RF Exposure Evaluation Declaration

Product Name	:	Dual-band Wireless-AC750 Range Extender
Trade Name	:	ASUS
Model No.	:	RP-AC52
FCC ID.	:	MSQ-RPAC52

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

Date of Receipt	:	Jan. 30, 2016
Date of Declaration	:	Apr. 07, 2016
Report No.	:	1620103R-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	Dual-band Wireless-AC750 Range Extender
Test Mode	Mode1: Transmit
Test Condition	RF Exposure Evaluation

Antenna Gain

5.8G Antenna Gain: The maximum Gain measured in fully anechoic chamber is 4.6 or 2.88 inear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11a			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
149	5745	72.1107	0.02869
153	5785	136.4583	0.05429
165	5825	125.8925	0.05009

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	Dual-band Wireless-AC750 Range Extender
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Antenna Gain

5.8G Antenna Gain: The maximum Gain measured in fully anechoic chamber is 4.6 or 2.88 inear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 n(20MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
149	5745	58.0764	0.02311
153	5785	133.3521	0.05306
165	5825	115.8777	0.04611

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	Dual-band Wireless-AC750 Range Extender
Test Mode	Mode1: Transmit
Test Condition	RF Exposure Evaluation

Antenna Gain

5.8G Antenna Gain: The maximum Gain measured in fully anechoic chamber is 4.6 or 2.88 inear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11 n(40MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
151	5755	40.2717	0.01602
159	5795	121.3389	0.04828

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	Dual-band Wireless-AC750 Range Extender
Test Mode	Mode1: Transmit
Test Condition	RF Exposure Evaluation

Antenna Gain

5.8G Antenna Gain: The maximum Gain measured in fully anechoic chamber is 4.6 or 2.88 inear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11ac (80MHz)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
155	5775	27.8612	0.01109

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.