



RADIO EXPOSURE TEST REPORT

FCC ID : MSQ-AXHZ00
Equipment : AX6600 Tri Band WiFi Router
Brand Name : ASUS
Model Name : RT-AX95Q, ZenWiFi XT8, ASUS ZenWiFi XT8, XT8, ASUS ZenWiFi
Applicant : ASUSTeK COMPUTER INC.
 1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan
Manufacturer (1) : Compal Networking (KunShan) Co., LTD.
 No. 520, Nanbang Rd., Economic & Technical Development Zone Kunshan, Jiangsu Province China
Manufacturer (2) : ARCADYAN TECHNOLOGY (VIETNAM) CO., LTD.
 Ba Thien Industrial Park, Ba Hien commune, Binh Xuyen district, Vinh Phuc Province
Standard : 47 CFR Part 2.1091

The product was received on Sep. 19, 2019, and testing was started from Sep. 19, 2019 and completed on Feb. 14, 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 variant 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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History of this test report

Report No.	Version	Description	Issued Date
FA951008-06	01	Initial issue of report	Nov. 18, 2021
FA951008-06	02	1. Revising Directional Gain of UNII 4 2. Re-evaluating RF Exposure of UNII 4.	Feb. 16, 2022



Summary of Test Result

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

Note: Reference to Sporton Project No.: 951008.

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 5470-5725 5725-5850 5725-5895	5180-5240 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)
Bluetooth	2400-2483.5	2402-2480	LE: GFSK

1.1.1 Table for Multiple Listing

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

Brand Name	Model Name	Description
ASUS	RT-AX95Q	All the models are identical, the different model names served as marketing strategy.
	ZenWiFi XT8	
	ASUS ZenWiFi XT8	
	XT8	
	ASUS ZenWiFi	

Note 1: From the above models, model: RT-AX95Q was selected as representative model for the test and its data was recorded in this report.

Note 2: The above information was declared by manufacturer.



1.1.2 Table for SKU information

EUT	SKU	LAN Transformer		2.5G PHY		Front PCB Board	Back PCB Board
		Brand Name	P/N	Brand Name	P/N		
1	SKU 1	NETSWAP	NS773602 / NS771802	BROADCOM	BCM54991ELB0K FEBG	1 LED	Without Debug LED
2	SKU 2	Mingtek	HN36201CG / HN18101CG	BROADCOM	BCM54991ELB0K FEBG		
3	SKU 3	NETSWAP	NS773602 / NS771802	Realtek	RTL8221B-VB-CG		
4	SKU 4	Mingtek	HN36201CG / HN18101CG	Realtek	RTL8221B-VB-CG		

Note: The above information was declared by manufacturer.

1.1.3 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.

1.1.4 Table for radio information

Radio	2.4GHz	5GHz	Bluetooth
1	V	V (UNII 1)	X
2	X	V (Band UNII 2C~UNII 4)	X
3	X	X	V

Note: The above information was declared by manufacturer.



1.1.5 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FA951008-06

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

Modifications	Performance Checking
1. Adding four adapters.(Please refer to section 1.2 for detailed information). 2. Changing the quantity of front PCB board LED to 1 LED from 3 LED. 3. Adding the second source for 2.5G PHY (Brand: Realtek, Model: RTL8221B-VB-CG) 4. Removing the debug LED of the back PCB board. 5. Changing Applicant address to “1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan” from “4F, No. 150, Li-Te Rd., Peitou, Taipei 112, Taiwan”.	1. After evaluating, it doesn't affect the test results of this test report.
6. Add UNII 4 for this device.	2. UNII 4 MPE.

Note: WLAN 2.4GHz and WLAN 5GHz UNII 1, UNII 2C and UNII 3 MPE results were based on original report.

1.2 Accessories

Accessories					
Equipment Name	Brand Name	Model Name	Type	Country Code	Rating
Adapter 1	PI	AD2088320	010LF	-	Input: 100-240V~50/60Hz, 0.8A Output: 19V, 1.75A
Adapter 2	Delta	ADP-33AW B	-	G	Input: 100-240V~1A, 50-60Hz Output: 19V, 1.75A
Adapter 3	Delta	ADP-33AW Y	-	2G	Input: 100-240V~1A, 50-60Hz Output: 19V, 1.75A, 33.0W
Adapter 4	PI	AD2131M20	-	00	Input: 100-240V~50/60Hz, 0.8A Output: 19V, 1.75A, 33.0W
Adapter 5	PI	AD2131320	-	00	Input: 100-240V~50/60Hz, 0.8A Output: 19V, 1.75A, 33.0W
Other					
RJ-45 cable*1: Non-shielded, 1.5m					

Note: Adapter 4 with EU plug performed the testing by manufacturer request.



1.3 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 30 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 (2T1S)	4.70	29.91	34.61	0.50	35.11	3.24340	30	0.28677	1.00000
2.4G;D1D (2T2S)	1.82	29.90	31.72	0.50	32.22	1.66725	30	0.14741	1.00000
5.2G;D1D (2T1S)	5.99	29.48	35.47	0.50	35.97	3.95367	30	0.34957	1.00000
5.2G;D1D (2T2S)	3.08	28.41	31.49	0.50	31.99	1.58125	30	0.13981	1.00000
5.6G;D1D (4T1S)	8.07	21.89	29.96	0.03	29.99	0.99770	30	0.08821	1.00000
5.6G;D1D (4T2S)	5.22	23.95	29.17	0.50	29.67	0.92683	30	0.08195	1.00000
5.8G;D1D (4T1S)	8.21	27.76	35.97	0.02	35.99	3.97192	30	0.35119	1.00000
5.8G;D1D (4T2S)	5.23	29.97	35.20	0.50	35.70	3.71535	30	0.32850	1.00000
5.81G;D1D	7.72	28.19	35.91	0.08	35.99	3.97192	30	0.35119	1.00000
5.81G;D1D	4.72	29.97	34.69	0.50	35.19	3.30370	30	0.29211	1.00000
2.4G;BT-LE	2.02	0.72	2.74	0.50	3.24	0.00211	30	0.00019	1.00000



Simultaneous Transmission Analysis

Test Mode 1: WLAN 2.4GHz_Radio 1 + WLAN 5GHz_Radio 2 + Bluetooth_Radio 3

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;BT-LE	2.02	0.72	2.74	0.50	3.24	0.00211	30	0.00019	1.00000	0.00019
2.4G;D1D	4.70	29.91	34.61	0.50	35.11	3.24340	30	0.28677	1.00000	0.28677
5.8G;D1D	8.21	27.76	35.97	0.02	35.99	3.97192	30	0.35119	1.00000	0.35119
									Sum Ratio	0.63815
									Ratio Limit	1

Test Mode 2: WLAN 5GHz_Radio 1 + WLAN 5GHz_Radio 2 + Bluetooth_Radio 3

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;BT-LE	2.02	0.72	2.74	0.50	3.24	0.00211	30	0.00019	1.00000	0.00019
5.2G;D1D	5.99	29.48	35.47	0.50	35.97	3.95367	30	0.34957	1.00000	0.34957
5.8G;D1D	8.21	27.76	35.97	0.02	35.99	3.97192	30	0.35119	1.00000	0.35119
									Sum Ratio	0.70095
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————