RF Exposure Evaluation Report

Equipment	:	**Wireless 802.11 a/ac+b/g/n PCBA module**
Brand Name	:	**Extreme Networks**
Model No.	:	**AP3917k/AP7662k**
FCC ID	:	**QXO-AP3917K**
Standard	:	**47 CFR Part 2.1091**
Applicant	:	**Extreme Networks, Inc.** **6480 Via Del Oro San Jose CA 95119 United States Of America**
Manufacturer	:	**Senao Networks, Inc.** **3F, No. 529, Chung Cheng Rd. Hsintien Taipei Taiwan**

The product sample received on Sep. 21, 2017 and completely tested on Oct. 07, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit.

Kevin Liang / Assistant Manager

Testing Laboratory
1190

TABLE OF CONTENTS

1 GENERAL DESCRIPTION 4
1.1 EUT General Information 4
1.2 Testing Location 4
2 MAXIMUM PERMISSIBLE EXPOSURE 5
2.1 Limit of Maximum Permissible Exposure 5
2.2 MPE Calculation Method 5
2.3 Calculated Result and Limit 6

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA780809-01	Rev. 01	Initial issue of report	Dec. 13, 2017

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)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5700 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
4.9GHz	4940-4990	4942.5-4987.5	802.11j: OFDM(BPSK, QPSK, 16QAM and 64QAM)
Bluetooth	2400-2483.5	2402-2480	LE: DSSS (GFSK)
ZigBee	2400-2483.5	2405-2480	DSSS (O-QPSK)

1.2 Testing Location

Testing Location			
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
Test site Designation No. TW1190 with FCC.			
☒	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.			

1.2.1 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FA780809

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

Modifications	Performance Checking
Add U-NII-2A and U-NII-2C	N/A

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/ cm²)	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/ cm²)	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 26 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

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

Bluetooth+WLAN 2.4GHz+WLAN 5GHz

Mode	DG (dBi)	Tune-up power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
2.4G;BT-LE	7.50	2.26	9.76	0.00946	26	0.00111	1.00000	0.00111
2.4G;D1D	7.50	28.31	35.81	3.81066	26	0.44858	1.00000	0.44858
5.8G;D1D	7.75	27.91	35.66	3.68129	26	0.43335	1.00000	0.43335
							Sum Ratio	0.88304
							Ratio Limit	1

Zigbee+WLAN 2.4GHz+WLAN 5GHz

Mode	DG (dBi)	Tune-up power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
2.4G;G1D	7.50	2.63	10.13	0.01030	26	0.00121	1.00000	0.00121
2.4G;D1D	7.50	28.31	35.81	3.81066	26	0.44858	1.00000	0.44858
5.8G;D1D	7.75	27.91	35.66	3.68129	26	0.43335	1.00000	0.43335
							Sum Ratio	0.88314
							Ratio Limit	1

Bluetooth+WLAN 2.4GHz+4.9G

Mode	DG (dBi)	Tune-up power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
2.4G;BT-LE	7.50	2.26	9.76	0.00946	26	0.00111	1.00000	0.00111
2.4G;D1D	7.50	28.31	35.81	3.81066	26	0.44858	1.00000	0.44858
4.9G;D1D	7.75	28.38	36.13	4.10204	26	0.48288	1.00000	0.48288
-	-	-	-	-	-	-	Sum Ratio	0.93257
-	-	-	-	-	-	-	Ratio Limit	1

Zigbee+WLAN 2.4GHz+4.9G

Mode	DG (dBi)	Tune-up power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
2.4G;G1D	7.50	2.63	10.13	0.01030	26	0.00121	1.00000	0.00121
2.4G;D1D	7.50	28.31	35.81	3.81066	26	0.44858	1.00000	0.44858
4.9G;D1D	7.75	28.38	36.13	4.10204	26	0.48288	1.00000	0.48288
-	-	-	-	-	-	-	Sum Ratio	0.93267
-	-	-	-	-	-	-	Ratio Limit	1