RF Exposure Report

Report No.:	SA161125E01B
FCC ID:	PY316400361
Test Model:	RBW30
Received Date:	Nov. 25, 2016
Test Date:	Dec. 21 to 22, 2016
Issued Date:	Mar. 27, 2017
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 R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
SA161125E01B	Original release.	Mar. 27, 2017

1 Certificate of Conformity

Product:	Orbi Wall Plug Satellite
Brand:	NETGEAR
Test Model:	RBW30
Sample Status:	ENGINEERING SAMPLE
Applicant:	NETGEAR, Inc.
Test Date:	Dec. 21 to 22, 2016
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:** Mar. 27, 2017

Midoli Peng / Specialist

Approved by : _____ , **Date:** Mar. 27, 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				
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^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 23cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

WLAN (Radio 1) Antenna				
Antenna No.	Ant. Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type
1	3	2.4~2.4835	PIFA	NA
	4.5	5.47~5.725		
	4.4	5.725~5.85		
2	3.5	2.4~2.4835	PIFA	NA
	3.9	5.47~5.725		
	4	5.725~5.85		
WLAN (Radio 2) Antenna				
Antenna No.	Ant. Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type
3	3.6	5.15~5.25	PIFA	NA
	3.7	5.25~5.35		
4	3.2	5.15~5.25	PIFA	NA
	3.3	5.25~5.35		
Bluetooth (Radio 3) Antenna				
Antenna No.	Ant. Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type
5	2.1	2.4~2.4835	Chip	NA

The Directional gain table:

Frequency (MHz)	Max Gain (dBi)
2412-2462	5.99
5180-5240	3.81
5260-5320	3.81
5500-5700	5.66
5745-5825	5.52

Note:

1. Non-TxBF mode & TxBF mode antenna gain refer to KDB 662911 F 2) f) (ii)

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

2. Above directional gain were calculated from actual measurement data.

2.5 Calculation Result of Maximum Conducted Power

For BT-LE, 2.4GHz and 5GHz (U-NII-1 band / U-NII-3 band) data was copied from the original test report (Report No.: SA161125E01)

Radio 1 (WLAN: Dual Band):

Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	798.221	5.99	23	0.47693	1
5500-5700	237.807	5.66	23	0.13169	1
5745-5825	567.608	5.52	23	0.30436	1

Radio 2(WLAN: Single Band)

Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
5180-5240	309.071	3.81	23	0.11179	1
5260-5320	247.69	3.81	23	0.08959	1

For Radio 3 (BT-LE):

Frequency (MHz)	Max. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402-2480	7.78	2.1	23	0.00190	1

NOTE:
2.4GHz: Directional gain = 5.99dBi
5GHz:
U_NII-1: Directional gain = 3.81dBi
U_NII-2A: Directional gain = 3.81dBi
U_NII-2C: Directional gain = 5.66dBi
U_NII-3: Directional gain = 5.52dBi

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(UNII-3) + WLAN 5GHz(UNII-1) + BT-LE

= 0.47693 / 1 + 0.30436 / 1 + 0.11179 / 1 + 0.00190 / 1

= 0.89498

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

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