



RADIO EXPOSURE TEST REPORT

FCC ID : MSQ-RTAX5C00

Equipment : ROG Rapture Tri-Band Gaming Router

Brand Name : ASUS

Model Name : GT-AX11000 Pro

Applicant : ASUSTeK COMPUTER INC.
1F., No. 15, Lide Rd., Beitou, Taipei City 112, Taiwan

Manufacturer (1) : Compal Networking(KunShan) CO., LTD
No.520,Nan Bang RD., Economic & Technical
Development Zone, KunShan,JiangSu,China

Manufacturer (2) : ARCADYAN TECHNOLOGY (VIETNAM) CO., LTD.
Land plot No. D4-5-6, Thang Long Industrial Park
(Vinh Phuc), Thien Ke Commune, Binh Xuyen
District, Vinh Phuc Province, Vietnam

Standard : 47 CFR Part 2.1091

The product was received on Feb. 15, 2022, and testing was started from Feb. 25, 2022 and completed on Apr. 15, 2022. We, Sporton International Inc. Hsinchu 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 report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.



Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory
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Summary of Test Result

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

Declaration of Conformity:

1. The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to report "Measurement Uncertainty".

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: **Penny Kao**



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 5725-5895	5180-5250 5250-5320 5500-5720 5745-5825 5815-5885	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 Antenna Information

Ant.	Port			Brand	Model Name	Antenna Type	Connector	Gain (dBi)
	WLAN 2.4GHz	WLAN 5GHz UNII 1~2A	WLAN 5GHz UNII 2C~4					
1	1	1	-	PSA	RFDPA181125IMLB902	Dipole	I-PEX	Note1
2	2	2	-	PSA	RFDPA181120IMLB902	Dipole	I-PEX	
3	3	3	-	PSA	RFDPA181105IMLB903	Dipole	I-PEX	
4	4	4	-	PSA	RFDPA181112IMLB902	Dipole	I-PEX	
5	-	-	1	PSA	RFDPA181118IM5B902	Dipole	I-PEX	
6	-	-	2	PSA	RFDPA181110IM5B902	Dipole	I-PEX	
7	-	-	3	PSA	RFDPA181116IM5B902	Dipole	I-PEX	
8	-	-	4	PSA	RFDPA181121IM5B902	Dipole	I-PEX	

Note1:

<Antenna gain>

Ant.	Port			Gain(dBi)					
	WLAN 2.4GHz	WLAN 5GHz UNII 1~2A	WLAN 5GHz UNII 2C~4	WLAN 2.4GHz	WLAN 5GHz				
					UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 4
1	1	1	-	2.85	2.75	3.44	-	-	-
2	2	2	-	1.57	2.00	1.89	-	-	-
3	3	3	-	3.93	2.48	2.45	-	-	-
4	4	4	-	1.86	3.61	3.56	-	-	-
5	-	-	1	-	-	-	3.67	3.02	3.98
6	-	-	2	-	-	-	2.68	2.31	1.93
7	-	-	3	-	-	-	2.74	1.84	1.99
8	-	-	4	-	-	-	3.61	2.51	3.44

<Directional gain>

Item	Directional Gain (dBi)					
	WLAN 2.4GHz	WLAN 5GHz UNII 1	WLAN 5GHz UNII 2A	WLAN 5GHz UNII 2C	WLAN 5GHz UNII 3	WLAN 5GHz UNII 4
4T1S	7.6	6.89	6.99	6.61	5.94	6.25
4T2S	4.6	-	-	-	-	-

Note2: The above information (excepting antenna gain) was declared by manufacturer.

Note3: The directional gain is measured which follows the procedure of KDB 662911 D03. The antenna report is provided in the operational description for this application.

Note4: The EUT has eight antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax mode (4TX/4RX)

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

For 5GHz function:

For IEEE 802.11a/n/ac/ax mode (4TX/4RX)

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.



1.3 Accessories

Accessories				
Equipment Name	Brand Name	Model Name	Rating	Remark
Adapter 1	AcBel	ADD011	INPUT: 100-240V~1.7A, 50-60Hz OUTPUT: +19.5V, 3.33A, 65.0W MAX	With the DC cable: Non-shielded, 1.5m
Adapter 2	AcBel	ADD011	INPUT: 100-240V~1.7A, 50-60Hz OUTPUT: +19.5V, 3.33A, 65.0W MAX	With the DC cable: Non-shielded, 1.5m
Adapter 3	DELTA	ADP-65GD D	INPUT: AC100-240V~50-60Hz, 1.5A OUTPUT: +19.0V, 3.42A, 65.0W	With the DC cable: Non-shielded, 1.5m
Adapter 4	DELTA	ADP-65DE B	INPUT: 100-240V~1.5A, 50-60Hz OUTPUT: 19.0V, 3.42A, 65.0W	With the DC cable: Non-shielded, 1.5m
Adapter 5	DELTA	ADP-65DE B	INPUT: 100-240V~1.5A, 50-60Hz OUTPUT: 19.0V, 3.42A, 65.0W	With the DC cable: Non-shielded, 1.5m
Others				
RJ-45 cable*1: Shielded, 1.5m Power cord*5: Non-shielded, 0.8m				

Note1: Adapter 1 & Adapter 2 and Adapter 4 & Adapter 5 are identical except for the S/N; Therefore, Adapter 1 and Adapter 4 were selected to test and recorded in this report.

Note2: Refer to photographs of EUT for the detail information of difference between Adapter 1 & Adapter 2 and Adapter 4 & Adapter 5.

1.4 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2.1091
- KDB 447498 D04 Interim General RF Exposure Guidance v01

The following reference test guidance is not within the scope of accreditation of TAF.

- 47 CFR Part 1.1307
- 47 CFR Part 1.1310

1.5 Testing Location

Testing Location Information	
Test Lab. : Sporton International Inc. Hsinchu Laboratory	
Hsinchu	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)
(TAF: 3787)	TEL: 886-3-656-9065 FAX: 886-3-656-9085
Test site Designation No. TW3787 with FCC.	
Conformity Assessment Body Identifier (CABID) TW3787 with ISED.	



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 ²)	<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 ²)	<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 62 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 MPE Exemption

Option (A): 1.1307(b)(3)(i)(A): Available maximum time-averaged power is < 1 mW

Option (B): 1.1307(b)(3)(i)(B): Device operates between 300 MHz and 6 GHz and the maximum time-averaged power or effective radiated power (ERP), whichever is greater, <= Pth.

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

Option (C): 1.1307(b)(3)(i)(C): ERP is below a threshold calculated based on the distance R between the person and the antenna / radiating structure, where $R > \lambda / 2 \pi$.

Single RF Sources Subject to Routine Environmental Evaluation	
RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2f$.
1,500-100,000	$19.2R^2$.

Note: R is in meters, f is in MHz.



2.4 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	7.60	28.32	35.92	0.07	35.99	3.97192	62	0.08222	1.00000
5.2G;D1D	6.89	29.08	35.97	0.02	35.99	3.97192	62	0.08222	1.00000
5.3G;D1D	6.99	22.97	29.96	0.03	29.99	0.99770	62	0.02301	1.00000
5.6G;D1D	6.61	23.35	29.96	0.03	29.99	0.99770	62	0.02301	1.00000
5.8G;D1D	5.94	29.97	35.91	0.08	35.99	3.97192	62	0.08222	1.00000
5.87G;D1D	6.25	29.59	35.84	0.15	35.99	3.97192	62	0.08222	1.00000

MPE Exemption Option C							
Frequency (MHz)	$\lambda/2\pi$ (m)	R (m)	Tune-up EIRP (dBm)	Tune-up ERP (dBm)	Tune-up ERP (W)	ERP Threshold (W)	MPE Exemption
2437	0.0196	0.62	35.99	33.84	2.421	7.380	Complies
5200	0.0092		35.99	33.84	2.421	7.380	Complies
5320	0.0090		29.99	27.84	0.608	7.380	Complies
5670	0.0084		29.99	27.84	0.608	7.380	Complies
5785	0.0082		35.99	33.84	2.421	7.380	Complies
5835	0.0082		35.99	33.84	2.421	7.380	Complies

Simultaneous Transmission Analysis Mode:

WLAN 2.4GHz + WLAN 5GHz Low Band + WLAN 5GHz High Band

Simultaneous Transmissions Option C							
Frequency (MHz)	R (m)	Tune-up EIRP (dBm)	Tune-up ERP (dBm)	Tune-up ERP (W)	ERP Threshold (W)	Simultaneous Transmissions	Simultaneous Transmissions Limit
2437	0.62	35.99	33.84	2.421	7.380	0.98	<= 1
5200		35.99	33.84	2.421	7.380		
5785		35.99	33.84	2.421	7.380		

————THE END————