

FCC TEST REPORT

CATEGORY : Mobile
PRODUCT NAME : Dual mode 2.4GHz / 5GHz Access Point
FCC ID. : QZE200
FILING TYPE : Certification
BRAND NAME : Trapeze
MODEL NAME : MP-372

APPLICANT : **Trapeze Networks, Inc.**
5753 W. Las Positas Blvd. Pleasanton, CA 94588, US

MANUFACTURER : **Alpha Networks Inc.**
No.8, Li-shing Road VII, Science-based Industrial
Park, Hsinchu, Taiwan

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

Statements:

Only the test result of 802.11a part is shown in this test report. (5150MHz ~ 5250MHz, 5250MHz ~ 5350MHz)

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

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

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

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



1190
ILAC MRA



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History of this test report

Received Date: Mar. 4th, 2005

Test Date: May 20, 2005

Original Report Issue Date: May 20, 2005

Report No.: FR530403-01

☒ 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 (Section 15.407)

PRODUCT NAME : Dual mode 2.4GHz / 5GHz Access Point

BRAND NAME : Trapeze

MODEL NAME : MP-372

APPLICANT : **Trapeze Networks, Inc.**
5753 W. Las Positas Blvd. Pleasanton, CA 94588, US

MANUFACTURER : **Alpha Networks Inc.**
No.8, Li-shing Road VII, Science-based Industrial
Park, Hsinchu, Taiwan

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. Testing was carried out on May 20, 2005 at SPORTON International Inc. LAB.

A handwritten signature in blue ink, appearing to read 'Wayne Hsu', is written over a horizontal line. Below the line, the name 'Wayne Hsu' is printed in a standard black font.

Wayne Hsu

1. General Description of Equipment under Test

1.1. Applicant

Trapeze Networks, Inc.
5753 W. Las Positas Blvd. Pleasanton, CA 94588, US

1.2. Manufacturer

Alpha Networks Inc.
No.8, Li-shing Road VII, Science-based Industrial Park, Hsinchu, Taiwan

1.3. Basic Description of Equipment under Test

This product is a Wireless Access Point with 802.11a/b/g wireless solution. The technical data has been listed on section " Features of Equipment under Test ". 4 types of antenna are filed in this project for both 2.4GHz and 5GHz operating frequency band. There are 2 antenna ports in this product for external antenna connection, one is for 2.4GHz band, the other is for 5GHz band. This product will use 5GHz and 2.4GHz band antenna with the same beam width together.

This product is an extend of original one reported under Sporton project number: 530403. Products layout is the same, only an electric capacity was added, so we only need to test Radiation Emission below 1GHz.

1.4. Features of Equipment under Test

Items	Description
Type of Modulation	OFDM (16QAM / 64QAM / DQPSK / DBPSK)
Frequency Band	5150MHz ~ 5250MHz, 5250MHz ~ 5350MHz
Carrier Frequency Range	5180MHz~5240MHz, 5260MHz~5320MHz
Carrier Frequency	See section 1.6 for details
Data Rate	6, 12, 18, 24, 36, 48, 54 Mbps
Max. Conducted Output Power	See section 1.7 for details
Antenna Type	See section 1.5 for details
Communication Type	Half-Duplex
Testing Duty Cycle	100.00%
Power Rating (DC/AC, Voltage)	48V dc from POE
Temperature Range (Operating)	0 ~ 50 °C

1.5. Antenna Description

4 types of antenna were filed in this project.

No.	Antenna Type	Gain (dBi)
1	Internal PIFA Antenna (CAF94400)	4.00dBi @5.0GHz
2	External Panel Antenna ANT-5180 (ASTN6H) 180°	10.80dBi @5.0GHz
3	External Panel Antenna ANT-5120 (ASTN6T) 120°	12.50dBi @5.0GHz
4	External Panel Antenna ANT-5060 (ASTN6S) 60°	14.50dBi @5.0GHz

1.6. Table for Carrier Frequencies

Frequency Bands			
5150MHz ~ 5250MHz		5250MHz ~ 5350MHz	
Channel	Frequency	Channel	Frequency
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

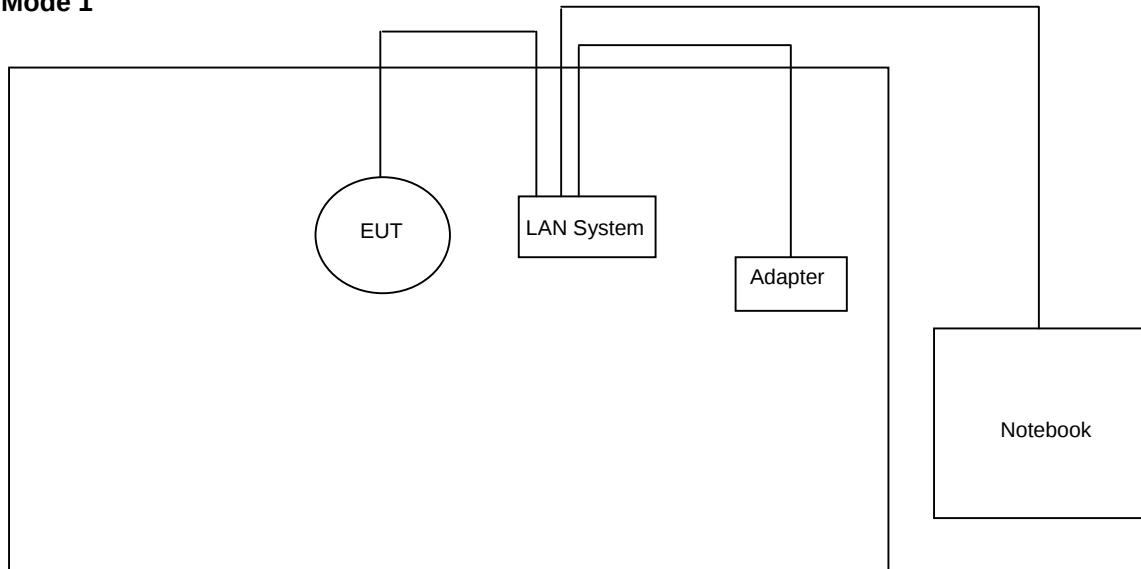
1.7. Table for Maximum Conducted Output Power

Maximum Conducted Output Power (dBm)	
Frequency Bands 5150MHz ~ 5250MHz	Frequency Bands 5250MHz ~ 5350MHz
Internal Antenna: 16.85	Internal Antenna: 21.61
External Antenna: 7.99	External Antenna: 14.93

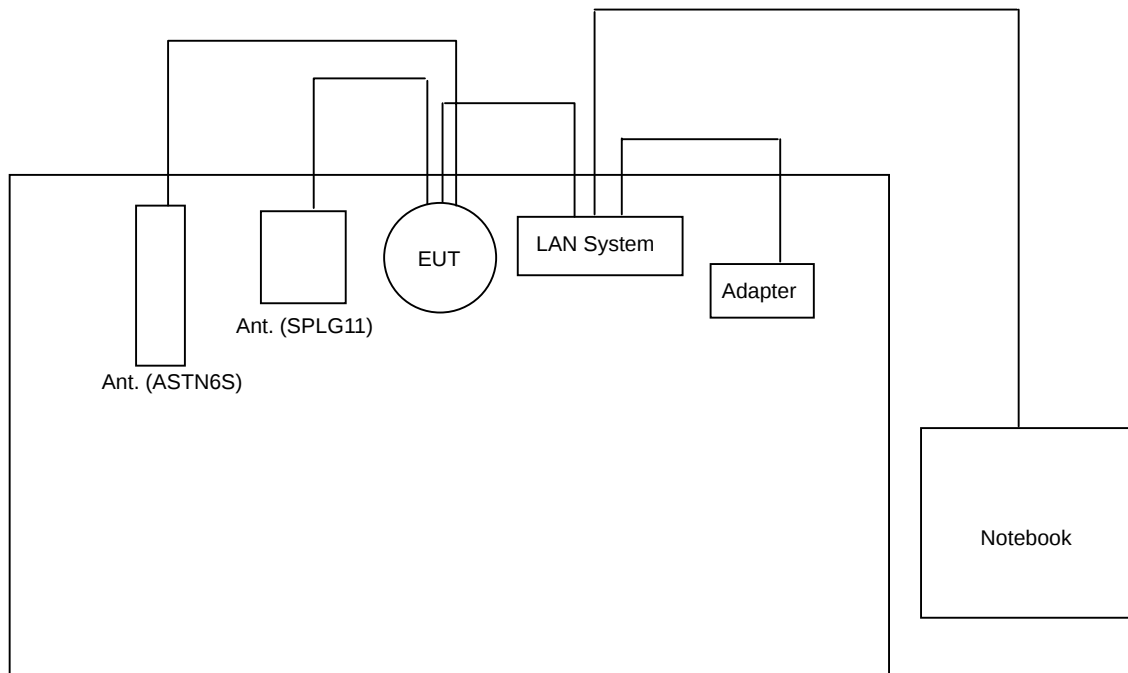
2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Test System

Mode 1



Mode 2



2.2. The Test Mode Description

1. For OFDM modulation, BPSK (64QAM) is the worst case on all test items.
2. Spurious emission below 1GHz is independent of channel selection, modulation and antenna type, so only channel 64 was tested.
3. Products layout is the same, only an electric capacity was added, so we only need to test Radiation Emission below 1GHz.
4. There are 4 types of antennas, 3 of them are in the same type. So only 2 antennas was tested.
Mode 1 : Internal Antenna (PIFA CAF94400 – Antenna 1)
Mode 2 : External Antenna (Panel ASTN6S – Antenna 4)

2.3. Description of Test Supporting Units

Support unit	Brand	Model No.	Serial No.	FCC ID	Data cable (m)
Notebook	DELL	C600	10004	DoC	-
POE	-	-	-	-	-
Adapter	LB	SA06L48	-	-	1.5

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

3.2. Test Conditions

Normal Voltage : 48Vdc from POE
Normal Temperature : 20°C

3.3. Standards for Methods of Measurement

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

ANSI C63.4-2003

47 CFR Part 15 Subpart C (Section 15.407)

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.

3.6. Test Software

During testing, Channel & Power Controlling Software: This was provided by the manufacturer and is able to let the test engineer select the operating channel as well as the RF output power. The parameters for channel selection is trying to offer the test engineer the ability to fix the operating channel for testing, both normal data and continuously transmitting modes are allowed, and that for RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power Parameter Table

Mode 1

Test Software	ART					
Test Channel	CH 36	CH 40	CH 48	CH 52	CH 56	CH 64
Test Frequency	5180MHz	5200MHz	5240MHz	5260MHz	5280MHz	5320MHz
TX Power	6.00	6.00	5.50	12.50	13.00	12.50

Mode 2

Test Software	ART					
Test Channel	CH 36	CH 40	CH 48	CH 52	CH 56	CH 64
Test Frequency	5180MHz	5200MHz	5240MHz	5260MHz	5280MHz	5320MHz
TX Power	13.50	13.00	13.00	19.00	19.00	19.00



4. List of Measurements

4.1. Summary of the Test Results

Applied Standard: 47 CFR Part 15 and Part 2

Paragraph	FCC Rule	Description of Test	Result
5.1	15.209/15.407	Spurious Radiated Emission	Pass
5.2	15.203/15.407	Antenna Requirement	Pass

5. Test Result

5.1. Test of Spurious Radiated Emission

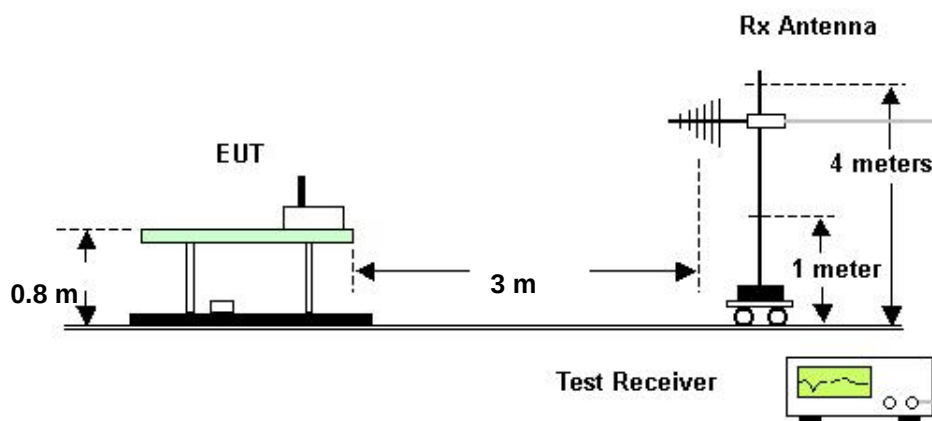
5.1.1. Measuring Instruments

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

5.1.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turn table 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 turn table.
4. Power on the EUT and all the supporting units.
5. The turn table 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 turn table 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.

5.1.3. Test Setup Layout

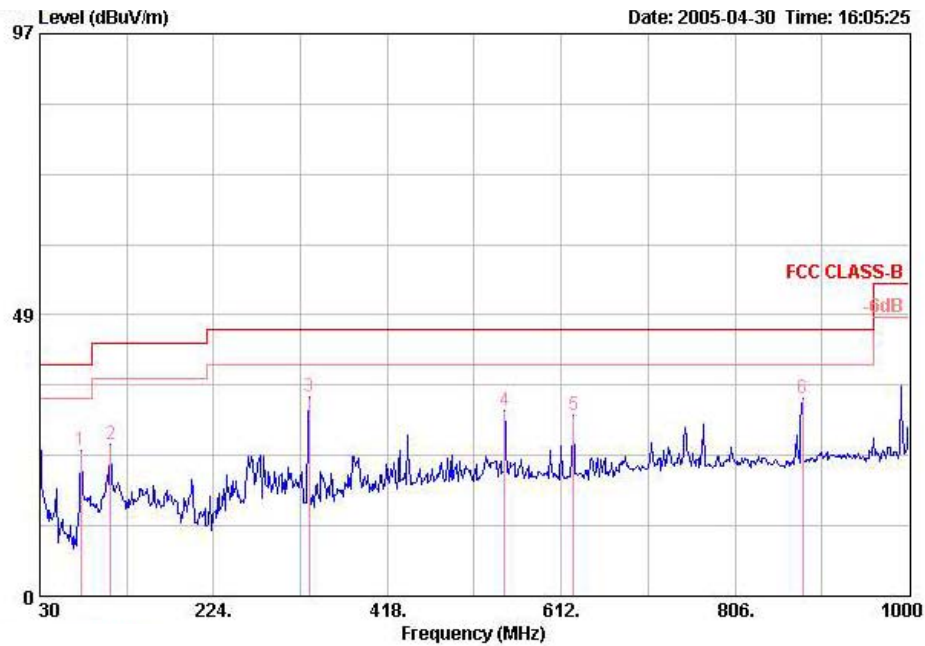


5.1.4. Test Results for CH 64 / 5320MHz (for emission below 1GHz)

- Modulation Type: OFDM
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steven Lu

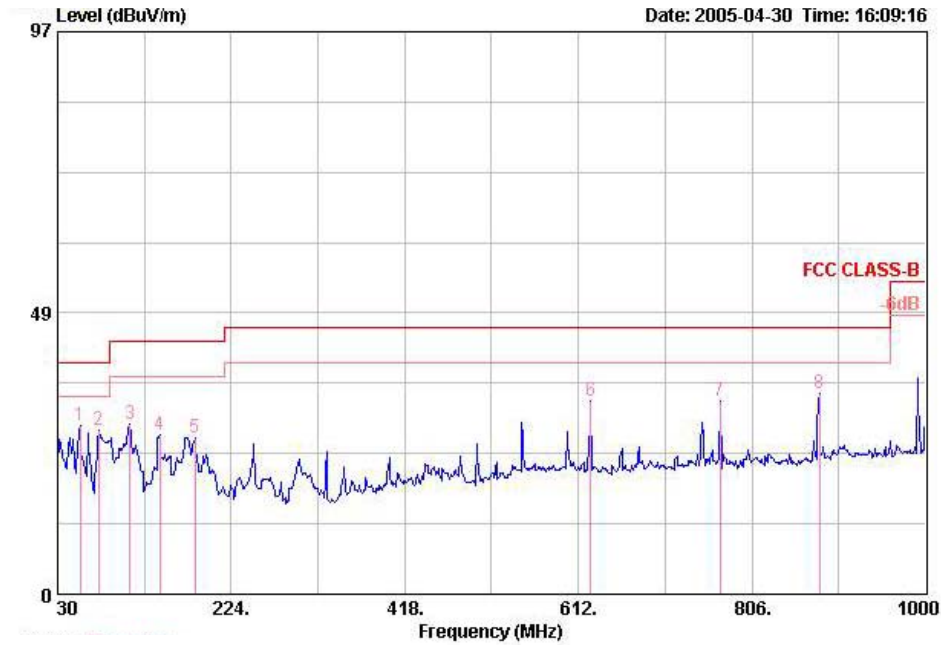
Mode 1

(A) Polarization: Horizontal



	Freq	Level	Over Limit	LimitAntenna Line Factor	Cable Loss	Preamp Factor	Read Level	Pol/Phase	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV	
1	75.590	25.09	-14.91	40.00	6.20	0.70	29.97	48.15	HORIZONTAL Peak
2	109.540	26.05	-17.45	43.50	11.50	0.84	30.07	43.78	HORIZONTAL Peak
3	330.700	34.36	-11.64	46.00	13.87	1.43	30.50	49.56	HORIZONTAL Peak
4	548.950	32.04	-13.96	46.00	18.28	1.87	30.63	42.52	HORIZONTAL Peak
5	625.580	31.15	-14.85	46.00	18.75	1.97	30.59	41.02	HORIZONTAL Peak
6	881.660	34.09	-11.91	46.00	20.32	2.39	29.18	40.56	HORIZONTAL Peak

(B) Polarization: Vertical



	Freq	Level	Over	Limit	Antenna	Cable	Preamp	Read		
	MHz	dBuV/m	Limit	Line	Factor	Loss	Factor	Level	Pol/Phase	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		
1	55.220	29.15	-10.85	40.00	6.25	0.63	29.81	52.08	VERTICAL	Peak
2	75.590	28.16	-11.84	40.00	6.20	0.70	29.97	51.22	VERTICAL	Peak
3	110.510	29.22	-14.28	43.50	11.50	0.84	30.07	46.94	VERTICAL	Peak
4	144.460	27.40	-16.10	43.50	10.63	0.95	30.06	45.89	VERTICAL	Peak
5	183.260	27.01	-16.49	43.50	8.30	1.07	30.02	47.66	VERTICAL	Peak
6	625.580	33.31	-12.69	46.00	18.75	1.97	30.59	43.18	VERTICAL	Peak
7	770.110	33.27	-12.73	46.00	19.92	2.19	30.09	41.24	VERTICAL	Peak
8	881.660	34.61	-11.39	46.00	20.32	2.39	29.18	41.07	VERTICAL	Peak

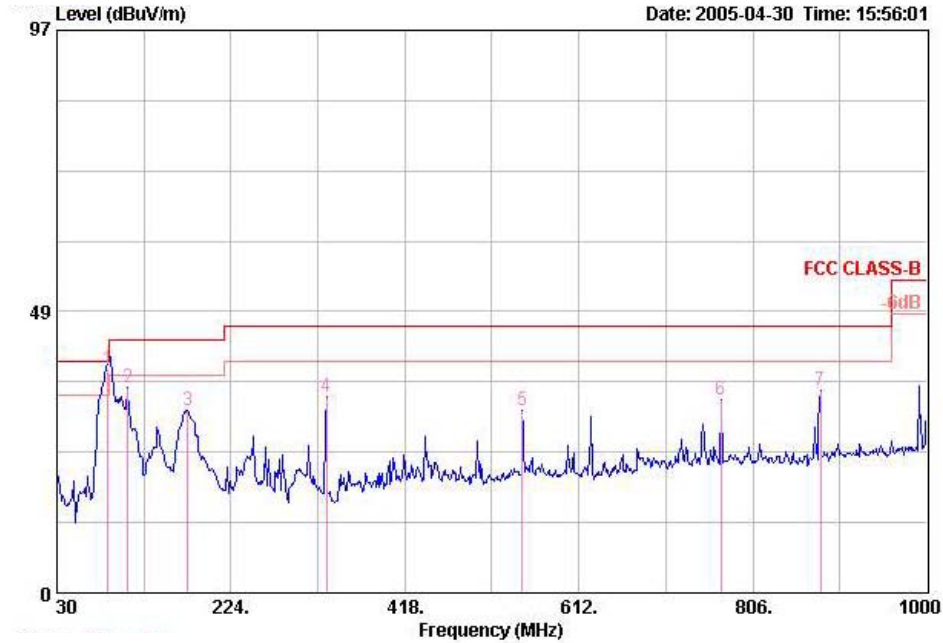
Note:

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

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

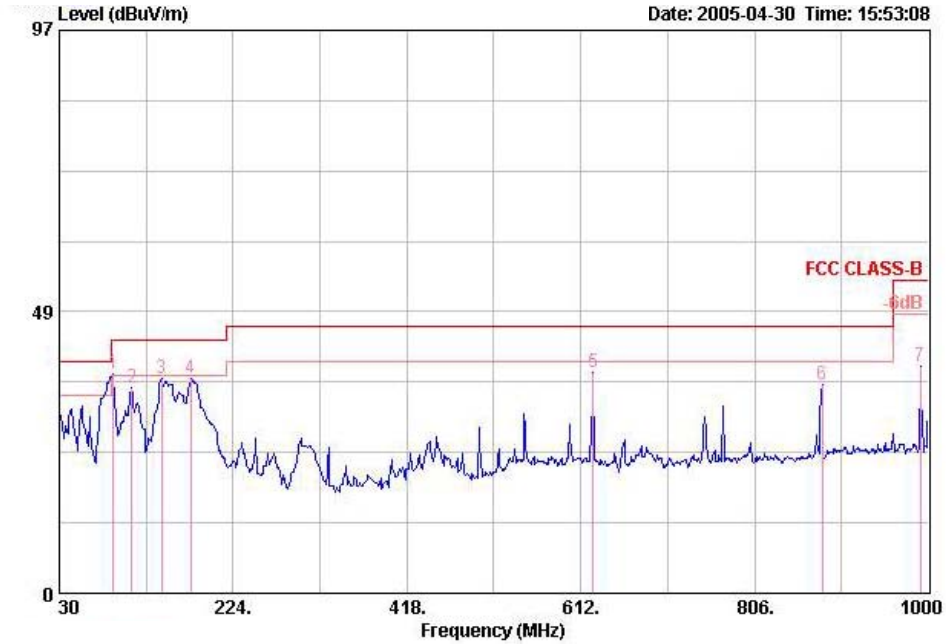
Mode 2

(A) Polarization: Horizontal



	Freq	Level	Over Limit	LimitAntenna	Cable	Preamp	Read	Pol/Phase	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV	
1 @	87.230	38.70	-1.30	40.00	8.20	0.75	30.04	59.78	HORIZONTAL Peak
2	109.540	35.38	-8.12	43.50	11.50	0.84	30.07	53.11	HORIZONTAL Peak
3	175.500	31.52	-11.98	43.50	8.66	1.05	30.12	51.93	HORIZONTAL Peak
4	330.700	33.84	-12.16	46.00	13.87	1.43	30.50	49.04	HORIZONTAL Peak
5	548.950	31.46	-14.54	46.00	18.28	1.87	30.63	41.94	HORIZONTAL Peak
6	770.110	33.32	-12.68	46.00	19.92	2.19	30.09	41.29	HORIZONTAL Peak
7	881.660	34.89	-11.11	46.00	20.32	2.39	29.18	41.36	HORIZONTAL Peak

(B) Polarization: Vertical



	Freq	Level	Over	Limit	Antenna	Cable	Preamp	Read		
	MHz	dBuV/m	Limit	Line	Factor	Loss	Factor	Level	Pol/Phase	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		
1 !	90.140	37.86	-5.64	43.50	8.90	0.78	30.09	58.27	VERTICAL	Peak
2	110.510	35.52	-7.98	43.50	11.50	0.84	30.07	53.24	VERTICAL	Peak
3	144.460	36.89	-6.61	43.50	10.63	0.95	30.06	55.38	VERTICAL	Peak
4	176.470	36.88	-6.62	43.50	8.59	1.05	30.11	57.35	VERTICAL	Peak
5	625.580	38.01	-7.99	46.00	18.75	1.97	30.59	47.88	VERTICAL	Peak
6	881.660	35.90	-10.10	46.00	20.32	2.39	29.18	42.36	VERTICAL	Peak
7	991.270	39.07	-14.93	54.00	20.90	2.52	28.65	44.30	VERTICAL	Peak

Note:

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

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

5.1.5. Photographs of Radiated Emission Test Configuration

Mode 1

FRONT VIEW



REAR VIEW

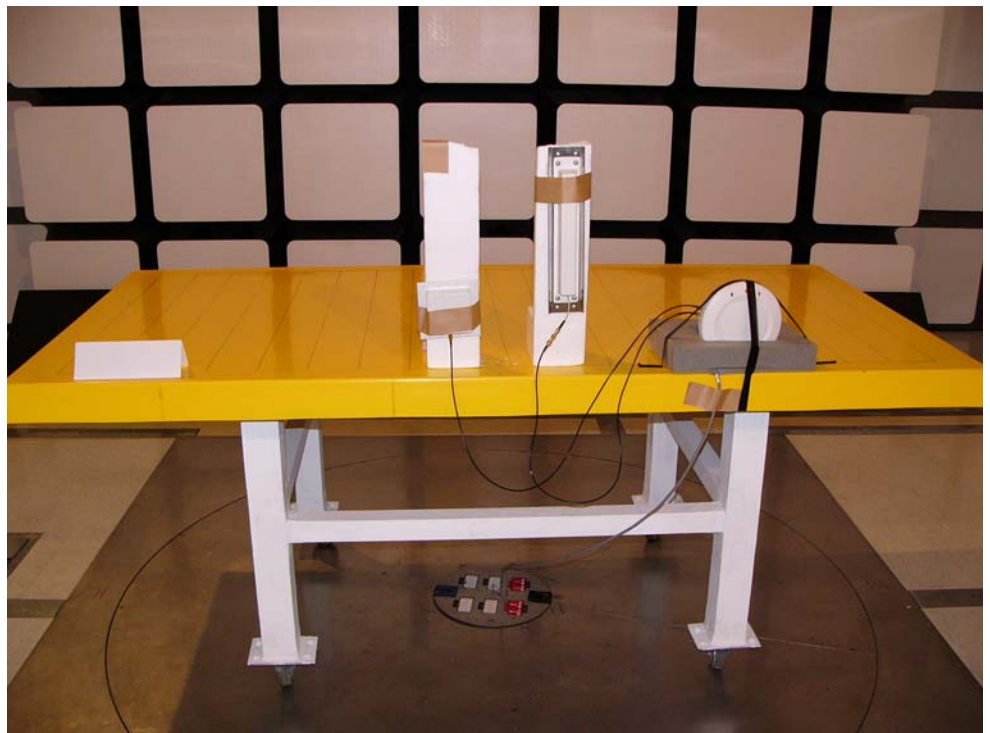


Mode 2

FRONT VIEW



REAR VIEW





5.2. Antenna Requirements

5.2.1. 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.

47 CFR Part15 Section 15.407:

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

If the intentional radiator is used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

5.2.2. Antenna Connected Construction

There are 4 kinds of antenna. External antenna connector are SMA. Internal antenna has no connector.

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~4GHz	Aug. 31, 2004	Radiation (03CH03-HY)
3	Amplifier	Schaffner	CPA9231A	18667	9KHz – 2GHz	Jan. 04, 2005	Radiation (03CH03-HY)
4	Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz –200MHz	Jul. 23, 2004	Radiation (03CH03-HY)
5	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 23, 2004	Radiation (03CH03-HY)
6	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 02, 2004	Radiation (03CH03-HY)
7	Amplifier	MITEQ	AFS44	879984	1GHz~26.5GHz	Mar. 25, 2005	Radiation (03CH03-HY)
8	Horn Antenna	COMPOWER	AH-118	10092	1GHz – 18GHz	Feb. 18, 2005	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	15GHz~40GHz	Jun. 09, 2004	Radiation (03CH03-HY)
12	RF Cable-HIGH	SUHNER	SUCOFLES 106	SN30094/6	1GHz~26.5GHz	Mar. 05, 2005	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., Neihu 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

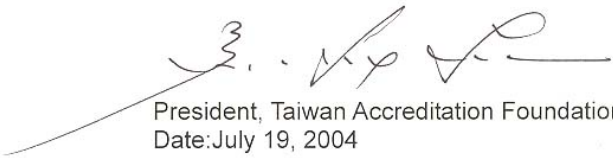
8. CNLA Certificate of Accreditation

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

(This document is invalid unless accompanied by all 4 pages)

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