

RF Exposure Report

Report No.: SA151030E03

FCC ID: I88USG20W-VPN

Test Model: USG20W-VPN

Received Date: Oct. 30, 2015

Test Date: Nov. 20 ~ Dec. 04, 2015

Issued Date: Dec. 15, 2015

Applicant: ZyXEL Communications Corporation

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(R.O.C.)

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

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Release Control Record

Issue No.	Description	Date Issued
SA151030E03	Original release	Dec. 15, 2015

1 Certificate of Conformity

Product: VPN Firewall

Brand: ZyXEL

Test Model: USG20W-VPN

Sample Status: Engineering Sample

Applicant: ZyXEL Communications Corporation

Test Date: Nov. 20 ~ Dec. 04, 2015

Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D03 (January 17, 2014)
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 : Celine Chou , **Date:** Dec. 15, 2015
Celine Chou / Specialist

Approved by : Ken Liu , **Date:** Dec. 15, 2015
Ken Liu / Senior 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

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 Calculation Result Of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	29.87	6.77	20	0.918	1
5180-5240	28.45	7.77	20	0.833	1
5745-5825	27.90	7.77	20	0.734	1

Note:

2.4GHz: Directional gain = 2dBi + 10log(3) = 6.77dBi

5GHz: Directional gain = 3dBi + 10log(3) = 7.77dBi

* Both of the 2.4GHz and 5GHz can not transmit simultaneously

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