

## RF Exposure Report

**Report No.:** SA190624C08

**FCC ID:** TVE-37176T0464

**Test Model:** FAP-231E

**Series Model:** FortiAP 231Exxxxxx, FAP-231E xxxxxx, FORTIAP-231E xxxxxx (where "x" can be used as "A-Z", or "-0-9", or "-", or blank for software changes or marketing purposes only)

**Received Date:** Jun. 24, 2019

**Test Date:** Jul. 02 ~ Aug. 03, 2019

**Issued Date:** Aug. 08, 2019

**Applicant:** Fortinet Inc.

**Address:** 899 Kifer Road Sunnyvale, CA 94086 USA

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

**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:**



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### Release Control Record

Issue No.	Description	Date Issued
SA190624C08	Original release.	Aug. 08, 2019

## 1 Certificate of Conformity

**Product:** Wireless Access Point

**Brand:** Fortinet

**Test Model:** FAP-231E

**Series Model:** FortiAP 231Exxxxxx, FAP-231E xxxxxx, FORTIAP-231E xxxxxx (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:** Jul. 02 ~ Aug. 03, 2019

**Standards:** FCC Part 2 (Section 2.1091)  
KDB 447498 D01 General RF Exposure Guidance v06  
IEEE C95.3 -2002

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 RF characteristics under the conditions specified in this report.

**Prepared by :** , **Date:** Aug. 08, 2019  
Polly Chien / Specialist

**Approved by :** , **Date:** Aug. 08, 2019  
Bruce Chen / Senior Project Engineer

## 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 26cm away from the body of the user. So, this device is classified as Mobile Device.

### 3 Calculation Result of Maximum Conducted Power

Radio	Frequency Band (MHz)	Mode	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
1	WLAN 2412~2462	CDD	24.61	7.71	26	0.201	1
		Beamforming	21.60	7.71	26	0.100	1
3	WLAN 2412~2462	CDD	24.15	8.61	26	0.222	1
		Beamforming	21.07	8.61	26	0.109	1
1	WLAN 5745~5825	CDD	27.02	8.51	26	0.421	1
		Beamforming	24.01	8.51	26	0.210	1
2	WLAN 5180~5240	CDD	26.14	8.51	26	0.343	1
		Beamforming	23.13	8.51	26	0.172	1
2	WLAN 5745~5825	CDD	26.58	8.51	26	0.380	1
		Beamforming	23.57	8.51	26	0.190	1
-	BT LE 4.0 2402~2480	-	2.29	5.10	26	0.001	1
-	BT LE 5.0 2402~2480	-	5.92	5.10	26	0.001	1

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Radio 1: 2412~2462MHz Max. Directional Gain = 4.70dBi + 10log(2) = 7.71dBi

Radio 3: 2412~2462MHz Max. Directional Gain = 5.60dBi + 10log(2) = 8.61dBi

Radio 1: 5745~5825MHz Max. Directional Gain = 5.50dBi + 10log(2) = 8.51dBi

Radio 2: 5180~5240MHz Max. Directional Gain = 5.50dBi + 10log(2) = 8.51dBi

Radio 2: 5745~5825MHz Max. Directional Gain = 5.50dBi + 10log(2) = 8.51dBi

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

- Radio 1 (2.4GHz) + Radio 2 (5GHz) + BLE  
= 0.201 / 1 + 0.380 / 1 + 0.001 / 1 = 0.582 < 1
- Radio 1 (5GHz Band 4) + Radio 2 (5GHz Band 1) + Radio 3 (2.4GHz) + BLE  
= 0.421 / 1 + 0.343 / 1 + 0.222 / 1 + 0.001 / 1 = 0.987 < 1
- Radio 1 (5GHz Band 4) + Radio 2 (5GHz Band 1) + BLE  
= 0.421 / 1 + 0.343 / 1 + 0.001 / 1 = 0.765 < 1

---END---