

## RF Exposure Report

**Report No.:** SA160205C08D

**FCC ID:** PY315300322

**Test Model:** EX6400

**Received Date:** Feb. 04, 2016

**Test Date:** Feb. 23 ~ Mar. 17, 2016 (For 2.4GHz and U-NII-1 Band)  
May 13 ~ May 31, 2016 (For U-NII-3 Band)

**Issued Date:** Jun. 03, 2016

**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.)



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### Release Control Record

Issue No.	Description	Date Issued
SA160205C08D	Original release.	Jun. 03, 2016

## 1 Certificate of Conformity

**Product:** AC1900 WiFi Range Extender

**Brand:** NETGEAR

**Test Model:** EX6400

**Sample Status:** Engineering sample

**Applicant:** NETGEAR, INC.

**Test Date:** Feb. 23 ~ Mar. 17, 2016 (For 2.4GHz and U-NII-1 Band)  
May 13 ~ May 31, 2016 (For U-NII-3 Band)

**Standards:** FCC Part 2 (Section 2.1091)  
KDB 447498 D01 (October 23, 2015)  
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 :** Sub Liu , **Date:** Jun. 03, 2016  
Suntee Liu / Specialist

**Approved by :** Ken Liu , **Date:** Jun. 03, 2016  
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 <sup>2</sup> )	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/cm<sup>2</sup>

$P_{out}$  = 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 26cm away from the body of the user. So, this device is classified as **Mobile Device**.

### 3 Calculation Result of Maximum Conducted Power

#### CDD Mode

Band	Modulation type	Frequency (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2.4GHz	802.11b	2412	23.75	5.02	26	0.089	1
		2437	25.48	5.57	26	0.150	1
		2462	23.75	6.25	26	0.118	1
	802.11g	2412	20.96	5.02	26	0.047	1
		2437	25.58	5.57	26	0.153	1
		2462	22.13	6.25	26	0.081	1
	802.11n (HT20)	2412	19.75	5.02	26	0.035	1
		2437	25.76	5.57	26	<b>0.160</b>	1
		2462	19.95	6.25	26	0.049	1
	802.11n (HT40)	2422	17.45	5.12	26	0.021	1
		2437	19.85	5.57	26	0.041	1
		2452	17.85	5.93	26	0.028	1
5GHz (U-NII-1)	802.11a	5180	27.13	8.60	26	0.440	1
		5200	28.04	8.76	26	0.563	1
		5240	27.39	9.01	26	0.514	1
	802.11ac (VHT20)	5180	27.11	8.60	26	0.438	1
		5200	27.90	8.76	26	0.546	1
		5240	27.20	9.01	26	0.492	1
	802.11ac (VHT40)	5190	25.66	8.64	26	0.317	1
		5230	27.46	8.89	26	0.508	1
	802.11ac (VHT80)	5210	25.76	8.87	26	0.342	1
5GHz (U-NII-3)	802.11a	5745	28.77	9.39	26	0.771	1
		5785	28.76	9.56	26	0.800	1
		5825	28.76	9.63	26	0.813	1
	802.11ac (VHT20)	5745	28.72	9.39	26	0.762	1
		5785	28.73	9.56	26	0.794	1
		5825	28.75	9.63	26	0.811	1
	802.11ac (VHT40)	5755	28.79	9.47	26	0.789	1
		5795	28.80	9.61	26	<b>0.816</b>	1
	802.11ac (VHT80)	5775	28.71	9.56	26	0.790	1

Note:

2412: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 5.02\text{dBi}$

2437: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 5.57\text{dBi}$

2462: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 6.25\text{dBi}$

2422: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 5.12\text{dBi}$

2452: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 5.93\text{dBi}$

5180: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 8.60\text{dBi}$

5200: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 8.76\text{dBi}$   
5240: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.01\text{dBi}$   
5190: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 8.64\text{dBi}$   
5230: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 8.89\text{dBi}$   
5210: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 8.87\text{dBi}$   
5745: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.39\text{dBi}$   
5785: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.56\text{dBi}$   
5825: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.63\text{dBi}$   
5755: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.47\text{dBi}$   
5795: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.61\text{dBi}$   
5775: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.56\text{dBi}$

### Beamforming Mode

Band	Modulation type	Frequency (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5GHz (U-NII-1)	802.11ac (VHT20)	5180	26.99	8.60	26	0.426	1
		5200	26.99	8.76	26	0.442	1
		5240	26.89	9.01	26	0.458	1
	802.11ac (VHT40)	5190	25.43	8.64	26	0.300	1
		5230	27.07	8.89	26	0.464	1
	802.11ac (VHT80)	5210	25.26	8.87	26	0.305	1
5GHz (U-NII-3)	802.11ac (VHT20)	5745	26.42	9.39	26	0.449	1
		5785	26.43	9.56	26	0.468	1
		5825	26.34	9.63	26	0.465	1
	802.11ac (VHT40)	5755	26.49	9.47	26	0.464	1
		5795	26.38	9.61	26	0.468	1
	802.11ac (VHT80)	5775	26.41	9.56	26	0.465	1

Note:

5180: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 8.60\text{dBi}$   
5200: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 8.76\text{dBi}$   
5240: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.01\text{dBi}$   
5190: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 8.64\text{dBi}$   
5230: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 8.89\text{dBi}$   
5210: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 8.87\text{dBi}$   
5745: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.39\text{dBi}$   
5785: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.56\text{dBi}$   
5825: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.63\text{dBi}$   
5755: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.47\text{dBi}$   
5795: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.61\text{dBi}$   
5775: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N] = 9.56\text{dBi}$

### 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 = 0.160 + 0.816 = 0.976

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

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