

FCC ID : OGXA1605A

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

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

BT DSS

Channel Freq. (MHz)	modulation	conducted power (mW)	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)
2402	GFSK	0.87	-0.624	-1dBm to 1dBm	1	1.65	0.00042	1
2441	GFSK	0.93	-0.295	-1dBm to 1dBm	1	1.65	0.00042	1
2480	GFSK	0.95	-0.233	-1dBm to 1dBm	1	1.65	0.00042	1
2402	$\pi/4$ - DQPSK	0.90	-0.461	-1dBm to 1dBm	1	1.65	0.00042	1
2441	$\pi/4$ - DQPSK	0.96	-0.198	-1dBm to 1dBm	1	1.65	0.00042	1
2480	$\pi/4$ - DQPSK	0.97	-0.133	-1dBm to 1dBm	1	1.65	0.00042	1
2402	8DPSK	1.00	-0.007	-1dBm to 1dBm	1	1.65	0.00042	1
2441	8DPSK	1.07	0.308	-1dBm to 1dBm	1	1.65	0.00042	1
2480	8DPSK	1.09	0.362	-1dBm to 1dBm	1	1.65	0.00042	1

BT DTS

Channel Freq. (MHz)	modulation	conducted power (mW)	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)
2402	GFSK	6.61	8.205	7dBm to 9dBm	9	1.65	0.00262	1
2441	GFSK	7.11	8.516	7dBm to 9dBm	9	1.65	0.00262	1
2480	GFSK	7.11	8.516	7dBm to 9dBm	9	1.65	0.00262	1

WIFI 2.4G

Channel Freq. (MHz)	modulation	conducted power (mW)	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)
2.412	11b	27.10	14.33	13dBm to 15dBm	15	1.65	0.01044	1
2.437	11b	27.10	14.33	13dBm to 15dBm	15	1.65	0.01044	1
2.462	11b	23.99	13.80	13dBm to 15dBm	15	1.65	0.01044	1
2.412	11g	36.06	15.57	14dBm to 16dBm	16	1.65	0.01314	1
2.437	11g	39.54	15.97	14dBm to 16dBm	16	1.65	0.01314	1
2.462	11g	34.99	15.44	14dBm to 16dBm	16	1.65	0.01314	1
2.412	11n HT20	32.81	15.16	14dBm to 16dBm	16	1.65	0.01314	1
2.437	11n HT20	36.06	15.57	14dBm to 16dBm	16	1.65	0.01314	1
2.462	11n HT20	33.04	15.19	14dBm to 16dBm	16	1.65	0.01314	1

WIFI 5G

Channel Freq. (MHz)	modulation	conducted power (mW)	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)
5180	11a	42.56	16.29	16dBm to 18dBm	18	1.65	0.02082	1
5220	11a	47.86	16.80	16dBm to 18dBm	18	1.65	0.02082	1
5240	11a	52.48	17.20	16dBm to 18dBm	18	1.65	0.02082	1
5745	11a	43.05	16.34	15dBm to 17dBm	17	1.65	0.01654	1
5785	11a	31.12	14.93	14dBm to 16dBm	16	1.65	0.01314	1
5825	11a	27.29	14.36	14dBm to 16dBm	16	1.65	0.01314	1