



SPORTON International Inc.

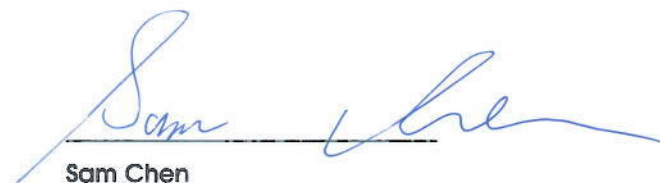
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

Project No: CB10504187

Maximum Permissible Exposure Report

Applicant's company	PEGATRON CORPORATION
Applicant Address	5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY 11259 Taiwan
FCC ID	VUIDPC3848V
Manufacturer's company	MAINTEK COMPUTER
Manufacturer Address	233 Jinfeng Rd., Suzhou, Jiangsu, PRC

Product Name	Wireless Residential Gateway
Brand Name	technicolor
Model Name	DPC3848V / DPC3848VM
Ref. Standard(s)	47 CFR FCC Part 2 Subpart J, section 2.1091
Received Date	Mar. 06, 2014
Final Test Date	Jul. 19, 2016
Submission Type	Class II Change



Sam Chen

SPORTON INTERNATIONAL INC.



Table of Contents

1. GENERAL DESCRIPTION.....	1
1.1. EUT General Information	1
1.2. Table for Multiple List.....	1
1.3. Table for Class II Change	1
1.4. Testing Location.....	2
2. MAXIMUM PERMISSIBLE EXPOSURE.....	3
2.1. Limit of Maximum Permissible Exposure	3
2.2. MPE Calculation Method	3
2.3. Calculated Result and Limit.....	4

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA462770-01	Rev. 01	Initial issue of report	Aug. 15, 2016

1. GENERAL DESCRIPTION

1.1. EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
5GHz WLAN	5150-5250 5725-5850	5180-5240 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)

1.2. Table for Multiple List

The EUT has two model names which are identical to each other in all aspects except for the following table:

Model Name	MoCA Schematic
DPC3848V	X
DPC3848VM	V

From the table above, model name: DPC3848V was selected as representative model for the test and its data was recorded in this report.

1.3. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA462770

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Changing the applicant address to "5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY 11259 Taiwan" from "5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY 112 Taiwan". 2. Changing the brand name to "technicolor" from "Cisco".	No influence on the test results.
1. Changing 2.4GHz PA to P/N: E2605L-RN from P/N: SE2605L due to changing of manufacturing process.	No influence on the MPE result.
2. Updating 5GHz Band 1 and Band 4 to "New Rules" from "Old Rules".	Re-evaluated MPE.

Note: The MPE result of 2.4GHz is based on the original report.

1.4. Testing Location

Testing Location		
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

2. MAXIMUM PERMISSIBLE EXPOSURE

2.1. Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2. MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

2.3. Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

For 2.4GHz Band:

Antenna Type : PCB Antenna

Conducted Power for IEEE 802.11b: 28.45 dBm

Distance (cm)	Test Freq. (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	The maximum combined Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
				(dBm)	(mW)			
20	2437	2.95	1.9724	28.4456	699.1408	0.2744	1	Complies

For 5GHz Band:

Antenna Type : PCB Antenna

Conducted Power for IEEE 802.11ac MCS0/Nss1 (VHT20): 29.67 dBm

Distance (cm)	Test Freq. (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	The maximum combined Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
				(dBm)	(mW)			
20	5785	3.73	2.3605	29.6733	927.5256	0.4357	1	Complies

Conclusion:

Both of the WLAN 2.4GHz Band and WLAN 5GHz Band 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

Therefore, the worst-case situation is $0.2744 / 1 + 0.4357 / 1 = 0.7101$, which is less than "1". This confirmed that the device complies.