

## RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in § 1.1307(b)

Limits for Maximum Permissible Exposure(MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm <sup>2</sup> )	Average Time
<b>(A) Limits for Occupational/Control Exposures</b>				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

### 11.1 Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

### 11.2 Measurement Result

Antenna gain: 2 dBi

802.11b

Channel	Channel Frequency (MHz)	Output Peak power (dBm)	Output Peak power (mW)	gain of antenna in linear scale G	Power density at 20cm (mW/ cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
1	2412.00	14.26	26.669	1.585	0.008	1
6	2437.00	14.19	26.242	1.585	0.008	1
11	2462.00	14.57	28.642	1.585	0.009	1

## 802.11g

Channel	Channel Frequency (MHz)	Output Peak power (dBm)	Output Peak power (mW)	gain of antenna in linear scale G	Power density at 20cm (mW/ cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
1	2412.00	12.69	18.578	1.585	0.006	1
6	2437.00	12.55	17.989	1.585	0.006	1
11	2462.00	12.83	19.187	1.585	0.006	1

## 802.11n HT20

Channel	Channel Frequency (MHz)	Output Peak power (dBm)	Output Peak power (mW)	gain of antenna in linear scale G	Power density at 20cm (mW/ cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
1	2412.00	12.61	18.239	1.585	0.006	1
6	2437.00	12.26	16.827	1.585	0.005	1
11	2462.00	12.75	18.836	1.585	0.006	1

## 802.11n HT40

Channel	Channel Frequency (MHz)	Output Peak power (dBm)	Output Peak power (mW)	gain of antenna in linear scale G	Power density at 20cm (mW/ cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
3	2422.00	11.87	15.382	1.585	0.005	1
6	2437.00	11.68	14.723	1.585	0.005	1
9	2452.00	11.59	14.421	1.585	0.005	1