

RF Exposure Report

Report No.: SA160621C27L

FCC ID: PY316200341

Test Model: RBR50

Series Mode: RBS50, SRR60, SRS60

Received Date: Jun. 20, 2016

Test Date: Jul. 21 ~ Dec. 06, 2016

Issued Date: Jun. 15, 2017

Applicant: NETGEAR, INC.

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

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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
SA160621C27L	Original release.	Jun. 15, 2017

1 Certificate of Conformity

Product: Orbi Router, Orbi Satellite

Brand: NETGEAR

Test Model: RBR50

Series Mode: RBS50, SRR60, SRS60

Sample Status: Engineering sample

Applicant: NETGEAR, INC.

Test Date: Jul. 21 ~ Dec. 06, 2016

Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D03 (January 17, 2014)
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 :


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Date:

Jun. 15, 2017

Approved by :


Ken Liu / Senior Manager

Date:

Jun. 15, 2017

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

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

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 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
5260-5320	23.24	4.18	28	0.056	1
5500-5700	23.18	7.76	28	0.126	1
5745-5825	29.70	7.76	28	0.566	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
5260-5320	23.22	4.18	28	0.056	1
5500-5700	21.10	7.76	28	0.078	1
5745-5825	27.92	7.76	28	0.375	1
(Beamforming_NSS 2 Mode)					
5745-5825	29.51	4.86	28	0.278	1

Note:

2.4GHz: Directional gain = 2.61dBi

NSS 1 Mode

5GHz U-NII-1 Band: Directional gain = 4.18dBi

5GHz U-NII-2A Band: Directional gain = 4.18dBi

5GHz U-NII-2C Band: Directional gain = 7.43dBi

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

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

$WLAN\ 2.4GHz + WLAN\ 5GHz + BT\ LE = 0.168 + 0.566 + 0.001 = 0.735$

$\text{Max. WLAN } 5GHz\ (\text{Band } 1) + WLAN\ 5GHz\ (\text{Band } 4) = 0.239 + 0.566 = 0.805$

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

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