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# RF Exposure Evaluation Report

**Report No.:** CQASZ20210300324E-02  
**Applicant:** HONGKONG VIMAI TECHNOLOGY CO.,LIMITED  
**Address of Applicant:** FLAT/RM H29, 1/F PHASE 2 KWAI SHING IND BLDG NO.42-46, TAI LIN PAI ROAD KWAI CHUNG, HONG KONG  
**Equipment Under Test (EUT):**  
**EUT Name:** wireless microphone  
**Model No.:** EP033-Lighting  
**Brand Name:** N/A  
**FCC ID:** 2AVLI-LIGHTING  
**Standards:** 47 CFR Part 1.1307  
47 CFR Part 1.1310  
KDB447498D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2021-3-22  
**Date of Test:** 2021-3-22 to 2021-4-19  
**Date of Issue:** 2021-4-19  
**Test Result:** **PASS\***

\*In the configuration tested, the EUT complied with the standards specified above

**Tested By:**

*Jun Li*

( Jun Li)

**Reviewed By:**

*Ares Liu*

( Ares Liu )

**Approved By:**

*Sheek Luo*

(Sheek Luo)



## 1 Version

### Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210300324E-02	Rev.01	Initial report	2021-4-19

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### 3 General Information

#### 3.1 Client Information

Applicant:	HONGKONG VIMAI TECHNOLOGY CO.,LIMITED
Address of Applicant:	FLAT/RM H29, 1/F PHASE 2 KWAI SHING IND BLDG NO.42-46, TAI LIN PAI ROAD KWAI CHUNG, HONG KONG
Manufacturer:	SHEN ZHEN VIMAI TECHNOLOGY CO.,LTD
Address of Manufacturer:	Floor 3, building B, no. 5 huating road, tongsheng community, dalang street, longhua district, shenzhen
Factory:	SHEN ZHEN VIMAI TECHNOLOGY CO.,LTD
Address of Factory:	Floor 3, building B, no. 5 huating road, tongsheng community, dalang street, longhua district, shenzhen

#### 3.2 General Description of EUT

Product Name:	wireless microphone
Model No.:	EP033-Lighting
Trade Mark:	N/A
Hardware Version:	EP033-Lighting-V1.4 EP033-MIC-v0.6
Software Version:	MIC-V1.4+EP033-Lighting-V1.4
Frequency Range:	2413MHz ~ 2460MHz
Modulation Type:	GFSK
Number of Channels:	3(declared by the client)
Sample Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Test Software of EUT:	Serial Debugging Assistant V1.3
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Power Supply:	Button battery 80mAh, DC DC3.7V-4.2V

## 4 RF Exposure Evaluation

### 4.1 RF Exposure Compliance Requirement

#### 4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

##### 4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

#### 4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$$\left[ \frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \cdot \sqrt{f(\text{GHz})} \right] \leq 3.0$$
 for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

$f(\text{GHz})$  is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup>

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion

## 4.2 EUT RF Exposure Evaluation

### 1) For 2.4G

$$e_{irp} = p_t \times g_t = (E \times d)^2 / 30$$

where:

$p_t$  = transmitter output power in watts,

$g_t$  = numeric gain of the transmitting antenna (unitless),

$E$  = electric field strength in V/m,  $10^{((dB_{\mu V/m})/20)/10^6}$ ,

$d$  = measurement distance in meters (m)---3m,

$$\text{So } p_t = (E \times d)^2 / 30 / g_t$$

The worst case (refer to report CQASZ20210300324E-01) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
2413	89.95	Peak
2413	87.92	Average

For 2460MHz wireless:

Field strength = 89.95dB $\mu$ V/m @3m

Ant. gain 0dBi; so Ant numeric gain=1.0So  $p_t = \{ [10$

$(89.95/20)/10^6 \times 3]^2 / 30 / 1.0 \} \times 1000mW = 0.297mW$ So

$(0.297mW/5mm) \times \sqrt{2.413GHz} = 0.092,$

0.092<3.0 for 1-g SAR

So the SAR report is not required.