



# RF Exposure Evaluation Report

**Equipment** : 802.11 a/n PCIe Module  
**Brand Name** : Proxim  
**Model No.** : XB92HPW  
**FCC ID** : HZB-XB92WFR  
**Standard** : 47 CFR Part 2.1091  
**Applicant** : Proxim Wireless Corporation  
47633 Westinghouse Drive Fremont, CA 94539  
United States

The product sample received on Apr. 29, 2013 and completely tested on Apr. 18, 2016. 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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**Sam Chen**  
SPORTON INTERNATIONAL INC.





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## REVISION HISTORY

[illegible]



## 1 General Description

### 1.1 EUT General Information

| RF General Information |                       |                           |                                                                                                 |
|------------------------|-----------------------|---------------------------|-------------------------------------------------------------------------------------------------|
| Evaluation Mode        | Frequency Range (MHz) | Operating Frequency (MHz) | Modulation Type                                                                                 |
| 5GHz WLAN              | 5725-5850             | 5745-5825                 | 802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) |

### 1.2 Table for Class II Change

This product is an extension of original one reported under Sporton project number: 342910-03 and 342910-04.

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

| Modifications                                                                                                                                                                                                                                                                                        | Performance Checking                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 1. Changing 5GHz Band 2 and Band 3 to "New Rules" from "Old Rules".<br>2. Changing Applicant address to 47633 Westinghouse Drive Fremont, CA 94539 United States.<br>3. Removing manufacturer and manufacturer address.<br>4. Ant. 1, Ant. 2 and Ant. 4 are equipped with p to p / p to m functions. | It is not necessary to re-test Maximum Permissible Exposure. |
| 5. Updating test rule of 5GHz band 4 to "15.407 (b)(4)(i) of New Rules (ET Docket No. 13-49; FCC 16-24)" from "Old Rules".<br>6. Ant. 3 was replaced by another antenna (Model: SAA08-220570, Brand: SmartAnt).                                                                                      | Maximum Permissible Exposure.                                |

Note: There is no change in hardware or in existing RF relevant portion.

### 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 20 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

For Antenna 1

| Mode     | DG (dBi) | Power (dBm) | EIRP (dBm) | EIRP (W) | Distance (cm) | S (mW/cm <sup>2</sup> ) | S Limit (mW/cm <sup>2</sup> ) |
|----------|----------|-------------|------------|----------|---------------|-------------------------|-------------------------------|
| 5.8G;D1D | 16.00    | 17.89       | 33.89      | 2.44906  | 20            | 0.48723                 | 1                             |

For Antenna 2

| Mode     | DG (dBi) | Power (dBm) | EIRP (dBm) | EIRP (W) | Distance (cm) | S (mW/cm <sup>2</sup> ) | S Limit (mW/cm <sup>2</sup> ) |
|----------|----------|-------------|------------|----------|---------------|-------------------------|-------------------------------|
| 5.8G;D1D | 8.00     | 22.72       | 30.72      | 1.18032  | 20            | 0.23482                 | 1                             |

For Antenna 3

| Mode     | DG (dBi) | Power (dBm) | EIRP (dBm) | EIRP (W) | Distance (cm) | S (mW/cm <sup>2</sup> ) | S Limit (mW/cm <sup>2</sup> ) |
|----------|----------|-------------|------------|----------|---------------|-------------------------|-------------------------------|
| 5.8G;D1D | 8.00     | 25.74       | 33.74      | 2.36592  | 20            | 0.47068                 | 1                             |