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RF Exposure Evaluation Report

Report No. : CQASZ20190100073E-03

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

Equipment Under Test (EUT):

Product: Audition Procast

Model No.: BTHS-AS9PA

Brand Name: Avantree

FCC ID: 2A1TF-BTHSAS9PA

Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06

Date of Test: 2019-01-28 to 2019-02-20

Date of Issue: 2019-02-20

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
CQASZ20190100073E-03	Rev.01	Initial report	2019-02-20

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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:	Audition Procast
All Model No.:	BTHS-AS9PA
Trade Mark:	Avantree
Hardware Version:	CSR8670,BT V5.0,1.47
Software Version:	AS9PA 20181031
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Power Supply:	lithium battery:DC3.7V, Charge by USB

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 test3 (manufacturer declare)
Antenna Type:	Chip Antenna
Antenna Gain:	5.22dBi

3.4 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Type:	GFSK
Number of Channel:	40
Transfer Rate:	1Mbps/2Mbps
Test Software of EUT:	Blue test3 (manufacturer declare)
Antenna Type:	Chip Antenna
Antenna Gain:	5.22dBi

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:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\sqrt{f(\text{GHz})}} \right] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

☐ $f(\text{GHz})$ 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 BLE

Measurement Data

GFSK(1Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.55	-4±1	-3	0.501
Middle(2440MHz)	-1.87	-2±1	-1	0.794
Highest(2480MHz)	-1.61	-2±1	-1	0.794
GFSK(2Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-4.63	-4±1	-3	0.501
Middle(2440MHz)	-2.03	-2±1	-1	0.794
Highest(2480MHz)	-2.60	-2±1	-1	0.794

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)	-2.04	-2.0±1	-1.0	0.501	0.16	3.0
Middle (2440MHz)	-1.45	-2.0±1	-1.0	0.794	0.25	
Highest (2480MHz)	0.1	0±1	1.0	0.794	0.25	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190100073E-02

2)For BT:

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.270	-3±1	-2	0.631
Middle(2441MHz)	-1.530	-1±1	0	1.000
Highest(2480MHz)	-1.410	-1±1	0	1.000
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.380	-3±1	-2	0.631
Middle(2441MHz)	-1.700	-1±1	0	1.000
Highest(2480MHz)	-1.740	-1±1	0	1.000
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.050	-3±1	-2	0.631
Middle(2441MHz)	-1.090	-1±1	0	1.000
Highest(2480MHz)	-1.080	-1±1	0	1.000

Worst case: 8DPSK

Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-3.050	-3±1	-2	0.631	0.20	3.0
Middle (2441MHz)	-1.090	-1±1	0	1.000	0.31	
Highest (2480MHz)	-1.080	-1±1	0	1.000	0.31	

Conclusion: the calculated value ≤3.0, SAR is exempted.

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190100073E-01

