

FCC ID : 2AYVYFMWRJ03A8

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)

According to KDB 447498 D01 v06 RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES

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: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$

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

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.

11.2 Measurement Result

BLE

Antenna gain: 1.0dBi

Mode	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
BLE 1M	2402	1.59	1±1	2	1.2589	0.0004	1
BLE 1M	2440	1.35	1±1	2	1.2589	0.0004	1
BLE 1M	2480	1.79	1±1	2	1.2589	0.0004	1
BLE 2M	2402	1.58	1±1	2	1.2589	0.0004	1
BLE 2M	2440	1.32	1±1	2	1.2589	0.0004	1
BLE 2M	2480	1.78	1±1	2	1.2589	0.0004	1

SRD2.4G

Antenna1 gain: 3.1dBi

Antenna2 gain: 3.1dBi

Antenna1+2 gain: 6.1dBi

Mode	Antenna	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
BPSK	total	2406	17.09	18±2	20	4.0738	0.4074	1
	total	2438	19.01	18±2	20	4.0738	0.4074	1
	total	2470	17.30	18±2	20	4.0738	0.4074	1
QPSK	total	2406	17.38	18±2	20	4.0738	0.4074	1
	total	2438	17.13	18±2	20	4.0738	0.4074	1
	total	2470	17.06	18±2	20	4.0738	0.4074	1
16QAM	total	2406	17.24	18±2	20	4.0738	0.4074	1
	total	2438	17.68	18±2	20	4.0738	0.4074	1
	total	2470	17.55	18±2	20	4.0738	0.4074	1
64QAM	total	2406	17.36	18±2	20	4.0738	0.4074	1
	total	2438	17.68	18±2	20	4.0738	0.4074	1
	total	2470	18.37	18±2	20	4.0738	0.4074	1

MAX RF EXPOSURE EVALUATION

SRD2.4G	BLE	Summation of Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
0.4074	0.0004	0.4078	<1