

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.

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

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Taiwan

Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
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**FCC Registration /
Designation Number:** 723255 / TW2022



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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 ²)	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 ²)*	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

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

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 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 ²)	Limit (mW/cm ²)	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 ²)	Limit (mW/cm ²)	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:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: Directional gain = 3.73 dBi
3. 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 ²)	Limit (mW/cm ²)	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 ²)	Limit (mW/cm ²)	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:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: Directional gain = 3.73 dBi
3. 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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