

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)

FCC ID: 2AOKB-T8441X

EUT Specification

| | |
|-----------------------------------|--|
| EUT | Outdoor Cam Pro |
| Frequency band (Operating) | <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.24GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input checked="" type="checkbox"/> Others: 2.402GHz~2.480GHz |
| Device category | <input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____ |
| Exposure classification | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²) |
| Antenna diversity | <input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity |
| Max. output power | WIFI 2.4G: 23.90dBm (0.2455W); BLE: 7.224dBm (0.0053W) |
| Antenna gain (Max) | BLE/WIFI2.4G: 2.9 dBi |
| Evaluation applied | <input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation |

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 |

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 = gain of antenna in linear scale

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.

Measurement Result

| Operating Mode | Channel Frequency | Measured Power | Tune up tolerance | Max. Tune up Power | Antenna Gain | Power density at 20cm | Power density Limits (mW/cm ²) |
|----------------|-------------------|----------------|-------------------|--------------------|--------------|------------------------|--|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBi) | (mW/ cm ²) | |
| 802.11b | 2412 | 23.83 | 23.83 ±1 | 24.83 | 2.9 | 0.1180 | 1 |
| | 2437 | 23.90 | 23.90 ±1 | 24.90 | 2.9 | 0.1199 | 1 |
| | 2462 | 23.51 | 23.51 ±1 | 24.51 | 2.9 | 0.1096 | 1 |
| 802.11g | 2412 | 18.60 | 18.60 ±1 | 19.60 | 2.9 | 0.0354 | 1 |
| | 2437 | 18.95 | 18.95 ±1 | 19.95 | 2.9 | 0.0384 | 1 |
| | 2462 | 18.40 | 18.40 ±1 | 19.40 | 2.9 | 0.0338 | 1 |
| 802.11n (HT20) | 2412 | 20.09 | 20.09 ±1 | 21.09 | 2.9 | 0.0499 | 1 |
| | 2437 | 20.06 | 20.06 ±1 | 21.06 | 2.9 | 0.0495 | 1 |
| | 2462 | 20.23 | 20.23 ±1 | 21.23 | 2.9 | 0.0515 | 1 |
| BLE | 2402 | 6.673 | 6.673 ±1 | 7.67 | 2.9 | 0.0023 | 1 |
| | 2440 | 7.220 | 7.220 ±1 | 8.22 | 2.9 | 0.0026 | 1 |
| | 2480 | 7.224 | 7.224 ±1 | 8.22 | 2.9 | 0.0026 | 1 |

For Transmit Simultaneously Max Result:

BLE+2.4G WIFI

Ratio: BLE_{RF ratio} + 2.4G WIFI_{RF ratio} = 0.1199+0.0026=0.1225s<3.0