RF Exposure Report

Report No.:	MFBDYS-WTW-P21091059
FCC ID:	TVE-4617T06785
Test Model:	FAP-433F
Series Model:	FortiAP 433Fxxxxxx, FAP-433Fxxxxxx, FORTIAP-433Fxxxxxx (where “x” can be used as “A-Z”, or “0-9”, or “-”, or blank for software changes or marketing purposes only)
Received Date:	Dec. 16, 2021
Test Date:	Jul. 02, 2022
Issued Date:	Sep. 13, 2022
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
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

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Table of Contents

Release Control Record

Issue No.	Description	Date Issued
MFBDYS-WTW-P21091059	Original Release	Sep. 13, 2022

1 Certificate of Conformity

Product:	Secured Wireless Access Point
Brand:	Fortinet
Test Model:	FAP-433F
Series Model:	FortiAP 433Fxxxxxx, FAP-433Fxxxxxx, FORTIAP-433Fxxxxxx (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, 2022
FCC Rule Part:	FCC Part 2 (Section 2.1091)
Standards:	KDB 447498 D01 General RF Exposure Guidance v06

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 , **Date:** Sep. 13, 2022

Pettie Chen / Senior Specialist

Approved by : Jeremy Lin , **Date:** Sep. 13, 2022

Jeremy Lin / 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^2)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	…	…	f/1500	30
1500-100,000	…	…	1.0	30

f = Frequency in MHz; *Plane-wave equivalent power density

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 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 Average Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN					
traffic radio: CDD Mode					
2412-2462	29.04	6	26	0.376	1
5180-5240	27.27	6	26	0.250	1
5260-5320	22.55	6	26	0.084	1
5500-5720	23.80	6	26	0.112	1
5745-5825	29.35	6	26	0.403	1
traffic radio: Beamforming Mode					
2412-2462	23.90	12.02	26	0.460	1
5180-5240	23.91	12.02	26	0.461	1
5260-5320	17.63	12.02	26	0.109	1
5500-5720	17.92	12.02	26	0.116	1
5745-5825	23.92	12.02	26	0.462	1
Scanning radio: CDD Mode					
2412-2462	12.21	4	26	0.005	1
5180-5240	12.23	6.01	26	0.008	1
5260-5320	12.12	6.01	26	0.008	1
5500-5720	12.14	6.18	26	0.008	1
5745-5825	12.08	6.20	26	0.008	1
BT LE					
2402-2480	3.89	4.71	26	0.001	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
3. Directional gain:
   2G traffic radio
   2.4GHz Band: Directional Gain = 6dBi + 10log(4) = 12.02dBi
   5G traffic radio
   5180-5240MHz: Directional Gain = 6dBi + 10log(4) = 12.02dBi
   5260-5320MHz: Directional Gain = 6dBi + 10log(4) = 12.02dBi
   5500-5720MHz: Directional Gain = 6dBi + 10log(4) = 12.02dBi
   5745-5825MHz: Directional Gain = 6dBi + 10log(4) = 12.02dBi

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

2G traffic radio + 5GHz traffic radio + Scanning radio (5G) + BT
= 0.460 / 1 + 0.462 / 1 + 0.008 / 1 + 0.001 / 1 = 0.931 < 1

Therefore the maximum calculations of above situations are less than the “1” limit.

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