

## RF Exposure Report

**Report No.:** SA170731C10A

**FCC ID:** QXO-AP3917E

**Test Model:** AP3917e

**Series Model:** AP7662

**Received Date:** Jul. 31, 2017

**Test Date:** Aug. 15 ~ Oct. 26, 2017

**Issued Date:** Nov. 14, 2017

**Applicant:** Extreme Networks, Inc.

**Address:** 6480 VIA DEL ORO SAN JOSE CA 95119 USA

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

**FCC Registration /** 788550 / TW0003

**Designation Number:**



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### Release Control Record

Issue No.	Description	Date Issued
SA170731C10A	Original release.	Nov. 14, 2017

## 1 Certificate of Conformity

**Product:** Wireless 802.11 a/ac+b/g/n Access Point

**Brand:** Extreme Networks

**Test Model:** AP3917e

**Series Model:** AP7662

**Sample Status:** Engineering sample

**Applicant:** Extreme Networks, Inc.

**Test Date:** Aug. 15 ~ Oct. 26, 2017


**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :**  , **Date:** Nov. 14, 2017  
Suntee Liu / Specialist

**Approved by :**  , **Date:** Nov. 14, 2017  
Ken Liu / Senior Manager

## 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 2.2 MPE Calculation Formula

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 35cm away from the body of the user. So, this device is classified as Mobile Device.

### 3 Calculation Result of Maximum Conducted Power

Function	Frequency Band (MHz)	Mode	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN	ML-2499-HPA8-01						
	2412~2462	CDD	27.39	11.01	35	0.449	1
		Beamforming	27.08	11.01	35	0.418	1
	ML-5299-FHPA6-01R						
	5180~5240 (Outdoor)	CDD	15.26	11.26	35	0.029	1
		Beamforming	12.25	11.26	35	0.015	1
	5180~5240 (Indoor)	CDD	25.84	11.26	35	0.333	1
		Beamforming	22.83	11.26	35	0.167	1
	5260~5320	CDD	21.58	11.26	35	0.125	1
		Beamforming	18.57	11.26	35	0.062	1
	5500~5720	CDD	20.56	11.26	35	0.099	1
		Beamforming	17.55	11.26	35	0.049	1
	5745~5825	CDD	26.28	11.26	35	0.369	1
		Beamforming	23.21	11.26	35	0.182	1
	ML-2452-PNA5-01R						
	2412~2462	CDD	27.33	7.51	35	0.198	1
		Beamforming	27.08	7.51	35	0.187	1
	5180~5240 (Outdoor)	CDD	15.78	8.01	35	0.016	1
		Beamforming	12.77	8.01	35	0.008	1
	5180~5240 (Indoor)	CDD	26.13	8.01	35	0.169	1
		Beamforming	23.02	8.01	35	0.082	1
	5260~5320	CDD	23.95	8.01	35	0.102	1
		Beamforming	20.94	8.01	35	0.051	1
	5500~5720	CDD	23.89	8.01	35	0.101	1
		Beamforming	20.88	8.01	35	0.050	1
	5745~5825	CDD	24.79	8.01	35	0.124	1
		Beamforming	21.78	8.01	35	0.062	1
	ML-2452-PNA7-01R						
	2412~2462	CDD	18.81	10.81	35	0.060	1
		Beamforming	26.65	10.81	35	0.362	1
	5180~5240 (Outdoor)	CDD	13.52	13.71	35	0.034	1
		Beamforming	10.51	13.71	35	0.017	1
	5180~5240 (Indoor)	CDD	23.33	13.71	35	0.329	1
		Beamforming	20.32	13.71	35	0.164	1
	5260~5320	CDD	18.40	13.71	35	0.106	1
		Beamforming	15.39	13.71	35	0.053	1
	5500~5720	CDD	18.64	13.71	35	0.112	1
		Beamforming	15.63	13.71	35	0.056	1
	5745~5825	CDD	25.21	13.71	35	<b>0.507</b>	1
		Beamforming	22.20	13.71	35	0.253	1

Function	Frequency Band (MHz)	Mode	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	
WLAN	ML-2452-PNL6M4-N36							
	2412~2462	CDD	27.39	8.61	35	0.259	1	
		Beamforming	27.08	8.61	35	0.241	1	
	5180~5240 (Outdoor)	CDD	18.62	9.71	35	0.044	1	
		Beamforming	15.61	9.71	35	0.022	1	
	5180~5240 (Indoor)	CDD	26.13	9.71	35	0.249	1	
		Beamforming	23.02	9.71	35	0.122	1	
	5260~5320	CDD	23.18	9.71	35	0.126	1	
		Beamforming	20.17	9.71	35	0.063	1	
	5500~5720	CDD	22.96	9.71	35	0.120	1	
		Beamforming	19.95	9.71	35	0.060	1	
	5745~5825	CDD	24.40	9.71	35	0.167	1	
		Beamforming	21.39	9.71	35	0.084	1	
	WLAN	ML-2452-PNL9M3-N36						
		2412~2462	CDD	24.72	14.01	35	<b>0.485</b>	1
			Beamforming	24.57	14.01	35	0.468	1
		5180~5240 (Outdoor)	CDD	13.52	13.71	35	0.034	1
			Beamforming	10.51	13.71	35	0.017	1
		5180~5240 (Indoor)	CDD	24.77	13.71	35	0.458	1
			Beamforming	21.76	13.71	35	0.229	1
5260~5320		CDD	18.40	13.71	35	0.106	1	
		Beamforming	15.69	13.71	35	0.057	1	
5500~5720		CDD	18.70	13.71	35	0.113	1	
		Beamforming	15.63	13.71	35	0.056	1	
5745~5825		CDD	25.17	13.71	35	0.502	1	
		Beamforming	22.16	13.71	35	0.251	1	
BT LE		ML-2499-HPA8-01						
	2402~2480	-	0.97	8	35	0.001	1	
	ML-2452-PNA7-01R							
BT LE	2402~2480	-	1.02	7.8	35	<b>0.001</b>	1	
Zigbee	ML-2499-HPA8-01							
	2405~2480	-	2.96	8	35	<b>0.001</b>	1	
	ML-2452-PNA7-01R							
Zigbee	2405~2480	-	2.96	7.8	35	0.001	1	
4.9GHz	ML-5299-FHPA6-01R							
	4942.5~4987.5	-	22.27	11.26	35	<b>0.146</b>	1	

Note:

2.4GHz:

ML-2499-HPA8-01 max. directional gain = 8dBi + 10log(2) = 11.01dBi

ML-2452-PNA5-01R max. directional gain = 4.5dBi + 10log(2) = 7.51dBi

ML-2452-PNA7-01R max. directional gain = 7.8dBi + 10log(2) = 10.81dBi

ML-2452-PNL6M4-N36 max. directional gain = 5.6dBi + 10log(2) = 8.61dBi

ML-2452-PNL9M3-N36 max. directional gain = 11dBi + 10log(2) = 14.01dBi

5GHz:

ML-5299-FHPA6-01R max. directional gain = 8.25dBi + 10log(2) = 11.26dBi

ML-2452-PNA5-01R max. directional gain = 5dBi + 10log(2) = 8.01dBi

ML-2452-PNA7-01R max. directional gain = 10.7dBi + 10log(2) = 13.71dBi

ML-2452-PNL6M4-N36 max. directional gain = 6.7dBi + 10log(2) = 9.71dBi

ML-2452-PNL9M3-N36 max. directional gain = 10.7dBi + 10log(2) = 13.71dBi

BT LE & Zigbee:

ML-2499-HPA8-01 gain = 8dBi

ML-2452-PNA7-01R gain = 7.8dBi

4.9GHz:

ML-5299-FHPA6-01R directional gain = 8.25dBi + 10log(2) = 11.26dBi

Frequency Band	Max Power (dBm)			Total Power (dBm)	Power Limit (dBm)
	WLAN	BT LE	Zigbee		
2.4GHz	27.39	1.02	-	27.40	30
	27.39	-	2.96	27.41	30

Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

Max.: WLAN 2.4GHz + WLAN 5GHz + BT LE = 0.485 + 0.507 + 0.001 = 0.993 < 1

Max.: WLAN 2.4GHz + WLAN 5GHz + Zigbee = 0.485 + 0.507 + 0.001 = 0.993 < 1

Max.: WLAN 2.4GHz + WLAN 4.9GHz + BT LE = 0.485 + 0.146 + 0.001 = 0.632 < 1

Max.: WLAN 2.4GHz + WLAN 4.9GHz + Zigbee = 0.485 + 0.146 + 0.001 = 0.632 < 1

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