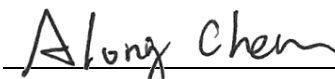


# FCC RF Exposure Report

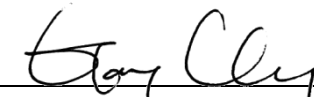
**FCC ID** : I8811AXAP22  
**Equipment** : 802.11ax (WiFi 6) Dual-Radio Unified Access Point  
**Model No.** : WAX510D, NWA110AX  
**Multiple Listing** : Refer to item 1.1.1 for more details.  
**Brand Name** : ZYXEL  
**Applicant** : Zyxel Communications Corporation  
**Address** : No.2 Industry East RD. IX, Hsinchu Science Park,  
Hsinchu 30075, Taiwan, R.O.C  
**Standard** : 47 CFR FCC Part 2.1091  
**Received Date** : Dec. 18, 2019  
**Tested Date** : Dec. 23, 2019 ~ Jan. 14, 2020

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:

  
Along Chen / Assistant Manager

Approved by:

  
Gary Chang / Manager



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## Release Record

| Report No. | Version | Description                                              | Issued Date   |
|------------|---------|----------------------------------------------------------|---------------|
| FA9D0202   | Rev. 01 | Initial issue                                            | Jan. 21, 2020 |
| FA9D0202   | Rev. 02 | 1) Adding B2 & B3 information.<br>2) Revising the FCC ID | Apr. 23, 2020 |

# 1 General Description

## 1.1 Information

### 1.1.1 Product Details

The following models are provided to this EUT.

| Brand Name                                                                                                                                      | Model Name | Product Name                                      | Description                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| ZYXEL                                                                                                                                           | WAX510D    | 802.11ax (WiFi 6) Dual-Radio Unified Access Point | Difference between two models is software.<br>WAX510D (FAT/Thin/Cloud AP),<br>NWA110AX (FAT/Cloud AP). |
|                                                                                                                                                 | NWA110AX   | 802.11ax (WiFi 6) Dual-Radio PoE Access Point     |                                                                                                        |
| ✦ The above models, model <b>WAX510D</b> was selected as a representative one for the final test and only its data was recorded in this report. |            |                                                   |                                                                                                        |

## 2 MPE EVALUATION OF MOBILE DEVICES

### 2.1 LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

| Frequency Range (MHz) | Power Density (mW /cm <sup>2</sup> ) | Averaging Time (minutes) |
|-----------------------|--------------------------------------|--------------------------|
| 300~1500              | F/1500                               | 30                       |
| 1500~100000           | 1.0                                  | 30                       |

### 2.2 MPE EVALUATION FORMULA

$$Pd = \frac{Pt}{4 * Pi * R^2}$$

Where

Pd= Power density in mW/cm<sup>2</sup>

Pt= EIRP in mW

Pi= 3.1416

R= Measurement distance

### 2.3 DEVIATION FROM TEST STANDARD AND MEASUREMENT PROCEDURE

None

### 2.4 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

| Parameters      | Uncertainty |
|-----------------|-------------|
| Conducted power | ±0.808 dB   |

|                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Declaration of Conformity:</b>                                                                                                                                                                      |
| The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.                                           |
| <b>Comments and Explanations:</b>                                                                                                                                                                      |
| The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification. |

## 2.5 MPE EVALUATION RESULTS

### Non-beamforming mode

| Frequency Range (MHz) | Maximum Conducted Power (dBm) | Rated Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Ratio*       | Pass / Fail |
|-----------------------|-------------------------------|-------------------|--------------------|---------------|-------------------------------------|-----------------------------|--------------|-------------|
| 2412 ~ 2462 (Wi-Fi)   | 23.62                         | 24                | 0                  | 20            | 0.050                               | 1                           | <b>0.050</b> | Pass        |
| 5180 ~ 5240 (Wi-Fi)   | 25.67                         | 26                | 4.5                | 20            | 0.223                               | 1                           | 0.223        | Pass        |
| 5260 ~ 5320 (Wi-Fi)   | 23.79                         | 24                | 4.5                | 20            | 0.141                               | 1                           | 0.141        | Pass        |
| 5500~5700 (Wi-Fi)     | 23.77                         | 24                | 5.2                | 20            | 0.165                               | 1                           | 0.165        | Pass        |
| 5745 ~ 5825 (Wi-Fi)   | 26.02                         | 26.5              | 5.5                | 20            | 0.315                               | 1                           | <b>0.315</b> | Pass        |

Note: \*Ratio = Power density / Limit.

### Beamforming mode

| Frequency Range (MHz) | Maximum Conducted Power (dBm) | Rated Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Ratio*       | Pass / Fail |
|-----------------------|-------------------------------|-------------------|--------------------|---------------|-------------------------------------|-----------------------------|--------------|-------------|
| 2412 ~ 2462 (Wi-Fi)   | 20.38                         | 20.5              | 3.01               | 20            | 0.045                               | 1                           | <b>0.045</b> | Pass        |
| 5180 ~ 5240 (Wi-Fi)   | 21.28                         | 21.5              | 7.51               | 20            | 0.158                               | 1                           | 0.158        | Pass        |
| 5260 ~ 5320 (Wi-Fi)   | 20.78                         | 21                | 7.51               | 20            | 0.141                               | 1                           | 0.141        | Pass        |
| 5500~5700 (Wi-Fi)     | 20.76                         | 21                | 8.21               | 20            | 0.166                               | 1                           | 0.166        | Pass        |
| 5745 ~ 5825 (Wi-Fi)   | 23.01                         | 23.5              | 8.51               | 20            | 0.316                               | 1                           | <b>0.316</b> | Pass        |

Note 1: \*Ratio = Power density / Limit.

Note 2:

2412 ~ 2462 MHz: Directional gain =  $0 + 10 * \log(2/1) = 3.01$  dBi

5150 ~ 5250 MHz, Directional gain =  $4.5 + 10 * \log(2/1) = 7.51$  dBi

5250 ~ 5350 MHz, Directional gain =  $4.5 + 10 * \log(2/1) = 7.51$  dBi

5470 ~ 5725Hz, Directional gain =  $5.2 + 10 * \log(2/1) = 8.21$  dBi

5745~ 5850 MHz, Directional gain =  $5.5 + 10 * \log(2/1) = 8.51$  dBi

## 2.6 MPE EVALUATION OF SIMULTANEOUS TRANSMISSION.

| Mode        | Max Ratio of Each Mode      |                         |
|-------------|-----------------------------|-------------------------|
|             | <i>Non-beamforming mode</i> | <i>Beamforming mode</i> |
| WLAN 2.4GHz | 0.050                       | 0.045                   |
| WLAN 5GHz   | 0.315                       | 0.316                   |
| Sum         | 0.365                       | 0.361                   |
| Limit       | 1                           | 1                       |
| Pass / Fail | Pass                        | Pass                    |

### 3 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

#### **Linkou**

Tel: 886-2-2601-1640

No. 30-2, Ding Fwu Tsuen, Lin  
Kou District, New Taipei City,  
Taiwan, R.O.C.

#### **Kwei Shan**

Tel: 886-3-271-8666

No. 3-1, Lane 6, Wen San 3rd St.,  
Kwei Shan District, Tao Yuan City  
333, Taiwan, R.O.C.

#### **Kwei Shan Site II**

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd  
St., Kwei Shan District, Tao Yuan  
City 333, Taiwan, R.O.C..

If you have any suggestion, please feel free to contact us as below information

Tel: 886-3-271-8666

Fax: 886-3-318-0155

Email: ICC\_Service@icertifi.com.tw

==END==