RF Exposure Report

Report No.: SA160406E07

FCC ID: I88NBG6617

Test Model: NBG6617

Received Date: Apr. 06, 2016

Test Date: June 06 to 08, 2016

Issued Date: July 20, 2016

Applicant: ZyXEL Communications Corporation

Address: No.2, Industry East Road IX, Science Park, Hsinchu, Taiwan R.O.C.

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
SA160406E07	Original release.	July 20, 2016

1 Certificate of Conformity

Product:	AC1300 MU-MIMO Dual-Band Wireless Gigabit Router
Brand:	ZyXEL
Test Model:	NBG6617
Sample Status:	ENGINEERING SAMPLE
Applicant:	ZyXEL Communications Corporation
Test Date:	June 06 to 08, 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:** July 20, 2016

Wendy Wu / Specialist

Approved by : _____ , **Date:** July 20, 2016

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

2.4 Antenna Gain

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

Antenna No	PCB Chain No.	Brand	Model	Antenna Type	Antenna Connector	Gain (dBi)	Frequency (GHz to GHz)
1	Chain 0	ARISTOTLE	RFA-52-Z1-155-165	Dipole	UFL	1.44	2.4~2.4835
				Dipole	UFL	0.37	5.15~5.85
2	Chain 1		RFA-52-Z1-75-95	Dipole	UFL	1.78	2.4~2.4835
				Dipole	UFL	3.23	5.15~5.85

3 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	502.41	4.62	20	0.28959	1
5180-5240	453.71	4.93	20	0.28087	1
5745-5825	454.749	4.93	20	0.28151	1

NOTE:
2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.62$dBi
5GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.93$dBi

Conclusion:

Both of the WLAN 2.4G & WLAN 5G can transmit simultaneously, the formula of calculated the MPE is:
CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1
CPD = Calculation power density
LPD = Limit of power density

WLAN 2.4G + WLAN 5G = 0.28959 / 1 + 0.28151 / 1 = 0.57110

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

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