# RF Exposure Report

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|---|---|
| **Report No.:** | SA181015E02 |
| **FCC ID:** | PY318300420 |
| **Test Model:** | R7000 |
| **Received Date:** | Oct. 15 to Dec. 05, 2018 |
| **Test Date:** | Nov. 20, 2018 |
| **Issued Date:** | Dec. 12, 2018 |
| **Applicant:** | NETGEAR, Inc. |
| **Address:** | 350 East Plumeria Drive San Jose, CA 95134 |
| **Issued By:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory |
| **Lab Address:** | E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C. |
| **Test Location:** | E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C. |
| **FCC Registration / Designation Number:** | 723255 / TW2022 |

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## Release Control Record

| Issue No. | Description | Date Issued |
|---|---|---|
| SA181015E02 | Original release. | Dec. 12, 2018 |

## 1 Certificate of Conformity

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|---|---|
| **Product:** | AC1900 Smart WiFi Router |
| **Brand:** | NETGEAR |
| **Test Model:** | R7000 |
| **Sample Status:** | ENGINEERING SAMPLE |
| **Applicant:** | NETGEAR, Inc. |
| **Test Date:** | Nov. 20, 2018 |
| **Standards:** | FCC Part 2 (Section 2.1091)<br>KDB 447498 D01 General RF Exposure Guidance v06<br>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 :** Phoenix Huang , **Date:** Dec. 12, 2018

Phoenix Huang / Specialist

**Approved by :** , **Date:** Dec. 12, 2018

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 ($mW/cm^2$) | 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 | ($180/f^2$)* | 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

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in $mW/cm^2$

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

| Antenna No. | Ant. Gain (dBi) (include cable loss) | Frequency range (GHz) | Antenna Type | Connector Type |
|---|---|---|---|---|
| 1 | 3.52 | 2.4~2.4835 | Dipole | i-pex |
| | 3.89 | 5.15~5.85 | | |
| 2 | 3.39 | 2.4~2.4835 | Dipole | i-pex |
| | 3.86 | 5.15~5.85 | | |
| 3 | 3.16 | 2.4~2.4835 | Dipole | i-pex |
| | 3.86 | 5.15~5.85 | | |

2.5 Calculation Result of Maximum Conducted Power

| Operation Mode | Evaluation Frequency (MHz) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density ($mW/cm^2$) | Limit ($mW/cm^2$) |
|---|---|---|---|---|---|---|
| WLAN 2.4GHz | 2437 | 950.585 | 8.13 | 34 | 0.42542 | 1 |
| WLAN 5GHz (U-NII-1) | 5230 | 861.408 | 8.64 | 34 | 0.43355 | 1 |
| WLAN 5GHz (U-NII-3) | 5795 | 876.145 | 8.64 | 34 | 0.44097 | 1 |

Note:
2.4GHz: The directional gain is 10 log[$(10^{Chain1/20} + 10^{Chain2/20} + 10^{Chain3/20})^2$ / 3] = 8.13dBi
5GHz: The directional gain is 10 log[$(10^{Chain1/20} + 10^{Chain2/20} + 10^{Chain3/20})^2$ / 3] = 8.64dBi

**Conclusion:**

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.42542 / 1 + 0.44097 / 1 = 0.86639

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

**--- END ---**