complies

For Antenna 5

Antenna Type: Panel Antenna

Max Conducted Power for IEEE 802.11a: 12.77dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (\$) (mW/cm²)	Test Result
10	10.0000	12.7700	18.9234	0.037666	1	Complies

For Antenna 6

Antenna Type: Dipole Antenna

Max Conducted Power for IEEE 802.11a: 16.86dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (\$) (mW/cm²)	Test Result
5	3.1623	16.8600	48.5289	0.030546	1	Complies

FCC ID: O9C-WL548 Page No. : 3 of 3