

## RF Exposure Report

**Report No.:** SA160224C19B

**FCC ID:** TVE-28166033

**Test Model:** FAP-S422E

**Series Model:** FortiAP S422Exxxxxx, FAP-S422Exxxxxx, FORTIAP-S422Exxxxxx (where "x" can be used as "A-Z" or "0-9" or "-" or blank for software changes or marketing purposes only)

**Received Date:** Oct. 19, 2016

**Issued Date:** Dec. 22, 2016

**Applicant:** Fortinet Inc.

**Address:** 899 Kifer Road Sunnyvale, CA 94086 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.)



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### Release Control Record

Issue No.	Description	Date Issued
SA160224C19B	Original release.	Dec. 22, 2016

## 1 Certificate of Conformity

**Product:** Secured Wireless Access Point

**Brand:** Fortinet Inc.

**Test Model:** FAP-S422E

**Series Model:** FortiAP S422Exxxxxx, FAP-S422Exxxxxx, FORTIAP-S422Exxxxxx (where "x" can be used as "A-Z" or "0-9" or "-" or blank for software changes or marketing purposes only)

**Sample Status:** Engineering sample

**Applicant:** Fortinet Inc.

**Standards:** FCC Part 2 (Section 2.1091)  
KDB 447498 D03 (January 17, 2014)  
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 :**

  
Pettie Chen / Senior Specialist

**Date:**

Dec. 22, 2016

**Approved by :**

  
Ken Liu / Senior Manager

**Date:**

Dec. 22, 2016

## 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 37cm away from the body of the user. So, this device is classified as **Mobile Device**.

### 3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
CDD mode					
2412-2462	25.70	10.52	37	0.243	1
5180-5240	24.08	12.32	37	0.254	1
5260-5320	21.28	12.32	37	0.133	1
5500-5720	23.41	12.32	37	0.217	1
5745-5825	27.21	12.32	37	0.522	1
Beamforming mode					
2412-2462	23.52	10.52	37	0.147	1
5180-5240	18.84	12.32	37	0.076	1
5260-5320	15.26	12.32	37	0.033	1
5500-5720	17.39	12.32	37	0.054	1
5745-5825	22.43	12.32	37	0.174	1

Note:

2.4GHz Band: Directional gain = 4.5dBi + 10log(4) = 10.52dBi

5GHz Band: Directional gain = 6.30dBi + 10log(4) = 12.32dBi

#### CONCLUSION:

Both of the WLAN 2.4G & WLAN 5G can transmit simultaneously, the formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + .....etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4G + WLAN 5.0G = 0.243 + 0.522 = 0.765

Therefore, the maximum calculation of this situation is 0.765, which is less than the "1" limit.

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