# RF Exposure Report

| | |
|---|---|
| **Report No.:** | SA161004C24 |
| **FCC ID:** | TVE-140701 |
| **Test Model:** | FAP-221E, FAP-223E |
| **Series Model:** | FortiAP 221Exxxxx, FAP-221Exxxxx, FORTIAP-221Exxxxxx, FortiAP 223Exxxxxx, FAP-223Exxxxxx, FORTIAP-223Exxxxx (where “x” can be used as “A-Z”, or “0-9”, or “-“, or blank for marketing purposes only) |
| **Received Date:** | Oct. 04, 2016 |
| **Test Date:** | Oct. 08, 2016 ~ Jan. 19, 2017 |
| **Issued Date:** | Feb. 07, 2017 |
| **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 |
|---|---|---|
| SA161004C24 | Original release | Feb. 07, 2017 |

## 1 Certificate of Conformity

| | |
|---|---|
| **Product:** | Secured Wireless Access Point |
| **Brand:** | Fortinet Inc. |
| **Test Model:** | FAP-221E, FAP-223E |
| **Series Model:** | FortiAP 221Exxxxx, FAP-221Exxxxx, FORTIAP-221Exxxxxx, FortiAP 223Exxxxxx, FAP-223Exxxxxx, FORTIAP-223Exxxxx (where “x” can be used as “A-Z”, or “0-9”, or “-“, or blank for marketing purposes only) |
| **Sample Status:** | Engineering sample |
| **Applicant:** | Fortinet Inc. |
| **Test Date:** | Oct. 08, 2016 ~ Jan. 19, 2017 |
| **Standards:** | FCC Part 2 (Section 2.1091)<br>KDB 447498 D01 General RF Exposure Guidance v06<br>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 :** Celine Chou , **Date:** Feb. 07, 2017

Celine Chou / Specialist

**Approved by :** Ken Liu , **Date:** Feb. 07, 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

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

where

Pd = power density in $mW/cm^2$

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**.

## 3 Calculation Result of Maximum Conducted Power

| Frequency Band (MHz) | Max Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density ($mW/cm^2$) | Limit ($mW/cm^2$) |
|---|---|---|---|---|---|
| CDD Mode | | | | | |
| 2412-2462 | 24.82 | 7.59 | 20 | 0.347 | 1 |
| 5180-5240 | 17.18 | 8.61 | 20 | 0.075 | 1 |
| 5745-5825 | 25.79 | 8.61 | 20 | 0.548 | 1 |
| Beamforming Mode | | | | | |
| 2412-2462 | 21.46 | 7.59 | 20 | 0.160 | 1 |
| 5180-5240 | 14.17 | 8.61 | 20 | 0.038 | 1 |
| 5745-5825 | 22.78 | 8.61 | 20 | 0.274 | 1 |

Note:
2.4GHz: Directional gain = 4.58dBi + 10log(2) = 7.59dBi
5GHz: Directional gain = 5.60dBi + 10log(2) = 8.61dBi

**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

2.4G + 5G = 0.347 + 0.548 = 0.895

Therefore, the maximum calculation of this situation is 0.895, which is less than the “1” limit.

**---END---**