

RF Exposure Report

Report No.: SA180702C01

FCC ID: A8J-ECM855AP

Test Model: ECM855AP

Received Date: Jul. 02, 2018

Test Date: Jul. 25 ~ Aug. 01, 2018

Issued Date: Aug. 16, 2018

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
SA180702C01	Original release	Aug. 16, 2018

1 Certificate of Conformity

Product: Wireless 802.11 abgn/ac outdoor AP

Brand: EnGenius

Test Model: ECM855AP

Sample Status: Engineering sample

Applicant: EnGenius Technologies

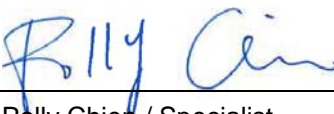
Test Date: Jul. 25 ~ Aug. 01, 2018

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.

Prepared by :  , **Date:** Aug. 16, 2018
Polly Chien / Specialist

Approved by :  , **Date:** Aug. 16, 2018
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

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

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 21cm away from the body of the user. So, this device is classified as Mobile Device.

3 Calculation Result of Maximum Conducted Power

Function	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN	Radio 1, Dipole Ant., CDD Mode					
	2412-2462	25.11	7.51	21	0.330	1
	Radio 1, Dipole Ant., Beamforming Mode					
	2412-2462	23.57	7.51	21	0.231	1
	Radio 2, Dipole Ant., CDD Mode					
	5180-5240	24.73	9.31	21	0.457	1
	5745-5825	26.37	9.31	21	0.667	1
	Radio 2, Dipole Ant., Beamforming Mode					
	5180-5240	21.65	9.31	21	0.225	1
5745-5825	23.37	9.31	21	0.334	1	
BT LE	Radio 4, PIFA Ant.					
	2402-2480	5.40	3.69	21	0.001	1

Note:

1. For Radio 1, Dipole Ant. 2.4G Directional gain = $4.50\text{dBi} + 10\log(2) = 7.51\text{dBi}$
2. For Radio 2, Dipole Ant. 5G Directional gain = $6.30\text{dBi} + 10\log(2) = 9.31\text{dBi}$
3. For Radio 3, PIFA Ant. BT LE gain = 3.69dBi

Frequency Band	Max Power (dBm)		Total Power (dBm)	Power Limit (dBm)
	Radio 1 WLAN	BT LE		
2.4GHz	25.11	5.40	25.16	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

Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz + Radio 4 BT LE = $0.330 + 0.667 + 0.001 = 0.998 < 1$

---END---