

# **FCC ID : 2BE82-LIBRA**

## **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 <sup>2</sup> )	Average Time
<b>(A) Limits for Occupational/Control Exposures</b>				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

$$1.1 \text{ Friis transmission formula: } P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$$

Where

P<sub>d</sub>= Power density in mW/cm<sup>2</sup>

P<sub>out</sub>=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1416

R= distance between observation point and center of the radiator in 20cm

P<sub>d</sub> the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna, through the calculation, we will know the distance where the MPE limit is reached.

## 1.2 Measurement Result

**Antenna Gain:** 2.54 dBi

Mode	Max Measured power (dBm)	Max tune-up power (dBm)	Antenna gain	Antenna Gain Numeric	Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
2.4G WIFI	14.64	15	2.54	1.79	0.01129	1
BLE	2.37	3	2.54	1.79	0.00071	1

### MAX RF EXPOSURE EVALUATION

WIFI 2.4G	BT	Summation of Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
0.01129	0.00071	0.012	<1

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