

RF Exposure Report

Report No.: SA200407C10

FCC ID: MSQ-RPAX4W00

Test Model: RP-AX56

Received Date: Apr. 07, 2020

Date of Evaluation: Jun. 01, 2020

Issued Date: Jun. 10, 2020

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SA200407C10	Original Release	Jun. 10, 2020

1 Certificate of Conformity

Product: Dual-Band Wireless Repeater

Brand: ASUS

Test Model: RP-AX56

Sample Status: Engineering Sample

Applicant: ASUSTek COMPUTER INC.

Date of Evaluation: Jun. 01, 2020

Standards: FCC Part 2 (Section 2.1091)

References Test KDB 447498 D01 General RF Exposure Guidance v06

Guidance :
IEEE C95.3 -2002

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Shelly Hsueh , **Date:** Jun. 10, 2020
Shelly Hsueh / Specialist

Approved by : Dylan Chiou , **Date:** Jun. 10, 2020
Dylan Chiou / Senior Project Engineer

2 RF Exposure

2.1 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)
Limits For General Population / Uncontrolled Exposure				
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

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm²

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

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Calculation Result of Maximum Conducted Power

CDD Mode:

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN	2412-2462	26.16	6.01	20	0.328	1.00
	5180-5240	27.78	6.01	20	0.476	1.00
	5745-5825	25.34	6.01	20	0.271	1.00

Beamforming Mode:

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN	2412-2462	25.55	6.01	20	0.285	1.00
	5180-5240	27.78	6.01	20	0.476	1.00
	5745-5825	25.34	6.01	20	0.271	1.00

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: Directional gain = 3dBi + 10log(2) = 6.01dBi
5.0GHz: Directional gain = 3dBi + 10log(2) = 6.01dBi

Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

CDD Mode:

$$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.328 / 1 + 0.476 / 1 = 0.804$$

Beamforming Mode:

$$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.285 / 1 + 0.476 / 1 = 0.761$$

Therefore the maximum calculations of above situations are less than the "1" limit.

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