

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.

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



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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

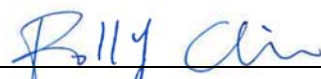
Standards: FCC Part 2 (Section 2.1091)

References Test 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 :


Polly Chien / Specialist

Date:

Mar. 16, 2020

Approved by :



Bruce Chen / Senior Project Engineer

Date:

Mar. 16, 2020

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

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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:

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

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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