



Report No.: SZEM191001907403

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SAR Evaluation Report

Application No.: SZEM1910019074CR

Applicant: Kingstate Electronics (DongGuan) Co., Ltd.

Address of Applicant: Shi Chong Industrial Park, Shi Chong Avenue, Xiang Xi Village, Shi Pai

Town, Dongguan, China

Manufacturer: Kingstate Electronics (Dongguan) Co., Ltd

Address of Manufacturer: Shi Chong Industrial Park, Shi Chong Avenue, Xiang Xi Village, Shi Pai

Town, Dong Guan City, Guang Dong Province, China.

Factory: Kingstate Electronics (Dongguan) Co., Ltd

Address of Factory: Shi Chong Industrial Park, Shi Chong Avenue, Xiang Xi Village, Shi Pai

Town, Dong Guan City, Guang Dong Province, China.

Equipment Under Test (EUT):

EUT Name: Earphones

Model No.: EP-E30A

Trade Mark: YAMAHA

 FCC ID:
 2AKMBEP-E30A

 Standards:
 47 CFR Part 1.1307

 47 CFR Part 2.1093

KDB447498D01 General RF Exposure Guidance v06

Date of Receipt: 2019-10-08

Date of Test: 2019-10-09 to 2019-10-24

Date of Issue: 2019-10-28

Test Result : PASS*

Keny Xu EMC Laboratory Manager

Ceny. Ku



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^{*} In the configuration tested, the EUT complied with the standards specified above.



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2 Version

Revision Record						
Version	Chapter	Date	Modifier	Remark		
01		2019-10-28		Original		

Authorized for issue by:		
	Hary Uh	
	Harry Wu /Project Engineer	
	EvicFu	
	Eric Fu /Reviewer	



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4 General Information

4.1 General Description of EUT

Power Supply:	DC 3.7V Rechargeable Battery which can be charged by Type C port	
Cable:	Type C cable: 30cm, Unshielded	
Serial No.:	Z010229UW	
For BT		
Operation Frequency:	2402MHz to 2480MHz	
Bluetooth Version:	V5.0	
Spectrum Spread Technology:	ead Frequency Hopping Spread Spectrum(FHSS)	
Modulation Type:	GFSK, π/4DQPSK, 8DPSK	
Number of Channels:	79	
Channel Spacing:	1MHz	
Antenna Type:	Integral Antenna	
Antenna Gain:	2.59dBi	
For BLE		
Operation Frequency:	2402MHz to 2480MHz	
Bluetooth Version:	V5.0	
Modulation Type:	GFSK	
Number of Channels:	40	
Channel Spacing:	2MHz	
Antenna Type:	Integral Antenna	
Antenna Gain:	2.59dBi	
Data Rate:	1Mb/s, 2Mb/s	



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4.2 Test Location

All tests were performed at:

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

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.

4.3 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.

A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCCI

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC -Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.



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4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None

4.6 Other Information Requested by the Customer

None.



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5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 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.

5.1.2 Limits

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

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

f(GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

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

5.1.3 EUT RF Exposure

For BT

The Max. power (including tune-up tolerance) is 3.21 dBm on the highest channel 2.48 GHz (*) 3.21 dBm logarithmic terms convert to numeric result is nearly 2.09 mW

According to the formula. calculate the test exclusion thresholds:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] \cdot [vf(GHz)]

General RF Exposure = (2.09 mW / 5 mm) $x \sqrt{2.48} \text{ GHz} = 0.66$ (1)

SAR requirement:

 $S = 3.0 \tag{2}$

(1) < (2)

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM191001907401



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For BLE

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The Max. power (including tune-up tolerance) is -0.01 dBm on the highest channel 2.48 GHz (*)

-0.01 dBm logarithmic terms convert to numeric result is nearly 1.00 mW

According to the formula. calculate the test exclusion thresholds:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·

General RF Exposure = (1.00 mW / 5 mm) x $\sqrt{2.48}$ GHz = 0.31

(1)

SAR requirement:

S = 3.0(2)

(1) < (2)

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM191001907402

2Mb/s

The Max. power (including tune-up tolerance) is -4.61 dBm on the lowest channel 2.402 GHz (*) -4.61 dBm logarithmic terms convert to numeric result is nearly 0.35 mW

According to the formula. calculate the test exclusion thresholds:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·

General RF Exposure = (0.35 mW / 5 mm) $\times \sqrt{2.402}$ GHz = 0.11 (1)

SAR requirement:

S = 3.0(2)

(1) < (2)

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM191001907402

- End of the Report -



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