FCC RF Exposure 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 2.1091**
Received Date	:	**Jun. 22, 2017**
Tested Date	:	**Sep. 05 ~ Oct. 06, 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: **Approved by:**

Along Chen / Assistant Manager **Gary Chang / Manager**

Testing Laboratory 2732

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Release Record

Report No.	Version	Description	Issued Date
FA762203-03	Rev. 01	Initial issue	Nov. 15, 2017

1 INFORMATION

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
✦ All models are electrically identical, different model names are for marketing purpose. ✦ The above models, model **WAC6303D-S** 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

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

2.1 LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

Frequency Range (MHz)	Power Density (mW /cm^2)	Averaging Time (minutes)
300~1500	F/1500	30
1500~100000	1.0	30

2.2 MPE EVALUATION FORMULA

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

Where

Pd= Power density in mW/cm^2
Pt= EIRP in mW
Pi= 3.1416
R= Measurement distance

2.3 MPE EVALUATION RESULTS

MPE Evaluation of Single Transmission

Non-beamforming mode

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412~2462[Note1]	25.28	1.12	20	0.087	1
5180~5240[Note1]	26.86	1.29	20	0.130	1
5745~5825[Note1]	28.13	1.07	20	0.165	1
2402~2480[Note1]	3.57	3.85	20	0.001	1
5260~5320	22.45	1.29	20	0.047	1
5500~5720	23.31	1.07	20	0.055	1

Beamforming mode

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412~2462[Note1]	24.99	4.13	20	0.162	1
5180~5240[Note1]	26.24	6.06	20	0.338	1
5745~5825[Note1]	26.60	5.84	20	0.349	1
5260~5320	21.08	6.06	20	0.103	1
5500~5720	21.12	5.84	20	0.099	1

Note:

1. These frequency bands are certified for original grant.
2. For 2412~2462 MHz band, Directional gain = 1.12+10* log(2/1) = 4.13 dBi
   For 5180~5240 MHz band / 5260~5320 MHz band, Directional gain = 1.29+10* log(3/1) = 6.06 dBi
   For 5500~5720MHz band / 5745~5825 MHz band, Directional gain = 1.07+10* log(3/1) = 5.84 dBi

MPE Evaluation of Simultaneous Transmission

2.4 and 5GHz can transmit at the same time, MPE evaluation is as below formula

PD1 / Limit1 + PD2 / Limit 2 + ….. < 1, PD = Power density

Non-beamforming mode

MPE Evaluation = Maximum MPE of 2.4GHz + Maximum MPE of 5 GHz = 0.087 / 1 + 0.165 / 1 = 0.252 < 1
MPE Evaluation = Maximum MPE of 2.4GHz + Maximum MPE of Bluetooth = 0.087 / 1 + 0.001 / 1 = 0.088 < 1

Beamforming mode

MPE Evaluation = Maximum MPE of 2.4GHz + Maximum MPE of 5 GHz = 0.162 / 1 + 0.349 / 1 = 0.511 < 1
MPE Evaluation = Maximum MPE of 2.4GHz + Maximum MPE of Bluetooth = 0.162 / 1 + 0.001 / 1 = 0.163< 1

Conclusion

MPE evaluations of single and simultaneous transmission meet the requirement of standard.

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	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.	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.

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