EMC Test Report

According to FCC Part 15 Subpart B

Project No.		**LBE050810**
Equipment under Test		
	Address	416 Maetan3-Dong,Yeongtong-Gu,Suwon-Si,Gyeonggi-Do, Korea,443-742
	Product Name	**LCD Monitor**
	Model Name	**SO32UO**
	Manufacturer	SAMSUNG
	Brand Name	SAMSUNG
	Variant Model	See Page 3
	FCC ID	A3LSO32UO
Date of Test		April 11 , 2005 ~ April 21, 2005
Issued Date		April 22, 2005

	Name/Position	Signature
Tested by	Tae Young, Jang Test Engineer	
Reviewed by	No Cheon, Park Manager of EMC Lab.	
Authorized by	Seung Kyu, Cha Chief of EMC Lab.	

1. This test reports does not constitute an endorsement by NIST/NVLAP or U.S Government.
2. This test report is to certify that the tested device properly complies with the requirements of FCC Rules and Regulations Part 15 Subpart B Unintentional Radiators.
   All tests necessary to show compliance to the requirements were and these results met the specifications requirement.

This laboratory is registered by the NIST/NVLAP, U.S.A.
The test reported herein have been performed in accordance with its terms of registration.

NVLAP LAB CODE 200623-0

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1. General Information

1.1 Basic Information related Product

Applicant	Samsung Electronics Co. Ltd
Model name	SO32UO
Applicant Address	416 Maetan3- Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, Korea, 443-742
Contact Person	Chang Seub, Eum
Kind of product	LCD Monitor
Valiant list	
Manufacturer	Samsung Electronics Co. Ltd

1.2 Detail Information related Product

Specification

Image Viewable Image Size	32 Inch
Maximum Resolution	1360 X 768@60Hz
Horizontal Frequency	60KHz
Vertical Frequency	75Hz

1.3 Operating Mode and Condition

The system was configured for testing in typical fashion use. Cables were attached to each of the available I/O Ports. Where applicable, peripherals were attached to the I/O cables. The mode of operation utilized for testing was selected to best simulate typical EUT use.

- PC Analog In

1.4 Equipment Modifications

No equipment modifications were required.

1.5 Test Configuration

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Used EUT and Peripherals

Seq	Device	Model Name	Serial #	Maker	FCC ID
A	LCD Monitor	SO32UO	-	SAMSUNG	A3LSO32UO
B	Personal Computer	M6050	812092FRCO1963	SAMSUNG	DoC
C	Printer	ML-1750	BABX822977N	SAMSUNG	A3LML-1750
D	PS/2 Keyboard	TKB-3000	C0412158564	SAMSUNG	DoC
E	USB Mouse	M-S48a	334648-007	SAMSUNG	JNI201213
F	Head Set	Natural	-	-	-

Port Description

	Connect Cable	Length [m]	Shielded [Y/N]	Remark
1	Power	1.8	No	To the Mains
2	Power	1.8	No	To the Mains
3	Power	1.8	No	To the Mains
4	Monitor (PC Video Input)	1.7	Yes	To the PC
5	Parallel (Printer)	1.8	Yes	To the PC
6	PS/2 (Keyboard)	1.5	No	To the PC
7	USB (Mouse)	1.5	No	To the PC
8	Component In 1	1.5	No	Termination
9	Component In 2	1.5	No	Termination
10	Audio In 1	1.5	No	Termination
11	Audio In 2	1.5	No	Termination
12	S-video In	1.5	No	Termination
13	AV In	1.5	No	Termination
14	Audio Out	1.5	No	Termination
15	PC audio in	1.5	No	To the PC
16	Head Set	1.5	No	To the EUT
17	DVI Audio In	1.5	No	Termination
18	HDMI In	1.5	No	Termination

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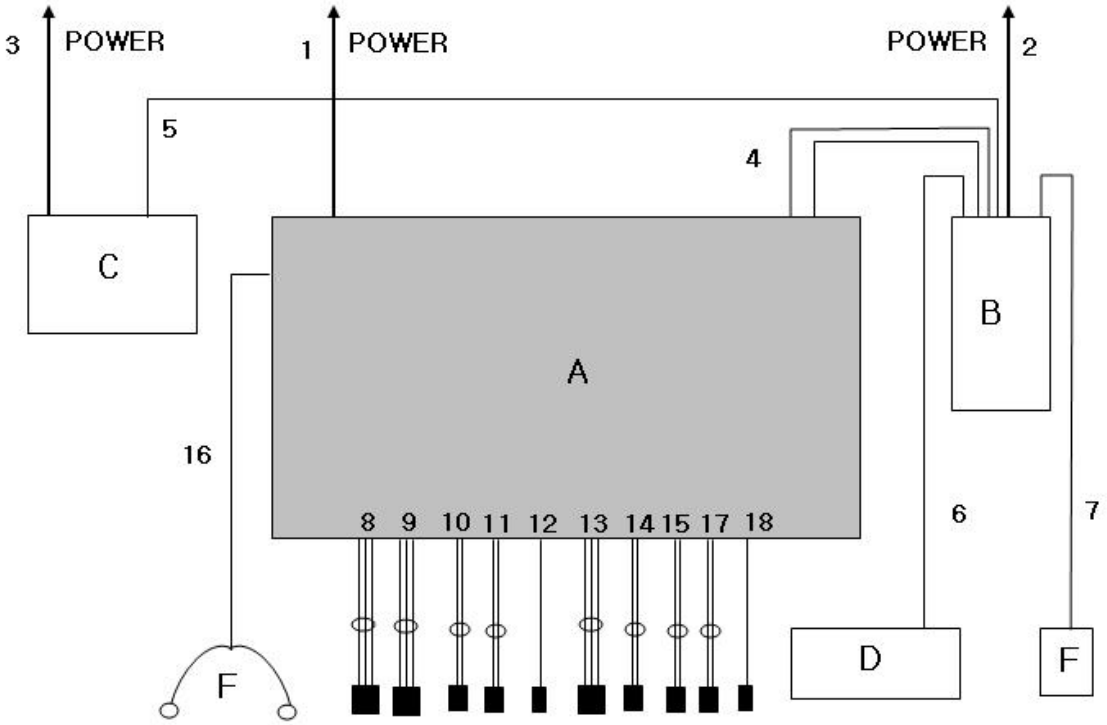
Block Diagram



1.6 Applied Standards

List

Applied Standards	Test Procedure
FCC Part15 Subpart B	ANSI C63.4 : 2003

1.7 Test Facility

General Information

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1, 16-2.

This EMC Testing Lab. is accredited by Korea Laboratory Accreditation Scheme(KOLAS) which signed the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the above test item(s) and test method(s).

This Lab. is operated as testing laboratory in accordance with the requirements of ISO/IEC 17025:1998.

Accreditation and Listing

Uncertainty (According to NAMAS Pub.NIS81)

Test Item	Expanded Uncertainty
Radiated Emission	±5.09
Conducted Emission	±1.64

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2. Summary of Test Results

Result : PASS

The equipment under test(EUT) has been found to comply with the applied standards.

Test Name		Applied Standard	Result
Electromagnetic Emission Test			
3.1	Conducted Emission	FCC Part15 Subpart B	Complied
3.2	Radiated Emission	FCC Part15 Subpart B	Complied

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3. Description of Individual Tests

3.1 Conducted Emission

Test Information		
	Test Engineer	Tae Young, Jang
	Test Date	April 14, 2005
	Climate Condition	Ambient Temperature : 23℃ Relative Humidity : 35%
	Test Place	Shield Room #5

Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Test Software	EP5CE	TOYO	None	N/A	N/A
RF Relais Matrix	PSU	R&S	861206/024	N/A	N/A
EMC Analyzer	E7405A	AGILENT	US41110272	2006-01-20	12
TV Signal Generator	PM5418-TDSI	PHILIPS	LO612437	2005-09-23	12
Field strength meter	ESS	R&S	844661/005	2006-01-11	12
L.I.S.N	ESH3-Z5	R&S	100261	2005-07-23	12
L.I.S.N	ESH3-Z5	R&S	847265/028	2005-09-12	12

EUT Test Setup

The EUT was set up as per normal use on a wooden table, 0.4m from a vertical ground reference plane, at least 0.8m from other conduction surfaces and 0.8m from the LISN.

See photo.

Test Result

Measurement Results	Pass The measured emissions of the EUT have found to be below the specified limits.

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Test Data

■ Operating Mode : PC Analog in

[Graph and Data]

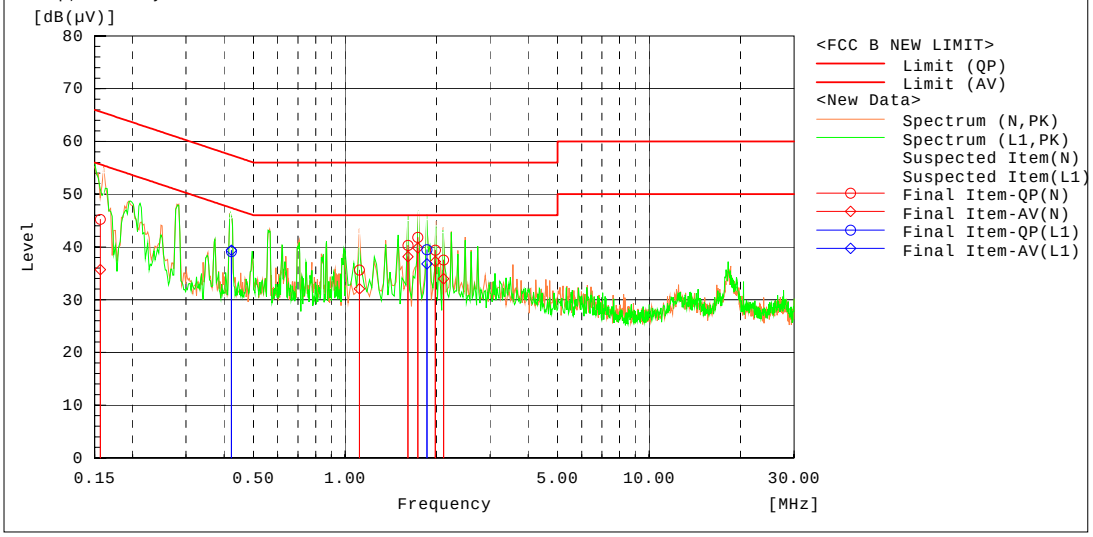
Samsung
- EMC Site -

<<Conducted Emission>>

14 April,2005 13:25

Model : SO32UO
Project Num :
Operator :
OP Mode : H PATTERN
Temp,Humidity:

Standard : FCC Class B
Remark1 : PC
Remark2 :
Remark3 :
Remark4 :



Final Result

--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.15659	45.1	35.6	0.1	45.2	35.7	65.6	55.6	20.4	19.9
2	1.1148	35.5	32.0	0.1	35.6	32.1	56.0	46.0	20.4	13.9
3	1.6113	40.2	38.1	0.1	40.3	38.2	56.0	46.0	15.7	7.8
4	1.7349	41.7	39.7	0.1	41.8	39.8	56.0	46.0	14.2	6.2
5	1.9828	39.3	37.1	0.1	39.4	37.2	56.0	46.0	16.6	8.8
6	2.1068	37.4	33.9	0.1	37.5	34.0	56.0	46.0	18.5	12.0

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.42251	38.9	39.2	0.2	39.1	39.4	57.4	47.4	18.3	8.0
2	1.8588	39.3	36.6	0.2	39.5	36.8	56.0	46.0	16.6	9.2

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3.2 Radiated Emission

Test Information		
	Test Engineer	Tae Young, Jang
	Test Date	April 11 , 2005
	Climate Condition	Ambient Temperature : 23℃ Relative Humidity : 35%
	Test Place	10m Semi-anechoic Chamber

Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
RF Selector	NS4900	TOYO	0303-015	N/A	N/A
Bi-log Antenna	6112B	SCHAFFNER	2767	2005-04-29	12
Mast Controller	HD2000	HD	HD20000902027	N/A	N/A
Test Software	EP5RET	TOYO	None	N/A	N/A
Test Software	EP5RE	TOYO	None	N/A	N/A
TV Signal Generator	PM5418-TDSI	PHILIPS	LO612437	2005-09-23	12
EMC Analyzer	E7405A	Agilent	MY42000052	2005-08-26	12
Field strength meter	ESCS30	R&S	839809/002	2005-04-28	12
RF Amplifier	8447D	Agilent	2944A10430	2005-07-20	12
Mast Controller	HD 100	HD	100/374	N/A	N/A

EUT Test Setup

EUT is positioned at 3m from antenna at the center of the table in the semi-anechoic chamber.

All unused ports were terminated into characteristic loads.

Test Result

Measurement Results	Pass The measured emissions of the EUT have found to be below the specified limits.

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Test Data (Local Oscillator)

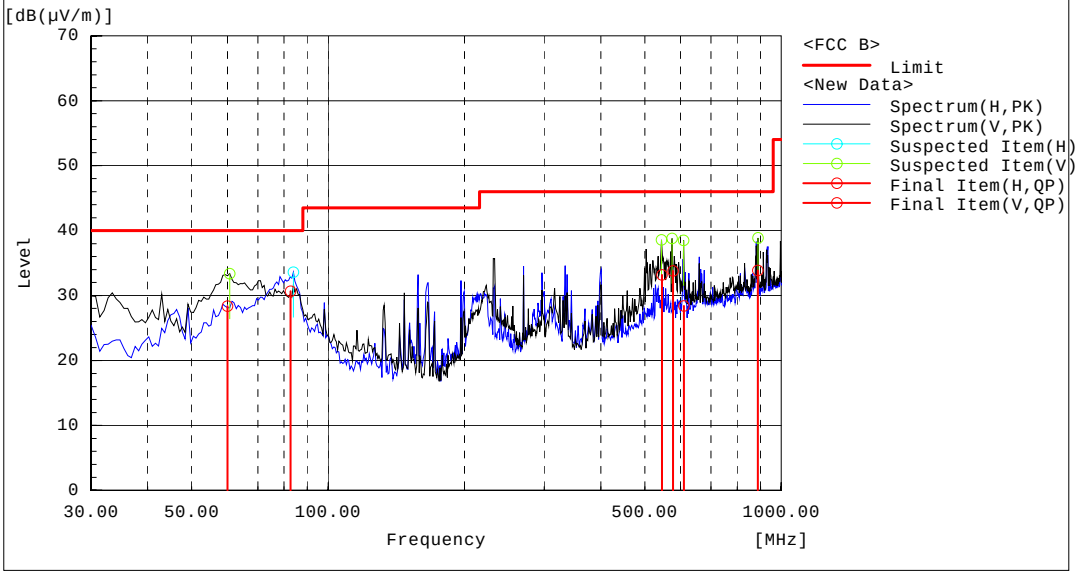
■ Operating Mode : PC Analog in(30MHz ~ 1GHz)

SAMSUNG EMC LAB.

<<Radiated Emission>>

Model Name : SO32UO
Serial Num. : -
Test Enginee:
AC Power :
OP Mode : H Pattern

Standard : FCC Part.15 Class B 3m
Remark 1 : PC
Remark 2 :



Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	82.704	48.5	-17.8	30.7	40.0	9.3	

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	59.997	48.8	-20.4	28.4	40.0	11.6	
2	545.280	35.5	-2.3	33.2	46.0	12.8	
3	577.358	35.6	-1.8	33.8	46.0	12.2	
4	609.435	29.8	-1.4	28.4	46.0	17.6	
5	887.720	31.3	2.6	33.9	46.0	12.1	

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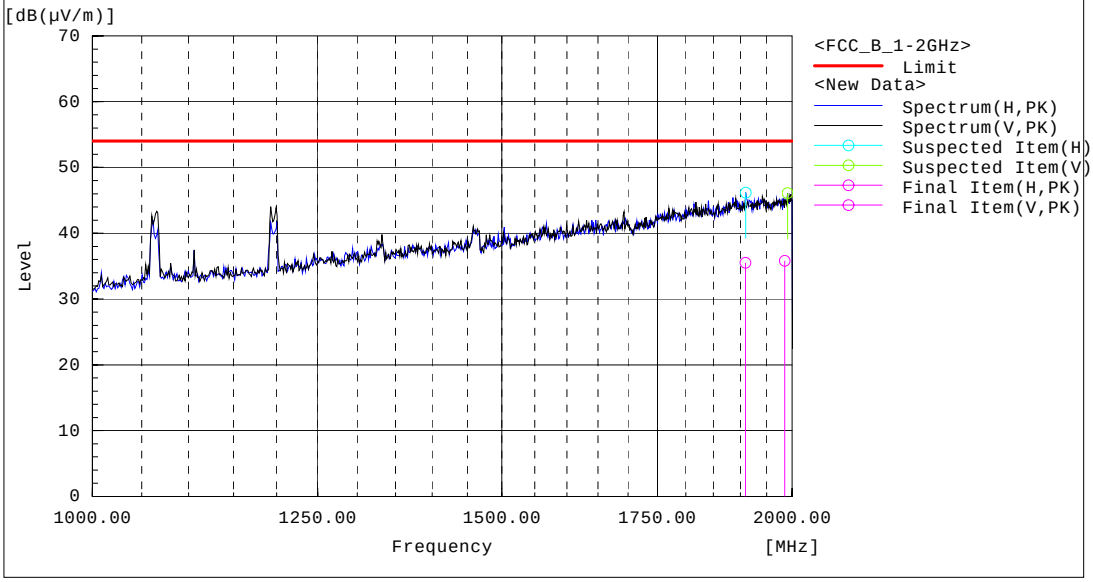
■ Operating Mode : PC Analog in (1GHz ~ 2GHz)

SAMSUNG EMC LAB. <<Radiated Emission>> 11 April,2005 21:01

Model : SO32UO
Serial : -
Operator :
AC Power :
Temp,Humidity

Standard : FCC Part.15 Class B 3m
Project Num :
OP Mode : H Pattern
Remark3 : PC
Remark4 :



Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	1909.613	14.0	21.5	35.5	54.0	18.5	

--- Vertical Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	1985.451	13.4	22.4	35.8	54.0	18.2	

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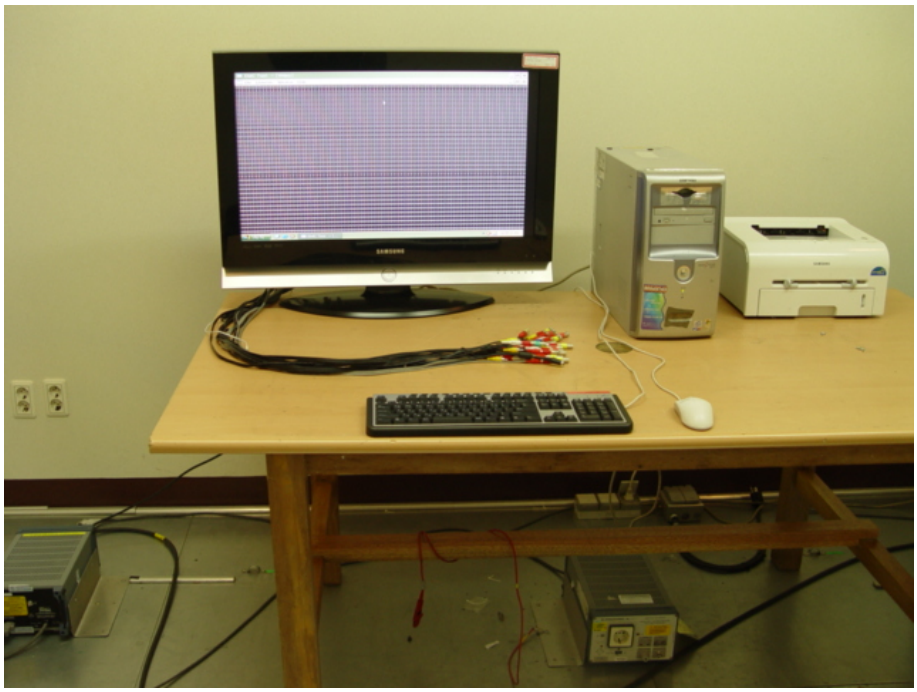
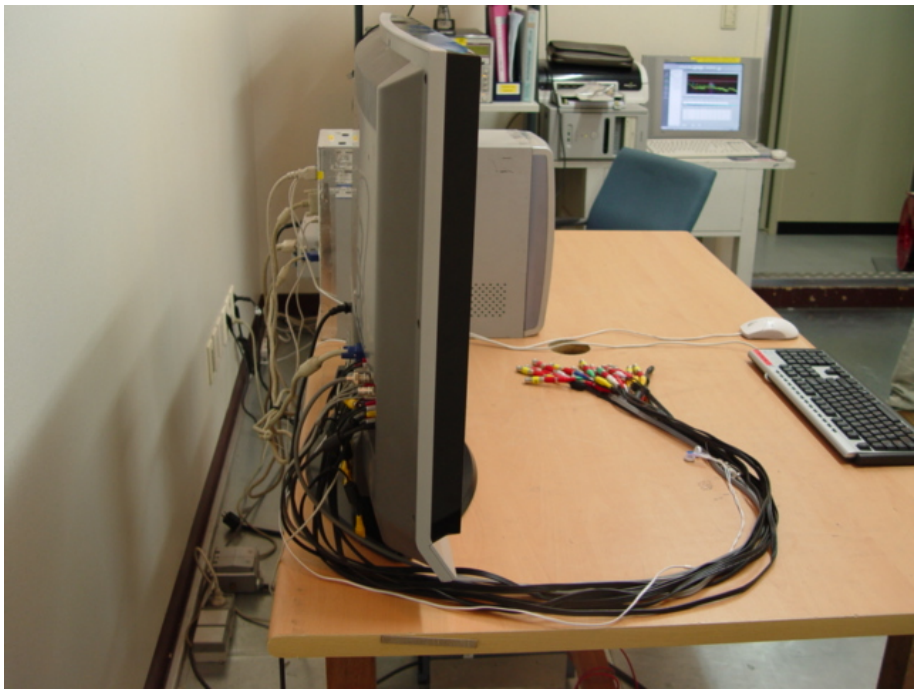
4. Appendix A

4.1 Test Photography



Picture 1. Conducted Emission (Front view)



Picture 2. Conducted Emission (Rear view)

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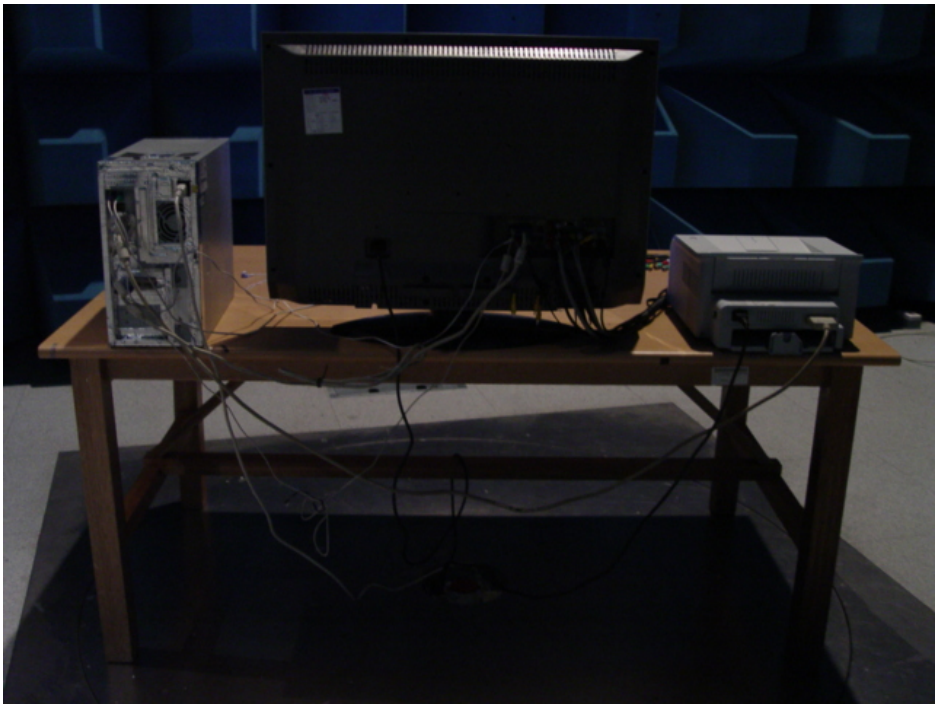
Picture 3. Radiated Emission (Front view)



Picture 4. Radiated Emission (Rear view)

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4.2 EUT Photography

Picture 5. EUT (Front view)

Picture 6. EUT (Rear view)

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