FCC RADIO EXPOSURE TEST REPORT

FCC ID	:	MSQ-RTAXJF00
Equipment	:	Wireless-AXE11000 Tri-band Gigabit Router, ROG Rapture Tri-band Gaming Router, ROG Rapture GT-AXE11000 Tri-band Gaming Router, Wi-Fi 6E ROG Rapture GT-AXE11000 Tri-band Gaming Router
Brand Name	:	ASUS
Model Name	:	GT-AXE11000
Applicant	:	ASUSTeK COMPUTER INC. 1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan
Manufacturer (1)	:	ASUSTeK Computer Inc 1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan
Manufacturer (2)	:	Kentec Inc. No. 5, Tzu-Chiang 1st Rd. Chungli Industrial Zone, Taoyuan Hsien, Taiwan
Manufacturer (3)	:	Lukisen Electronic Corp. 3F., No.236, Boai St., Shulin Dist., New Taipei City 23845, Taiwan
Manufacturer (4)	:	Lih Rong Electronic Enterprise Co.,Ltd No. 486, Sec. 1, Wanshou Rd., Guishan Dist., Taoyuan City 33350, Taiwan
Standard	:	47 CFR Part 2.1091

The product was received on Jul. 08, 2020, and testing was started from Jul. 10, 2020 and completed on Oct. 17, 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

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History of this test report

Report No.	Version	Description	Issued Date
FA070920-01	01	Initial issue of report	Oct. 20, 2020

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: 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) 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)
6GHz WLAN	5925 ~ 7125	6115 ~ 7095	802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)

1.2 Table for Multiple Listing

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

Equipment Name	Brand Name	Model Name
Wireless-AXE11000 Tri-band Gigabit Router, ROG Rapture Tri-band Gaming Router, ROG Rapture GT-AXE11000 Tri-band Gaming Router, Wi-Fi 6E ROG Rapture GT-AXE11000 Tri-band Gaming Router	ASUS	GT-AXE11000
Description		
For marketing reason the same product will be covered by different equipment name.		

1.3 Table for Class III Change

This product is an extension of original one reported under Sporton project number: FA070920

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

Modifications	Performance Checking
1. Adding TXBF mode for 2.4GHz and 5GHz UNII 1~UNII 3 of the device. 2. Adding U-NII 5, UNII 6, UNII 7 and UNII 8(5925~6425 MHz, 6425~6525 MHz, 6525~6875 MHz, 6875~7125 MHz) for this device.	MPE
3. Adding two equipment names: ROG Rapture GT-AXE11000 Tri-band Gaming Router, Wi-Fi 6E ROG Rapture GT-AXE11000 Tri-band Gaming Router. 4. Remove the LED board on the top cover of the EUT. 5. Adding bridge, repeater, mesh, zero wait function for this device of WLAN 2.4GHz and 5GHz only. 6. Adding the test results of 4T4S non-TXBF 80MHz mode for UNII 1, UNII 3. 7. Upgrade the power of 4T1S non-TXBF mode for 802.11a UNII 1, UNII 3 for frequency 5180, 5200, 5500, 5700MHz and 4T1S non-TXBF mode for frequency 5210MHz. 8. Adding two sets of antenna with same type and same antenna gain. 9. Adding PIFA antenna with receiving function only, and it supports zero wait function only.	After evaluating, It doesn't influence this test report.

Note: Maximum Permissible Exposure of 2.4GHz and 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 27 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;D1D	8.00	27.95	35.95	0.04	35.99	3.97192	27	0.43356	1.00000
5.2G;D1D	8.01	27.96	35.97	0.02	35.99	3.97192	27	0.43356	1.00000
5.3G;D1D	8.01	21.95	29.96	0.03	29.99	0.99770	27	0.10891	1.00000
5.6G;D1D	8.01	21.91	29.92	0.07	29.99	0.99770	27	0.10891	1.00000
5.8G;D1D	8.01	27.96	35.97	0.02	35.99	3.97192	27	0.43356	1.00000

Mode	Rad EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)
6.2G;D1D	28.55	0.50	29.05	0.80353	27	0.08771	1.00000

Simultaneous Transmission Analysis Mode: WLAN 2.4GHz + 5GHz UNII 1~3 + 6GHz UNII 5~8

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	8.00	27.95	35.95	0.04	35.99	3.97192	27	0.43356	1.00000	0.43356
5.8G;D1D	8.01	27.96	35.97	0.02	35.99	3.97192	27	0.43356	1.00000	0.43356
6.2G;D1D	-	-	28.55	0.50	29.05	0.80353	27	0.08771	1.00000	0.08771
									Sum Ratio	0.95483
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

THE END