

# FCC Spot Check Test Report

**FCC ID** : I88WAC6303D-S  
**Equipment** : 802.11ac Wave 2 Dual-Radio Unified Pro  
Access Point  
**Model No.** : WAC6303D-S  
**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 15.407  
**Received Date** : Jun. 22, 2017  
**Tested Date** : Oct. 23, 2017

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
FR762203-02	Rev. 01	Initial issue	Nov. 15, 2017

# 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
ZYXEL	WAC6303D-S	802.11ac Wave 2 Dual-Radio Unified Pro Access Point
	NWA1123-AC SHD	802.11ac Wave 2 Dual-Radio Nebula Cloud Managed Access Point
<ul style="list-style-type: none"> <li>✦ All models are electrically identical, different model names are for marketing purpose.</li> <li>✦ The above models, model <b>WAC6303D-S</b> was selected as a representative one for the final test and only its data was recorded in this report.</li> </ul>		

### 1.1.2 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N <sub>TX</sub> )	Data Rate / MCS
5250-5350 5470-5725	a	5260-5320 5500-5720	52-64 [4] 100-144 [12]	3	6-54 Mbps
5250-5350 5470-5725	n (HT20)	5260-5320 5500-5720	52-64 [4] 100-144 [12]	3	MCS 0-23
5250-5350 5470-5725	n (HT40)	5270-5310 5510-5710	54-62 [2] 102-142 [6]	3	MCS 0-23
5250-5350 5470-5725	ac (VHT20)	5260-5320 5500-5720	52-64 [4] 100-144 [12]	3	MCS 0-9
5250-5350 5470-5725	ac (VHT40)	5270-5310 5510-5710	54-62 [2] 102-142 [6]	3	MCS 0-9
5250-5350 5470-5725	ac (VHT80)	5290 5530-5690	58 [1] 106-138 [3]	3	MCS 0-9
<p>Note 1: RF output power specifies that Maximum Conducted Output Power.</p> <p>Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.</p> <p>Note 3: 802.11n/ac supports beamforming mode.</p>					

### 1.1.3 Antenna Details

Model	Type	Connector	Antenna Gain (dBi)	
			5250~5350 MHz	5470~5725 MHz
AD32	Direction	UFL	1.29	1.07

### 1.1.4 Power Supply Type of Equipment under Test (EUT)

<b>Power Supply Type</b>	From AC adapter: 12Vdc From PoE: 54Vdc
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### 1.1.5 Accessories

N/A

### 1.1.6 Channel List

802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
52	5260	54	5270
56	5280	62	5310
60	5300	102	5510
64	5320	110	5550
100	5500	118	5590
104	5520	126	5630
108	5540	134	5670
112	5560	142	5710
116	5580	<b>VHT80</b>	
120	5600	58	5290
124	5620	106	5530
128	5640	122	5610
132	5660	138	5690
136	5680	---	---
140	5700	---	---
144	5720	---	---

## 2 Referencing Test Data

### 2.1 Introduction

The variant model (FCC ID: I88WAC6303D-S) references the test data of original model (FCC ID: I88NWA5123-ACHD).

Reference FCC ID	Equipment Class	Frequency bands	Reference Report Title
I88NWA5123-ACHD	NII	5260-5320 MHz 5500-5720 MHz	FR762202-03

FCC ID: I88NWA5123-ACHD / I88WAC6303D-S use the same internal printed circuit board, antenna and software version for Wi-Fi function.

Applicant takes full responsibility that the test data as referenced below represents compliance for the FCC ID: I88WAC6303D-S.

### 2.2 Difference

Difference between FCC ID: I88NWA5123-ACHD / I88WAC6303D-S is only Bluetooth Low Energy function by population / depopulation of components without PCB layout modification and antenna of Wi-Fi function. Other parts are identical to each other.

Characteristic		FCC ID: I88WAC6303D-S	FCC ID: I88NWA5123-ACHD
Wireless function	Frequency band	2412-2462 MHz 5180-5240 MHz 5260-5320 MHz 5500-5720 MHz 5745-5825 MHz	2412-2462 MHz 5180-5240 MHz 5260-5320 MHz 5500-5720 MHz 5745-5825 MHz
	Antenna	Direction: 2.4GHz Direction: 5GHz	PIFA: 2.4GHz Monopole: 5GHz
	Operation modes	11a/b/g/n/ac	11a/b/g/n/ac
	Channel Bandwidth	20 / 40 / 80	20 / 40 / 80
Bluetooth Low energy (2402-2480 MHz)		O	X
Wired function	WAN	O	O
	LAN	O	O

## 2.3 Spot Check Verification Data

Test Item	Mode	FCC ID: I88NWA5123-ACHD	FCC ID: I88WAC6303D-S	Difference (dB)
Average Conducted Power (dBm)	802.11a	21.14	21.13	0.01
	802.11n HT20	21.03	20.91	0.12
	802.11n HT40	23.06	23.02	0.04
	802.11ac VHT20	21.11	21.04	0.07
	802.11ac VHT40	23.10	23.11	-0.01
	802.11ac VHT80	23.31	23.25	0.06

## 2.4 Reference

Equipment Class	Reference FCC ID	Type Grant	Reference application	Reference Report Title
NII	I88NWA5123-ACHD	C2PC	I88WAC6303D-S	FR762202-03*

Note: Antenna port measurement test results are re-used.

## 2.5 The Equipment List

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Mar. 15, 2017	Mar. 14, 2018
Power Meter	Anritsu	ML2495A	1241002	Oct. 16, 2017	Oct. 15, 2018
Power Sensor	Anritsu	MA2411B	1207366	Oct. 16, 2017	Oct. 15, 2018
AC POWER SOURCE	APC	AFC-500W	F312060012	Oct. 28, 2016	Oct. 27, 2017
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA

Note: Calibration Interval of instruments listed above is one year.

### 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

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