

## RF Exposure Report

**Report No.:** SA170703E05

**FCC ID:** YZKECW54100

**Test Model:** ECW5410-O

**Series Model:** ECW5410-L2, ECW5410-L

**Received Date:** July 04, 2017

**Test Date:** Sep. 06 to 07, 2017

**Issued Date:** Oct. 20, 2017

**Applicant:** Edgecore Networks Corporation.

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R.O.C

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

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### Release Control Record

| Issue No.   | Description       | Date Issued   |
|-------------|-------------------|---------------|
| SA170703E05 | Original release. | Oct. 20, 2017 |

## 1 Certificate of Conformity

**Product:** 802.11ac Wireless Access Point

**Brand:** Edgecore

**Test Model:** ECW5410-O

**Series Model:** ECW5410-L2, ECW5410-L

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Edgecore Networks Corporation.

**Test Date:** Sep. 06 to 07, 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:**

Oct. 20, 2017

Wendy Wu / Specialist

**Approved by :**



**Date:**

Oct. 20, 2017

May Chen / 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 |                               |                               |                                     |                        |
| 0.3-1.34                                              | 614                           | 1.63                          | (100)*                              | 30                     |
| 1.34-30                                               | 824/f                         | 2.19/f                        | (180/f <sup>2</sup> )*              | 30                     |
| 30-300                                                | 27.5                          | 0.073                         | 0.2                                 | 30                     |
| 300-1500                                              | ...                           | ...                           | f/1500                              | 30                     |
| 1500-100,000                                          | ...                           | ...                           | 1.0                                 | 30                     |

f = Frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

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

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 42cm away from the body of the user.  
So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

| WLAN        |       |           |                        |                       |              |                |
|-------------|-------|-----------|------------------------|-----------------------|--------------|----------------|
| Antenna No. | Brand | Model No. | Antenna Net Gain (dBi) | Frequency Range (GHz) | Antenna Type | Connector Type |
| 1           | NA    | NA        | 3.59                   | 2.4~2.4835            | Monopole     | i-pex          |
|             |       |           | 6.28                   | 5.15~5.25             |              |                |
|             |       |           | 5.41                   | 5.25~5.35             |              |                |
|             |       |           | 5.24                   | 5.47~5.725            |              |                |
|             |       |           | 6.39                   | 5.725~5.85            |              |                |
| 2           | NA    | NA        | 3.74                   | 2.4~2.4835            | Monopole     | i-pex          |
|             |       |           | 3.9                    | 5.15~5.25             |              |                |
|             |       |           | 3.48                   | 5.25~5.35             |              |                |
|             |       |           | 4.16                   | 5.47~5.725            |              |                |
|             |       |           | 4.41                   | 5.725~5.85            |              |                |
| 3           | NA    | NA        | 4.33                   | 2.4~2.4835            | Monopole     | i-pex          |
|             |       |           | 5.65                   | 5.15~5.25             |              |                |
|             |       |           | 5.02                   | 5.25~5.35             |              |                |
|             |       |           | 4.84                   | 5.47~5.725            |              |                |
|             |       |           | 4.93                   | 5.725~5.85            |              |                |
| 4           | NA    | NA        | 4.09                   | 2.4~2.4835            | Monopole     | i-pex          |
|             |       |           | 6.09                   | 5.15~5.25             |              |                |
|             |       |           | 5.37                   | 5.25~5.35             |              |                |
|             |       |           | 5.29                   | 5.47~5.725            |              |                |
|             |       |           | 6.62                   | 5.725~5.85            |              |                |
| Bluetooth   |       |           |                        |                       |              |                |
| Antenna No. | Brand | Model No. | Antenna Net Gain (dBi) | Frequency Range (GHz) | Antenna Type | Connector Type |
| 5           | NA    | NA        | 4.68                   | 2.4~2.4835            | Monopole     | i-pex          |

## 2.5 Calculation Result Of Maximum Conducted Power

### For WLAN:

| Frequency Band (MHz) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 2412-2462            | 721.798        | 9.96               | 42            | 0.32263                             | 1                           |
| 5180-5240            | 528.397        | 11.55              | 42            | 0.34060                             | 1                           |
| 5745-5825            | 865.625        | 11.66              | 42            | 0.57230                             | 1                           |

NOTE:

2.4GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.96\text{dBi}$

5GHz:

UNII-1: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 11.55\text{dBi}$

UNII-3: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 11.66\text{dBi}$

### For Bluetooth:

| Frequency Band (MHz) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 2402-2480            | 2.404          | 4.68               | 42            | 0.00032                             | 1                           |

### 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

WLAN 2.4GHz + WLAN 5GHz + Bluetooth =  $0.32263 / 1 + 0.57230 / 1 + 0.00032 / 1 = 0.89525$

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

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