



RADIO EXPOSURE TEST REPORT

FCC ID : MSQ-RTBE8H00
Equipment : ROG STRIX WiFi 7 Tri-Band Gaming Router
Brand Name : ASUS
Model Name : GS-BE18000, GS-BE12000
Applicant : ASUSTeK COMPUTER INC.
1F., No. 15, Lide Rd., Beitou, Taipei City 112, Taiwan
Standard : 47 CFR Part 2.1091

The product was received on Jan. 09, 2025, and testing was started from Jan. 09, 2025 and completed on Feb. 27, 2025. 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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Photographs of EUT v01



History of this test report

TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A1_1 Ver1.1

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Summary of Test Result

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

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sam Chen

Report Producer: Muse Chan



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) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)
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) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)
6GHz WLAN	For Indoor Access Point /Subordinate: 5925-7125 For Standard Power Access Point: 5925-6425 / 6525-6875	For Indoor Access Point /Subordinate: 5955-7095 For Standard Power Access Point: 5955-6415 / 6535-6855	802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)



1.2 Antenna Information

Ant.	Port			Brand	Model Name	Antenna Type	Connector	Gain (dBi)
	2.4GHz	5GHz	6GHz					
1	1	1	-	LYNwave	MLX24X-121AA0-A	PCB Antenna	I-PEX	Note 1
2	2	2	-	LYNwave	MLX24X-121AA0-A	PCB Antenna	I-PEX	
3	-	-	4	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	
4	-	-	2	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	
5	-	3	-	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	
6	-	4	-	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	
7	-	-	1	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	
8	-	-	3	LYNwave	MLX24X-121AA0-A	Dipole Antenna	I-PEX	

Note 1:

Ant.	Antenna Gain (dBi)								
	WLAN 2.4GHz	WLAN 5GHz UNII 1	WLAN 5GHz UNII 2A	WLAN 5GHz UNII 2C	WLAN 5GHz UNII 3	WLAN 6GHz UNII 5	WLAN 6GHz UNII 6	WLAN 6GHz UNII 7	WLAN 6GHz UNII 8
1	2.87	4.03	4.06	3.8	2.74	-	-	-	-
2	2.66	2.23	3.44	3.5	3.04	-	-	-	-
3	-	-	-	-	-	4.66	3.16	3.19	3.36
4	-	-	-	-	-	3.59	4.42	3.92	3.08
5	-	4.56	5.15	4.91	4.77	-	-	-	-
6	-	2.04	2.49	3.65	3.25	-	-	-	-
7	-	-	-	-	-	4.57	4.78	4.74	3.82
8	-	-	-	-	-	4.65	3.94	4.11	4.32

Item	Directional Gain (dBi)								
	WLAN 2.4GHz	WLAN 5GHz UNII 1	WLAN 5GHz UNII 2A	WLAN 5GHz UNII 2C	WLAN 5GHz UNII 3	WLAN 6GHz UNII 5	WLAN 6GHz UNII 6	WLAN 6GHz UNII 7	WLAN 6GHz UNII 8
2T1S	5.38	-	-	-	-	-	-	-	-
2T2S	2.87	-	-	-	-	-	-	-	-
4T1S	-	5.4	5.57	5.43	4.91	6.77	6.44	6.79	5.87
4T2S	-	4.56	5.15	4.91	4.77	4.66	4.78	4.74	4.32
4T4S	-	4.56	5.15	4.91	4.77	4.66	4.78	4.74	4.32

Note 2: Maximum Directional Gain following KDB662911 D03.

For WLAN 2.4GHz function:**For IEEE 802.11b/g/n/VHT/ax/be mode (2TX/2RX):**

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

Port 1 and Port 2 could transmit/receive simultaneously.

For WLAN 5GHz function:**For IEEE 802.11n/ac/ax/be mode (4TX/4RX):**

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

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

For WLAN 6GHz function:**For IEEE 802.11ax/be mode (4TX/4RX):**

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

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



1.3 Table for Multiple Listing

EUT	Equipment Name	Model Name	Description
1	ROG STRIX WiFi 7 Tri-Band Gaming Router	GS-BE18000	The housing processing technique uses spray painting.
2		GS-BE12000	The housing processing technique uses a textured finish

Note 1: From the above models, model: GS-BE18000 (EUT 1) 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.

1.4 Table for EUT Support Function

Function	Supports Band
AP Router	Master
Bridge	Slave without radar detection
Repeater	Master
Mesh	Master

Note1: The USB port on this device supports both storage and WWAN functionality and EUT in WWAN mode, 2.5G WAN Port 8 will be fixed in LAN function.

Note2: The above information was declared by manufacturer.

1.4.1 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FA510722

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

Modifications	Performance Checking
1. Adding UNII 2A and UNII 2C (5250~5350 MHz, 5470~5725 MHz) for this device. 2. Adding 160MHz in 5GHz for this device. 3. Adding 6GHz UNII 5~8 for this device. 4. Updating the MPE distance to "59cm" from "47cm".	MPE

1.5 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter	LEI	MU36D1120300-A1	INPUT: 100-240V ~ 50/60Hz, 1.0A OUTPUT: 12V, 3A
Others			
RJ-45 cable*1, shielded, 1.5m			



1.6 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

1.7 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 59 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

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, <= P_{th}.

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

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	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.
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)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	5.38	28.01	31.24	0.50	1492.794	59	C	6683.6	0.2234
5.2G;D1D	5.40	29.89	33.14	0.50	2312.065	59	C	6683.6	0.3461
5.3G;D1D	5.57	23.95	27.37	0.45	605.341	59	C	6683.6	0.0906
5.6G;D1D	5.43	23.95	27.23	0.50	592.925	59	C	6683.6	0.0887
5.8G;D1D	4.91	29.96	32.72	0.50	2098.940	59	C	6683.6	0.3142
Band12;G7D	0.00	24.00	21.85	0.50	171.791	59	C	3114.5	0.0552
6.2G;D1D	6.77	29.19	33.81	0.03	2421.029	59	C	6683.6	0.3624
6.4G;D1D	6.44	23.46	27.75	0.09	608.135	59	C	6683.6	0.0910
6.7G;D1D	4.74	31.24	33.83	0.01	2421.029	59	C	6683.6	0.3624
7.0G;D1D	5.87	21.47	25.19	0.50	370.681	59	C	6683.6	0.0555

Simultaneous Transmission Analysis Mode:

Mode 1: EUT + WLAN 2.4GHz + WLAN 5GHz + WLAN 6GHz

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	5.38	28.01	31.24	0.50	1492.794	59	C	6683.6	0.2234
5.2G;D1D	5.40	29.89	33.14	0.50	2312.065	59	C	6683.6	0.3461
6.7G;D1D	4.74	31.24	33.83	0.01	2421.029	59	C	6683.6	0.3624
Sum TL Ratio_C	0.9319								
Ratio Limit	1								

Mode 2: EUT + WLAN 2.4GHz + WLAN 5GHz + WLAN 6GHz + WWAN

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	5.38	28.01	31.24	0.50	1492.794	59	C	6683.6	0.2234
5.2G;D1D	5.40	29.89	33.14	0.50	2312.065	59	C	6683.6	0.3461
Band12;G7D	0.00	24.00	21.85	0.50	171.791	59	C	3114.5	0.0552
6.7G;D1D	4.74	31.24	33.83	0.01	2421.029	59	C	6683.6	0.3624
Sum TL Ratio_C	0.9871								
Ratio Limit	1								

—THE END—