

RF Exposure Report

Report No.: SA170508E05B

FCC ID: PY317100369

Test Model: EX6110

Received Date: May. 08, 2017

Test Date: May 18, 2017

Issued Date: July 10, 2017

Applicant: Netgear, Inc.

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

Issue No.	Description	Date Issued
SA170508E05B	Original release.	July 10, 2017

1 Certificate of Conformity

Product: AC1200 WiFi Range Extender

Brand: NETGEAR

Test Model: EX6110

Sample Status: ENGINEERING SAMPLE

Applicant: Netgear, Inc.

Test Date: May 18, 2017

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

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 :



Date:

July 10, 2017

Wendy Wu / Specialist

Approved by :



Date:

July 10, 2017

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

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

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**.

2.4 Antenna Gain

Ant No.	Antenna Gain(dBi)	Frequency range	Antenna Type
1	1.98	2.4~2.4835GHz	PIFA
	2.52	5.15~5.25GHz	
	2.68	5.25~5.35GHz	
	2.68	5.47~5.725GHz	
	2.7	5.725~5.85GHz	
2	1.34	2.4~2.4835GHz	PIFA
	3.15	5.15~5.25GHz	
	3.26	5.25~5.35GHz	
	3.26	5.47~5.725GHz	
	3.24	5.725~5.85GHz	

2.5 Calculation Result of Maximum Conducted Power

For 2.4GHz & 5GHz (U-NII-1 & UNII-3 band) data was copied from the original test report (Report No.: SA170508E05)

Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	779.985	4.68	20	0.45584	1
5180-5240	198.677	5.85	20	0.15201	1
5260-5320	219.215	5.99	20	0.17322	1
5500-5700	245.238	5.99	20	0.19378	1
5745-5825	242.326	5.98	20	0.19104	1

NOTE:

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.68\text{dBi}$

5GHz:

UNII-1: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.85\text{dBi}$

UNII-2A, UNII-2C: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.99\text{dBi}$

UNII-3: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.98\text{dBi}$

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

WLAN 2.4GHz + WLAN 5GHz = $0.45584 / 1 + 0.19378 / 1 = 0.64962$

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

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