FCC RADIO EXPOSURE TEST REPORT

FCC ID	:	MSQ-RTHR00
Equipment	:	Wireless-AX11000 Tri-band Gigabit 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 Jan. 18, 2018, and testing was started from Jan. 18, 2018 and completed on Mar. 07, 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

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History of this test report

Report No.	Version	Description	Issued Date
FA812227-01	01	Initial issue of report	May 07, 2018

Summary of Test Result

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

Reviewed by: Sam Chen

Report Producer: Cindy Peng

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)
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 EUT has two model names which are identical to each other in all aspects except for the following table:

Model Name	Description
RT-AX95U	All the models are identical, the different model names served as marketing strategy.
GT-AX11000	

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	NS777203*2
		SWAPnet	NS771802*1
2	2	Mingtek	HN8011VG*2
		Mingtek	HN18101DG*1

Note: Only SKU1 was selected to test.

1.3 Table for Class II Change

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

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

Modifications	Performance Checking
1. Changing the model name to “GT-AX11000” from “RT-AX11000”.	It does not need to test.
2. Adding beamforming function for 802.11n/ac/ax in 2.4GHz. 3. Adding 802.11ac (VHT160) function. 4. Adding 5GHz band 2 and band 3 (5250~5350 MHz, 5470~5725 MHz) for this device.	Maximum Permissible Exposure.

Note: Maximum Permissible Exposure of 5GHz band 1, 4 are based on original test report.

1.4 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/ cm²)	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/ cm²)	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 31 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

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	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^2)	S Limit (mW/cm^2)	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———