RF Exposure Evaluation Declaration

Product Name	：	Wireless-AC2600 Dual WAN VPN Wireless Router
Trade Name	：	ASUS
Model No.	：	BRT-AC828/M2, BRT-AC828
FCC ID.	：	MSQ-RT0V00

Applicant	：	ASUSTeK COMPUTER INC.
Address	：	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan

Date of Receipt	:	Feb. 17, 2016
Issued Date	:	Jun. 03, 2016
Report No.	:	1620268R-RF-US-Exp-A
Report Version	:	V1.0

Testing Laboratory
3024

1. RF Exposure Evaluation

1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm^2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18℃ and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product	Wireless-AC2600 Dual WAN VPN Wireless Router
Test Mode	Mode 1: Transmit_CDD Mode
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.19dBi or 2.08 in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11a (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
36	5180	294.4422	0.12184
40	5220	297.8516	0.12325
44	5240	289.7344	0.11989

IEEE 802.11 n(20MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
36	5180	309.7419	0.12817
40	5220	308.3188	0.12758
44	5240	306.9022	0.12700

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.

Product	Wireless-AC2600 Dual WAN VPN Wireless Router
Test Mode	Mode 1: Transmit_CDD Mode
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.19dBi or 2.08 in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 n(40MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
38	5190	374.9730	0.15516
46	5230	635.3309	0.26290

IEEE 802.11 ac(80MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
42	5210	287.0781	0.11879

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.

Product	Wireless-AC2600 Dual WAN VPN Wireless Router
Test Mode	Mode 2: Transmit_Beamforming Mode
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.19dBi or 2.08 in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 n(20MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
36	5180	312.6079	0.15797
40	5220	304.7895	0.15401
44	5240	309.0295	0.15616

IEEE 802.11 n(40MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
38	5190	285.1018	0.14407
46	5230	467.7351	0.23635

IEEE 802.11 ac(80MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
42	5210	244.3431	0.12347

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.

Product	Wireless-AC2600 Dual WAN VPN Wireless Router
Test Mode	Mode 1: Transmit_CDD Mode
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.19dBi or2.08 in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11a (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
149	5745	851.1380	0.35220
153	5785	859.0135	0.35546
165	5825	870.9636	0.36041

IEEE 802.11 n(20MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
149	5745	885.1156	0.36626
153	5785	853.1001	0.35301
165	5825	855.0667	0.35383

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.

Product	Wireless-AC2600 Dual WAN VPN Wireless Router
Test Mode	Mode 1: Transmit_CDD Mode
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.19dBi or2.08 in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 n(40MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
151	5755	835.6030	0.34577
159	5795	887.1560	0.36711

IEEE 802.11 ac(80MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
155	5775	810.9611	0.33558

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.

Product	Wireless-AC2600 Dual WAN VPN Wireless Router
Test Mode	Mode 2: Transmit_Beamforming Mode
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.19dBi or2.08 in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 n(20MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
149	5745	449.7799	0.18612
153	5785	459.1980	0.19002
165	5825	458.1419	0.18958

IEEE 802.11 n(40MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
151	5755	462.3810	0.19133
159	5795	459.1980	0.19002

IEEE 802.11 ac(80MHz) (ANT 0+1+2+3)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
155	5775	459.1980	0.19002

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.

Product	Wireless-AC2600 Dual WAN VPN Wireless Router
Test Mode	Mode 3: (80+80MHz) Mode
Test Condition	RF Exposure Evaluation

Power Density (5.2GHz) (mW/cm2)	Power Density (5.8GHz) (mW/cm2)	Total Power Density (5.2GHz+5.8GHz) (mW/cm2)	Limit (mW/cm2)
0.12347	0.33558	0.45905	1