



FCC ID:2BF78-S100-1

RF EXPOSURE EVALUATION

Limits

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)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz

Friis transmission formula: $Pd = (Pout * G) / (4 * \pi * r^2)$

Where

Pd = power density in mW/cm², **Pout** = 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

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

Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.



Test Result of RF Exposure Evaluation

BT								
Mode	Frequency (MHz)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
GFSK	2402	5.487	5±1	6	3.98	0.001158	1.0	PASS
π/4-DQPSK	2402	5.960	5±1	6	3.98	0.001158	1.0	PASS
8-DPSK	2402	6.241	6±1	7	5.01	0.001458	1.0	PASS

Note: Antenna Gain = 1.65dBi

2.4G WI-FI								
Mode	Frequency (MHz)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
802.11 b	2462	15.634	15±1	16	39.81	0.011581	1.0	PASS
802.11 g	2412	15.243	15±1	16	39.81	0.011581	1.0	PASS
802.11 n20	2462	15.161	15±1	16	39.81	0.011581	1.0	PASS
802.11 n40	2452	14.668	14±1	15	31.62	0.009199	1.0	PASS

Note: Antenna Gain = 1.65dBi

5.8G WI-FI								
Mode	Frequency (MHz)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
802.11 a	5745	15.151	15±1	16	39.81	0.013054	1.0	PASS
802.11 n20	5745	14.661	14±1	15	31.62	0.010369	1.0	PASS
802.11 n40	5755	14.568	14±1	15	31.62	0.010369	1.0	PASS
802.11ac20	5745	14.702	14±1	15	31.62	0.010369	1.0	PASS
802.11ac40	5755	14.565	14±1	15	31.62	0.010369	1.0	PASS
802.11ac80	5775	13.487	13±1	14	25.12	0.008237	1.0	PASS

Note: Antenna Gain = 2.17dBi

Remark: The device can not transmit with 2.4GWI-FI and 5.8G WI-FI and BT simultaneously.

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