



RF Exposure Evaluation Report

Equipment : Wireless-AC9600 Dual-band Gigabit Router, ROG Rapture Aura 10G Gaming Router, Ultimate Gaming Router, ASUS ROG Rapture AC9600 Ultimate 10G Gaming Router, Wireless-AC9600 Dual-band 10G Gigabit Router

Brand Name : ASUS

Model No. : GT-AC9600, RT-AC9600R, ROG Rapture GT-AC9600, ROG Aura Rapture GT-AC9600

FCC ID : MSQ-RTG03H

Standard : 47 CFR Part 2.1091

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

The product sample received on Jan. 09, 2017 and completely tested on May 03, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit.

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Cliff Chang
SPORTON INTERNATIONAL INC.





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PHOTOGRAPHS OF EUT V01



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA690618-01	Rev. 01	Initial issue of report	May 10, 2017

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)

1.2 Table for Multiple Listing

1. The EUT has five equipment names which are identical to each other in all aspects excepts for the following table:

Equipment Names	Description
Wireless-AC9600 Dual-band Gigabit Router	The difference equipment names served as marketing strategy.
ROG Rapture Aura 10G Gaming Router	
Ultimate Gaming Router	
ASUS ROG Raputre AC9600 Ultimate 10G Gaming Router	
Wireless-AC9600 Dual-band 10G Gigabit Router	

2. The brand/model names in the following table are all refer to the identical product.

Model Name	Description
GT-AC9600	The difference model served as marketing strategy.
RT-AC9600R	
ROG Rapture GT-AC9600	
ROG Aura Rapture GT-AC9600	

From the above models, equipment name: Wireless-AC9600 Dual-band Gigabit Router, model number: GT-AC9600 was selected as representative model for the test and its data was recorded in this report.



3. The EUT has two SKU which are identical to each other in all aspects except for the following table:

SKU Description	SKU 1	SKU 2
Vendor	MINGTEK	SWAP
LAN port transformer (Model No.)	HN8031VG	NS777202A

Note: The SKU does not affect the test result of RF tests, so only SKU 1 was tested and recorded in this report.

1.3 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA690618

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

Description	Performance Checking
1. Adding 5 GHz Band 2 and Band3 (5250~5350 MHz, 5470~5725 MHz) 2. Adding 160MHz of Bandwidth.(5250 and 5570MHz)	RF Exposure Evaluation

Note: Maximum Permissible Exposure of 2.4GHz Band and 5GHz Band1, Band4 is based on original test report.

1.4 Testing Location

Testing Location		
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	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

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)*	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)*	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 21 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)	EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	2.13	29.97	32.10	1.62181	21	0.29265	1.00000
5.2G;D1D	4.51	29.90	34.41	2.76058	21	0.49814	1.00000
5.3G;D1D	3.00	23.84	26.84	0.48306	20	0.09610	1.00000
5.6G;D1D	4.51	23.89	28.40	0.69183	21	0.12484	1.00000
5.8G;D1D	6.00	29.70	35.70	3.71535	21	0.67043	1.00000

Simultaneous Transmission Analysis Mode: 2.4GHz WLAN + 5GHz WLAN

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
5.8G;D1D	6.00	29.70	35.70	3.71535	21	0.67043	1.00000	0.67043
2.4G;G1D	2.13	29.97	32.10	1.62181	21	0.29265	1.00000	0.29265
							Sum Ratio	0.96308
							Ratio Limit	1