



SPORTON International Inc.

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Project No: CB10503135

Maximum Permissible Exposure Report

Applicant's company	CyberTAN Technology, Inc.
Applicant Address	No. 99, Park Avenue III, Science-based Industrial Park, Hsinchu, 308 Taiwan
FCC ID	N89-WAP371
Manufacturer's company	CyberTAN Technology, Inc.
Manufacturer Address	No. 99, Park Avenue III, Science-based Industrial Park, Hsinchu, 308 Taiwan

Product Name	Wireless-AC/N Dual Radio Point with Single Point Setup
Brand Name	CISCO
Model Name	WAP371
Ref. Standard(s)	47 CFR FCC Part 2 Subpart J, section 2.1091
Received Date	Sep. 09, 2015
Final Test Date	Nov. 04, 2015
Submission Type	Class II Change

Sam Chen

SPORTON INTERNATIONAL INC.



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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA3O0832-06	Rev. 01	Initial issue of report	Mar. 24, 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 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5700 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)

1.2. Table for Class II Change

This product is an extension of original one reported under Sporton project number: 3O0832

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

Modifications	Performance Checking
1. Adding a new adapter (Model No.: MU24-Y120200-A1). 2. Adding the Bridge mode and Client without radar detection mode. 3. Changing the DFS Firmware Version to "3.3.6.4" from "1.0.0.4".	It does not affect the Maximum Permissible Exposure.
4. Updating test rule of 5GHz band 1~4 to "New Rules" from "Old Rules".	Maximum Permissible Exposure for 5GHz band 4.

Note: Maximum Permissible Exposure of 2.4GHz band is based on original test report.

1.3. 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
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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 5GHz Band:

Antenna Type: PIFA Antenna

Conducted Power for IEEE 802.11a: 26.10 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	5825	5.39	3.4594	26.1035	407.7080	0.280737	1	Complies

For 2.4GHz Band:

Antenna Type: PIFA Antenna

Conducted Power for IEEE 802.11g: 23.06 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	3.15	2.0654	23.0553	202.0843	0.083077	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 $0.083077 / 1 + 0.280737 / 1 = 0.363814$, which is less than "1". This confirmed that the device complies.