

## RF Exposure Report

**Report No.:** SA140812C13E

**FCC ID:** PY314100252

**Test Model:** C7100V-100NAS

**Received Date:** Mar. 18, 2016

**Test Date:** May 13, 2016

**Issued Date:** June 20, 2016

**Applicant:** NETGEAR INC

**Address:** 350 East Plumeria Drive, San Jose CA 96134, USA

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

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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        |
| <b>3     Calculation Result Of Maximum Conducted Power .....</b> | <b>7</b> |

### Release Control Record

| Issue No.    | Description       | Date Issued   |
|--------------|-------------------|---------------|
| SA140812C13E | Original release. | June 20, 2016 |

## 1 Certificate of Conformity

**Product:** Wireless Cable Data Gateway

**Brand:** NETGEAR

**Test Model:** C7100V-100NAS

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** NETGEAR INC

**Test Date:** May 13, 2016

**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:**

June 20, 2016

Wendy Wu / Specialist

**Approved by :**



**Date:**

June 20, 2016

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

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

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 25cm away from the body of the user.

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

## 2.4 Antenna Gain

The antennas provided to the EUT, please refer to the following table:

| 2.4GHz antenna |                     |                                    |                                 |              |                |
|----------------|---------------------|------------------------------------|---------------------------------|--------------|----------------|
| No.            | Transmitter Circuit | Gain (dBi)<br>(Include cable loss) | Frequency range<br>(GHz to GHz) | Antenna Type | Connector Type |
| 1              | 0                   | 2.07                               | 2.4~2.4835                      | PIFA         | i-pex(MHF)     |
| 2              | 1                   | 2.07                               | 2.4~2.4835                      | PIFA         | i-pex(MHF)     |
| 3              | 2                   | 2.07                               | 2.4~2.4835                      | PIFA         | i-pex(MHF)     |
| 5GHz antenna   |                     |                                    |                                 |              |                |
| No.            | Transmitter Circuit | Gain (dBi)<br>(Include cable loss) | Frequency range<br>(GHz to GHz) | Antenna Type | Connector Type |
| 4              | 0                   | 3.33                               | 5.15~5.25                       | PIFA         | i-pex(MHF)     |
|                |                     | 3.32                               | 5.25~5.35                       | PIFA         | i-pex(MHF)     |
|                |                     | 3.29                               | 5.47~5.725                      | PIFA         | i-pex(MHF)     |
|                |                     | 3.28                               | 5.725~5.850                     | PIFA         | i-pex(MHF)     |
| 5              | 1                   | 3.33                               | 5.15~5.25                       | PIFA         | i-pex(MHF)     |
|                |                     | 3.32                               | 5.25~5.35                       | PIFA         | i-pex(MHF)     |
|                |                     | 3.29                               | 5.47~5.725                      | PIFA         | i-pex(MHF)     |
|                |                     | 3.28                               | 5.725~5.850                     | PIFA         | i-pex(MHF)     |
| 6              | 2                   | 3.33                               | 5.15~5.25                       | PIFA         | i-pex(MHF)     |
|                |                     | 3.32                               | 5.25~5.35                       | PIFA         | i-pex(MHF)     |
|                |                     | 3.29                               | 5.47~5.725                      | PIFA         | i-pex(MHF)     |
|                |                     | 3.28                               | 5.725~5.850                     | PIFA         | i-pex(MHF)     |

### 3 Calculation Result Of Maximum Conducted Power

| 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            | 713.576        | 6.84               | 25            | 0.43888                             | 1                           |
| 5180-5240            | 607.881        | 8.10               | 25            | 0.49972                             | 1                           |
| 5260-5320            | 185.197        | 8.09               | 25            | 0.15189                             | 1                           |
| 5500-5720            | 242.814        | 8.06               | 25            | 0.19778                             | 1                           |
| 5745-5825            | 606.638        | 8.05               | 25            | 0.49299                             | 1                           |

NOTE:

2.4GHz: Directional gain = 2.07dBi + 10log(3) = 6.84dBi

5GHz:

UNII-1: Directional gain = 3.33dBi + 10log(3) = 8.10dBi

U-NII-2A: Directional gain = 3.32dBi + 10log(3) = 8.09dBi

U-NII-2C: Directional gain = 3.29dBi + 10log(3) = 8.06dBi

UNII-3: Directional gain = 3.28dBi + 10log(3) = 8.05dBi

#### 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 =  $0.43888 / 1 + 0.49972 / 1 = 0.939$

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

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