RF Exposure Report

Report No.:	SA160308E11
FCC ID:	I88WAP6806
Test Model:	WAP6806
Received Date:	Mar. 08, 2016
Test Date:	Apr. 13, 2016
Issued Date:	May 13, 2016
Applicant:	ZyXEL Communications Corporation
Address:	No. 2, Gongye E. 9th Road Hsinchu Science Park, Hsinchu, Taiwan (R.O.C.)
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.
Test Location (1):	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
SA160308E11	Original release.	May 13, 2016

1 Certificate of Conformity

Product:	Dual-Band Wireless AC2100 Access Point
Brand:	ZyXEL
Test Model:	WAP6806
Sample Status:	ENGINEERING SAMPLE
Applicant:	ZyXEL Communications Corporation
Test Date:	Apr. 13, 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:** May 13, 2016

Midoli Peng / Specialist

Approved by : _____ , **Date:** May 13, 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 31cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

2.4GHz								
No.	Transmitter Circuit	P/N	Ant. Gain (dBi) Including cable loss	Frequency range (MHz to MHz)	Antenna Type	Connecter Type	Cable Loss (dB)	Cable Length (mm)
1	Chain (0)	N2420GSS-PK1-G115UR3	3.32	2400~2483.5	Dipole	IPEX	0.437	115
2	Chain (1)	N2420GS-PK1-B40UR2	3.2	2400~2483.5	Dipole	IPEX	0.152	40
5GHz								
No.	Transmitter Circuit	P/N	Ant. Gain (dBi) Including cable loss	Frequency range (MHz to MHz)	Antenna Type	Connecter Type	Cable Loss (dB)	Cable Length (mm)
3	Chain (0)	N5X20B-PK1-W50U	3.5	5150~5850	Dipole	IPEX	0.25	50
4	Chain (1)	N5X20B-PK1-G45U	3.5	5150~5850	Dipole	IPEX	0.225	45
5	Chain (2)	N5X20B-PK1-G45U	4.39	5150~5850	Dipole	IPEX	0.225	45
6	Chain (3)	N5X20B-PK1-B65U	4.11	5150~5850	Dipole	IPEX	0.325	65

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	832.385	6.27	31	0.29200	1
5180-5240	620.954	9.90	31	0.50249	1
5745-5825	471.699	9.90	31	0.38171	1

NOTE:
2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.27$dBi
5GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.90$dBi

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 = 0.29200 / 1 + 0.50249 / 1 = 0.79449

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

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