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Report No.: SZEM140500250503  
Page: 1 of 6

## SAR Evaluation Report

**Application No.:** SZEM1405002505RF  
**Applicant:** Polk Audio  
**Manufacturer:** Polk Audio  
**Factory:** Cosonic Acoustic Technology Co., Ltd  
**Product Name:** Wireless Headphone  
**Model No.(EUT):** Hinge Wireless  
**Trade Mark:** Polk  
**FCC ID:** WLQHINGEWIRELESS  
**Standards:** 47 CFR Part 1.1307(2013)  
47 CFR Part 2.1093 (2013)  
KDB447498D01 General RF Exposure Guidance v05r02  
**Date of Receipt:** 2014-05-29  
**Date of Test:** 2014-06-09 to 2014-06-16  
**Date of Issue:** 2014-06-27

<b>Test Result :</b>	<b>PASS*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Jack Zhang  
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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### 3 General Information

#### 3.1 Client Information

Applicant:	Polk Audio
Address of Applicant:	5601 Metro Drive, Baltimore, MD 21215, USA
Manufacturer:	Polk Audio
Address of Manufacturer:	5601 Metro Drive, Baltimore, MD 21215, USA
Factory:	Cosonic Acoustic Technology Co., Ltd
Address of Factory:	5/F, 1st Building, No.6, South Industrial Road, Songshan Lake National Hi-tech Industrial Development Zone, Dongguan, Guangdong, China 523808

#### 3.2 General Description of EUT

Product Name:	Wireless Headphone	
Model No.:	Hinge Wireless	
Trade Mark:	Polk	
Operation Frequency:	2402MHz~2480MHz	
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)	
Hopping Channel Type:	FHSS	
Sample Type:	Portable production	
Antenna Type and Gain:	Type :Integral Gain :0dBi	
Power Supply:	Battery:	JY 403040-430mAh
Test Voltage:	120V 60Hz	
USB Cable:	204cm (Unshielded)	
Aux in Cable:	127cm (Unshielded)	
BT:		
Bluetooth Version:	4.0(with classic mode)	
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK	
Number of Channel:	79	
Test Power Grade:	POWER 50/30	
Test Software of EUT:	CSR BlueSuite	
BLE:		
Bluetooth Version:	4.0(with BLE mode)	
Modulation Type:	GFSK	
Number of Channel:	40	
Test Power Grade:	Default transmit power 0	
Test Software of EUT:	CSR BlueSuite	



Remark:	The Product has three kinds of color (black, camel, blue). Only the camel model in the section 8 was tested, since the circuitry design, PCB layout, electrical components used, internal wiring and functions were identical for all models. With difference being on color of appearance.
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### 3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China  
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

### 3.4 Test Facility

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **VCCI**

The 3m Semi-anechoic chamber, Full-anechoic Chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197, G-416, T-1153 and C-2383 respectively.

- **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.



### 3.5 Deviation from Standards

None.

### 3.6 Abnormalities from Standard Conditions

None.

### 3.7 Other Information Requested by the Customer

None.

## 4 SAR Evaluation

### 4.1 RF Exposure Compliance Requirement

#### 4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v05

##### 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:

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

$f(\text{GHz})$  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

#### 4.1.3 EUT RF Exposure

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BT:

The Max Conducted Peak Output Power is 2.22dBm in highest channel(2.480GHz);

The best case gain of the antenna is 0dBi.

EIRP= 2.22dBm + 0dBi = 2.22dBm

2.22dBm logarithmic terms convert to numeric result is nearly 1.6672mW

According to the formula. calculate the EIRP test result:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$$

General RF Exposure =  $(1.6672\text{mW} / 5 \text{ mm}) \times \sqrt{2.480\text{GHz}} = 0.5251$  ①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.

BLE:

The Max Conducted Peak Output Power is 2.23dBm in highest channel(2.480GHz);

The best case gain of the antenna is 0dBi.

EIRP= 2.23dBm + 0dBi = 2.23dBm

2.23dBm logarithmic terms convert to numeric result is nearly 1.6711mW

According to the formula. calculate the EIRP test result:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$$

General RF Exposure =  $(1.6711\text{mW} / 5 \text{ mm}) \times \sqrt{2.480\text{GHz}} = 0.5263$  ①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.

