

## RF Exposure Report

**Report No.:** SA160613C30

**FCC ID:** TVE-281BB022

**Test Model:** FAP-U421EV, FAP-U423EV

**Series Model:** FortiAP-U421EVxxxxxx, FAP-U421EVxxxxxx, FORTIAP-U421EVxxxxxx, FortiAP-U423EVxxxxxx, FAP-U423EVxxxxxx, FORTIAP-U423EVxxxxxx (where "x" can be used as "A-Z" or "0-9" or "-" or blank for software changes or marketing purposes only)

**Received Date:** Jun. 13, 2016

**Test Date:** Jun. 17 ~ Jul. 04, 2016

**Issued Date:** Jul. 05, 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
SA160613C30	Original release.	Jul. 05, 2016

## 1 Certificate of Conformity

**Product:** Secured Wireless Access Point

**Brand:** Fortinet Inc.

**Test Model:** FAP-U421EV, FAP-U423EV

**Series Model:** FortiAP-U421EVxxxxxx, FAP-U421EVxxxxxx, FORTIAP-U421EVxxxxxx, FortiAP-U423EVxxxxxx, FAP-U423EVxxxxxx, FORTIAP-U423EVxxxxxx (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.

**Test Date:** Jun. 17 ~ Jul. 04, 2016

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

KDB 447498 D01 (October 23, 2015)

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 :** Suntee Liu, **Date:** Jul. 05, 2016

Suntee Liu / Specialist

**Approved by :** Ken Liu, **Date:** Jul. 05, 2016

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

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

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 26cm 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> )
WLAN 2.4GHz (Internal antennal)					
WLAN 2412~2462	24.40	10	26	0.324	1
WLAN 5GHz (Internal antennal)					
WLAN 5180~5240	23.47	11.86	26	0.402	1
WLAN 5745~5825	23.12	11.86	26	0.371	1
BT					
BT EDR 2402~2480	8.09	2.91	26	0.001	1
BT LE 2402~2480	6.20	2.91	26	0.001	1

Note:

2412~2462MHz: Directional gain =  $3.98\text{dBi} + 10\log(4) = 10\text{dBi}$

5180~5240MHz: Directional gain =  $5.84\text{dBi} + 10\log(4) = 11.86\text{dBi}$

5745~5825MHz: Directional gain =  $5.84\text{dBi} + 10\log(4) = 11.86\text{dBi}$

Frequency Band	Max. Power (dBm)			Total Power (dBm)	Power Limit (dBm)
	WLAN 2.4GHz	BT EDR	BT LE		
2.4GHz	24.40	8.09	6.20	24.56	30

#### Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz + BT =  $0.324 + 0.402 + 0.001 = 0.727 < 1$

---END---