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# RF Exposure Evaluation Report

**Report No. :** CQASZ20180300007E-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:** Wireless Headphones

**Model No.:** BTHS-AS9S

**Brand Name:** Avantree

**FCC ID:** 2AITF-BTHS-AS9S

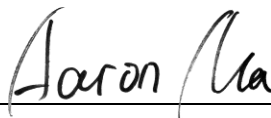
**Standards:** 47 CFR Part 1.1307  
47 CFR Part 2.1093  
KDB447498D01 General RF Exposure Guidance v06

**Date of Test:** 2018-03-05 to 2018-03-10

**Date of Issue:** 2018-03-10

**Test Result :** **PASS\***

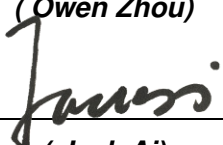
**Tested By:**

  
\_\_\_\_\_  
(Aaron Ma)

**Reviewed By:**

  
\_\_\_\_\_  
(Owen Zhou)

**Approved By:**

  
\_\_\_\_\_  
(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.

## 2 Version

### Revision History Of Report

| Report No.           | Version | Description    | Issue Date |
|----------------------|---------|----------------|------------|
| CQASZ20180300007E-02 | Rev.01  | Initial report | 2018-03-10 |

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## 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:         | Wireless Headphones  |
| Model No.:            | BTHS-AS9S  |
| Trade Mark:           | Avantree   |
| Hardware Version:     | V1.0   |
| Software Version:     | V1.0   |
| Operation Frequency:  | 2402MHz~2480MHz  |
| Bluetooth Version:    | V4.1   |
| Modulation Technique: | Frequency Hopping Spread Spectrum(FHSS)                    |
| Modulation Type:      | GFSK, $\pi/4$ DQPSK, 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:         | lithium battery:<br>Model: 802530, DC3.7V<br>Charge by USB |

## 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  $\leq 50$  mm are determined by:

$$\left[ \frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0$$
 for 1-g SAR and  $\leq 7.5$  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 calculation<sup>17</sup>

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  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        | 2.180                   |
| Middle        | 4.200                   |
| Highest       | 4.890                   |
| π/4DQPSK mode |                         |
| Test channel  | Peak Output Power (dBm) |
| Lowest        | -0.260                  |
| Middle        | 3.150                   |
| Highest       | 3.990                   |
| 8DPSK mode    |                         |
| Test channel  | Peak Output Power (dBm) |
| Lowest        | 0.490                   |
| Middle        | 3.450                   |
| Highest       | 4.160                   |

The Max Conducted Peak Output Power is 4.89dBm in highest channel(2.480GHz);

The best case gain of the antenna is 0dBi.

EIRP= 4.89dBm + 0dBi = 4.89dBm

4.89dBm logarithmic terms convert to numeric result is nearly 3.08mW

According to the formula. calculate the EIRP test result:

$$\left[ \frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})}$$

General RF Exposure =  $(3.08\text{mW} / 5 \text{ mm}) \times \sqrt{2.480\text{GHz}} = 0.97$  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.: CQASZ20180300007E-01