



## Shenzhen Huaxia Testing Technology Co., Ltd

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640

Fax: +86-755-26648637

Website: [www.cqa-cert.com](http://www.cqa-cert.com)

Report Template Version: V03

Report Template Revision Date: Mar.1st, 2017

# RF Exposure Evaluation Report

**Report No. :** CQASZ20190400216E-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

**Equipment Under Test (EUT):**

**Product:** Wireless Headphone System

**Model No.:** WSHT-280

**Brand Name:** Avantree

**FCC ID:** 2AITF-WSHT-280

**Standards:** 47 CFR Part 1.1307  
47 CFR Part 1.1310  
KDB447498D01 General RF Exposure Guidance v06

**Date of Test:** 2019-04-03 to 2019-04-10

**Date of Issue:** 2019-04-10

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

**Tested By:**

*Tiny You*

(Tiny You)

**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
CQASZ20190400216E-02	Rev.01	Initial report	2019-04-10

## 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 <i>Standard Requirement</i> .....	5
4.1.2 <i>Limits</i> .....	5
4.2 EUT RF EXPOSURE EVALUATION.....	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

Name:	Wireless Headphone System
Model No.:	WSHT-280
Trade Mark :	Avantree
Hardware Version:	V3.1
Software Version:	V2.0
Frequency Range:	2406 MHz ~ 2472MHz
Modulation Type:	GFSK
Number of Channels:	31(declared by the client)
Sample Type:	<input type="checkbox"/> Mobile <input type="checkbox"/> Portable <input checked="" type="checkbox"/> Fix Location
Test Software of EUT:	RF test (manufacturer declare )
Antenna Type:	Internal antenna
Antenna Gain:	0dBi
Power Supply:	Adaptor: Model: YLS0041A-T050055 Input: 100-240V ~ 50/60Hz 0.3A Output: 5V 550mA

## 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  $\leq 50$  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(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

## 4.2 EUT RF Exposure Evaluation

### 1) For 2.4G

$$e_{irp} = p_t \times g_t = (E \times d)^2 / 30$$

where:

$p_t$  = transmitter output power in watts,

$g_t$  = numeric gain of the transmitting antenna (unitless),

$E$  = electric field strength in V/m,  $10^{((dB\mu V/m)/20)/10^6}$ ,

$d$  = measurement distance in meters (m)---3m,

$$\text{So } p_t = (E \times d)^2 / 30 / g_t$$

The worst case (refer to report CQASZ20190400216E-01) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
2472	96.69	Peak
2472	89.49	Average

Antenna polarization: Vertical		
Frequency (MHz)	Level (dBuV/m)	Polarization
2472	99.18	Peak
2472	89.58	Average

For 2472MHz wireless:

Field strength = 99.18dB $\mu$ V/m @3m

Ant. gain 0dBi; so Ant numeric gain=1.0

$$\text{So } p_t = \{ [10^{(99.18/20)} / 10^6 \times 3]^2 / 30 / 1.0 \} \times 1000 \text{mW} = 2.484 \text{mW}$$

$$\text{So } (2.484 \text{mW} / 5 \text{mm}) \times \sqrt{2.472 \text{GHz}} = 0.781,$$

0.781 < 3.0 for 1-g SAR

So the SAR report is not required.