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Project No: CB10412121

Maximum Permissible Exposure Report

Applicant's company	PEGATRON CORPORATION
Applicant Address	5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY 112 Taiwan
FCC ID	VUIDPC3941
Manufacturer's company	MAINTEK COMPUTER
Manufacturer Address	233 Jinfeng Rd., Suzhou, Jiangsu, PRC

Product Name	Wireless Residential Voice Gateway
Brand Name	technicolor
Model Name	DPC3941T , DPC3941 , DPC3941XXXX (X can be 0-9, A-Z, a-z or blank)
Ref. Standard(s)	47 CFR FCC Part 2 Subpart J, section 2.1091
Received Date	Nov. 19, 2015
Final Test Date	Apr. 28, 2016
Submission Type	Class II Change

TAF
Testing Laboratory
1190

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SPORTON INTERNATIONAL INC.

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA3D1632-04	Rev. 01	Initial issue of report	May 12, 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 three model names, which are identical to each other in all aspects except for the following table:

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

Model Name	Information of Tuner Chip	Remark
DPC3941	1. Mxl267, Upstream channels (24 x 8) 2. Mxl267D, Upstream channels (24 x 8)	Original
DPC3941T	1. Mxl267, Upstream channels (24 x 8) 2. Mxl267D, Upstream channels (24 x 8)	Original
DCP3941XXXX (X can be 0-9, A-Z, a-z or blank)	1. Mxl267, Upstream channels (24 x 8) 2. Mxl267D, Upstream channels (24 x 8)	New

Note:

1. The different model name of the tuner chip serves as marketing strategy
2. According to above, there is only model: DPC3941T were selected to test and record in the report as a result.

1.3. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR3D1632-02

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

Modifications	Performance Checking
1. Adding a new tuner chip Mxl267D which is identical to the original tuner chip Mxl267. 2. Removing 3 antennas: (1. Brand: Wanshih, Model Name: WPB266; 2. Brand: Wanshih, Model Name: WPB268; 3. Brand: Wanshih, Model Name: WPB267). 3. Changing 2.4GHz PA from P/N: SE2605L to P/N: SE2605L-RN due to changing of manufacturing process. 4. Changing the 2.4GHz PA from "SE2605L" to SE2605L-RN. 5. Changing the Brand name. 6. Adding a new model number DPC3941XXXX (X can be 0-9, A-Z, a-z or blank).	After evaluating, it is not necessary to re-test.
7. Changing the antenna location for tuner chip Mxl267. 8. Updating 5 GHz Band 1 and Band 4 to FCC "New Rules" from "Old Rules".	Maximum Permissible Exposure.

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/ cm²)	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/ cm²)	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 (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

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 5GHz Band:

Antenna Type : PCB Antenna

Conducted Power for IEEE 802.11ac MCS0/Nss1 (VHT20): 29.82dBm

Distance (cm)	Test Freq. (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	The maximum combined Average Output Power		Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
				(dBm)	(mW)			
20	5785	2.03	1.5959	29.8217	959.7819	0.304876	1	Complies

For 2.4GHz Band:

Antenna Type : PCB Antenna

Conducted Power for IEEE 802.11g: 26.68 dBm

Distance (cm)	Test Freq. (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	The maximum combined Average Output Power		Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
				(dBm)	(mW)			
20	2437	2.11	1.6255	26.6821	465.8151	0.150718	1	Complies

For DECT:

Antenna Type : PCB Antenna

Max Conducted Power for DECT : 19.09 dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
4.7	2.9512	19.09	81.0961	0.0476	1	Complies

Conclusion:

Both of the WLAN 2.4GHz Band, 5GHz Band and DECT can transmit simultaneously, the formula of calculatedthe MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is 0.150718 / 1 + 0.308406 / 1 + 0.047600 / 1=0.503194, which is less than “1”. This confirmed that the device complies.