SPORTON International Inc.
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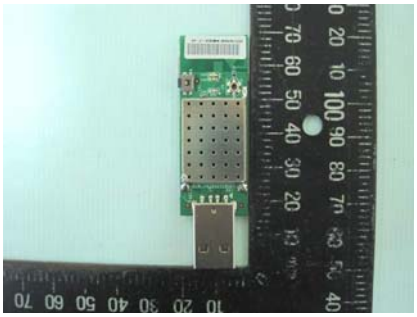
FCC EMC TEST REPORT

Applicant's company	**Arcadyan Technology Corporation**
Applicant Address	4F, No.9, Park Avenue II, Science-based Industrial Park, Hsinchu 300, Taiwan, R.O.C

Product Name	11n wireless USB module
Model Name	WN8522B-LF-ZZ, WN8522B-LF-FA
Test Standard	1. 47 CFR FCC Part 15 Subpart B 2. ICES-003
Classification of ITE	Class B
Received Date	Aug. 27, 2009
Final Test Date	Sep. 13, 2009
Submission Type	Original Equipment
Multiple Listing	Please refer to section 3.7



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 B and IC ICES-003**.The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Testing Laboratory
1190

Table of Contents

History of This Test Report

Original Issue Date: Apr. 15, 2010

Report No.: FD982208-02

■ No additional attachment.

□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

1. CERTIFICATE OF COMPLIANCE

Product Name	:	11n wireless USB module
Model Name	:	WN8522B-LF-ZZ, WN8522B-LF-FA
Applicant	:	Arcadyan Technology Corporation
Test Standard	:	1. 47 CFR FCC Part 15 Subpart B
		2. ICES-003

Sporton International as requested by the applicant to evaluate the EMI performance of the product sample received on Aug. 27, 2009 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 EMI nature.

Jordan Hsiao 2010.4.15

Jordan Hsiao
SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart B				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.107	AC Power Line Conducted Emissions	Complies	10.32 dB
4.2	15.109	Radiated Emissions	Complies	3.34 dB

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Radiated Emissions	±1.9dB	Confidence levels of 95%

3. GENERAL INFORMATION

3.1. Product Details

<For 5GHz Band>:

802.11a Band 1 ~Band 3

Draft n

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	see the below table for draft n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for Draft n
Frequency Range	5150 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	19 for 20MHz bandwidth ; 9 for 40MHz bandwidth
Channel Band Width (99%)	MCS8 (20MHz): 18.08 MHz ; MCS8 (40MHz): 36.32 MHz
Conducted Output Power	Band 1: MCS8 (20MHz): 15.00 dBm ; MCS8 (40MHz): 13.88 dBm Band 2: MCS8 (20MHz): 14.26 dBm ; MCS8 (40MHz): 13.88 dBm Band 3: MCS8 (20MHz): 16.91 dBm ; MCS8 (40MHz): 14.58 dBm

802.11a

Items	Description
Product Type	WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	OFDM for IEEE 802.11a
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	OFDM (6/9/12/18/24/36/48/54)
Frequency Range	5150 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	11a: 19
Channel Band Width (99%)	11a: 17.44 MHz
Conducted Output Power	Band 1: 15.48 dBm ; Band 2: 15.54 dBm ; Band 3: 15.84 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

<For 5GHz Band>:

802.11a Band 4

Draft n

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	see the below table for draft n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for Draft n
Frequency Range	5725 ~ 5850MHz
Channel Number	5 for 20MHz bandwidth ; 2 for 40MHz bandwidth
Channel Band Width (99%)	MCS8 (20MHz): 17.68 MHz ; MCS8 (40MHz): 36.16 MHz
Conducted Output Power	MCS8 (20MHz): 14.10 dBm ; MCS8 (40MHz): 14.40 dBm

802.11a

Items	Description
Product Type	WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	OFDM for IEEE 802.11a
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	OFDM (6/9/12/18/24/36/48/54)
Frequency Range	5725 ~ 5850MHz
Channel Number	11a: 5
Channel Band Width (99%)	11a: 16.60 MHz
Conducted Output Power	11a: 14.82 dBm

<For 2.4GHz Band>:

Draft n

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	see the below table for draft n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for Draft n
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11 for 20MHz bandwidth ; 7 for 40MHz bandwidth
Channel Band Width (99%)	MCS8 (20MHz): 17.68 MHz ; MCS8 (40MHz): 36.16 MHz
Conducted Output Power	MCS8 (20MHz): 19.29 dBm ; MCS8 (40MHz): 17.91 dBm

802.11b/g

Items	Description
Product Type	WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11b/g: 11
Channel Band Width (99%)	11b: 13.28 MHz ; 11g: 16.52 MHz
Conducted Output Power	11b: 16.41 dBm ; 11g: 18.41 dBm

Antenna & Band width

Antenna	Single (TX)		Two (TX)	
Band width Mode	20 MHz	40 MHz	20 MHz	40 MHz
802.11a	V	X	X	X
802.11b	V	X	X	X
802.11g	V	X	X	X
Draft n	X	X	V	V

Draft n spec

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Datarate(Mbps)			
									800nsGI		400nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.200	15
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.400	30
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.700	45
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.900	60
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.300	90
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.800	120
6	1	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.000	135
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.200	150
8	2	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.444	30
9	2	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.889	60
10	2	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.333	90
11	2	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.778	120
12	2	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.667	180
13	2	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.556	240
14	2	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.000	270
15	2	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.444	300

Draft n Bandwidth

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPSC	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	guard interval

3.2. Accessories

Accessories
USB Cable with Cradle

3.3. Table for Filed Antenna

<For 5GHz>:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
A	-	-	PCB Antenna	N/A	2
B	-	-	PCB Antenna	N/A	2

<For 2.4GHz>:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
A	-	-	PCB Antenna	N/A	2
B	-	-	PCB Antenna	N/A	2

Note: The EUT has two antennas.

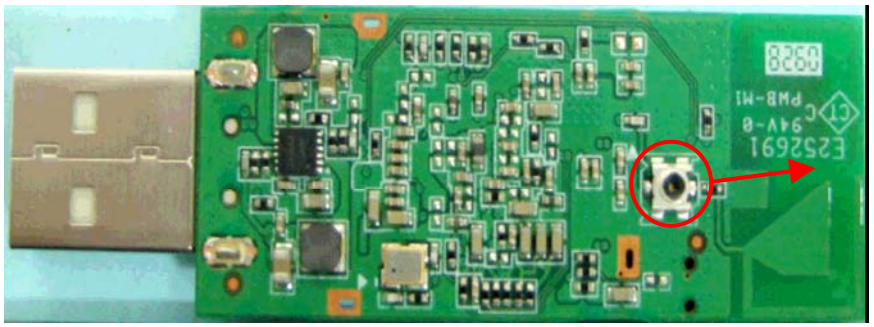
For IEEE 802.11a/b/g Mode:

Ant. A can be used as transmitting antenna.

Ant. B can be used as receiving antenna.

For Draft n Mode:

Ant. A & Ant. B could transmit/receive simultaneously.



3.4. Table for Carrier Frequencies

<For 2.4GHz Band>:

Frequency Allocation for 802.11b/g

There are two bandwidth systems for draft n.

For both 20MHz bandwidth systems, use Channel 1~Channel 11.

For both 40MHz bandwidth systems, use Channel 3~Channel 9.

Frequency Band	Channel No.	Frequency
2400~2483.5MHz	1	2412 MHz
	2	2417 MHz
	3	2422 MHz
	4	2427 MHz
	5	2432 MHz
	6	2437 MHz
	7	2442 MHz
	8	2447 MHz
	9	2452 MHz
	10	2457 MHz
	11	2462 MHz

<For 5GHz Band>:

Frequency Allocation for 802.11a

There are two bandwidth systems for draft n.

For both 20MHz bandwidth systems, use Channel 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165.

For both 40MHz bandwidth systems, use Channel 38, 46, 54, 62, 102, 110, 118, 126, 134, 151, 159.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz	44	5220 MHz
	38 (36,40)	5190 MHz	46 (44,48)	5230 MHz
	40	5200 MHz	48	5240 MHz
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	54 (52,56)	5270 MHz	62 (60,64)	5310 MHz
	56	5280 MHz	64	5320 MHz
5470~5725 MHz Band 3	100	5500 MHz	124	5620 MHz
	102 (100,104)	5510 MHz	126 (124,128)	5630 MHz
	104	5520 MHz	128	5640 MHz
	108	5540 MHz	132	5660 MHz
	110 (108,112)	5550 MHz	134 (132,136)	5670 MHz
	112	5560 MHz	136	5680 MHz
	116	5580 MHz	140	5700 MHz
	118 (116,120)	5590 MHz		
	120	5600 MHz		
5725~5850 MHz	149	5745 MHz	159 (157,161)	5795 MHz
	151 (149,153)	5755 MHz	161	5805 MHz
	153	5765 MHz	165	5825 MHz
	157	5785 MHz		

3.5. 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	Antenna
AC Power Line Conducted Emissions	Normal Use	A, B
Radiated Emissions	CRX/Normal Use	A, B

NOET: CRX=continuously receiving

NOTE: All the test modes were illustrated as below.

Test Mode 1: EUT + USB Cable with Cradle

Test Mode 2: EUT

<For Conducted Emissions Test>:

Due to Mode 1 generated the worst test result, so it was recorded in this report.

<For Radiated Emissions Test Below 1GHz>:

Due to Mode 1 generated the worst test result, so it was recorded in this report.

3.6. Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH03-HY	SAC	Hwa Ya	480872	IC 4086	-
CO04-HY	Conduction	Hwa Ya	480872	IC 4086	-

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

Please refer section 6 for Test Site Address.

3.7. Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Name	Description
WN8522B-LF-ZZ	All the models are identical, the difference model served as marketing strategy.
WN8522B-LF-FA	

3.8. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	PP25L	E2K4965AGNM
Mouse	iCooky	AMS0706W	DoC
Wireless AP	Planex	GW-AP54SGX	N/A

3.9. EUT Operation during Test

An executive program, EMCTEST.EXE under WIN XP, which generates a complete line of continuously repeating " H " pattern was used as the test software.

The program was executed as follows :

a. Turn on the power of all equipment.

b. The NB sends " H" messages to the panel, and the panel displays " H " patterns on the screen.

During testing, the remote wireless network ancillary were connected by EUT.

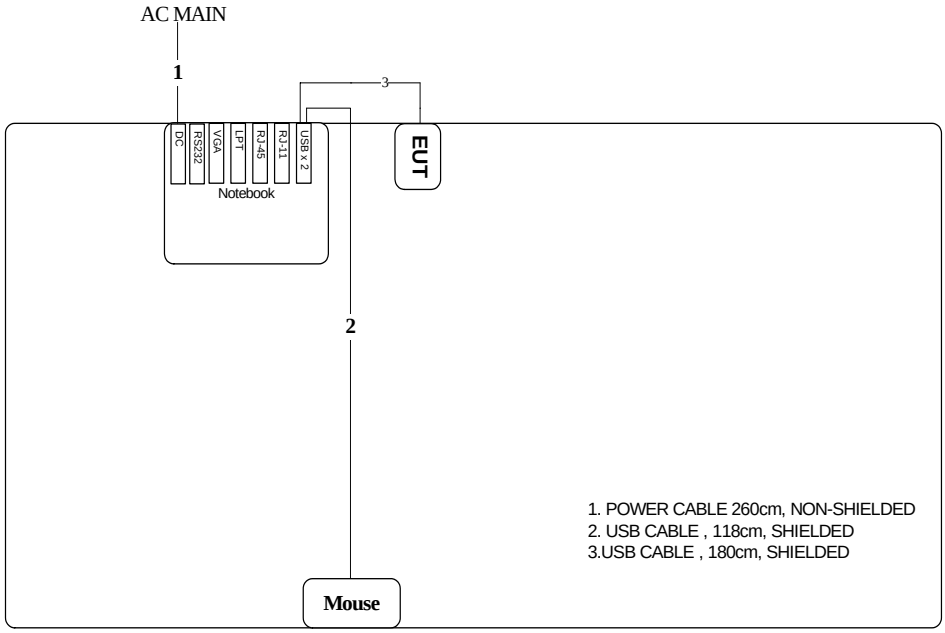
At the same time, "DOS" was executed to control the EUT continuously transmit RF signal.

3.10. Test Configurations

3.10.1. Radiation Emissions Test Configuration

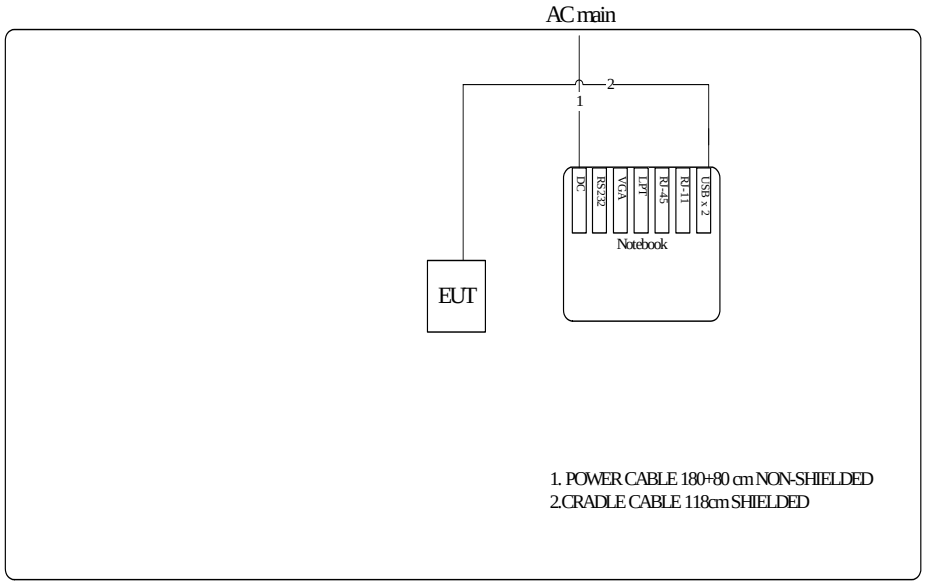
Test Configuration: 9KHz~1GHz

Test Mode: Mode 1



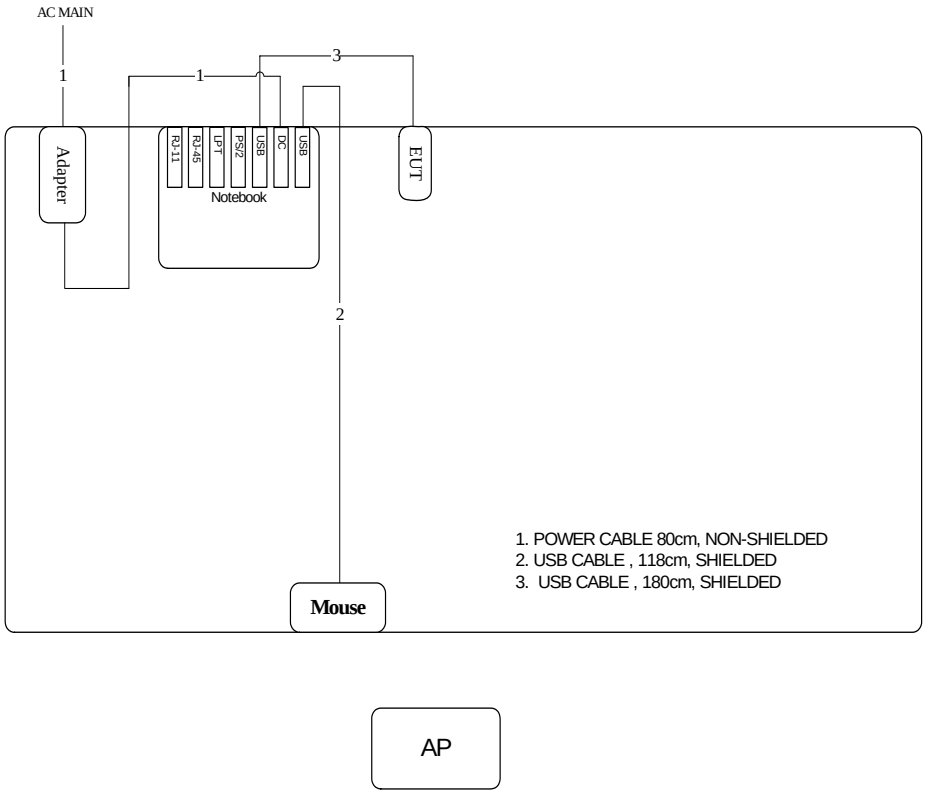
AP

Test Configuration: Above 1GHz



3.10.2. AC Power Line Conduction Emissions Test Configuration

Test Mode: Mode 1



AP

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product 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

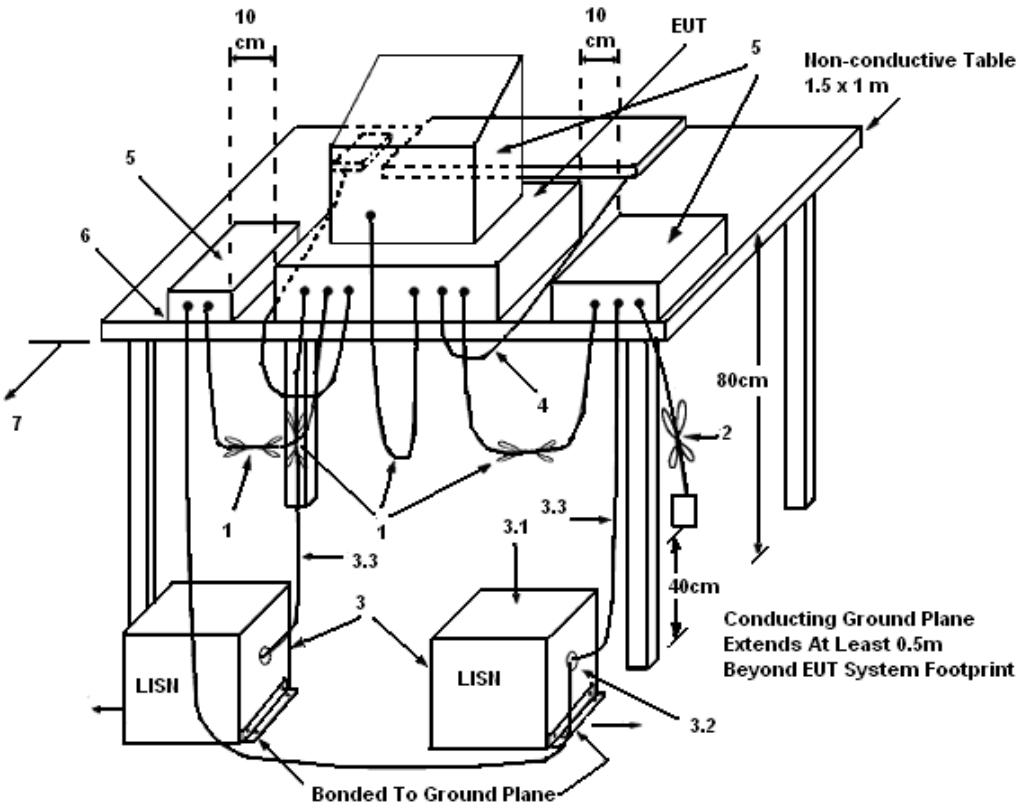
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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. 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



LEGEND:

(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.

(3.1) All other equipment powered from additional LISN(s).

(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

(3.3) LISN at least 80 cm from nearest part of EUT chassis.

(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

(5) Non-EUT components of EUT system being tested.

(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

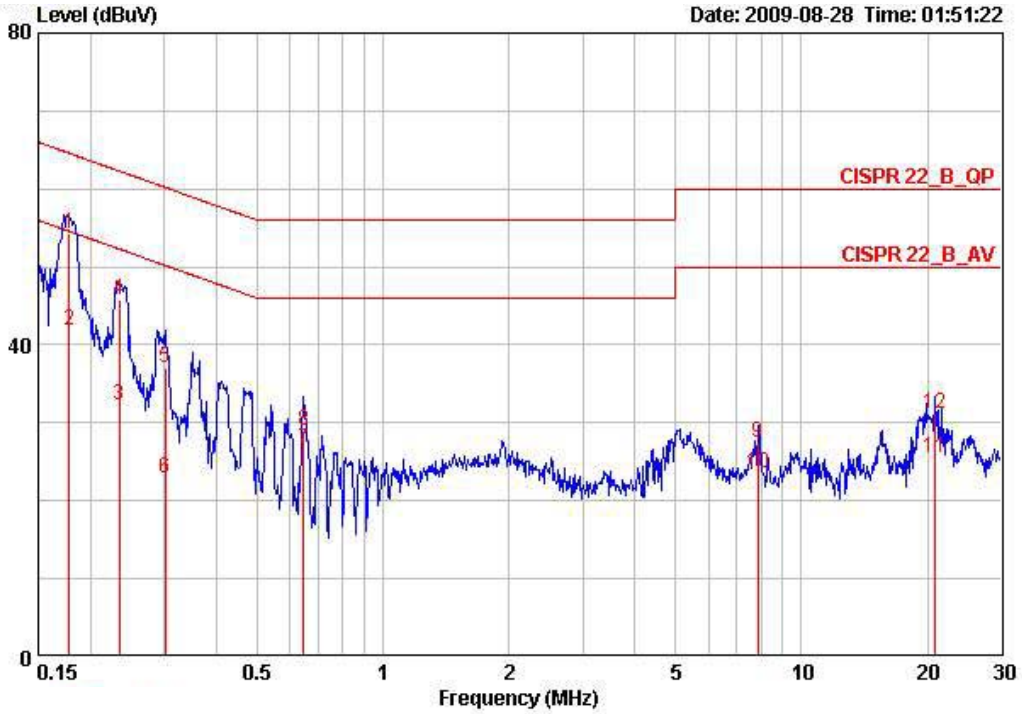
4.1.5. Test Deviation

There is no deviation with the original standard.

4.1.6. Results of AC Power Line Conducted Emissions Measurement

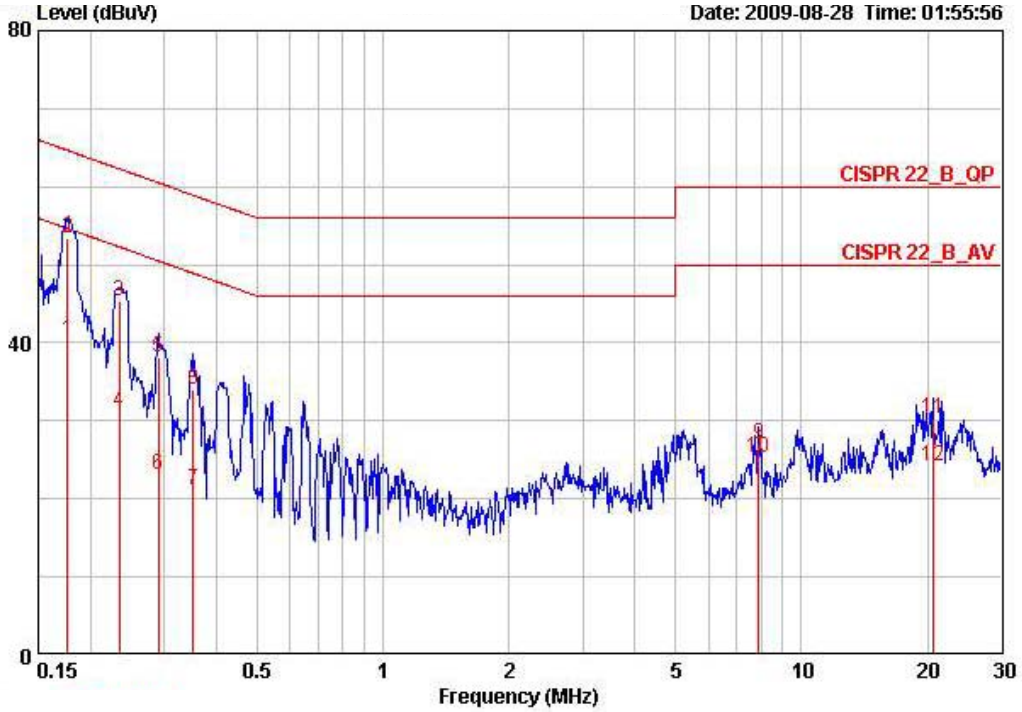
<For Test Mode 1>:

Temperature	24°C	**Humidity**	56%
Test Engineer	Peter Wu	**Phase**	Line
Configuration	Mode 1		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 @	0.17787	54.26	-10.32	64.58	54.00	0.06	0.20	QP
2 @	0.17787	41.89	-12.69	54.58	41.63	0.06	0.20	AVERAGE
3	0.23402	32.34	-19.97	52.31	32.09	0.05	0.20	AVERAGE
4	0.23402	45.73	-16.58	62.31	45.48	0.05	0.20	QP
5	0.30188	37.00	-23.19	60.19	36.76	0.04	0.20	QP
6	0.30188	22.96	-27.23	50.19	22.72	0.04	0.20	AVERAGE
7	0.64740	26.54	-19.46	46.00	26.31	0.03	0.20	AVERAGE
8	0.64740	28.91	-27.09	56.00	28.68	0.03	0.20	QP
9	7.872	27.39	-32.61	60.00	26.71	0.28	0.40	QP
10	7.872	23.57	-26.43	50.00	22.89	0.28	0.40	AVERAGE
11	20.924	25.40	-24.60	50.00	24.01	0.89	0.50	AVERAGE
12	20.924	31.21	-28.79	60.00	29.82	0.89	0.50	QP

Temperature	24°C	Humidity	56%
Test Engineer	Peter Wu	Phase	Neutral
Configuration	Mode 1		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 @	0.17612	40.23	-14.44	54.67	39.94	0.09	0.20	AVERAGE
2 @	0.17612	53.38	-11.29	64.67	53.09	0.09	0.20	QP
3	0.23409	45.29	-17.02	62.30	45.01	0.08	0.20	QP
4	0.23409	31.19	-21.12	52.30	30.91	0.08	0.20	AVERAGE
5	0.29088	38.04	-22.45	60.50	37.77	0.07	0.20	QP
6	0.29088	23.07	-27.42	50.50	22.80	0.07	0.20	AVERAGE
7	0.35201	21.24	-27.67	48.91	20.97	0.07	0.20	AVERAGE
8	0.35201	34.02	-24.89	58.91	33.75	0.07	0.20	QP
9	7.921	27.05	-32.95	60.00	26.32	0.33	0.40	QP
10	7.921	25.23	-24.77	50.00	24.50	0.33	0.40	AVERAGE
11	20.594	30.24	-29.76	60.00	28.89	0.85	0.50	QP
12	20.594	24.16	-25.84	50.00	22.81	0.85	0.50	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. Radiated Emissions Measurement

4.2.1. Limit

Measurements shall be made with a quasi-peak measuring receiver in the frequency range 30 MHz to 5th harmonic of highest frequency. The quasi-peak measuring receiver shall be in accordance with clause 2 of CISPR 16-1. Receivers with peak detectors shall be in accordance with clause 3 of CISPR 16-1, and shall have a 6 dB bandwidth in accordance with clause 2 of CISPR 16-1.

Field Strength QP Limit (dBuV/m) at 10m

Frequency of Emission (MHz)	Field Strength QP Limit (dBuV/m) at 10m
30~230	30
230~1000	37

Field Strength QP Limit (dBuV/m) at 3m

Frequency of Emission (MHz)	Field Strength QP Limit (dBuV/m) at 3m
Above 960	54

4.2.2. Measuring Instruments and Setting

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

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

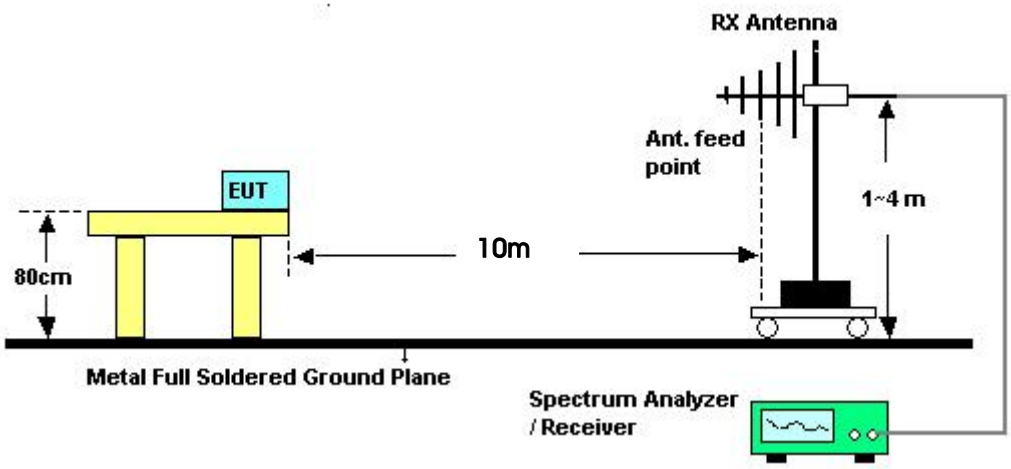
Spectrum Parameter	Setting
Start Frequency	1000 MHz
Stop Frequency	5th harmonic of highest frequency
RB / VB	1 MHz / 1MHz for Peak ; 1 MHz / 10Hz for Average

4.2.3. Test Procedures

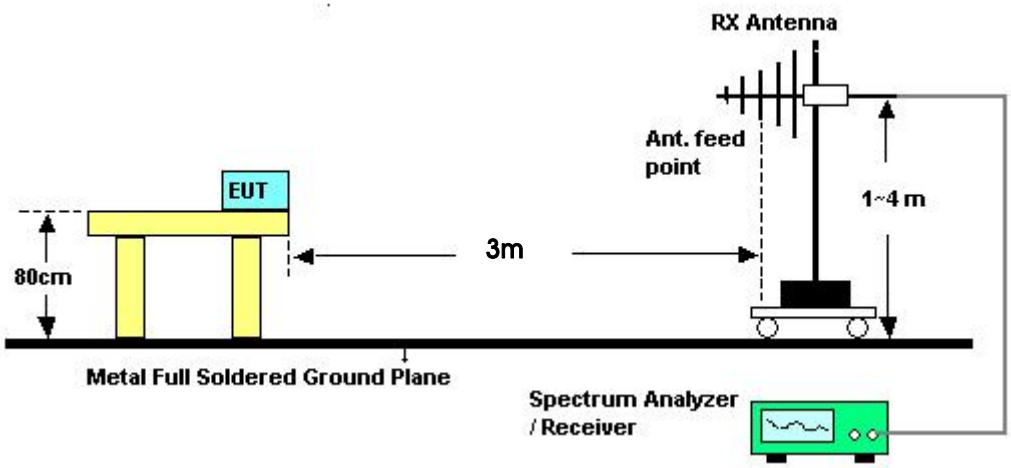
1. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 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.

4.2.4. Test Setup Layout

For 30MHz~1GHz



For Above 1GHz



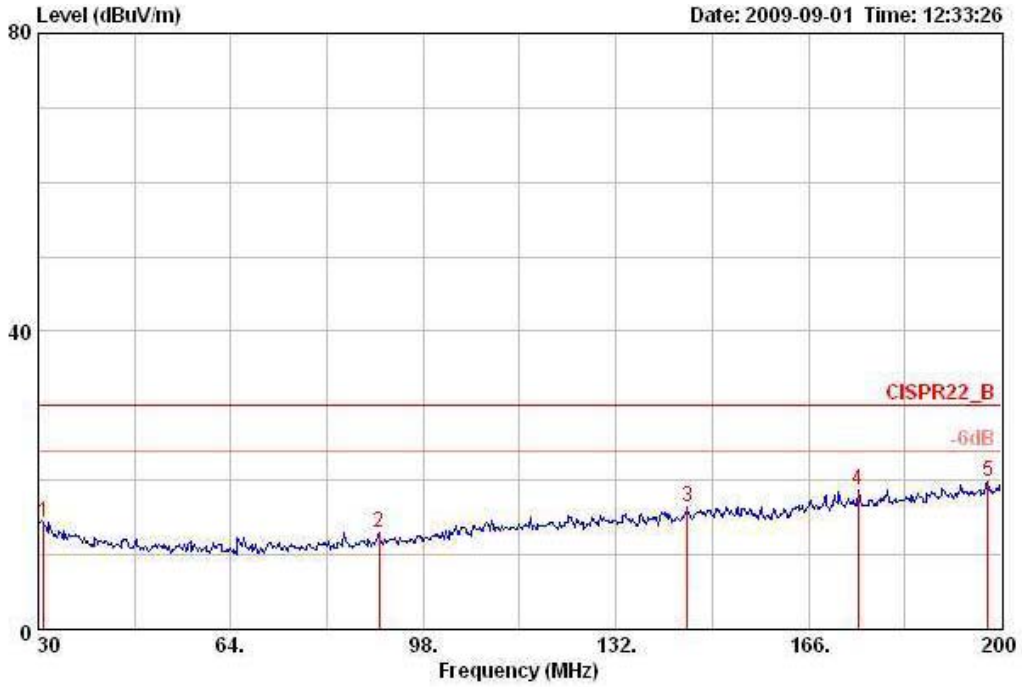
4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. Results of Radiated Emissions (30MHz~1GHz)

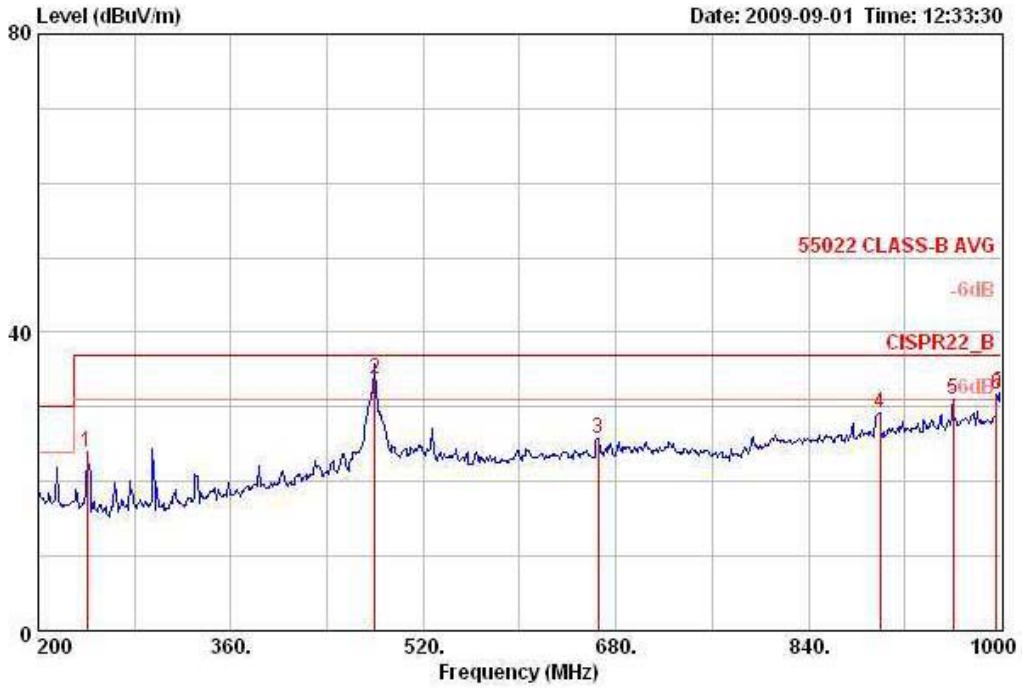
Temperature	24°C	Humidity	56%
Test Engineer	Howar Sung	Configurations	Normal Link / Mode 1

Horizontal



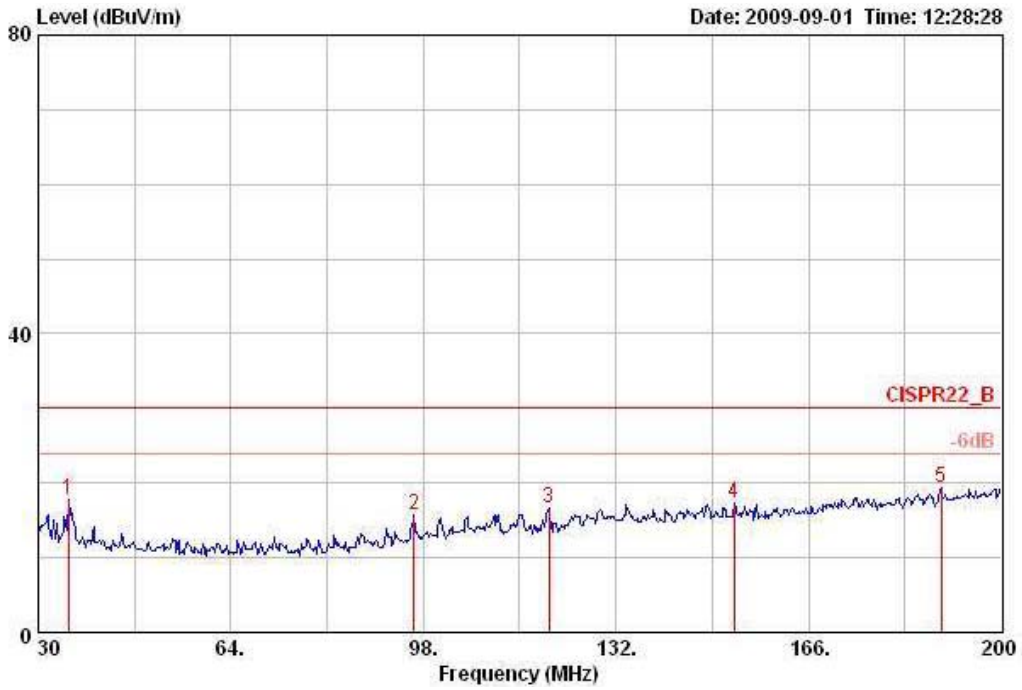
	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Table Pos	Ant Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		deg	cm	
1	31.020	14.42	-15.58	30.00	27.73	28.45	1.87	13.26	Peak	---	---	HORIZONTAL
2	90.180	12.97	-17.03	30.00	28.12	28.00	3.51	9.34	Peak	---	---	HORIZONTAL
3	144.580	16.37	-13.63	30.00	27.69	27.74	4.64	11.78	Peak	---	---	HORIZONTAL
4	174.670	18.80	-11.20	30.00	27.96	27.51	5.06	13.29	Peak	---	---	HORIZONTAL
5	197.620	19.73	-10.27	30.00	27.33	27.40	5.40	14.40	Peak	---	---	HORIZONTAL

Horizontal



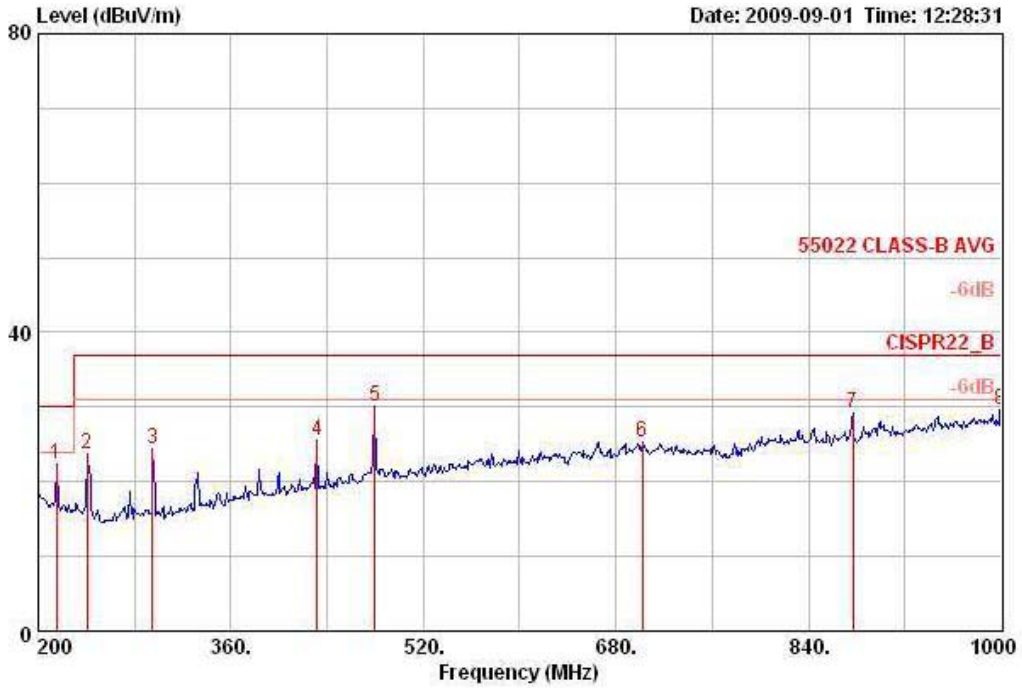
	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Table Pos	Ant Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		deg	cm	
1	240.800	23.87	-13.13	37.00	34.92	27.21	2.88	13.28	Peak	---	---	HORIZONTAL
2 @	480.000	33.66	-3.34	37.00	40.51	28.44	4.16	17.43	QP	262	250	HORIZONTAL
3	665.600	25.67	-11.33	37.00	28.44	27.67	5.04	19.87	Peak	---	---	HORIZONTAL
4	899.200	29.23	-7.77	37.00	28.45	26.76	5.93	21.62	Peak	---	---	HORIZONTAL
5 !	960.000	31.06	-5.94	37.00	29.24	26.65	6.16	22.31	Peak	---	---	HORIZONTAL
6 !	996.000	31.63	-5.37	37.00	29.41	26.59	6.10	22.71	Peak	---	---	HORIZONTAL
7 !	1000.000	31.92	-5.08	37.00	29.67	26.58	6.09	22.74	Peak	---	---	HORIZONTAL

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Table Pos	Ant Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		deg	cm	
1	35.270	17.88	-12.12	30.00	32.54	28.50	2.00	11.84	Peak	---	---	VERTICAL
2	96.300	15.75	-14.25	30.00	30.51	27.96	3.57	9.63	Peak	---	---	VERTICAL
3	120.100	16.75	-13.25	30.00	30.00	27.91	4.08	10.58	Peak	---	---	VERTICAL
4	152.910	17.42	-12.58	30.00	28.22	27.69	4.77	12.11	Peak	---	---	VERTICAL
5	189.460	19.42	-10.58	30.00	27.65	27.25	5.20	13.82	Peak	---	---	VERTICAL

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Table Pos	Ant Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB/m		deg	cm	
1	215.200	22.36	-7.64	30.00	32.03	27.28	2.73	14.88	Peak	---	---	VERTICAL
2	240.800	23.73	-13.27	37.00	34.78	27.21	2.88	13.28	Peak	---	---	VERTICAL
3	295.200	24.44	-12.56	37.00	35.51	27.23	3.18	12.98	Peak	---	---	VERTICAL
4	432.000	25.52	-11.48	37.00	33.33	28.30	3.98	16.51	Peak	---	---	VERTICAL
5	480.000	30.08	-6.92	37.00	36.92	28.44	4.16	17.43	Peak	155	100	VERTICAL
6	701.600	25.39	-11.61	37.00	27.46	27.28	5.14	20.06	Peak	---	---	VERTICAL
7	876.800	29.09	-7.91	37.00	28.63	26.85	5.86	21.46	Peak	---	---	VERTICAL
8	1000.000	29.62	-7.38	37.00	27.37	26.58	6.09	22.74	Peak	---	---	VERTICAL

Note:

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

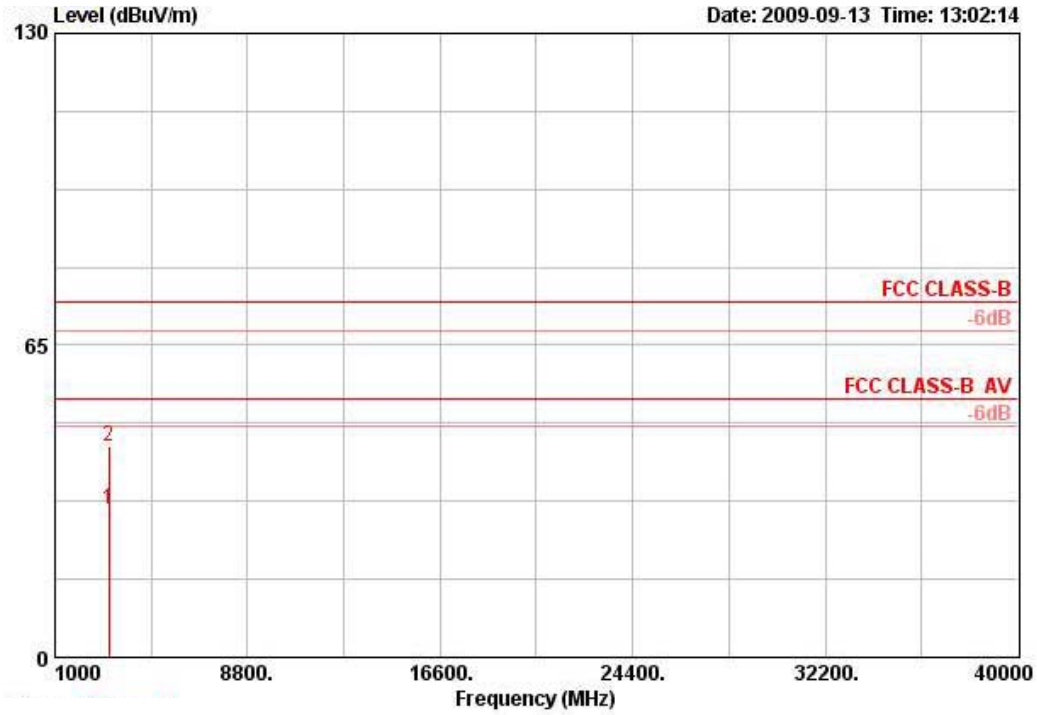
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

4.2.7. Results for Radiated Emissions (1GHz~5th harmonic of highest frequency)

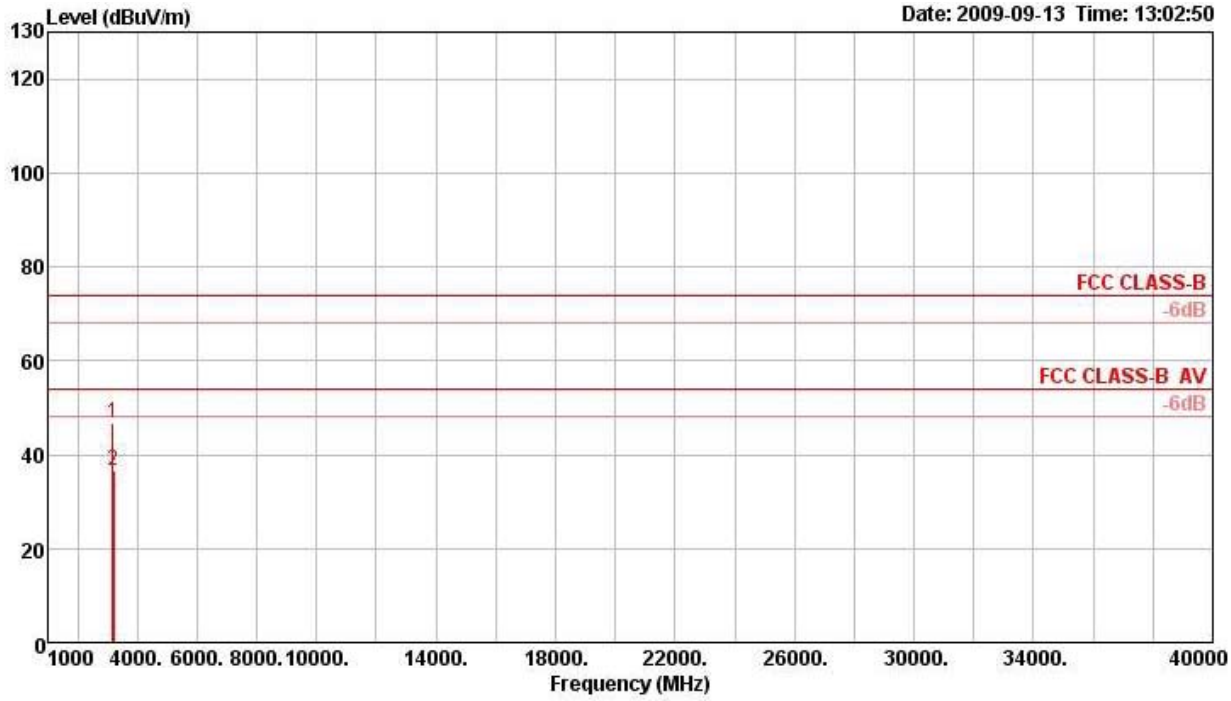
Temperature	24°C	Humidity	54%
Test Engineer	Allen Liu	Configurations	CRX / Normal Link

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	3188.580	30.96	-23.04	54.00	33.64	29.66	2.63	34.96	AVERAGE	100	136	HORIZONTAL
2	3188.920	44.07	-29.93	74.00	46.75	29.66	2.63	34.96	PEAK	100	136	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	deg	cm		
1 p	3187.78	46.87	74.00	-27.13	49.54	2.63	34.96	29.66	221	100	PEAK	VERTICAL
2 a	3189.38	36.53	54.00	-17.47	39.20	2.63	34.96	29.66	221	100	AVERAGE	VERTICAL

Note:

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

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

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	Apr. 15, 2009	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99079	9kHz – 30MHz	Mar. 23, 2009	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Mar. 22, 2009	Conduction (CO04-HY)
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9kHz – 30MHz	Apr. 20, 2009	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN T400	21653	9kHz –30MHz	Jun. 11, 2009	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz - 1 GHz 3m	Jun. 07, 2009	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	COA9231A	18667	9 kHz - 2 GHz	Jan. 23, 2009	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	Jul. 21, 2009	Radiation (03CH03-HY)
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5 GHz - 40 GHz	Apr. 06, 2009*	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP30	100305	9 kHz - 40 GHz	Feb. 03, 2009	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	Jul. 28, 2008*	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz – 1 GHz	Sep. 26, 2009	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	Apr. 28, 2009	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15 GHz - 40 GHz	Jan.16, 2009	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz - 1 GHz	Jan. 05, 2009	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz - 40 GHz	Jan. 05, 2009	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)
10m Semi Anechoic Chamber	TDK	SAC-10M	10CH02-HY	30MHz~1GHz 10m,3m	Mar. 04, 2009	Radiation (10CH02-HY)
Amplifier	AGILENT	8447D	2944A10827	100KHz – 1.3GHz	Jun. 04, 2009	Radiation (10CH02-HY)
Amplifier	AGILENT	8447D	2944A10828	100KHz – 1.3GHz	Jun. 10, 2009	Radiation (10CH02-HY)
Receiver	R&S	ESI	838496/008	20Hz - 7GHz	Apr. 27, 2009	Radiation (10CH02-HY)
Spectrum Analyzer	R&S	FSP7	100645	9KHz – 7GHz	Aug. 26, 2009	Radiation (10CH02-HY)
Biconical Antenna	Schwarzbeck	VHBB 9124	287	30MHz –200MHz	Dec. 22, 2008	Radiation (10CH02-HY)
Log Antenna	Schwarzbeck	VUSLP 9111	207	200MHz -1GHz	Dec. 22, 2008	Radiation (10CH02-HY)
Turn Table	HD	DS 430	430/360	0 ~ 360 degree	N/A	Radiation (10CH02-HY)
Antenna Mast	HD	MA240	240/664	1 m - 4 m	N/A	Radiation (10CH02-HY)
Antenna Mast	HD	MA240	240/667	1 m - 4 m	N/A	Radiation (10CH02-HY)
RF Cable-R10m	Jye Bao	RG142	CB027-INSIDE	30MHz~1GHz	Feb. 13, 2009	Radiation (10CH02-HY)
Amplifier	Agilent	8449B	3008A02364	1 - 26.5GHz	Apr. 21, 2009	Radiation (10CH02-HY)
Horn antenna	ETS	3115	6903	1~18G	Apr. 22, 2009	Radiation (10CH02-HY)
Spectrum Analyzer	R&S	FSP7	100645	9KHz – 7GHz	Aug. 26, 2009	Radiation (10CH02-HY)
RF Cable 5M	SUHNER	SUCOFLEX 104	SN : 304379/4	1GHz~18GHz	Mar. 11, 2009	Radiation (10CH02-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable 13M	SUHNER	SUCOFLEX 104	SN : 16647/4	1GHz~18GHz	Mar. 11, 2009	Radiation (10CH02-HY)
10m Semi Anechoic Chamber	TDK	SAC-10M	10CH02-HY	1G~6G 3m	Jan. 15, 2009	Radiation (10CH02-HY)

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

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

6. TEST LOCATION

SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C.
	TEL	:	886-2-2696-2468
	FAX	:	886-2-2696-2255
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	:	886-3-318-0055
LINKOU	ADD	:	No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL	:	886-2-8227-2020
	FAX	:	886-2-8227-2626
NEIHU	ADD	:	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2794-8886
	FAX	:	886-2-2794-9777
JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
	TEL	:	886-3-656-9065
	FAX	:	886-3-656-9085

7. TAF CERTIFICATE OF ACCREDITATION

Certificate No.：L1190-091230

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	：	ISO/IEC 17025:2005
Accreditation Number	：	1190
Originally Accredited	：	December 15, 2003
Effective Period	：	January 10, 2010 to January 09, 2013
Accredited Scope	：	Testing Field, see described in the Appendix
Specific Accreditation Program	：	Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangment with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date：December 30, 2009

P1, total 22 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix