RF Exposure Report

Report No.: SA191118E09B

FCC ID: PY319400466

Test Model: RAX50

Series Model: RAX45

Received Date: Nov. 12, 2019

Test Date: Dec. 10 to 12, 2019; Feb. 03, 2020

Issued Date: Mar. 31, 2020

Applicant: 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

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Release Control Record

Issue No.	Description	Date Issued
SA191118E09B	Original release.	Mar. 31, 2020

1 Certificate of Conformity

Product:	NIGHTHAWK AX6 AX5400 6-Stream WiFi Router, NIGHTHAWK AX6 AX4300 6-Stream WiFi Router
Brand:	NETGEAR
Test Model:	RAX50
Series Model:	RAX45
Sample Status:	ENGINEERING SAMPLE
Applicant:	NETGEAR, Inc.
Test Date:	Dec. 10 to 12, 2019; Feb. 03, 2020
Standards:	FCC Part 2 (Section 2.1091)
	IEEE C95.3 -2002
References Test Guidance:	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 : _Phoenix Huang_ , **Date:** Mar. 31, 2020

Phoenix Huang / Specialist

Approved by : _____ , **Date:** Mar. 31, 2020

Clark Lin / Technical 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

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

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

2.4　Antenna Gain

1. The antennas provided to the EUT, please refer to the following table:

Antenna Operation 1	Antenna Operation 2
Dual_Ant0	Dual_Ant0
Dual_Ant1	Dual_Ant1
Single_Ant2	Dual_Ant2
Single_Ant3	Dual_Ant3
Note: From the above antenna conditions, the worst case was found in Antenna Operation 1. Therefore only the test data of the mode was recorded in this report.	

2. The directional antenna gain, please refer to the following table:

Frequency Range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4~2.4835	3.73		
5.15 ~ 5.25	6.61		
5.25 ~ 5.35	6.53	Dipole	R-SMA
5.47 ~ 5.725	6.64		
5.725 ~ 5.85	6.66		
Note: More detailed information, please refer to antenna specification.			

2.5   Calculation Result of Maximum Conducted Power

For 2.4GHz and 5GHz (U-NII-1 band and U-NII-3 band) data was copied from the original test report (Report No.: SA191118E09)

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN (2.4GHz)	2412	917.02	3.73	25	0.27561	1
WLAN (U-NII-1)	5240	935.58	6.61	25	0.54575	1
WLAN (U-NII-2A)	5250	236.098	6.53	25	0.13521	1
WLAN (U-NII-2C)	5550	240.035	6.64	25	0.14099	1
WLAN (U-NII-3)	5745	997.865	6.66	25	0.58882	1

Note:
1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: The directional gain = 3.73 dBi
3. 5GHz:
     U-NII-1: The directional gain = 6.61 dBi
     U-NII-2A: The directional gain = 6.53 dBi
     U-NII-2C: The directional gain = 6.64 dBi
     U-NII-3: The directional gain = 6.66 dBi
4. The Max. Power = Max. tune up power including tolerance.

Conclusion:

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 = 0.27561 / 1 + 0.58882 / 1 = 0.86443

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

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