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RF Exposure Evaluation Report

Report No. : CQASZ20181100006E-03
Applicant: Shenzhen Shuaixian Electronic Equipment Co., Ltd.
Address of Applicant: NO.10 Lane3, Longxing Rd., Dakang Long Village, Henggang Town, Longgang Dist., Shenzhen, China
Manufacturer: Shenzhen Shuaixian Electronic Equipment Co., Ltd.
Address of Manufacturer: NO.10 Lane3, Longxing Rd., Dakang Long Village, Henggang Town, Longgang Dist., Shenzhen, China
Factory: Shenzhen Shuaixian Electronic Equipment Co., Ltd.
Address of Factory: NO.10 Lane3, Longxing Rd., Dakang Long Village, Henggang Town, Longgang Dist., Shenzhen, China
Equipment Under Test (EUT):
Product: Bluetooth wireless headphones
All Model No.: A6, Marathon, SX-910, SX-910A, SX-910H
Test Model No.: A6
Brand Name: SUICEN, LEVIN, Linkwitz
FCC ID: UHBSX-910
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Test: 2018-11-12 to 2018-11-16
Date of Issue: 2018-11-16
Test Result : PASS*

Tested By:

Daisy Qin

(Daisy Qin)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai
(Jack Ai)



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

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20181100006E-03	Rev.01	Initial report	2018-11-16

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Shuaixian Electronic Equipment Co., Ltd.
Address of Applicant:	NO.10 Lane3, Longxing Rd., Dakang Long Village, Henggang Town, Longgang Dist., Shenzhen, China
Manufacturer:	Shenzhen Shuaixian Electronic Equipment Co., Ltd.
Address of Manufacturer:	NO.10 Lane3, Longxing Rd., Dakang Long Village, Henggang Town, Longgang Dist., Shenzhen, China
Factory:	Shenzhen Shuaixian Electronic Equipment Co., Ltd.
Address of Factory:	NO.10 Lane3, Longxing Rd., Dakang Long Village, Henggang Town, Longgang Dist., Shenzhen, China

3.2 General Description of EUT

Product Name:	Bluetooth wireless headphones
All Model No.:	A6, Marathon, SX-910, SX-910A, SX-910H
Test Model No.:	A6
Trade Mark:	SUICEN, LEVIN, Linkwitz
Hardware Version:	V1.0
Software Version:	V1.0
Bluetooth Version:	V4.2
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Power Supply:	lithium battery:DC3.7V, Charge by DC5.0V

3.3 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Test Software of EUT:	Blue test 3 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	3.48dBi

3.4 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	40
Test Software of EUT:	Blue test 3 (manufacturer declare)
Antenna Type:	PCB antenna

Antenna Gain:	3.48dBi
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Note:

All model: A6, Marathon, SX-910, SX-910A, SX-910H

Only the model A6 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

4 SAR 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 ≤ 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 calculation¹⁷

☐ The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 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

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.500	2.0±1	3.0	1.995
Middle(2441MHz)	5.220	4.5±1	5.5	3.548
Highest(2480MHz)	6.310	5.5±1	6.5	4.467
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.310	0±1	1.0	1.259
Middle(2441MHz)	4.090	3.5±1	4.5	2.818
Highest(2480MHz)	5.350	4.5±1	5.5	3.548

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	2.500	2.0±1	3.0	1.995	0.62	3.0
Middle (2441MHz)	5.220	4.5±1	5.5	3.548	1.11	
Highest (2480MHz)	6.310	5.5±1	6.5	4.467	1.41	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20181100006E-01

2) For BLE

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.86	3.0±1	4.0	2.512
Middle(2440MHz)	5.77	5.0±1	6.0	3.981
Highest(2480MHz)	6.84	6.0±1	7.0	5.012

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	3.86	3.0±1	4.0	2.512	0.78	3.0
Middle (2440MHz)	5.77	5.0±1	6.0	3.981	1.24	
Highest (2480MHz)	6.84	6.0±1	7.0	5.012	1.58	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20181100006E-02

BDR, EDR and BLE can not simultaneous transmitting at same time.