

## RF Exposure Evaluation Report

**Product** : PowerEgg X 8K  
**Trade mark** : PowerEgg™  
**Model/Type reference** : PEX20  
**Serial Model** : N/A  
**Report Number** : EED39N80209405  
**FCC ID** : 2AKBMPEX20  
**Date of Issue** : August 6, 2021

Test Standards	Results
<input checked="" type="checkbox"/> 47 CFR Part 1.1307	PASS
<input checked="" type="checkbox"/> 47 CFR Part 1.1310	PASS
<input checked="" type="checkbox"/> KDB 447498 D01v06	PASS

Prepared for:

**Powervision Tech Inc.**

**Zone E, Ocean Venture Valley, No.40, Yangguang Rd, Nanhai new District, Weihai, Shandong, China. 264200**

Prepared by:

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检验检测专用章  
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Date: August 6, 2021

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## Modification Record

No.	Last Report No.	Modification Description
1	EED39N80209405	First report

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## 1 General Information

### 1.1 Client Information

Applicant:	Powervision Tech Inc.
Address of Applicant:	Zone E,Ocean Venture Valley, No.40, Yangguang Rd, Nanhai new District, Weihai, Shandong,China. 264200
Manufacturer:	Powervision Tech Inc.
Address of Manufacturer:	Zone E,Ocean Venture Valley, No.40, Yangguang Rd, Nanhai new District, Weihai, Shandong,China. 264200
Factory:	Powervision (Suzhou) Technology Co.,Ltd.
Address of Factory:	Building 3,No.15, Zhujing Road,Changshu High-tech Industrial Development Zone,Suzhou,China

### 1.2 General Description of EUT

Product Name:	PowerEgg X 8K	
Model No.(EUT):	PEX20	
Trade Mark:		
EUT Supports Radios application:	2.4G WIFI: IEEE802.11b/g/n(20MHz), 2412MHz-2462MHz 5G WIFI: IEEE802.11a/an(HT20)5725-5850MHz. 2.4G: 2406MHz~2466MHz 5G:5740MHz~5830MHz	
Power Supply:	Adapter:	Model:PAD20 INPUT:100-240V 1.4A 50-60Hz OUTPUT:DC 13.3V 3.76A DC 5V 2A
	Battery:	Model: PEMIB10 Rated voltage:11.4V Rated capacity:3800mAh
Sample Received Date:	2021.05.14	
Sample tested Date:	2021.05.17 to 2021.08.05	

### 1.3 Product Specification subjective to this standard

Frequency Range:	2.4G WIFI: IEEE802.11b/g/n(20MHz), 2412MHz-2462MHz 5G WIFI: IEEE802.11a/an(HT20)5725-5850MHz. 2.4G: 2406MHz~2466MHz 5G:5740MHz~5830MHz	
Antenna Type:	PCB antenna	
Antenna gain for WiFi module:	ANT1:	2.4G: 3dBi, 5G: 3dBi
	ANT2:	2.4G: 3dBi, 5G: 3dBi
Antenna gain for other module :	ANT1:	2.4G: 0.25dBi, 5G: 0.25dBi
	ANT2:	2.4G: 0.25dBi, 5G: 0.25dBi
Test Voltage:	DC 11.4V	
Max Conducted	2.4GHz : 27.83 dBm	

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Output Power:	5GHz :20.70 dBm
	2.4GHz WiFi: 18.61 dBm
	5GHz WiFi :17.98 dBm
	The Max Conducted Output Power data refer to the report EED39N80209401, EED39N80209402, EED39N80209403, EED39N80209404

## 1.4 Test Location

All test facilities used to collect the test data are located at Building 18, Zhihui New Town Ecological Industrial Park, No. 1206, Jinyang East Road, Lujia Town, Kunshan, Jiangsu, China.

## 1.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### **A2LA-Lab Cert. No. 5734.01**

Centre Testing International (Suzhou) CO., LTD. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration. Laboratories and any additional program requirements in the identified field of testing.

### **FCC-Designation No.:CN1290**

Centre Testing International Group Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The American association for Centre Testing International Group Co., Ltd. EMC laboratory accreditation Designation No.:CN1290

## 1.6 Deviation from Standards

None.

## 1.7 Abnormalities from Standard Conditions

None.

## 1.8 Other Information Requested by the Customer

None.

## 2 RF Exposure Evaluation

### 2.1 RF Exposure Compliance Requirement

#### 2.1.1 Limits

According to FCC Part1.1310: 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 part1.1307(b)

**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> )	Averaging time (minutees)
(A)Limits for Occupational/Controlled Exposures				
0.3 ~ 3.0	614	1.63	100	6
3.0 ~ 30	1842/f	4.89/f	900/f <sup>2</sup>	6
30 ~ 300	61.4	0.163	1.0	6
300 ~ 1500	---	---	f/300	6
1500 ~ 100000	---	---	5	6
(B)Limits for General Population/Uncontrolled Exposure				
0.3 ~ 1.34	614	1.63	100	30
1.34 ~ 30	824/f	2.19/f	180/f <sup>2</sup>	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1500	---	---	f/1500	30
1500 ~ 100000	---	---	1.0	30

A rough estimation of the expected exposure in power flux density on a given point can be made with the following equation:

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R= distance to the centre of radiation of the antenna

EIRP = P\*G

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user.

Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to

a person has been printed on the user's manual. Therefore, the S of the device is calculated with R=20cm,

and if it is below the limit S, then we can conclude the device complies with the rules.

#### 2.1.2 Test Procedure

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

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## 2.1.3 EUT RF Exposure Evaluation

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Output Power(dBm)	Gain (dBi)	EIRP* (dBm)	EIRP (mW)	R (cm)	S (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
2.4G	2436	27.83	0.25	28.03	635.33	20	0.1279	1.0	Pass
5G	5780	20.70	0.25	20.95	124.45	20	0.0248	1.0	Pass
2.4G WiFi	2437	18.61	3	21.61	144.88	20	0.0288	1.0	Pass
5G WiFi	5785	17.98	3	20.98	62.81	20	0.0249	1.0	Pass

Note:

All of the Bluetooth& WLAN can transmit simultaneously, the formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

$2.4G+5G+2.4G \text{ WiFi}+5G \text{ WiFi} = 0.1279+0.0248+0.0288+0.0249=0.2064\text{mW/cm}^2$

The testing data and results in this report are just for scientific research, education, internal quality control and product development etc.

\*\*\* End of Report \*\*\*

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