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# RF Exposure Evaluation Report

**Report No.:** CQASZ20210600874E-02  
**Applicant:** Avatronics Limited  
**Address of Applicant:** The 4th Floor, Yuepeng Building, No.1019 Jiabin Rd, Luohu District, Shenzhen  
**Equipment Under Test (EUT):**  
**EUT Name:** Avantree Torpedo Plus  
**Test Model No.:** BTSP-006P  
**Model No.:** BTSP-006P  
**Brand Name:** Avantree  
**FCC ID:** WJ5-BTSP-006P  
**Standards:** 47 CFR Part 1.1307  
47 CFR Part 2.1093  
KDB447498D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2021-06-17  
**Date of Test:** 2021-06-21 to 2021-07-08  
**Date of Issue:** 2021-07-20  
**Test Result:** **PASS\***

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

**Tested By:** Lewis Zhou  
( Lewis Zhou )

**Reviewed By:** Jun Li  
( Jun Li )

**Approved By:** Jack ai  
( Jack ai )



## 1 Version

### Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210600874E-02	Rev.01	Initial report	2021-07-20

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### 3 General Information

#### 3.1 Client Information

Applicant:	Avantronics Limited
Address of Applicant:	The 4th Floor, Yuepeng Building, No.1019 Jiabin Rd, Luohu District, Shenzhen
Manufacturer:	Avantronics Limited
Address of Manufacturer:	The 4th Floor, Yuepeng Building, No.1019 Jiabin Rd, Luohu District, Shenzhen
Factory:	Avantronics Limited
Address of Factory:	The 4th Floor, Yuepeng Building, No.1019 Jiabin Rd, Luohu District, Shenzhen

#### 3.2 General Description of EUT

Product Name:	Avantree Torpedo Plus
Model No.:	BTSP-006P
Test Model No	BTSP-006P
Trade Mark:	Avantree
EUT Supports Radios application:	Bluetooth mode 2402-2480MHz
Hardware Version:	V1.9
Software Version:	V1.1
Sample Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Power Supply:	lithium battery: DC3.7V, 2200mAh, Charge by DC5.0V

#### 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
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Test Software of EUT:	CSR BlueSuite 2.5.8 (manufacturer declare )
Antenna Type:	PCB antenna
Antenna Gain:	0dBi

## 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  $\leq 50$  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

### 4.1.3 EUT RF Exposure

#### 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)	-3.650	-4±1	-3	0.501
Middle(2441MHz)	2.250	2±1	3	1.995
Highest(2480MHz)	2.970	2±1	3	1.995
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-2.490	-3±1	-2	0.631
Middle(2441MHz)	0.040	0±1	1	1.259
Highest(2480MHz)	0.790	0±1	1	1.259
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-2.110	-3±1	-2	0.631
Middle(2441MHz)	0.410	0±1	1	1.259
Highest(2480MHz)	1.190	1±1	2	1.585

Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-2.110	-3±1	-2	0.631	0.196	3.0
Middle (2441MHz)	2.250	2±1	3	1.995	0.623	
Highest (2480MHz)	2.970	2±1	3	1.995	0.628	

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

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20210600874E-01