

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:



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 RF Exposure	5
2.1 Limits for Maximum Permissible Exposure (MPE).....	5
2.2 MPE Calculation Formula	5
2.3 Classification	5
3 Calculation Result of Maximum Conducted Power	6

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 : Sunt Lee , **Date:** Nov. 14, 2017
Sunt Lee / Specialist

Approved by : Ken Liu , **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 ²)	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/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 ²)	Limit (mW/cm ²)
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	0.507	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 ²)	Limit (mW/cm ²)
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
	ML-2452-PNL9M3-N36						
	2412~2462	CDD	24.72	14.01	35	0.485	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						
Zigbee	2402~2480	-	1.02	7.8	35	0.001	1
	ML-2499-HPA8-01						
	2405~2480	-	2.96	8	35	0.001	1
	ML-2452-PNA7-01R						
4.9GHz	2405~2480	-	2.96	7.8	35	0.001	1
	ML-5299-FHPA6-01R						
	4942.5~4987.5	-	22.27	11.26	35	0.146	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

---END---