# FCC ID : 2BEA6TPC121

## 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: Pd= (Pout*G)\ (4*pi*$R^2$)

Where

Pd= Power density in $mW/cm^2$

Pout=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 cm

Pd the limit of MPE, $1mW/cm^2$,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.

RF Exposure Information: The radiated output power of this device meets the limits of FCC/IC radio frequency exposure limits.This device should be operated with a minimum separation distance of 20cm (8 inches) between the equipment and a person's body.

## 11.2 Measurement Result

Below BT and WIFI mode can transmit simultaneously.

| Mode | Max Conducted Power (dBm) | Antenna gain (dBi) | Antenna Gain Numeric | Evaluation result (mW/cm2 ) | Power density Limits (mW/cm2 ) |
|---|---|---|---|---|---|
| BLE | 11.63 | 3.44 | 2.21 | 0.00639 | 1 |
| BT | 12.84 | 3.44 | 3.55 | 0.00845 | 1 |
| 2.4G WIFI | 24.15 | 6.45 | 4.42 | 0.22842 | 1 |
| 5G WIFI | 24.89 | 7.62 | 5.78 | 0.35459 | 1 |

Note:
2.4GHz: Directional gain = 3.44dBi + 10log(2) = 6.51dB
5GHz: Directional gain = 4.61dBi + 10log(2) = 8.01dB

Max RF Exposure evaluation.

| BT (mW/cm2 ) | 5G WIFI (mW/cm2 ) | Summation of Evaluation result (mW/cm2 ) | Power density Limits (mW/cm2 ) |
|---|---|---|---|
| 0.00845 | 0.35459 | 0.36304 | 1 |

**Note:** All the modes are tested, only the worst data are described in the table.

----- The End -----