



FCC RADIO EXPOSURE TEST REPORT

FCC ID : MSQ-RTAXHP00
Equipment : Wireless-AX6000 Dual Band Gigabit Router
Brand Name : ASUS
Model Name : RT-AX88U, RT-AX6000, RT-AX88P, RT-AX88R, RT-AX88A
Applicant : ASUSTeK COMPUTER INC.
4F, No. 150, Li-Te Rd., Peitou, Taipei 112, Taiwan
Manufacturer (1) : Compal Networking (KunShan) Co., LTD.
No. 520, Nanbang Rd., Economic & Technical Development
Zone Kunshan, Jiangsu Province China
Manufacturer (2) : ASKEY TECHNOLOGY (JIANG SU) LTD
NO1388, Jiao Tong Road, Wujiang Economic Technological
Development Area Jiangsu Province 215200 China
Manufacturer (3) : Arcadyan Technology (Vietnam) Co., Ltd.
Ba Thien Industrial Park, Ba Hien commune, Binh Xuyen
district, Vinh Phuc Province, Viet Nam
Standard : 47 CFR Part 2.1091

The product was received on Dec. 26, 2018, and testing was started from Dec. 26, 2018 and completed on Nov. 12, 2019. 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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Photographs of EUT v01



History of this test report

[illegible]



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:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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) VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5250 5250-5320 5500-5720 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)

1.2 Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Name	Description
RT-AX88U	All the models are identical, the different model names served as marketing strategy.
RT-AX6000	
RT-AX88P	
RT-AX88R	
RT-AX88A	

From the above models, model: RT-AX88U was selected as representative model for the test and its data was recorded in this report.

1.3 Table for SKU information

EUT No.	SKU No. / Brand Name	P/N
1	SKU 1 / SWAPnet	NS604804
2	SKU 2 / Mingtek	HN4821CG



1.4 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA780707-03.

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

Modifications	Description
1. Update the test rule of 5GHz Band 4 to "15.407 (b)(4)(i)" from "15.407 (b)(4)(ii)".	Re-evaluated Maximum Permissible Exposure
2. Adding EUT 3~EUT 4 (EUT version R2.40: changing Power IC (MP2145) and Flash (winbond).	It's no need to re-test.
3. Adding EUT 5~EUT 6 (EUT version R2.40: changing Power IC (MP2145).	
4. Adding the manufacturer: Name: Arcadyan Technology (Vietnam) Co., Ltd. / Address: Ba Thien Industrial Park, Ba Hien commune, Binh Xuyen district, Vinh Phuc Province, Viet Nam	

Note: Maximum Permissible Exposure of 2.4GHz Band and 5GHz Band 1~3 are based on original test report.

1.5 Testing Location

Testing Location		
☐	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
☒	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 26 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

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	1.94	29.92	31.86	0.50	32.36	1.72187	26	0.20270	1.00000
2.4G;D1D (BF Mode)	7.96	28.00	35.96	0.04	36.00	3.98107	26	0.46888	1.00000
5.2G;D1D	8.35	27.63	35.98	0.02	36.00	3.98107	26	0.46888	1.00000
5.3G;D1D	8.35	21.61	29.96	0.04	30.00	1.00000	26	0.11772	1.00000
5.6G;D1D	8.37	21.59	29.96	0.04	30.00	1.00000	26	0.11772	1.00000
5.8G;D1D	7.96	28.01	35.97	0.03	36.00	3.98107	26	0.46888	1.00000
5.2G;D1D (AX 160 Mode)	8.35	21.29	29.64	0.50	30.14	1.03276	26	0.12157	1.00000
5.3G;D1D (AX 160 Mode)	8.35	20.71	29.06	0.50	29.56	0.90365	26	0.10637	1.00000
5.6G;D1D (AX 160 Mode)	8.37	21.60	29.97	0.02	29.99	0.99770	26	0.11744	1.00000
5.8G;D1D (BF Mode / 4T1S)	7.96	28.03	35.99	0.00	35.99	3.97192	26	0.46756	1.00000
5.8G;D1D (BF Mode / 4T1S)	4.95	29.94	34.89	0.50	35.39	3.45939	26	0.40722	1.00000

Simultaneous Transmission Analysis Mode: WLAN 2.4GHz+WLAN 5GHz

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	7.96	28.00	35.96	0.04	36.00	3.98107	26	0.46888	1.00000	0.46888
5.8G;D1D	7.96	28.03	35.99	0.00	35.99	3.97192	26	0.46756	1.00000	0.46756
									Sum Ratio	0.93644
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————