Testing Laboratory 3787

RADIO EXPOSURE TEST REPORT

FCC ID	:	MSQ-RTBE8Y00
Equipment	:	BE3600 Dual Band WiFi 7 Router
Brand Name	:	ASUS
Model Name	:	RT-BE58U V2, TUF-BE3600 V2, RT-BE3600 V2, RT-BE55
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 Apr. 17, 2025, and testing was started from Apr. 17, 2025 and completed on Jun. 03, 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 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

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Photographs of EUT v01

History of this test report

Report No.	Version	Description	Issued Date
FA541834	01	Initial issue of report	Jun. 11, 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: Sandy Chuang

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)

1.2 Antenna Information

Ant.	Port		Brand	Model Name	Antenna Type	Connector	Gain (dBi)
	2.4GHz	5GHz					
1	1	-	XINSHENG	SSR-2402018	Dipole	I-PEX	Note 1
2	-	1	XINSHENG	SSR-2503030	Dipole	I-PEX	
3	2	-	XINSHENG	SSR-2402019	Dipole	I-PEX	
4	-	2	XINSHENG	SSR-2402021	Dipole	I-PEX	

Note 1:

Ant.	Port		Antenna Gain (dBi)				
	2.4GHz	5GHz	WLAN 2.4GHz	WLAN 5GHz UNII 1	WLAN 5GHz UNII 2A	WLAN 5GHz UNII 2C	WLAN 5GHz UNII 3
1	1	-	3.37	-	-	-	-
2	-	1	-	2.91	3.37	2.99	3.08
3	2	-	3.46	-	-	-	-
4	-	2	-	3.11	3.20	3.09	3.10

Note 2: The above information was declared by manufacturer.

Note 3: Directional gain information

Type	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$Directional\ Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$
BF	$Directional\ Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$	$Directional\ Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

Ex.

Directional Gain (NSS1) formula : $Directional\ Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

NSS1(g1,1) = $10^{G1/20}$; NSS1(g1,2)= $10^{G2/20}$; NSS1(g1,2)= $10^{G3/20}$; NSS1(g1,2)= $10^{G4/20}$

gj,k =(Nss1(g1,1) + Nss1(g1,2) + Nss1(g1,3) + Nss1(g1,4))²

DG = 10 log[(Nss1(g1,1) + Nss1(g1,2) + Nss1(g1,3) + Nss1(g1,4))² / N_{ANT}] => 10 log[($10^{G1/20}$ + $10^{G2/20}$ + $10^{G3/20}$ + $10^{G4/20}$)² / N_{ANT}]

Where ;

2.4G G1= 3.37 dBi ;G2= 3.46 dBi

5G UNII-1 G1 = 2.91 dBi; G2 = 3.11 dBi

5G UNII-2A G1 = 3.37 dBi; G2 = 3.20 dBi

5G UNII-2C G1 = 2.99 dBi; G2 = 3.09 dBi

5G UNII-3 G1 = 3.08 dBi; G2 = 3.10 dBi

2.4G DG = 6.43 dBi

5G UNII-1 DG = 6.02 dBi

5G UNII-2A DG = 6.30 dBi

5G UNII-2C DG = 6.05 dB

5G UNII-3 DG = 6.10 dBi

Note 4:

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/a/ac/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.

1.3 Table for EUT Support Function

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

Note 1: The USB port on this device supports both storage and WWAN functionality.
Note 2: The 1G LAN 1/WAN port and 2.5G LAN 1/WAN port will be fixed to the LAN function when the EUT is in WWAN function.
Note 3: The above information was declared by manufacturer.

1.4 Table for Multiple Listing and EUT Information

EUT	Model Name	Housing Design	Way to fix antenna cable to port	LED Spacer Thickness	Power Button Size	USB port
1	RT-BE58U V2	Housing design 1	Note 1	Thick	Small	With
-	RT-BE3600 V2					
2	TUF-BE3600 V2	Housing design 2		Thin	Big	With
3	RT-BE55	Housing design 1		Thick	Small	Without

EUT	Model Name	RAM	Flash	Equip Adapter	Wall mounted port
1	RT-BE58U V2	1GB	256M	Adapter 1~2	Without
-	RT-BE3600 V2				
2	TUF-BE3600 V2	1GB	256M	Adapter 1~2	With
3	RT-BE55	512M	128M	Adapter 3~4	Without

Note 1:

EUT	Way to fix antenna cable to port
1	Ant.1: Fix the antenna cable on the holder in RC1 Ant.2: Fix the antenna cable on the holder in RC5 Ant.3: Fix the antenna cable on the holder in RC6 Ant.4: Fix the antenna cable on the holder in RC4
2	Ant.1: Fix the antenna cable on the holder of the heatsink Ant.2: Fix the antenna cable on the holder of the heatsink Ant.3: Fix the antenna cable on the holder in RC4 and on the holder of the heatsink Ant.4: Fix the antenna cable on the holder of the heatsink
3	Ant.1: Fix the antenna cable on the holder in RC1 Ant.2: Fix the antenna cable on the holder in RC5 Ant.3: Fix the antenna cable on the holder in RC6 Ant.4: Fix the antenna cable on the holder in RC4

Note 2: The different model names (RT-BE58U V2 and RT-BE3600 V2) served as strategy for marketing.

Note 3: From the above models, model: RT-BE58U V2 (EUT 1) was selected to test all items.

Note 4: The above information was declared by manufacturer.

1.5 Accessories

Accessories			
Equipment Name	**Brand Name**	**Model Name**	**Rating**
Adapter 1	Frecom	F24L6-120200SPAU	Input: 100-240V~50/60Hz, 0.6A Output: 12.0V, 2.0A, 24.0W
Adapter 2	LEI	MU24D1120200-A1	Input: 100~240V~50/60Hz, 0.7A Output: 12V, 2A
Adapter 3	AMC	AD-0181200150US-1	Input: 100-240V~50/60Hz, 0.6A Output: 12V, 1.5A
Adapter 4	Frecom	F18L10-120150SPAU	Input: 100-240V~50/60Hz, 0.6A Output: 12.0V, 1.5A, 18.0W
Others			
RJ-45 cable 1*1: Non-shielded, 1.5m			
RJ-45 cable 2*1: Non-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/ 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 51 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	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	6.43	27.14	31.42	0.50	1555.966	51	C	4994.0	0.3117
5.2G;D1D	6.02	29.84	33.71	0.13	2421.029	51	C	4994.0	0.4850
5.3G;D1D	6.30	23.66	27.81	0.01	605.341	51	C	4994.0	0.1213
5.6G;D1D	6.05	23.91	27.81	0.01	605.341	51	C	4994.0	0.1213
5.8G;D1D	6.10	29.76	33.71	0.13	2421.029	51	C	4994.0	0.4850
Band12;G7D	-	-	21.85	0.50	171.791	51	C	2327.2	0.0738

Simultaneous Transmission Analysis Mode:

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

Mode	DG (dBi)	Power (dBm)	ERP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	6.43	27.14	31.42	0.50	1555.966	51	C	4994.0	0.3117
5.8G;D1D	6.10	29.76	33.71	0.13	2421.029	51	C	4994.0	0.4850
Sum TL Ratio_C	0.7967								
Ratio Limit	1								

Mode 2: EUT 1_WLAN 2.4GHz + WLAN 5GHz + 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	6.43	27.14	31.42	0.50	1555.966	51	C	4994.0	0.3117
5.8G;D1D	6.10	29.76	33.71	0.13	2421.029	51	C	4994.0	0.4850
Band12;G7D	-	-	21.85	0.50	171.791	51	C	2327.2	0.0738
Sum TL Ratio_C	0.8705								
Ratio Limit	1								

Note: The above antenna gain was declared by manufacturer.

————THE END————