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RF Exposure Evaluation Report

Report No. :	CQASZ20190700623E-03
Applicant:	Avantree Technology Co., Ltd.
Address of Applicant:	The 4th Floor, Yuepeng Building, No.1019 Jiabin Rd, Luohu District, Shenzhen, China
Equipment Under Test (EUT):	
Product:	Stereo Wireless Headset
Model No.:	BTHS-AH6B
Brand Name:	Avantree
FCC ID:	2AITF-BTHS-AH6B
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2019-07-19
Date of Test:	2019-07-19 to 2019-07-26
Date of Issue:	2019-07-26
Test Result :	**PASS***

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

Tested By: Tom chen. ***(Tom chen)***

Reviewed By: Aaron Ma ***(Aaron Ma)***

Approved By: ***(Jack Ai)***

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD. CQA 华夏淮测 APPROVED

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20190700623E-03	Rev.01	Initial report	2019-07-26

2 Contents

3 General Information

3.1 Client Information

Applicant:	Avantree Technology Co., Ltd.
Address of Applicant:	The 4th Floor, Yuepeng Building, No.1019 Jiabin Rd, Luohu District, Shenzhen, China
Manufacturer:	Avantree Technology Co., Ltd.
Address of Manufacturer:	The 4th Floor, Yuepeng Building, No.1019 Jiabin Rd, Luohu District, Shenzhen, China

3.2 General Description of EUT

Product Name:	Stereo Wireless Headset
Model No.:	BTHS-AH6B
Trade Mark:	Avantree
Hardware Version:	V7.0
Software Version:	V1.0
Bluetooth Version:	V5.0
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, π/4DQPSK, 8DPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Test Software of EUT:	Blue test3 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	1.5dBi

3.4 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps/2Mbps
Number of Channel:	40
Test Software of EUT:	Blue test3 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	1.5dBi

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:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√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 before calculation[17]
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)	0.610	0±1	1.0	1.259
Middle(2441MHz)	3.820	3.0±1	4.0	2.512
Highest(2480MHz)	5.110	4.5±1	5.5	3.548
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.680	-2.0±1	-1.0	0.794
Middle(2441MHz)	2.350	1.5±1	2.5	1.778
Highest(2480MHz)	3.900	3.0±1	4.0	2.512
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.470	-2.0±1	-1.0	0.794
Middle(2441MHz)	2.630	2.0±1	3.0	1.995
Highest(2480MHz)	4.130	3.5±1	4.5	2.512

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)	0.610	0±1	1.0	1.259	0.39	3.0
Middle (2441MHz)	3.820	3.0±1	4.0	2.512	0.78	
Highest (2480MHz)	5.110	4.5±1	5.5	3.548	1.12	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190700623E-01

2) For BLE

Measurement Data

GFSK(1Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.37	-4.0±1	-3.0	0.501
Middle(2440MHz)	0.73	0±1	1.0	1.259
Highest(2480MHz)	2.51	2.0±1	3.0	1.995

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)	5.38	4.5±1	5.5	0.501	0.16	3.0
Middle (2440MHz)	6.23	5.5±1	6.5	1.259	0.39	
Highest (2480MHz)	6.97	6.0±1	7.0	1.995	0.63	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190700623E-02

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