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RF Exposure Evaluation Report

Report No. : CQASZ20190600500E-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
Test Model No.: BTHS-AH6
Brand Name: Avantree
FCC ID: 2AITF-BTHS-AH6
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06

Date of Receipt: 2019-06-25
Date of Test: 2019-06-25 to 2019-07-01
Date of Issue: 2019-07-01
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
CQASZ20190600500E-03	Rev.01	Initial report	2019-07-01

2 Contents

	Page
1 VERSION.....	2
2 CONTENTS.....	3
3 GENERAL INFORMATION.....	4
3.1 CLIENT INFORMATION.....	4
3.2 GENERAL DESCRIPTION OF EUT.....	4
3.3 GENERAL DESCRIPTION OF BT.....	4
3.4 GENERAL DESCRIPTION OF BLE.....	4
4 SAR EVALUATION.....	5
4.1 RF EXPOSURE COMPLIANCE REQUIREMENT.....	5
4.1.1 <i>Standard Requirement</i>	5
4.1.2 <i>Limits</i>	5
4.1.3 <i>EUT RF Exposure</i>	6

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
Test Model No.:	BTHS-AH6
Trade Mark:	Avantree
Software version:	CSR ADK4.2
Hardware version:	CSR8675C
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Power Supply:	lithium battery: DC3.7V, 350mAh, Charge by DC5.0V

3.3 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Test Software of EUT:	Blue test 3 (manufacturer declare)
Antenna Type:	Ceramic antenna
Antenna Gain:	0dBi

3.4 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Type:	GFSK
Transfer Rate:	1Mbps, 2Mbps
Number of Channel:	40
Test Software of EUT:	Blue test 3 (manufacturer declare)
Antenna Type:	Ceramic antenna
Antenna Gain:	0dBi

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

1) For BT

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.240	2±1	3	1.995
Middle(2441MHz)	4.390	4±1	5	3.162
Highest(2480MHz)	4.370	4±1	5	3.162
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.620	1.5±1	2.5	1.778
Middle(2441MHz)	3.650	3.5±1	4.5	2.818
Highest(2480MHz)	3.660	3.5±1	4.5	2.818
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.970	1.5±1	2.5	1.778
Middle(2441MHz)	3.950	3.5±1	4.5	2.818
Highest(2480MHz)	3.990	3.5±1	4.5	2.818

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)	2.240	2±1	3	1.995	0.62	3.0
Middle (2441MHz)	4.390	4±1	5	3.162	0.99	
Highest (2480MHz)	4.370	4±1	5	3.162	1.00	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190600500E-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)	3.6	3±1	4	2.512
Middle(2440MHz)	4.38	4±1	5	3.162
Highest(2480MHz)	4.77	4±1	5	3.162
GFSK 2Mbps mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.56	3±1	4	2.512
Middle(2440MHz)	4.35	4±1	5	3.162
Highest(2480MHz)	4.61	4±1	5	3.162

Worst case: GFSK 1Mbps						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	3.6	3±1	4	2.512	0.78	3.0
Middle (2440MHz)	4.38	4±1	5	3.162	0.99	
Highest (2480MHz)	4.77	4±1	5	3.162	1.00	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190600500E-02.

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