RF Exposure Report

Report No.:	SA170218C14A
FCC ID:	MSQ-RPAC4200
Test Model:	RP-AC51
Received Date:	Dec. 19, 2019
Test Date:	Jan. 03 ~ Mar. 13, 2020
Issued Date:	Mar. 16, 2020

Applicant:	ASUSTeK COMPUTER INC.
Address:	1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan

Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
	Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
SA170218C14A	Original release	Mar. 16, 2020

1   Certificate of Conformity

Product:	Wi-Fi AC Repeater
Brand:	ASUS
Test Model:	RP-AC51
Sample Status:	Engineering sample
Applicant:	ASUSTeK COMPUTER INC.
Test Date:	Jan. 03 ~ Mar. 13, 2020
Standards:	FCC Part 2 (Section 2.1091)
References Test Guidance:	KDB 447498 D01 General RF Exposure Guidance v06
	IEEE C95.3 -2002
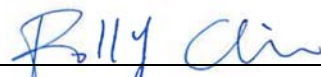
The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** _____ Mar. 16, 2020 _____

Polly Chien / Specialist

Approved by : _____ , **Date:** _____ Mar. 16, 2020 _____

Bruce Chen / 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				
300-1500	…	…	F/1500	30
1500-100,000	…	…	1.0	30

F = Frequency in MHz

2.2 MPE Calculation 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

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**.

3   Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	26.02	5.51	20	0.283	1
5180-5240	24.98	7.01	20	0.315	1
5745-5825	23.19	7.01	20	0.208	1

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Note:

1. WLAN 2.4GHz and 5GHz technologies can transmit at same time.
2. Directional gain:

    2.4GHz: Directional gain = 2.5dBi + 10log(2) = 5.51dBi

    5GHz: Directional gain = 4dBi + 10log(2) = 7.01dBi

Conclusion:
The formula of calculated the MPE is:
CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1
CPD = Calculation power density
LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.283/1 + 0.315/1 = 0.598

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

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