

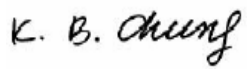



EMC Test Report

Project No.	LBE040777	
Equipment under Test		
	Applicant	Samsung Electronics Co.Ltd 416 Maetan-3 Dong, Yeongtong-Ku, Suwon City, Gyeonggi-Do, Korea, 442-742
	FCC ID	A3LSONYKAISER
	Product Name	DVD COMBO
	Model Name	SLV-D550P
	Manufacturer	SAMSUNG
	Brand Name	SONY
	Variant Model	See Page 2
Date of Tests	April 08 ~ 19 , 2004	
Issued Date	19-Apr-04	
Applied Standards	FCC Part 15 Subpart B	
Result	Passed The equipment under test has found to be compliant with the applied standards.	
	Name/Position	Signature
Tested by	Kyung Chul, Min Test Engineer	
Reviewed by	No Cheon, Park Manager of EMC Lab	
Authorized by	Kyu Baek, Chung Chief of EMC Lab.	
SAMSUNG ELECTRONICS Co., Ltd. SUWON EMC Test Lab.	<p>1. This test reports does not constitute an endorsement by NIST/NVLAP or U.S Government.</p> <p>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.</p> <p style="color: blue;">This laboratory is registered by the NIST/NVLAP, U.S.A.  NVLAP The test reported herein have been performed in accordance with its terms of registration. NVLAP LAB CODE 200623-0</p>	
	Address	416 Maetan-3 Dong, Yeongtong-Ku, Suwon City, Gyeonggi-Do,Korea, 442-742
	Telephone No.	82-31-200-2135
	Fax No.	82-31-200-2189

1. General Information

1.1 Basic Information related Product

Applicant	SAMSUNG	
Product name	DVD COMBO	
Model name	SLV-D550P	
Brand Name	SONY	
Manufacturer	SAMSUNG	
Variant Models	SLV-D350P, SLV-D251P	
Type of RF Output Connector	Type "F" Connector 75 ohm(Unbalanced)	
FCC ID Number	A3LSONYKAISER	
Operating (RF Modulator) Frequency	CH. 3	Visual Carrier : 61.25 MHz
		Aural Carrier : 65.75 MHz
	CH. 4	Visual Carrier : 67.25 MHz
		Aural Carrier : 71.75 MHz

1.2 Power Input Ports

Description	Voltage(V)	Frequency(Hz)	No of phases
Mains Cable	120V	60Hz	1

1.3 EUT & Support Equipment

Used EUT and Peripherals

Mark	Item	Model No.	Serial No.	Manufacturer	Remark
A	DVD COMBO	SLV-D550P	-	SAMSUNG	EUT
B	Remote Controller	-	-	SAMSUNG	EUT

Used Cable Description

No.	Item	Length[m]	Shielded	Remark
1	AC Power Cable	1.5	N	to the mains
2	AV In Cable	1.2	N	Terminated video : 75 ohm Audio In : 1k ohm
3	RF In Cable	1.5	Y	75 ohm Terminated
4	RF Out Cable	1.2	Y	75 ohm Terminated
5	S-Video Cable	1.2	Y	-
6	AV Out Cable	1.2	N	Terminated video : 75 ohm Audio In : 10k ohm
7	Component Video Out	1.2	Y	Video : 75 ohm
8	DVD Only AV Out Cable	1.2	Y	Terminated video : 75 ohm Audio In : 10k ohm
9	AV Out Cable	1.2	Y	Terminated video : 75 ohm Audio In : 10k ohm
10	AV In Cable	1.2	Y	Terminated video : 75 ohm Audio In : 1k ohm
11				
12				
13				
14				
15				

1.4 Operating Mode and Conditions

The EUT was tested in the following operating modes(at both channel 3 and 4) for the tests mention in this report :

1) Recording (NTSC Signal)

A NTSC signal(Color bar) was supplied at ch.5(77.25MHz) through the ant. Input connector for recording.

2) Recording (1V VITS Signal)

A 1V peak-to-peak VITS signal was supplied through the video input connector for recording.

3) Recording (5V VITS Signal)

A 5V peak-to-peak VITS signal was supplied through the video input connector for recording.

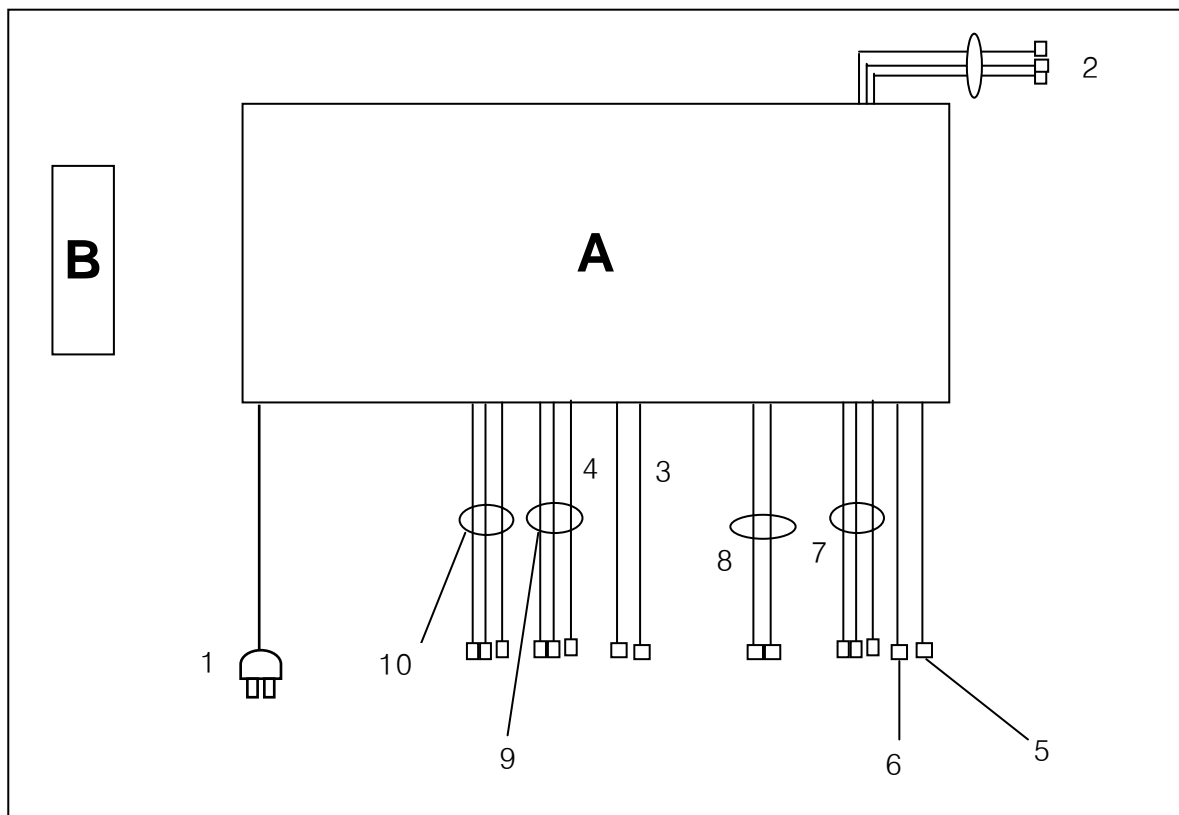
4) VCR Play

In this test mode, a video tape recorded with VITS signal was played on the EUT.

5) Play mode [DVD Play]

Note: The NTSC TV signal input record mode is not applicable to the antenna transfer switch test.

1.5 Block Diagram



1.6 Test Facility

General Information

The EMI/EMS measurement facilities used to collect the tested data are located at 416 Maetan 3 Dong, Yeongtong-Ku, Suwon City, Gyeonggi-Do, Korea.

This sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1 & 16-2. SAMSUNG Electronics Co.,Ltd 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)

Accreditation and Listing



Reg. No. 124



Reg. No. KR0004



No.195



App. No.001



LAB CODE 200623-0



Reg. No.98856



R-1221,C-1095



H9354285

1.7 Applied Standards

List

FCC Rule Part(s)	Test Procedure(s)
FCC Part 15 Subpart B	ANSI C63.4-2001 - -

2. Summary of Test Results

Result : **Pass**

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

Test Method	Applied Standard	Result
AC Powerline Conducted Emission Measurement	FCC Part 15 Subpart B	Complied
Radiated Emission Measurement	FCC Part 15 Subpart B	Complied
Output Signal Level Measurement	FCC Part 15 Subpart B	Complied
Output Terminal Conducted Spurious Emission Measurement	FCC Part 15 Subpart B	Complied
Antenna Transfer Switch Measurement	FCC Part 15 Subpart B	Complied

* N/A : Test not applicable

3. Description of Individual Tests

3.1 AC Powerline Conducted Emission Measurement

Test Information	
Test Engineer	Kyung Chul, Min
Test Date	09-Apr-04
Climate Condition	Ambient Temperature : 23.0℃ , Relative Humidity : 38%
Test Place	Shield Room #5

Test Equipments				
Equipment	Model Name	Manufacturer	Serial No.	Next Cal. Date
TEST RECEIVER	ESS	R & S	844861/005	5-Jan-05
Spectrum Analyzer	E7405A	Agilent	US41110272	12-Jul-04
RF Relais Matrix	PSU	R & S	861206/024	N/A
LISN	ESH3-Z5	R & S	100261	16-Jul-04
Test Software	EP5/CE	TOYO	Version : 2.0.860	N/A

Test Setup

EUT was placed on a platform of nominal size, raised 80cm above the conducting ground plane. The rear of table top was located 40cm to the vertical conducting plane. The rear of EUT was aligned and flushed with rear of tabletop. All other surfaces of tabletop was at least 80cm from any other grounded conducting surface. All unused 50 ohm connectors of the LISN were resistively terminated in 50 ohm when not connected to the measuring equipment
See photo.

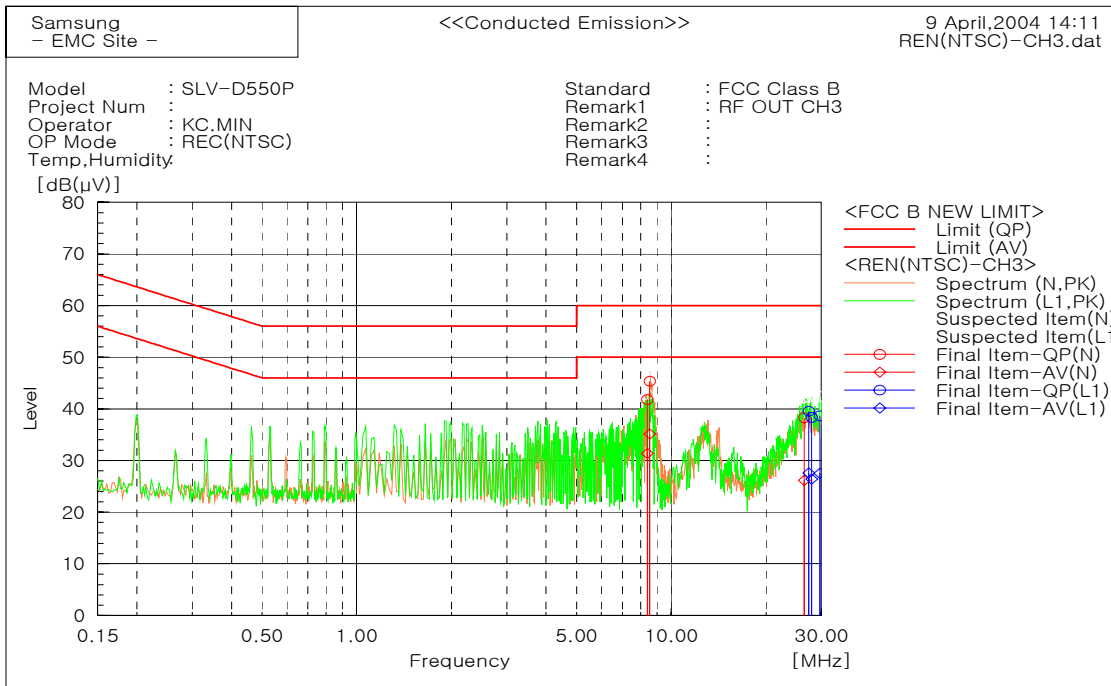
Test Result

Measurement Results	Passed
	The Measured emissions of the EUT have found to be below the specified limits.

Test Graph & Data

* Operating Mode : Recording (NTSC Signal)

RF Out Channel : CH.3



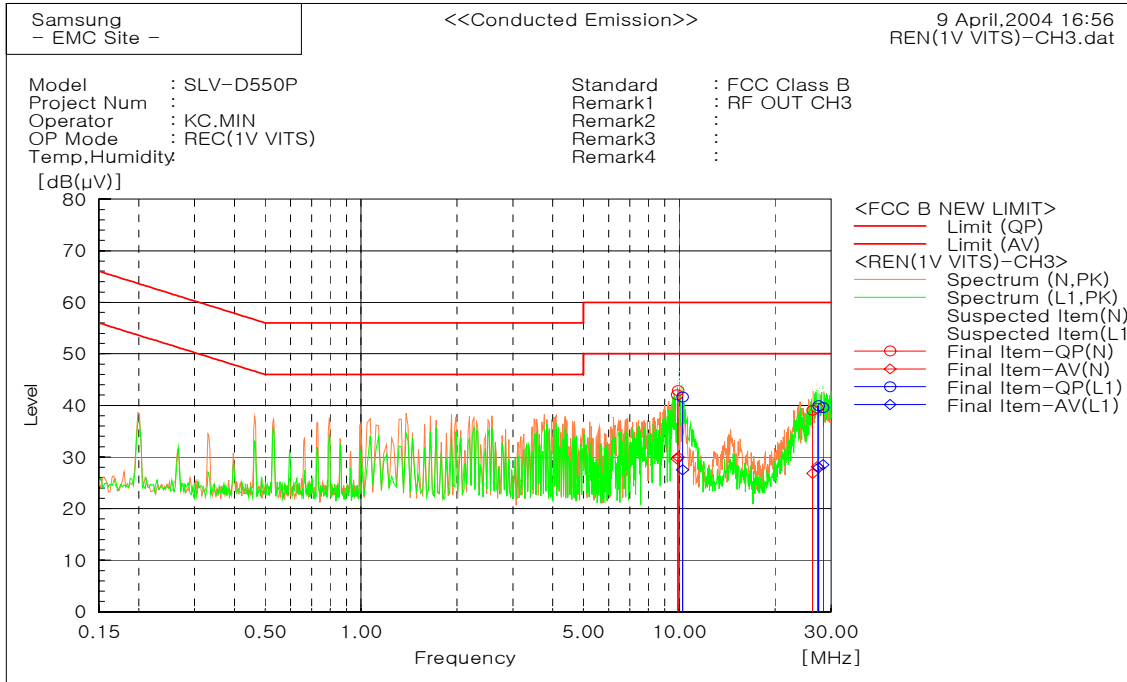
Final Result

--- N Phase ---										
No.	Frequency	Reading QP	Reading AV	c. f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	8.3933	41.8	31.3	0.0	41.8	31.3	60.0	50.0	18.2	18.7
2	8.5402	45.4	35.1	0.0	45.4	35.1	60.0	50.0	14.6	14.9
3	26.484	38.3	26.1	0.0	38.3	26.1	60.0	50.0	21.8	23.9

--- L1 Phase ---										
No.	Frequency	Reading QP	Reading AV	c. f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	27.3895	39.1	27.1	0.5	39.6	27.6	60.0	50.0	20.5	22.4
2	27.9765	37.9	25.9	0.5	38.4	26.4	60.0	50.0	21.6	23.6
3	29.701	38.0	26.9	0.6	38.6	27.5	60.0	50.0	21.4	22.5

* Operating Mode : Recording (1V VITS Signal)

RF Out Channel : CH.3



Final Result

--- N Phase ---

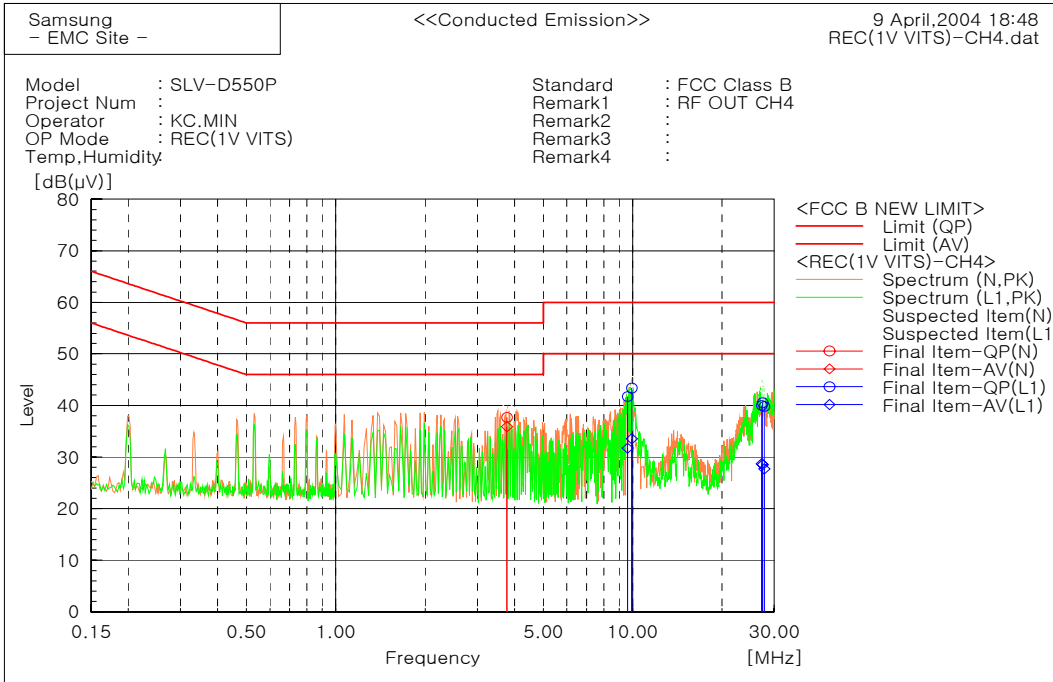
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	9.8495	42.0	29.5	0.1	42.1	29.6	60.0	50.0	17.9	20.4
2	9.9179	42.8	29.9	0.1	42.9	30.0	60.0	50.0	17.1	20.0
3	26.271	39.0	26.9	0.0	39.0	26.9	60.0	50.0	21.0	23.1
4	27.193	39.6	28.2	-0.1	39.5	28.1	60.0	50.0	20.5	21.9

--- 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	10.2555	41.4	27.3	0.2	41.6	27.5	60.0	50.0	18.4	22.5
2	27.4165	39.5	27.5	0.5	40.0	28.0	60.0	50.0	20.1	22.1
3	28.3435	39.1	28.0	0.5	39.6	28.5	60.0	50.0	20.4	21.5

*** Operating Mode : Recording (1V VITS Signal)**

RF Out Channel : CH.4



Final Result

--- N Phase ---

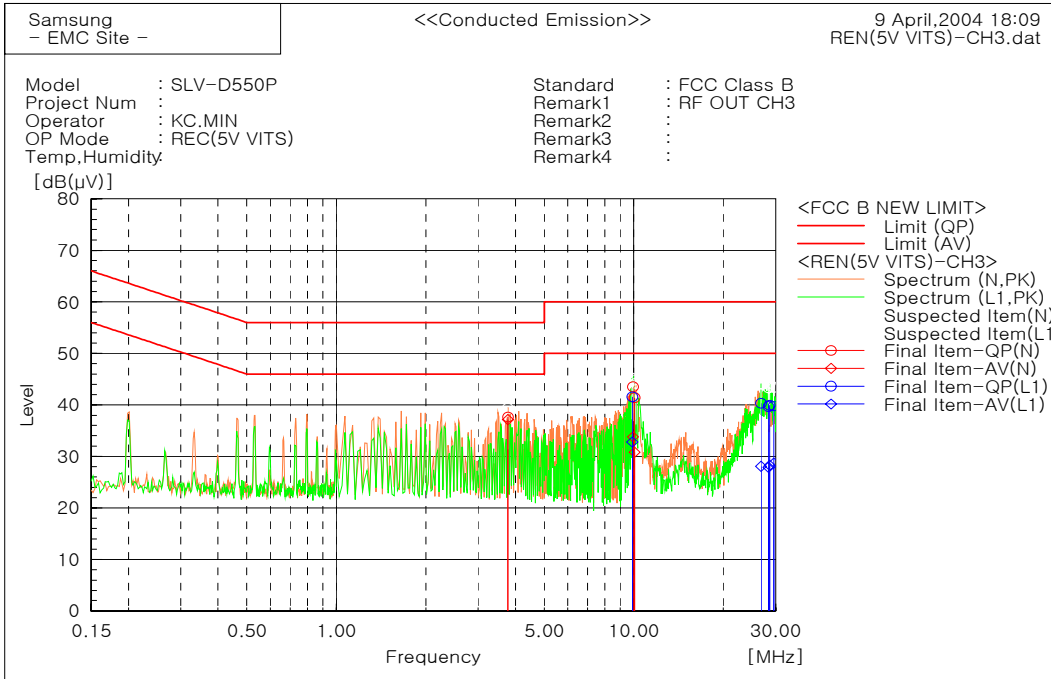
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	3.7749	37.6	35.8	0.1	37.7	35.9	56.0	46.0	18.3	10.1

--- 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	9.6177	41.6	31.6	0.1	41.7	31.7	60.0	50.0	18.3	18.3
2	9.9469	43.2	33.3	0.2	43.4	33.5	60.0	50.0	16.6	16.5
3	27.243	39.5	28.2	0.5	40.0	28.7	60.0	50.0	20.0	21.3
4	27.4275	40.1	28.0	0.5	40.6	28.5	60.0	50.0	19.5	21.5
5	27.765	39.3	27.2	0.5	39.8	27.7	60.0	50.0	20.2	22.3

* Operating Mode : Recording (5V VITS Signal)

RF Out Channel : CH.3



Final Result

--- N Phase ---

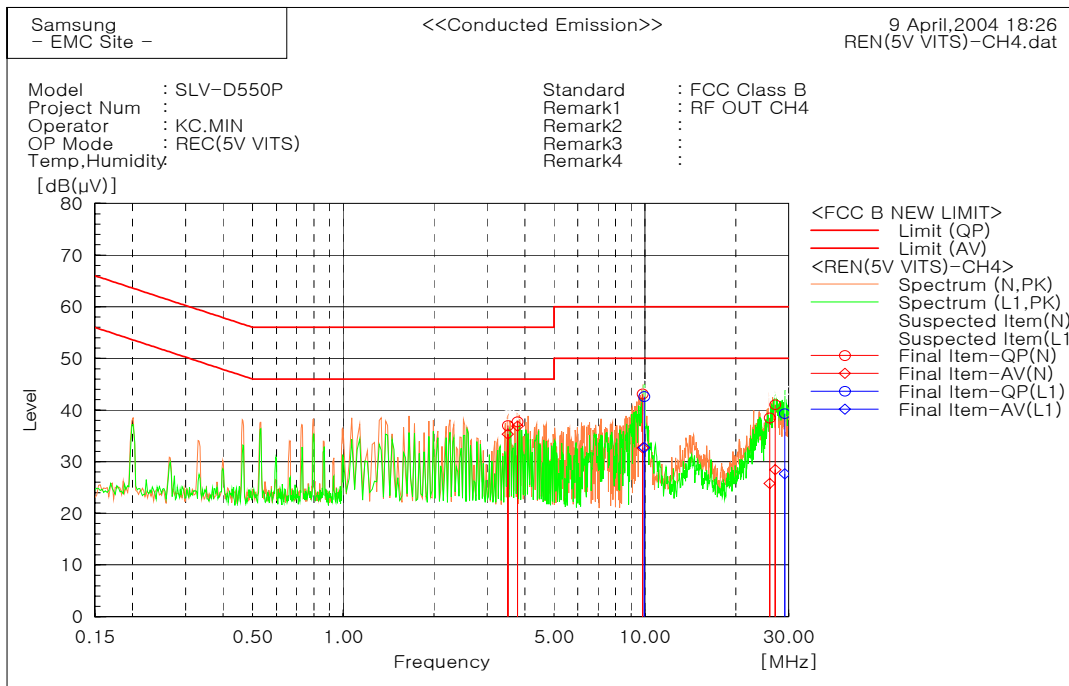
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	3.7752	37.5	37.1	0.1	37.6	37.2	56.0	46.0	18.4	8.8
2	9.9366	43.4	33.7	0.1	43.5	33.8	60.0	50.0	16.5	16.2
3	10.0645	41.2	30.6	0.2	41.4	30.8	60.0	50.0	18.6	19.2

--- 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	9.8787	41.4	32.6	0.2	41.6	32.8	60.0	50.0	18.5	17.2
2	26.7975	39.8	27.6	0.5	40.3	28.1	60.0	50.0	19.7	21.9
3	28.360	39.2	27.4	0.5	39.7	27.9	60.0	50.0	20.3	22.1
4	28.650	39.4	27.8	0.5	39.9	28.3	60.0	50.0	20.1	21.7
5	29.5645	39.3	28.1	0.6	39.9	28.7	60.0	50.0	20.2	21.3

* Operating Mode : Recording (5V VITS Signal)

RF Out Channel : CH.4



Final Result

--- N Phase ---

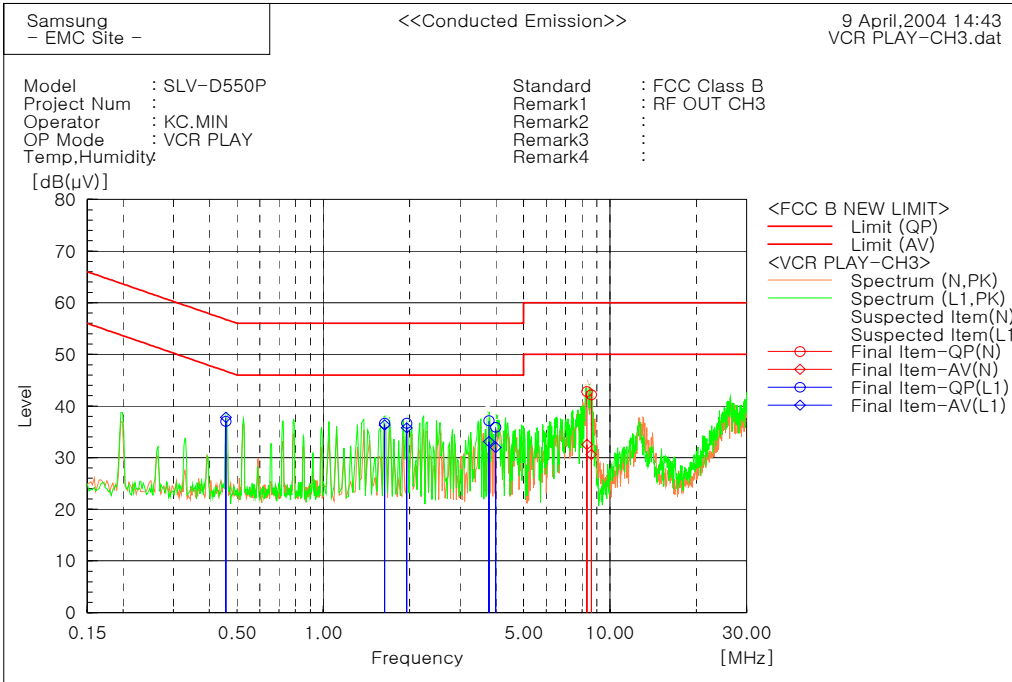
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	3.5148	36.9	35.3	0.1	37.0	35.4	56.0	46.0	19.0	10.6
2	3.781	37.6	36.8	0.1	37.7	36.9	56.0	46.0	18.3	9.1
3	9.8295	43.0	32.6	0.1	43.1	32.7	60.0	50.0	16.9	17.4
4	25.949	38.4	25.7	0.1	38.5	25.8	60.0	50.0	21.5	24.2
5	27.058	41.1	28.5	-0.1	41.0	28.4	60.0	50.0	19.0	21.6

--- 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	9.962	42.4	32.6	0.2	42.6	32.8	60.0	50.0	17.4	17.2
2	29.0845	38.7	27.0	0.6	39.3	27.6	60.0	50.0	20.7	22.4

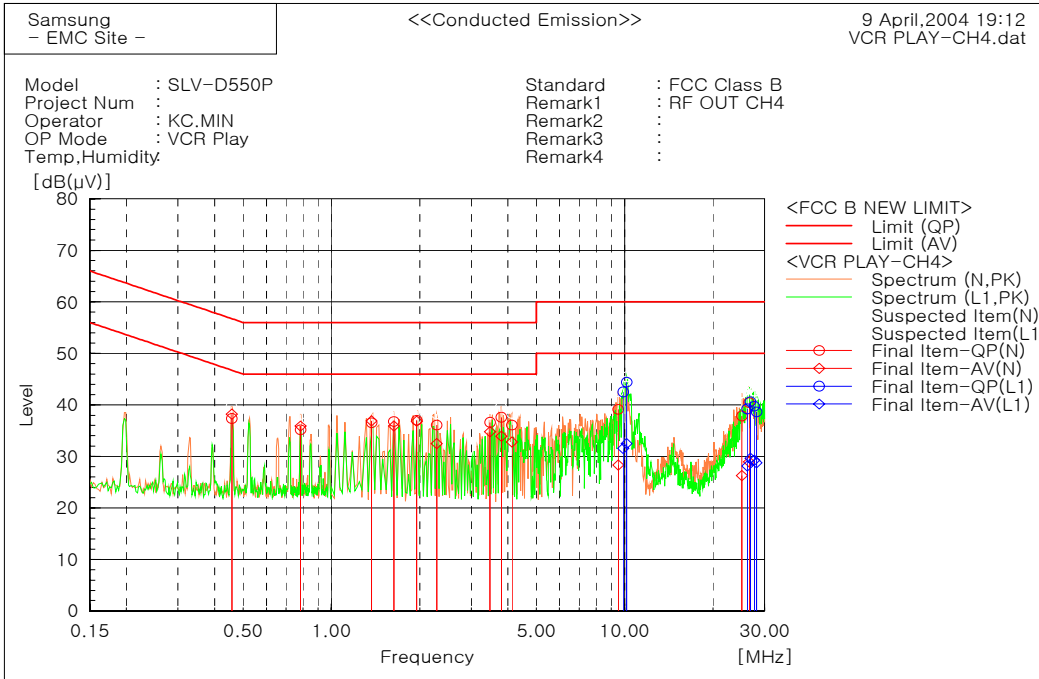
*** Operating Mode : VCR PLAY**

RF Out Channel : CH.3



*** Operating Mode : VCR PLAY**

RF Out Channel : CH.4



Final Result

--- N Phase ---

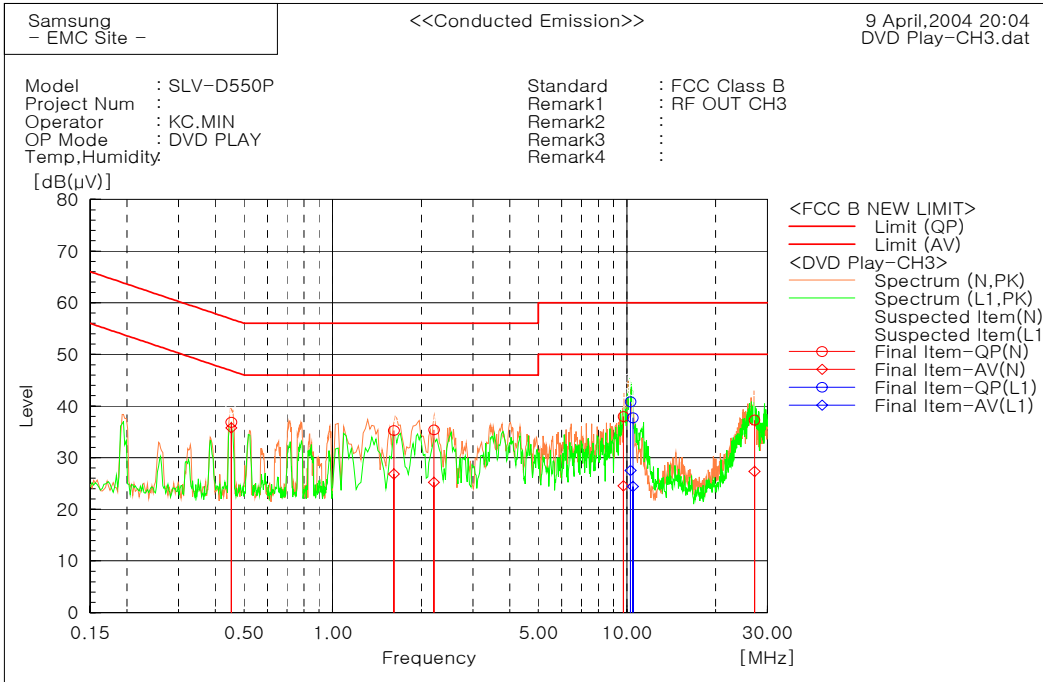
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.45781	37.3	38.1	0.1	37.4	38.2	56.7	46.7	19.3	8.5
2	0.78567	35.1	35.8	0.1	35.2	35.9	56.0	46.0	20.8	10.1
3	1.3719	36.4	36.8	0.1	36.5	36.9	56.0	46.0	19.5	9.1
4	1.632	36.7	35.8	0.1	36.8	35.9	56.0	46.0	19.2	10.1
5	1.9554	37.0	36.7	0.1	37.1	36.8	56.0	46.0	19.0	9.2
6	2.2839	36.0	32.4	0.1	36.1	32.5	56.0	46.0	19.9	13.5
7	3.4734	36.5	34.7	0.1	36.6	34.8	56.0	46.0	19.4	11.2
8	3.7943	37.5	33.8	0.1	37.6	33.9	56.0	46.0	18.4	12.1
9	4.1214	36.0	32.7	0.1	36.1	32.8	56.0	46.0	19.9	13.2
10	9.5097	39.1	28.2	0.1	39.2	28.3	60.0	50.0	20.9	21.7
11	25.125	37.6	26.0	0.3	37.9	26.3	60.0	50.0	22.1	23.7
12	26.5455	40.5	28.9	0.0	40.5	28.9	60.0	50.0	19.6	21.1

--- 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	9.8891	42.3	31.3	0.2	42.5	31.5	60.0	50.0	17.5	18.5
2	10.159	44.2	32.3	0.2	44.4	32.5	60.0	50.0	15.6	17.5
3	26.1785	38.7	27.7	0.5	39.2	28.2	60.0	50.0	20.8	21.8
4	26.832	40.1	29.2	0.5	40.6	29.7	60.0	50.0	19.4	20.3
5	27.6785	39.3	28.8	0.5	39.8	29.3	60.0	50.0	20.2	20.7
6	28.152	38.1	28.3	0.5	38.6	28.8	60.0	50.0	21.4	21.2

* Operating Mode : DVD PLAY

RF Out Channel : CH.3



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	0.45303	36.8	35.6	0.1	36.9	35.7	56.8	46.8	19.9	11.1
2	1.6152	35.2	26.7	0.1	35.3	26.8	56.0	46.0	20.7	19.2
3	2.2101	35.3	25.1	0.1	35.4	25.2	56.0	46.0	20.6	20.8
4	9.7332	37.9	24.5	0.1	38.0	24.6	60.0	50.0	22.0	25.5
5	27.1485	37.4	27.4	-0.1	37.3	27.3	60.0	50.0	22.7	22.7

--- 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	10.294	40.6	27.3	0.2	40.8	27.5	60.0	50.0	19.2	22.5
2	10.474	37.5	24.2	0.2	37.7	24.4	60.0	50.0	22.3	25.6

3.2 Radiated Emission Measurement

Test Information	
Test Engineer	Kyung Chul, Min
Test Date	08-Apr-04
Climate Condition	Ambient Temperature : 23.1 °C , Relative Humidity : 35%
Test Place	10m Semi-Anechoic Chamber

Test Equipments				
Equipment	Model Name	Manufacturer	Serial No.	Next Cal. Date
Test Receiver	ESCS30	R & S	100104	17-Oct-04
Secetrum Analyzer	E7405A	AGILENT	MY42000109	27-Nov-04
RF Selector	NS4900	TOYO	0303-015	N/A
Mast Controller	HD2000	HD	HD20000902027	N/A
Bi-Log Antenna	CBL6112B	SCHAFFNER	2766	20-Jun-04
Preamp	8447D	Agilent	2944A10430	25-Jul-04
Test Software	EP5/RE	TOYO	Version : 2.0.860	N/A
Antenna Mast	MA240	HD	240/620	N/A
Turn Table	DS412	HD	-	

Test Setup

EUT was placed on a platform of nominal size and raised 80cm above the conducting ground plane. The rear of EUT was aligned and flushed with rear of tabletop.

Test was made with the antenna positioned in both the horizontal and vertical planes of polarization.

The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

See photo.

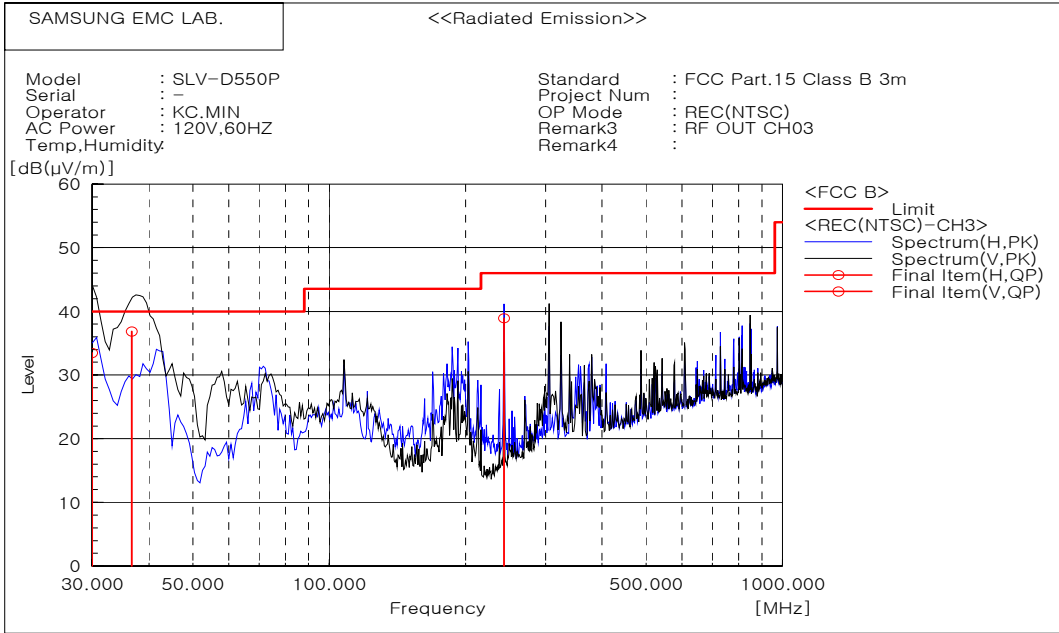
Test Result

Measurement Results	Passed
	The Measured emissions of the EUT have found to be below the specified limits.

Test Graph & Data

* Operating Mode: Recording (NTSC Signal)

RF Out Channel : CH.3

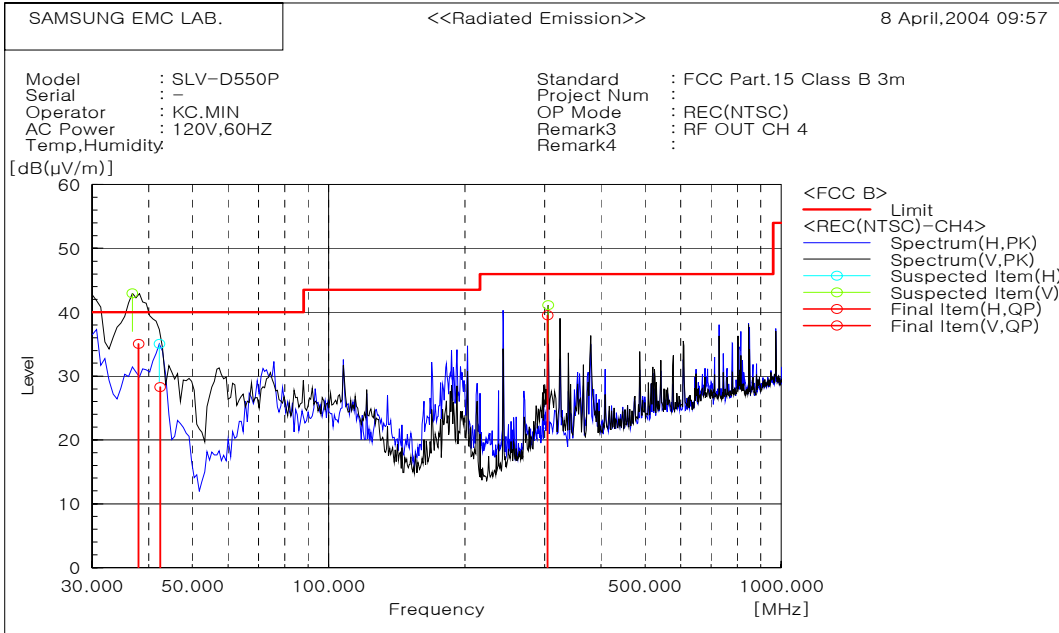


Final Result

No.	Frequency [MHz]	(P)	S.C	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	36.676	V	S	49.1	-12.3	36.8	40.0	3.2	107.0	259.0
2	243.003	H	S	51.3	-12.4	38.9	46.0	7.1	131.0	54.0
3	30.000	V	S	42.3	-8.8	33.5	40.0	6.6	107.0	239.0

*** Operating Mode: Recording (NTSC Signal)**

RF Out Channel : CH.4

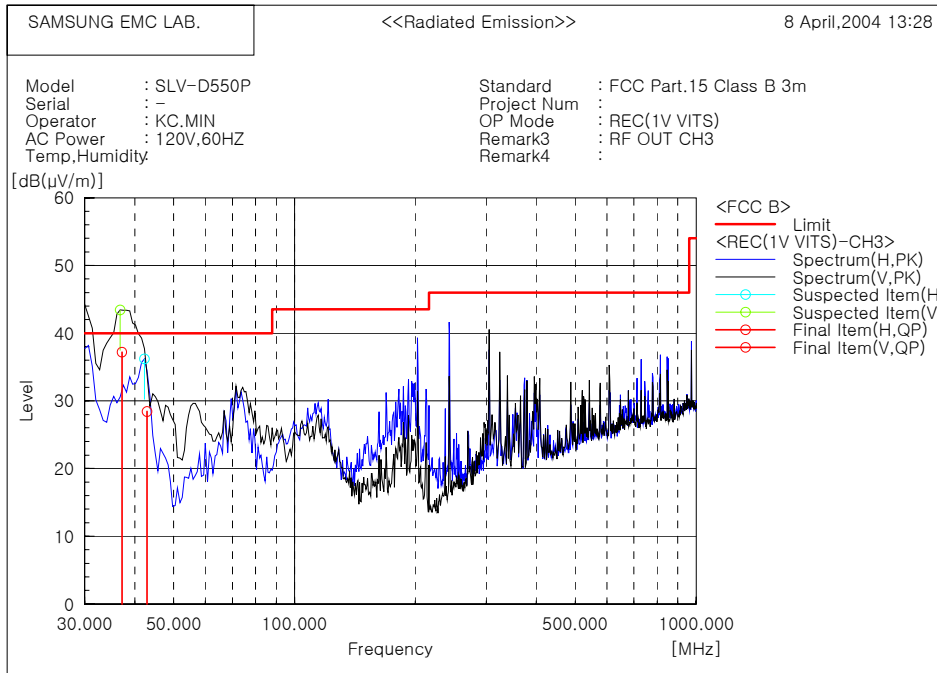


Final Result

No.	Frequency [MHz]	(P)	S.C	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	38.039	V	S	48.0	-13.0	35.0	40.0	5.0	104.0	252.0
2	42.400	H	S	43.6	-15.3	28.3	40.0	11.7	201.0	320.0
3	304.830	V	S	49.1	-9.6	39.5	46.0	6.5	199.0	343.0

* Operating Mode: Recording (1V VITS Signal)

RF Out Channel : CH.3

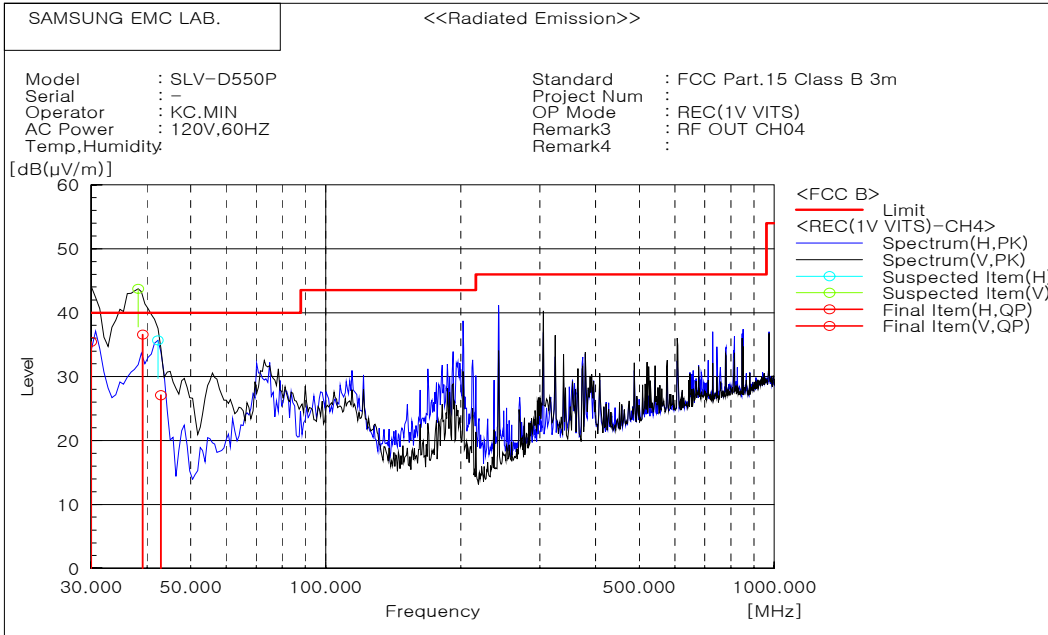


Final Result

No.	Frequency [MHz]	(P)	S.C	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	37.155	V	S	49.8	-12.6	37.2	40.0	2.8	102.0	260.0
2	42.953	H	S	44.0	-15.6	28.4	40.0	11.6	270.0	27.0

*** Operating Mode: Recording (1V VITS Signal)**

RF Out Channel : CH.4

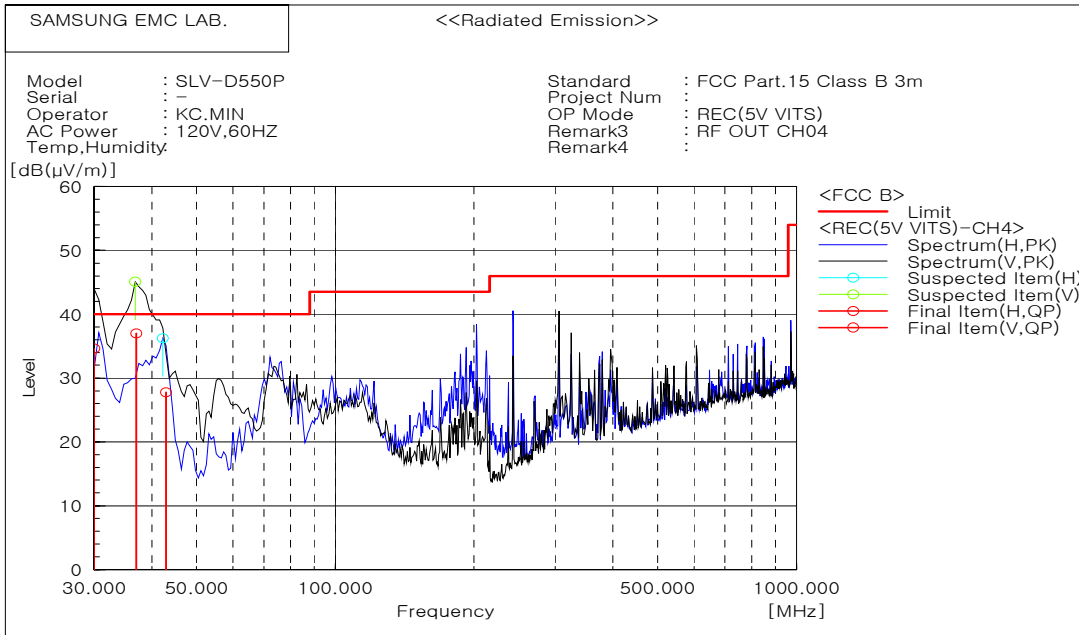


Final Result

No.	Frequency [MHz]	(P)	S.C	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	30.000	V	S	44.3	-8.8	35.5	40.0	4.6	102.0	208.0
2	39.133	V	S	50.2	-13.6	36.6	40.0	3.4	106.0	136.0
3	42.953	H	S	42.7	-15.6	27.1	40.0	12.9	258.0	103.0

*** Operating Mode: Recording (5V VITS Signal)**

RF Out Channel : CH.4

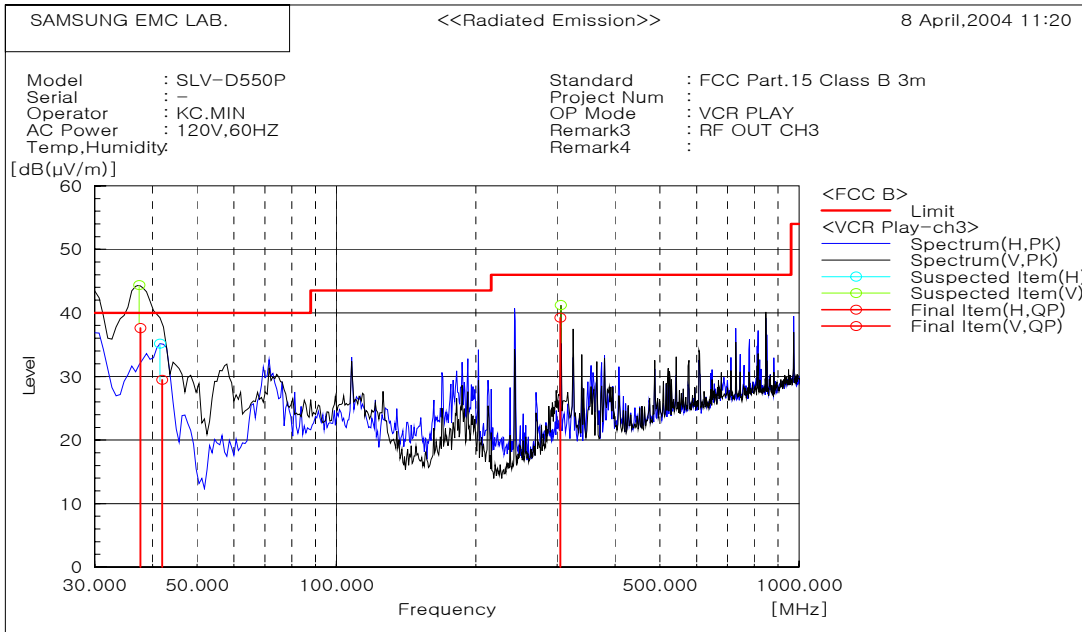


Final Result

No.	Frequency [MHz]	(P)	S.C	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	30.000	V	S	43.5	-8.8	34.7	40.0	5.4	103.0	214.0
2	37.047	V	S	49.5	-12.5	37.0	40.0	3.0	106.0	197.0
3	42.953	H	S	43.4	-15.6	27.8	40.0	12.2	263.0	60.0

*** Operating Mode: VCR PLAY**

RF Out Channel : CH.3

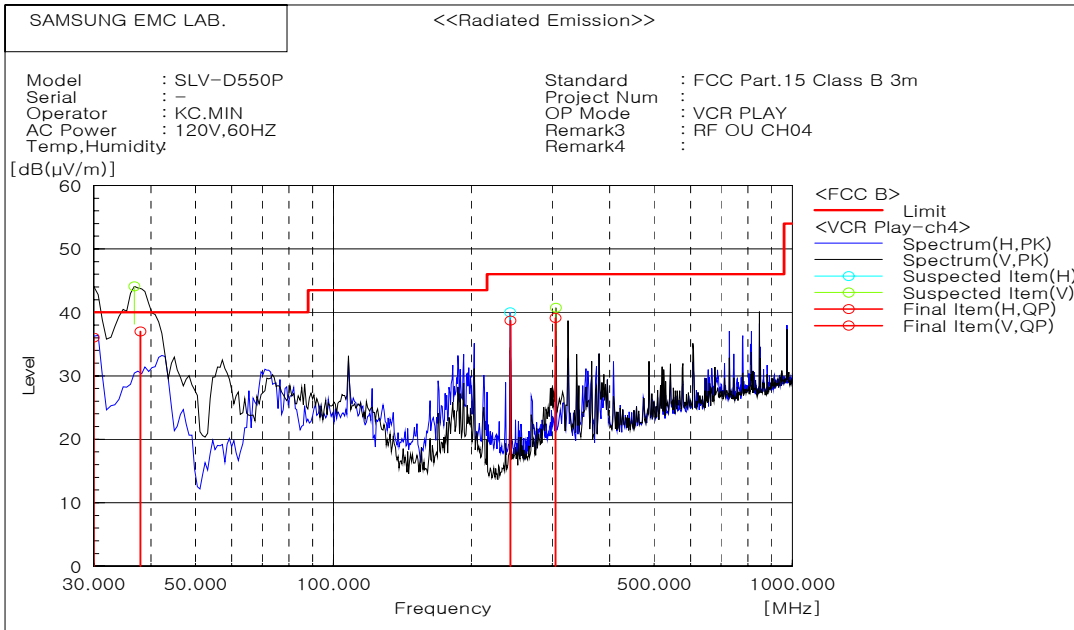


Final Result

No.	Frequency [MHz]	(P)	S.C	Reading QP [dB(µV)]	c.f [dB(1/m)]	Result QP [dB(µV/m)]	Limit [dB(µV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	37.722	V	S	50.5	-12.9	37.6	40.0	2.4	106.0	257.0
2	42.022	H	S	44.6	-15.1	29.5	40.0	10.5	236.0	51.0
3	304.830	V	S	48.9	-9.6	39.3	46.0	6.8	189.0	350.0

* Operating Mode: VCR PLAY

RF Out Channel : CH.4

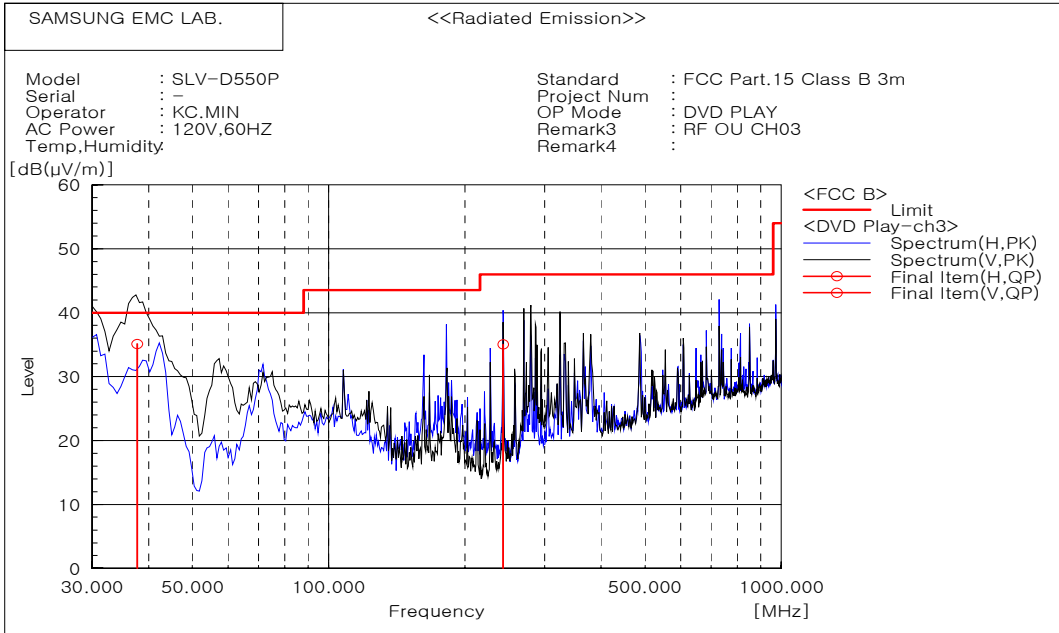


Final Result

No.	Frequency [MHz]	(P)	S.C	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	30.000	V	S	44.8	-8.8	36.0	40.0	4.0	104.0	249.0
2	37.972	V	S	50.0	-13.0	37.0	40.0	3.0	102.0	256.0
3	243.003	H	S	51.1	-12.4	38.7	46.0	7.3	131.0	60.0
4	304.810	V	S	48.7	-9.6	39.1	46.0	6.9	194.0	336.0

*** Operating Mode: DVD PLAY**

RF Out Channel : CH.3

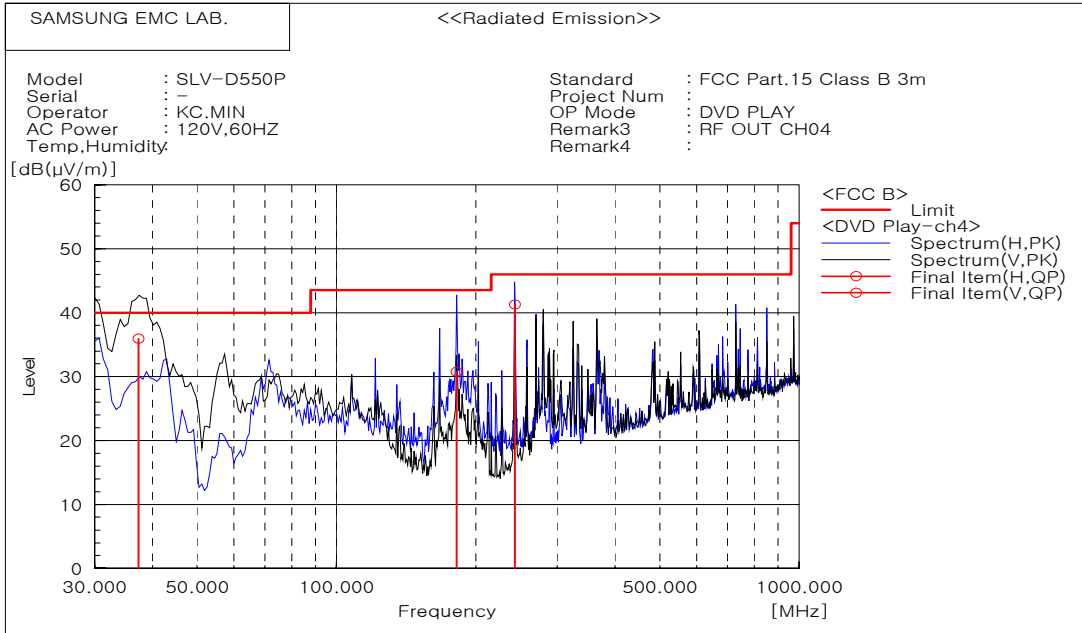


Final Result

No.	Frequency [MHz]	(P)	S.C	Reading QP [dB(µV)]	c.f [dB(1/m)]	Result QP [dB(µV/m)]	Limit [dB(µV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	37.729	V	S	48.0	-12.9	35.1	40.0	4.9	116.0	277.0
2	243.003	H	S	47.4	-12.4	35.0	46.0	11.0	169.0	34.0

*** Operating Mode: DVD PLAY**

RF Out Channel : CH.4



Final Result

No.	Frequency [MHz]	(P)	S.C	Reading QP [dB(µV)]	c.f [dB(1/m)]	Result QP [dB(µV/m)]	Limit [dB(µV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	37.337	V	S	48.6	-12.7	35.9	40.0	4.1	107.0	249.0
2	181.733	H	S	46.6	-15.8	30.8	43.5	12.7	138.0	186.0
3	243.003	H	S	53.7	-12.4	41.3	46.0	4.7	107.0	85.0

3.3 Output Signal Level Measurement

Test Information	
Test Engineer	Kyung Chul, Min
Test Date	19-Apr-04
Climate Condition	Ambient Temperature : 23.1 °C, Relative Humidity : 38%
Test Place	Shield Room #5

Test Equipments				
Equipment	Model Name	Manufacturer	Serial No.	Next Cal. Date
TEST RECEIVER	ESS	R & S	844861/005	05-Jan-05
Preamp	310	SONOMA INSTRUMENT	185861	20-Sep-04
Matching Pad	RAM	R & S	882204/064	-
Spectrum Analyzer	E7405A	Agilent	US41110272	12-Jul-04
RF Matrix	PSU	R & S	861206/024	-

Test Setup

The RF output terminal is connected to the test receiver through the matching pad(75 - 50 ohm) with a calibrated cable. Then, the RF output signal level is measured under the EUT operating mode(s).

See photo.

Test Result

Measurement Results	Passed
	The Measured emissions of the EUT have found to be below the specified limits.

Test Data

*** Operating Mode : Recording(NTSC Signal) RF Out Ch. : CH 3**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Remark
56.768	74.6	-25.1	49.5	56.5	7	Audio Signal
61.255	89.2	-25.1	64.1	69.5	5.4	Video Signal
65.735	73.4	-25.1	48.3	56.5	8.2	Audio Signal

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : Recording(1V VITS Signal) RF Out Ch. : CH 3**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Remark
56.75	74.6	-25.1	49.7	56.5	6.8	Audio Signal
61.253	89.4	-25.1	64.3	69.5	5.2	Video Signal
65.75	73.5	-25.1	48.6	56.5	7.9	Audio Signal

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : Recording(5V VITS Signal) RF Out Ch. : CH 3**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Remark
56.755	75.5	-25.1	50.4	56.5	6.1	Audio Signal
61.255	90.5	-25.1	65.4	69.5	4.1	Video Signal
65.758	74.4	-25.1	49.3	56.5	7.2	Audio Signal

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : VCR Play RF Out Ch. : CH 3**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Remark
56.755	74.9	-25.1	49.8	56.5	6.7	Audio Signal
61.253	89.8	-25.1	64.7	69.5	4.8	Video Signal
65.753	73.7	-25.1	48.6	56.5	7.9	Audio Signal

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : DVD Play RF Out Ch. : CH 3**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Remark
56.75	74.8	-25.1	49.7	56.5	6.8	Audio Signal
61.253	89.4	-25.1	64.3	69.5	5.2	Video Signal
65.75	73.7	-25.1	48.6	56.5	7.9	Audio Signal

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : Recording(NTSC Signal) RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Remark
62.75	74.4	-25.1	49.3	56.5	7.2	Audio Signal
63.675	73	-25.1	47.9	56.5	8.6	Video Signal
67.243	88.9	-25.1	63.8	69.5	5.7	Audio Signal

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : Recording(1V VITS Signal) RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Remark
62.745	74.5	-25.1	49.4	56.5	7.1	Audio Signal
67.243	88.9	-25.1	63.8	69.5	5.8	Video Signal
71.738	73.1	-25.1	48	56.5	8.5	Audio Signal

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : Recording(5V VITS Signal) RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Remark
62.743	74.4	-25.1	49.3	56.5	7.2	Audio Signal
67.243	89.3	-25.1	64.2	69.5	5.3	Video Signal
71.743	73.3	-25.1	48.2	56.5	8.3	Audio Signal

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : VCR Play RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Remark
62.738	74.3	-25.1	49.2	56.5	7.3	Audio Signal
67.238	89.3	-25.1	64.2	69.5	5.3	Video Signal
71.74	73.2	-25.1	48.1	56.5	8.4	Audio Signal

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode :DVD Play RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]	Remark
62.745	74.4	-25.1	49.3	56.5	7.2	Audio Signal
67.24	88.9	-25.1	63.8	69.5	5.8	Video Signal
71.74	73.1	-25.1	48	56.5	8.5	Audio Signal

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

3.4 Output Terminal Conducted Spurious Measurement

Test Information	
Test Engineer	Kyung Chul, Min
Test Date	19-Apr-04
Climate Condition	Ambient Temperature : 23.1 °C, Relative Humidity : 38%
Test Place	Shield Room #5

Test Equipments				
Equipment	Model Name	Manufacturer	Serial No.	Next Cal. Date
TEST RECEIVER	ESS	R & S	844861/005	05-Jan-05
Preamp	310	SONOMA INSTRUMENT	185861	20-Sep-04
Matching Pad	RAM	R & S	882204/064	-
Spectrum Analyzer	E7405A	Agilent	US41110272	12-Jul-04
RF Matrix	PSU	R & S	861206/024	-

Test Setup

The RF output terminal is connected to the test receiver through the matching pad(75 - 50 ohm) with a calibrated cable. Then, the RF output signal level is measured under the EUT operating mode(s).

See photo.

Test Result

Measurement Results	Passed
	The Measured emissions of the EUT have found to be below the specified limits

Test Data

* Operating Mode : Recording(NTSC Signal) RF Out Ch. : CH 3

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
47.8015	38.1	-25.1	13	39.5	26.5
54.1396	36.7	-25.1	11.6	39.5	27.9
55.2402	47	-25.1	21.9	39.5	17.7
74.71	35.1	-25.1	10	39.5	29.5
122.52	40.2	-25	15.2	39.5	24.3
807.85988	46.8	-24.2	22.6	39.5	16.9

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

* Operating Mode : Recording(1V VITS Signal) RF Out Ch. : CH 3

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
53.1195	38.8	-25.1	13.7	39.5	25.8
54.1136	39.6	-25.1	14.5	39.5	25.1
55.4454	39	-25.1	13.9	39.5	25.6
74.76	36	-25.1	10.9	39.5	28.6
122.5	40.6	-25	15.6	39.5	23.9
847.03	58.6	-24	34.6	39.5	4.9

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : Recording(5V VITS Signal) RF Out Ch. : CH 3**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
53.0403	40.5	-25.1	15.4	39.5	24.1
54.031	38.2	-25.1	13.1	39.5	26.4
55.2562	36.9	-25.1	11.8	39.5	27.7
74.76	36.1	-25.1	11	39.5	28.5
122.52	41.6	-25	16.6	39.5	22.9
847	58.4	-24	34.4	39.5	5.1

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : VCR Play RF Out Ch. : CH 3**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
47.7542	38.7	-25.1	13.6	39.5	25.9
55.2416	47.3	-25.1	22.2	39.5	17.4
55.9731	34.5	-25.1	9.4	39.5	30.2
74.76	36.3	-25.1	11.2	39.5	28.3
122.5	41.2	-25	16.2	39.5	23.3
846.76	58.8	-24	34.8	39.5	4.7

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : DVD Play RF Out Ch. : CH 3**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
47.7569	38.6	-25.1	13.5	39.5	26
54.0456	32.4	-25.1	7.3	39.5	32.2
55.2422	47.5	-25.1	22.4	39.5	17.1
74.76	35.5	-25.1	10.4	39.5	29.2
122.52	40.4	-25	15.4	39.5	24.1
807.85988	46.8	-24.2	22.6	39.5	17

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

* Operating Mode : Recording(NTSC Signal) RF Out Ch. : CH 4

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
53.6917	37.6	-25.1	12.5	39.5	27
55.2417	47.1	-25.1	22	39.5	17.5
60.1131	36.4	-25.1	11.3	39.5	28.2
80.79	34.6	-25.1	9.5	39.5	30
134.48	37.4	-25	12.4	39.5	27.1
807.85988	46.7	-24.2	22.5	39.5	17

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

* Operating Mode : Recording(1V VITS Signal) RF Out Ch. : CH 4

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
50.7279	36.6	-25.1	11.5	39.5	28
53.739	38.1	-25.1	13	39.5	26.5
55.2417	47.2	-25.1	22.1	39.5	17.4
80.75	35.1	-25.1	10	39.5	29.6
134.49	37.3	-25	12.3	39.5	27.2
807.89	46.7	-24.2	22.5	39.5	17

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : Recording(5V VITS Signal) RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
55.2409	47.2	-25.1	22.1	39.5	17.5
59.0724	39.5	-25.1	14.4	39.5	25.1
60.0192	36.9	-25.1	11.8	39.5	27.7
80.74	35.1	-25.1	10	39.5	29.6
134.48	35.9	-25	10.9	39.5	28.7
807.84	46.7	-24.2	22.5	39.5	17

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : VCR Play RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
50.7238	36.5	-25.1	11.4	39.5	28.1
53.739	38.1	-25.1	13	39.5	26.5
55.2409	47.1	-25.1	22	39.5	17.5
80.74	35	-25.1	9.9	39.5	29.6
134.48	35.9	-25	10.9	39.5	28.6
807.84	46.7	-24.2	22.5	39.5	17

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode :DVD Play RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
55.2417	47.1	-25.1	22	39.5	17.5
59.7229	36.5	-25.1	11.4	39.5	28.1
62.3496	37.2	-25.1	12.1	39.5	27.4
80.75	35	-25.1	9.9	39.5	29.6
134.49	38.1	-25	13.1	39.5	26.4
807.85988	46.7	-24.2	22.5	39.5	17

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

3.5 Antenna Transfer Switch Measurement

Test Information	
Test Engineer	Kyung Chul, Min
Test Date	19-Apr-04
Climate Condition	Ambient Temperature : 23.1 °C , Relative Humidity :38%
Test Place	Shield Room #5

Test Equipments				
Equipment	Model Name	Manufacturer	Serial No.	Next Cal. Date
TEST RECEIVER	ESS	R & S	844861/005	05-Jan-05
Preamp	310	SONOMA INSTRUMENT	185861	20-Sep-04
Matching Pad	RAM	R & S	882204/064	-
Spectrum Analyzer	E7405A	Agilent	US41110272	12-Jul-04
RF Matrix	PSU	R & S	861206/024	-

Test Setup

The ANT input terminal is connected to the test receiver through the matching pad(75 - 50 ohm) with a calibrated cable. Then, the RF output leakage level is measured under the EUT operating mode(s).

See photo.

Test Result

Measurement Results	Passed
	The Measured emissions of the EUT have found to be below the specified limits.

Test Data

* Operating Mode : Recording(1V VITS Signal) RF Out Ch. : CH 3

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.25195	25.4	-25.1	0.3	9.5	9.2

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

* Operating Mode : Recording(5V VITS Signal) RF Out Ch. : CH 3

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.2518	26.5	-25.1	1.4	9.5	8.1

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

* Operating Mode : VCR Play RF Out Ch. : CH 3

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.2471	25.2	-25.1	0.1	9.5	9.4

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

* Operating Mode : DVD Play RF Out Ch. : CH 3

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.2489	25.7	-25.1	0.6	9.5	8.9

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : Recording(1V VITS Signal) RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
67.24	26.4	-25.1	1.3	9.5	8.2

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : Recording(5V VITS Signal) RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
67.24	27.6	-25.1	2.5	9.5	7

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : VCR Play RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
67.24	26.5	-25.1	1.4	9.5	8.1

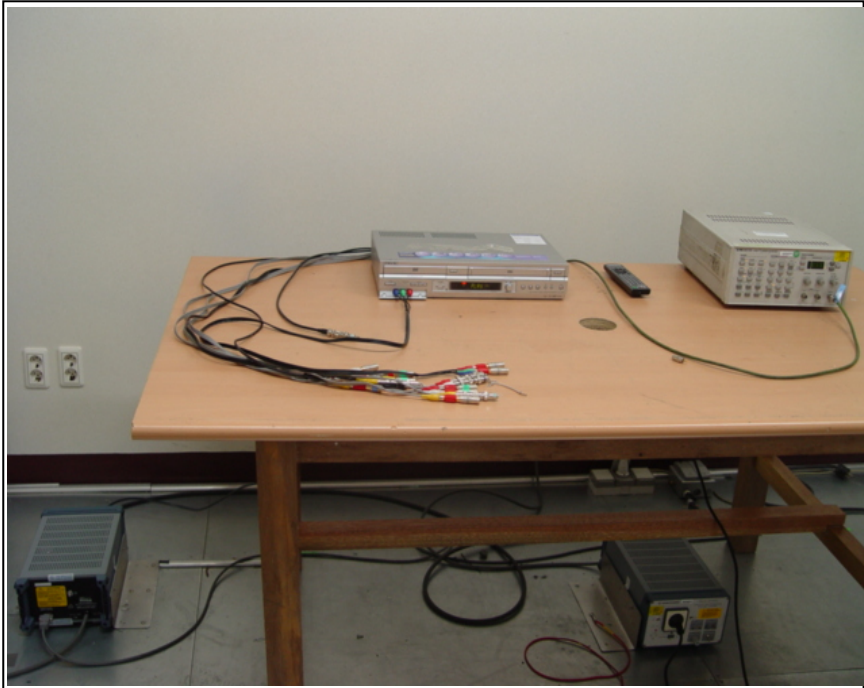
*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

*** Operating Mode : VCR Play RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
67.24	27.1	-25.1	2	9.5	7.5

*CF Factor = Preamp Gain + Matching Pad Loss + Cable Loss

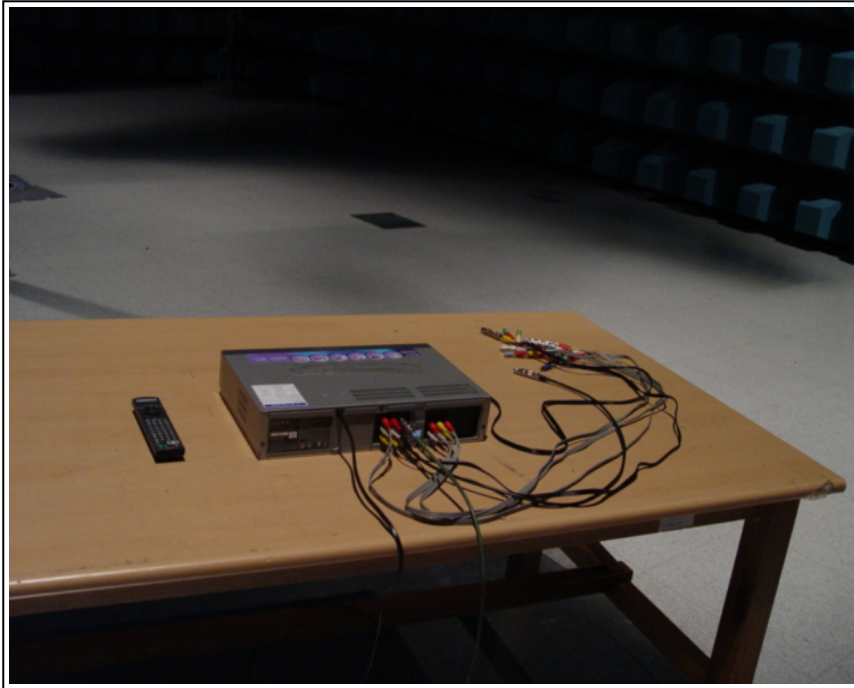
Test Setup Photos



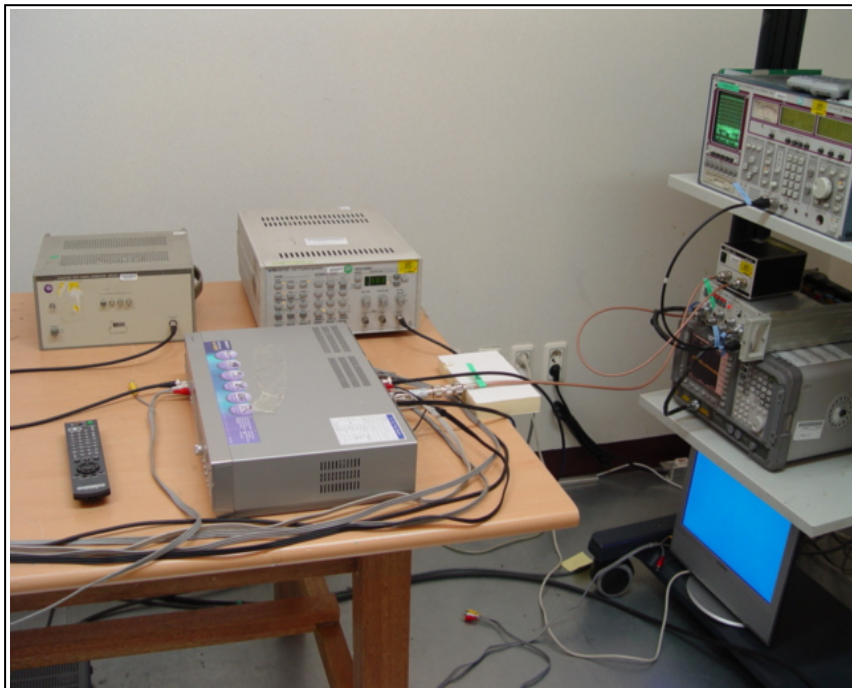
AC Powerline Conducted Emission [Front]



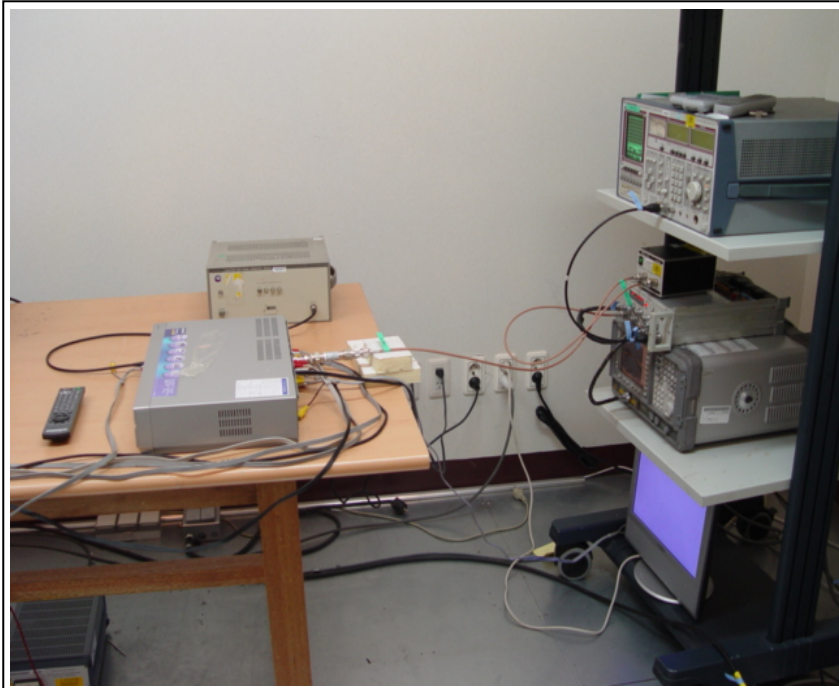
Radiated Emission [Front]



Radiated Emission [Rear]



RF Output Signal Level & Output Terminal Conducted Spurious Emission



Antenna Transfer Switch

External Photos



EUT [Front]



EUT [Rear]