FCC RF Exposure Report

FCC ID	:	**I88WAX650S**
Equipment	:	**802.11ax (WiFi 6) Dual-Radio Unified Pro Access Point**
Model No.	:	**WAX650S**
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	:	**Aug. 01, 2019**
Tested Date	:	**Aug. 07 ~ Sep. 16, 2019**

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
FA980101-01	Rev. 01	Initial issue	Nov. 26, 2019

1 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.

1.1 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

1.2 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

1.3 DEVIATION FROM TEST STANDARD AND MEASUREMENT PROCEDURE

None

1.4 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

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
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.

1.5 MPE EVALUATION RESULTS

MPE Evaluation of Single Transmission

Non-beamforming mode

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Rated Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Ratio*	Pass / Fail
5260 ~ 5320 (Wi-Fi)	23.13	23.5	4.22	20	0.118	1	0.118	Pass
5500 ~ 5720 (Wi-Fi)	23.65	24	4.61	20	0.144	1	0.144	Pass
2412 ~ 2462 Note2 (Wi-Fi)	29.64	30	0	20	0.199	1	0.199	Pass
5180 ~ 5240 Note2 (Wi-Fi)	29.50	30	3.51	20	0.446	1	0.446	Pass
5745 ~ 5825 Note2 (Wi-Fi)	29.96	30	4.68	20	0.584	1	0.584	Pass
2402 ~ 2480 Note2 (BT LE)	5.47	6	4.7	20	0.002	1	0.002	Pass

Note 1: *Ratio = Power density / Limit.
Note 2: These 4 frequency bands are certified for original grant.

Beamforming mode

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Rated Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Ratio*	Pass / Fail
5260 ~ 5320 (Wi-Fi)	17.11	17.5	10.24	20	0.118	1	0.118	Pass
5500 ~ 5720 (Wi-Fi)	17.63	18	10.63	20	0.145	1	0.145	Pass
2412 ~ 2462 Note2 (Wi-Fi)	23.57	24	6.02	20	0.200	1	0.200	Pass
5180 ~ 5240 Note2 (Wi-Fi)	23.48	23.5	9.53	20	0.400	1	0.400	Pass
5745 ~ 5825 Note2 (Wi-Fi)	23.66	24	10.7	20	0.587	1	0.587	Pass

Note 1: *Ratio = Power density / Limit.
Note 2: These 3 frequency bands are certified for original grant.
Note 3:
2412 ~ 2462 MHz: Directional gain = 0 + 10 * log(4/1) =6.02 dBi
5150 ~ 5250 MHz, Directional gain = 3.51 + 10 * log(4/1) =9.53 dBi
5250 ~ 5350 MHz, Directional gain = 4.22 + 10 * log(4/1) =10.24 dBi
5470 ~ 5750 MHz, Directional gain = 4.61 + 10 * log(4/1) =10.63 dBi
5725 ~ 5850 MHz, Directional gain = 4.68 + 10 * log(4/1) =10.70 dBi

1.6 MPE EVALUATION OF SIMULTANEOUS TRANSMISSION.

These 3 frequency bands are certified for original grant.

Mode	Max Ratio of Each Mode	
	Non-beamforming mode	***Beamforming mode***
WLAN 2.4GHz	0.199	0.200
WLAN 5GHz	0.584	0.587
Bluetooth	0.002	0.002
Sum	0.785	0.789
Limit	1	1
Pass / Fail	Pass	Pass

2 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

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

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