



SPORTON LAB.

Certificate No: FD182530

CERTIFICATE OF COMPLIANCE

Authorized under Declaration of Conformity
according to

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

- Equipment : NVRmini 2
- Model No. : NVRMini 2 - 4 Bay
- Applicant : NUUO Inc.
C Block, No.18, Sihyuan St., Taipei 100, Taiwan

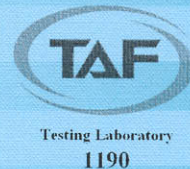


I HEREBY CERTIFY THAT:

THE MEASUREMENTS SHOWN IN THIS TEST REPORT WERE MADE IN ACCORDANCE WITH THE PROCEDURES GIVEN IN **ANSI C63.4 - 2003** AND 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 **Sep. 02, 2011** AT **SPORTON INTERNATIONAL INC. LAB.**



Castries Huang
Supervisor



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 : NVRmini 2
Model No. : NVRMini 2 - 4 Bay
Filing Type : Declaration of Conformity
Applicant : **NUUO Inc.**
C Block, No.18, Sihyuan St., Taipei 100, Taiwan

Statement

- The test result refers exclusively to the test 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 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.

Table of Contents

History of this test report.....	ii
CERTIFICATE OF COMPLIANCE.....	1
1. General Description of Equipment under Test.....	2
1.1. Applicant.....	2
1.2. Manufacturer	2
1.3. Basic Description of Equipment under Test	2
1.4. Feature of Equipment under Test	2
2. Test Configuration of Equipment under Test	3
2.1. Test Manner	3
2.2. Description of Test System	4
2.3. Connection Diagram of Test System	5
3. Test Software	6
4. General Information of Test.....	7
4.1. Test Facility	7
4.2. Test Voltage	7
4.3. Measurement Procedure.....	7
4.4. Test in Compliance with	7
4.5. Frequency Range Investigated	7
4.6. Test Distance	7
5. Test of Conducted Powerline	8
5.1. Description of Major Test Instruments	8
5.2. Test Procedures.....	8
5.3. Typical Test Setup Layout of Conducted Powerline	9
5.4. Test Result of AC Powerline Conducted Emission	10
5.5. Photographs of Conducted Powerline Test Configuration	12
6. Test of Radiated Emission.....	14
6.1. Description of Major Test Instruments	14
6.2. Test Procedures.....	16
6.3. Typical Test Setup Layout of Radiated Emission.....	17
6.4. Test Result of Radiated Emission	18
6.5. Photographs of Radiated Emission Test Configuration	24
7. List of Measuring Equipment Used	25
8. Uncertainty of Test Site	26
Appendix A. Photographs of EUT.....	A1 ~ A8

History of this test report

Report No.	Version	Issue Date	Description
FD182530	Rev.01	Sep. 29, 2011	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 : NVRmini 2

Model No. : NVRMini 2 - 4 Bay

Applicant : **NUUO Inc.**
C Block, No.18, Sihyuan St., Taipei 100, Taiwan

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 - 2003** and 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 **Sep. 02, 2011** at **SPORTON International Inc.** LAB.



Castries Huang
Supervisor

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

NUUO Inc.
C Block, No.18, Sihyuan St., Taipei 100, Taiwan

1.2. Manufacturer

Same as 1.1

1.3. Basic Description of Equipment under Test

Equipment	:	NVRmini 2
Model No.	:	NVRMini 2 - 4 Bay
Trade Name	:	NUUO Inc.
RJ45 Cable	:	Non-Shielded, 20 m
RJ45 Cable	:	Non-Shielded, 1.8 m
USB Cable x2	:	D-Shielded, 1.8 m
Data Cable Type	:	Please see section 2.2 of this test report for details
Power Supply Type	:	From Adapter
AC Power Cord	:	Non-Shielded, 1.4 m, 3 pin
DC Power Cable	:	Non-Shielded, 1.5 m

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 C63.4-2003 and configuration operated in a manner which tended to maximize its emission characteristics in a typical application.
- b. The complete test system included remote workstation, PC, LCD Monitor, Keyboard, Mouse, Printer, Modem, SATA HDD and EUT for EMI test. The remote workstation included Network Camera and POE Adapter.
- c. The following test modes were performed:

Test Items	Function Type
AC Conducted Emission	Mode 1. Remote control view access LAN:1G
Radiated Emissions	Mode 1. Remote control view access LAN:1G < For below 1GHz & above 1GHz >

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

2.2. Description of Test System

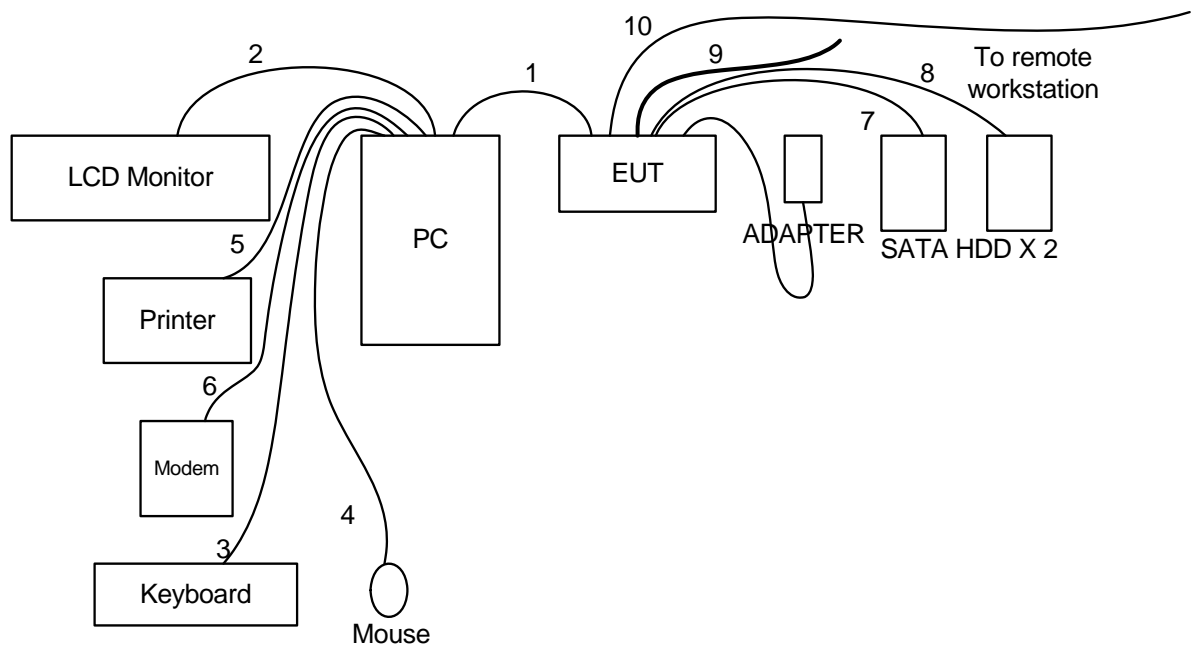
<Conducted and Radiated below 1GHz>

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	USB Keyboard	DELL	SK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m	Local
4	USB Mouse	DELL	MOC5UO	DoC	USB Cable, AL-F-Shielded, 1.8m	Local
5	Printer	HP	DJ400	B94C2642X	LPT Cable, D-Shielded, 1.2m	Local
6	Modem	ACEEX	DM1414	IFAXDM1414	RS-232 Cable, D-Shielded, 1.15m	Local
7	SATA HDD x2	EXCEDING	MAP-AD21CS	DoC	SATA Cable, D-Shielded, 1.0m	Local
8	Network Camera	vivotek	IP8330	N/A	RJ45 Cable, Non-Shielded, 0.4m	Remote
9	POE Adapter	I.T.E	PW130RA4800N02	N/A	Non-Shielded, 0.6m	Remote

<Radiated above 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	2408WFPB	DoC	D-SUB Cable, D-Shielded, 1.8m	Local
3	USB Keyboard	DELL	SK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m	Local
4	USB Mouse	DELL	MO560C	DoC	USB Cable, AL-F-Shielded, 1.8m	Local
5	Printer	HP	DJ400	B94C2642X	LPT Cable, D-Shielded, 1.2m	Local
6	Modem	ACEEX	DM1414	IFAXDM1414	RS-232 Cable, D-Shielded, 1.2m	Local
7	SATA HDD x2	EXCEDING	MAP-AD21CS	DoC	SATA Cable, D-Shielded, 1.0m	Local
8	Network Camera	vivotek	IP8330	N/A	RJ45 Cable, Non-Shielded, 0.4m	Remote
9	POE Adapter	I.T.E	PW130RA4800N02	N/A	Non-Shielded, 0.6m	Remote

2.3. Connection Diagram of Test System



1. The RJ45 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 SATA cable is connected from the EUT to the support unit 7.
8. The SATA cable is connected from the EUT to the support unit 7.
9. These USB cables are floating.
10. These RJ45 cables are connected from the EUT to the remote workstation.

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

3. Test Software

Two executive programs, EMCTEST.EXE & EMITEST.EXE under WIN XP, which generate a complete line of continuously repeating " H " pattern were used as the test software.

The programs were 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 programs were executed:

- Executed "ping.exe" to link with the remote workstation to receive and transmit data by RJ45 cable.
- Executed "Internet Explorer" to link to Internet to access data.

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 Hsiag, 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 C63.4-2003

The test configuration, test modes and test software used in this test report are designated by the applicant.

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 C63.4-2003 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.

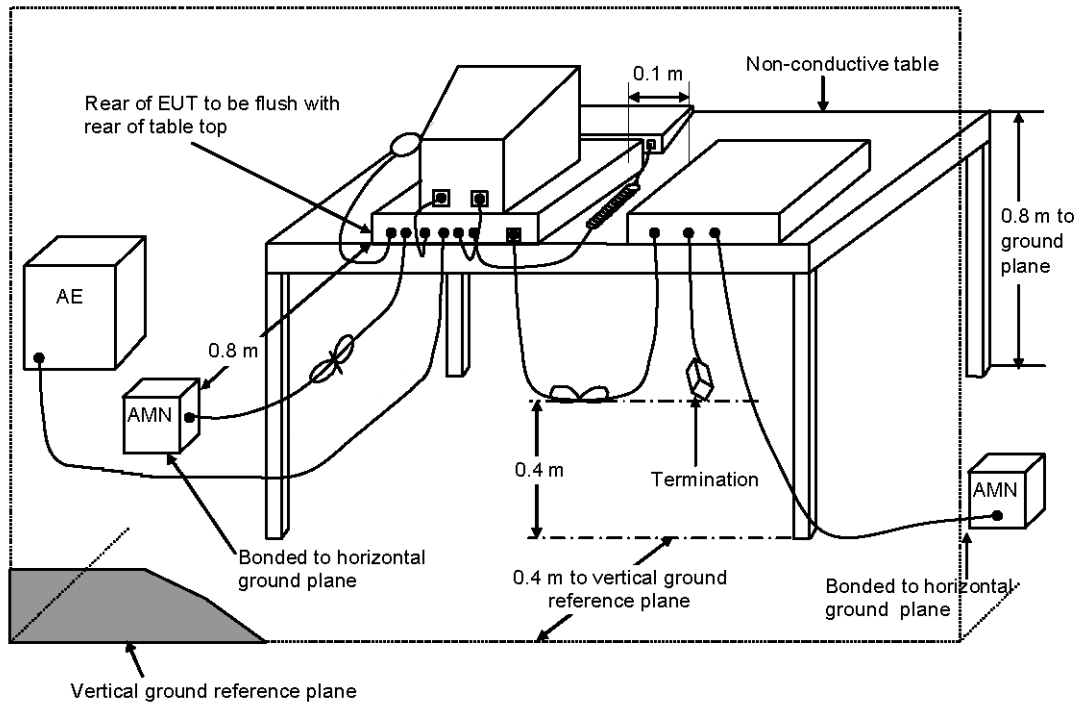
5.1. Description of Major Test Instruments

● Test Receiver	(R&S ESCS 30)
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

5.2. Test Procedures

- a. 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.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connect to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. 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

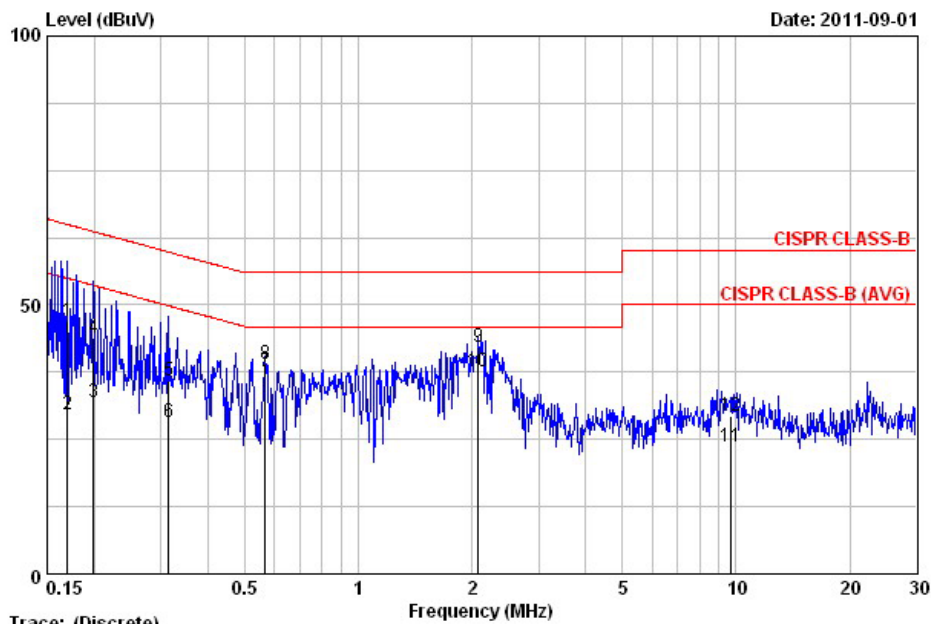


5.4. Test Result of AC Powerline Conducted Emission

Test Mode	Mode 1		
Test Frequency	0.15 MHz ~ 30 MHz	Test Site No.	CO01-NH
Test Voltage	AC 120V / 60Hz	Test Engineer	Eddie
Temperature	24 °C	Relative Humidity	51 %

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.

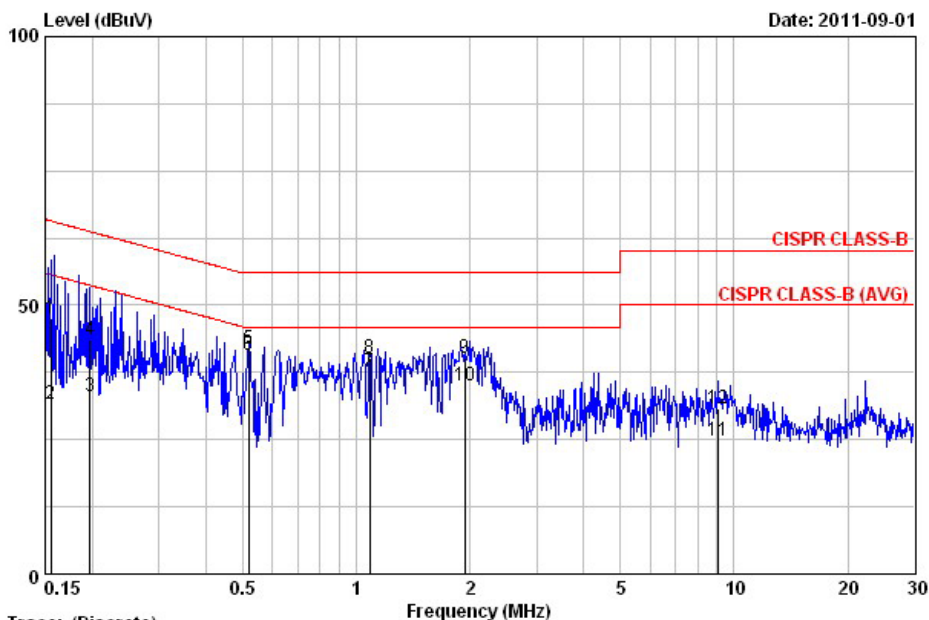
■ The test was passed at the minimum margin that marked by the frame in the following data



Trace: (Discrete)

Site : CO01-NH
 Condition : CISPR CLASS-B 2011-NNB41-04/10153 LINE
 eut :
 power : AC 120V
 memo :
 memo :
 memo :
 memo :

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBµV	dB	dBµV	dBµV	dB	dB	
1	0.169	47.01	-17.98	64.99	36.87	10.04	0.10	QP
2	0.169	29.74	-25.25	54.99	19.60	10.04	0.10	AVERAGE
3	0.199	32.01	-21.66	53.67	21.88	10.03	0.10	AVERAGE
4	0.199	43.80	-19.87	63.67	33.67	10.03	0.10	QP
5	0.315	35.85	-23.99	59.84	25.71	10.04	0.10	QP
6	0.315	28.07	-21.77	49.84	17.93	10.04	0.10	AVERAGE
7	0.567	37.69	-8.31	46.00	27.55	10.04	0.10	AVERAGE
8	0.567	39.06	-16.94	56.00	28.92	10.04	0.10	QP
9	2.077	42.20	-13.80	56.00	31.92	10.07	0.20	QP
10	2.077	37.57	-8.43	46.00	27.29	10.07	0.20	AVERAGE
11	9.654	23.74	-26.26	50.00	13.37	10.18	0.20	AVERAGE
12	9.654	29.46	-30.54	60.00	19.09	10.18	0.20	QP



Trace: (Discrete)

Site : CO01-NH
 Condition : CISPR CLASS-B 2011-NNB41-04/10153 NEUTRAL
 eut :
 power : AC 120V
 memo :
 memo :
 memo :
 memo :

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.156	47.67	-18.02	65.69	37.59	9.98	0.10	QP
2	0.156	31.71	-23.98	55.69	21.63	9.98	0.10	AVERAGE
3	0.198	33.02	-20.70	53.71	22.94	9.98	0.10	AVERAGE
4	0.198	43.51	-20.21	63.71	33.43	9.98	0.10	QP
5	0.518	41.91	-14.09	56.00	31.82	9.99	0.10	QP
6	0.518	40.70	-5.30	46.00	30.61	9.99	0.10	AVERAGE
7	1.086	37.69	-8.31	46.00	27.59	9.99	0.11	AVERAGE
8	1.086	40.03	-15.97	56.00	29.93	9.99	0.11	QP
9	1.939	40.31	-15.69	56.00	30.10	10.01	0.20	QP
10	1.939	35.19	-10.81	46.00	24.98	10.01	0.20	AVERAGE
11	9.059	24.73	-25.27	50.00	14.42	10.11	0.20	AVERAGE
12	9.059	30.70	-29.30	60.00	20.39	10.11	0.20	QP

5.5. Photographs of Conducted Powerline Test Configuration

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

FRONT VIEW



REAR VIEW



SIDE VIEW



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 C63.4-2003. 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

6.1.1. For Below 1GHz

- Amplifier (HP 8447D)
 - RF Gain 25 dB
 - Signal Input 0.1 MHz - 1.3 GHz

- Spectrum Analyzer (R&S FSP)
 - Attenuation 10 dB
 - Start Frequency 30 MHz
 - Stop Frequency 1000 MHz
 - Resolution Bandwidth 120 kHz
 - Signal Input 9 kHz - 7 GHz

- 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

6.1.2. For above 1GHz

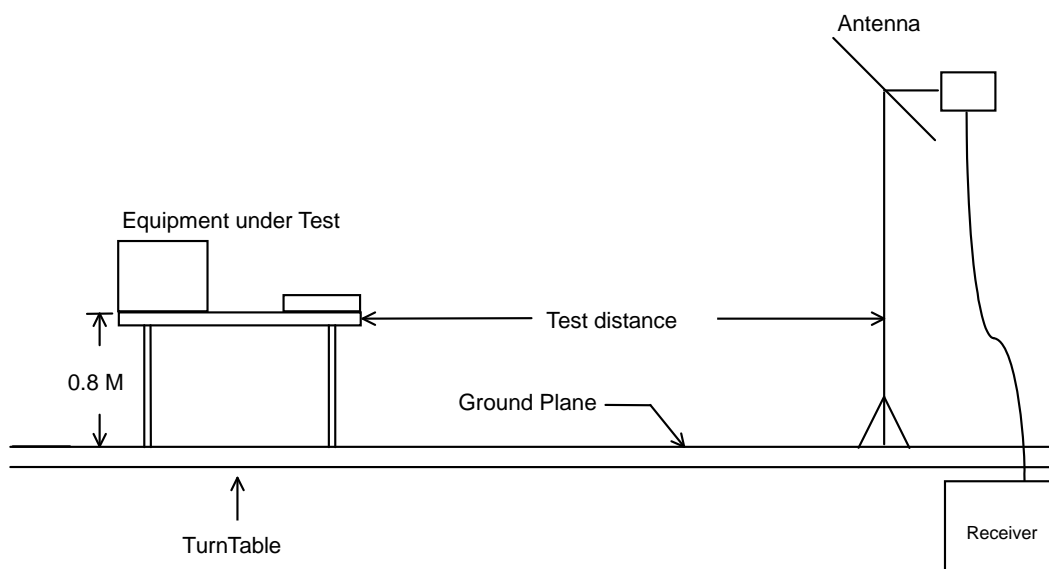
- Amplifier (AGILENT 8449B)
 - RF Gain 35 dB
 - Signal Input 1 GHz - 26.5 GHz

- 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

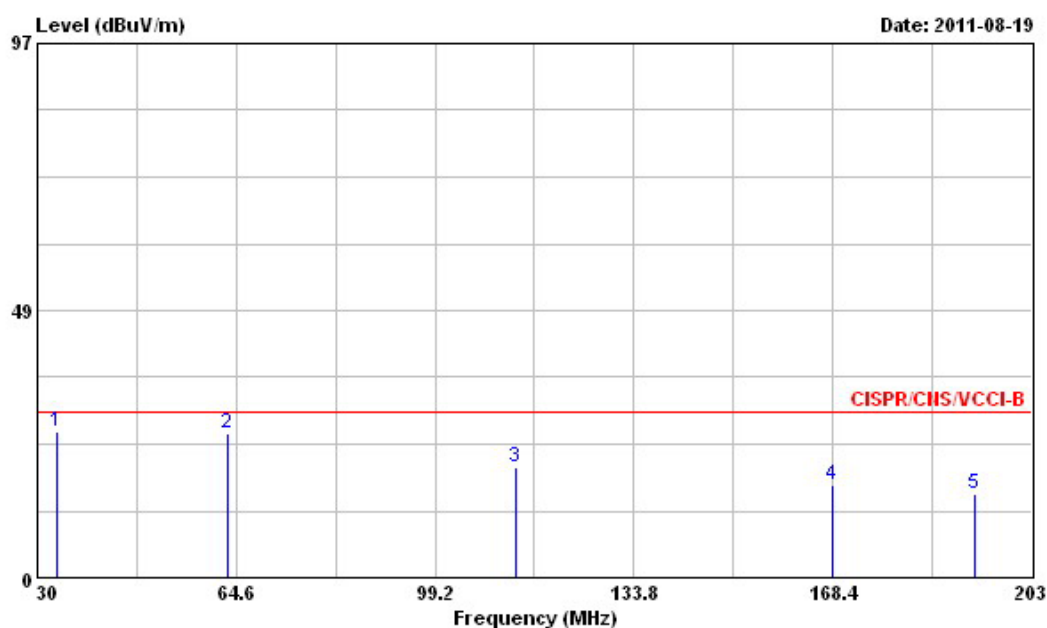


6.4. Test Result of Radiated Emission

Test mode	Mode 1	Test Site No.	OS03-NH
Test frequency	30 MHz ~ 1000 MHz	Test Engineer	Alan
Antenna distance	10 meters	Test Voltage	AC 120V / 60Hz
Temperature	28 °C	Relative Humidity	52 %

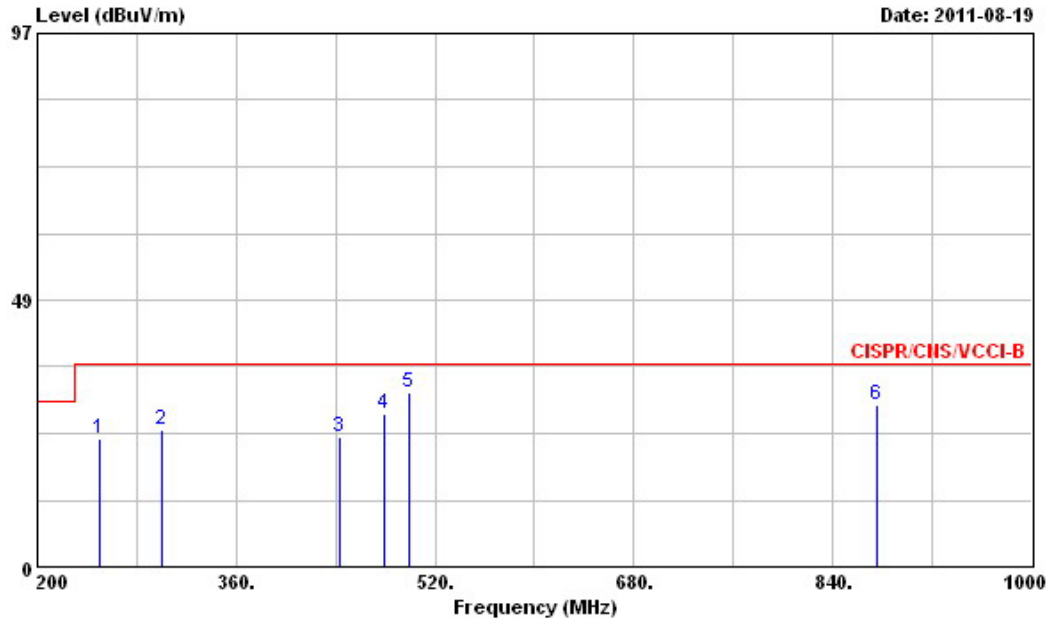
Note: 1. Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
 2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level

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



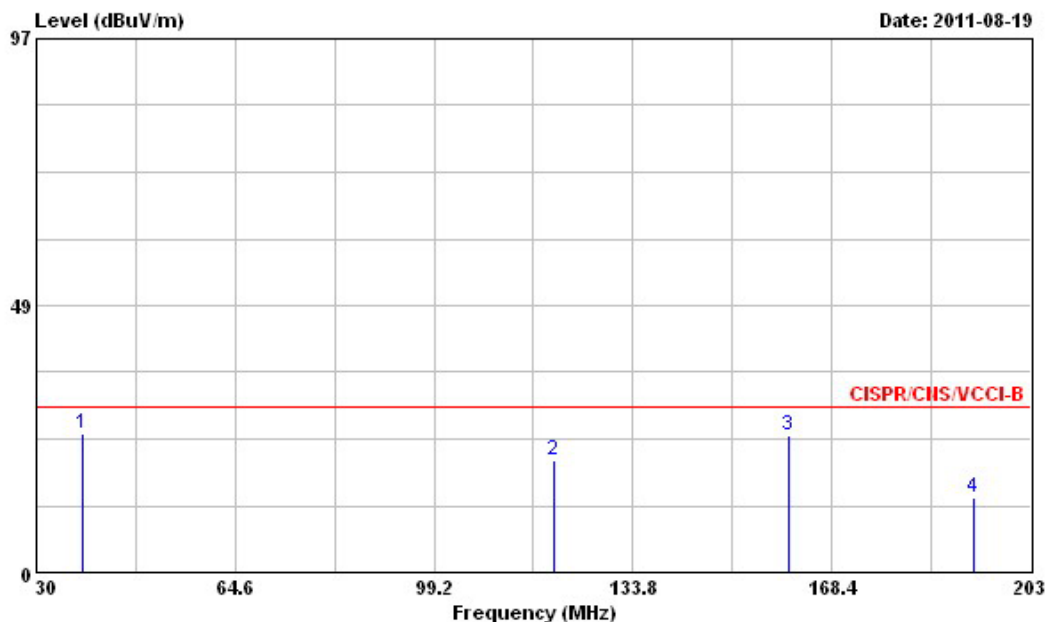
Site : OS03-NH
 Condition : CISPR/CNS/VCCL-B 10m OS03-ANT-02-28-2011 VERTICAL
 EUT : NVRmini2-4Bay
 POWER : AC 120V
 MEMO :

	Freq	Level	Over Limit	Limit Line	Read 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	33.460	26.55	-3.45	30.00	38.19	15.78	1.09	28.51	QP	100	180
2	63.040	26.05	-3.95	30.00	46.60	6.40	1.49	28.44	Peak	---	---
3	113.210	20.13	-9.87	30.00	34.61	11.82	2.01	28.31	Peak	---	---
4	168.230	16.69	-13.31	30.00	32.70	9.59	2.47	28.07	Peak	---	---
5	193.140	15.09	-14.91	30.00	31.20	9.20	2.66	27.97	Peak	---	---



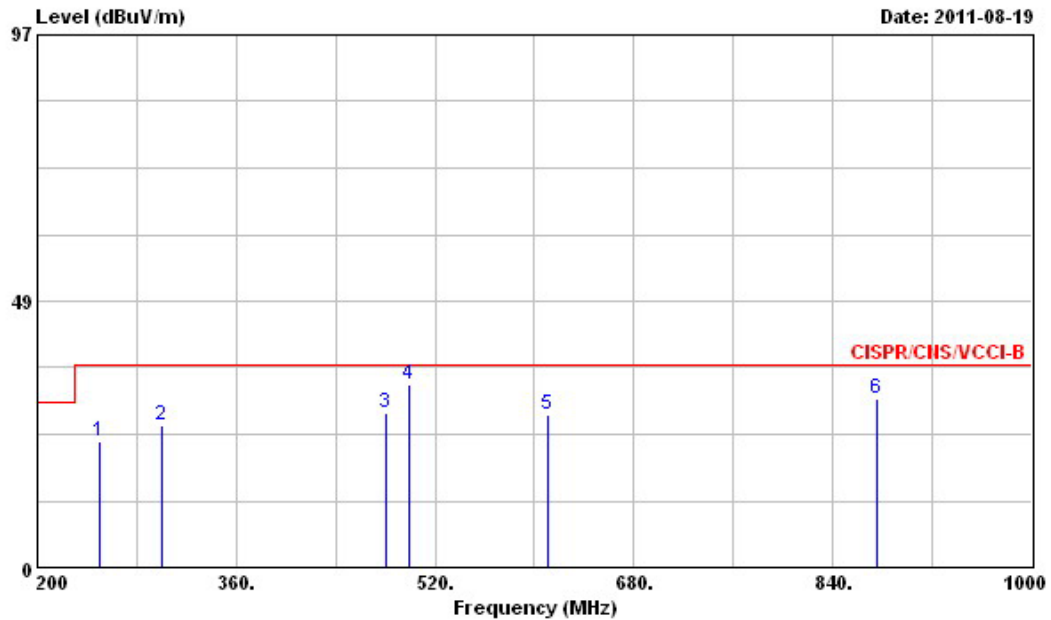
Site : OS03-NH
 Condition : CISPR/CNS/VCCL-B 10m OS03-ANT-02-28-2011 VERTICAL
 EUT : NVRmini2-4Bay
 POWER : AC 120V
 MEMO :

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	250.400	23.13	-13.87	37.00	35.39	12.32	3.27	27.85 Peak	---	---
2	300.000	24.75	-12.25	37.00	35.41	13.31	3.80	27.77 Peak	---	---
3	443.200	23.71	-13.29	37.00	31.61	16.40	4.44	28.74 Peak	---	---
4	478.400	27.66	-9.34	37.00	35.00	17.00	4.61	28.95 Peak	---	---
5	499.200	31.60	-5.40	37.00	38.59	17.36	4.72	29.07 Peak	---	---
6	875.200	29.58	-7.42	37.00	32.01	20.11	6.25	28.79 Peak	---	---



Site : OS03-NH
 Condition : CISPR/CNS/VCCL-B 10m OS03-ANT-02-28-2011 HORIZONTAL
 EUT : NVRmini2-4Bay
 POWER : AC 120V
 MEMO :

	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	38.130	25.38	-4.62	30.00	38.94	13.80	1.14	28.50	Peak	---	---
2	120.130	20.44	-9.56	30.00	34.42	12.28	2.02	28.28	Peak	---	---
3	160.960	24.96	-5.04	30.00	40.80	9.89	2.38	28.11	Peak	---	---
4	193.140	13.69	-16.31	30.00	29.80	9.20	2.66	27.97	Peak	---	---



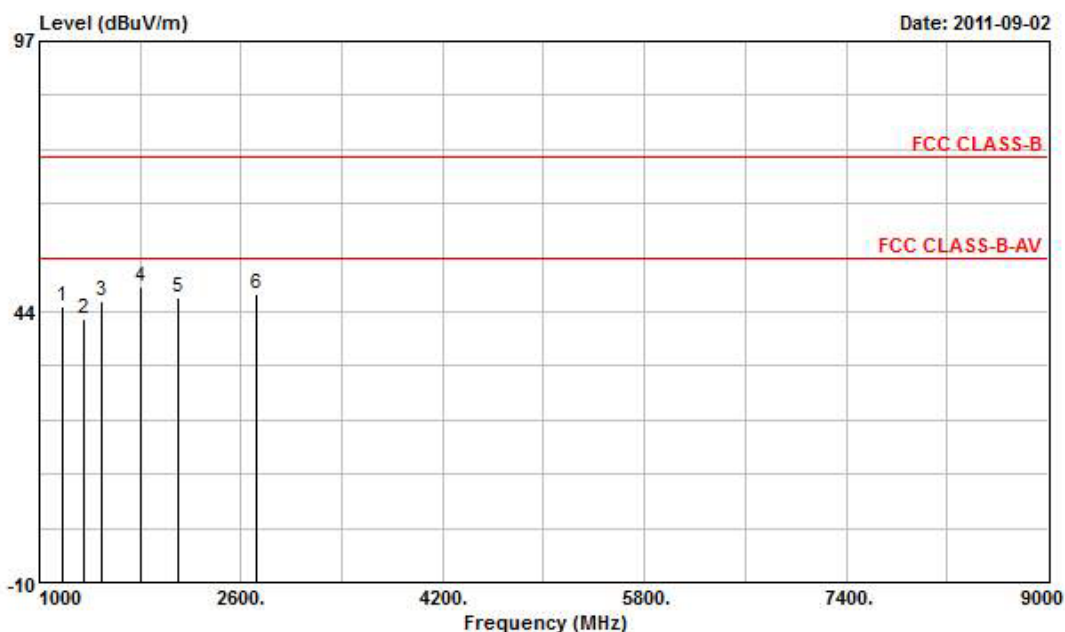
Site : OS03-NH
 Condition : CISPR/CNS/VCCL-B 10m OS03-ANT-02-28-2011 HORIZONTAL
 EUT : NVRmini2-4Bay
 POWER : AC 120V
 MEMO :

	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	250.400	22.93	-14.07	37.00	35.19	12.32	3.27	27.85	Peak	---	---
2	300.000	25.95	-11.05	37.00	36.61	13.31	3.80	27.77	Peak	---	---
3	480.000	28.29	-8.71	37.00	35.60	17.03	4.62	28.96	Peak	---	---
4	499.200	33.40	-3.60	37.00	40.39	17.36	4.72	29.07	Peak	---	---
5	611.200	27.95	-9.05	37.00	33.40	18.50	5.20	29.15	Peak	---	---
6	875.200	30.58	-6.42	37.00	33.01	20.11	6.25	28.79	Peak	---	---

Test mode	Mode 1	Test Site No.	03CH04-HY
Test frequency	1000 MHz ~ 9000 MHz	Test Engineer	Kevin
Antenna distance	3 meter	Test Voltage	AC 120V / 60Hz
Temperature	21 °C	Relative Humidity	48 %

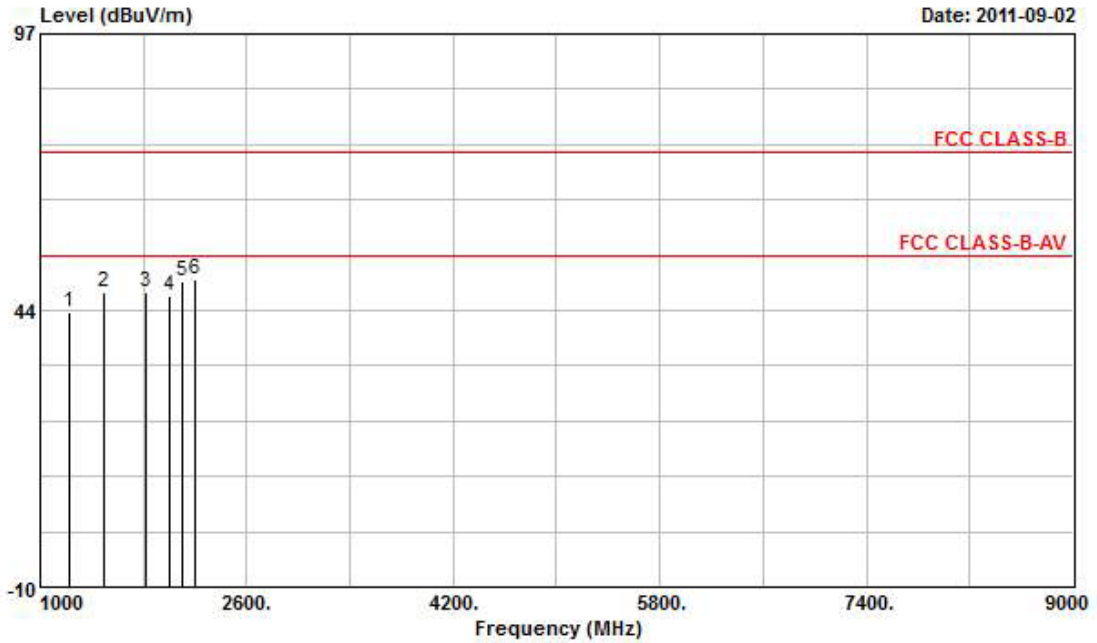
Note: 1. Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
 2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level

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



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m HF-ANT-3117 VERTICAL
 EUT :
 MODEL :
 POWER :
 MEMO :

	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Ant	Table	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	Remark
1	1188.000	44.63	-29.37	74.00	47.89	28.45	34.16	2.44	---	---	Peak
2	1348.000	42.09	-31.91	74.00	44.82	28.58	33.91	2.60	---	---	Peak
3	1500.000	45.71	-28.29	74.00	47.93	28.70	33.70	2.79	---	---	Peak
4 @	1804.000	48.36	-25.64	74.00	48.07	30.86	33.70	3.13	---	---	Peak
5	2102.000	46.46	-27.54	74.00	44.38	32.36	33.72	3.44	---	---	Peak
6	2718.000	46.86	-27.14	74.00	43.88	32.86	33.97	4.09	---	---	Peak



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m HF-ANT-3117 HORIZONTAL
 EUT :
 MODEL :
 POWER :
 MEMO :

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1220.000	43.15	-30.85	74.00	46.29	28.48	34.09	2.47	---	---	Peak
2	1500.000	46.92	-27.08	74.00	49.14	28.70	33.70	2.79	---	---	Peak
3	1820.000	47.11	-26.89	74.00	46.70	30.98	33.70	3.13	---	---	Peak
4	1998.000	46.20	-27.80	74.00	44.26	32.30	33.70	3.34	---	---	Peak
5 @	2102.000	49.27	-24.73	74.00	47.19	32.36	33.72	3.44	---	---	Peak
6 @	2198.000	49.59	-24.41	74.00	47.38	32.41	33.74	3.54	100	187	Peak

6.5. Photographs of Radiated Emission Test Configuration

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

FRONT VIEW



REAR VIEW



7. List of Measuring Equipment Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Receiver	R&S	ESCS 30	100357	9 kHz - 2.75 GHz	Nov. 16, 2010	Conduction (CO01-NH)
LISN	SCHAFFNER	NNB41	04/10153	9kHz - 30MHz	Nov. 16, 2010	Conduction (CO01-NH)
Power Filter	CORCOM	MR12030	N/A	30A*2	N/A	Conduction (CO01-NH)
RF Cable-CON	Suhner Switzerland	RG223/U	CB004	9kHz - 30MHz	Dec. 14, 2010	Conduction (CO01-NH)
Open Area Test Site	SPORTON	OATS-10	OS03-NH	30 MHz - 1 GHz 10m, 3m	Nov. 13, 2010	Radiation (OS03-NH)
Amplifier	HP	8447D	2944A08292	0.1 MHz - 1.3 GHz	May 03, 2011	Radiation (OS03-NH)
Spectrum Analyzer	R&S	FSP	838858/038	9 kHz – 7 GHz	Jan. 11, 2011	Radiation (OS03-NH)
Receiver	R&S	ESCS 30	100357	9 kHz - 2.75 GHz	Nov. 16, 2010	Radiation (OS03-NH)
Bilog Antenna	CHASE	CBL6112D	25234	30 MHz - 2 GHz	Feb. 28, 2011	Radiation (OS03-NH)
Turn Table	EMCO	2080	9805-2065	0 - 360 degree	N/A	Radiation (OS03-NH)
Antenna Mast	EMCO	2075	9804-2151	1 m - 4 m	N/A	Radiation (OS03-NH)
RF Cable-R10m	HSCN	RG213U	2X11N	30 MHz - 1 GHz	Aug. 10, 2011	Radiation (OS03-NH)
Spectrum Analyzer	R&S	FSP40	100004	9 kHz - 40GHz	Nov. 17, 2010	Radiation
Amplifier	Agilent	8449B	3008A02326	1GHz - 26.5 GHz	Mar. 08, 2011	Radiation
RF Cable-HIGH	SUHNER	SUCOFLEX 106	CB063-HF	1 GHz - 40 GHz	Nov. 24, 2010	Radiation
Horn Antenna	ETS	3117	00075954	1GHz - 18GHz	Sep. 28, 2010	Radiation

Calibration Interval of instruments listed above is one year.

8. Uncertainty of Test Site

Uncertainty of Conducted Emission Measurement (150kHz ~ 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 (30MHz ~ 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		

APPENDIX A. Photographs of EUT





