



FCC RADIO EXPOSURE TEST REPORT

FCC ID : QXO-AP302W
Equipment : Access Point
Brand Name : Extreme Networks
Model Name : AP302W
Applicant : Extreme Networks, Inc.
6480 Via Del Oro, San Jose, CA 95119
Manufacturer : Extreme Networks, Inc.
6480 Via Del Oro, San Jose, CA 95119
Standard : 47 CFR Part 2.1091

The product was received on Sep. 09, 2020, and testing was started from Sep. 10, 2020 and completed on Oct. 30, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.


Approved by: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
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Photographs of EUT v01



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Report Template No.: CB-A1_1 Ver1.0



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-

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.

Reviewed by: Sam Chen

Report Producer: Viola Huang

1 General Description

1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
5GHz WLAN	5150-5250 5725-5850	5180-5240 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Bluetooth	2400-2483.5	2402-2480	LE: GFSK
802.15.4	2400-2483.5	2405-2480	O-QPSK

1.2 Table for EUT Support Function

Radio	Function		
	WLAN 2.4GHz	WLAN 5GHz	Bluetooth & IEEE802.15.4 (Zigbee/Thread)
Dual Band Radio	V	V	-
5G Radio	-	V	-
BLE/IEEE802.15.4 (Zigbee/Thread) Radio	-	-	V

Function	Support Type	Support Band
AP	Master	WLAN 2.4GHz/Bluetooth/IEEE802.15.4(Zigbee/Thread)/WLAN 5GHz Band 1~4
Bridge	Master	WLAN 2.4GHz/Bluetooth/IEEE802.15.4(Zigbee/Thread)/WLAN 5GHz Band 1+4
Mesh	Master	WLAN 2.4GHz/Bluetooth/IEEE802.15.4(Zigbee/Thread)/WLAN 5GHz Band 1+4

Note:

1. The above information was declared by manufacturer.
2. The EUT has three functions which are AP, Bridge, and Mesh mode, only the AP mode was tested and recorded in this test report.



1.3 Testing Location

Testing Location		
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.



2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	*(100)	<6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1500	-	-	f/300	<6
1500-100,000	-	-	5	<6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f ²)	<30
30-300	27.5	0.073	0.2	<30
300-1500	-	-	f/1500	<30
1500-100,000	-	-	1.0	<30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Method

The MPE was calculated at 23 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	4.5	26.59	31.09	0.50	31.59	1.44212	23	0.21693	1.00000
5.2G;D1D (For Dual Band Radio)	9.01	24.51	33.52	0.50	34.02	2.52348	23	0.37960	1.00000
5.2G;D1D (For 5G Radio)	9.61	23.37	32.98	0.50	33.48	2.22844	23	0.33522	1.00000
5.8G;D1D (For Dual Band Radio)	6	25.88	31.88	0.50	32.38	1.72982	23	0.26021	1.00000
5.8G;D1D (For 5G Radio)	9.61	25.41	35.02	0.50	35.52	3.56451	23	0.53620	1.00000
2.4G;BT-LE	4.8	2.98	7.78	0.50	8.28	0.00673	23	0.00101	1.00000
802.15.4 (Zigbee/Thread)	4.8	3.14	7.94	0.50	8.44	0.00698	23	0.00105	1.00000

Simultaneous Transmission Analysis Mode:

Dual Band Radio with 2.4GHz function + 5G Radio + BLE/IEEE802.15.4 (Zigbee/Thread) Radio with Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;G1D	4.5	26.59	31.09	0.50	31.59	1.44212	23	0.21693	1.00000	0.21693
5.8G;D1D	9.61	25.41	35.02	0.50	35.52	3.56451	23	0.53620	1.00000	0.53620
2.4G;BT-LE	4.8	2.98	7.78	0.50	8.28	0.00673	23	0.00101	1.00000	0.00101
									Sum Ratio	0.75414
									Ratio Limit	1

Dual Band Radio with 5GHz function + 5G Radio + BLE/IEEE802.15.4 (Zigbee/Thread) Radio with Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
5.2G;D1D	9.01	24.51	33.52	0.50	34.02	2.52348	23	0.37960	1.00000	0.37960
5.8G;D1D	9.61	25.41	35.02	0.50	35.52	3.56451	23	0.53620	1.00000	0.53620
2.4G;BT-LE	4.8	2.98	7.78	0.50	8.28	0.00673	23	0.00101	1.00000	0.00101
									Sum Ratio	0.91681
									Ratio Limit	1



Dual Band Radio with 2.4GHz function + 5G Radio + BLE/IEEE802.15.4 (Zigbee/Thread) Radio with IEEE802.15.4

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;G1D	4.5	26.59	31.09	0.50	31.59	1.44212	23	0.21693	1.00000	0.21693
5.8G;D1D	9.61	25.41	35.02	0.50	35.52	3.56451	23	0.53620	1.00000	0.53620
802.15.4 (Zigbee/Thread)	4.8	3.14	7.94	0.50	8.44	0.00698	23	0.00105	1.00000	0.00105
									Sum Ratio	0.75418
									Ratio Limit	1

Dual Band Radio with 5GHz function + 5G Radio + BLE/IEEE802.15.4 (Zigbee/Thread) Radio with IEEE802.15.4

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
5.2G;D1D	9.01	24.51	33.52	0.50	34.02	2.52348	23	0.37960	1.00000	0.37960
5.8G;D1D	9.61	25.41	35.02	0.50	35.52	3.56451	23	0.53620	1.00000	0.53620
802.15.4 (Zigbee/Thread)	4.8	3.14	7.94	0.50	8.44	0.00698	23	0.00105	1.00000	0.00105
									Sum Ratio	0.91685
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————