

FCC ID : A5JC30435

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 ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

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

Where

P_d = Power density in mW/cm²

P_{out} =output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π =3.1416

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

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result

Mode Gain Modulation	SISO	MIMO
802.11b	1.5dBi	N/A
802.11g	1.5dBi	N/A
802.11n HT20	1.5dBi	4.5dBi
802.11n HT40	1.5dBi	4.5dBi

802.11b: Antenna A

Channel	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
1	2412	16.75	16.0±1	17.0	1.4125	0.0141	1
6	2437	16.93	16.0±1	17.0	1.4125	0.0141	1
11	2462	16.43	16.0±1	17.0	1.4125	0.0141	1

802.11b: Antenna B

Channel	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
1	2412	17.92	17.0±1	18.0	1.4125	0.0177	1
6	2437	17.96	17.0±1	18.0	1.4125	0.0177	1
11	2462	17.47	17.0±1	18.0	1.4125	0.0177	1

802.11g: Antenna A

Channel	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
1	2412	18.71	18.0±1	19.0	1.4125	0.0223	1
6	2437	18.50	18.0±1	19.0	1.4125	0.0223	1
11	2462	18.12	18.0±1	19.0	1.4125	0.0223	1

802.11g: Antenna B

Channel	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
1	2412	18.59	18.0±1	19.0	1.4125	0.0223	1
6	2437	18.60	18.0±1	19.0	1.4125	0.0223	1
11	2462	18.21	18.0±1	19.0	1.4125	0.0223	1

802.11n HT20: Antenna A

Channel	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
1	2412	18.61	18.0±1	19.0	1.4125	0.0223	1
6	2437	18.50	18.0±1	19.0	1.4125	0.0223	1
11	2462	18.31	18.0±1	19.0	1.4125	0.0223	1

802.11n HT20: Antenna B

Channel	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
1	2412	18.68	18.0±1	19.0	1.4125	0.0223	1
6	2437	18.66	18.0±1	19.0	1.4125	0.0223	1
11	2462	18.41	18.0±1	19.0	1.4125	0.0223	1

802.11n HT20: Antenna A+B

Channel	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
1	2412	21.66	21.0±1	22.0	2.8184	0.0889	1
6	2437	21.59	21.0±1	22.0	2.8184	0.0889	1
11	2462	21.37	21.0±1	22.0	2.8184	0.0889	1

802.11n HT40 : Antenna A

Channel	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
3	2422	18.37	18.0±1	19.0	1.4125	0.0223	1
6	2437	18.34	18.0±1	19.0	1.4125	0.0223	1
9	2452	18.09	18.0±1	19.0	1.4125	0.0223	1

802.11n HT40 : Antenna B

Channel	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
3	2422	18.42	18.0±1	19.0	1.4125	0.0223	1
6	2437	18.35	18.0±1	19.0	1.4125	0.0223	1
9	2452	18.15	18.0±1	19.0	1.4125	0.0223	1

802.11n HT40 : Antenna A+B

Channel	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
3	2422	21.41	21.0±1	22.0	2.8184	0.0889	1
6	2437	21.36	21.0±1	22.0	2.8184	0.0889	1
9	2452	21.13	21.0±1	22.0	2.8184	0.0889	1