

## 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-T8420X

### EUT Specification

|                                   |  |
|-----------------------------------|--|
| <b>EUT</b>                        | Floodlight Camera  |
| <b>Frequency band (Operating)</b> | <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input type="checkbox"/> WLAN: 5.18GHz ~ 5.24GHz<br><input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz<br><input checked="" type="checkbox"/> Others: 2.402GHz~2.480GHz |
| <b>Device category</b>            | <input type="checkbox"/> Portable (<20cm separation)<br><input checked="" type="checkbox"/> Mobile (>20cm separation)<br><input type="checkbox"/> Others ____  |
| <b>Exposure classification</b>    | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> )<br><input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )  |
| <b>Antenna diversity</b>          | <input checked="" type="checkbox"/> Single antenna<br><input type="checkbox"/> Multiple antennas<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input type="checkbox"/> Tx/Rx diversity           |
| <b>Max. output power</b>          | WIFI: 16.77dBm (0.0475W); BLE: 7.816dBm (0.0060W)  |
| <b>Antenna gain (Max)</b>         | 2.6 dBi  |
| <b>Evaluation applied</b>         | <input checked="" type="checkbox"/> MPE Evaluation<br><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 <sup>2</sup> ) | Average Time |
|--|------------------------------|------------------------------|------------------------------------|--------------|
| <b>(A) Limits for Occupational/Control Exposures</b>         |                              |                              |                                    |              |
| 300-1500   | --                           | --                           | <b>F/300</b>                       | <b>6</b>     |
| 1500-100000  | --                           | --                           | <b>5</b>                           | <b>6</b>     |
| <b>(B) Limits for General Population/Uncontrol Exposures</b> |                              |                              |                                    |              |
| 300-1500   | --                           | --                           | <b>F/1500</b>                      | <b>6</b>     |
| 1500-100000  | --                           | --                           | <b>1</b>                           | <b>30</b>    |

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

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in Mw

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

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

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. 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

### 2.4GHz WiFi:

| Operating Mode | Channel Frequency | Measured Power | Tune up tolerance | Max. Tune up Power | Antenna Gain | Power density at 20cm  | Power density Limits (mW/cm <sup>2</sup> ) |
|----------------|-------------------|----------------|-------------------|--------------------|--------------|------------------------|--|
|                | (MHz)             | (dBm)          | (dBm)             | (dBm)              | (dBi)        | (mW/ cm <sup>2</sup> ) |  |
| 802.11b        | 2412              | 16.06          | 16.06±1           | 17.06              | 2.6          | 0.0263                 | 1  |
|                | 2437              | 16.56          | 16.56±1           | 17.56              | 2.6          | 0.0295                 | 1  |
|                | 2462              | 16.69          | 16.69±1           | 17.69              | 2.6          | 0.0304                 | 1  |
| 802.11g        | 2412              | 16.55          | 16.55±1           | 17.55              | 2.6          | 0.0294                 | 1  |
|                | 2437              | 16.25          | 16.25±1           | 17.25              | 2.6          | 0.0275                 | 1  |
|                | 2462              | 16.10          | 16.10±1           | 17.1               | 2.6          | 0.0265                 | 1  |
| 802.11n (HT20) | 2412              | 16.45          | 16.45±1           | 17.45              | 2.6          | 0.0288                 | 1  |
|                | 2437              | 16.56          | 16.56±1           | 17.56              | 2.6          | 0.0295                 | 1  |
|                | 2462              | 16.77          | 16.77±1           | 17.77              | 2.6          | 0.0310                 | 1  |
| BLE            | 2402              | 7.493          | 7.493±1           | 8.493              | 2.6          | 0.0037                 | 1  |
|                | 2440              | 7.142          | 7.142±1           | 8.142              | 2.6          | 0.0034                 | 1  |
|                | 2480              | 7.816          | 7.816±1           | 8.816              | 2.6          | 0.0039                 | 1  |