

FCC ID: 2AWR5-KY002B

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 cm(20cm)

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: 2412MHz~2462MHz

5745MHz~5825MHz

Power density limited: 1mW/ cm²

Antenna Type: FPCB Antenna

Antenna gain: 3dBi,

R=20cm

mW=10^{^(dBm/10)}

2.4G WIFI:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2412	802.11b	13.03	13±1	14	25.119	3.00	2.00	0.0100	1
2437		12.49	13±1	14	25.119	3.00	2.00	0.0100	1
2462		12.64	13±1	14	25.119	3.00	2.00	0.0100	1
2412	802.11g	12.08	12±1	13	19.953	3.00	2.00	0.0079	1
2437		11.75	12±1	13	19.953	3.00	2.00	0.0079	1
2462		12.07	12±1	13	19.953	3.00	2.00	0.0079	1
2412	802.11n H20	12.77	12±1	13	19.953	3.00	2.00	0.0079	1
2437		12.21	12±1	13	19.953	3.00	2.00	0.0079	1
2462		12.34	12±1	13	19.953	3.00	2.00	0.0079	1
2422	802.11n(H T40)	13.14	13±1	14	25.119	3.00	2.00	0.0100	1
2437		12.21	13±1	14	25.119	3.00	2.00	0.0100	1
2452		12.12	13±1	14	25.119	3.00	2.00	0.0100	1

5.8G WIFI:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up pow er		Gain			
				(dBm)	(mW)	(dBi)	Numeric	(mW/cm ²)	(mW/cm ²)
5745	802.11a	10.02	10±1	11	12.589	3.00	2.00	0.0050	1
5785		10.55	10±1	11	12.589	3.00	2.00	0.0050	1
5825		10.57	10±1	11	12.589	3.00	2.00	0.0050	1
5745	802.11ac20	9.49	9±1	10	10.000	3.00	2.00	0.0040	1
5785		9.94	9±1	10	10.000	3.00	2.00	0.0040	1
5825		9.91	9±1	10	10.000	3.00	2.00	0.0040	1
5755	802.11ac40	9.8	10±1	11	12.589	3.00	2.00	0.0050	1
5795		10.08	10±1	11	12.589	3.00	2.00	0.0050	1
5775	802.11ac80	9.58	10±1	11	12.589	3.00	2.00	0.0050	1
5745	802.11n20	9.48	10±1	11	12.589	3.00	2.00	0.0050	1
5785		10.11	10±1	11	12.589	3.00	2.00	0.0050	1
5825		9.93	10±1	11	12.589	3.00	2.00	0.0050	1

Conclusion:

For the max result : 0.0100≤ 1mW/ cm² for Power density, compliance with RF exposure.

Alex

Signature:

Date: 2022-04-27

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