



SPORTON LAB.

Certificate No: **FD310805**

CERTIFICATE OF COMPLIANCE

Authorized under Declaration of Conformity
according to

47 CFR, Part 2 and Part 15 of the FCC Rules

- **Equipment : External four bay RAID system**
Model No. : GR5630-WSB3+, SR4-WBS3+
Applicant : RAIDON TECHNOLOGY, INC.
7F-9, No. 16, Lane 609, Sec. 5, Chung-Hsin Rd.,
San-Chung Dist., New Taipei City, Taiwan (R.O.C)



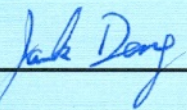
I HEREBY

CERTIFY THAT:

THE MEASUREMENTS SHOWN IN THIS TEST REPORT WERE MADE IN
ACCORDANCE WITH THE PROCEDURES GIVEN IN **ANSI C63.4 – 2009**
AND THE ENERGY EMITTED BY THIS EQUIPMENT WAS **PASSED**
FCC Part 15 Subpart B in BOTH RADIATED AND CONDUCTED
EMISSIONS **Class B** LIMITS.

THE TESTING WAS COMPLETED ON **Jan. 29, 2013**
AT **SPORTON INTERNATIONAL INC. LAB.**





Jack Deng
Engineering Manager



FCC TEST REPORT

Authorized under **D**eclaration of **C**onformity

according to

**47 CFR FCC Rules and Regulations Part 15 Subpart B,
Class B Digital Device**

Equipment : External four bay RAID system

Model No. : GR5630-WSB3+, SR4-WBS3+

Filing Type : Declaration of Conformity

Applicant : **RAIDON TECHNOLOGY, INC.**
7F-9, No. 16, Lane 609, Sec. 5, Chung-Hsin Rd.,
San-Chung Dist., New Taipei City, Taiwan (R.O.C)

Statement

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- Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
- Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by TAF or any agency of U.S. government.

SPORTON International Inc.

6F, No. 106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

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History of this test report

Report No.	Version	Issue Date	Description
FD310805	Rev.01	Mar. 26, 2013	Initial issue of report

CERTIFICATE OF COMPLIANCE

Authorized under **D**eclaration of **C**onformity

according to

47 CFR FCC Rules and Regulations Part 15 Subpart B,

Class B Digital Device



Equipment : External four bay RAID system

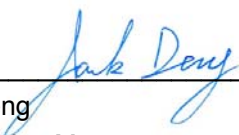
Model No. : GR5630-WSB3+, SR4-WBS3+

Applicant : **RAIDON TECHNOLOGY, INC.**
7F-9, No. 16, Lane 609, Sec. 5, Chung-Hsin Rd.,
San-Chung Dist., New Taipei City, Taiwan (R.O.C)

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 - 2009** and the energy emitted by this equipment was **passed FCC Part 15 Subpart B** in both radiated and conducted emission **Class B** limits.

The test was carried out on **Jan. 29, 2013** at **SPORTON International Inc.** LAB.



Jack Deng
Engineering Manager

SPORTON International Inc.

6F, No. 106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1. Applicant

RAIDON TECHNOLOGY, INC.

7F-9, No. 16, Lane 609, Sec. 5, Chung-Hsin Rd., San-Chung Dist.,

New Taipei City, Taiwan (R.O.C)

1.2. Manufacturer

Same as 1.1

1.3. Basic Description of Equipment under Test

Equipment : External four bay RAID system

Model No. : GR5630-WSB3+, SR4-WBS3+

Trade Name : RAIDON, STARDOM

1394B Cable : D-Shielded, 1.8 m

e-SATA Cable : D-Shielded, 1 m

USB Cable : D-Shielded, 1 m

Associated with interface cables

1394B Cable : D-Shielded, 1.8 m

Data Cable Type : Please see section 2.2 of this test report for details

Power Supply Type : From Switching Power Supply

AC Power Cord : Non-Shielded, 1.8 m, 3 pin

1.4. Feature of Equipment under Test

Please refer to user manual.

2. Test Configuration of Equipment under Test

2.1. Test Manner

- a. During testing, the personal computer and equipment positions were varied according to ANSI C63.4-2009 and configuration operated in a manner which tended to maximize its emission characteristics in a typical application.
- b. The equipment under test were performed the following test modes:

Test Items	Function Type
AC Conducted Emission	Mode 1. R/W+ 1394B, external 1394B HDD Mode 2. R/W+ e-SATA Mode 3. R/W+ USB3.0 Cause "mode 1" generated the worst test result; it was reported as final data.
Radiated Emissions	Mode 1. R/W+ 1394B, external 1394B HDD Mode 2. R/W+ e-SATA Mode 3. R/W+ USB3.0 < below 1GHz > cause "mode 1" generated the worst test result; it was reported as final data. < above 1GHz > cause "mode 3" is highest frequency of the internal sources of the EUT; it was reported as final data.

- c. Frequency range investigated: Conduction 150 kHz to 30 MHz, Radiation 30 MHz to 9,000 MHz.

2.2. Description of Test System

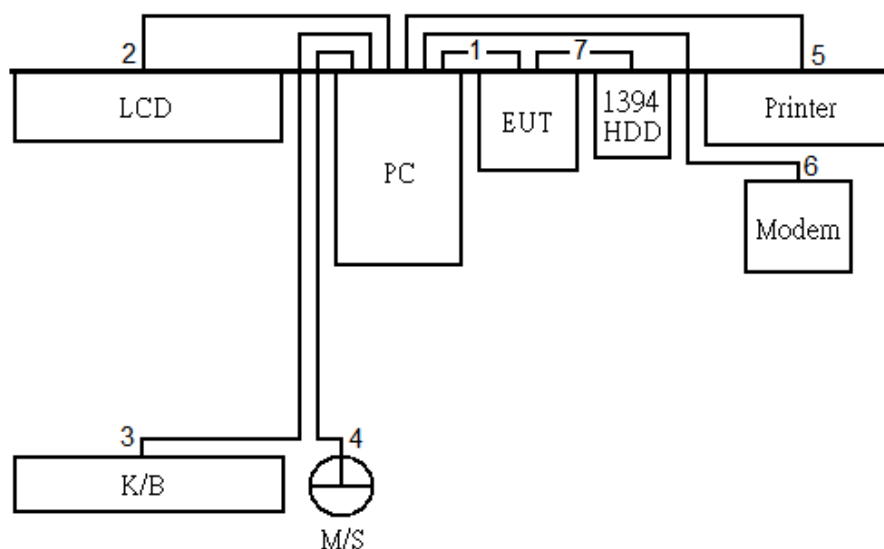
<Conducted and Radiated below 1GHz>

No.	Peripheral	Manufacturer	Model Number	FCC ID	Cable / Spec. Description	Placed
1	Personal Computer	DELL	DCTA	DoC	N/A	Local
2	LCD Monitor	DELL	E198WFPf	DoC	D-SUB Cable, D-Shielded, 1.8m	Local
3	Keyboard	DELL	SK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m	Local
4	Mouse	DELL	MOC5UO	DoC	USB Cable, AL-F-Shielded, 1.8m	Local
5	Printer	HP	C2642X(DJ400)	B94C2642X	LPT Cable, D-Shielded, 1.2m	Local
6	Modem	ACEEX	DM1414	IFAXDM1414	RS-232 Cable, D-Shielded, 1.15m	Local
7	1394B HDD	ONNTO	AT-S111	DoC	1394B Cable, D-Shielded, 1.8m	Local
8	HDD	HITACHI	HDS728080PLA380	DoC	80GB	Local
9	HDD x3	HITACHI	HDS721032CLA362	DoC	320GB	Local

<Radiated above 1GHz>

No.	Peripheral	Manufacturer	Model Number	FCC ID	Cable / Spec. Description	Placed
1	Personal Computer	DELL	DCTA (T3500)	DoC	N/A	Local
2	LCD Monitor	DELL	2408WFPb	DoC	D-sub Cable, D-Shielded, 1.8m	Local
3	Keyboard	DELL	SK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m	Local
4	Mouse	DELL	MOC5UO	DoC	USB Cable, AL-F-Shielded, 1.8m	Local
5	Printer	HP	C2642A(DJ400)	DoC	LPT Cable, D-Shielded, 1.7m	Local
6	Modem	ACEEX	DM1414	IFAXDM1414	RS-232 Cable, D-Shielded, 1.15m	Local
7	HDD	HITACHI	HDS728080PLA380	DoC	80GB	Local
8	HDD x3	HITACHI	HDS721032CLA362	DoC	320GB	Local

2.3. Connection Diagram of Test System



1. The 1394B cable is connected from the EUT to the support unit 1.
2. The I/O cable is connected from the PC to the support unit 2.
3. The I/O cable is connected from the PC to the support unit 3.
4. The I/O cable is connected from the PC to the support unit 4.
5. The I/O cable is connected from the PC to the support unit 5.
6. The I/O cable is connected from the PC to the support unit 6.
7. The 1394B cable is connected from the EUT to the support unit 7.

Note: Above support unit on behalf of the meaning, please refer to section 2.2.

3. Test Software

An executive program, "EMCTEST.exe" under WIN 7, 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 PC reads the test program from the hard disk drive and runs it.
- c. The PC sends "H" pattern to the monitor, and the monitor displays "H" patterns on the screen.
- d. The PC sends "H" messages to the printer, and then the printer prints them on the paper.
- e. The PC sends signal messages to the modem.
- f. The PC sends signal messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
- g. Repeat the steps from c to f.

At the same time, the following program was executed:

- Executed "Winthrax.exe" to read and write data from EUT.

4. General Information of Test

4.1. Test Facility

Test Site : SPORTON INTERNATIONAL INC.

Test Site Location : No. 3, Lane 238, Kang Lo Street, Nei Hwu District, Taipei 11424,
Taiwan, R.O.C.

TEL : 886-2-2631-4739

FAX : 886-2-2631-9740

Test Site No. : CO01-NH, OS03-NH

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang,
Tao Yuan Hsien, Taiwan, R.O.C.

TEL : 886-3-327-3456

FAX : 886-3-318-0055

Test Site No. : 03CH04-HY

4.2. Test Voltage

AC 120V / 60Hz

4.3. Measurement Procedure

ANSI C63.4-2009

4.4. Test in Compliance with

FCC Rules and Regulations Part 15 Subpart B

15.107 Conducted Emission

15.109 Radiated Emission

4.5. Frequency Range Investigated

a. Conducted emission test: from 150 kHz to 30 MHz

b. Radiated emission test: from 30 MHz to 9,000 MHz

4.6. Test Distance

a. The test distance of radiated emission test from antenna to EUT is 10 M (from 30MHz~1000MHz).

b. The test distance of radiated emission test from antenna to EUT is 3 M (from 1GHz~9GHz).

5. Test of Conducted Powerline

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz and return leads of the EUT according to the methods defined in ANSI C63.4-2009 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meter above the ground plane as shown in section 5.3. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

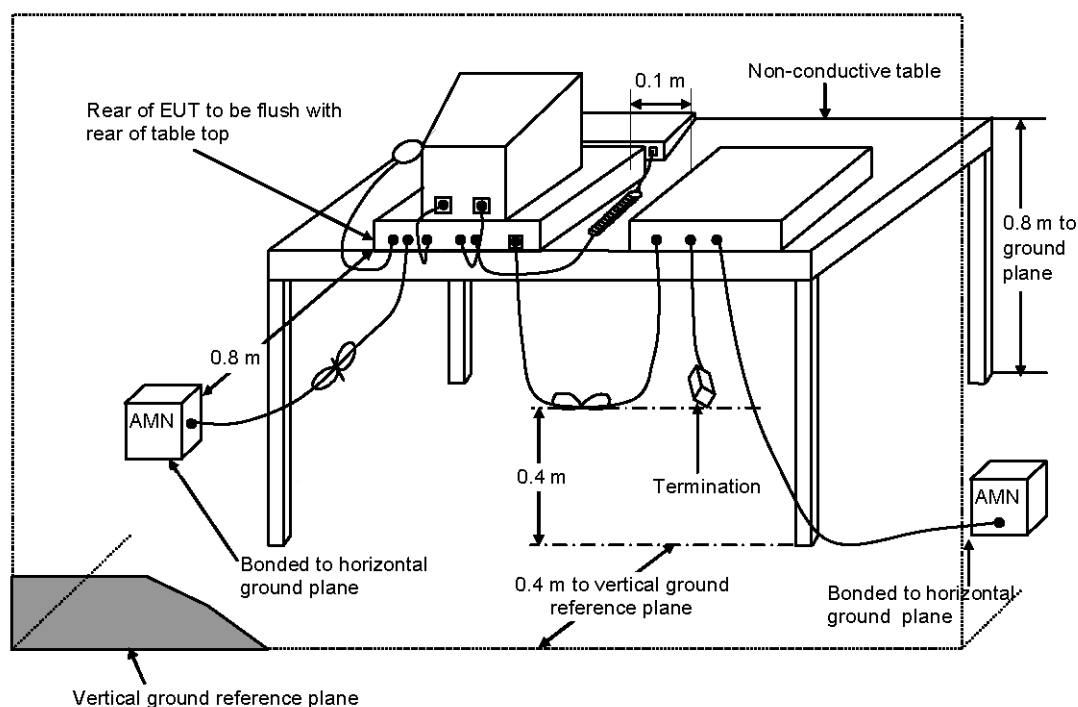
5.1. Description of Major Test Instruments

Test Receiver Parameters	Setting
Test Receiver	R&S ESCS 30
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz
Signal Input	9 kHz - 2.75 GHz

5.2. Test Procedures

- The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connect to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

5.3. Typical Test Setup Layout of Conducted Powerline



- AMN is 80 cm from the EUT and at least 80 cm from other units and other metal planes.
- EUT is connected to one artificial mains network (AMN).
- All other units of a system are powered from a second AMN. A multiple outlet strip can be used for multiple mains cords.
- Rear of EUT to be flushed with rear of table top.
- 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.
- If cables, which hang closer than 40 cm to the horizontal metal ground plane, cannot be shortened to appropriate length, the excess shall be folded back and forth forming a bundle 30 cm to 40 cm long.
- Mains cords and signal cables shall be positioned for their entire lengths, as far as possible, at 40 cm from the vertical reference plane.
- Cables of hand operated devices, such as keyboards, mice, etc. shall be placed as for normal usage.

5.4. Test Result of AC Powerline Conducted Emission

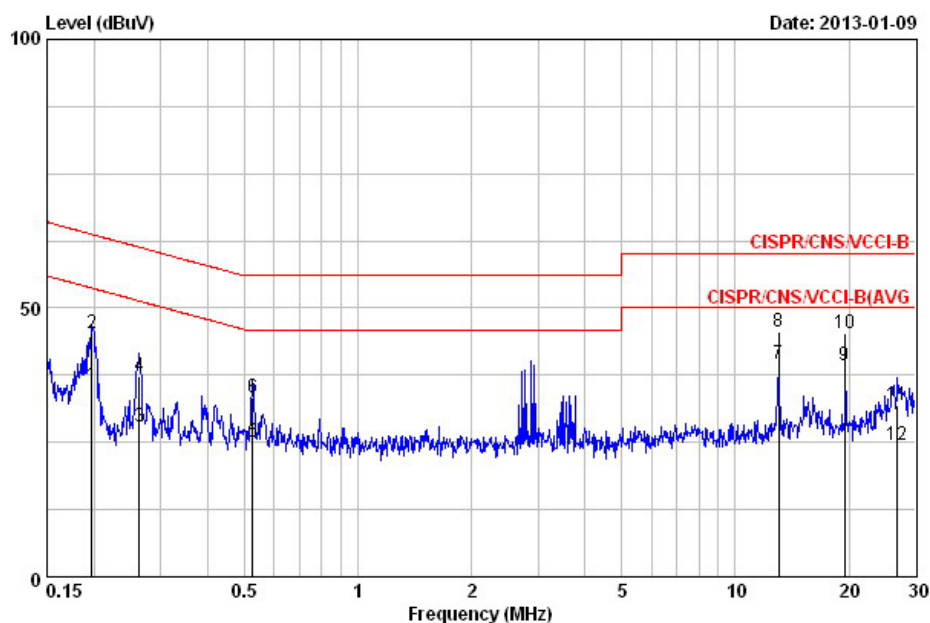
Test Mode	Mode 1	Test Site No.	CO01-NH
Test Frequency	0.15 MHz ~ 30 MHz	Test Engineer	Willy
Temperature	20 °C	Relative Humidity	52 %

Note: 1. Corrected Reading (dBμV) = LISN Factor + Cable Loss + Read Level = Level

2. All emissions not reported here are more than 10 dB below the prescribed limit.

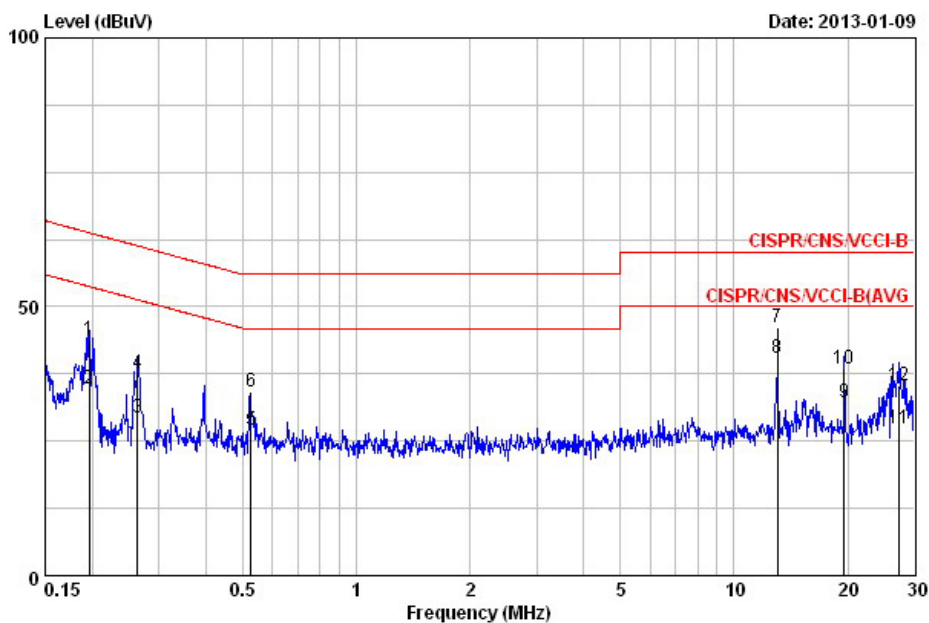
■ The test was passed at the minimum margin that marked by the frame in the following data

Line



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.198	35.65	-18.07	53.71	25.38	10.17	0.10	AVERAGE
2	0.198	45.22	-18.50	63.71	34.95	10.17	0.10	QP
3	0.263	27.91	-23.42	51.34	17.64	10.17	0.10	AVERAGE
4	0.263	37.27	-24.06	61.34	27.00	10.17	0.10	QP
5	0.527	25.12	-20.88	46.00	14.84	10.18	0.10	AVERAGE
6	0.527	33.26	-22.74	56.00	22.98	10.18	0.10	QP
7	13.002	39.56	-10.44	50.00	28.99	10.37	0.20	AVERAGE
8	13.002	45.61	-14.39	60.00	35.04	10.37	0.20	QP
9	19.482	39.36	-10.64	50.00	28.61	10.46	0.29	AVERAGE
10	19.482	45.39	-14.61	60.00	34.64	10.46	0.29	QP
11	26.841	32.01	-27.99	60.00	21.06	10.55	0.40	QP
12	26.841	24.48	-25.52	50.00	13.53	10.55	0.40	AVERAGE

Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.196	43.87	-19.89	63.77	33.63	10.14	0.10	QP
2	0.196	34.81	-18.95	53.77	24.57	10.14	0.10	AVERAGE
3	0.263	29.43	-21.90	51.34	19.19	10.14	0.10	AVERAGE
4	0.263	37.50	-23.83	61.34	27.26	10.14	0.10	QP
5	0.526	27.07	-18.93	46.00	16.83	10.14	0.10	AVERAGE
6	0.526	34.13	-21.87	56.00	23.89	10.14	0.10	QP
7	13.003	46.08	-13.92	60.00	35.53	10.35	0.20	QP
8	13.003	40.55	-9.45	50.00	30.00	10.35	0.20	AVERAGE
9	19.532	32.29	-17.71	50.00	21.55	10.45	0.29	AVERAGE
10	19.532	38.38	-21.62	60.00	27.64	10.45	0.29	QP
11	27.416	27.27	-22.73	50.00	16.28	10.59	0.40	AVERAGE
12	27.416	35.41	-24.59	60.00	24.42	10.59	0.40	QP

6. Test of Radiated Emission

Radiated emissions from 30 MHz to 9,000 MHz were measured with a bandwidth of 120 kHz for 30 MHz to 1000 MHz and 1 MHz for above 1GHz according to the methods defines in ANSI C63.4-2009. The EUT was placed on a nonmetallic stand, 0.8 meter above the ground plane, as shown in section 6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

6.1. Description of Major Test Instruments

For Below 1GHz

Amplifier Parameters	Setting
Amplifier	HP 8447D
RF Gain	25 dB
Signal Input	0.1 MHz - 1.3 GHz

Spectrum Analyzer Parameters	Setting
Spectrum Analyzer	ADVANTEST R3261C
Attenuation	10 dB
Start Frequency	30 MHz
Stop Frequency	1000 MHz
Resolution Bandwidth	120 kHz
Signal Input	9 kHz – 2.6 GHz

Test Receiver Parameters	Setting
Test Receiver	R&S ESCS 30
Resolution Bandwidth	120 kHz
Frequency Band	9 kHz - 2.75 GHz
Quasi-Peak Detector	ON for Quasi-Peak Mode
	OFF for Peak Mode

For above 1GHz

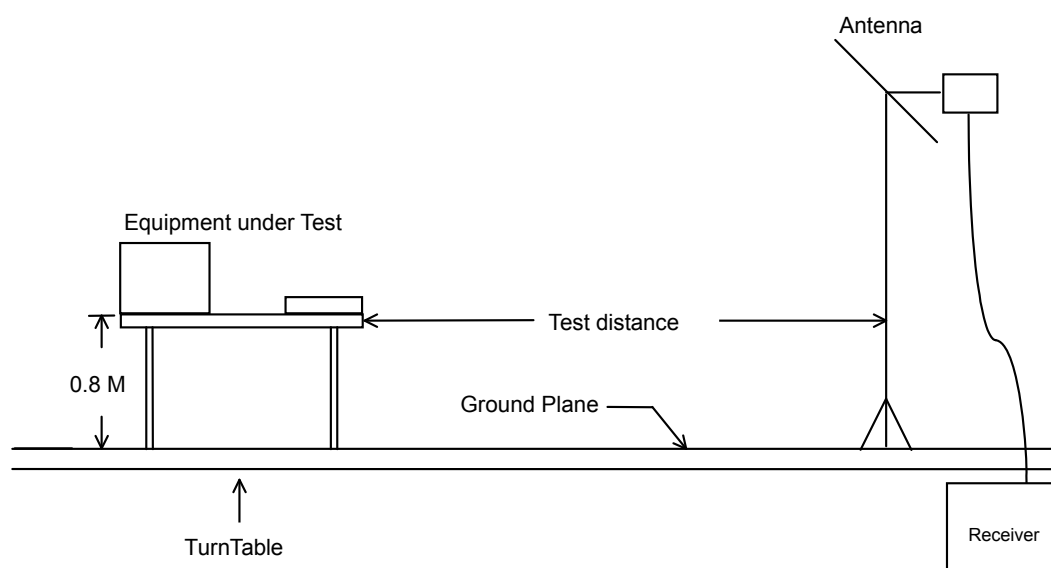
Amplifier Parameters	Setting
Amplifier	AGILENT 8449B
RF Gain	35 dB
Signal Input	1 GHz - 26.5 GHz

Spectrum Analyzer Parameters	Setting
Spectrum Analyzer	R&S FSP40
Attenuation	10 dB
Start Frequency	1 GHz
Stop Frequency	9 GHz
Resolution Bandwidth	1 MHz
Video Bandwidth	3 MHz
Signal Input	9 kHz - 40 GHz

6.2. Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3m(above 1GHz)/10m(below 1GHz) from the interference-receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the 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 and reported.
- h. The FCC Part 15.109 (g) permit parties seeking to authorize a digital device to choose to demonstrate that the device complies with either the Part 15 standards or the international standards found in Publication 22 of the International Special Committee on Radio Interference (CISPR).
- i. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower 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.

6.3. Typical Test Setup Layout of Radiated Emission



6.4. Test Result of Radiated Emission for Below 1GHz

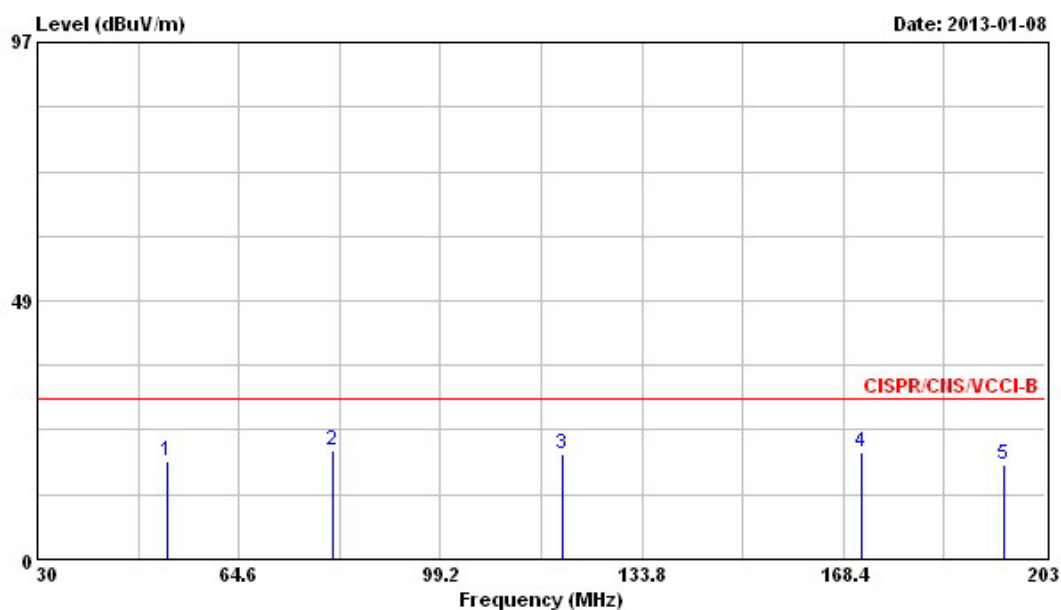
Test mode	Mode 1	Test Site No.	OS03-NH
Test frequency	30 MHz ~ 1000 MHz	Test Engineer	Alan
Temperature	18 °C	Relative Humidity	56 %

Note: 1. Emission level (dBμV/m) = 20 log Emission level (μV/m)

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

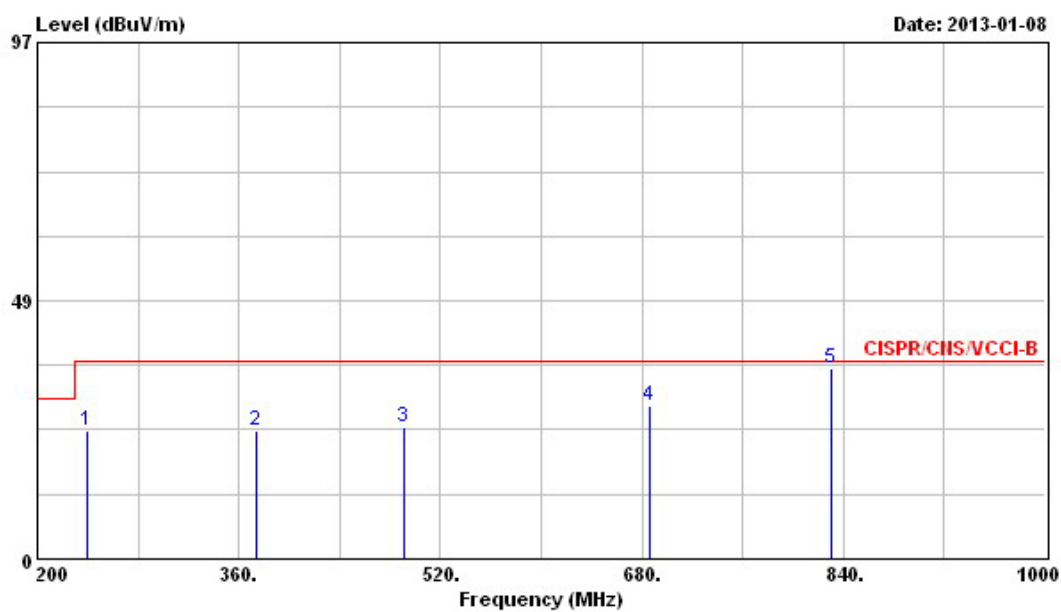
■ The test was passed at the minimum margin that marked by the frame in the following data

Vertical



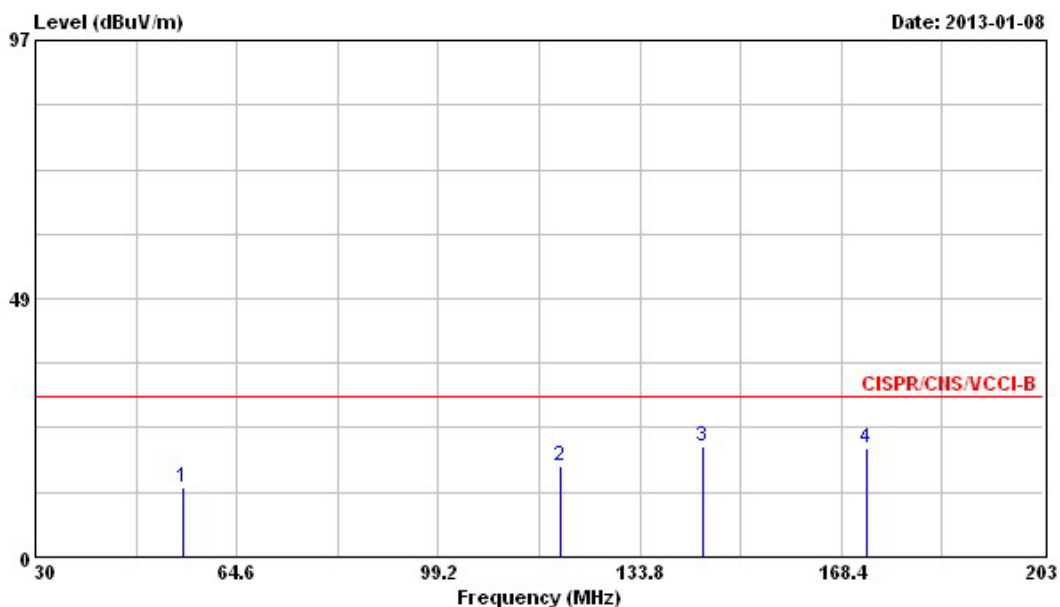
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	52.320	18.47	-11.53	30.00	37.52	8.30	1.10	28.45	Peak	---	---
2	80.690	20.28	-9.72	30.00	40.34	6.87	1.45	28.38	Peak	---	---
3	120.130	19.69	-10.31	30.00	33.82	12.28	1.85	28.26	Peak	---	---
4	171.510	19.92	-10.08	30.00	36.19	9.48	2.32	28.07	Peak	---	---
5	195.910	17.63	-12.37	30.00	33.80	9.20	2.61	27.98	Peak	---	---

Vertical



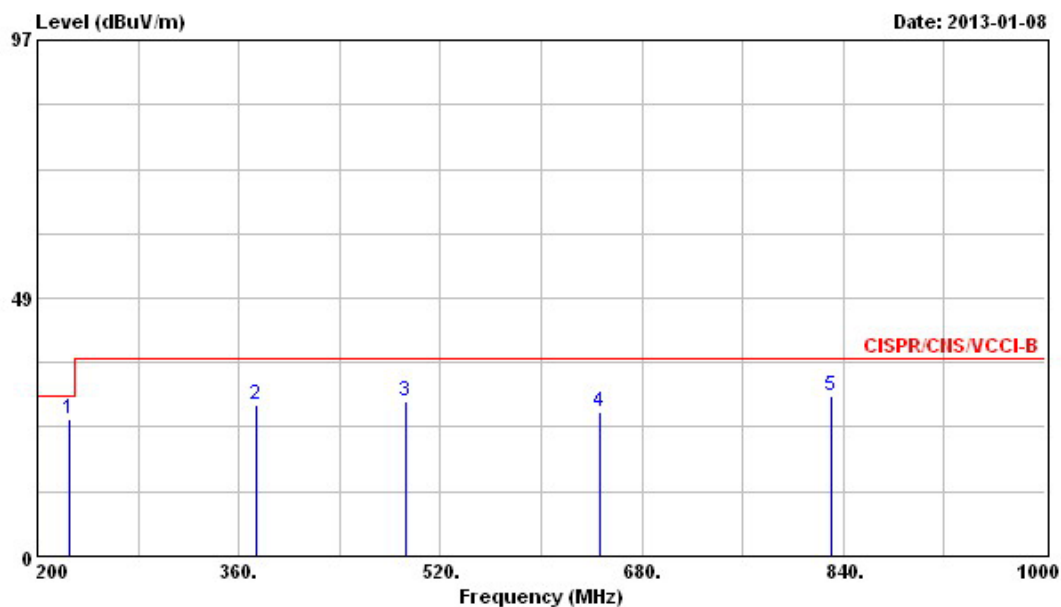
	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	240.000	24.19	-12.81	37.00	37.44	11.66	3.00	27.91	Peak	---	---
2	374.400	24.19	-12.81	37.00	32.80	15.07	4.63	28.31	Peak	---	---
3	491.200	24.74	-12.26	37.00	31.20	17.22	5.31	28.99	Peak	---	---
4 @	685.600	28.64	-8.36	37.00	33.80	18.74	5.26	29.16	Peak	---	---
5 @	830.400	35.82	-1.18	37.00	39.20	19.82	5.63	28.83	QP	200	180

Horizontal



	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	55.430	12.94	-17.06	30.00	32.60	7.63	1.15	28.44	Peak	---	---
2	120.130	17.09	-12.91	30.00	31.22	12.28	1.85	28.26	Peak	---	---
3	144.700	20.67	-9.33	30.00	35.95	10.82	2.07	28.17	Peak	---	---
4	172.730	20.49	-9.51	30.00	36.78	9.45	2.33	28.07	Peak	---	---

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	224.800	25.65	-4.35	30.00	39.99	10.76	2.83	27.93	Peak	---	---
2	374.400	28.39	-8.61	37.00	37.00	15.07	4.63	28.31	Peak	---	---
3	492.800	29.14	-7.86	37.00	35.60	17.25	5.29	29.00	Peak	---	---
4	646.400	27.04	-9.96	37.00	32.40	18.62	5.21	29.19	Peak	---	---
5	830.400	30.22	-6.78	37.00	33.60	19.82	5.63	28.83	Peak	---	---

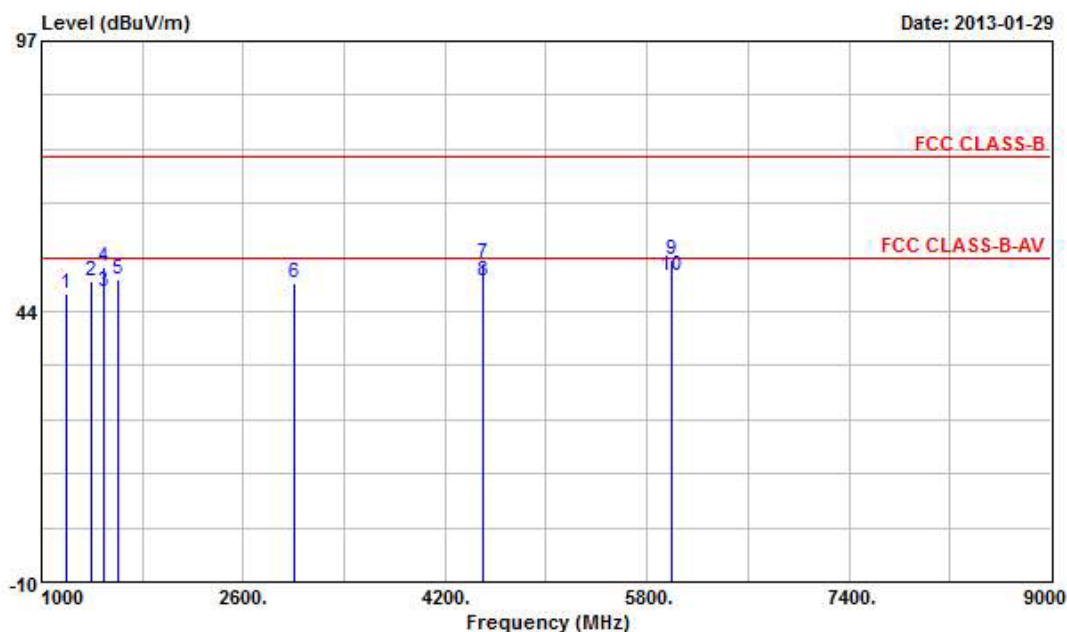
6.5. Test Result of Radiated Emission for Above 1GHz

Test mode	Mode 3	Test Site No.	03CH04-HY
Test frequency	1 GHz ~ 9 GHz	Test Engineer	Kevin
Temperature	19.2 °C	Relative Humidity	58 %

Note: 1. Emission level (dBμV/m) = 20 log Emission level (μV/m)

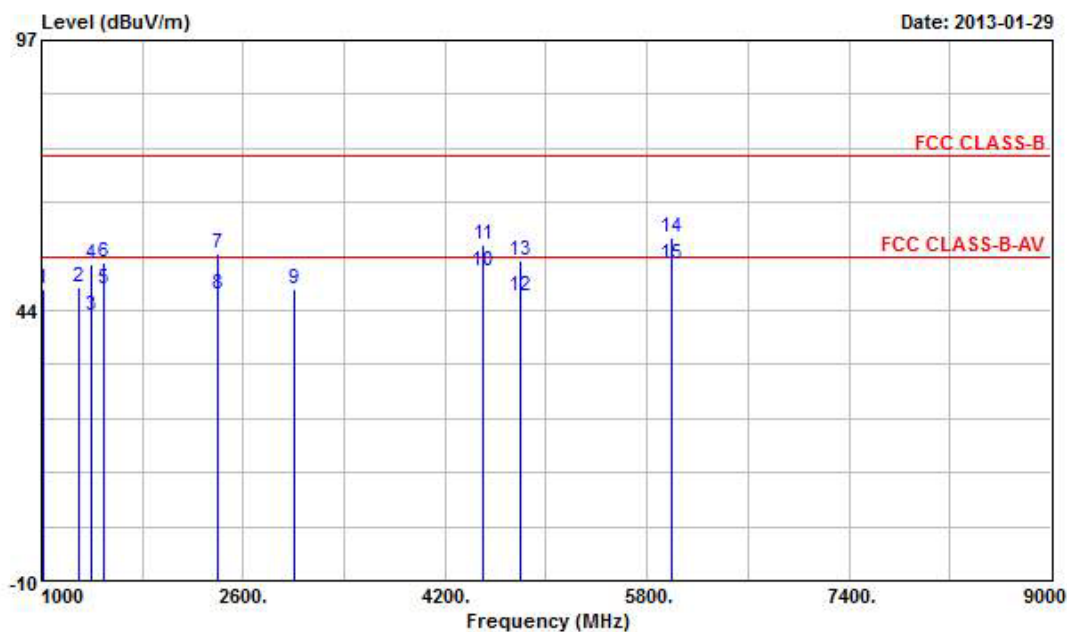
2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level

■ The test was passed at the minimum margin that marked by the frame in the following data
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBμV/m	dB	dBμV/m	dBμV	dB/m	dB	cm	deg	
1	1198.000	46.85	-27.15	74.00	50.55	27.98	34.12	2.44	---	Peak
2	1390.000	49.35	-24.65	74.00	52.71	27.86	33.88	2.65	---	Peak
3	1500.000	47.21	-6.80	54.00	50.32	27.80	33.70	2.79	---	Average
4	1500.000	52.28	-21.72	74.00	55.40	27.80	33.70	2.79	---	Peak
5	1606.000	49.81	-24.19	74.00	51.98	28.64	33.70	2.89	---	Peak
6	2998.000	49.17	-24.83	74.00	45.91	33.10	34.20	4.36	---	Peak
7	4500.000	52.91	-21.09	74.00	46.92	34.60	34.30	5.70	---	Peak
8	4500.000	49.53	-4.48	54.00	43.53	34.60	34.30	5.70	---	Average
9	6000.000	53.78	-20.22	74.00	46.05	35.70	34.00	6.03	---	Peak
10 @	6000.000	50.65	-3.35	54.00	42.92	35.70	34.00	6.03	---	Average

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna	Preamp	Cable	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	1020.000	47.69	-26.31	74.00	51.71	28.09	34.37	2.26	---	Peak
2	1294.000	48.15	-25.85	74.00	51.66	27.92	33.98	2.55	---	Peak
3	1390.000	42.52	-11.48	54.00	45.88	27.86	33.88	2.65	---	Average
4	1390.000	52.49	-21.51	74.00	55.85	27.86	33.88	2.65	---	Peak
5	1500.000	47.86	-6.14	54.00	50.97	27.80	33.70	2.79	---	Average
6	1500.000	53.00	-21.00	74.00	56.12	27.80	33.70	2.79	---	Peak
7	2395.000	54.72	-19.28	74.00	52.57	32.19	33.78	3.74	---	Peak
8	2396.000	46.64	-7.36	54.00	44.49	32.19	33.78	3.74	---	Average
9	3000.000	47.74	-6.26	54.00	44.48	33.10	34.20	4.36	---	Average
10 @	4500.000	51.27	-2.74	54.00	45.27	34.60	34.30	5.70	---	Average
11	4500.000	56.54	-17.46	74.00	50.55	34.60	34.30	5.70	---	Peak
12	4797.000	46.37	-7.63	54.00	40.38	34.42	34.30	5.86	---	Average
13	4797.000	53.18	-20.82	74.00	47.19	34.42	34.30	5.86	---	Peak
14	6000.000	57.88	-16.12	74.00	50.15	35.70	34.00	6.03	---	Peak
15 @	6000.000	52.76	-1.24	54.00	45.03	35.70	34.00	6.03	100	225 Average

7. Photographs of Test Configuration

7.1. Photographs of AC Powerline Conducted Emissions Test Configuration

- The photographs show the configuration that generates the maximum emission.

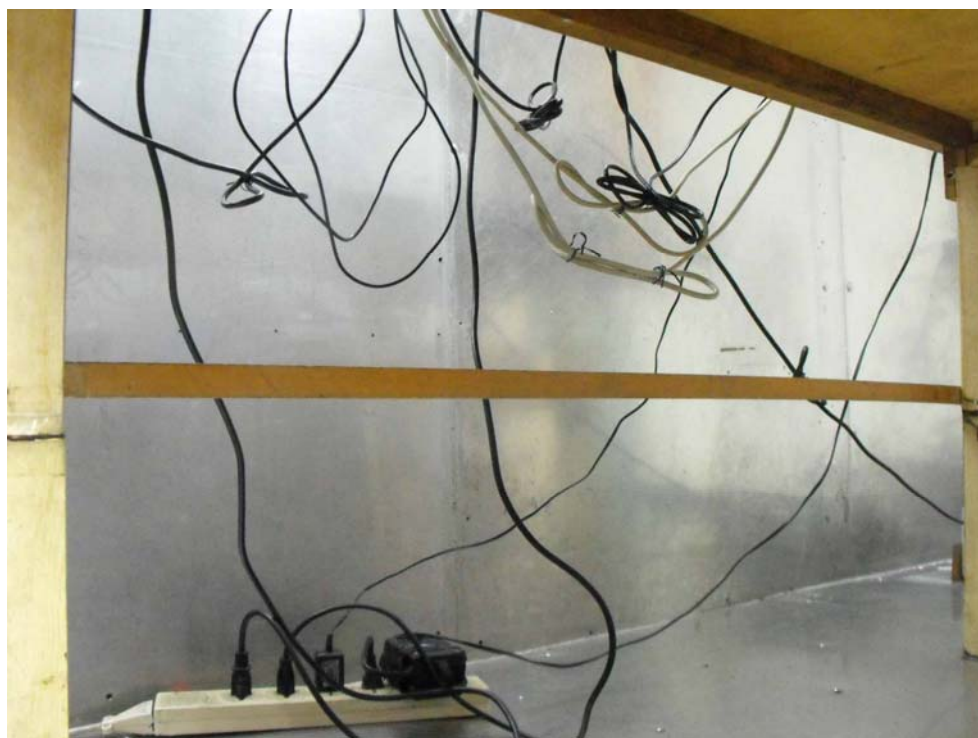
FRONT VIEW



REAR VIEW



SIDE VIEW



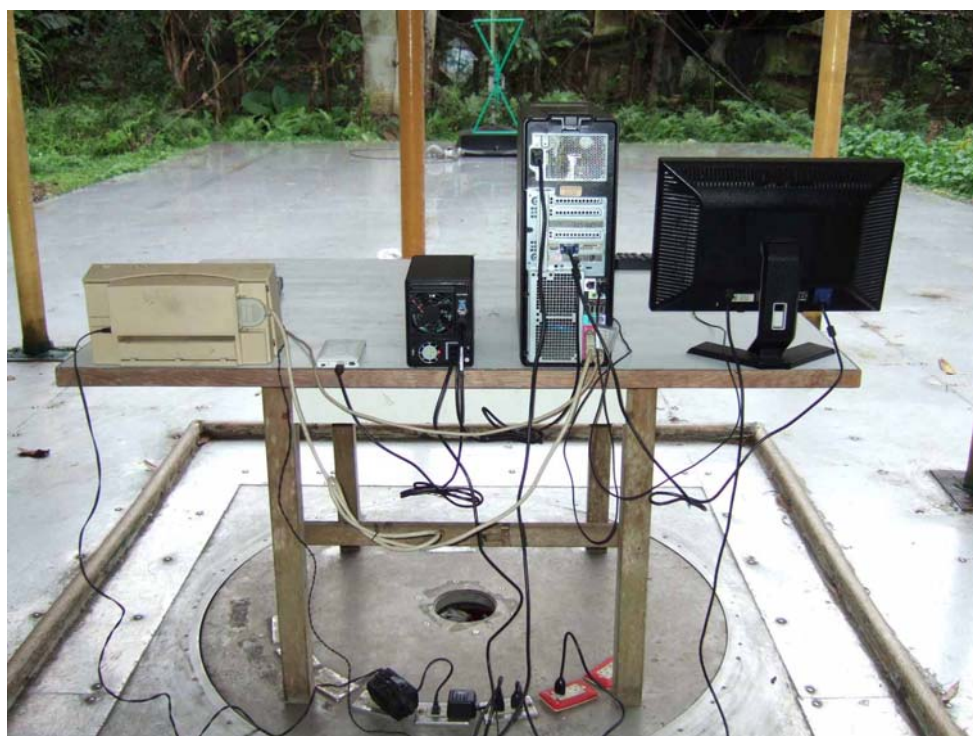
7.2. Photographs of Radiated Emissions Test Configuration

- The photographs show the configuration that generates the maximum emission.
For Below 1GHz

FRONT VIEW

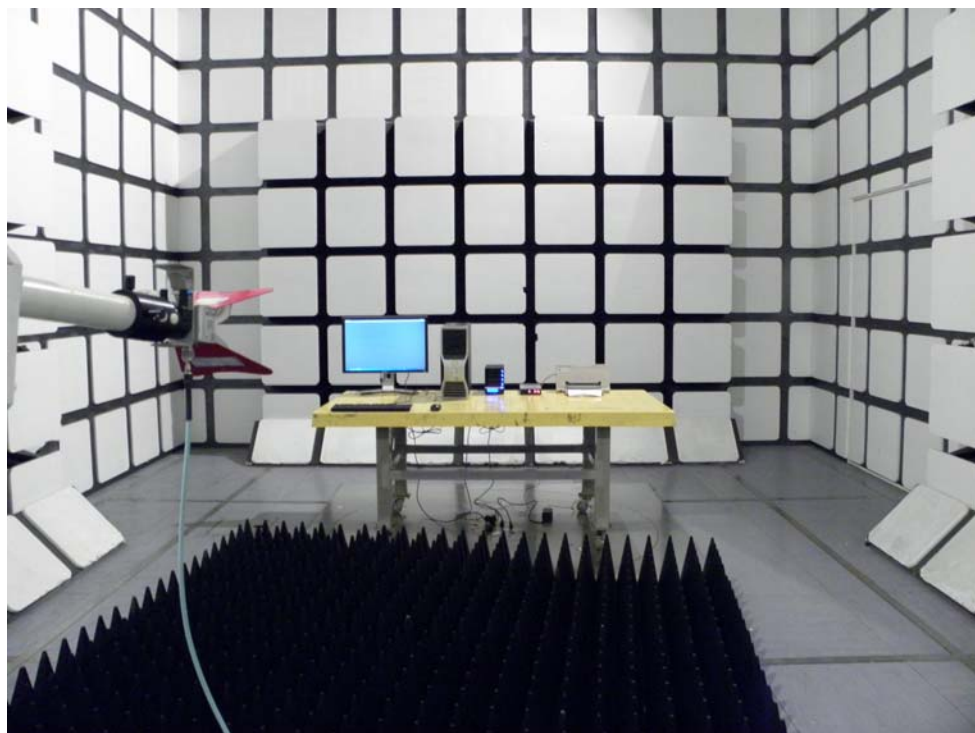


REAR VIEW

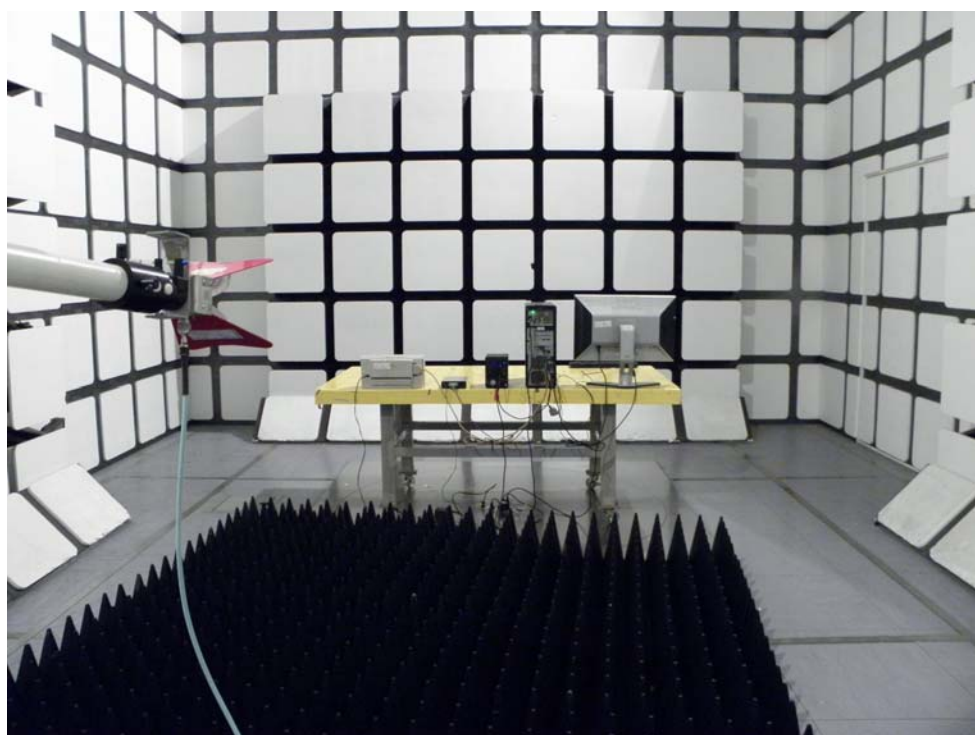


- The photographs show the configuration that generates the maximum emission.
For Above 1GHz

FRONT VIEW



REAR VIEW



8. Modification of EUT

None.

9. List of Measuring Equipment Used

Conducted Emission

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Receiver	R&S	ESCS 30	100357	9 kHz ~ 2.75 GHz	Nov. 22, 2012	Conduction (CO01-NH)
LISN	SCHAFFNER	NNB41	04/10053	9 kHz ~ 30 MHz	Nov. 20, 2012	Conduction (CO01-NH)
Power Filter	CORCOM	MR12030	N/A	30A*2	NCR	Conduction (CO01-NH)
RF Cable-CON	Suhner Switzerland	RG223/U	CB004	9 kHz ~ 30 MHz	Dec. 12, 2012	Conduction (CO01-NH)

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

NCR: NO CALIBRATION REQUEST.

Radiation Emission

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Open Area Test Site	SPORTON	OATS-10	OS03-NH	30 MHz ~ 1 GHz 10m, 3m	Nov. 11, 2012	Radiation (OS03-NH)
Amplifier	HP	8447D	2944A08292	0.1 MHz ~ 1.3 GHz	May 14, 2012	Radiation (OS03-NH)
Spectrum Analyzer	Advantest	R3261C	81720147	9 kHz ~ 2.6 GHz	Sep. 13, 2012	Radiation (OS03-NH)
Receiver	R&S	ESCS 30	838251/002	9 kHz ~ 2.75 GHz	Oct. 12, 2012	Radiation (OS03-NH)
Bilog Antenna	CHASE	CBL6112D	25234	30 MHz ~ 2 GHz	Feb. 27, 2012	Radiation (OS03-NH)
Turn Table	EMCO	2080	9805-2065	0 ~ 360 degree	NCR	Radiation (OS03-NH)
Antenna Mast	EMCO	2075	9804-2151	1 m ~ 4 m	NCR	Radiation (OS03-NH)
RF Cable-R10m	HSCN	RG213U	2X11N	30 MHz ~ 1 GHz	Aug. 09, 2012	Radiation (OS03-NH)

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

NCR: NO CALIBRATION REQUEST.

Radiation Emission Above 1GHz

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9 kHz ~ 40 GHz	Sep. 14, 2012	Radiation
Amplifier	Agilent	8449B	3008A02326	1 GHz ~ 26.5 GHz	Mar. 09, 2012	Radiation
RF Cable-HIGH	SUHNER	SUCOFLEX 106	CB063-HF	1 GHz ~ 40 GHz	Nov. 21, 2012	Radiation
Horn Antenna	ETS	3117	00075954	1 GHz ~ 18 GHz	Oct. 31, 2012	Radiation

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

10. Uncertainty of Test Site

Uncertainty of Conducted Emission Measurement from 150kHz to 30MHz

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.20	Normal(k=2)	0.10
Cable loss	0.19	Normal(k=2)	0.10
AMN insertion loss	2.50	Rectangular	0.63
Receiver Spec	1.50	Rectangular	0.43
Site imperfection	1.75	Rectangular	1.01
Mismatch	+0.44/-0.46	U-shape	0.32
combined standard uncertainty $Uc(y)$			1.31
Measuring uncertainty for a level of confidence of 95% $U=2Uc(y)$			2.62

Uncertainty of Radiated Emission Measurement from 30MHz to 1000MHz

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.08	Normal(k=2)	0.04
Antenna factor calibration	0.96	Normal(k=2)	0.48
Cable loss calibration	0.17	Normal(k=2)	0.09
Pre Amplifier Gain calibration	0.21	Normal(k=2)	0.11
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.95	Rectangular	1.13
Mismatch	+0.39/-0.41	U-shaped	0.28
combined standard uncertainty $Uc(y)$			1.48
Measuring uncertainty for a level of confidence of 95% $U=2Uc(y)$			2.96

Uncertainty of Radiated Emission Measurement from 1GHz to 18GHz

Input quantity	X_i	Uncertainty of x_i		$u(x_i)$	c_i	$c_i u(x_i)$
		dB	Probability distribution function	dB		dB
Receiver reading	V_r	± 0.1	k=1	0.10	1	0.10
Attenuation: antenna-receiver	L_c	± 0.1	k=2	0.05	1	0.05
Receiver corrections:	δRC	± 1.0	k=2	0.50	1	0.50
Antenna factor	AF	± 1.3	k=2	0.65	1	0.65
Horn antenna corrections:						
AF frequency interpolation	δAF_f	± 0.5	Rectangular	0.29	1	0.29
AF height deviations	δAF_h	± 0.5	Rectangular	0.29	1	0.29
Directivity difference	δA_{dir}	± 1.0	Rectangular	0.58	1	0.58
Phase centre location	δA_{ph}	± 1.0	Rectangular	0.58	1	0.58
Cross-polarization	δA_{cp}	± 0.9	Rectangular	0.52	1	0.52
Mismatch: antenna-receiver	δM	+0.9/-1.0	U-shaped	0.67	1	0.67
Site corrections						
Site imperfections	δSA	± 4.0	Triangular	1.63	1	1.63
Measurement system repeatability	R	± 1.53	Rectangular	0.884	1	0.884
Cable loss	C	± 0.24	Rectangular	0.139	1	0.139
Preamplifier factor	PA	± 0.17	Rectangular	0.099	1	0.099
				$u_c(y)=$	2.39	
				$2 u_c(y)=$	4.78	

APPENDIX A. Photographs of EUT

