

FCC ID: 2AGKTEJ80

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 antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.
 $mW = 10^{(dBm/10)}$

11.2 Measurement Result

Operation Frequency: 2402MHz-2480MHz; 2412MHz~2462MHz

Power density limited: 1mW/ cm²;

Antenna gain: PCB Antenna 2dBi ;

Bluetooth DSS &DTS:

Channel Freq. (MHz)	modulation	conducted power (mW)	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm (mW/cm2)	Power density Limits (mW/cm2)
2402	GFSK	0.39	-4.066	-5±1	-4	1.58	0.000126	1
2441		0.34	-4.710	-5±1	-4	1.58	0.000126	1
2480		0.28	-5.508	-5±1	-4	1.58	0.000126	1
2402	pi/4-DQPSK	0.14	-8.464	-8±1	-7	1.58	0.000063	1
2441		0.18	-7.462	-8±1	-7	1.58	0.000063	1
2480		0.13	-8.710	-8±1	-7	1.58	0.000063	1
2402	8DPSK	0.17	-7.767	-8.6±1	-7.6	1.58	0.000055	1
2441		0.14	-8.504	-8.6±1	-7.6	1.58	0.000055	1
2480		0.11	-9.578	-8.6±1	-7.6	1.58	0.000055	1
2402	GFSK (BLE)	0.16	-8.017	8±1	-7	1.58	0.000063	1
2440		0.15	-8.118	8±1	-7	1.58	0.000063	1
2480		0.15	-8.333	8±1	-7	1.58	0.000063	1

802.11b:

Channel Frequency (MHz)	Output power (mW)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm(mW/cm2)	Power density Limits (mW/cm2)
2412	35.16	15.46	15±1	16	1.58	0.0126	1
2437	28.58	14.56	15±1	16	1.58	0.0126	1
2462	28.97	14.62	15±1	16	1.58	0.0126	1

802.11g:

Channel Frequency (MHz)	Output power (mW)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm(mW/cm2)	Power density Limits (mW/cm2)
2412	39.26	15.94	15±1	16	1.58	0.0126	1
2437	33.34	15.23	15±1	16	1.58	0.0126	1
2462	34.99	15.44	15±1	16	1.58	0.0126	1

802.11n HT20:

Channel Frequency (MHz)	Output power (mW)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm(mW/cm2)	Power density Limits (mW/cm2)
2412	31.48	14.98	15±1	16	1.58	0.0126	1
2437	26.36	14.21	15±1	16	1.58	0.0126	1
2462	29.11	14.64	15±1	16	1.58	0.0126	1

802.11n HT40:

Channel Frequency (MHz)	Output power (mW)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm(mW/cm2)	Power density Limits (mW/cm2)
2422	23.33	13.68	14±1	15	1.58	0.0100	1
2437	26.92	14.3	14±1	15	1.58	0.0100	1
2452	27.16	14.34	14±1	15	1.58	0.0100	1