



# FCC RADIO EXPOSURE TEST REPORT

**FCC ID** : MSQ-RTHR00

**Equipment** : Wireless-AX11000 Tri-band Gigabit Router, ROG Rapture Tri-band Gaming Router

**Brand Name** : ASUS

**Model Name** : RT-AX95U, GT-AX11000

**Applicant** : ASUSTeK COMPUTER INC.  
4F, No. 150, Li-Te Rd., Peitou, Taipei 112, Taiwan

**Manufacturer (1)** : ASKEY TECHNOLOGY (JIANG SU) LTD  
NO1388, Jiao Tong Road, Wujiang Economic Technological Development Area Jiangsu Province 215200 China

**Manufacturer (2)** : Compal Networking (KunShan) Co., LTD.  
No. 520, Nabbang Rd., Economic & Technical Development Zone Kunshan, Jiangsu Province China

**Standard** : 47 CFR Part 2.1091

The product was received on Jun. 05, 2018 , and testing was started from Jun. 05, 2018 and completed on Sep. 06, 2018. We, SPORTON INTERTIONAL 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 INTERTIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Sam Chen

**SPORTON INTERTIONAL 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**





### Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-
This model supports full RU configuration only, and the model does not have adjustable power levels for each user.				

Reviewed by: Sam Chen

Report Producer: Wendy Pan



# 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) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11ax: OFDM (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: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)

## 1.2 Table for Multiple Listing

1. The difference for each equipment name and model name is shown as below:

Equipment Name	Model Name	Description
Wireless-AX11000 Tri-band Gigabit Router, ROG Rapture Tri-band Gaming Router	RT-AX95U, GT-AX11000	All the models/equipment names are identical; the different models/equipment names served as marketing strategy.

From the above models, model: RT-AX95U was selected as representative model for the test and its data was recorded in this report.

2. There are two EUT, the detail information as following:

EUT	SKU	LAN Transformer	
		Brand Name	P/N
1	1	SWAPnet	NS777202*1
		SWAPnet	NS771802*1
2	2	Mingtek	HN8001VG*1
		Mingtek	HN18101HF*1



### 1.3 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA812227-01

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

Modifications	Performance Checking
<ol style="list-style-type: none"> <li>1. Removing 8 LAN Ports of the EUT.</li> <li>2. Adding the R230 version of the 4 ports of the EUT.</li> </ol> <p>Based on the above modification.</p> <ol style="list-style-type: none"> <li>3. Adding AX160 mode.</li> <li>4. Adding home mesh mode.</li> <li>5. Adding the Client without radar detection mode.</li> <li>6. Adding the bridge mode.</li> <li>7. Adding the extender mode.</li> <li>8. Adding two sets of antenna with same type, same gain but different brand names and model names</li> <li>9. Adding Zero Wait function for bandwidth 20/40/80 in DFS band.</li> <li>10. Adding an equipment name: ROG Rapture Tri-band Gaming Router (Please refer chapter 1.2 Table for Multiple Listing.)</li> <li>11. Adding the LED on the top cover LOGO.</li> <li>12. Changing heat sink.</li> <li>13. Adding a 2.5GHz LAN Port.</li> <li>14. Changing Flash.</li> <li>15. Changing Transformer.</li> </ol>	<p>After evaluating, Do not affect the MPE.</p>

Note: The MPE results were based original report.

### 1.4 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 <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> 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 <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> 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 31 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 <sup>2</sup> )	S Limit (mW/cm <sup>2</sup> )
2.4G;G1D	7.92	28.00	35.92	0.08	36.00	3.98107	31	0.32982	1.00000
5.2G;D1D	8.32	27.54	35.86	0.14	36.00	3.98107	31	0.32982	1.00000
5.3G;D1D	8.32	21.60	29.92	0.08	30.00	1.00000	31	0.08284	1.00000
5.6G;D1D	8.32	21.66	29.98	0.02	30.00	1.00000	31	0.08284	1.00000
5.8G;D1D	7.92	28.04	35.96	0.04	36.00	3.98107	31	0.32982	1.00000

Simultaneous Transmission Analysis Mode: WLAN 2.4GHz + WLAN 5GHz band 1, 2 + WLAN 5GHz band 3, 4

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm <sup>2</sup> )	S Limit (mW/cm <sup>2</sup> )	Ratio (S/Limit)
2.4G;G1D	7.92	28.00	35.92	0.08	36.00	3.98107	31	0.32982	1	0.32982
5.2G;D1D	8.32	27.54	35.86	0.14	36.00	3.98107	31	0.32982	1	0.32982
5.8G;D1D	7.92	28.04	35.96	0.04	36.00	3.98107	31	0.32982	1	0.32982
									Sum Ratio	0.98946
									Ratio Limit	1

—THE END—