



# RF Exposure Evaluation Report

**Equipment** : Wall plate 802.11ac Wave 2, 2x2:2, BT, Internal Antenna

**Brand Name** : Extreme Networks

**Model No.** : AP-7612

**FCC ID** : QXO-AP7612

**Standard** : 47 CFR Part 2.1091

**Applicant** : Extreme Networks, Inc.  
6480 Via Del Oro, San Jose, CA 95119

**Manufacturer** : Extreme Networks, Inc.  
6480 Via Del Oro, San Jose, CA 95119

The product sample received on Apr. 13, 2017 and completely tested on May 31, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with 47 CFR Part 2.1091 and pass the limit.

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Cliff Chang  
SPORTON INTERNATIONAL INC.





## **TABLE OF CONTENTS**

|          |                                             |          |
|----------|---------------------------------------------|----------|
| <b>1</b> | <b>GENERAL DESCRIPTION .....</b>            | <b>4</b> |
| 1.1      | EUT General Information .....               | 4        |
| 1.2      | Table for Class II Change.....              | 4        |
| 1.3      | Testing Location .....                      | 4        |
| <b>2</b> | <b>MAXIMUM PERMISSIBLE EXPOSURE .....</b>   | <b>5</b> |
| 2.1      | Limit of Maximum Permissible Exposure ..... | 5        |
| 2.2      | MPE Calculation Method .....                | 5        |
| 2.3      | Calculated Result and Limit.....            | 6        |

### **PHOTOGRAPHS OF EUT V01**

## REVISION HISTORY

[illegible]

# 1 General Description

## 1.1 EUT General Information

| RF General Information |                                                  |                                                  |                                                                                                                                      |
|------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Evaluation Mode        | Frequency Range (MHz)                            | Operating Frequency (MHz)                        | Modulation Type                                                                                                                      |
| 2.4GHz WLAN            | 2400-2483.5                                      | 2412-2462                                        | 802.11b: DSSS (DBPSK, DQPSK, CCK)<br>802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) |
| 5GHz WLAN              | 5150-5250<br>5250-5350<br>5470-5725<br>5725-5850 | 5180-5240<br>5260-5320<br>5500-5720<br>5745-5825 | 802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)                                      |
| Bluetooth              | 2400-2483.5                                      | 2402-2480                                        | BR / EDR: FHSS (GFSK / $\pi/4$ -DQPSK / 8DPSK)<br>LE: DSSS (GFSK)                                                                    |

## 1.2 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA741335

Below is the table for the change of the product with respect to the original one.

| Modifications                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------|
| Add Band 2 and Band 3 (5250~5350 MHz, 5470~5725 MHz) for this device, and it evaluated for Maximum Permissible Exposure. |

Note: RF Exposure Evaluation of 5GHz Band 1, 4 and 2.4GHz Band are based on original test report.

## 1.3 Testing Location

| Testing Location                    |        |                                                                                                                               |
|-------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.<br>TEL : 886-3-327-3456 FAX : 886-3-327-0973   |
| <input checked="" type="checkbox"/> | JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.<br>TEL : 886-3-656-9065 FAX : 886-3-656-9085 |

## 2 Maximum Permissible Exposure

### 2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|------------------------------------------------------------------|
| 0.3-3.0               | 614                               | 1.63                              | (100)*                                   | 6                                                                |
| 3.0-30                | 1842 / f                          | 4.89 / f                          | (900 / f)*                               | 6                                                                |
| 30-300                | 61.4                              | 0.163                             | 1.0                                      | 6                                                                |
| 300-1500              |                                   |                                   | F/300                                    | 6                                                                |
| 1500-100,000          |                                   |                                   | 5                                        | 6                                                                |

(B) Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|------------------------------------------------------------------|
| 0.3-1.34              | 614                               | 1.63                              | (100)*                                   | 30                                                               |
| 1.34-30               | 824/f                             | 2.19/f                            | (180/f)*                                 | 30                                                               |
| 30-300                | 27.5                              | 0.073                             | 0.2                                      | 30                                                               |
| 300-1500              |                                   |                                   | F/1500                                   | 30                                                               |
| 1500-100,000          |                                   |                                   | 1.0                                      | 30                                                               |

Note: f = frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Method

The MPE was calculated at 22 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

**E** = Electric field (V/m)

**P** = RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



## 2.3 Calculated Result and Limit

### Exposure Environment: General Population / Uncontrolled Exposure

| Mode     | DG<br>(dBi) | Power<br>(dBm) | EIRP<br>(dBm) | EIRP<br>(W) | Distance<br>(cm) | S<br>(mW/cm <sup>2</sup> ) | S Limit<br>(mW/cm <sup>2</sup> ) |
|----------|-------------|----------------|---------------|-------------|------------------|----------------------------|----------------------------------|
| BT 4.0   | 3.70        | 9.54           | 13.24         | 0.02109     | 22               | 0.00346                    | 1                                |
| 2.4G;G1D | 5.40        | 26.67          | 32.07         | 1.61065     | 22               | 0.26495                    | 1                                |
| 5.3G;D1D | 8.50        | 21.47          | 29.97         | 0.99312     | 22               | 0.16329                    | 1                                |
| 5.6G;D1D | 8.50        | 21.46          | 29.96         | 0.99083     | 22               | 0.16291                    | 1                                |
| 5.8G;D1D | 8.50        | 27.49          | 35.99         | 3.97192     | 22               | 0.65337                    | 1                                |

### Simultaneous Transmission Analysis Mode: WLAN 2.4GHz+WLAN 5GHz

| Mode     | DG<br>(dBi) | Power<br>(dBm) | EIRP<br>(dBm) | EIRP<br>(W) | Distance<br>(cm) | S<br>(mW/cm <sup>2</sup> ) | S Limit<br>(mW/cm <sup>2</sup> ) | Ratio<br>(S/Limit) |
|----------|-------------|----------------|---------------|-------------|------------------|----------------------------|----------------------------------|--------------------|
| BT 4.0   | 3.70        | 9.54           | 13.24         | 0.02109     | 22               | 0.00346                    | 1                                | 0.00346            |
| 2.4G;G1D | 5.40        | 26.67          | 32.07         | 1.61065     | 22               | 0.26495                    | 1                                | 0.26495            |
| 5.8G;D1D | 8.50        | 27.49          | 35.99         | 3.97192     | 22               | 0.65337                    | 1                                | 0.65337            |
|          |             |                |               |             |                  |                            | Sum Ratio                        | 0.92178            |
|          |             |                |               |             |                  |                            | Ratio Limit                      | 1                  |