

RF Exposure Report

Report No.: SA180302C27

FCC ID: A8J-EMD1

Test Model: EMD1, EMD2

Series Model: ERP1

Received Date: Mar. 01, 2018

Test Date: Mar. 01 ~ May 18, 2018

Issued Date: May 21, 2018

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, R.O.C.

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



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Release Control Record

Issue No.	Description	Date Issued
SA180302C27	Original release	May 21, 2018

1 Certificate of Conformity

Product: AC1300 Dual-Band Mesh AP

Brand: EnGenius

Model: EMD1, EMD2

Series Model: ERP1

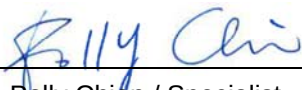
Sample Status: Engineering sample

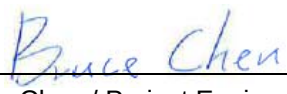
Applicant: EnGenius Technologies

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

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:** May 21, 2018
Polly Chien / Specialist

Approved by :  , **Date:** May 21, 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 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	25.08	5.21	20	0.213	1
5180-5240	22.55	8.91	20	0.278	1
5745-5825	25.86	8.91	20	0.597	1
Beamforming Mode:					
2412-2462	21.89	5.21	20	0.102	1
5180-5240	19.54	8.91	20	0.139	1
5745-5825	22.85	8.91	20	0.298	1

Note:

2.4GHz Band: Directional gain = $G_{ANT\ MAX} + 10 \log(N_{ANT}/N_{SS}) = 2.2\ dBi + 10 \log(2/1) = 5.21\ dBi$

5GHz Band: Directional gain = $G_{ANT\ MAX} + 10 \log(N_{ANT}/N_{SS}) = 5.9\ dBi + 10 \log(2/1) = 8.91\ dBi$

Conclusion:

2.4GHz & 5GHz Band 1 or 2.4GHz & 5GHz Band 4 can transmit at same time.

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 = $0.213 + 0.597 = 0.810$

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

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