

RF Exposure Report

Report No.: SA150427C31

FCC ID: TVE-120512

Test Model: PCE4302AN

Series Model: PCE4302AN-xxxxxx (where "x" can be used as "A-Z", or "-0-9", or "-", or blank for software changes or marketing purposes only)

Received Date: Apr. 27, 2015

Test Date: May 10 ~ May 29, 2015

Issued Date: Jun. 12, 2015

Applicant: Fortinet Inc.

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

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Release Control Record

Issue No.	Description	Date Issued
SA150427C31	Original release	Jun. 12, 2015

1 Certificate of Conformity

Product: 802.11 ac 2x2 Module

Brand: Fortinet Inc.

Test Model: PCE4302AN

Series Model: PCE4302AN-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: May 10 ~ May 29, 2015

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D03

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:** Jun. 12, 2015
Celine Chou / Specialist

Approved by : Ken Liu , **Date:** Jun. 12, 2015
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

$$Pd = (P_{out} * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm²

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)
2412-2462	29.20	5.52	20	0.590	1
5180-5240	23.92	7.64	20	0.285	1
5745-5825	17.01	7.64	20	0.058	1

Note:

2.4GHz: Directional gain = $10 \log[(10^{G^1/20} + 10^{G^2/20} + \dots + 10^{G^N/20})^2/2] = 5.52 \text{ dBi}$

5GHz: Directional gain = $10 \log[(10^{G^1/20} + 10^{G^2/20} + \dots + 10^{G^N/20})^2/2] = 7.64 \text{ dBi}$

Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.590 + 0.285 = 0.875

Therefore all the maximum calculations of above situations are less than the "1" limit.

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