



## RF Exposure Evaluation Declaration

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**FCC ID:** 2AJ3WEBEQPZ09

**APPLICANT:** Hangzhou Eboylamp Electronics Co.,Ltd.

**Application Type:** Certification

**Product:** SMART LED LAMP

**Model No.:** EBE-QPZ09

**FCC Classification:** Digital Transmission System (DTS)

**FCC Rule Part(s):** FCC CFR 47 §2.1091

**Test Date:** April 01 ~ 12, 2017

Reviewed By : *Robin Wu*  
( Robin Wu )

Approved By : *Marlinchen*  
( Marlin Chen )



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

## Revision History

| Report No.   | Version | Description    | Issue Date | Note  |
|--------------|---------|----------------|------------|-------|
| 1703RSU03402 | Rev. 01 | Initial report | 04-12-2017 | Valid |
|              |         |                |            |       |

## 1. PRODUCT INFORMATION

### 1.1. Equipment Description

|                           |                                                                  |
|---------------------------|------------------------------------------------------------------|
| Product Name              | SMART LED LAMP                                                   |
| Model No.                 | EBE-QPZ09                                                        |
| WLAN Specification        |                                                                  |
| Frequency Range           | 802.11b/g/n-HT20: 2412 ~ 2462 MHz                                |
| Maximum Peak Output Power | 802.11b: 10.93dBm<br>802.11g: 19.27dBm<br>802.11n-HT20: 19.31dBm |
| Type of Modulation        | 802.11b: DSSS<br>802.11g/n: OFDM                                 |
| Antenna Type              | PCB Antenna                                                      |
| Antenna Gain              | 3.0dBi                                                           |

### 1.2. Antenna Description

| Antenna Type | Frequency Band (MHz) | Manufacturer | Max Peak Gain (dBi) |
|--------------|----------------------|--------------|---------------------|
| PCB Antenna  | 2412~2462            | Tuya         | 3.0                 |

## 2. RF Exposure Evaluation

### 2.1. Limits

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<br>(MHz)                                  | Electric Field<br>Strength (V/m) | Magnetic Field<br>Strength (A/m) | Power Density<br>(mW/cm <sup>2</sup> ) | Average Time<br>(Minutes) |
|-----------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------------|---------------------------|
| (A) Limits for Occupational/ Control Exposures            |                                  |                                  |                                        |                           |
| 300-1500                                                  | --                               | --                               | f/300                                  | 6                         |
| 1500-100,000                                              | --                               | --                               | 5                                      | 6                         |
| (B) Limits for General Population/ Uncontrolled Exposures |                                  |                                  |                                        |                           |
| 300-1500                                                  | --                               | --                               | f/1500                                 | 6                         |
| 1500-100,000                                              | --                               | --                               | 1                                      | 30                        |

**Formula as follows:**

f= Frequency in MHz

Calculation Formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in  $mW/cm^2$

$P_{out}$  = 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

$P_d$  is the limit of MPE,  $1mW/cm^2$ . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

## 2.2. Test Result of RF Exposure Evaluation

|           |                        |
|-----------|------------------------|
| Product   | SMART LED LAMP         |
| Test Item | RF Exposure Evaluation |

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.0dBi for Wi-Fi band in logarithm scale.

### For 802.11b/g/n(HT-20):

| Test Mode          | Frequency Band (MHz) | Maximum Average Output Power (dBm) | Power Density at r = 20 cm (mW/cm <sup>2</sup> ) | FCC Limit (mW/cm <sup>2</sup> ) |
|--------------------|----------------------|------------------------------------|--------------------------------------------------|---------------------------------|
| 802.11b/g/n(HT-20) | 2412 ~ 2462          | 11.08                              | 0.0051                                           | 1                               |

### CONCLUSION:

Therefore, the Max Power Density at r (20 cm) = 0.0051mW/cm<sup>2</sup> < 1mW/cm<sup>2</sup>.

So the EUT complies with the FCC requirement.

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