# RF Exposure Report

|  |  |
|---|---|
| **Report No.:** | SA160621C27J |
| **FCC ID:** | PY316200341 |
| **Test Model:** | RBR50 |
| **Series Mode/Code Name:** | RBS50, Beehive 3, Beehive 4 |
| **Received Date:** | Jun. 20, 2016 |
| **Test Date:** | Jul. 13, 2016 ~ Mar. 14, 2017 |
| **Issued Date:** | Mar. 20, 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 |
| **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.) |

**Table of Contents**

## Release Control Record

| Issue No. | Description | Date Issued |
|---|---|---|
| SA160621C27J | Original release. | Mar. 20, 2017 |

## 1 Certificate of Conformity

|  |  |
|---|---|
| **Product:** | Orbi Router, Orbi Satellite |
| **Code Product:** | Armball3, Armball4 |
| **Brand:** | NETGEAR |
| **Test Model:** | RBR50 |
| **Series Mode/Code Name:** | RBS50, Beehive 3, Beehive 4 |
| **Sample Status:** | Engineering sample |
| **Applicant:** | NETGEAR, INC. |
| **Test Date:** | Jul. 13, 2016 ~ Mar. 14, 2017 |
| **Standards:** | FCC Part 2 (Section 2.1091) |
| | KDB 447498 D01 (October 23, 2015) |
| | 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 :** _____ , **Date:** _____ Mar. 20, 2017 _____

Polly Chien / Specialist

**Approved by :** _____ , **Date:** _____ Mar. 20, 2017 _____

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$^2$) | 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/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 28cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 3    Calculation Result of Maximum Conducted Power

| Frequency Band (MHz) | Max Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm$^2$) | Limit (mW/cm$^2$) |
|---|---|---|---|---|---|
| (CDD Mode) | | | | | |
| 2412-2462 | 29.58 | 2.61 | 28 | 0.168 | 1 |
| 5180-5240 | 29.54 | 4.18 | 28 | 0.239 | 1 |
| 5745-5825 | 29.70 | 7.43 | 28 | 0.524 | 1 |
| (Beamforming_NSS 1 Mode) | | | | | |
| 2412-2462 | 29.50 | 2.61 | 28 | 0.165 | 1 |
| 5180-5240 | 29.14 | 4.18 | 28 | 0.218 | 1 |
| 5745-5825 | 27.92 | 7.43 | 28 | 0.348 | 1 |
| (Beamforming_NSS 2 Mode) | | | | | |
| 5745-5825 | 29.51 | 4.86 | 28 | 0.278 | 1 |

Note:
Note:
**2.4GHz:** Directional gain = 2.61dBi
**NSS 1 Mode**
**5GHz U-NII-1 Band:** Directional gain = 4.18dBi
**5GHz U-NII-3 Band:** Directional gain = 7.43dBi
**NSS 2 Mode**
**5GHz U-NII-3 Band:** Directional gain = 4.86dBi

| Modulation type | Frequency Channel | Max Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm$^2$) | Limit (mW/cm$^2$) |
|---|---|---|---|---|---|---|
| BT LE | 2402 MHz | 7.45 | 1.50 | 28 | **0.001** | 1 |
| | 2440 MHz | 6.98 | 1.50 | 28 | 0.001 | 1 |
| | 2480 MHz | 6.92 | 1.50 | 28 | 0.001 | 1 |

Note: BT LE: Directional gain = 1.50 dBi

| Modulation type | Frequency Channel (MHz) | Max. Power (dBm) | | Total Power (dBm) | Power Limit (dBm) |
|---|---|---|---|---|---|
| | | WLAN 2.4GHz | BT LE | | |
| CDD Mode | | | | | |
| 802.11g +BT LE | 2437 + 2480 | 29.58 | 7.45 | 29.61 | 30 |
| Beamforming Mode | | | | | |
| 802.11n (HT20) +BT LE | 2437 + 2480 | 29.50 | 7.45 | 29.53 | 30 |

**CONCULSION:**

Both of the WLAN 2.4G & WLAN 5G can transmit simultaneously, 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 (Band 4) + BT LE = 0.168 + 0.348 + 0.001 = 0.517
WLAN 5GHz (Band 1) + WLAN 5GHz (Band 4) = 0.165 + 0.348 = 0.513

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

**---END---**