RF Exposure Report

Report No.: SA170405E08

FCC ID: I88NBG6604

Test Model: NBG6604

Series Model: NBG6602

Received Date: Apr. 08, 2017

Test Date: June 15, 2017

Issued Date: July 26, 2017

Applicant: Zyxel Communications Corporation

Address: No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

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Release Control Record

Issue No.	Description	Date Issued
SA170405E08	Original release.	July 26, 2017

1 Certificate of Conformity

Product: AC1200 Dual-Band Wireless Router

Brand: ZYXEL

Test Model: NBG6604

Series Model: NBG6602

Sample Status: ENGINEERING SAMPLE

Applicant: Zyxel Communications Corporation

Test Date: June 15, 2017

Standards: FCC Part 2 (Section 2.1091)

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 : _Wendy Wu_ , **Date:** July 26, 2017

Wendy Wu / Specialist

Approved by : _____ , **Date:** July 26, 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

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 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4   Antenna Gain

2.4GHz							
Transmitter Circuit	Brand	Model No.	Antenna Net Gain (dBi)	Frequency Range (GHz toGHz)	Antenna Type	Connecter Type	Cable Length(mm)
Chain (0)	Aristotle	MiCAP-3324C	2.2	2.4~2.4835	Dipole	i-pex(MHF)	153
Chain (1)	Aristotle	MiCAP-3324C	2.55	2.4~2.4835	Dipole	i-pex(MHF)	41
5GHz							
Transmitter Circuit	Brand	Model No.	Antenna Net Gain (dBi)	Frequency Range (GHz toGHz)	Antenna Type	Connecter Type	Cable Length(mm)
Chain (0)	Aristotle	MiCAP-3324C	2.78	5.15~5.85	Dipole	i-pex(MHF)	150
Chain (1)	Aristotle	MiCAP-3324C	3	5.15~5.85	Dipole	i-pex(MHF)	43

2.5   Calculation Result Of Maximum Conducted Power

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	246.397	5.39	20	0.16958	1
5180-5240	177.813	5.90	20	0.13762	1
5745-5825	469.373	5.90	20	0.36328	1

NOTE:

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$ = 5.39dBi

5GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$ = 5.9dBi

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 = 0.16958 / 1 + 0.36328 / 1 = 0.53286

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

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