

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

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

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Wendy Wu / Specialist

Approved by : May Chen , **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 ²) | 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

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

where

Pd = power density in mW/cm²

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 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) (Include cable loss) | Frequency range (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) (Include cable loss) | Frequency range (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 ²) | Limit (mW/cm ²) |
|----------------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 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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