

FCC ID : ZUXIBB-A1

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 (R=20cm)

Pd the limit of MPE, $1\text{mW}/\text{cm}^2$. 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)	WLAN Mode	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm^2)	Power density Limits (mW/cm^2)
2412	11b	15.84	16±1	17	1.995	0.0199	1
2437	11b	15.89	16±1	17	1.995	0.0199	1
2462	11b	15.69	16±1	17	1.995	0.0199	1
2412	11g	16.26	16±1	17	1.995	0.0199	1
2437	11g	16.18	16±1	17	1.995	0.0199	1
2462	11g	16.09	16±1	17	1.995	0.0199	1
2412	11n HT20	14.27	14±1	15	1.995	0.0126	1
2437	11n HT20	14.16	14±1	15	1.995	0.0126	1
2462	11n HT20	13.96	14±1	15	1.995	0.0126	1

WIFI 5G Band I (5150-5250MHz)

Channel Freq. (MHz)	WLAN Mode	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
5180	11a	10.76	10±1	11	1.995	0.0050	1
5200	11a	10.74	10±1	11	1.995	0.0050	1
5240	11a	10.59	10±1	11	1.995	0.0050	1
5180	11n HT20	12.31	12±1	13	1.995	0.0079	1
5200	11n HT20	12.29	12±1	13	1.995	0.0079	1
5240	11n HT20	12.26	12±1	13	1.995	0.0079	1

Band III (5725-5850MHz)

Channel Freq. (MHz)	WLAN Mode	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
5745	11a	10.76	10±1	11	1.995	0.0050	1
5785	11a	10.62	10±1	11	1.995	0.0050	1
5825	11a	10.63	10±1	11	1.995	0.0050	1
5745	11n HT20	12.37	12±1	13	1.995	0.0079	1
5785	11n HT20	12.30	12±1	13	1.995	0.0079	1
5825	11n HT20	12.29	12±1	13	1.995	0.0079	1