

## RF Exposure Report

**Report No.:** SA150325C05

**FCC ID:** PY315100301

**Test Model:** R7500v2

**Received Date:** Mar. 24, 2015

**Test Date:** Apr. 11 ~ May 12, 2015

**Issued Date:** May 13, 2015

**Applicant:** NETGEAR INC.

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

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

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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### Release Control Record

| Issue No.   | Description      | Date Issued  |
|-------------|------------------|--------------|
| SA150325C05 | Original release | May 13, 2015 |

## 1 Certificate of Conformity

**Product:** AC2350 Smart WiFi Router

**Brand:** NETGEAR

**Test Model:** R7500v2

**Sample Status:** Engineering sample

**Applicant:** NETGEAR INC.

**Test Date:** Apr. 11 ~ May 12, 2015

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D03

IEEE C95.1

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 :** Celine Chou , **Date:** May 13, 2015  
Celine Chou / Specialist

**Approved by :** Ken Liu , **Date:** May 13, 2015  
Ken Liu / Senior 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

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

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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 27cm away from the body of the user. So, this device is classified as **Mobile Device**.

### 3 Calculation Result Of Maximum Conducted Power

| Band     | Frequency Band (MHz) | Max Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------|----------------------|-----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| CDD Mode |                      |                 |                    |               |                                     |                             |
| 2.4GHz   | 2412                 | 29.82           | 4.98               | 27            | 0.330                               | 1                           |
|          | 2422                 | 23.21           | 5.18               | 27            | 0.075                               | 1                           |
|          | 2437                 | 29.90           | 5.18               | 27            | 0.352                               | 1                           |
|          | 2452                 | 24.65           | 4.98               | 27            | 0.100                               | 1                           |
|          | 2462                 | 29.76           | 4.88               | 27            | 0.318                               | 1                           |
| 5GHz     | 5180                 | 28.59           | 6.63               | 27            | 0.363                               | 1                           |
|          | 5190                 | 25.73           | 6.73               | 27            | 0.192                               | 1                           |
|          | 5200                 | 28.99           | 6.73               | 27            | 0.407                               | 1                           |
|          | 5210                 | 23.98           | 6.83               | 27            | 0.132                               | 1                           |
|          | 5230                 | 29.98           | 6.93               | 27            | 0.536                               | 1                           |
|          | 5240                 | 29.08           | 6.93               | 27            | 0.436                               | 1                           |
|          | 5745                 | 29.86           | 7.63               | 27            | 0.612                               | 1                           |
|          | 5755                 | 29.83           | 7.53               | 27            | 0.594                               | 1                           |
|          | 5775                 | 28.39           | 7.63               | 27            | 0.437                               | 1                           |
|          | 5785                 | 29.95           | 7.53               | 27            | 0.611                               | 1                           |
|          | 5795                 | 29.81           | 7.63               | 27            | 0.605                               | 1                           |
|          | 5825                 | 29.83           | 7.63               | 27            | 0.608                               | 1                           |

Note:

2412MHz: Directional gain = 0.21dBi + 10log(3) = 4.98dBi

2422MHz: Directional gain = 0.41dBi + 10log(3) = 5.18dBi

2437MHz: Directional gain = 0.41dBi + 10log(3) = 5.18dBi

2452MHz: Directional gain = 0.21dBi + 10log(3) = 4.98dBi

2462MHz: Directional gain = 0.11dBi + 10log(3) = 4.88dBi

5180MHz: Directional gain = 0.61dBi + 10log(4) = 6.63dBi

5190MHz: Directional gain = 0.71dBi + 10log(4) = 6.73dBi

5200MHz: Directional gain = 0.71dBi + 10log(4) = 6.73dBi

5210MHz: Directional gain = 0.81dBi + 10log(4) = 6.83dBi

5230MHz: Directional gain = 0.91dBi + 10log(4) = 6.93dBi

5240MHz: Directional gain = 0.91dBi + 10log(4) = 6.93dBi

5745MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi

5755MHz: Directional gain = 1.51dBi + 10log(4) = 7.53dBi

5775MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi

5785MHz: Directional gain = 1.51dBi + 10log(4) = 7.53dBi

5795MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi

5825MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi

| Band                  | Frequency Band (MHz) | Max Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|-----------------------|----------------------|-----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| Beamforming_NSS1 Mode |                      |                 |                    |               |                                     |                             |
| 5GHz                  | 5180                 | 28.08           | 6.63               | 27            | 0.323                               | 1                           |
|                       | 5190                 | 25.22           | 6.73               | 27            | 0.171                               | 1                           |
|                       | 5200                 | 28.98           | 6.73               | 27            | 0.407                               | 1                           |
|                       | 5210                 | 23.92           | 6.83               | 27            | 0.130                               | 1                           |
|                       | 5230                 | 29.05           | 6.93               | 27            | 0.433                               | 1                           |
|                       | 5240                 | 29.01           | 6.93               | 27            | 0.429                               | 1                           |
|                       | 5745                 | 28.34           | 7.63               | 27            | 0.432                               | 1                           |
|                       | 5755                 | 28.05           | 7.53               | 27            | 0.395                               | 1                           |
|                       | 5775                 | 27.86           | 7.63               | 27            | 0.386                               | 1                           |
|                       | 5785                 | 28.43           | 7.53               | 27            | 0.431                               | 1                           |
|                       | 5795                 | 28.36           | 7.63               | 27            | 0.434                               | 1                           |
|                       | 5825                 | 28.34           | 7.63               | 27            | 0.432                               | 1                           |

Note:

5180MHz: Directional gain = 0.61dBi + 10log(4) = 6.63dBi

5190MHz: Directional gain = 0.71dBi + 10log(4) = 6.73dBi

5200MHz: Directional gain = 0.71dBi + 10log(4) = 6.73dBi

5210MHz: Directional gain = 0.81dBi + 10log(4) = 6.83dBi

5230MHz: Directional gain = 0.91dBi + 10log(4) = 6.93dBi

5240MHz: Directional gain = 0.91dBi + 10log(4) = 6.93dBi

5745MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi

5755MHz: Directional gain = 1.51dBi + 10log(4) = 7.53dBi

5775MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi

5785MHz: Directional gain = 1.51dBi + 10log(4) = 7.53dBi

5795MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi

5825MHz: Directional gain = 1.61dBi + 10log(4) = 7.63dBi

| Band                  | Frequency Band (MHz) | Max Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|-----------------------|----------------------|-----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| Beamforming_NSS2 Mode |                      |                 |                    |               |                                     |                             |
| 5GHz                  | 5180                 | 28.37           | 3.62               | 27            | 0.173                               | 1                           |
|                       | 5190                 | 25.52           | 3.72               | 27            | 0.092                               | 1                           |
|                       | 5200                 | 29.51           | 3.72               | 27            | 0.230                               | 1                           |
|                       | 5210                 | 25.39           | 3.82               | 27            | 0.091                               | 1                           |
|                       | 5230                 | 29.68           | 3.92               | 27            | 0.250                               | 1                           |
|                       | 5240                 | 29.62           | 3.92               | 27            | 0.247                               | 1                           |
|                       | 5745                 | 29.86           | 4.62               | 27            | 0.306                               | 1                           |
|                       | 5755                 | 29.99           | 4.52               | 27            | 0.308                               | 1                           |
|                       | 5775                 | 28.33           | 4.62               | 27            | 0.215                               | 1                           |
|                       | 5785                 | 29.92           | 4.52               | 27            | 0.303                               | 1                           |
|                       | 5795                 | 29.97           | 4.62               | 27            | 0.314                               | 1                           |
|                       | 5825                 | 29.82           | 4.62               | 27            | 0.303                               | 1                           |

Note:

5180MHz: Directional gain =  $0.61\text{dBi} + 10\log(4/2) = 3.62\text{dBi}$

5190MHz: Directional gain =  $0.71\text{dBi} + 10\log(4/2) = 3.72\text{dBi}$

5200MHz: Directional gain =  $0.71\text{dBi} + 10\log(4/2) = 3.72\text{dBi}$

5210MHz: Directional gain =  $0.81\text{dBi} + 10\log(4/2) = 3.82\text{dBi}$

5230MHz: Directional gain =  $0.91\text{dBi} + 10\log(4/2) = 3.92\text{dBi}$

5240MHz: Directional gain =  $0.91\text{dBi} + 10\log(4/2) = 3.92\text{dBi}$

5745MHz: Directional gain =  $1.61\text{dBi} + 10\log(4/2) = 4.62\text{dBi}$

5755MHz: Directional gain =  $1.51\text{dBi} + 10\log(4/2) = 4.52\text{dBi}$

5775MHz: Directional gain =  $1.61\text{dBi} + 10\log(4/2) = 4.62\text{dB}$

5785MHz: Directional gain =  $1.51\text{dBi} + 10\log(4/2) = 4.52\text{dBi}$

5795MHz: Directional gain =  $1.61\text{dBi} + 10\log(4/2) = 4.62\text{dBi}$

5825MHz: Directional gain =  $1.61\text{dBi} + 10\log(4/2) = 4.62\text{dB}$

### CONCLUSION:

Both of the WLAN 2.4G & WLAN 5G can transmit simultaneously, the formula of calculated the MPE is:

$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

$\text{WLAN 2.4G} + \text{WLAN 5.0G} = 0.352 + 0.612 = 0.964$

Therefore, the maximum calculation of this situation is 0.964, which is less than the "1" limit.

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