



SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, TaoYuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

FCC RADIO TEST REPORT

Applicant's company	Power Digital Communications Co.,Ltd
Applicant Address	4F,No. 12,Alley 6,Lane 45,Pao Hsing Road,Hsin Tien,Taipei Hsien,Taiwan 231,R.O.C
FCC ID	N62PDC826
Manufacturer's company	Cal-Comp electronics Co.,Ltd
Manufacturer Address	N 2288. Jiangxing East Rd, Wujiang Economic Development Zone , Wujiang Jiangsu CHINA.

Product Name	de GOLFer
Brand Name	PDC
Model Name	PDC-826B,PDC-826C
Test Rule Part(s)	47 CFR Part 15 Subpart C. 15.239
Test Freq. Range	88.1~88.9MHz
Receive Date	Sep. 13, 2005
Test Date	Oct. 14, 2005
Submission Type	Original Equipment



Statement

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.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 15 Subpart C**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.

NVLAQ®

Lab Code: 200079-0

Table of Contents

1. CERTIFICATE OF COMPLIANCE	1
2. SUMMARY OF THE TEST RESULT	2
3. GENERAL INFORMATION	3
3.1. Product Details.....	3
3.2. Table for Carrier Frequencies	3
3.3. Table for Test Modes	4
3.4. Table for Testing Locations.....	4
3.5. Table for Supporting Units	4
3.6. Test Configurations	5
4. TEST RESULT	6
4.1. AC Power Line Conducted Emissions Measurement.....	6
4.2. Field Strength of Fundamental Emissions Measurement	9
4.3. 20dB Spectrum Bandwidth Measurement	12
4.4. Radiated Emissions Measurement	14
4.5. Band Edge Emissions Measurement	20
4.6. Antenna Requirements	23
5. LIST OF MEASURING EQUIPMENTS	24
6. SPORTON COMPANY PROFILE	25
6.1. Test Location.....	25
7. CERTIFICATE OF NVLAP ACCREDITATION	26
APPENDIX A. PHOTOGRAPHS OF EUT.....	A1 ~ A20
APPENDIX B. TEST PHOTOS.....	B1 ~ B2

History of This Test Report

Original Issue Date: Oct. 27, 2005

Report No.: FR590922

☒ No additional attachment.


☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

1. CERTIFICATE OF COMPLIANCE

Product Name : de GOLFer
Brand Name : PDC
Model Name : PDC-826B,PDC-826C
Applicant : Power Digital Communications Co.,Ltd
Test Rule Part(s) : 47 CFR Part 15 Subpart C. 15.239

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Sep. 13, 2005 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.


Wayne Hsu / Supervisor
Sporton International Inc.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	Rule Section	Description of Test	Result	Under Limit
4.1	15.207	AC Power Line Conducted Emissions	Complies	-
4.2	15.239(b)	Field Strength of Fundamental Emissions	Complies	5.98dB
4.3	15.239(a)	20dB Spectrum Bandwidth	Complies	-
4.4	15.239(c)	Radiated Emissions	Complies	8.53 dB
4.5	15.239(c)	Band Edge Emissions	Complies	6.20dB
4.6	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	$\pm 2.26\text{dB}$	Confidence levels of 95%
Field Strength of Fundamental Emissions	$\pm 3.72\text{dB}$	Confidence levels of 95%
20dB Spectrum Bandwidth	$\pm 6.25 \times 10^{-7}$	Confidence levels of 95%
Radiated Emissions/ Band Edge Emissions	$\pm 3.72\text{dB}$	Confidence levels of 95%

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	de GOLFer
Radio Type	Intentional Transmitter
Power Type	12V from car charger
Interface Type	USB / SD / Headset
Modulation	FM
Frequency Range	88.1 ~ 88.9MHz
Channel Number	5
Channel Band Width (99%)	90.0 kHz
Max. Field Strength	42.02 dBuV/m at 3m (Average)
Carrier Frequencies	Please refer to section 3.2

3.2. Table for Carrier Frequencies

Frequency Band	Channel No.	Frequency
88.1 ~ 88.9MHz	1	88.1 MHz
	2	88.3 MHz
	3	88.5 MHz
	4	88.7 MHz
	5	88.9 MHz

3.3. Table for Test Modes

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Channel	Antenna
AC Power Line Conducted Emissions	-	-	-
Radiated Emissions 9kHz~30MHz	CTX of X Axis	1	NA
Field Strength of Fundamental Emissions Radiated Emissions 30MHz~10 th Harmonic	CTX of X Axis	1	NA
Band Edge Emissions	CTX of X Axis	1	NA
20dB Spectrum Bandwidth	CTX	1	NA

Note: CTX=continuously transmitting

3.4. Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH03-HY	SAC	Hwa Ya	101377	IC 4088	-
CO04-HY	-	-	-	-	-
TH01-HY	OVEN Room	Hwa Ya	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC); Fully Anechoic Chamber (FAC).

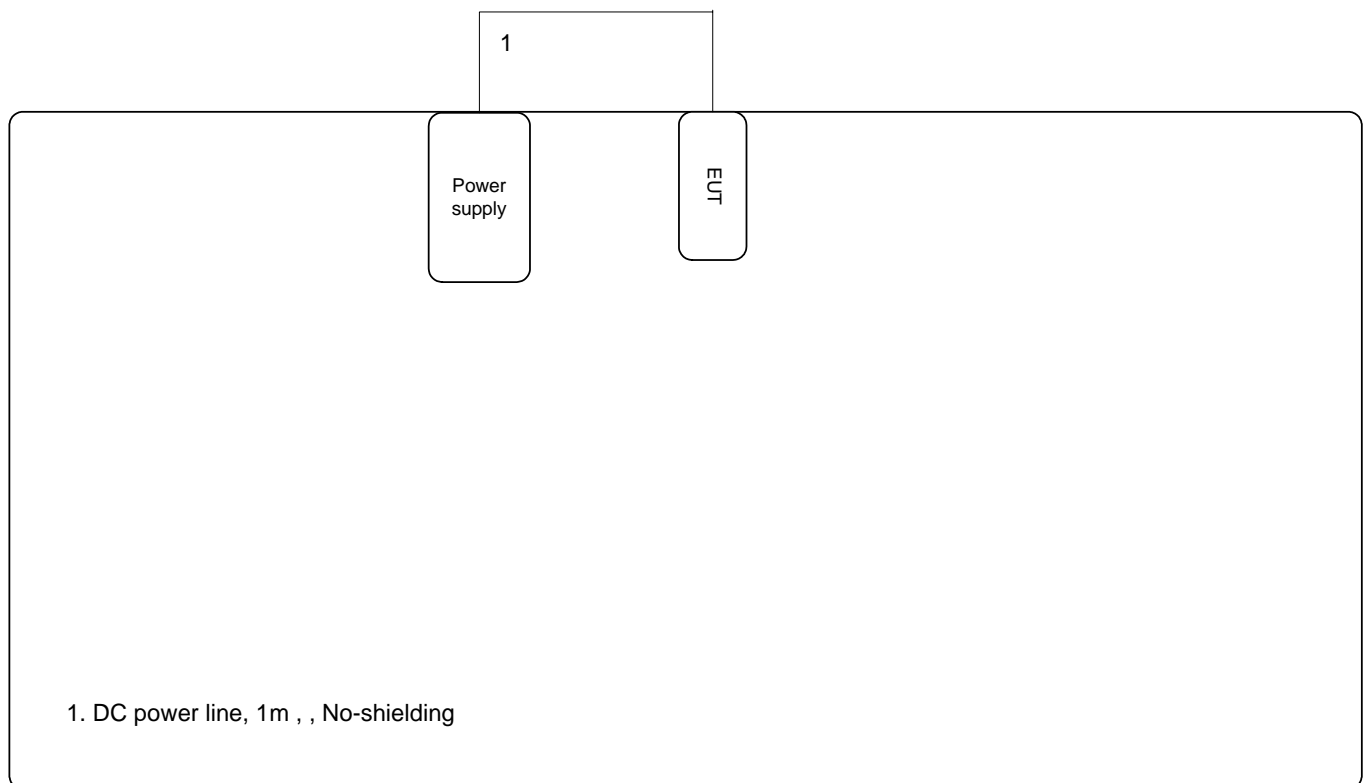
Please refer section 6 for Test Site Address.

3.5. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
POWER SUPPLY	GW	GPC-6030D	DoC

3.6. Test Configurations

3.6.1. Radiation Emissions Test Configuration



3.6.2. AC Power Line Conduction Emissions Test Configuration

The EUT is no need to do this testing.

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

4.1.2. Measuring Instruments and Setting

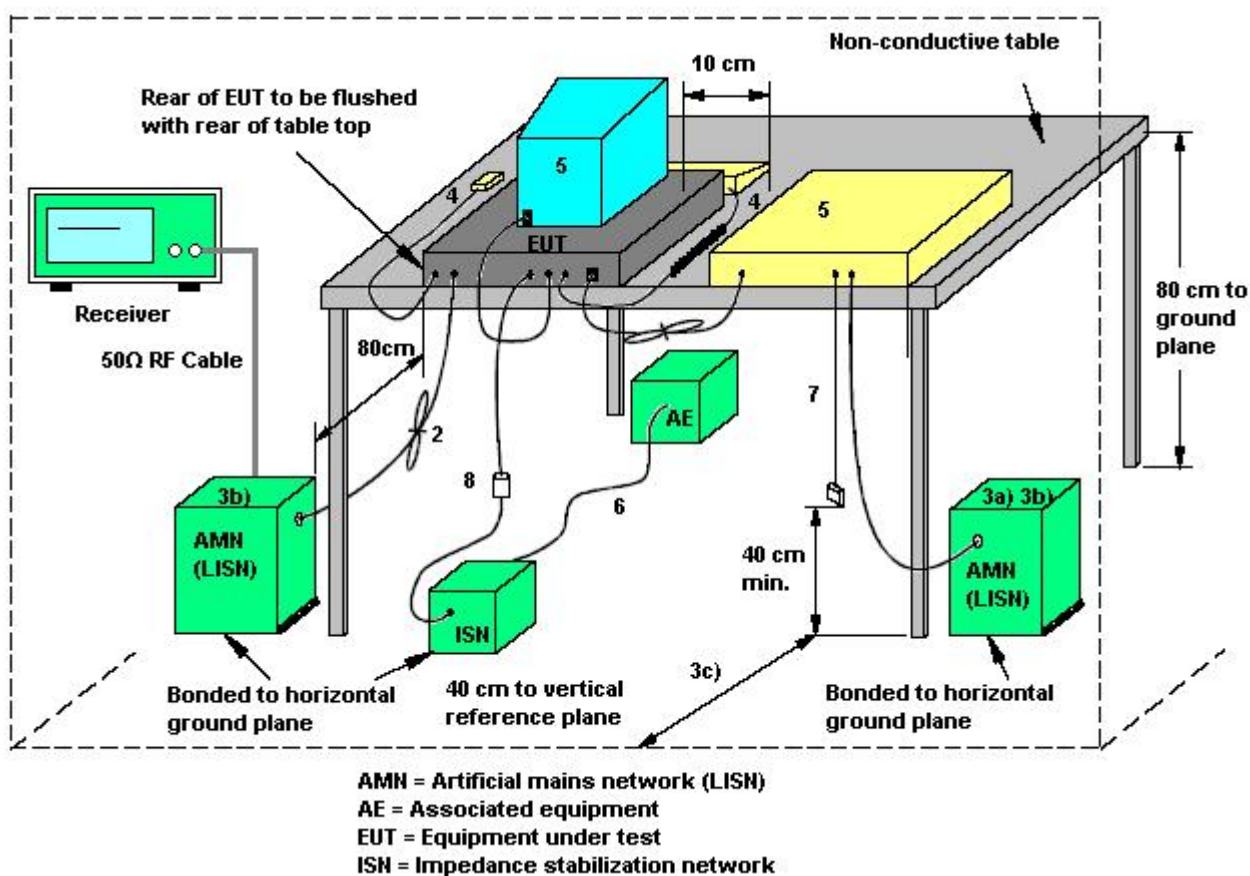
Please refer to section 5 in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT or host of 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.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 KHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



1. If cables, which hang closer than 40 cm to the horizontal metal groundplane, cannot be shortened to appropriate length, the excess shall be folded back and forth forming a bundle 30 cm to 40 cm long.
2. Excess mains cord shall be bundled in the centre or shortened to appropriate length.
3. EUT is connected to one artificial mains network (AMN). All AMNs and ISNs may alternatively be connected to a vertical reference plane or metal wall.
4. All other units of a system are powered from a second AMN. A multiple outlet strip can be used for multiple mains cords.
5. AMN and ISN are 80 cm from the EUT and at least 80 cm from other units and other metal planes.
6. Mains cords and signal cables shall be positioned for their entire lengths, as far as possible, at 40 cm from the vertical reference plane.
7. Cables of hand operated devices, such as keyboards, mice, etc. shall be placed as for normal usage.
8. Peripherals shall be placed at a distance of 10 cm from each other and from the controller, except for the monitor which, if this is an acceptable installation practice, shall be placed directly on the top of the controller.
9. I/O signal cable intended for external connection.
10. The end of the I/O signal cables which are not connected to an AE may be terminated, if required, using correct terminating impedance.
11. If used, the current probe shall be placed at 0.1 m from the ISN.

4.1.5. Test Deviation

There are no deviations with the original standard.

4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

4.1.7. Results of AC Power Line Conducted Emissions Measurement

The EUT is no need to do this testing.

4.2. Field Strength of Fundamental Emissions Measurement

4.2.1. Limit

The field strength of emissions within these bands specified at a distance of 3 meters shall comply with the following table.

Frequency Band (MHz)	Fundamental Emissions Limit (dBuV/m) at 3m
88~108	48 (Average)
88~108	68 (Peak)

4.2.2. Measuring Instruments and Setting

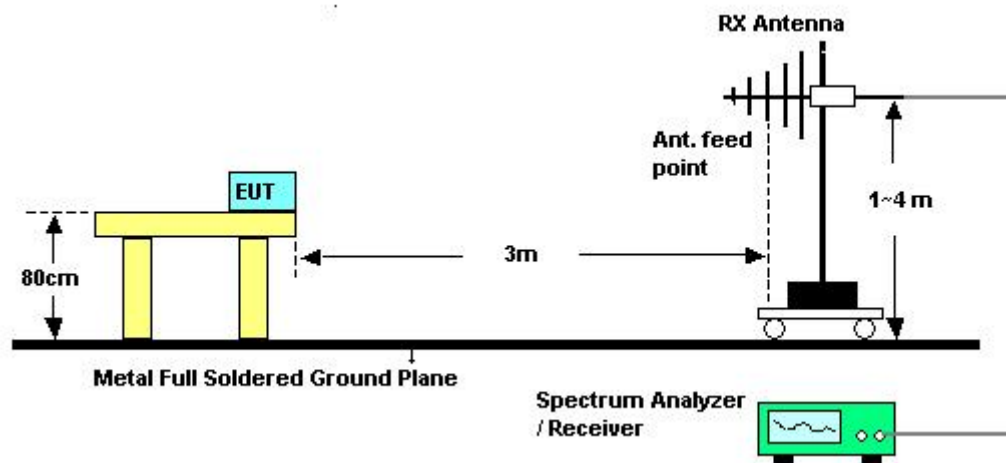
Please refer to section 5 in this report. The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	Auto
Center Frequency	Fundamental Frequency
RB	120 KHz
Detector	Peak / Average

4.2.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. 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.
2. Power on the EUT and all the supporting units. 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 emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, 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 Fundamental emissions, use the receiver to measure peak and average reading.
6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There are no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Field Strength of Fundamental Emissions

Temperature	26°C	Humidity	67%
Test Engineer	Rush Kao	Configurations	X axis / Channel 1

	Freq	Level	Over Limit	Limit	Antenna Line Factor	Cable Loss	Preamp Factor	Read Level	Pol/Phase	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		
3	88.078	43.52	-24.48	68.00	8.40	0.82	30.05	64.35	VERTICAL	PEAK
4 @	88.078	42.02	-5.98	48.00	8.40	0.82	30.05	62.85	VERTICAL	Average
3	88.078	38.55	-9.45	48.00	8.40	0.82	30.05	59.38	HORIZONTAL	Average
4	88.078	39.36	-28.64	68.00	8.40	0.82	30.05	60.20	HORIZONTAL	PEAK

Note:

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

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

Receiving maximum fundamental emissions are Vertical Polarization / H: Horizontal Polarization

4.3. 20dB Spectrum Bandwidth Measurement

4.3.1. Limit

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency.

4.3.2. Measuring Instruments and Setting

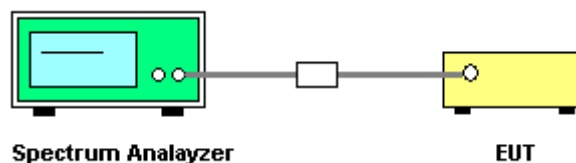
Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 20dB Bandwidth
RB	10 kHz
VB	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
2. The resolution bandwidth of 10 kHz and the video bandwidth of 10 kHz were used.
3. Measured the spectrum width with power higher than 20dB below carrier.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There are no deviations with the original standard.

4.3.6. EUT Operation during Test

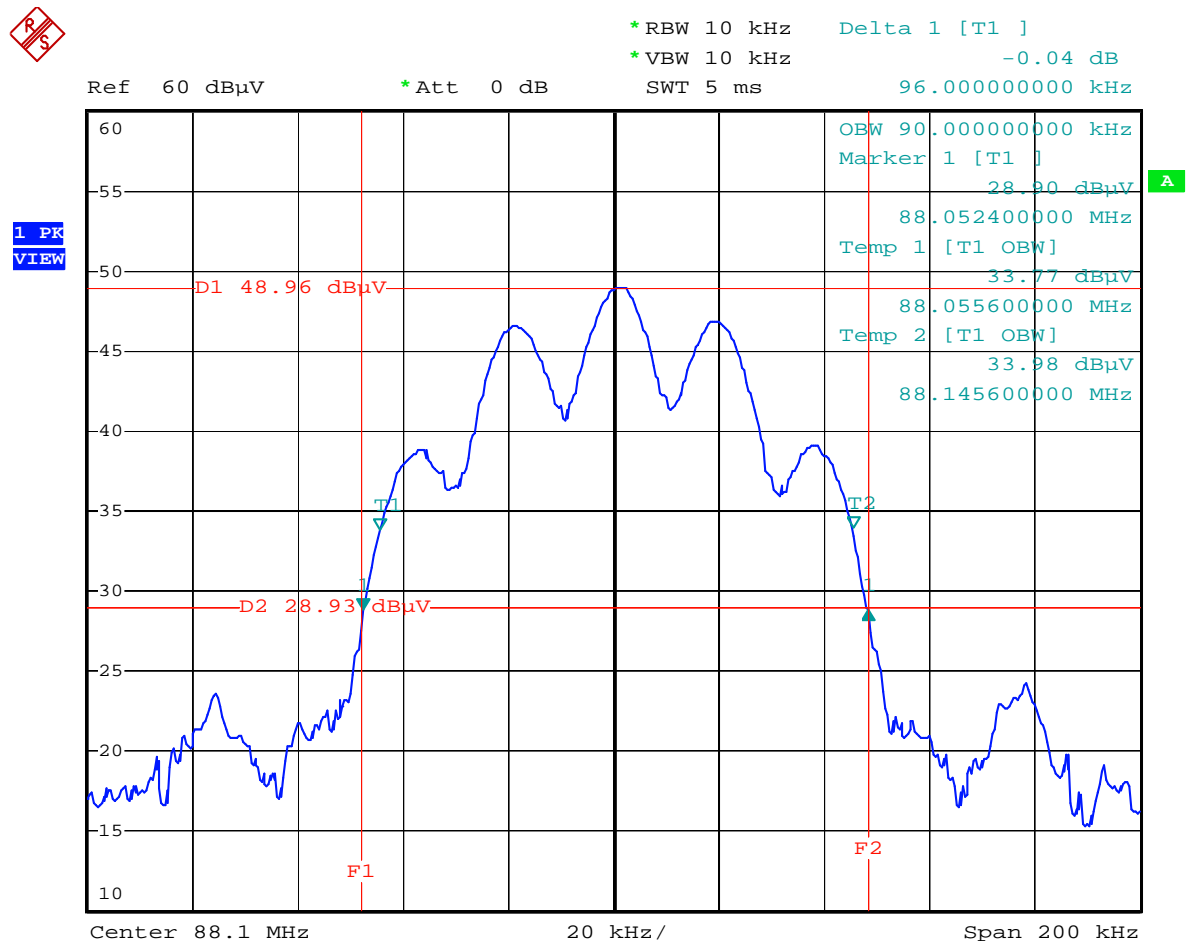
The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 20dB Spectrum Bandwidth

Temperature	20°C	Humidity	58%
Test Engineer	Leo Hung	Configurations	Channel 1

Frequency	20dB BW (kHz)	99% OBW (kHz)	Frequency range (MHz) $f_L > 88\text{MHz}$	Frequency range (MHz) $f_H < 108\text{MHz}$	Test Result
88.1 MHz	96.00	90.00	88.0524	-	Complies

20 dB/99% Bandwidth Plot on 88.1 MHz



Date: 13.OCT.2005 18:46:44

4.4. Radiated Emissions Measurement

4.4.1. Limit

The field strength of any emissions which appear outside of this band shall not exceed the general radiated emissions limits in Section 15.209(a)

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.4.2. Measuring Instruments and Setting

Please refer to section 5 in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100KHz / 100KHz for peak

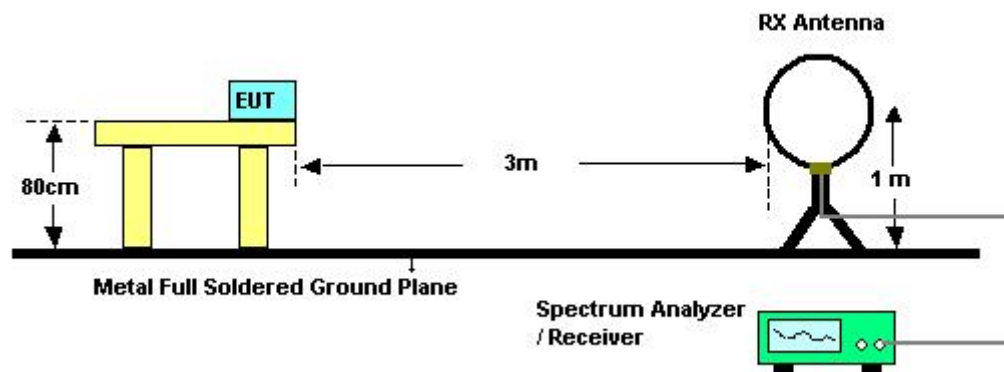
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.4.3. Test Procedures

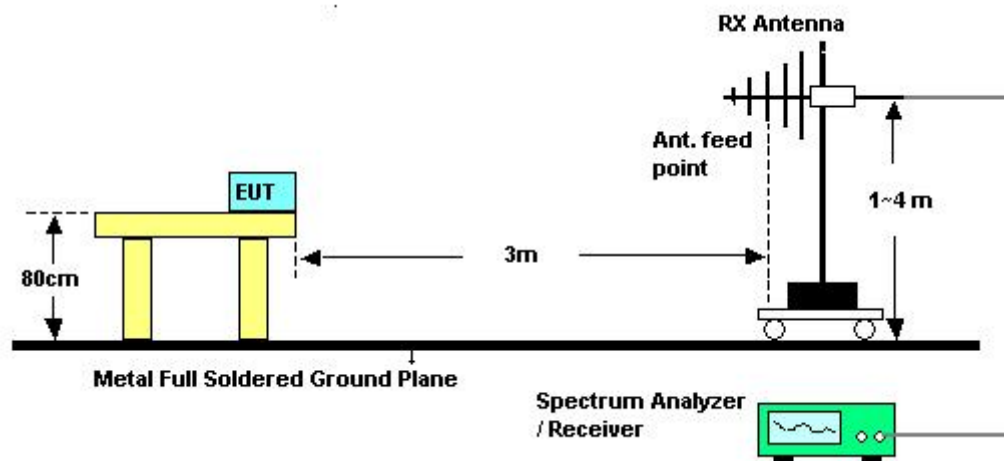
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. 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 emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, 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. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions 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.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions 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.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.4.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



4.4.5. Test Deviation

There are no deviations with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Results of Radiated Emissions (9kHz~30MHz)

Temperature	26°C	Humidity	68%
Test Engineer	Rush Kao	Configurations	X axis / Channel 1

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

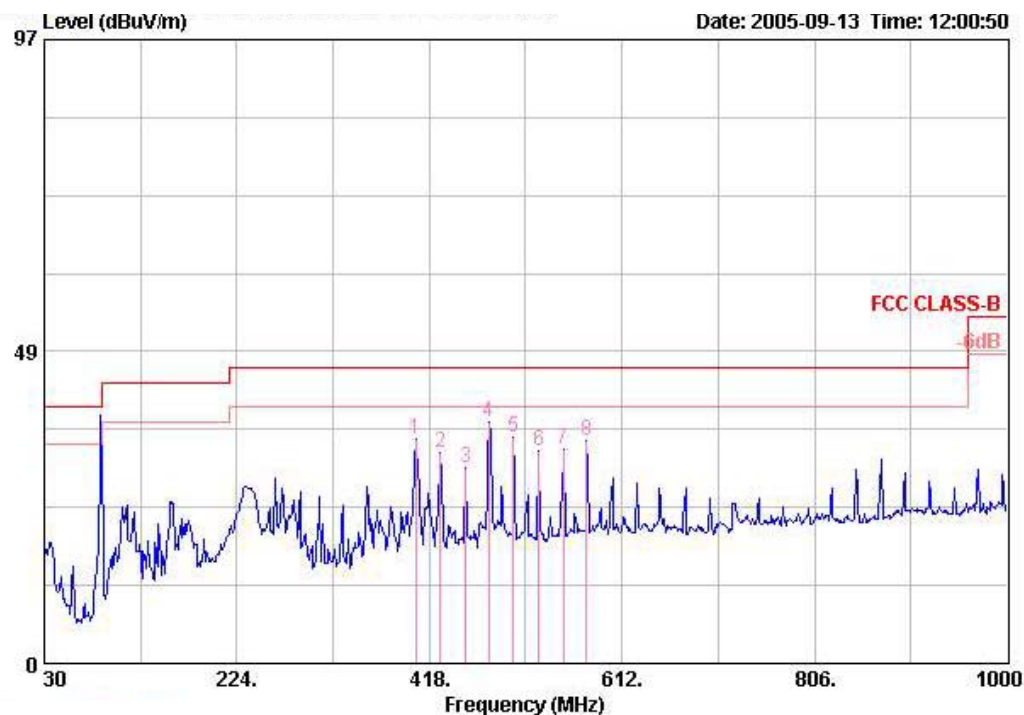
Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

4.4.8. Results for Radiated Emissions (30MHz~10th Harmonic)

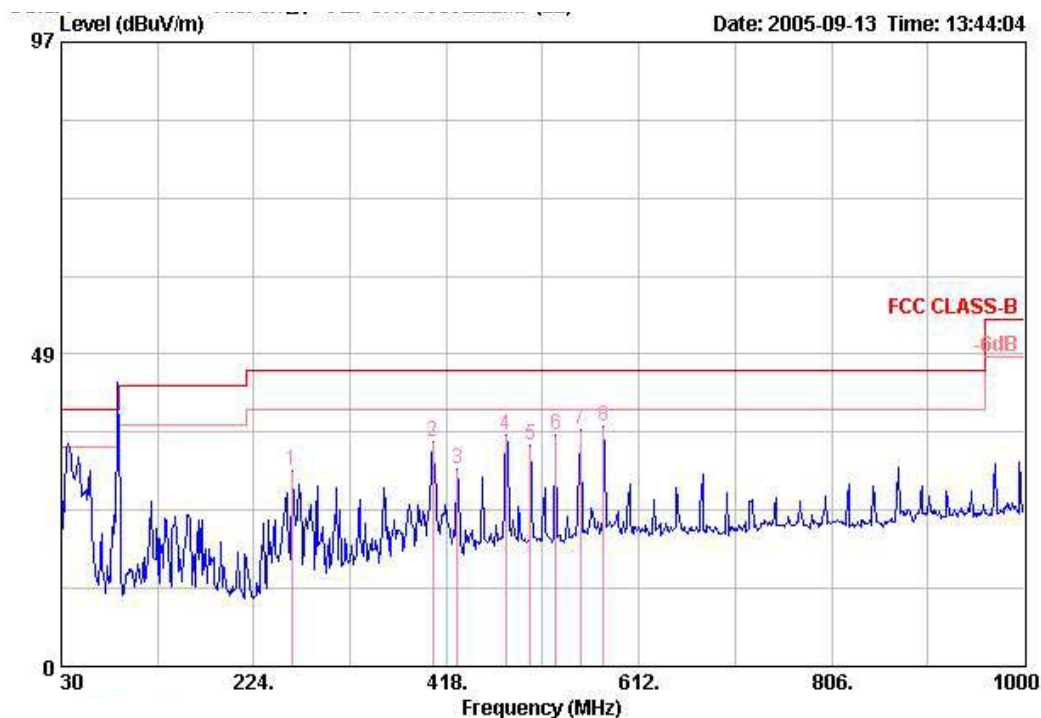
Temperature	26°C	Humidity	68%
Test Engineer	Rush Kao	Configurations	X axis / Channel 1

Horizontal



	Freq	Level	Over Limit	Limit	Antenna Line Factor	Cable Loss	Preamp	Read Level	Pol/Phase	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		
1	404.420	34.84	-11.16	46.00	16.10	1.40	30.35	47.68	HORIZONTAL	Peak
2	428.670	32.83	-13.17	46.00	16.42	1.45	30.41	45.37	HORIZONTAL	Peak
3	454.860	30.46	-15.54	46.00	16.50	1.44	30.47	42.98	HORIZONTAL	Peak
4	478.140	37.47	-8.53	46.00	17.05	1.52	30.61	49.51	HORIZONTAL	Peak
5	502.390	35.04	-10.96	46.00	17.43	1.54	30.52	46.59	HORIZONTAL	Peak
6	528.580	32.92	-13.08	46.00	17.70	1.71	30.58	44.09	HORIZONTAL	Peak
7	552.830	33.30	-12.70	46.00	18.42	1.83	30.64	43.70	HORIZONTAL	Peak
8	576.110	34.61	-11.39	46.00	18.68	1.66	30.76	45.04	HORIZONTAL	Peak

Vertical



	Freq	Level	Over	Limit	Antenna	Cable	Preamp	Read		
	MHz	dBUV/m	Limit	Line	Factor	Loss	Factor	Level	Pol/Phase	Remark
			dB	dBUV/m	dB/m	dB	dB	dBUV		
1	261.830	30.30	-15.70	46.00	12.94	1.02	30.07	46.41	VERTICAL	Peak
2	404.420	34.87	-11.13	46.00	16.10	1.40	30.35	47.72	VERTICAL	Peak
3	428.670	30.74	-15.26	46.00	16.42	1.45	30.41	43.28	VERTICAL	Peak
4	478.140	35.96	-10.04	46.00	17.05	1.52	30.61	48.01	VERTICAL	Peak
5	502.390	34.46	-11.54	46.00	17.43	1.54	30.52	46.01	VERTICAL	Peak
6	528.580	35.96	-10.04	46.00	17.70	1.71	30.58	47.13	VERTICAL	Peak
7	552.830	36.86	-9.14	46.00	18.42	1.83	30.64	47.26	VERTICAL	Peak
8	576.110	37.35	-8.65	46.00	18.68	1.66	30.76	47.77	VERTICAL	Peak

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Emission level (dBUV/m) = 20 log Emission level (uV/m).

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

Pol. : V is Vertical Polarization ; H is Horizontal Polarization.

4.5. Band Edge Emissions Measurement

4.5.1. Limit

Band edge emissions outside of the frequency bands shown in below table.

Outside Frequency Band Edge	Limit (dBuV/m) at 3m
Below 88MHz	40.0 (QP)
Above 108MHz	43.5 (QP)

4.5.2. Measuring Instruments and Setting

Please refer to section 5 in this report. The following table is the setting of the receiver.

Receiver Parameter	Setting
Center Frequency	Fundamental Frequency
RB	120 KHz
Detector	QP or Peak

4.5.3. Test Procedures

The test procedure is the same as section 4.2.3, only the frequency range investigated is limited to 2MHz around bandedges.

4.5.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.2.4

4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Band Edge Emissions

Temperature	26°C	Humidity	68%
Test Engineer	Rush Kao	Configurations	X axis / Channel 1

	Freq	Level	Over Limit	Limit	Antenna Line Factor	Cable Loss	Preamp Factor	Read Level	Pol/Phase	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		
1	88.000	29.63	-10.37	40.00	8.40	0.82	30.05	50.46	HORIZONTAL	PEAK
2	88.000	28.12	-19.88	48.00	8.40	0.82	30.05	48.95	HORIZONTAL	Average
1 @	88.000	33.80	-6.20	40.00	8.40	0.82	30.05	54.63	VERTICAL	PEAK
2	88.000	31.25	-16.75	48.00	8.40	0.82	30.05	52.08	VERTICAL	Average

Note:

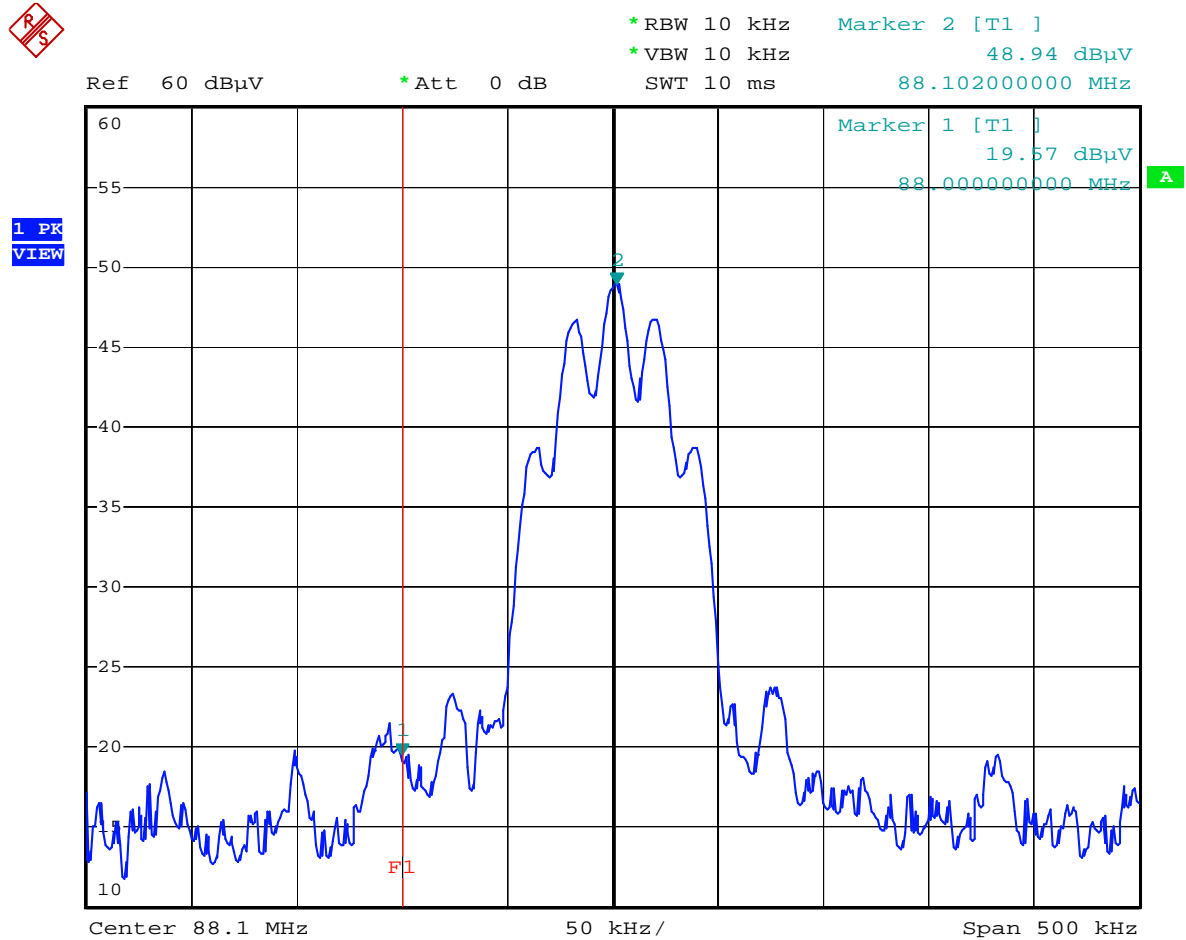
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

Receiving maximum band edge emissions are Vertical Polarization /Horizontal Polarization.

Channel 5 is far from the upper bandage of operating band, 88MHz~108MHz. It is not required to perform upper bandage at channel 5.

Low Band Edge Plot on 88.1 MHz



Date: 13.OCT.2005 19:01:09

4.6. Antenna Requirements

4.6.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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 the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.6.2. Antenna Connector Construction

There is no antenna connectors comply with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	Jun. 16, 2005	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP40	100019	9KHZ~40GHz	Jul. 21, 2005	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	CPA9231A	18667	9KHz ~ 2GHz	Jan. 10, 2005	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1GHz ~ 26.5GHz	May 31, 2005	Radiation (03CH03-HY)
Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz ~ 200MHz	Jul. 22, 2005	Radiation (03CH03-HY)
Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz ~ 1GHz	Jul. 22, 2005	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	Apr. 22, 2005	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz ~ 1GHz	Feb. 22, 2005	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz ~ 40GHz	Dec.01, 2004	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz ~ 1GHz	Feb. 22, 2005	Radiation (03CH03-HY)
Spectrum analyzer	R&S	FSP40	100116	9kHz ~ 40GHz	Jan. 28, 2005	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Amplifier	MITEQ	AMF-6F-260400	923364	26.5GHz ~ 40GHz	Jan. 05, 2004*	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9kHz ~ 30MHz	May 24, 2004*	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz ~ 40GHz	Jun. 09, 2004*	Radiation (03CH03-HY)

Note: Calibration Interval of instruments listed above is two year.




6. SPORTON 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.

6.1. 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., 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
JHUBEI	ADD : No.8, Lane 728, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C. TEL : 03-656-9065 FAX : 03-656-9085

7. CERTIFICATE OF NVLAP ACCREDITATION

United States Department of Commerce National Institute of Standards and Technology	
	
ISO/IEC 17025:1999 ISO 9002:1994	
Certificate of Accreditation	
SPORTON INTERNATIONAL, INC. TAIPEI HSIEN 221 TAIWAN	
<i>is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:</i>	
ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS	
December 31, 2005 <hr/> Effective through	 <hr/> For the National Institute of Standards and Technology NVLAP Lab Code: 200079-0

NVLAP-01C (06-01)