

# Maximum Permissible Exposure Evaluation

## FCC ID: 2AEP6XM-JPLB1

### 1. Client Information

**Applicant** : HangZhou XiongMai Technology CO., LTD  
**Address** : 9th Floor, Building 9, Yinhu Innovation Center, No.9 FuXian Road, YinHu Street, Hangzhou, China  
**Manufacturer** : HangZhou XiongMai Technology CO., LTD  
**Address** : No.2 Dong Qiao Road, Dongzhou Industrial, Fuyang District, Hangzhou, China

### 2. General Description of EUT

|                            |                          |  |
|----------------------------|--------------------------|--|
| <b>EUT Name</b>            | :                        | Smart LED Colorful Bulb  |
| <b>Models No.</b>          | :                        | XM-JPLB1, XM-JPLB, XM-JPLB2, JPLB, JPLB1, JPLB2  |
| <b>Model Difference</b>    | :                        | All models are identical in the same PCB layout, interior structure and electrical circuits, The only difference is model name for commercial purpose. |
| <b>Product Description</b> | :                        | Operation Frequency:<br>802.11b/g/n(HT20): 2412MHz~2462MHz<br>802.11n(HT40): 2422MHz~2452MHz   |
|                            | Number of Channel:       | 802.11b/g/n(HT20):11 channels <b>see note(3)</b><br>802.11n(HT40): 7 channels <b>see note(3)</b>   |
|                            | RF Output Power:         | 802.11b: 8.53 dBm<br>802.11g: 8.20 dBm<br>802.11n (HT20): 7.99 dBm<br>802.11n (HT40): 7.42 dBm   |
|                            | Antenna Gain:            | 2 dBi PCB Antenna  |
|                            | Modulation Type:         | 802.11b:CCK,DQPSK,DBPSK;<br>802.11g:64-QAM,QPSK,BPSK<br>802.11n:64-QAM,16-QAM,QPSK,BPSK  |
|                            | Bit Rate of Transmitter: | 802.11b:11/5.5/2/1 Mbps<br>802.11g:54/48/36/24/18/12/9/6 Mbps<br>802.11n:up to 150Mbps   |
| <b>Power Supply</b>        | :                        | AC Voltage supplied from power network.  |

TB-RF-075-1.0

|                               |   |                                   |
|-------------------------------|---|-----------------------------------|
| <b>Power Rating</b>           | : | Input: AC 100~240V,50/60Hz, 3W    |
| <b>Connecting I/O Port(S)</b> | : | Please refer to the User's Manual |

## MPE Calculations for WIFI

### 1. Antenna Gain:

PCB Antenna: 2 dBi.

### 2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

### 3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

**S:** power density

**P:** power input to the antenna

**G:** power gain of the antenna in the direction of interest relative to an isotropic radiator.

**R:** distance to the center of radiation of the antenna

### 4. Test Result:

| Worst Maximum MPE Result  |                 |                 |                 |                    |                              |                   |  |
|---|-----------------|-----------------|-----------------|--------------------|------------------------------|-------------------|--|
| Mode  | N <sub>TX</sub> | Frequency (MHz) | Power (dBm) [P] | ANT Gain (dBi) [G] | Turn-up Power Tolerance (dB) | Distance (cm) [R] | Power Density (mW/ cm <sup>2</sup> ) [S] |
| 2.4G  |                 |                 |                 |                    |                              |                   |  |
| 802.11b   | 1               | 2437            | 8.53            | 2                  | ±1                           | 20                | 0.0028                                   |
| 802.11g   | 1               | 2437            | 8.20            | 2                  | ±1                           | 20                | 0.0026                                   |
| 802.11n (HT20)  | 1               | 2437            | 7.99            | 2                  | ±1                           | 20                | 0.0025                                   |
| 802.11n (HT40)  | 1               | 2422            | 7.42            | 2                  | ±1                           | 20                | 0.0022                                   |
| Note:   |                 |                 |                 |                    |                              |                   |  |
| (1) N <sub>TX</sub> = Number of Transmit Antennas                       |                 |                 |                 |                    |                              |                   |  |
| (2) RF Output power specifies that Maximum Conducted Peak Output Power. |                 |                 |                 |                    |                              |                   |  |

### 5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

#### Limits for General Population/ Uncontrolled Exposure

| Frequency Range (MHz) | Power density (mW/ cm <sup>2</sup> ) |
|-----------------------|--------------------------------------|
| 300-1,500             | F/1500                               |
| 1,500-100,000         | 1.0                                  |

For 802.11b/g/n (2412~2462 MHz)

MPE limit S: 1 mW/ cm<sup>2</sup>

The MPE is calculated as 0.0028mW / cm<sup>2</sup> < limit 1 mW / cm<sup>2</sup>. So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

**Note**

For a more detailed features description, please refer to the RF Test Report.

-----END OF REPORT-----