

## RF Exposure Report

**Report No.:** SA200420E01

**FCC ID:** I88EX3510-B0

**Test Model:** EX3510-B0

**Received Date:** Apr. 20, 2020

**Test Date:** May 18, 2020

**Issued Date:** June 11, 2020

**Applicant:** Zyxel Communications Corporation

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

**Test Location:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
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**FCC Registration /  
Designation Number:** 723255 / TW2022

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### Release Control Record

Issue No.	Description	Date Issued
SA200420E01	Original release.	June 11, 2020

## 1 Certificate of Conformity

**Product:** AX5700 WiFi6 Gigabit Ethernet Gateway

**Brand:** ZYXEL

**Test Model:** EX3510-B0

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Zyxel Communications Corporation

**Test Date:** May 18, 2020

**Standards:** FCC Part 2 (Section 2.1091)

IEEE C95.3-2002

**References Test KDB 447498 D01 General RF Exposure Guidance v06  
Guidance:**

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 :** Vivian Huang , **Date:** June 11, 2020  
Vivian Hunag / Specialist

**Approved by :** Clark Lin , **Date:** June 11, 2020  
Clark Lin / Technical 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				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	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

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

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

## 2.4 Antenna Gain

Frequency Range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4~2.4835	5.27	Dipole	None
5.15 ~ 5.25	8.09		i-pex(MHF)
5.25 ~ 5.35	7.66		
5.47 ~ 5.725	7.86		
5.725 ~ 5.85	7.98		
Note: More detailed information, please refer to antenna specification.			

## 2.5 Calculation Result

Operation Mode	Evaluation Frequency (MHz)	Max Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN 2.4GHz	2412~2462	686.935	5.27	27	0.25234	1
WLAN 5GHz U-NII-1	5180~5240	777.956	8.09	27	0.54704	1
WLAN 5GHz U-NII-3	5745~5825	887.947	7.98	27	0.60876	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. The Max. Power = Max. tune up power including tolerance.

### Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.25234 / 1 + 0.60876 / 1 = 0.8611$$

**Therefore the maximum calculations of above situations are less than the “1” limit.**

**--- END ---**