

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:


Along Chen / Assistant Manager

Approved by:


Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FA980101	Rev. 01	Initial issue	Nov. 05, 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

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

Where

Pd= Power density in mW/cm²

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

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
2412 ~ 2462 (Wi-Fi)	29.64	30	0	20	0.199	1	0.199	Pass
5180 ~ 5240 (Wi-Fi)	29.50	30	3.51	20	0.446	1	0.446	Pass
5745 ~ 5825 (Wi-Fi)	29.96	30	4.68	20	0.584	1	0.584	Pass
2402 ~ 2480 (BT LE)	5.47	6	4.7	20	0.002	1	0.002	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 ²)	Limit (mW/cm ²)	Ratio*	Pass / Fail
2412 ~ 2462 (Wi-Fi)	23.57	24	6.02	20	0.200	1	0.200	Pass
5180 ~ 5240 (Wi-Fi)	23.48	23.5	9.53	20	0.400	1	0.400	Pass
5745 ~ 5825 (Wi-Fi)	23.66	24	10.7	20	0.587	1	0.587	Pass

Note 1: *Ratio = Power density / Limit.

Note 2:

2412 ~ 2462 MHz: Directional gain = $0 + 10 \cdot \log(4/1) = 6.02$ dBi

5150 ~ 5250 MHz, Directional gain = $3.51 + 10 \cdot \log(4/1) = 9.53$ dBi

5725 ~ 5850 MHz, Directional gain = $4.68 + 10 \cdot \log(4/1) = 10.70$ dBi

1.6 MPE EVALUATION OF SIMULTANEOUS TRANSMISSION.

Mode	Max Ratio of Each Mode	
	<i>Non-beamforming mode</i>	<i>Beamforming mode</i>
WLAN 2.4GHz	0.199	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

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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

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