

FCC TEST REPORT

CATEGORY : Portable
PRODUCT NAME : Desktop Wireless 9000 Pro
FCC ID. : IBA-WCUT0D-MS
FILING TYPE : Certification
BRAND NAME : Creative
MODEL NAME : WCUT0D

APPLICANT : **Creative Technology Ltd.**
31 International Business Park, Creative Resource,
Singapore 609921

MANUFACTURER : **Paten Wireless Technology Co., Ltd.**
Da-Ning Industrial Zone, Humen, Dongguan, Guangdong,
China

ISSUED BY : **SPORTON INTERNATIONAL INC.**
6F, No. 106, Sec. 1, Hsin Tai Wu Rd., His Chih, Taipei Hsien,
Taiwan, R.O.C.

Statements:

The test result in this report refers exclusively to the presented test model / sample.

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Certificate or Test Report could not be used by the applicant to claim the product endorsement by CNLA and any agency of U.S. government.

The test equipments used to perform the test are calibrated and traceable to NML/ROC or NIST/USA.



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ILAC MRA

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HISTORY OF THIS TEST REPORT

Received Date: Dec. 24, 2004

Test Date: Feb. 01, 2005

Original Report Issue Date: Feb. 04, 2005

Report No.: FR4D2418

☒ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

CERTIFICATE OF COMPLIANCE

with

47 CFR FCC Part 15 Subpart C

PRODUCT NAME : Desktop Wireless 9000 Pro

BRAND NAME : Creative

MODEL NAME : WCUT0D

APPLICANT : **Creative Technology Ltd.**

31 International Business Park, Creative Resource,
Singapore 609921

MANUFACTURER : **Paten Wireless Technology Co., Ltd.**

Da-Ning Industrial Zone, Humen, Dongguan, Guangdong,
China

I **HEREBY** CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4-2003 and all test are performed according to 47 CFR FCC Part 15 Subpart C. Testing was carried out on Feb. 01, 2005 at SPORTON International Inc. LAB.



Dr. Alan Lane

Vice General Manager
Sporton International Inc.

1. General Description of Equipment under Test

1.1. Applicant

Creative Technology Ltd.

31 International Business Park, Creative Resource, Singapore 609921

1.2. Manufacturer

Paten Wireless Technology Co., Ltd.

Da-Ning Industrial Zone, Humen, Dongguan, Guangdong, China

1.3. Basic Description of Equipment under Test

This product is a 2.4GHz wireless mouse. The radio technical data has been listed on section " Features of Equipment under Test ". The interface of the receiver is USB.

1.4. Features of Equipment under Test

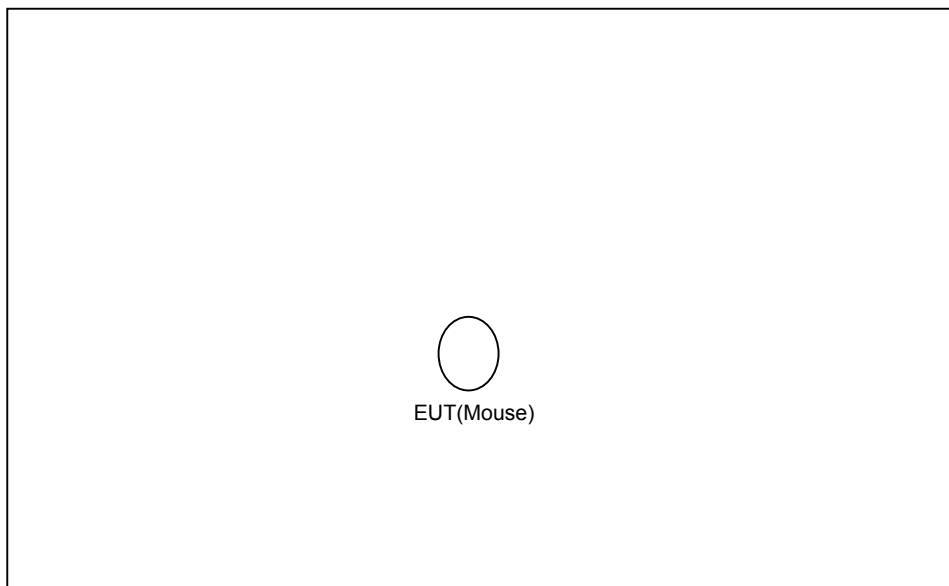
Items	Description
Type of Modulation	FSK
Number of Channels	8
Frequency Band	2403MHz ~ 2430MHz
Carrier Frequency	See section 1.5 for details
Channel Bandwidth	4 MHz
Antenna Type	Printed Antenna
Testing Duty Cycle	100.00%
Test Power Source	3 VDC (battery)
Temperature Range (Operating)	-10 ~ 55 °C

1.5. Table for Carrier Frequencies

Channel	Frequency	Channel	Frequency
01	2403 MHz	05	2419 MHz
02	2407 MHz	06	2422 MHz
03	2411 MHz	07	2426 MHz
04	2415 MHz	08	2430 MHz

2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Test System



2.2. The Test Mode Description

1. Spurious emission below 1GHz is independent of channel selection, so only channel 08 was tested.
2. AC conduction emission is independent of channel selection, so only channel 08 was tested.

2.3. Description of Test Supporting Units

The EUT was tested alone.

3. General Information of Test

3.1. Test Facility

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiag, Tao
Yuan Hsien, Taiwan, R.O.C.
: TEL 886-3-327-3456
: FAX 886-3-318-0055
Test Site No : 03CH03-HY / CO04-HY

3.2. Standards for Methods of Measurement

Here is the list of the standards followed in this test report.

ANSI C63.4-2003

47 CFR FCC Part 15 Subpart C

3.3. DoC Statement

This EUT is also classified as a device of computer peripheral Class B which DoC has to be followed. It has been verified according to the rule of 47 CFR part 15 Subpart B, and found that all the requirements has been fulfilled.

3.4. Frequency Range Investigated

Radiated emission test: from 30 MHz to 10th carrier harmonic.

3.5. Test Distance

The test distance of radiated emission (30MHz~1GHz) test from antenna to EUT is 3 M.

The test distance of radiated emission (1GHz~10th carrier harmonic) test from antenna to EUT is 3 M.

4. List of Measurements

4.1. Summary of the Test Results

Applied Standard: 47 CFR FCC Part 15 Subpart C			
Paragraph	FCC Rule	Description of Test	Result
5.1	15.249(a)	Maximum Field Strength of Fundamental	Pass
5.2	15.249(d)	Spurious Radiated Emission	Pass
5.3	15.203	Antenna Requirement	Pass

5. Test Result

5.1. Test of Maximum Field Strength of Fundamental

5.1.1. Applicable Standard

Section 15.249(a): The field strength of emissions within these bands specified at a distance of 3 meters (measurement instrumentation employing an average detector) shall comply with the following table. The peak field strength of any emission shall not exceed the maximum permitted average limits specified in the table by more than 20 dB under any condition of modulation

Fundamental Frequency (MHz)	Field Strength of Fundamental (millivolts/meter)	Unwanted Emission (microvolts/meter)
2400-2483.5	50	500
5725-5875	50	500

5.1.2. Measuring Instruments

Item 6~17 of the table is on section 6.

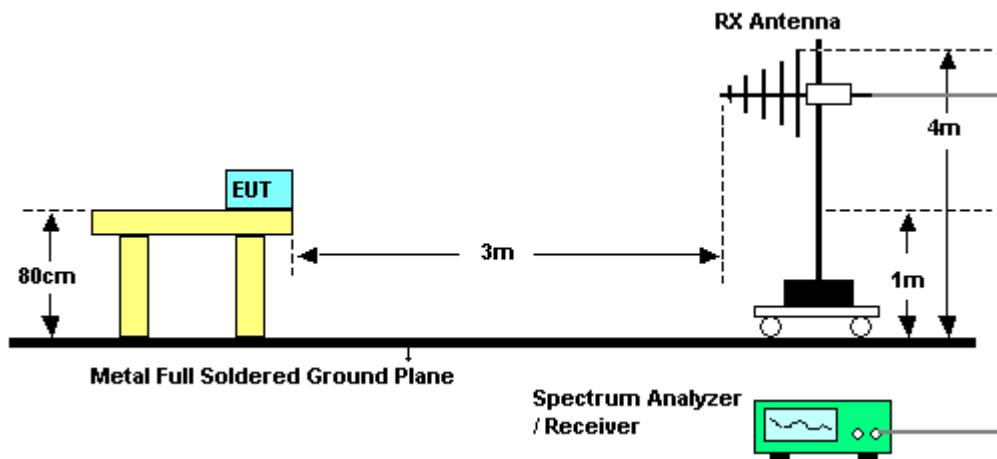
5.1.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP40 (Radiated Measurement)
 - Attenuation : Auto
 - Center Frequency : Carrier Frequency
 - Span Frequency : Suitable for observe
 - RB : 1 MHz for PK value / 1 MHz for AV value
 - VB : 1 MHz for PK value / 10 Hz for AV value
 - Detector : Peak
 - Trace : Max Hold
 - Sweep Time : Auto

5.1.4. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
4. For carrier field strength emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. For carrier field strength emission, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.

5.1.5. Test Setup Layout



5.1.6. Test Criteria

All test results complied with in Section 15.249(a) requirements. Measurement Uncertainty is 2.26dB.

5.1.7. Test Result

- Temperature: 21.9°C
- Relative Humidity: 40%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sun Chen

Channel	Frequency	Level	Over Limit	Limit Line	Read Level	Detector
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	
01	2403 MHz	70.34	-23.66	94.00	40.11	Average
01	2403 MHz	71.23	-42.77	114.00	41.00	Peak
05	2419 MHz	69.39	-24.61	94.00	39.12	Average
05	2419 MHz	70.48	-43.52	114.00	40.21	Peak
08	2430 MHz	69.33	-24.67	94.00	39.03	Average
08	2430 MHz	70.24	-43.76	114.00	39.94	Peak

Note:

Correct Factor = Antenna Factor + Cable Loss - Preamp Factor.

Read Level = Level of Receiver or Spectrum.

Level = Read Level + Correct Factor.

5.2. Test of Spurious Radiated Emission

5.2.1. Applicable Standard

Section 15.249(d): Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

5.2.2. Measuring Instruments

Please reference item 1~17 in chapter 6 for the instruments used for testing.

5.2.3. Description of Major Test Instruments Setting

- Amplifier (HP 8447D)
 - RF Gain 25 dB
 - Signal Input 0.1 MHz -1.3 GHz

- Spectrum Analyzer (R&S FSP40)
 - Attenuation 10 dB
 - Start Frequency 1 GHz
 - Stop Frequency 18 GHz
 - Resolution Bandwidth 1 MHz
 - Video Bandwidth 1 MHz
 - Signal Input 9 KHz to 40 GHz

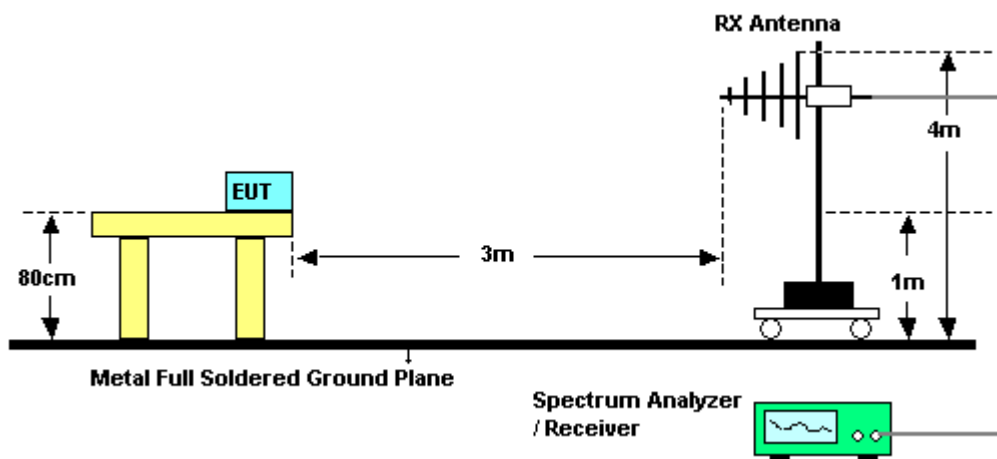
- Amplifier (MITEQ AFS44)
 - RF Gain 40 dB
 - Signal Input 100 MHz -26.5 GHz

5.2.4. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turntable 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
4. Power on the EUT and all the supporting units.
5. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
6. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
7. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
8. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

9. For emission above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
10. If the emission level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz and average method for above the 1GHz. the reported.
11. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB higher than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

5.2.5. Test Setup Layout



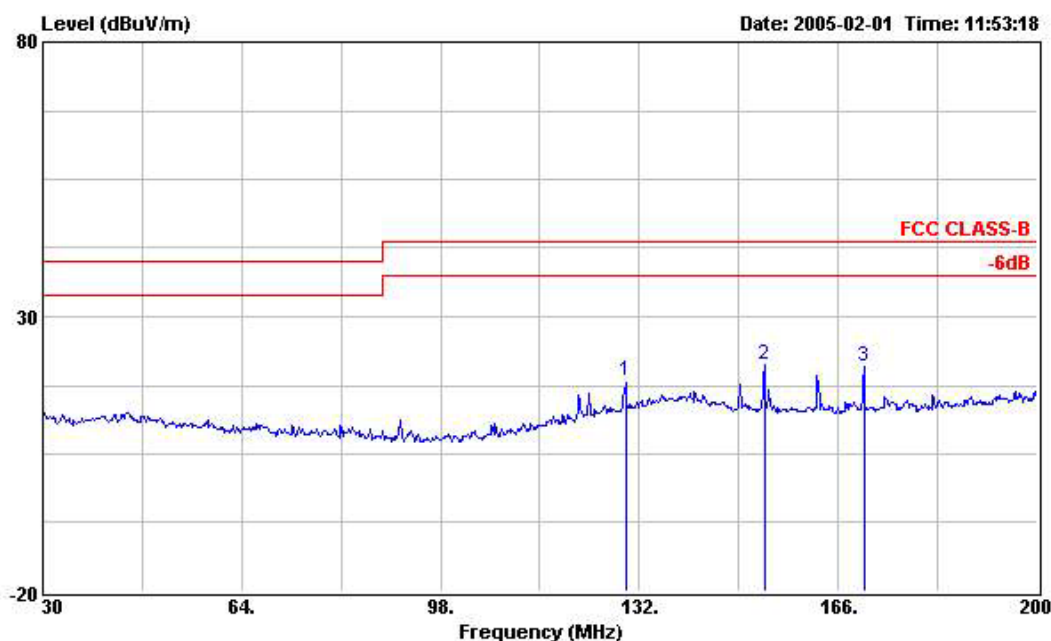
5.2.6. Test Criteria

All test results complied with in Section 15.249(d) requirements. Measurement Uncertainty is 2.26dB.

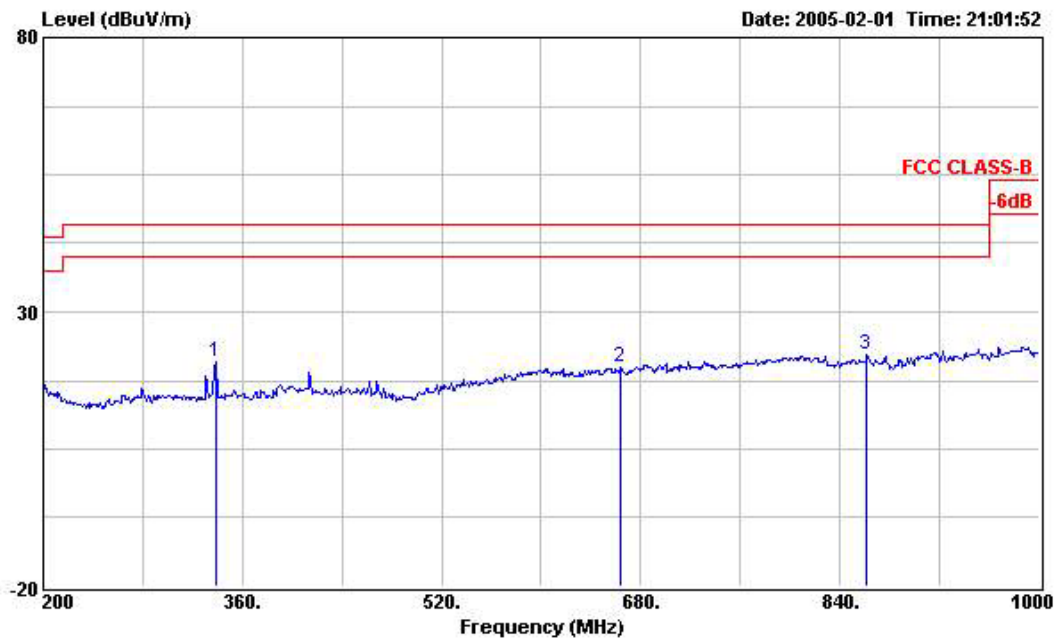
5.2.7. Test Results for CH 08 / 2430 MHz (for emission below 1GHz)

- Temperature: 21.9°C
- Relative Humidity: 40%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sun Chen

(A) Polarization: Horizontal

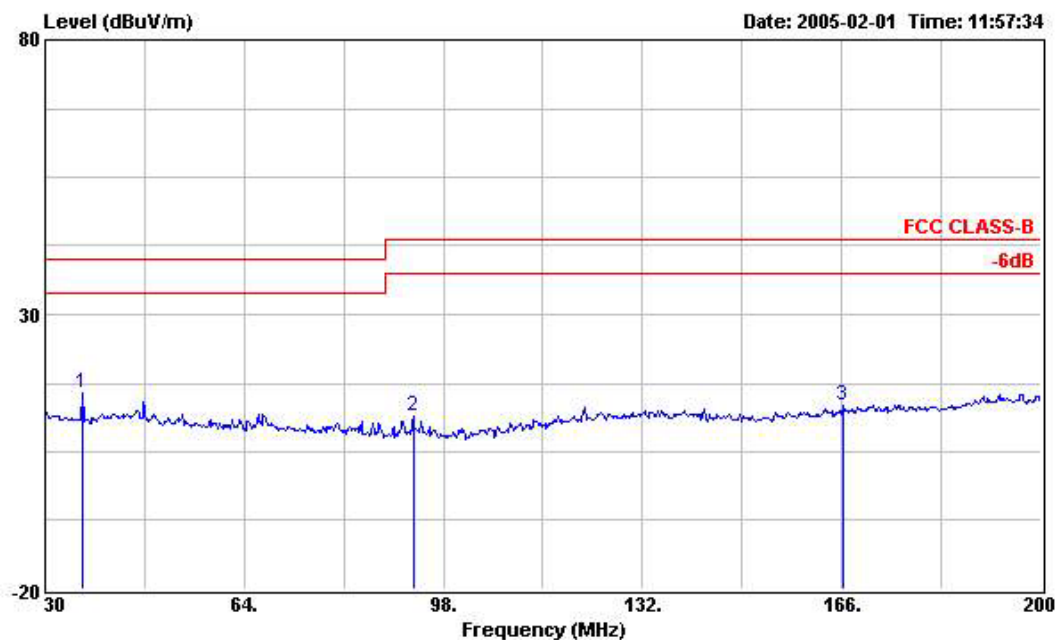


	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	129.620	18.15	-25.35	43.50	32.97	12.32	0.00	27.14	Peak	---	---
2	153.420	21.33	-22.17	43.50	36.27	12.15	0.00	27.09	Peak	---	---
3	170.420	20.76	-22.74	43.50	34.10	13.72	0.00	27.06	Peak	---	---

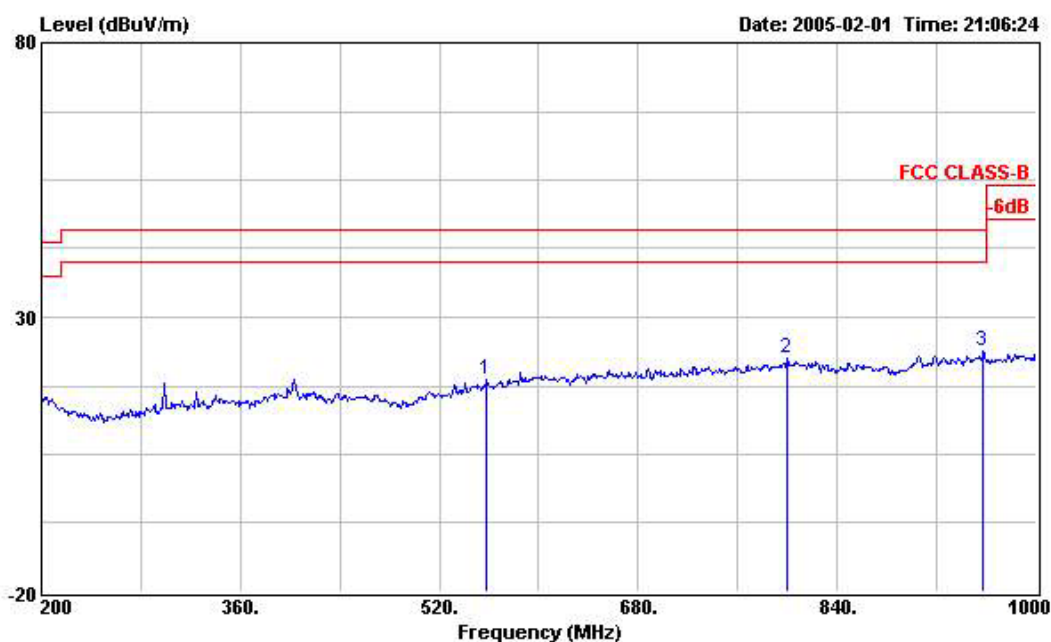


	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	339.200	20.76	-25.24	46.00	32.75	14.98	0.00	26.97	Peak	---	---
2	663.200	19.87	-26.13	46.00	27.49	20.59	0.00	28.21	Peak	---	---
3	861.600	22.26	-23.74	46.00	27.87	21.78	0.00	27.39	Peak	---	---

(B) Polarization: Vertical



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	36.460	15.59	-24.41	40.00	30.95	12.11	0.00	27.47	Peak	---	---
2	92.900	11.37	-32.13	43.50	29.97	8.65	0.00	27.25	Peak	---	---
3	166.340	13.41	-30.09	43.50	27.19	13.29	0.00	27.07	Peak	---	---



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	557.600	18.58	-27.42	46.00	28.31	18.54	0.00	28.27	Peak	---	---
2	800.000	22.46	-23.54	46.00	28.26	21.90	0.00	27.70	Peak	---	---
3	957.600	23.78	-22.22	46.00	28.14	22.96	0.00	27.32	Peak	---	---

Note:

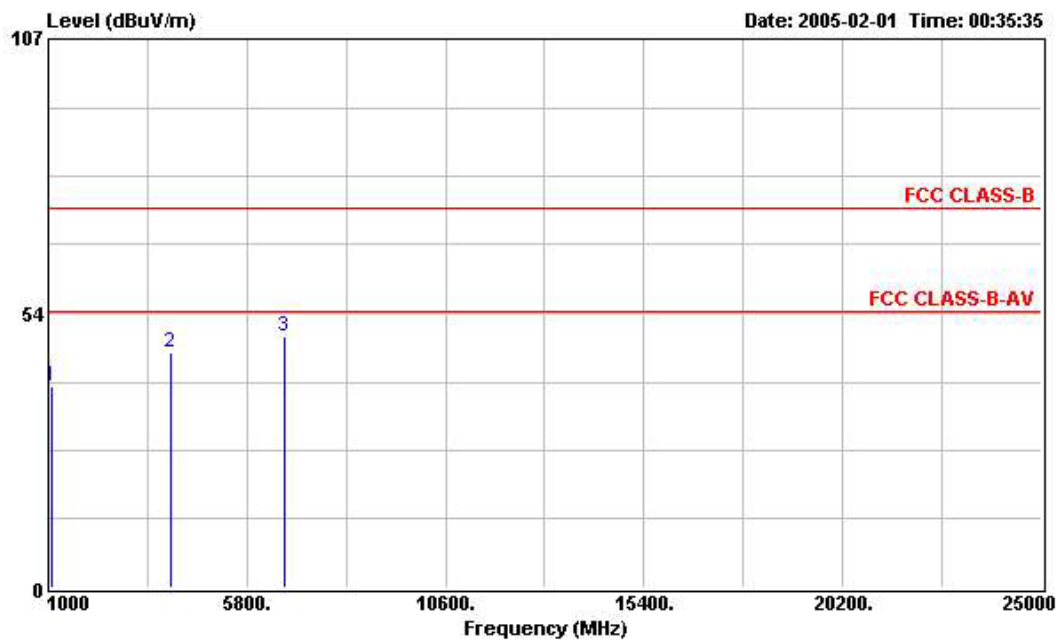
Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.2.8. Test Results for CH 01 / 2403 MHz (for emission above 1GHz)

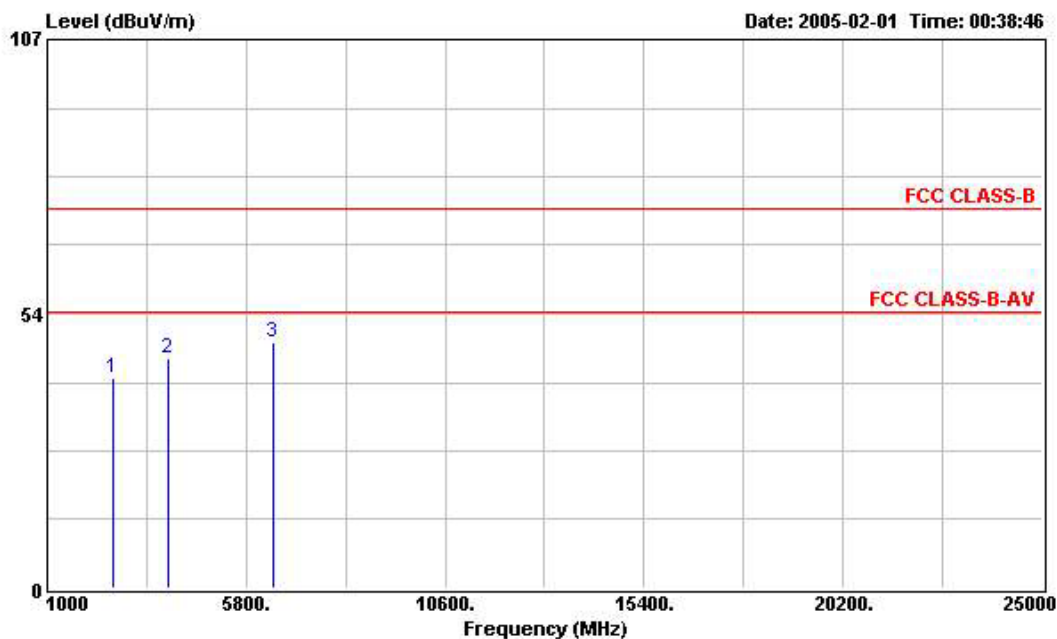
- Temperature: 21.9°C
- Relative Humidity: 40%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sun Chen

(A) Polarization: Horizontal



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1080.000	39.39	-34.61	74.00	53.04	24.32	1.26	39.23	Peak	---	---
2	3968.000	45.82	-28.18	74.00	50.29	32.46	2.49	39.42	Peak	---	---
3	6728.000	49.14	-24.86	74.00	50.64	34.66	3.47	39.63	Peak	---	---

(B) Polarization: Vertical



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2604.000	40.97	-33.03	74.00	49.62	28.87	2.02	39.54	Peak	---	---
2	3908.000	44.71	-29.29	74.00	49.31	32.28	2.46	39.34	Peak	---	---
3	6448.000	48.02	-25.98	74.00	50.07	34.27	3.39	39.71	Peak	---	---

Note:

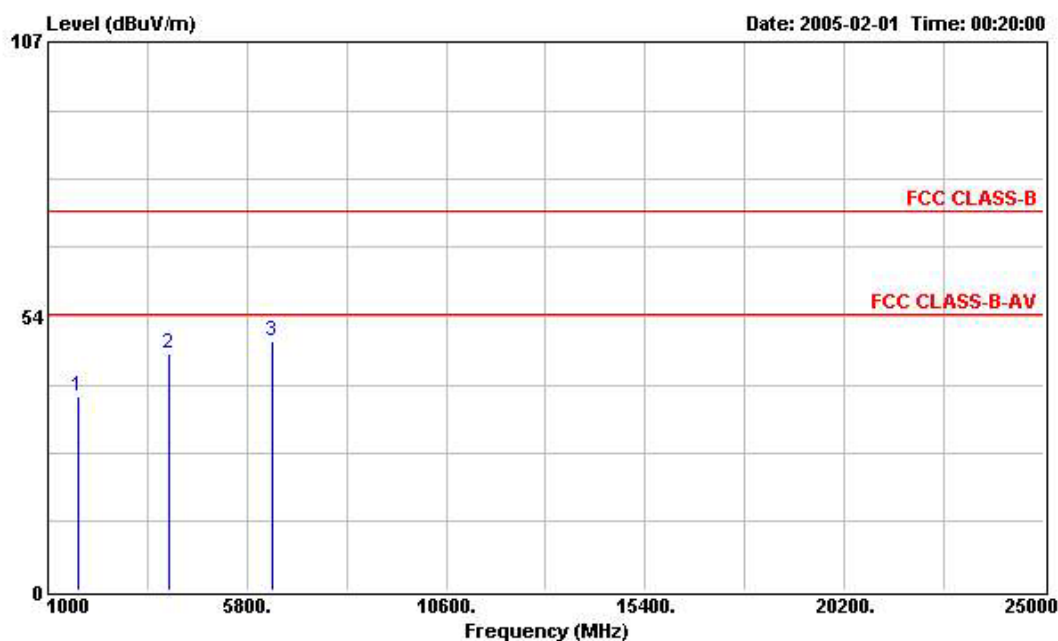
Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.2.9. Test Results for CH 05 / 2419 MHz (for emission above 1GHz)

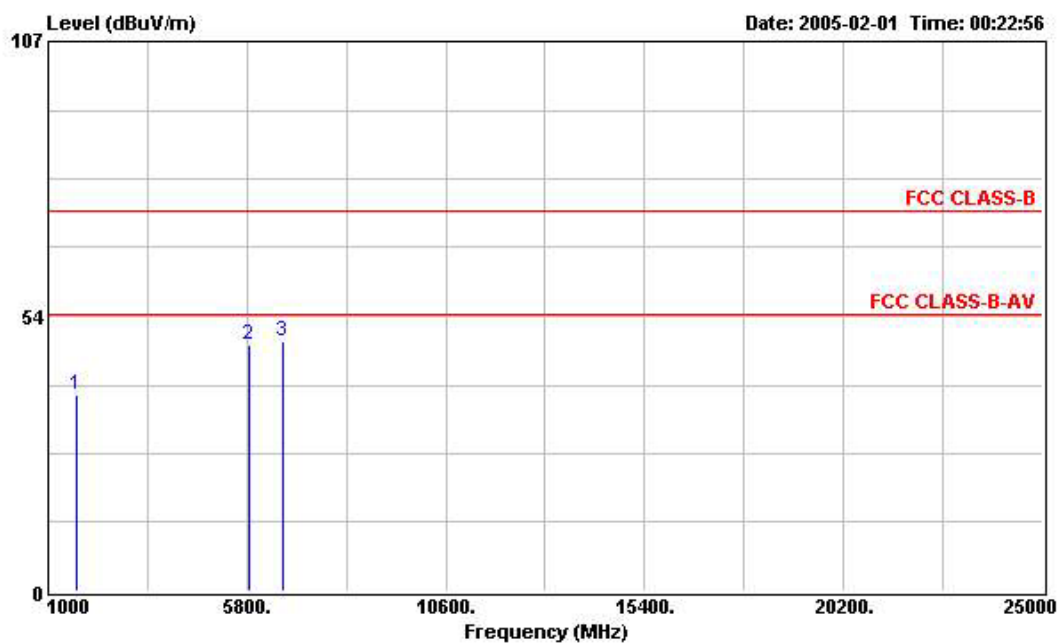
- Temperature: 21.9°C
- Relative Humidity: 40%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sun Chen

(A) Polarization: Horizontal



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1723.000	37.88	-36.12	74.00	49.58	26.10	1.58	39.38	Peak	---	---
2	3932.000	46.12	-27.88	74.00	50.69	32.32	2.47	39.36	Peak	---	---
3	6416.000	48.71	-25.29	74.00	50.78	34.27	3.38	39.72	Peak	---	---

(B) Polarization: Vertical



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1688.000	38.18	-35.82	74.00	49.96	26.02	1.56	39.36	Peak	---	---
2	5860.000	47.95	-26.05	74.00	50.57	34.07	3.21	39.90	Peak	---	---
3	6672.000	48.78	-25.22	74.00	50.43	34.55	3.45	39.65	Peak	---	---

Note:

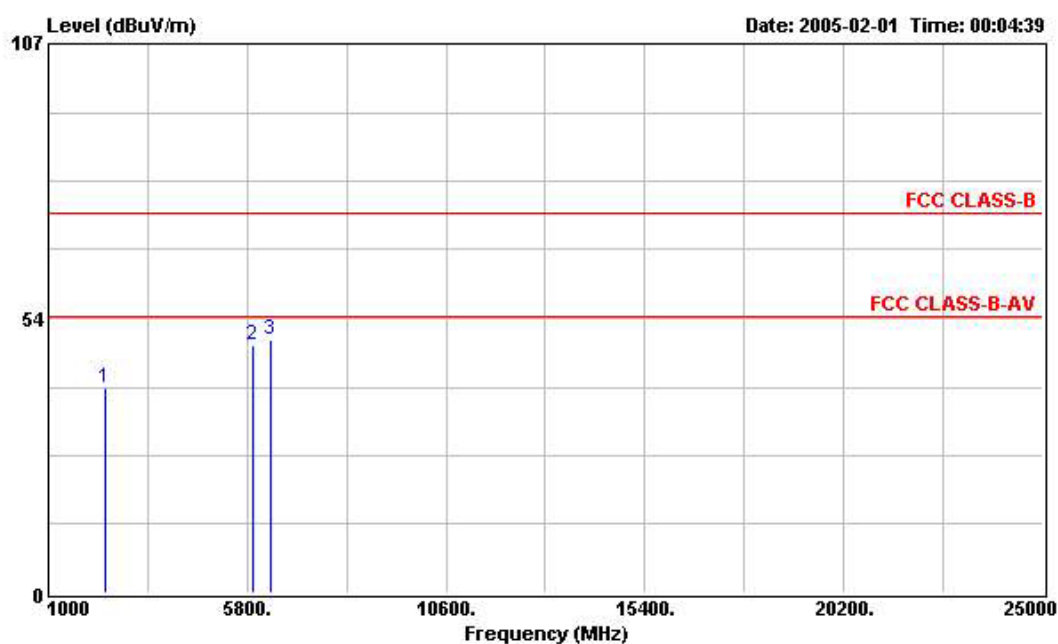
Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.2.10. Test Results for CH 08 / 2430 MHz (for emission above 1GHz)

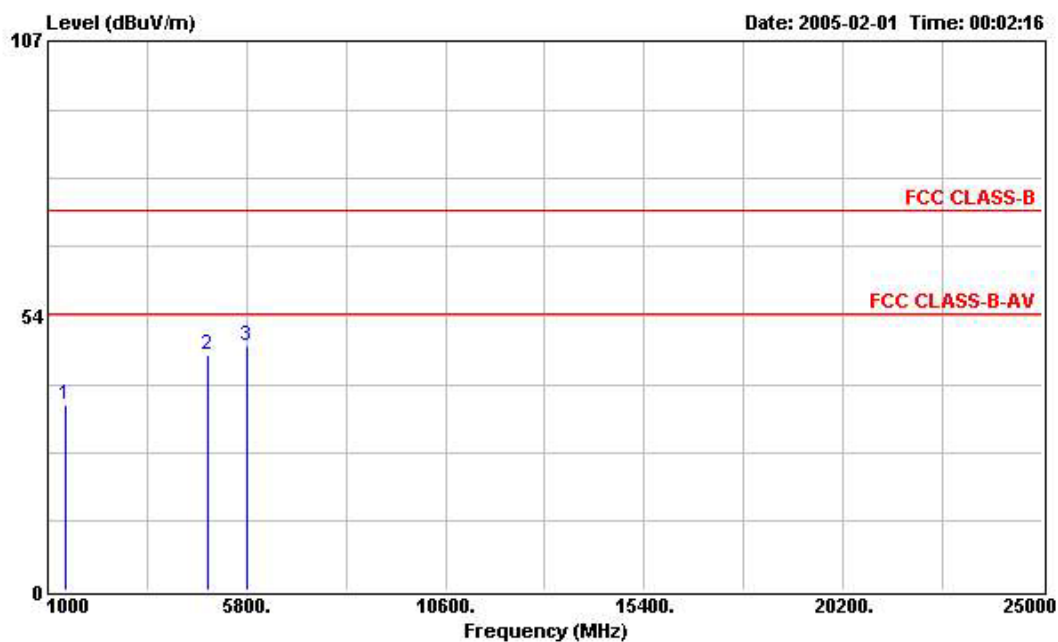
- Temperature: 21.9°C
- Relative Humidity: 40%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Sun Chen

(A) Polarization: Horizontal



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2388.000	39.88	-34.12	74.00	49.30	28.27	1.91	39.60	Peak	---	---
2	5916.000	48.25	-25.75	74.00	50.80	34.08	3.24	39.87	Peak	---	---
3	6384.000	49.27	-24.73	74.00	51.39	34.25	3.37	39.74	Peak	---	---

(B) Polarization: Vertical



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1416.000	36.28	-37.72	74.00	49.10	24.94	1.43	39.19	Peak	---	---
2	4864.000	45.69	-28.31	74.00	49.88	33.08	2.87	40.14	Peak	---	---
3	5788.000	47.73	-26.27	74.00	50.38	34.06	3.20	39.91	Peak	---	---

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.2.11. Photographs of Radiated Emission Test Configuration

FRONT VIEW



REAR VIEW





5.3. Antenna Requirements

5.3.1. Standard Applicable

47 CFR Part15 Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

5.3.2. Antenna Connected Construction

There is no antenna connector for printed antenna.

6. List of Measuring Equipments Used

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2004	Radiation (03CH03-HY)
2	Spectrum analyzer	R&S	FSP40	100004	9KHZ~40GHz	Aug. 31, 2004	Radiation (03CH03-HY)
3	Amplifier	HP	8447D	2944A09072	100KHz – 1.3GHz	Nov. 10, 2004	Radiation (03CH03-HY)
4	Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz –200MHz	Jul. 28, 2004	Radiation (03CH03-HY)
5	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 28, 2004	Radiation (03CH03-HY)
6	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 02, 2004	Radiation (03CH03-HY)
7	Amplifier	MITEQ	AFS44	849984	100MHz~26.5GHz	Mar. 26, 2004	Radiation (03CH03-HY)
8	Horn Antenna	EMCO	3115	6741	1GHz – 18GHz	Apr. 07, 2004	Radiation (03CH03-HY)
9	Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
10	Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
11	Horn Antenna	Schwarzbeck	BBHA9170	154	18GHz~40GHz	Jun. 09, 2004	Radiation (03CH03-HY)
12	RF Cable-HIGH	Jye Bao	RG142	CB030-HIGH	1GHz~29.5GHz	Dec. 04, 2004	Radiation (03CH03-HY)

※ Calibration Interval of instruments listed above is one year.

7. Company Profile

SPORTON Lab. was established in 1986 with one shielded room: the first private EMI test facility, offering local manufacturers an alternative EMI test facility apart from ERSO. In 1988, one 3M and 10M/3M open area test site were setup and also obtained official accreditation from FCC, VCCI and NEMKO. In 1993, a Safety laboratory was founded and obtained accreditation from UL of USA, CSA of Canada and TUV (Rhineland & PS) of Germany. In 1995, one EMC lab, including EMI and EMS test facilities was setup. In 1997, SPORTON Group has provided financial expense to relocate the headquarter to Orient Scientific Park in Taipei Hsien to offer more comprehensive, more qualified and better service to local suppliers and manufactures. In 1999, Safety Group and Component Group were setup. In 2001, SPORTON has established 3M/10M chamber in Hwa Ya Technology Park.

7.1. Certificate of Accreditation

Taiwan	BSMI, CNLA, DGT
USA	FCC, NVLAP, UL
EU	Nemko, TUV
Japan	VCCI
Canada	Industry Canada

7.2. Test Location

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C. TEL : 02-2696-2468 FAX : 02-2696-2255
HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 03-327-3456 FAX : 03-318-0055
LINKOU	ADD : No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C TEL : 02-2601-1640 FAX : 02-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihsu Chiu, Taipei, Taiwan 114, R.O.C. TEL : 02-2631-4739 FAX : 02-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C. TEL : 02-8227-2020 FAX : 02-8227-2626
NEIHU	ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 02-2794-8886 FAX : 02-2794-9777

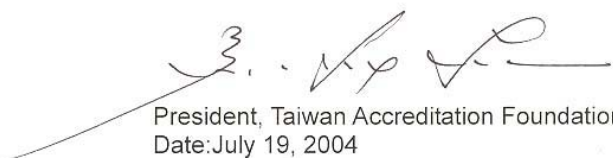
8. CNLA Certificate of Accreditation

Test Lab. : Sporton International Inc.
Accreditation Number : 1190
Originally Accredited : 2003/12/15
Effective Period : 2003/12/15~2006/12/14
Accredited Scope : 47 CFR FCC Part 15 Subpart C (9kHz~40GHz)



Taiwan Accreditation Foundation
Chinese National Laboratory Accreditation
Certificate of Accreditation

Accreditation Criteria: ISO 17025
Accreditation Number: 1190
Organization/Laboratory: EMC & Wireless Communications Laboratory, Sporton International Inc.
Originally Accredited: December 15, 2003
Effective Period: December 15, 2003 To December 14, 2006
Accredited Scope: Electrical Testing Field, 7 items, details shown in the following pages.
Specific Accreditation Program: Recognition and Approval of Designated Laboratory for Commodities Inspection


President, Taiwan Accreditation Foundation
Date: July 19, 2004

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