

## 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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R.O.C.

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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 <sup>2</sup> )	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

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

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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**.

## 3 Calculation Result Of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
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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