RADIO EXPOSURE TEST REPORT

FCC ID	:	MSQ-RTBE6J00
Equipment	:	ROG Rapture GT-BE19000 WiFi 7 Tri-band Gaming Router, ROG Rapture GT-BE19000AI Tri-band WiFi 7 AI Gaming Router
Brand Name	:	ASUS
Model Name	:	GT-BE19000, GT-BE19000AI
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 Mar. 04, 2024, and testing was started from Mar. 05, 2024 and completed on May 15, 2024. 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: Rex Liao

Sporton International Inc. Hsinchu Laboratory
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History of this test report

Report No.	Version	Description	Issued Date
FA422102-04	01	Initial issue of report	Jul. 29, 2025

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/manufacturer 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: Sophia Shiung

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 5260-5320 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 (LPI Access Point and Subordinate)	5925-7125	5955-7095	802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)
6GHz WLAN (Standard Power Access Point)	5925-6425 6525-6875	5955-6415 6535-6855	802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)

1.2 Antenna Information

For EUT 1 and EUT 3:

Ant.	Port			Brand	Model Name	Antenna Type	Connector	Gain (dBi)
	WLAN 6GHz	WLAN 2.4GHz	WLAN 5GHz					
1	1	-	-	WHA Yu	C660-510587-A	Dipole Antenna	I-PEX	Note 1
2	2	-	-	WHA Yu	C660-510588-A	Dipole Antenna	I-PEX	
3	3	-	-	WHA Yu	C660-510589-A	Dipole Antenna	I-PEX	
4	4	-	-	WHA Yu	C660-510590-A	Dipole Antenna	I-PEX	
5	-	1	1	WHA Yu	C660-510591-A	Dipole Antenna	I-PEX	
6	-	4	4	WHA Yu	C660-510592-A	Dipole Antenna	I-PEX	
7	-	3	3	WHA Yu	C660-510593-A	Dipole Antenna	I-PEX	
8	-	2	2	WHA Yu	C660-510594-A	Dipole Antenna	I-PEX	

For EUT 2 and EUT 4~5:

Ant.	Port			Brand	Model Name	Antenna Type	Connector	Gain (dBi)
	WLAN 6GHz	WLAN 2.4GHz	WLAN 5GHz					
1	1	-	-	WHA Yu	C660-510587-AW1	Dipole Antenna	I-PEX	Note 1
2	2	-	-	WHA Yu	C660-510588-AW1	Dipole Antenna	I-PEX	
3	3	-	-	WHA Yu	C660-510589-AW1	Dipole Antenna	I-PEX	
4	4	-	-	WHA Yu	C660-510590-AW1	Dipole Antenna	I-PEX	
5	-	1	1	WHA Yu	C660-510591-AW1	Dipole Antenna	I-PEX	
6	-	4	4	WHA Yu	C660-510592-AW1	Dipole Antenna	I-PEX	
7	-	3	3	WHA Yu	C660-510593-AW1	Dipole Antenna	I-PEX	
8	-	2	2	WHA Yu	C660-510594-AW1	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	-	-	-	-	-	1.75	1.52	2.13	2.17
2	-	-	-	-	-	1.95	2.41	2.19	1.64
3	-	-	-	-	-	1.61	1.96	1.51	1.93
4	-	-	-	-	-	1.98	1.44	1.47	2.21
5	2.09	1.52	1.17	1.98	1.08	-	-	-	-
6	1.84	2.29	2.9	3.09	2.51	-	-	-	-
7	2.91	2.7	3.04	2.48	3.39	-	-	-	-
8	2.14	1.21	1.19	3.23	1.87	-	-	-	-

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
4T1S	5.99	4.72	5.97	5.72	5.64	5.99	5.46	5.38	5.5
4T2S	2.99	2.7	3.04	3.23	3.39	2.99	2.46	2.38	2.5

Note 2: The above information(excepting antenna gain and directional gain) was declared by manufacturer.
Note 3: The antenna gain and directional gain are measured which follow the procedure of KDB 662911 D03.

Note 4: **For 2.4GHz function:**
For IEEE 802.11 b/g/n/VHT/ax/be (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/be (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 6GHz function:
For IEEE 802.11ax/be 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 Table for Multiple Listing

Equipment Name	Model Name	Description
ROG Rapture GT-BE19000 WiFi 7 Tri-band Gaming Router	GT-BE19000	The two model names for different equipment names served as marketing strategy.
ROG Rapture GT-BE19000AI Tri-band WiFi 7 AI Gaming Router	GT-BE19000AI	

Note 1: From the above models, model: GT-BE19000 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 Component Source

Source / Component	Main	Second
Integrated circuit packaging (Location: UP1)	FCBGA Package Brand: Broadcom / Model: BCM84891L	FCFBGA Package Brand: Broadcom / Model: BCM84891L
2.5G Ethernet	Brand: REALTEK / Model: RTL8372	Brand: BRCM / Model: BCM50904EL
Flash	Nand Flash 2GB	eMMC flash 32GB
DDR4	2G Byte	4G Byte
X'TAL near 2.5G Ethernet	Brand: ELE / Model: X3S025000BA1HB-HZ (Location: YR1 / Frequency: 25MHz)	Brand: SIWARD / Model: XTL581140-B63-304 (Location: YBP1 / Frequency: 50MHz)

Note: The above information was declared by manufacturer.

1.5 Table for EUT Information

The EUTs are identical to each other except for differences listed below:

EUT / Difference	1	2	3	4	5
Enclosure / Antenna Color (Note 1)	Black	White	Black	White	White
Heatsink Color on the Back of the EUT	Red	Black	Red	Black	Blue-purple gradient
Integrated circuit packaging (Location: UP1)	Main source		Second source		
2.5G Ethernet	Main source				Second source
Flash	Main source				Second source
DDR4	Main source				Second source
X'TAL near 2.5G Ethernet	Main source				Second source
AI Module	N/A				✓
PMOS Switch Circuit Design	Type 1				Type 2
RJ-45 Cable as Accessory	RJ-45 cable 1				RJ-45 cable 2

Note 1: EUT 1 & EUT 3 (Color: Black), and EUT 2 & EUT 4~5 (Color: White) are equipped with different set of antennas. The difference between two sets is antenna model names only.
Note 2: From above EUTs, EUT 1 was selected to test and recorded in this report.
Note 3: The above information was declared by manufacturer.

1.6 Table for EUT Supports Functions

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

Note: The above information was declared by manufacturer.

1.7 Table for Radio Function

Radio 1	Radio 2	Radio 3
WLAN 2.4GHz	WLAN 5GHz UNII 1~3	WLAN 6GHz UNII 5~8

Note: The above information was declared by manufacturer.

1.8 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FA422102.

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

Modifications	Performance Checking
1. Add EUT 3~5 (Please refer to section 1.4 and 1.5 for detailed information.) 2. Add “RJ-45 cable 2” as accessory only for EUT 5. 3. Add the new equipment name "ROG Rapture GT-BE19000AI Tri-band WiFi 7 AI Gaming Router" with new model name "GT-BE19000AI" for marketing strategy.	After evaluating, it does not affect the test.

Note: All test results are based on original test report.

1.9 Accessories

Power	Brand	Model	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	LEI	MU60B3120500-A1	INPUT: 100-240V~50/60Hz, 1.5A OUTPUT: 12.0V, 5.0A	-
Others				
RJ-45 cable 1 (For EUT 1~4 use)*1: Shielded, 1.5m				
RJ-45 cable 2 (For EUT 5 use)*1: Shielded, 1.5m				
Power cord*1: Non-shielded, 0.9m for Adapter 1 and Adapter 2 use				

Note 1: Adapter 1 & Adapter 2 is identical.

Note 2: Refer to photographs of EUT for the detail information of difference between Adapter 1 & Adapter 2.

1.10 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

1.11 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/ cm²)	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/f²)	<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/ cm²)	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/f²)	<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 61 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

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.

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

Where

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

and

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

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 > λ / 2 π.

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 1: 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	5.99	28.34	32.18	0.50	1853.532	61	C	7144.4	0.2595
5.2G;D1D	4.72	29.98	32.55	0.50	2018.366	61	C	7144.4	0.2921
5.3G;D1D	5.97	23.95	27.77	0.07	608.135	61	C	7144.4	0.0880
5.6G;D1D	5.72	23.93	27.50	0.34	608.135	61	C	7144.4	0.0880
5.8G;D1D	5.64	29.97	33.46	0.38	2421.029	61	C	7144.4	0.3504
6.2G;D1D	5.99	29.98	33.82	0.02	2421.029	61	C	7144.4	0.3390
6.4G;D1D	8.45	-	24.70	0.50	331.131	61	C	7144.32	0.0463
6.7G;D1D	5.38	30.6	33.83	0.01	2421.029	61	C	7144.4	0.3390
7.0G;D1D	5.44	-	23.22	0.50	235.505	61	C	7144.32	0.0330

Simultaneous Transmission Analysis

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	5.99	28.34	32.18	0.50	1853.532	61	C	7144.4	0.2595
5.8G;D1D	5.64	29.97	33.46	0.38	2421.029	61	C	7144.4	0.3390
6.7G;D1D	5.38	30.6	33.83	0.01	2421.029	61	C	7144.4	0.3390
Sum TL Ratio_C	0.9375								
Ratio Limit	1								

Mode 2: 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	5.99	28.34	32.18	0.50	1853.532	61	C	7144.4	0.2595
5.2G;D1D	4.72	29.98	32.55	0.50	2018.366	61	C	7144.4	0.2921
5.3G;D1D	5.97	23.95	27.77	0.07	608.135	61	C	7144.4	0.0880
5.6G;D1D	5.72	23.93	27.50	0.34	608.135	61	C	7144.4	0.0880
5.8G;D1D	5.64	29.97	33.46	0.38	2421.029	61	C	7144.4	0.3504
6.2G;D1D	5.99	29.98	33.82	0.02	2421.029	61	C	7144.4	0.3390
6.4G;D1D	8.45	-	24.70	0.50	331.131	61	C	7144.32	0.0463
6.7G;D1D	5.38	30.6	33.83	0.01	2421.029	61	C	7144.4	0.3390
7.0G;D1D	5.44	-	23.22	0.50	235.505	61	C	7144.32	0.0330
Band12;G7D	0.00	24.00	21.85	0.50	171.791	61	C	3880.4	0.0443

Simultaneous Transmission Analysis

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	5.99	28.34	32.18	0.50	1853.532	61	C	7144.4	0.2595
5.8G;D1D	5.64	29.97	33.46	0.38	2421.029	61	C	7144.4	0.3390
6.7G;D1D	5.38	30.6	33.83	0.01	2421.029	61	C	7144.4	0.3390
Band12;G7D	0.00	24.00	21.85	0.50	171.791	61	C	3880.4	0.0443
Sum TL Ratio_C	0.9818								
Ratio Limit	1								

THE END