

## RF Exposure Report

**Report No.:** SA170202C15

**FCC ID:** A8J-EMR3000V2

**Test Model:** EMR3000v2

**Received Date:** Feb. 02, 2017

**Test Date:** Feb. 08 ~ Apr. 05, 2017

**Issued Date:** Apr. 06, 2017

**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  
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### Release Control Record

Issue No.	Description	Date Issued
SA170202C15	Original release.	Apr. 06, 2017

## 1 Certificate of Conformity

**Product:** AC1200 Mesh Router

**Brand:** EnGenius

**Test Model:** EMR3000v2

**Sample Status:** Engineering sample

**Applicant:** EnGenius Technologies

**Test Date:** Feb. 08 ~ Apr. 05, 2017

**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 EMC characteristics under the conditions specified in this report.

**Prepared by :** , **Date:** Apr. 06, 2017  
Polly Chien / Specialist

**Approved by :** , **Date:** Apr. 06, 2017  
Ken Liu / Senior Manager

## 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 <sup>2</sup> )	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<sup>2</sup>

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 <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN 2.4GHz					
2412-2462	25.14	6.95	20	0.322	1
WLAN 5GHz					
5180-5240	22.48	8.51	20	0.250	1
5745-5825	24.12	8.51	20	0.365	1
BT LE					
2402-2480	10.68	1.4	20	0.003	1
BT EDR					
2402-2480	11.22	1.4	20	0.004	1

Note:

2.4GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 6.95 \text{ dBi}$

5.0GHz: Directional gain =  $5.5\text{dBi} + 10\log(2) = 8.51 \text{ dBi}$

Frequency Band	Max Power (dBm)			Total Power (dBm)	Power Limit (dBm)
	WLAN	BT LE	BT EDR		
2.4GHz	25.14	10.68		25.29	30
2.4GHz	25.14		11.22	25.31	30

#### 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

WALN 2.4GHz + WALN 5GHz + BT LE =  $0.322 + 0.365 + 0.003 = 0.690$

WALN 2.4GHz + WALN 5GHz + BT EDR =  $0.322 + 0.365 + 0.004 = 0.691$

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

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