1 Cover Page

RF Exposure REPORT

Application No.:	SHEM1910018343CR
FCC ID:	2AC8UA1965
IC:	21806-A1965
Applicant:	Anhui Huami Information Technology Co.,Ltd.
Address of Applicant:	Room 1201, Building A4, National Animation Industry Base, No. 800 Wangjiang West Road, Gaoxin District, Hefei, Anhui, China
Manufacturer:	Anhui Huami Information Technology Co.,Ltd.
Address of Manufacturer:	Room 1201, Building A4, National Animation Industry Base, No. 800 Wangjiang West Road, Gaoxin District, Hefei, Anhui, China
Factory:	Dongguan Xuntao Electronic Co., Ltd.
Address of Factory:	Qinghuang Industrial Park, Qingxi Town, Dongguan City, Guangdong, China
Equipment Under Test (EUT):	
EUT Name:	Amazfit PowerBuds
Model No.:	A1965
Standard(s) :	FCC Rules 47 CFR §2.1093 KDB447498 D01 General RF Exposure Guidance v06 RSS-102 Issue 5 (March 2015)
Date of Receipt:	2019-10-30
Date of Test:	2019-11-13 to 2019-11-30
Date of Issue:	2019-12-11
Test Result:	**Pass***

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

Parlam Zhan
E&E Section 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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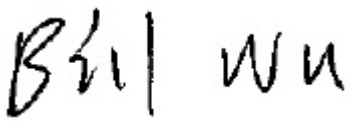
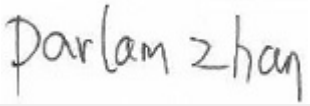
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2019-12-11	/

Authorized for issue by:				
				
		Bill Wu / Project Engineer		
				
		Parlam Zhan / Reviewer		

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3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 3.7V 55mAh rechargeable battery
Test voltage:	DC 3.7V

3.2 Details of E.U.T.

BT

Antenna Gain	Left: -3.08dBi Right: -3.4dBi
Antenna Type	Left: Integral Antenna Right: Integral Antenna
Channel Spacing	1MHz
BT Version	BT 5.0
Modulation Type	GFSK, π/4DQPSK, 8DPSK
Number of Channels	79
Operation Frequency	2402MHz to 2480MHz
Spectrum Spread Technology	Frequency Hopping Spread Spectrum(FHSS)

BLE

Antenna Gain	Left: -3.08dBi Right: -3.4dBi
Antenna Type	Left: Integral Antenna Right: Integral Antenna
BT Version	BT 5.0
Data Rate	1Mbps / 2Mbps
Channel Spacing	2MHz
Modulation Type	GFSK
Number of Channels	40
Operation Frequency	2402MHz to 2480MHz

3.3 Test Location

All tests were performed at:

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

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

3.4 Test Facility

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

• CNAS (No. CNAS L0599)

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. 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.

• NVLAP (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC –Designation Number: CN5033

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

• Innovation, Science and Economic Development Canada

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

IC Registration No.: 8617A-1. CAB identifier: CN0020.

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure 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)/(min test separation distance)]*[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 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
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds

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 according to 4.1 f) is applied to determine SAR test exclusion.

For 2.4G band device, the limit of worse case is

$P_{max} \leq 3.0 * D_{min}) / \sqrt{f} = 3.0 * 5 / \sqrt{2.480} = 9.525 mW$

4.2 IC Radiofrequency radiation exposure limits

According to RSS-102 section 2.5.1, SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance

MHz	5	10	15	20	25	30	35	40	45	50	mm
≤300	71	101	132	162	193	223	254	284	315	345	
450	52	70	88	106	123	141	159	177	195	213	
835	17	30	42	55	67	80	92	105	117	130	
1900	7	10	18	34	60	99	153	225	316	431	mW
2450	4	7	15	30	52	83	123	173	235	309	
3500	2	6	16	32	55	86	124	170	225	290	
5800	1	6	15	27	41	56	71	85	97	106	

Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power. For controlled use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation are multiplied by a factor of 5. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5. If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.

The practical use condition for this device is as a limb-worn accessories. So the applicable limit is 10-g extremity SAR

For 2.4G band device, the limit is P_{max}≤4mW

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM191001834301 & SHEM191001834302.

Test Data:

A1965-Left

BT

Test Mode	Test Channel	Power[dBm]	Peak Power (mW)
DH5	2402	3.28	2.13
DH5	2441	3.61	2.30
DH5	2480	3.85	**2.43**
2DH5	2402	1.78	1.51
2DH5	2441	2.15	1.64
2DH5	2480	2.39	1.73
3DH5	2402	2.2	1.66
3DH5	2441	2.55	1.80
3DH5	2480	2.78	1.90

BLE

Test Mode	Test Channel	Power[dBm]		Power[mW]	
		1Mbps	2Mbps	1Mbps	2Mbps
BLE	2402	1.42	1.32	1.39	1.36
BLE	2440	2.89	2.82	1.95	1.91
BLE	2480	3.36	3.28	**2.17**	**2.13**

A1965-Right

BT

Test Mode	Test Channel	Power[dBm]	Peak Power (mW)
DH5	2402	1.58	1.44
DH5	2441	2.94	1.97
DH5	2480	3.36	**2.17**
2DH5	2402	0.04	1.01
2DH5	2441	1.4	1.38
2DH5	2480	1.81	1.52
3DH5	2402	0.42	1.10
3DH5	2441	1.78	1.51
3DH5	2480	2.19	1.66

BLE

Test Mode	Test Channel	Power[dBm]		Power[mW]	
		1Mbps	1Mbps	2Mbps	2Mbps
BLE	2402	2.05	2.13	1.60	1.63
BLE	2440	2.86	2.92	1.93	1.96
BLE	2480	3.27	3.32	**2.12**	**2.15**

5.2 RF Exposure Calculation

A1965-Left

The Max Conducted Peak Output Power is 2.43mW. The best case gain of the antenna is -3.08dBi.

-3.08dBi logarithmic terms convert to numeric result is nearly 0.49

According to the formula. calculate the EIRP test result:

EIRP= P x G = 2.43mW x 0.49 = 1.191mW <4mW< 9.525mW

A1965-Right

The Max Conducted Peak Output Power is 2.17mW. The best case gain of the antenna is -3.4dBi.

-3.4dBi logarithmic terms convert to numeric result is nearly 0.46

According to the formula. calculate the EIRP test result:

EIRP= P x G = 2.17mW x 0.46 = 0.998mW <4mW< 9.525mW

According to the KDB447498 D01 section 4.3.1 and RSS-102 section 2.5.1, determine the device is exclusion from SAR test.

--End of the Report--