

RF Exposure Report

Report No.: SA170906C12A

FCC ID: PY317400402

Test Model: RBR20

Series Model: RBS20

Received Date: Aug. 25, 2017

Test Date: Aug. 25 ~ Sep. 07, 2017

Issued Date: Dec. 06, 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.)

**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SA170906C12A	Original release.	Dec. 06, 2017

1 Certificate of Conformity

Product: Orbi Router, Orbi Satellite

Brand: NETGEAR

Test Model: RBR20

Series Model: RBS20

Sample Status: Engineering sample

Applicant: NETGEAR, INC.

Test Date: Aug. 25 ~ Sep. 07, 2017

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

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:** Dec. 06, 2017
Celine Chou / Specialist

Approved by : Ken Liu , **Date:** Dec. 06, 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

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

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 20cm away from the body of the user. So, this device is classified as Mobile Device.

3 Calculation Result of Maximum Conducted Power

Function	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN	CDD Mode					
	2412-2462	24.93	5.71	20	0.231	1
	5180-5240	23.24	5.01	20	0.133	1
	5260-5320	23.38	5.63	20	0.158	1
	5500-5700	23.91	5.71	20	0.182	1
	5745-5825	27.89	4.65	20	0.357	1
	Beamforming Mode					
	2412-2462	24.10	5.71	20	0.190	1
	5180-5240	23.24	5.01	20	0.133	1
	5260-5320	23.38	5.63	20	0.158	1
	5500-5700	23.91	5.71	20	0.182	1
	5745-5825	27.89	4.65	20	0.357	1

Note: The Max Power = Max tune up power
 2412~2462MHz Directional gain = 5.71dBi
 5180~5240MHz Directional gain = 5.01dBi
 5260~5320MHz Directional gain = 5.63dBi
 5500~5700MHz Directional gain = 5.71dBi
 5745~5825MHz Directional gain = 4.65dBi

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

1. WLAN 2.4GHz + WLAN 5GHz band 1 + WLAN 5GHz band 3 = $0.231 + 0.133 + 0.171 = 0.535 < 1$
2. WLAN 2.4GHz + WLAN 5GHz band 1 + WLAN 5GHz band 4 = $0.231 + 0.133 + 0.357 = 0.721 < 1$
3. WLAN 2.4GHz + WLAN 5GHz band 2 + WLAN 5GHz band 3 = $0.231 + 0.158 + 0.171 = 0.560 < 1$
4. WLAN 2.4GHz + WLAN 5GHz band 2 + WLAN 5GHz band 4 = $0.231 + 0.158 + 0.357 = 0.746 < 1$

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