FCC ID: 2AP2P8675523016510

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)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

E (V/m) = $\frac{\sqrt{30 * P * G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = Average RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

Pd = $\frac{30 * P * G}{377 * D^2}$

From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

MAX OUTPUT POWER
WIFI:

Test Channel	Frequency (MHz)	Power Setting	Average Output Power (dBm)	Maximum Output Power (dBm)	LIMIT (dBm)	Verdict
802.11b						
1	2412	Default	14.8	14.8	30	PASS
6	2437	Default	15.5	15.5	30	PASS
11	2462	Default	15.7	15.7	30	PASS
802.11g						
1	2412	Default	15.2	15.2	30	PASS
6	2437	Default	15.2	15.2	30	PASS
11	2462	Default	15.5	15.5	30	PASS
802.11n HT20						
1	2412	Default	15.1	15.1	30	PASS
6	2437	Default	15.4	15.4	30	PASS
11	2462	Default	15.4	15.4	30	PASS
802.11n HT40						
3	2422	Default	15.0	15.0	30	PASS
6	2437	Default	15.4	15.4	30	PASS
9	2452	Default	15.5	15.5	30	PASS

Measurement Result

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz, 2422-2452MHz for 802.11n(HT40);
Power density limited: 1mW/ cm^2
Antenna Type: PCB On-board PIFA Antenna
Antenna gain: 2dBi,
R=20cm
802.11b/g/n:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2412	802.11b	14.8	15±1	16	39.811	2.00	1.58	0.0126	1
2437		15.5	15±1	16	39.811	2.00	1.58	0.0126	1
2462		15.7	15±1	16	39.811	2.00	1.58	0.0126	1
2412	802.11g	15.2	15±1	16	39.811	2.00	1.58	0.0126	1
2437		15.2	15±1	16	39.811	2.00	1.58	0.0126	1
2462		15.5	15±1	16	39.811	2.00	1.58	0.0126	1
2412	802.11n H20	15.1	15±1	16	39.811	2.00	1.58	0.0126	1
2437		15.1	15±1	16	39.811	2.00	1.58	0.0126	1
2462		15.4	15±1	16	39.811	2.00	1.58	0.0126	1
2422	802.11n H40	15	15±1	16	39.811	2.00	1.58	0.0126	1
2437		15.4	15±1	16	39.811	2.00	1.58	0.0126	1
2452		15.5	15±1	16	39.811	2.00	1.58	0.0126	1

Conclusion:
For the max result : 0.0126≤ 1.0 for Max Power Density, compliance the RF Exposure.

Signature: **Date:** 2018-6-13

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