

# Maximum Permissible Exposure Evaluation

## FCC ID: 2AKBP-Q3CM

### 1. Client Information

|                     |   |                                                                                                                            |
|---------------------|---|----------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant</b>    | : | Shenzhen Hysiry Technology Co., Ltd.                                                                                       |
| <b>Address</b>      | : | 2403D, 24th Floor, Coast Huanqing Building, No.24 Futian Road, Xu Town Community, Futian Street, Futian District, Shenzhen |
| <b>Manufacturer</b> | : | Shenzhen Hysiry Technology Co., Ltd.                                                                                       |
| <b>Address</b>      | : | 2403D, 24th Floor, Coast Huanqing Building, No.24 Futian Road, Xu Town Community, Futian Street, Futian District, Shenzhen |

### 2. General Description of EUT

|                               |                      |                                                                                                                          |
|-------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>EUT Name</b>               | :                    | Smart bulb                                                                                                               |
| <b>Models No.</b>             | :                    | Q3CM, Q3WM                                                                                                               |
| <b>Model Different</b>        | :                    | All these models are the same PCB, layout and electrical circuit, the only difference is Color temperature of lamp beads |
| <b>Product Description</b>    | Operation Frequency: | 802.11b/g/n(HT20): 2412MHz~2462MHz                                                                                       |
|                               | RF Output Power:     | 802.11b: 0.374dBm<br>802.11g: 0.981dBm<br>802.11n (HT20): 1.014dBm                                                       |
|                               | Antenna Gain:        | 1.7dBi microstrip Antenna                                                                                                |
|                               | Modulation Type:     | 802.11b: DSSS(CCK, DQPSK, DBPSK)<br>802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)                                              |
| <b>Power Supply</b>           | :                    | AC Voltage supplied                                                                                                      |
| <b>Power Rating</b>           | :                    | Input: AC 100-240V 50/60Hz                                                                                               |
| <b>Software Version</b>       | :                    | 1.0                                                                                                                      |
| <b>Hardware Version</b>       | :                    | 1.0                                                                                                                      |
| <b>Connecting I/O Port(S)</b> | :                    | Please refer to the User's Manual                                                                                        |

***TB-RF-075-1.0***

## MPE Calculations for WIFI

### 1. Antenna Gain:

PCB Antenna: 1.7dBi.

### 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:

| Mode           | Conducted Power(max) (dBm) | Turn-up Power (dB) | Max tune up power (dBm) [P] | ANT Gain (dBi) [G] | Distance (cm) [R] | Power Density (mW/ cm <sup>2</sup> ) [S] |
|----------------|----------------------------|--------------------|-----------------------------|--------------------|-------------------|------------------------------------------|
| 802.11b        | 0.374                      | 0±1                | 1                           | 1.7                | 20                | 0.00037                                  |
| 802.11g        | 0.981                      | 1±1                | 2                           | 1.7                | 20                | 0.00047                                  |
| 802.11n (HT20) | 1.014                      | 1±1                | 2                           | 1.7                | 20                | 0.00047                                  |

**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: 1mW/ cm<sup>2</sup>

The MPE is calculated as  $0.00047\text{mW/cm}^2 < \text{limit } 1\text{mW/cm}^2$ . 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-----