

RF Exposure Report

Report No.: SA200115C20

FCC ID: A8J-EWS357APV3

Test Model: EWS357AP v3

Series Model: ECW620 v2, ECW220 v2

Received Date: Jan. 15, 2020

Test Date: Feb. 6 to Mar. 24, 2020

Issued Date: Apr. 1, 2020

Applicant: EnGenius Technologies

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

| Issue No. | Description | Date Issued |
|-------------|------------------|--------------|
| SA200115C20 | Original release | Apr. 1, 2020 |

1 Certificate of Conformity

Product: 802.11AX Indoor Ceiling Mount Access Point

Brand: EnGenius

Test Model: EWS357AP v3

Series Model: ECW620 v2, ECW220 v2

Sample Status: Engineering sample

Applicant: EnGenius Technologies

Test Date: Feb. 6 to Mar. 24, 2020

Standards: FCC Part 2 (Section 2.1091)

References Test Guidance: KDB 447498 D01 General RF Exposure Guidance v06
IEEE C95.3 -2002

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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, Date: Apr. 1, 2020

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, Date: Apr. 1, 2020

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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 Average Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm ²) | Limit (mW/cm ²) |
|---------------------------------|-------------------------|--------------------|---------------|-------------------------------------|-----------------------------|
| WLAN | | | | | |
| traffic radio: CDD Mode | | | | | |
| 2412-2462 | 24.41 | 6.44 | 20 | 0.2420 | 1 |
| 5180-5240 | 25.48 | 7.23 | 20 | 0.3713 | 1 |
| 5745-5825 | 24.65 | 7.28 | 20 | 0.3103 | 1 |
| traffic radio: Beamforming Mode | | | | | |
| 2412-2462 | 19.98 | 6.44 | 20 | 0.0872 | 1 |
| 5180-5240 | 22.47 | 7.23 | 20 | 0.1857 | 1 |
| 5745-5825 | 21.64 | 7.28 | 20 | 0.1551 | 1 |
| Scanning radio: CDD Mode | | | | | |
| 2412-2462 | 19.26 | 3.40 | 20 | 0.0367 | 1 |
| 5180-5240 | 15.02 | 6.78 | 20 | 0.0301 | 1 |
| 5745-5825 | 19.37 | 6.78 | 20 | 0.0820 | 1 |
| BT LE | | | | | |
| 2402-2480 | 1.82 | 5.58 | 20 | 0.0011 | 1 |

*Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Note:

- Directional gain (2G traffic radio):
 2.4GHz Band: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2]$ = 6.44dBi
 5180 ~ 5240MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2]$ =7.23dBi
 5745 ~ 5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2]$ =7.28dBi
- 2G traffic radio, 5GHz traffic radio, Scanning radio (5G) and BT technologies can transmit at same time. But 5GHz traffic radio and Scanning radio (5G) cannot transmit in the same band at same time. 2G traffic radio and Scanning radio (2.4G) cannot transmit at same time.

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

$$2G \text{ traffic radio} + 5GHz \text{ traffic radio} + \text{Scanning radio (5G)} + BT \\ = 0.2420 / 1 + 0.3713 / 1 + 0.0820 / 1 + 0.0011 / 1 = 0.6964 < 1$$

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

---END---