

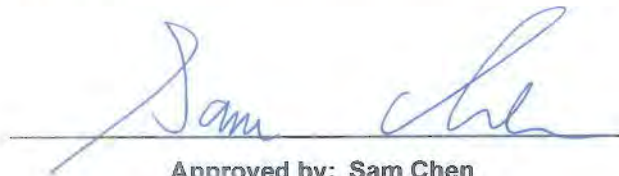


RADIO EXPOSURE TEST REPORT

FCC ID : QXO-AP410NB
Equipment : Wireless Access Point
Brand Name :  or Extreme Networks
Model Name : AP410i
Applicant : Extreme Networks, Inc.
6480 Via Del Oro, San Jose, CA 95119, United States
Manufacturer : Extreme Networks, Inc.
6480 Via Del Oro, San Jose, CA 95119, United States
Standard : 47 CFR Part 2.1091

The product was received on Sep. 23, 2019, and testing was started from Sep. 23, 2019 and completed on Oct. 26, 2021. We, Sporton International Inc. Hsinchu 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. Hsinchu Laboratory, the test report shall not be reproduced except in full.



Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issued Date
FA970232-06	01	Initial issue of report	Nov. 12, 2021



Summary of Test Result

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

Note 1: From Sporton Project No.: FA970232 and FA970232-01.

Note 2: This is a variant report by removing the external antenna, BT/Thread module. The RF Exposure was verified.

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: **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) VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 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)

1.2 Antenna Information

Ant.	Brand	Model Number (P/N)	Antenna Type	Connector	Antenna Gain (dBi)		Remark
					WLAN 2.4GHz	WLAN 5GHz	
1	SENAO	5718A0474300	PIFA	IPEX	4.56	-	Radio 1
2	SENAO	5718A0475300	PIFA	IPEX	4.56	-	Radio 1
3	SENAO	5718A0476300	PIFA	IPEX	4.47	5.02	Radio 3
4	SENAO	5718A0477300	PIFA	IPEX	4.47	5.02	Radio 3
5	SENAO	5718A0478300	PIFA	IPEX	-	5.36	Radio 2
6	SENAO	5718A0479300	PIFA	IPEX	-	5.36	Radio 2
7	SENAO	5718A0480300	PIFA	IPEX	-	5.36	Radio 2
8	SENAO	5718A0481300	PIFA	IPEX	-	5.36	Radio 2

Beamforming Gain (dBi)		
2TX		4TX
WLAN 2.4GHz	WLAN 5GHz	WLAN 5GHz
3.01		6.02

Note: The above information was declared by manufacturer.

For Radio 1:

For IEEE 802.11/b/g/n/ac/ax mode (1TX, 2TX/2RX):



For 1TX
 Only Port 1 can be use as transmitting antenna.
 For 2TX
 Port 1 and Port 2 can be use as transmitting antenna.
 Port 1 and Port 2 could transmit simultaneously.

For Radio 2:

For IEEE 802.11a/n/ac/ax mode (1TX, 2TX, 4TX/4RX):

For 1TX
 Only Port 1 can be use as transmitting antenna.
 For 2TX
 Port 1 and Port 2 can be use as transmitting antenna.
 Port 1 and Port 2 could transmit simultaneously.
 For 4TX
 Port 1, Port 2, Port 3 and Port 4 can be use as transmitting antenna.
 Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.
 For 4RX
 Port 1, Port 2, Port 3 and Port 4 can be used as receiving antennas.
 Port 1, Port 2, Port 3 and Port 4 could receive simultaneously.

For Radio 3:

For IEEE 802.11a/b/g/n/ac/ax mode (1TX, 2TX/2RX):

For 1TX
 Only Port 1 can be use as transmitting antenna.
 For 2TX
 Port 1 and Port 2 can be use as transmitting antenna.
 Port 1 and Port 2 could transmit simultaneously.

1.3 Accessories

Wall-mounted rack*1

1.4 Testing Location

Testing Location Information	
Test Lab. : Sporton International Inc. Hsinchu Laboratory	
Hsinchu	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)
(TAF: 3787)	TEL: 886-3-656-9065 FAX: 886-3-656-9085
	Test site Designation No. TW3787 with FCC.
	Conformity Assessment Body Identifier (CABID) TW3787 with ISED.



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 31 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

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

Test Mode: 1TX

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 (Radio 1)	4.56	27.91	32.47	0.50	32.97	1.98153	31	0.16408	1
5.2G;D1D (Radio 2)	5.36	23.82	29.18	0.50	29.68	0.92897	31	0.07692	1
5.3G;D1D (Radio 2)	5.36	23.76	29.12	0.50	29.62	0.91622	31	0.07587	1
5.6G;D1D (Radio 2)	5.36	22.48	27.84	0.50	28.34	0.68234	31	0.05650	1
5.8G;D1D (Radio 2)	5.36	25.68	31.04	0.50	31.54	1.42561	31	0.11805	1
2.4G;G1D (Radio 3)	4.47	23.28	27.75	0.50	28.25	0.66834	31	0.05534	1
5.2G;D1D (Radio 3)	5.02	24.37	29.39	0.50	29.89	0.97499	31	0.08073	1
5.3G;D1D (Radio 3)	5.02	23.68	28.70	0.50	29.20	0.83176	31	0.06887	1
5.6G;D1D (Radio 3)	5.02	23.61	28.63	0.50	29.13	0.81846	31	0.06777	1
5.8G;D1D (Radio 3)	5.02	23.33	28.35	0.50	28.85	0.76736	31	0.06354	1

**Test Mode: 2TX**

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 (Radio 1)	7.57	26.01	33.58	0.50	34.08	2.55859	31	0.21186	1
5.2G;D1D (Radio 2)	5.36	26.29	31.65	0.50	32.15	1.64059	31	0.13585	1
5.3G;D1D (Radio 2)	5.36	23.96	29.32	0.50	29.82	0.95940	31	0.07944	1
5.6G;D1D (Radio 2)	5.36	23.96	29.32	0.50	29.82	0.95940	31	0.07944	1
5.8G;D1D (Radio 2)	5.36	28.91	34.27	0.50	34.77	2.99916	31	0.24835	1
2.4G;G1D (Radio 3)	7.48	23.99	31.47	0.50	31.97	1.57398	31	0.13033	1
5.2G;D1D (Radio 3)	8.03	25.82	33.85	0.50	34.35	2.72270	31	0.22545	1
5.3G;D1D (Radio 3)	8.03	21.83	29.86	0.13	29.99	0.99770	31	0.08261	1
5.6G;D1D (Radio 3)	8.03	21.92	29.95	0.04	29.99	0.99770	31	0.08261	1
5.8G;D1D (Radio 3)	8.03	24.32	32.35	0.50	32.85	1.92752	31	0.15961	1

Test Mode: 4TX

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)
5.2G;D1D (Radio 2)	11.38	24.48	35.86	0.13	35.99	3.97192	31	0.32889	1
5.3G;D1D (Radio 2)	11.38	18.56	29.94	0.05	29.99	0.99770	31	0.08261	1
5.6G;D1D (Radio 2)	11.38	18.57	29.95	0.04	29.99	0.99770	31	0.08261	1
5.8G;D1D (Radio 2)	11.38	24.55	35.93	0.06	35.99	3.97192	31	0.32889	1



Simultaneous Transmission Analysis Mode: Radio 1 + Radio 2 + Radio 3 (2.4GHz)

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	7.57	26.01	33.58	0.50	34.08	2.55859	31	0.21186	1	0.21186
5.8G;D1D	11.38	24.55	35.93	0.06	35.99	3.97192	31	0.32889	1	0.32889
2.4G;G1D	7.48	23.99	31.47	0.50	31.97	1.57398	31	0.13033	1	0.13033
									Sum Ratio	0.67108
									Ratio Limit	1

Simultaneous Transmission Analysis Mode: Radio 1 + Radio 2 + Radio 3 (5GHz)

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	7.57	26.01	33.58	0.50	34.08	2.55859	31	0.21186	1	0.21186
5.8G;D1D	11.38	24.55	35.93	0.06	35.99	3.97192	31	0.32889	1	0.32889
5.2G;D1D	8.03	25.82	33.85	0.50	34.35	2.72270	31	0.22545	1	0.22545
									Sum Ratio	0.76620
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————