

FCC ID : EMOIPF10GBA

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: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$

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 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: 1.5 dBi

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	18.97	18.0±1	19.0	1.413	0.022	1
6	2437	18.15	18.0±1	19.0	1.413	0.022	1
11	2462	18.12	18.0±1	19.0	1.413	0.022	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	15.42	15.0±1	16.0	1.413	0.011	1
6	2437	15.2	15.0±1	16.0	1.413	0.011	1
11	2462	15.74	15.0±1	16.0	1.413	0.011	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	14.44	14.0±1	15.0	1.413	0.008	1
6	2437	14.49	14.0±1	15.0	1.413	0.008	1
11	2462	14.57	14.0±1	15.0	1.413	0.008	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	14.62	14.0±1	15.0	1.413	0.008	1
6	2437	14.56	14.0±1	15.0	1.413	0.008	1
9	2452	14.38	14.0±1	15.0	1.413	0.008	1

802.11a : 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)
36	5180	12.97	12.0±1	13.0	1.413	0.005	1
44	5220	13.16	13.0±1	14.0	1.413	0.006	1
48	5240	13.23	13.0±1	14.0	1.413	0.006	1
149	5745	12.92	12.0±1	13.0	1.413	0.005	1
157	5785	12.81	12.0±1	13.0	1.413	0.005	1
165	5825	13.05	13.0±1	14.0	1.413	0.006	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/cm2)	Power density Limits (mW/cm2)
36	5180	13.04	13.0±1	14	1.413	0.006	1
44	5220	13.23	13.0±1	14	1.413	0.006	1
48	5240	13.33	13.0±1	14	1.413	0.006	1
149	5745	13.21	13.0±1	14	1.413	0.006	1
157	5785	12.69	12.0±1	13	1.413	0.005	1
165	5825	12.87	12.0±1	13	1.413	0.005	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/cm2)	Power density Limits (mW/cm2)
38	5190	10.25	10.0±1	11	1.413	0.003	1
46	5230	12.85	12.0±1	13	1.413	0.005	1
151	5755	12.85	12.0±1	13	1.413	0.005	1
159	5795	12.14	12.0±1	13	1.413	0.005	1

Note: 2.4G and 5G cannot be transmitted at the same time.