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Report Template Version: V03
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RF Exposure Evaluation Report

Report No. :	CQASZ20180300001E-02
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
Factory:	Avantree Technology Co., Ltd.
Address of Factory:	The 4th Floor, Yuepeng Building, No.1019 Jiabin Rd, Luohu District,Shenzhen, China
Equipment Under Test (EUT):	
Product:	Avantree Audikast
Model No.:	BTTC-418
Brand Name:	Avantree
FCC ID:	2AITF-BTTC-418
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Test:	2018-03-05 to 2018-03-10
Date of Issue:	2018-03-10
Test Result :	**PASS***

Tested By: Aaron Ma

(Aaron Ma)

Reviewed By: Owen Zhou

(Owen Zhou)

Approved By:

(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD. APPROVED

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

2 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20180300001E-02	Rev.01	Initial report	2018-03-10

3 Contents

4 General Information

4.1 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
Factory:	Avantree Technology Co., Ltd.
Address of Factory:	The 4th Floor, Yuepeng Building, No.1019 Jiabin Rd, Luohu District,Shenzhen, China

4.2 General Description of EUT

Product Name:	Avantree Audikast
Model No.:	BTTC-418
Trade Mark:	Avantree
Hardware Version:	TC418_V1.49 (File version 12638 (0x315e))
Software Version:	CSR8670C
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.2
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	portable production
Test Software of EUT:	Blue test 3.0 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Power Supply:	Input: DC5V 0.5A

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 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.

5.1.2 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

5.1.3 EUT RF Exposure

For BT:

Measurement Data

GFSK mode	
Test channel	Peak Output Power (dBm)
Lowest	5.500
Middle	6.380
Highest	5.760
π/4DQPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	5.160
Middle	6.160
Highest	5.530
8DPSK mode	
Test channel	Peak Output Power (dBm)
Lowest	5.710
Middle	6.610
Highest	5.940

The Max Conducted Peak Output Power is 6.61dBm in middle channel(2.441GHz);

The best case gain of the antenna is 0dBi.

EIRP= 6.61dBm + 0dBi = 6.61dBm

6.61dBm logarithmic terms convert to numeric result is nearly 4.58mW

According to the formula. calculate the EIRP test result:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)]

General RF Exposure = (4.58mW / 5 mm) x √2.441GHz = 1.43 ①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20180300001E-01