FCC TEST REPORT

CATEGORY	:	Portable
PRODUCT NAME	:	Creative FreePoint Travel
FCC ID.	:	IBA-NWUT0S
FILING TYPE	:	Certification
BRAND NAME	:	Creative
MODEL NAME	:	NWUT0S
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.
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

Table of Contents

History of this test report

Original Report Issue Date: Dec. 27, 2004

Report No.: FR490903

■ 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 15.227)

PRODUCT NAME	:	Creative FreePoint Travel
BRAND NAME	:	Creative
MODEL NAME	:	NWUT0S
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. Testing was carried out on Dec. 17, 2004 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 27MHz wireless travel mouse and its receiver. The radio technical data has been listed on section " Features of Equipment under Test ". The mouse can be powered by battery or the USB port of notebook computer via a cable.

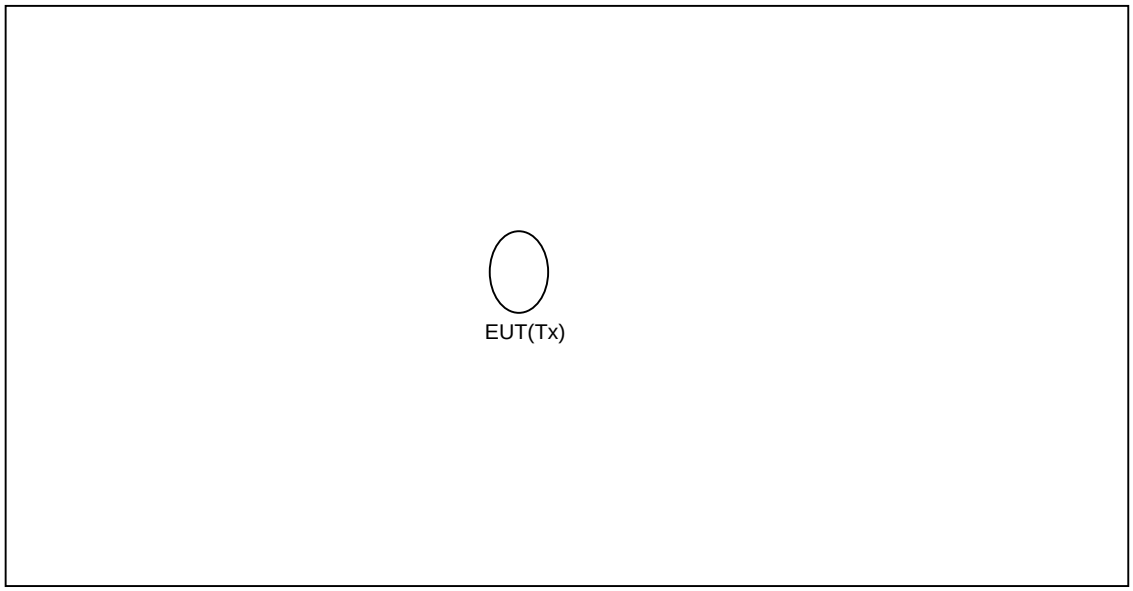
1.4. Features of Equipment under Test

Items		Description
Type of Modulation	:	FSK
Number of Channels	:	1
Frequency Band	:	27.045MHz
Channel Bandwidth	:	30kHz
Antenna Type	:	Printed Antenna
Testing Duty Cycle	:	100.00%
Power Rating (DC/AC, Voltage)	:	3 VDC (battery powered)
Temperature Range (Operating)	:	0 ~ 55 ℃

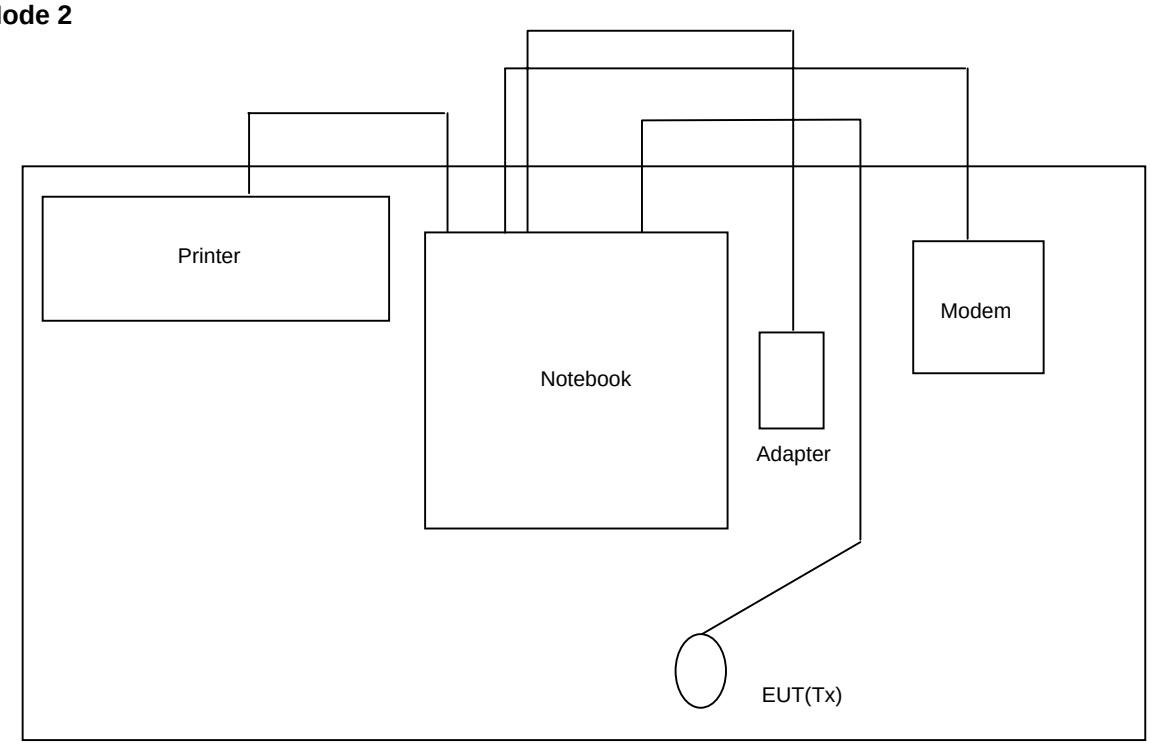
2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Test System

Mode 1



Mode 2



2.2. The Test Mode Description

1. The used peripherals as well as the configuration fulfill the requirements of ANSI C63.4:2003. The configuration is operated in a manner which tends to maximize its emission characteristics in a typical application.
2. 3 meters measurement distance was used in this test.
3. The following test modes were performed:
   Mode 1 : The EUT powered from battery
   Mode 2 : The EUT powered from system
4. AC power line conducted testing was performed while the EUT was powered by the notebook.

2.3. Description of Test Supporting Units

Support unit	Brand	Model No.	Serial No.	FCC ID	Data cable (m)
Notebook	DELL	PP01L	SP0005	DoC	-
Printer	EPSON	Stylus Color 680	SP0016	DoC	1.35
Modem	ACEEX	DM141	SP0019	IFAXDM141	1.15

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	:	CO04-HY / 03CH03-HY

3.2. Test Conditions

Normal Voltage	:	3.0VDC (battery powered)
Normal Temperature	:	20℃

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 15.227)

3.4. 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.

3.5. Frequency Range Investigated

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

3.6. 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

3.7. Test Software

During testing, there is no supporting test software.

4. List of Measurements

4.1. Summary of the Test Results

Applied Standard:47CFR FCC Part 15 Subpart C			
Paragraph	**FCC Section**	**Description of Test**	**Result**
5.1	15.227(a)	Maximum Field Strength of Fundamental	Pass
5.2	15.207	AC Power Line Conducted Emission	Pass
5.3	15.227(b)	Spurious Radiated Emission	Pass
5.4	15.203	Antenna Requirement	Pass

5. Test Result

5.1. Test of Maximum Carrier Field Strength

5.1.1. Applicable Standard

Section 15.227(a): The field strength of any emission within this band shall not exceed 10,000 micro-volts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

5.1.2. Measuring Instruments

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

5.1.3. Description of Major Test Instruments Setting

- Test Receiver : (R&S ESCS 30)

  Attenuation : Auto

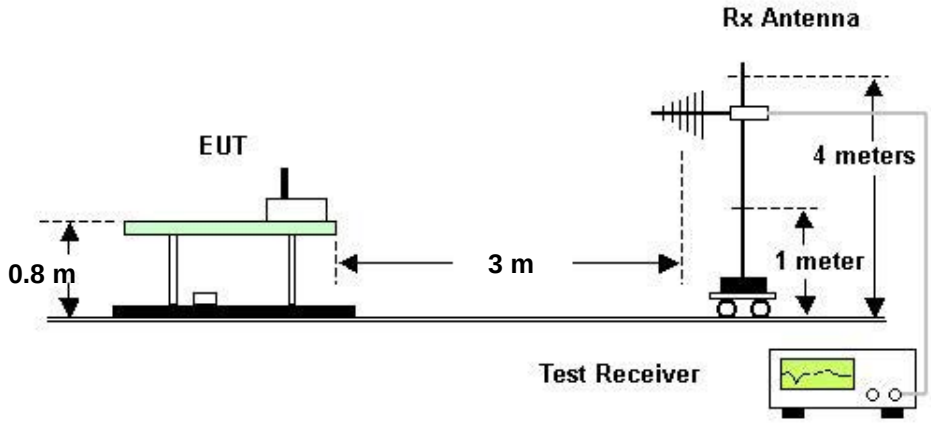
  Center Frequency : Carrier Frequency of EUT

  IF Bandwidth : 9 KHz

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 9kHz RBW of Receiver for reading under average and peak detector.

5.1.5 Test Setup Layout



5.1.6 Test Result

- Test Mode: Mode 1
- Temperature: 24°C
- Relative Humidity: 51%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV/m)	Detector
27.040	47.92	-21.08	80.00	59.16	Peak
27.040	46.90	-53.10	100.00	58.14	Average

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

- Test Mode: Mode 2
- Temperature: 24°C
- Relative Humidity: 51%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV/m)	Detector
27.040	69.97	-10.03	80.00	81.21	Peak
27.040	68.99	-31.01	100.00	80.23	Average

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

5.2. Test of AC Power Line Conducted Emission

5.2.1. Applicable Standard

Section 15.207: For a Low-power Radio-frequency Device which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

5.2.2. Measuring Instruments

Please reference item 1~5 in chapter 6 for the instruments used for testing.

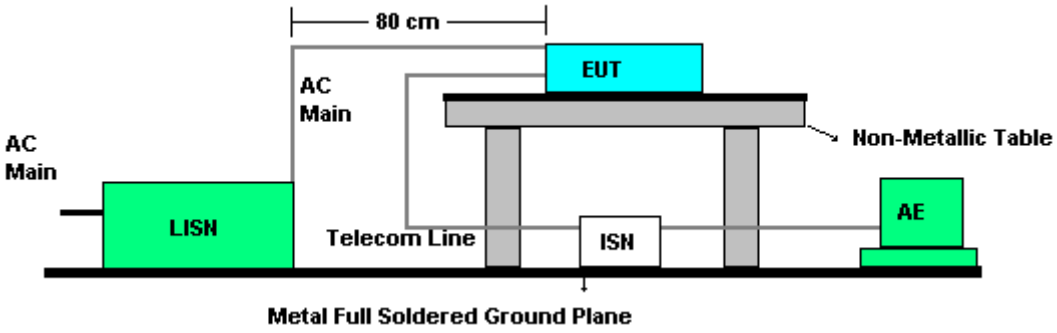
5.2.3. Description of Major Test Instruments Setting

- Test Receiver : R&S ESCS 30
  Attenuation : 10 dB
  Start Frequency : 0.15 MHz
  Stop Frequency : 30 MHz
  IF Bandwidth : 9 KHz

5.2.4. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN)
4. All the support units are connected to the other LISNs. The LISN should provides 50uH/50ohms coupling impedance.
5. The frequency range from 150 KHz to 30 MHz was searched.
6. Use the Channel & Power Controlling software to make the EUT working on selected channel and expected output power, then use the “H” Patter Generator software to make the supporting equipments stay on working condition.
7. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
8. The measurement has to be done between each power line and ground at the power terminal for each RF channel. Only one RF channel has to be investigated since this test is independent with the RF channel selection.

5.2.5. Test Setup Layout



5.2.6. Test Criteria

All test results complied with the requirements of section 15.207. Measurement Uncertainty is 2.54dB.

5.2.7. Test Result of Conducted Emission

- Temperature: 24°C
- Relative Humidity: 51%
- Test Engineer: Sky Wu

Line to Ground

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Read Level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Remark
0.178659	45.38	-19.17	64.55	45.15	0.10	0.13	QP
0.178659	27.95	-26.60	54.55	27.72	0.10	0.13	AV
0.274416	31.08	-29.90	60.98	30.89	0.10	0.09	QP
0.274416	17.09	-33.89	50.98	16.90	0.10	0.09	AV
0.346461	27.59	-31.46	59.05	27.39	0.10	0.10	QP
0.346461	9.22	-39.83	49.05	9.02	0.10	0.10	AV
1.80	29.17	-26.83	56.00	28.99	0.10	0.08	QP
1.80	16.53	-29.47	46.00	16.35	0.10	0.08	AV
6.32	25.65	-34.35	60.00	25.41	0.20	0.04	QP
6.32	16.84	-33.16	50.00	16.60	0.20	0.04	AV
10.62	32.65	-27.35	60.00	31.97	0.20	0.48	QP
10.62	26.72	-23.28	50.00	26.04	0.20	0.48	AV

Neutral to Ground

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Read Level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Remark
0.176776	45.80	-18.84	64.64	45.56	0.10	0.14	QP
0.176776	25.73	-28.91	54.64	25.49	0.10	0.14	AV
0.265829	32.89	-28.36	61.25	32.71	0.10	0.08	QP
0.265829	20.17	-31.08	51.25	19.99	0.10	0.08	AV
0.314946	28.22	-31.62	59.84	28.01	0.10	0.11	QP
0.314946	13.50	-36.34	49.84	13.29	0.10	0.11	AV
1.79	29.93	-26.07	56.00	29.74	0.10	0.09	QP
1.79	18.17	-27.83	46.00	17.98	0.10	0.09	AV
3.82	25.40	-30.6	56.00	25.21	0.10	0.09	QP
3.82	14.61	-31.39	46.00	14.42	0.10	0.09	AV
10.85	33.06	-26.94	60.00	32.34	0.20	0.52	QP
10.85	27.04	-22.96	50.00	26.32	0.20	0.52	AV

Test Engineer : SKY
Sky Wu

5.2.8. Photographs of Conducted Emission Test Configuration

FRONT VIEW

REAR VIEW

5.3. Test of Spurious Radiated Emission

5.3.1. Applicable Standard

Section 15.227(b): The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.

5.3.2. Measuring Instruments

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

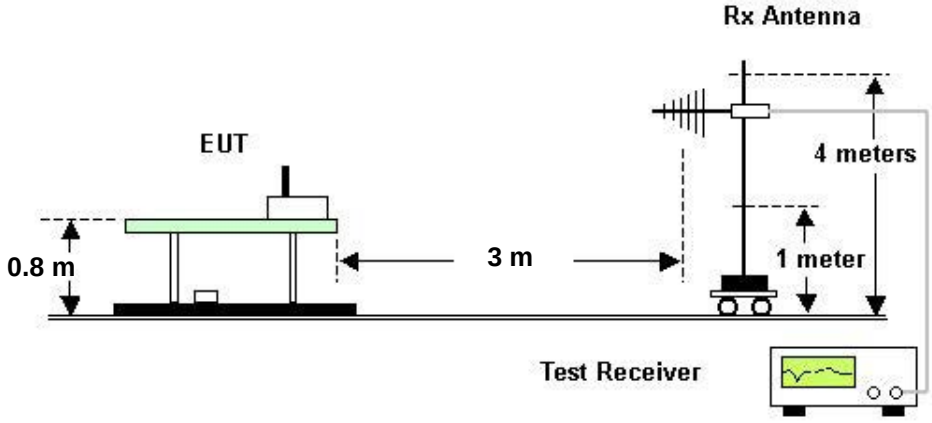
5.3.3. Description of Major Test Instruments Setting

- Test Receiver : R&S ESCS 30
  Attenuation : Auto
  Start Frequency : 30 MHz
  Stop Frequency : 10th carrier harmonic
  RB : 120 KHz for QP or PK

5.3.4. 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 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 quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

5.3.5. Test Setup Layout



5.3.6. Test Criteria

All test results complied with the requirements of the section 15.227(b). Measurement Uncertainty is 2.26dB.

5.3.7. Test Results

- Test Mode: Mode 1
- Temperature: 24°C
- Relative Humidity: 51%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	46.660	28.20	-11.80	40.00	42.55	12.06	1.16	27.57	Peak	---	---
2	80.830	16.74	-23.26	40.00	33.13	9.41	1.55	27.35	Peak	---	---
3	108.030	17.69	-25.81	43.50	32.88	10.14	1.85	27.18	Peak	---	---
1	349.600	21.78	-24.22	46.00	30.32	15.30	3.25	27.09	Peak	---	---
2	377.600	23.23	-22.77	46.00	31.12	16.14	3.40	27.43	Peak	---	---
3	960.000	36.55	-9.45	46.00	35.18	23.02	5.67	27.32	Peak	---	---

(B) Polarization: Vertical

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	53.630	14.07	-25.93	40.00	29.33	11.07	1.24	27.57	Peak	---	---
2	72.670	13.94	-26.06	40.00	30.20	9.72	1.44	27.42	Peak	---	---
3	92.900	13.00	-30.50	43.50	29.96	8.65	1.64	27.25	Peak	---	---
1	659.200	25.04	-20.96	46.00	28.01	20.58	4.67	28.22	Peak	---	---
2	914.400	33.15	-12.85	46.00	32.97	22.02	5.39	27.23	Peak	---	---
3	960.000	35.50	-10.50	46.00	34.13	23.02	5.67	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

- Test Mode: Mode 2
- Temperature: 24°C
- Relative Humidity: 51%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	!	53.630	36.92	-3.08	40.00	52.18	11.07	1.24	27.57	Peak	---	---
2	!	162.260	37.91	-5.59	43.50	49.82	12.84	2.32	27.07	Peak	---	---
3	!	174.670	39.39	-4.11	43.50	49.90	14.16	2.38	27.05	Peak	---	---
1		332.800	33.61	-12.39	46.00	42.57	14.78	3.16	26.90	Peak	---	---
2		499.200	33.56	-12.44	46.00	41.77	16.01	3.88	28.10	Peak	---	---
3		960.000	36.02	-9.98	46.00	34.65	23.02	5.67	27.32	Peak	---	---

(B) Polarization: Vertical

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	!	53.630	35.20	-4.80	40.00	50.46	11.07	1.24	27.57	Peak	---	---
2	!	80.830	35.58	-4.42	40.00	51.97	9.41	1.55	27.35	Peak	---	---
3		162.260	31.28	-12.22	43.50	43.19	12.84	2.32	27.07	Peak	---	---
1		500.000	32.42	-13.58	46.00	40.64	16.00	3.88	28.10	Peak	---	---
2		666.400	30.76	-15.24	46.00	33.71	20.60	4.65	28.20	Peak	---	---
3		960.000	35.07	-10.93	46.00	33.70	23.02	5.67	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

5.3.8. Photographs of Radiated Emission Test Configuration

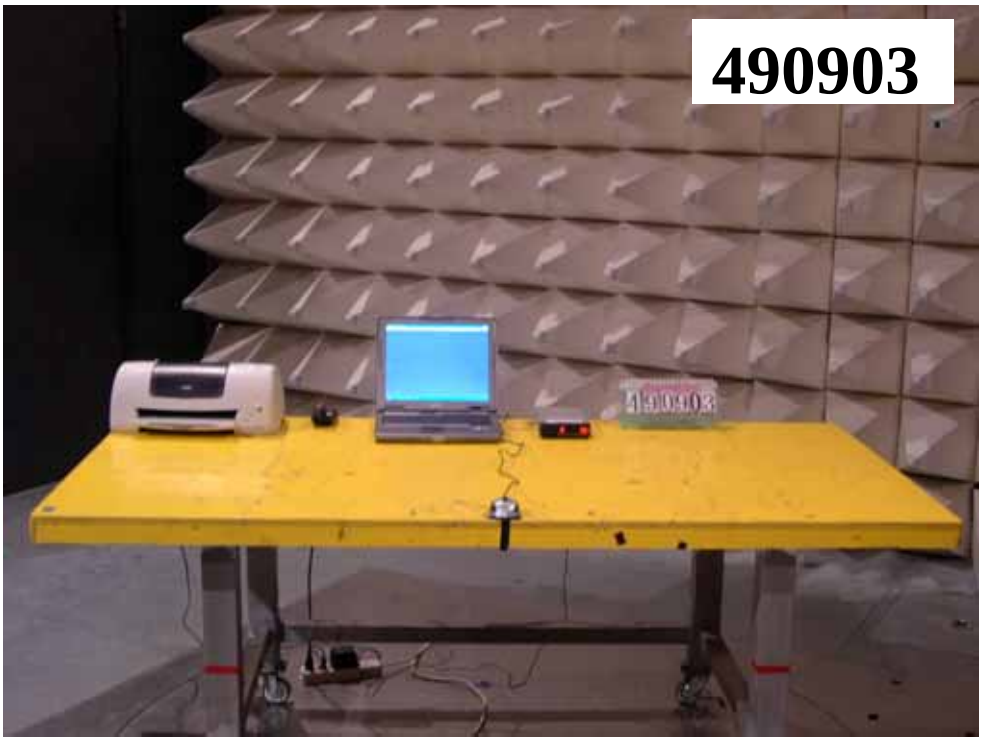
Mode 1

FRONT VIEW

REAR VIEW

Mode 2

FRONT VIEW



REAR VIEW

5.4. Antenna Requirements

5.4.1. Standard Applicable

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

5.4.2. Antenna Connected Construction

There is no antenna connector for integral chip antenna.

5.4.3. Test Criteria

All test results complied with the requirements of section 15.203.

6. List of Measuring Equipments Used

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
1	EMC Receiver	R&S	ESCS 30	100174	9 KHz – 2.75 GHz	Feb. 16, 2004	Conduction (CO04-HY)
2	LISN	MessTec	NNB-2/16Z	2001/004	9 KHz – 30 MHz	Jun. 09, 2004	Conduction (CO04-HY)
3	LISN (Support Unit)	MessTec	NNB-2/16Z	99041	9 KHz – 30 MHz	Apr. 27, 2004	Conduction (CO04-HY)
4	EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
5	RF Cable-CON	UTIFLEX	3102-26886-4	CB044	9KHz~30MHz	Apr. 21, 2004	Conduction (CO04-HY)
6	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2004	Radiation (03CH03-HY)
7	Spectrum analyzer	R&S	FSP40	100004	9KHZ~40GHz	Aug. 22, 2004	Radiation (03CH03-HY)
8	Amplifier	HP	8447D	2944A09072	100KHz – 1.3GHz	Nov. 04, 2004	Radiation (03CH03-HY)
9	Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz –200MHz	Jul. 28, 2004	Radiation (03CH03-HY)
10	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 28, 2004	Radiation (03CH03-HY)
11	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 02, 2004	Radiation (03CH03-HY)
12	Amplifier	MITEQ	AFS44	849984	100MHz~26.5GHz	Mar. 26, 2004	Radiation (03CH03-HY)
13	Horn Antenna	EMCO	3115	6821	1GHz – 18GHz	Sep. 11, 2004	Radiation (03CH03-HY)
14	Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
15	Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
16	Horn Antenna	Schwarzbeck	BBHA9170	154	15GHz~40GHz	Jun. 09, 2004	Radiation (03CH03-HY)
17	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 familial 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
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