

RF Exposure Report

Report No.: SA181204C01

FCC ID: A8J-EMR3500

Test Model: EMR3500

Series Model: ESR530

Received Date: Dec. 04, 2018

Test Date: Jan. 29 ~ Feb. 20, 2019

Issued Date: Mar. 06, 2019

Applicant: EnGenius Technologies

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SA181204C01	Original release	Mar. 06, 2019

1 Certificate of Conformity

Product: AC1300 Dual-Band Mesh Router

Brand: EnGenius

Test Model: EMR3500

Series Model: ESR530

Sample Status: Engineering sample

Applicant: EnGenius Technologies

Test Date: Jan. 29 ~ Feb. 20, 2019

Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D01 General RF Exposure Guidance v06
IEEE C95.1-1992

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.

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Approved by : Bruce Chen , **Date:** Mar. 06, 2019
Bruce Chen / 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/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**.

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)
CDD Mode					
2412-2462	23.55	7.71	20	0.266	1
5180-5240	21.98	8.51	20	0.223	1
5745-5825	25.41	8.51	20	0.491	1
Beamforming Mode					
2412-2462	19.91	7.71	20	0.115	1
5180-5240	18.70	8.51	20	0.105	1
5745-5825	22.40	8.51	20	0.245	1

Note:

2412-2462MHz: Directional gain = 4.7dBi + 10log(2) = 7.71dBi

5180-5240MHz: Directional gain = 5.5dBi + 10log(2) = 8.51dBi

5745-5825MHz: Directional gain = 5.5dBi + 10log(2) = 8.51dBi

Conclusion:

WLAN 2.4GHz & WLAN 5GHz can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.266 / 1 + 0.491 / 1 = 0.757$

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

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