

FCC ID : 2AP3Q-WL-BWF-1

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

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 20cm

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

WIFI 2.4G:

Channel Freq. (MHz)	modulation	conducted power (mW)	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
2.412	11b	347.54	25.41	24dBm to 26dBm	26	2.19	0.17345	<1
2.437	11b	340.41	25.32	24dBm to 26dBm	26	2.19	0.17345	<1
2.462	11b	338.06	25.29	24dBm to 26dBm	26	2.19	0.17345	<1
2.412	11g	287.74	24.59	23dBm to 25dBm	25	2.19	0.13778	<1
2.437	11g	289.73	24.62	23dBm to 25dBm	25	2.19	0.13778	<1
2.462	11g	283.14	24.52	23dBm to 25dBm	25	2.19	0.13778	<1
2.412	11n HT20	274.16	24.38	23dBm to 25dBm	25	2.19	0.13778	<1
2.437	11n HT20	248.31	23.95	23dBm to 25dBm	25	2.19	0.13778	<1
2.462	11n HT20	251.77	24.01	23dBm to 25dBm	25	2.19	0.13778	<1
2.422	11n HT40	226.46	23.55	23dBm to 25dBm	25	2.19	0.13778	<1
2.437	11n HT40	242.10	23.84	23dBm to 25dBm	25	2.19	0.13778	<1
2.452	11n HT40	231.74	23.65	23dBm to 25dBm	25	2.19	0.13778	<1

BT DTS

Channel Freq. (MHz)	modulation	conducted power (mW)	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
2402	GFSK	1.05	0.20	-1dBm to 1dBm	1	2.19	0.00055	1
2440	GFSK	1.02	0.10	-1dBm to 1dBm	1	2.19	0.00055	1
2480	GFSK	0.97	-0.12	-1dBm to 1dBm	1	2.19	0.00055	1