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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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TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA111005C22A	Original release.	May 13, 2013



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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 : Polly Chien , **DATE :** May 13, 2013
Polly Chien / Specialist

APPROVED BY : Ken Liu , **DATE :** May 13, 2013
Ken Liu / Senior Manager



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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

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

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**.

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 ²)	LIMIT (mW/cm ²)
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 = $3\text{dBi} + 10\log(2) = 6.01\text{dBi}$
2. 5G: Directional gain = $6\text{dBi} + 10\log(2) = 9.01\text{dBi}$
3. For max. power, please refer to the original report no.: RF111005C22 and RF111005C22-1.

CONCULSION:

Both of the WLAN 2.4G & 5.0G 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

WLAN 2.4G + 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.