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
Address:	1580 Scenic Avenue, Costa Mesa, CA92626
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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 (R.O.C.)

Table of Contents

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^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)
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[$(10^{G1/20} + 10^{G2/20 + ... +} 10^{GN/20})^2/2$]= 6.95 dBi
5.0GHz: Directional gain = 5.5dBi + 10log(2) = 8.51 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 + ……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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