

## RF Exposure Report

**Report No.:** SABBQZ-WTW-P22010396

**FCC ID:** PY322100555

**Test Model:** RAX50v2, RAX43v2

**Series Model:** RAX42v2, RAX41v2, XR1000v2

**Received Date:** 2022/1/7

**Test Date:** 2022/3/24

**Issued Date:** 2022/5/16

**Applicant and  
Manufacturer:** NETGEAR, Inc.

**Address:** 350 East Plumeria Drive San Jose, CA 95134

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

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan

**Test Location:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan

**FCC Registration /  
Designation Number:** 723255 / TW2022



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specifically mentioned, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

## 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
2.5 Calculation Result of Maximum Conducted Power .....	7

### Release Control Record

Issue No.	Description	Date Issued
SABBQZ-WTW-P22010396	Original release.	2022/5/16

## 1 Certificate of Conformity

**Product:** NIGHTHAWK AX6 AX5400 6-Stream WiFi Router,  
NIGHTHAWK AX5 AX4200 5-Stream WiFi Router,  
NIGHTHAWK AX5 AX3600 5-Stream WiFi Router,  
NIGHTHAWK Pro Gaming Router

**Brand:** NETGEAR

**Test Model:** RAX50v2, RAX43v2

**Series Model:** RAX42v2, RAX41v2, XR1000v2

**Sample Status:** Engineering sample

**Applicant and  
Manufacturer:** NETGEAR, Inc.

**Test Date:** 2022/3/24

**Standards:** FCC Part 2 (Section 2.1091)  
KDB 447498 D01 General RF Exposure Guidance v06

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 :** Vivian Huang , **Date:** 2022/5/16  
Vivian Huang / Specialist

**Approved by :** May Chen , **Date:** 2022/5/16  
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				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

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

where

Pd = power density in mW/cm<sup>2</sup>

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 23 cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

Model: RAX50v2, XR1000v2			
Frequency Range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4~2.4835	3.73	Dipole	R-SMA
5.15 ~ 5.25	6.65		
5.25 ~ 5.35	6.69		
5.47 ~ 5.725	6.27		
5.725 ~ 5.85	6.57		
Model: RAX43v2			
Frequency Range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4~2.4835	3.73	Dipole	R-SMA
5.15 ~ 5.25	5.87		
5.25 ~ 5.35	6.4		
5.47 ~ 5.725	6.16		
5.725 ~ 5.85	6.18		

Note: More detailed information, please refer to antenna specification.

## 2.5 Calculation Result of Maximum Conducted Power

### Mode A (Model: RAX50v2)

#### CDD Mode

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass/ Fail
WLAN 2.4GHz	2412-2462	890.493	1.87	23	0.20605	1	Pass
WLAN 5GHz (U-NII-1)	5180-5250	911.214	2.84	23	0.26361	1	Pass
WLAN 5GHz (U-NII-2A)	5260-5320	247.599	3.04	23	0.075	1	Pass
WLAN 5GHz (U-NII-2C)	5500-5720	243.967	3.23	23	0.07721	1	Pass
WLAN 5GHz (U-NII-3)	5745-5825	954.027	2.91	23	0.28048	1	Pass

#### Beamforming Mode

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass/ Fail
WLAN 2.4GHz	2412-2462	844.37	3.73	23	0.29982	1	Pass
WLAN 5GHz (U-NII-1)	5180-5250	856.196	6.65	23	0.59554	1	Pass
WLAN 5GHz (U-NII-2A)	5250-5320	213.155	6.69	23	0.14963	1	Pass
WLAN 5GHz (U-NII-2C)	5500-5720	214.256	6.27	23	0.13654	1	Pass
WLAN 5GHz (U-NII-3)	5745-5825	853.753	6.57	23	0.583	1	Pass

#### Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: Directional gain = 3.73 dBi
- 5GHz:
  - For U-NII-1: Directional gain = 6.65 dBi
  - For U-NII-2A: Directional gain = 6.69 dBi
  - For U-NII-2C: Directional gain = 6.27 dBi
  - For U-NII-3: Directional gain = 6.57 dBi

**Mode B (Model: RAX43v2)**
**CDD Mode**

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass/ Fail
WLAN 2.4GHz	2412-2462	890.493	1.87	23	0.20605	1	Pass
WLAN 5GHz (U-NII-1)	5180-5250	900.909	2.84	23	0.26062	1	Pass
WLAN 5GHz (U-NII-2A)	5260-5320	240.517	3.04	23	0.07286	1	Pass
WLAN 5GHz (U-NII-2C)	5500-5720	245.756	3.23	23	0.07777	1	Pass
WLAN 5GHz (U-NII-3)	5745-5825	981.949	2.91	23	0.28868	1	Pass

**Beamforming Mode**

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass/ Fail
WLAN 2.4GHz	2412-2462	844.37	3.73	23	0.29982	1	Pass
WLAN 5GHz (U-NII-1)	5180-5250	900.909	5.87	23	0.52362	1	Pass
WLAN 5GHz (U-NII-2A)	5250-5320	227.048	6.4	23	0.14909	1	Pass
WLAN 5GHz (U-NII-2C)	5500-5720	240.692	6.16	23	0.14955	1	Pass
WLAN 5GHz (U-NII-3)	5745-5825	954.561	6.18	23	0.59585	1	Pass

**Note:**

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: Directional gain = 3.73 dBi
- 5GHz:
  - For U-NII-1: Directional gain = 5.87 dBi
  - For U-NII-2A: Directional gain = 6.4 dBi
  - For U-NII-2C: Directional gain = 6.16 dBi
  - For U-NII-3: Directional gain = 6.18 dBi



**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

**Mode A:****CDD Mode**

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz} = 0.20605 / 1 + 0.28048 / 1 = 0.48653$$

**Beamforming Mode**

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz} = 0.29982 / 1 + 0.59554 / 1 = 0.89536$$

**Mode B:****CDD Mode**

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz} = 0.20605 / 1 + 0.28868 / 1 = 0.49473$$

**Beamforming Mode**

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz} = 0.29982 / 1 + 0.59585 / 1 = 0.89567$$

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

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