



RADIO EXPOSURE TEST REPORT

FCC ID : MSQ-RTAX8D00

Equipment : TUF Gaming AX5400 Dual Band Wi-Fi 6 Router

Brand Name : ASUS

Model Name : TUF-AX5400

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

Manufacturer (1) : SHENZHEN GONGJIN ELECTRONICS CO.,LTD
No.2 Danzi North Road, Kengzi Street, Pingshan District, Shenzhen , Guangdong, 518118, P.R. China

Manufacturer (2) : GONGJIN ELECTRONICS(VIETNAM) COMPANY LIMITED
Factory No.31&32, An Duong Industrial Zone, Hong Phong Commune, An Duong District, Hai Phong Vietnam

Standard : 47 CFR Part 2.1091

The product was received on Mar. 18, 2021, and testing was started from Jun. 25, 2021 and completed on Jul. 05, 2021. 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

No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)



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Photographs of EUT v01



History of this test report

Report No.	Version	Description	Issued Date
FA122414	01	Initial issue of report	Jul. 27, 2021



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: **Viola Huang**



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 Antenna Information

Ant.	Port	Brand Holder	P/N	Antenna Type	Connector	Gain (dBi)				
						WLAN 2.4GHz	WLAN 5GHz Band 1	WLAN 5GHz Band 2	WLAN 5GHz Band 3	WLAN 5GHz Band 4
1	1	Dongguan RF Electronic Technology Co., Ltd	RF21C06549A	Dipole	I-PEX	4.68	-	-	-	-
2	2	Dongguan RF Electronic Technology Co., Ltd	RF21C06550A	Dipole	I-PEX	5.28	-	-	-	-
3	1	Dongguan RF Electronic Technology Co., Ltd	RF21C06543A	Dipole	I-PEX	-	1.76	1.84	2	1.97
4	2	Dongguan RF Electronic Technology Co., Ltd	RF21C06539A	Dipole	I-PEX	-	2.14	2.14	2.22	2.38
5	3	Dongguan RF Electronic Technology Co., Ltd	RF21C06539A	Dipole	I-PEX	-	2.14	2.14	2.22	2.38
6	4	Dongguan RF Electronic Technology Co., Ltd	RF21C06540A	Dipole	I-PEX	-	1.77	1.77	1.67	2.16

Note: The above information was declared by manufacturer.

For 2.4GHz function:

IEEE 802.11b/g/n/VHT/ax (2TX/2RX):

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

Port 1 and Port 2 could transmit/receive simultaneously.

For 5GHz function:

IEEE 802.11a/n/ac/ax (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 Table for EUT Flash source

EUT	Flash source
EUT 1	Main source
EUT 2	Second source

Note 1: From the above EUTs, EUT: EUT 2 was selected as representative EUT for all the tests and its data was recorded in this report.

Note 2: The above information was declared by manufacturer.

1.4 Table for EUT supports functions

Function	Support Type
AP Router	Master
Bridge	Slave without radar detection
Repeater	Master
Mesh	Master

Note: The above information was declared by manufacturer.

1.5 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter	Frecom	F30L10-120250SPAU	INPUT: 100-240V ~ 50/60Hz, 1.25A OUTPUT: 12.0V, 2.5A, 30.0W
Other			
RJ-45 cable*1: Non-shielded, 1.5m			

1.6 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 26 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

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 ²)	S Limit (mW/cm ²)
2.4G;D1D	8.00	27.92	35.92	0.07	35.99	3.97192	26	0.46757	1.00000
5.2G;D1D	7.98	28.01	35.99	0.00	35.99	3.97192	26	0.46757	1.00000
5.3G;D1D	7.99	21.98	29.97	0.02	29.99	0.99770	26	0.11745	1.00000
5.6G;D1D	8.05	21.90	29.95	0.04	29.99	0.99770	26	0.11745	1.00000
5.8G;D1D	8.24	27.63	35.87	0.12	35.99	3.97192	26	0.46757	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)
5.2G;D1D	7.98	28.01	35.99	0.00	35.99	3.97192	26	0.46757	1.00000	0.46757
2.4G;D1D	8.00	27.92	35.92	0.07	35.99	3.97192	26	0.46757	1.00000	0.46757
									Sum Ratio	0.93514
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

—————THE END—————