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RF Exposure Evaluation Report

Report No.: CQASZ20240100201E-03
Applicant: Avantronics Limited
Address of Applicant: The 4th Floor, Yuepeng Building, No.1019 Jiabin Rd, Luohu District, Shenzhen
Equipment Under Test (EUT):
EUT Name: Avantree Eon
Model No.: BTHS-AS100, BTHS-AS100-B, ATBH-AS100-T, ATBH-AS100
Test Model No.: BTHS-AS100
Brand Name: Avantree, Avantalk
IC : 8475A-AS100
Standards: RSS-102 Issue 5 Amd 1 February 2, 2021
Date of Receipt: 2024-01-25
Date of Test: 2024-01-25 to 2024-01-30
Date of Issue: 2024-02-27
Test Result: **PASS***

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

Tested By: Lewis Zhou
(Lewis Zhou)

Reviewed By: Timo Lei
(Timo Lei)

Approved By: Alex
(Alex Wang)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20240100201E-03	Rev.01	Initial report	2024-02-27

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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 Eon
Model No.:	BTHS-AS100, BTHS-AS100-B, ATBH-AS100-T, ATBH-AS100
Test Model No.:	BTHS-AS100
Trade Mark:	Avantree, Avantalk
Software Version:	V3.3
Hardware Version:	V05
Power Supply:	2*battery DC 3.7V 320mAh, Charge by DC 5V for adapter
Simultaneous Transmission	☐ Simultaneous TX is supported and evaluated in this report. ☒ Simultaneous TX is not supported.

3.3 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	40
Product Type:	☐ Mobile ☒ Portable
Antenna Type:	PIFA antenna
Antenna Gain:	1.89dBi

3.4 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Product Type:	☐ Mobile ☒ Portable
Antenna Type:	PIFA antenna
Antenna Gain:	1.89dBi

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to RSS-102 Issue 5 March 2015

2.5.1 Exemption Limits for Routine Evaluation – SAR Evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1.

4.1.2 Limits

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance^{4,5}

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

Remark: If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.

4.1.3 EUT RF Exposure

Measurement Data

1) For BT Classic

Test mode : GFSK					
Channel	Maximum Peak Conducted Output Power (dBm)	Antenna gain (dBi)	E.i.r.p. calculation value		Limit (mW)
			(dBm)	(mW)	
Lowest (2402MHz)	-5.36	1.89	-3.47	0.450	<4mW
Middle (2441MHz)	-4.21	1.89	-2.32	0.586	<4mW
Highest (2480MHz)	-4.64	1.89	-2.75	0.531	<4mW
Conclusion: E.i.r.p. calculation value < limit, SAR is exempted.					

Remark: 1) The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20240100201E-01.

2) EIRP= Max Conducted Peak Output Power + Antenna gain

2) For BLE

Test mode : GFSK					
Channel	Maximum Peak Conducted Output Power (dBm)	Antenna gain (dBi)	E.i.r.p. calculation value		Limit (mW)
			(dBm)	(mW)	
Lowest (2402MHz)	-3.21	1.89	-1.32	0.738	<4mW
Middle (2440MHz)	-0.05	1.89	1.84	1.528	<4mW
Highest (2480MHz)	0.99	1.89	2.88	1.941	<4mW
Conclusion: E.i.r.p. calculation value < limit, SAR is exempted.					

Remark: 1) The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20240100201E-02.
 2) EIRP= Max Conducted Peak Output Power + Antenna gain

*** END OF REPORT ***