



## RF Exposure Report

**Report No.:** SA141003E10B

**FCC ID:** PY314300283

**Test Model:** EX6150

**Received Date:** Apr. 17, 2015

**Test Date:** July 21, 2015

**Issued Date:** Aug. 03, 2015

**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:** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin  
Chu Hsien 307, Taiwan R.O.C.

**Test Location (1):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin  
Chu Hsien 307, Taiwan R.O.C.

**Test Location (2):** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City, Taiwan  
R.O.C.

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### Release Control Record

Issue No.	Description	Date Issued
SA141003E10B	Original release.	Aug. 03, 2015



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## 1 Certificate of Conformity

**Product:** AC1200 WiFi Range Extender

**Brand:** NETGEAR

**Test Model:** EX6150

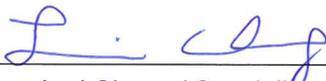
**Sample Status:** ENGINEERING SAMPLE

**Applicant:** NETGEAR, Inc.

**Test Date:** July 21, 2015

**Standards:** FCC Part 2 (Section 2.1091)  
KDB 447498 D03  
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 :**  , **Date:** Aug. 03, 2015  
Lori Chung / Specialist

**Approved by :**  , **Date:** Aug. 03, 2015  
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				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 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 20cm away from the body of the user.

So, this device is classified as **Mobile Device**.



### 3 Antenna Gain

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

PCB Chain No.	Brand	Model	Antenna Gain(dBi) < including cable loss>	Frequency range (MHz ~ MHz)	Antenna Type	Connector Type	Cable Length (mm)
Chain 0	NETGEAR	NA	3.1	2400~2500	Dipole	i-pex	50
			2.7	5150~5250			
			2.9	5250~5350			
			2.2	5470~5725			
			2.6	5725~5850			
Chain 1	NETGEAR	NA	3.1	2400~2500	Dipole	i-pex	50
			2.7	5150~5250			
			2.9	5250~5350			
			2.2	5470~5725			
			2.6	5725~5850			



#### 4 Calculation Result of Maximum Conducted Power

For 15.247 (2.4GHz & 5GHz – band 4) and 15.407 (U-NII-1 band) data was copied from the original test report (Report No.: SA141003E10)

For 15.247 (2.4GHz):

##### 802.11b:

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	212.595	6.11	20	0.17270	1

**NOTE:** Directional gain = 3.1dBi + 10log(2) = 6.11dBi

##### 802.11g:

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	616.801	6.11	20	0.50104	1

**NOTE:** Directional gain = 3.1dBi + 10log(2) = 6.11dBi

##### 802.11n (HT20):

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	471.291	6.11	20	0.38284	1

**NOTE:** Directional gain = 3.1dBi + 10log(2) = 6.11dBi

##### 802.11n (HT40):

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2422-2452	122.807	6.11	20	0.09976	1

**NOTE:** Directional gain = 3.1dBi + 10log(2) = 6.11dBi

**For 15.247 (5GHz):****802.11a:**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5745-5825	333.071	5.61	20	0.24114	1

**NOTE:** Directional gain = Directional gain =  $2.6\text{dBi} + 10\log(2) = 5.61\text{dBi}$

**802.11ac (VHT20)**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5745-5825	329.636	5.61	20	0.23865	1

**NOTE:** Directional gain = Directional gain =  $2.6\text{dBi} + 10\log(2) = 5.61\text{dBi}$

**802.11ac (VHT40)**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5755-5795	329.259	5.61	20	0.23838	1

**NOTE:** Directional gain = Directional gain =  $2.6\text{dBi} + 10\log(2) = 5.61\text{dBi}$

**802.11ac (VHT80)**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5775	270.487	5.61	20	0.19583	1

**NOTE:** Directional gain = Directional gain =  $2.6\text{dBi} + 10\log(2) = 5.61\text{dBi}$



**For 15.407 (5GHz):**

**802.11a:**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5180-5240	303.086	5.71	20	0.22454	1
5260-5320	246.064	5.91	20	0.19089	1
5500-5580 & 5660-5700	249.768	5.21	20	0.16492	1

**NOTE:**

**For U-NII-1 Band:** Directional gain = 2.7dBi + 10log(2) = 5.71dBi

**For U-NII-2A Band:** Directional gain = 2.9dBi + 10log(2) = 5.91dBi

**For U-NII-2C Band:** Directional gain = 2.2dBi + 10log(2) = 5.21dBi

**802.11ac (VHT20)**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5180-5240	299.592	5.71	20	0.22195	1
5260-5320	247.222	5.91	20	0.19179	1
5500-5580 & 5660-5700	246.645	5.21	20	0.16286	1

**NOTE:**

**For U-NII-1 Band:** Directional gain = 2.7dBi + 10log(2) = 5.71dBi

**For U-NII-2A Band:** Directional gain = 2.9dBi + 10log(2) = 5.91dBi

**For U-NII-2C Band:** Directional gain = 2.2dBi + 10log(2) = 5.21dBi

**802.11ac (VHT40)**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5190-5230	266.722	5.71	20	0.19760	1
5270-5310	247.195	5.91	20	0.19176	1
5510-5550 & 5670	236.055	5.21	20	0.15586	1

**NOTE:**

**For U-NII-1 Band:** Directional gain = 2.7dBi + 10log(2) = 5.71dBi

**For U-NII-2A Band:** Directional gain = 2.9dBi + 10log(2) = 5.91dBi

**For U-NII-2C Band:** Directional gain = 2.2dBi + 10log(2) = 5.21dBi



**802.11ac (VHT80)**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5210	58.423	5.71	20	0.04328	1
5290	69.616	5.91	20	0.05401	1
5530	55.855	5.21	20	0.03688	1

**NOTE:**

**For U-NII-1 Band:** Directional gain = 2.7dBi + 10log(2) = 5.71dBi

**For U-NII-2A Band:** Directional gain = 2.9dBi + 10log(2) = 5.91dBi

**For U-NII-2C Band:** Directional gain = 2.2dBi + 10log(2) = 5.21dBi

**CONCLUSION:**

Both of the 2.4GHz and 5GHz WLAN can transmit simultaneously, the formula of calculated the MPE is:

$$CPD_1 / LPD_1 + CPD_2 / LPD_2 + \dots \text{etc.} < 1$$

**CPD = Calculation power density**

**LPD = Limit of power density**

Therefore, the worst-case situation is  $0.50104 / 1 + 0.24114 / 1 = 0.742$ , which is less than "1".

**--- END ---**