

## RF Exposure Report

**Report No.:** SA170110E09

**FCC ID:** PY316400363

**Test Model:** R8000P

**Series Model:** R7900P

**Received Date:** Jan. 10, 2017

**Test Date:** Jan. 25, 2017

**Issued Date:** Feb. 17, 2017

**Applicant:** NETGEAR, Inc.

**Address:** 350 East Plumeria Drive San Jose, CA 95134

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
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## Table of Contents

|   |          |
|---|----------|
| <b>Release Control Record .....</b>                       | <b>3</b> |
| <b>1     Certificate of Conformity .....</b>              | <b>4</b> |
| <b>2     RF Exposure .....</b>                            | <b>5</b> |
| 2.1   Limits For Maximum Permissible Exposure (MPE) ..... | 5        |
| 2.2   MPE Calculation Formula .....                       | 5        |
| 2.3   Classification .....                                | 5        |
| 2.4   Antenna Gain .....                                  | 6        |
| 2.5   Calculation Result Of Maximum Conducted Power ..... | 7        |

### Release Control Record

| Issue No.   | Description       | Date Issued   |
|-------------|-------------------|---------------|
| SA170110E09 | Original release. | Feb. 17, 2017 |

## 1 Certificate of Conformity

**Product:** Nighthawk X6S AC4000 Tri-band WiFi Router

**Brand:** NETGEAR

**Test Model:** R8000P

**Series Model:** R7900P

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** NETGEAR, Inc.

**Test Date:** Jan. 25, 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:** Feb. 17, 2017

Wendy Wu / Specialist

**Approved by :**



**Date:** Feb. 17, 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 |                               |                               |                                     |                        |
| 300-1500  | ...                           | ...                           | F/1500                              | 30                     |
| 1500-100,000  | ...                           | ...                           | 1.0                                 | 30                     |

F = Frequency in MHz

### 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 34cm away from the body of the user.

So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

| WLAN (Radio 1) Antenna |                |                       |              |                |
|------------------------|----------------|-----------------------|--------------|----------------|
| Antenna No.            | Ant. Gain(dBi) | Frequency range (GHz) | Antenna Type | Connector Type |
| 1                      | 1.76           | 2.4~2.4835            | PIFA         | i-pex(MHF)     |
|                        | 3.12           | 5.15~5.25             |              |                |
|                        | 3.11           | 5.25~5.35             |              |                |
| 2                      | 1.76           | 2.4~2.4835            | PIFA         | i-pex(MHF)     |
|                        | 3.12           | 5.15~5.25             |              |                |
|                        | 3.11           | 5.25~5.35             |              |                |
| 3                      | 1.76           | 2.4~2.4835            | PIFA         | i-pex(MHF)     |
|                        | 3.12           | 5.15~5.25             |              |                |
|                        | 3.11           | 5.25~5.35             |              |                |
| WLAN (Radio 2) Antenna |                |                       |              |                |
| Antenna No.            | Ant. Gain(dBi) | Frequency range (GHz) | Antenna Type | Connector Type |
| 4                      | 2.14           | 5.47~5.725            | PIFA         | i-pex(MHF)     |
|                        | 2.2            | 5.725~5.850           |              |                |
| 5                      | 2.14           | 5.47~5.725            | PIFA         | i-pex(MHF)     |
|                        | 2.2            | 5.725~5.850           |              |                |
| 6                      | 2.14           | 5.47~5.725            | PIFA         | i-pex(MHF)     |
|                        | 2.2            | 5.725~5.850           |              |                |

## 2.5 Calculation Result of Maximum Conducted Power

### For Radio 1 (WLAN: Dual Band):

| 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            | 988.566        | 6.53               | 34            | 0.30608                             | 1                           |
| 5180-5240            | 641.289        | 7.89               | 34            | 0.27157                             | 1                           |

### For Radio 2 (WLAN: Single Band):

| Frequency Band (MHz) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 5745-5825            | 979.264        | 6.97               | 34            | 0.33553                             | 1                           |

NOTE:

Directional gain = 1.76dBi + 10log(3) = 6.53dBi

5GHz:

For UNII-1: Directional gain = 3.12dBi + 10log(3) = 7.89dBi

For UNII-3: Directional gain = 2.2dBi + 10log(3) = 6.97dBi

### 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 (UNII-1) + WLAN 5GHz (UNII-3) =  $0.30608 / 1 + 0.27157 / 1 + 0.33553 / 1 = 0.91318$

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

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