



# RF EXPOSURE REPORT

**REPORT NO.:** SA111005C22A

**MODEL NO.:** EMP7618, EMP7618-FT

**FCC ID:** TVE-0120201

**RECEIVED:** Mar. 07, 2013

**TESTED:** Mar. 11 ~ May 09, 2013

**ISSUED:** May 13, 2013

**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.	REASON FOR CHANGE	DATE ISSUED
SA111005C22A	Original release.	May 13, 2013

## 1. CERTIFICATION

**PRODUCT:** 802.11 abgn RF Module Card  
**MODEL:** EMP7618, EMP7618-FT  
**BRAND:** Fortinet  
**APPLICANT:** Fortinet, Inc.  
**TESTED:** Mar. 11 ~ May 09, 2013  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**STANDARDS:** **FCC Part 2 (Section 2.1091)**  
**FCC OET Bulletin 65, Supplement C (01-01)**  
**IEEE C95.1**

The above equipment (Model: EMP7618) 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 :**  , **DATE :** May 13, 2013  
Polly Chien / Specialist

**APPROVED BY :**  , **DATE :** May 13, 2013  
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)
<b>LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE</b>				
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 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

### 2.4G + 5G combo Module

FREQUENCY BAND (MHz)	MODULATION MODE	MAX POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412-2462	802.11b	16.2	6.01	20	0.033	1
	802.11g	26.3	6.01	20	0.339	1
	802.11n (20MHz)	25.9	6.01	20	0.309	1
	802.11n (40MHz)	21.3	6.01	20	0.107	1
5180-5240	802.11a	13.4	9.01	20	0.035	1
	802.11n (20MHz)	15.0	9.01	20	0.050	1
	802.11n (40MHz)	16.7	9.01	20	0.074	1
5745-5825	802.11a	23.4	9.01	20	0.347	1
	802.11n (20MHz)	23.7	9.01	20	0.371	1
	802.11n (40MHz)	24.6	9.01	20	0.457	1

#### NOTE:

1. 2.4G: Directional gain = 3dBi + 10log(2) = 6.01dBi
2. 5G: Directional gain = 6dBi + 10log(2) = 9.01dBi
3. For max. power, please refer to the original report no.: RF111005C22 and RF111005C22-1.

#### CONCLUSION:

Both of the WLAN 2.4G & 5.0G can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$$\text{WLAN 2.4G} + \text{WLAN 5.0G} = 0.339 + 0.457 = 0.796$$

Therefore, the maximum calculation of this situation is 0.796, which is less than the "1" limit.