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RF Exposure Evaluation Report

Report No.:	CQASZ20200901102E-02
Applicant:	Avantronics Limited
Address of Applicant:	The 4th Floor, Yuepeng Building,No.1019 JiabinRd, Luohu District, Shenzhen
Equipment Under Test (EUT):	
EUT Name:	Wireless Stereo Headphones
Model No.:	BTHS-AS90P, BTHS-AS90-P, BTHS-AS90PII, BTHS-AS90T, BTHS-AS90-T, BTHS-AS90TII, BTHS-AS90TA, BTHS-AS90H, BTHS-AS90-H, BTHS-AS90HI
Test Model No.:	BTHS-AS90P
Brand Name:	Avantree
FCC ID:	WJ5-BTHS-AS90P
Standards:	47 CFR Part 1.1307
	47 CFR Part 1.1310
	KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2020-09-26
Date of Test:	2020-09-26 to 2020-11-04
Date of Issue:	2020-11-05
Test Result:	**PASS***

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

Tested By: Tiny You

(Tiny You)

Reviewed By: Sheek.Luo

(Sheek Luo)

Approved By:

(Jack Ai)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200901102E-02	Rev.01	Initial report	2020-11-05

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

4 RF EXPOSURE EVALUATION 5

4.1 RF EXPOSURE COMPLIANCE REQUIREMENT 5
4.1.1 Standard Requirement 5
4.1.2 Limits 5
4.2 1.1.3 EUT RF EXPOSURE EVALUATION 6

3 General Information

3.1 Client Information

Applicant:	Avantronics Limited
Address of Applicant:	The 4th Floor, Yuepeng Building,No.1019 JiabinRd, Luohu District, Shenzhen
Manufacturer:	Avantronics Limited
Address of Manufacturer:	The 4th Floor, Yuepeng Building,No.1019 JiabinRd, Luohu District, Shenzhen
Factory:	Shenzhen Feng Jing Sheng Electronics Technology Co.,Ltd
Address of Factory:	501, Building 5, No.36, Dafu Road, Zhangge Community, Fucheng Street, Longhua District, Shenzhen, Guangdong, China

3.2 General Description of EUT

Product Name:	Wireless Stereo Headphones
Model No.:	BTHS-AS90P, BTHS-AS90-P, BTHS-AS90PII, BTHS-AS90T, BTHS-AS90-T, BTHS-AS90TII, BTHS-AS90TA, BTHS-AS90H, BTHS-AS90-H, BTHS-AS90HI
Test Model No.:	BTHS-AS90P
Trade Mark:	Avantree
Hardware Version:	REV1.0
Software Version:	ADK4.2
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	Blue test 3 (manufacturer declare)
Antenna Type:	Chip Antenna
Antenna Gain:	0.9dBi
Power Supply:	Lithium battery: DC 3.7V, Charge by DC 5V

Note:

Model No.: BTHS-AS90P, BTHS-AS90-P, BTHS-AS90PII, BTHS-AS90T, BTHS-AS90-T, BTHS-AS90TII, BTHS-AS90TA, BTHS-AS90H, BTHS-AS90-H, BTHS-AS90HI

Only the model BTHS-AS90P 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 RF Exposure 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

4.2 1.1.3 EUT RF Exposure Evaluation

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)	-0.120	0.0±1	1	1.259
Middle(2441MHz)	3.250	3.0±1	4	2.512
Highest(2480MHz)	4.500	4.0±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)	-4.360	-3.5±1	-2.5	0.562
Middle(2441MHz)	-0.680	-0.5±1	0.5	1.122
Highest(2480MHz)	0.570	0.5±1	1.5	1.413
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.610	-3.0±1	-1.5	0.708
Middle(2441MHz)	0.130	0.0±1	1	1.259
Highest(2480MHz)	1.410	1.0±1	2	1.585

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)	-0.120	0.0±1	1	1.259	0.219	3.0
Middle (2441MHz)	3.250	3.0±1	4	2.512	0.393	
Highest (2480MHz)	4.500	4.0±1	5	3.162	0.499	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200901102E-01