



FCC RADIO EXPOSURE TEST REPORT

FCC ID : QXO-AP505I
Equipment : 802.11ax Access Point
Brand Name : Extreme Networks
Model Name : AP505i
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 Oct. 22, 2018, and testing was started from Oct. 30, 2018 and completed on Nov. 23, 2018. 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant 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

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 EUT General Information	5
1.2 Table for Class II Change.....	5
1.3 Testing Location	6
2 Maximum Permissible Exposure	7
2.1 Limit of Maximum Permissible Exposure	7
2.2 MPE Calculation Method.....	7
2.3 Calculated Result and Limit.....	8
Photographs of EUT v01	



TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB 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: Cliff Chang

Report Producer: Wendy Pan



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) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5250 5250-5320 5500-5720 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: DSSS (GFSK)
Thread	2400-2483.5	2405-2480	Thread: O-QPSK (250kbps)

1.1.1 Table for EUT support function

Function	Support Type	Support Band
AP	Master	WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1~4
Client	Slave without Radar Detection	WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1+4
Bridge	Master	WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1+4
Mesh	Master	WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1+4

Note: The above information was declared by manufacturer.

1.2 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA8O1737AD

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Adding 5GHz band 2 and band 3 (5250~5350 MHz, 5470~5725 MHz) for this device. 2. Adding 802.11ac 160MHz and 802.11ax 160MHz Mode.	Maximum Permissible Exposure.

Note: Maximum Permissible Exposure of 2.4GHz, Bluetooth, Thread and 5GHz band 1, 4 are based on original 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)*	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)*	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

For WLAN Function:

Test Mode: 1T1S

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	3.86	24.94	28.80	0.50	29.30	0.85114	23	0.12803	1
5.2G;D1D	5.29	25.01	30.30	0.50	30.80	1.20226	23	0.18085	1
5.3G;D1D	5.29	23.96	29.25	0.50	29.75	0.94406	23	0.14201	1
5.6G;D1D	5.29	23.93	29.22	0.50	29.72	0.93756	23	0.14103	1
5.8G;D1D	5.29	25.94	31.23	0.50	31.73	1.48936	23	0.22404	1

Test Mode: 2T2S

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	3.92	24.71	28.63	0.50	29.13	0.81846	23	0.12312	1
5.2G;D1D	5.10	26.97	32.07	0.50	32.57	1.80717	23	0.27185	1
5.3G;D1D	5.10	23.96	29.06	0.50	29.56	0.90365	23	0.13593	1
5.6G;D1D	5.10	23.95	29.05	0.50	29.55	0.90157	23	0.13562	1
5.8G;D1D	5.10	27.15	32.25	0.50	32.75	1.88365	23	0.28335	1

Test Mode: 4T1S

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	3.97	29.59	33.56	0.50	34.06	2.54683	23	0.38311	1
5.2G;D1D	10.97	25.00	35.97	0.02	35.99	3.97192	23	0.59748	1
5.3G;D1D	10.97	19.00	29.97	0.02	29.99	0.99770	23	0.15008	1
5.6G;D1D	10.97	19.00	29.97	0.02	29.99	0.99770	23	0.15008	1
5.8G;D1D	10.97	24.97	35.94	0.05	35.99	3.97192	23	0.59748	1

Test Mode: 4T4S

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	3.92	26.91	30.83	0.50	31.33	1.35831	23	0.20433	1
5.3G;D1D	4.96	23.86	28.82	0.50	29.32	0.85507	23	0.12862	1
5.6G;D1D	4.96	23.96	28.92	0.50	29.42	0.87498	23	0.13162	1
5.8G;D1D	4.96	29.98	34.94	0.50	35.44	3.49945	23	0.52641	1

**For Bluetooth Function:**

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;BT	4.69	2.55	7.24	0.50	7.74	0.00594	23	0.00089	1

For Thread Function:

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	4.69	0.78	5.47	0.50	5.97	0.00395	23	0.00059	1

Simultaneous Transmission Analysis Mode:**Mode 1: WLAN 2.4GHz + WLAN 5GHz + 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	3.97	29.59	33.56	0.50	34.06	2.54683	23	0.38312	1.00000	0.38312
5.2G;D1D	10.97	25.00	35.97	0.02	35.99	3.97192	23	0.5975	1.00000	0.5975
2.4G;BT	4.69	2.55	7.24	0.50	7.74	0.00594	23	0.00089	1.00000	0.00089
									Sum Ratio	0.98151
									Ratio Limit	1

Mode 2: WLAN 2.4GHz + WLAN 5GHz + Thread

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	3.97	29.59	33.56	0.50	34.06	2.54683	23	0.38312	1.00000	0.38312
5.2G;D1D	10.97	25.00	35.97	0.02	35.99	3.97192	23	0.5975	1.00000	0.5975
2.4G;G1D	4.69	0.78	5.47	0.50	5.97	0.00395	23	0.00059	1.00000	0.00059
									Sum Ratio	0.98121
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————