EMC Test Report

According to FCC Part 15 Subpart B

Project No.		**LBE041807**
Equipment under Test		
	Address	416 Maetan3-Dong,Yeongtong-Gu,Suwon-City,Gyeonggi-Do, Korea,443-742
	Product Name	**DLP PROJECTION Monitor**
	Model Name	**RC50L3**
	Manufacturer	SAMSUNG
	Brand Name	SAMSUNG
	Variant Model	See Page 3
Date of Test		September 13~14, 2004
Issued Date		September 16, 2004

	Name/Position	Signature
Tested by	Dong Min, Lee Test Engineer	
Reviewed by	No Cheon, Park Manager of EMC Lab.	N. C. Park
Authorized by	Kyu Baek, Chung Chief of EMC Lab.	K. B. Chung

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	RC50L3
Applicant Address	Samsung Electronics Co. Ltd; 416 Maetan3- Dong, Yeongtong-Gu, Suwon-City, Gyeonggi-Do, Korea, 443-742
Contact Person	Dong Min, Lee
Kind of product	DLP PROJECTION Monitor
Valiant list	None
Manufacturer	Samsung Electronics Co.Ltd;
New / Alternative / Permissive change Information	This report is original report #

1.2 Detail Information related Product

Specification

Item(s)	Description
Model Name	RC50L3
Product Name	DLP Projection TV
Resolution	1280 * 720
Horizontal Frequency	45KHz
Vertical Frequency	62Hz

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1.3 Operating Mode and Condition

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

- Digital Video In (worst case)

1.4 Equipment Modifications

No equipment modifications were required.

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1.5 Test Configuration

Used EUT and Peripherals

Seq	Device	Model Name	Serial #	Maker	Note
A	DLP Projection TV	RC50L3	-	SAMSUNG	EUT
B	Desktop PC	M6200	450092DN101021	SAMSUNG	DOC
C	Printer	LQ-580H	CG2Y014504	EPSON	DOC
D	PS/S Keyboard	SDM4510UH	4M037682	Samsung	DOC
E	PS/2 Mouse	SMB-600	7KBE008060	Samsung	DOC

Used Cable Description

No	Connect Cable	Length [m]	Shielded [Y/N]	Remark
1	Power	1.7	No	For EUT
2	Power	1.7	No	For PC
3	Power	1.7	No	For Printer
4	Monitor Analog	1.5	Yes	
5	Parallel (Printer)	1.5	Yes	
6	PS/2 Keyboard	1.5	No	
7	PS/2 Mouse	1.5	No	

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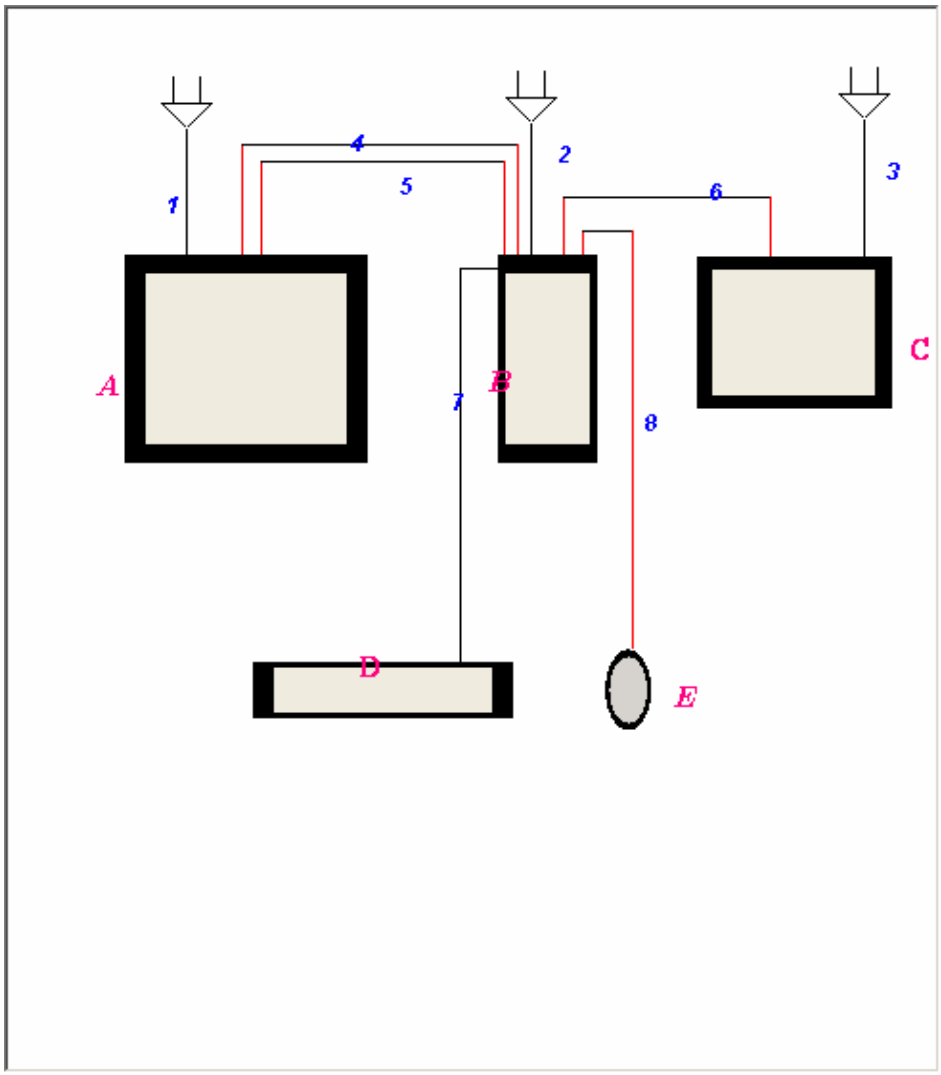
Block Diagram



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1.6 Applied Standards

List

Product or Generic Standards	Basic Standards
FCC Part15 Subpart B	ANSI 63.4 : 2003

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1.7 Test Facility

General Information

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR 22, 16-1, 16-2, 11.

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 Disturbance	5.09
Disturbance voltage at the mains terminals	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	Dong Min, Lee
	Test Date	September 13, 2004
	Climate Condition	Ambient Temperature : 23℃ Relative Humidity : 37%
	Test Place	Shield Room #5

Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Spectrum Analyzer	E7405A	Agilent	US4110272	2005-06-14	12
TV Signal Generator	PM5418-TDSI	PHILIPS	LO612437	2004-09-20	12
Signal Generator	SMY01	R&S	840703/019	2004-11-06	12
L.I.S.N	ESH3-Z5	R&S	100261	2005-07-16	12
Field strength meter	ESS	R&S	844661	2005-05-31	12
RF Relais Matrix	PSU	R&S	861206/024	N/A	12
L.I.S.N	ESH3-Z5	R&S	100260	2005-07-16	12
Test Software	EP5CE	TOYO	None	N/A	N/A

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 No Operation errors were detected during or after the applied test.

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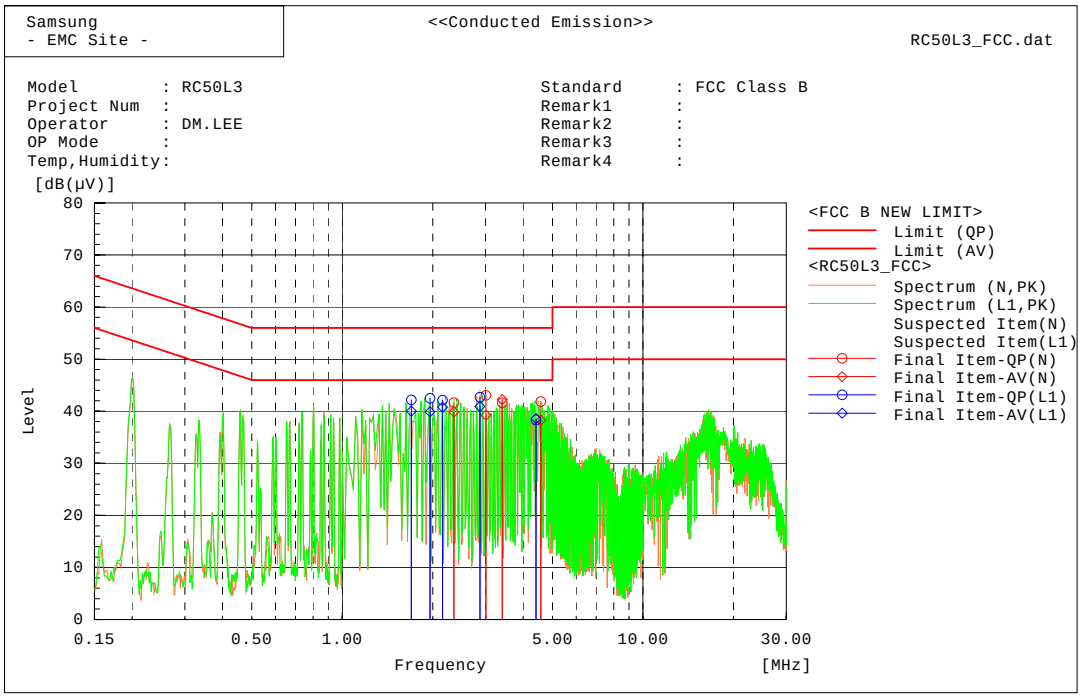
Test Data

■ Operating Mode : Digital Video In

[Graph and Data]



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	2.3528	41.6	39.8	0.1	41.7	39.9	56.0	46.0	14.4	6.1
2	3.00588	42.9	39.0	0.2	43.1	39.2	56.0	46.0	12.9	6.8
3	3.40827	41.4	42.0	0.2	41.6	42.2	56.0	46.0	14.4	3.8
4	4.57466	41.7	38.1	0.2	41.9	38.3	56.0	46.0	14.1	7.8

--- 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	1.69917	42.0	39.8	0.2	42.2	40.0	56.0	46.0	13.8	6.0
2	1.96033	42.3	39.7	0.2	42.5	39.9	56.0	46.0	13.5	6.1
3	2.15765	42.0	40.6	0.2	42.2	40.8	56.0	46.0	13.9	5.2
4	2.87422	42.5	40.7	0.2	42.7	40.9	56.0	46.0	13.3	5.1
5	4.41107	38.1	38.4	0.2	38.3	38.6	56.0	46.0	17.7	7.4

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3.2 Radiated Emission

Test Information		
	Test Engineer	Dong Min, Lee
	Test Date	April 30, 2004
	Climate Condition	Ambient Temperature : 23℃ Relative Humidity : 37%
	Test Place	10m Semi Anechoic chamber

Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Field strength meter	ESCS	R&S	100104	2004-10-17	12
RF Selector	NS4900	TOYO	0303-015	N/A	N/A
Biconilog Antenna	6112B	SCHAFFNER	2767	2005-06-03	12
Mast Controller	HD2000	HD	HD20000902027	N/A	N/A
EMI Receiver	ESI26	R&S	100067	2005-01-09	12
Test Software	EP5RE	TOYO	None	N/A	12
TV Signal Generator	PM5418-TDSI	PHILIPS	LO612437	2004-09-20	12
Signal Generator	SMY01	R&S	840703/019	2004-11-06	12
Biconilog Antenna	6112B	SCHAFFNER	2766	2005-06-03	12
Spectrum Analyzer	E7405A	Agilent	MY42000109	2004-11-27	12

EUT Test Setup

EUT set up in semi-anechoic chamber. EUT positioned at 3m from antenna in center of table. All ports terminated into characteristic loads.

Test Result

Measurement Results	Pass No Operation errors were detected during or after the applied test.

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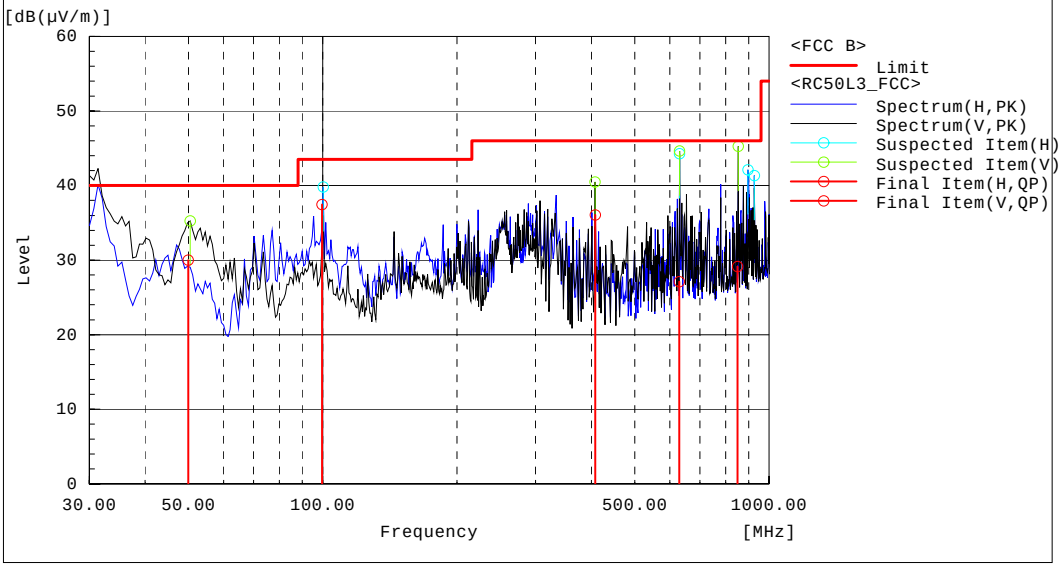
Test Data (Other Frequency)

■ Operating Mode : Digital Video In(30 ~1000 MHz)

SAMSUNG EMC LAB. <<Radiated Emission>> RC50L3_FCC.dat

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

Standard : FCC Part.15 Class B 3m
Remark 1 :
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	99.653	56.6	-19.2	37.4	43.5	6.1	
2	629.770	32.5	-5.4	27.1	46.0	18.9	

--- 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	49.987	52.7	-22.7	30.0	40.0	10.0	
2	849.990	31.9	-2.8	29.1	46.0	16.9	
3	408.010	46.5	-10.4	36.1	46.0	9.9	

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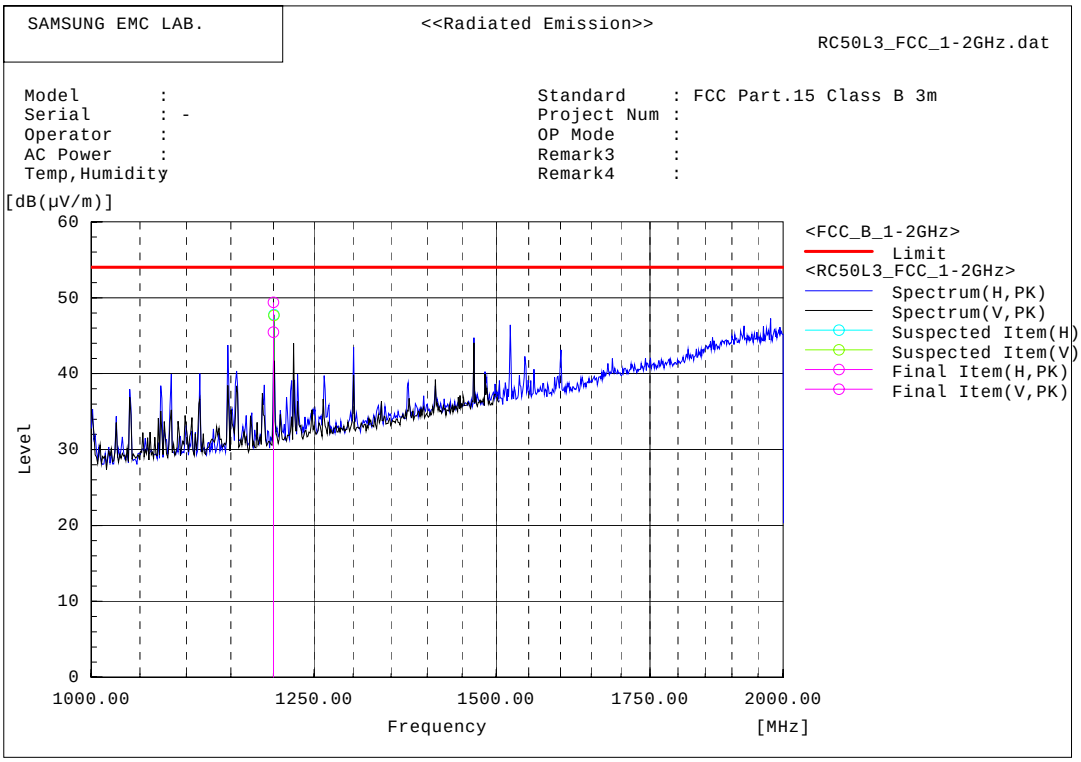
■ Operating Mode : Digital Video In(1 ~ 2GHz)



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	1200.000	43.1	6.3	49.4	54.0	4.6	

--- 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	1200.000	39.2	6.3	45.5	54.0	8.5	

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4. Appendix A

4.1 Test Photography

Picture 1. Conducted Emission (Front)

Picture 2. Conducted Emission (Rear)

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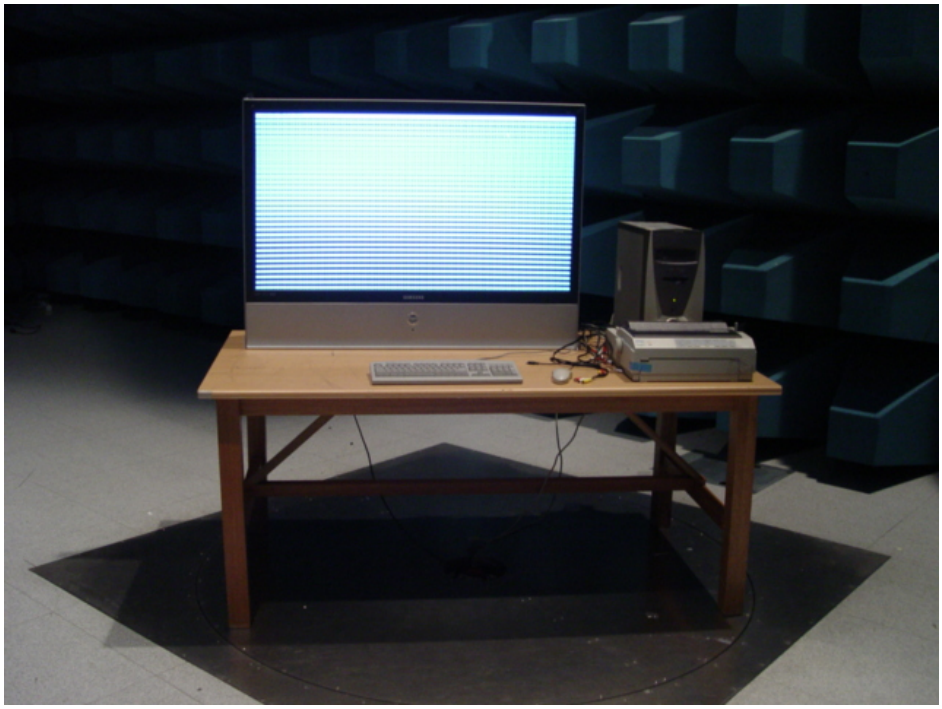
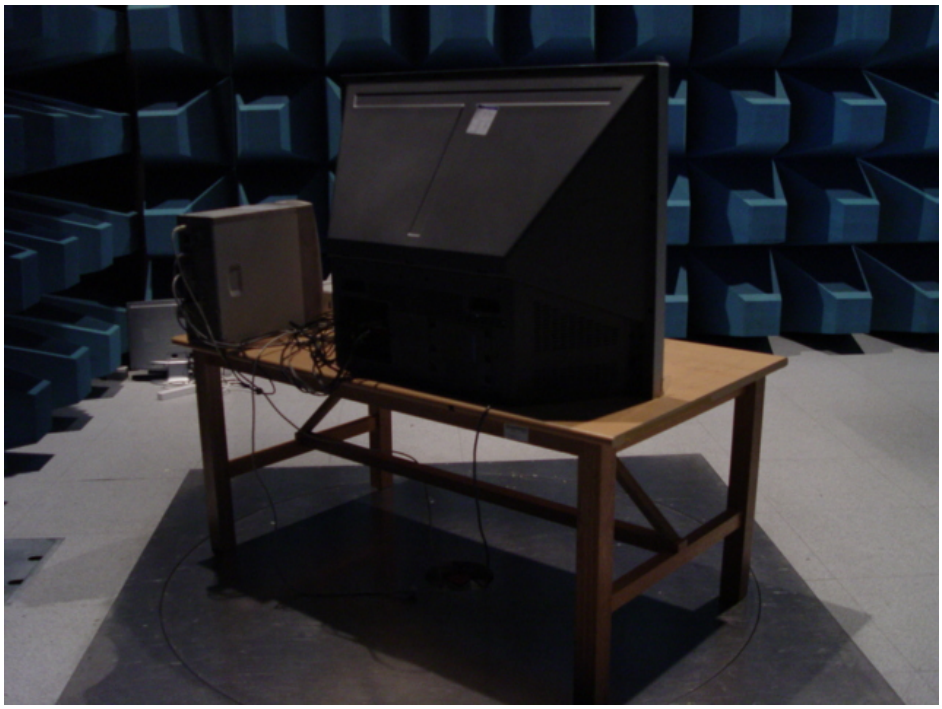


Picture 3. Radiated Emission (Front)



Picture 4. Radiated Emission (Rear)

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4.2 EUT Photography

Picture 5. EUT (Front)

Picture 6. EUT (Rear)

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Picture 7. Label