

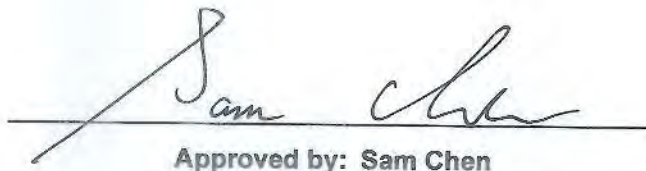


FCC RADIO EXPOSURE TEST REPORT

FCC ID : RAX-AIOS5V
Equipment : HEOS 5.X Platform Module
Brand Name : Arcadyan
Model Name : WN9722BAC22-DM (AIOS5.0V)
Applicant : Arcadyan Technology Corporation
No.8, Sec.2, Guangfu Rd., Hsinchu, 30071 Taiwan
Manufacturer : Arcadyan Technology Corporation
No.8, Sec.2, Guangfu Rd., Hsinchu, 30071 Taiwan
Standard : 47 CFR Part 2.1091

The product was received on Jan. 10, 2020, and testing was started from Jan. 13, 2020 and completed on Feb. 13, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.


Approved by: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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Appendix A. Photographs of EUT



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

None

Reviewed by: Sam Chen

Report Producer: Sandy Chuang



1 General Description

1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5700 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Bluetooth	2400-2483.5	2402-2480	BR / EDR: FHSS (GFSK / $\pi/4$ -DQPSK / 8DPSK) LE: GFSK

1.2 Table for Mode

Operating Mode	
1	WLAN 2.4GHz + Bluetooth + antenna set 1
2	WLAN 5GHz + Bluetooth + antenna set 1

1.2.1 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA010205.

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
Adding four sets of Dipole antenna. (set 11~14)	After evaluating, it is not necessary to verify.

Note: Maximum Permissible Exposure of 2.4GHz Band and 5GHz Band1~4 are based on original test report.

1.3 Testing Location

Testing Location		
<input type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
<input checked="" type="checkbox"/>	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.



2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	2.995	21.15	24.14	0.50	24.64	0.29107	20	0.05791	1.00000
5.2G;D1D	3.513	16.20	19.71	0.50	20.21	0.10495	20	0.02088	1.00000
5.3G;D1D	3.513	16.20	19.71	0.50	20.21	0.10495	20	0.02088	1.00000
5.6G;D1D	3.513	16.19	19.70	0.50	20.20	0.10471	20	0.02083	1.00000
5.8G;D1D	3.513	15.83	19.34	0.50	19.84	0.09638	20	0.01917	1.00000
2.4G;BT-BR	2.995	5.97	8.96	0.50	9.46	0.00883	20	0.00176	1.00000
2.4G;BT-LE	2.995	2.86	5.86	0.50	6.36	0.00433	20	0.00086	1.00000

Simultaneous Transmission Analysis Mode:

Mode 1: WLAN 2.4GHz + bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;G1D	2.995	21.15	24.14	0.50	24.64	0.29107	20	0.05791	1.00000	0.05791
2.4G;BT-BR	2.995	5.97	8.96	0.50	9.46	0.00883	20	0.00176	1.00000	0.00176
									Sum Ratio	0.05967
									Ratio Limit	1

Mode 2: WLAN 5GHz + bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;BT-BR	2.995	5.97	8.96	0.50	9.46	0.00883	20	0.00176	1.00000	0.00176
5.2G;D1D	3.513	16.20	19.71	0.50	20.21	0.10495	20	0.02088	1.00000	0.02088
									Sum Ratio	0.02264
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.