

## RF Exposure Report

**Report No.:** SA160922E02F

**FCC ID:** QXO-7602

**Test Model:** AP-7602

**Received Date:** Sep. 22, 2016

**Test Date:** Nov. 12, 2016

**Issued Date:** Sep. 11, 2017

**Applicant:** Extreme Networks, Inc.

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

<b>Release Control Record</b> .....	<b>3</b>
<b>1 Certificate of Conformity</b> .....	<b>4</b>
<b>2 RF Exposure</b> .....	<b>5</b>
2.1 Limits For Maximum Permissible Exposure (MPE) .....	5
2.2 MPE Calculation Formula .....	5
2.3 Classification .....	5
2.4 Antenna Gain .....	5
2.5 Calculation Result of Maximum Conducted Power .....	6

### Release Control Record

Issue No.	Description	Date Issued
SA160922E02F	Original release.	Sep. 11, 2017

## 1 Certificate of Conformity

**Product:** Access Point

**Brand:** Extreme

**Test Model:** AP-7602

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Extreme Networks, Inc.

**Test Date:** Nov. 12, 2016

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

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

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 :** Wendy Wu , **Date:** Sep. 11, 2017  
Wendy Wu / Specialist

**Approved by :** May Chen , **Date:** Sep. 11, 2017  
May Chen / 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

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = 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 20cm away from the body of the user.

So, this device is classified as **Mobile Device**.

### 2.4 Antenna Gain

No.	PCB Chain No	Brand	Model	Antenna Gain(dBi) Including cable loss	Frequency range	Antenna Type	Connector type	Cable Length (mm)
1	Chain 0	NA	NA	2.61	2.4~2.4835GHz	Dipole	i-pex(MHF)	155
				4.39	5.15~5.25GHz			
				4.2	5.25~5.35GHz			
				4.28	5.47~5.725GHz			
				5.61	5.725~5.85GHz			
2	Chain 1	NA	NA	3.76	2.4~2.4835GHz	Dipole	i-pex(MHF)	182
				5.18	5.15~5.25GHz			
				5.22	5.25~5.35GHz			
				4.44	5.47~5.725GHz			
				5.95	5.725~5.85GHz			
3	BT	NA	NA	1.8	2.4~2.483GHz	Dipole	i-pex(MHF)	88

## 2.5 Calculation Result of Maximum Conducted Power

### WLAN Maximum power

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	183.039	6.21	20	0.15215	1
5180-5240	194.249	7.8	20	0.23286	1
5260-5320	185.704	7.74	20	0.21956	1
5500-5720	162.102	7.85	20	0.17600	1
5745-5825	260.394	8.79	20	0.39207	1

#### NOTE:

2.4GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.21\text{dBi}$

5GHz:

UNII-1: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.8\text{dBi}$

UNII-2A: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.74\text{dBi}$

UNII-2C: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.37\text{dBi}$

UNII-3: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 8.79\text{dBi}$

#### For Bluetooth:

##### BT-EDR

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2402-2480	5.957	1.8	20	0.00179	1

##### BT-LE

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2402-2480	2.244	1.8	20	0.00068	1

**For WLAN / BT coexistence mode:**

Condition	Technology		
1	WLAN (2.4GHz-Chain0)	WLAN (5GHz-Chain1)	BT
2	WLAN (2.4GHz-Chain1)	WLAN (5GHz-Chain0)	BT
3	WLAN (2.4GHz-Chain0)	WLAN (2.4GHz-Chain1)	BT
4	WLAN (5GHz-Chain0)	WLAN (5GHz-Chain1)	BT

**Condition 1**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462 (Chain 0)	92.257	2.61	20	0.03348	1
5180-5240, 5260-5320, 5500-5720, 5745-5825 (Chain 1)	146.893	5.95	20	0.11501	1
2402-2480	5.957	1.8	20	0.00179	1

**Condition 2**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462 (Chain 1)	90.782	3.76	20	0.04293	1
5180-5240, 5260-5320, 5500-5720, 5745-5825 (Chain 0)	116.681	5.61	20	0.08448	1
2402-2480	5.957	1.8	20	0.00179	1

**Condition 3**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462 (2TX)	183.039	6.21	20	0.15215	1
2402-2480	5.957	1.8	20	0.00179	1

**Condition 4**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5180-5240, 5260-5320, 5500-5720, 5745-5825 (2TX)	260.394	8.79	20	0.39207	1
2402-2480	5.957	1.8	20	0.00179	1

**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

**Condition 1:**

Therefore, the worst-case situation is  $0.03348 / 1 + 0.11501 / 1 + 0.00179 / 1 = 0.15028$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

**Condition 2:**

Therefore, the worst-case situation is  $0.04293 / 1 + 0.08448 / 1 + 0.00179 / 1 = 0.12920$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

**Condition 3:**

Therefore, the worst-case situation is  $0.15215 / 1 + 0.00179 / 1 = 0.15394$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

**Condition 4:**

Therefore, the worst-case situation is  $0.39207 / 1 + 0.00179 / 1 = 0.39386$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

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