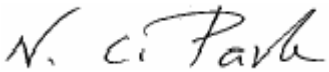
EMC Test Report

According to FCC Part 15 Subpart B

Project No.		**LBE040947**
Equipment under Test		
	Address	416 Maetan3-Dong,Yeongtong-Gu,Suwon-City,Gyeonggi-Do, Korea,443-742
	Product Name	**DVD Recorder / Video Cassette Recorder**
	Model Name	**DVD-VR300**
	Manufacturer	SAMSUNG
	Brand Name	SAMSUNG
	Broadcasting System	NTSC-M
	Variant Model	See Page 3
Date of Test		May 11 ~ 18, 2004
Issued Date		May 20, 2004

	Name/Position	Signature
Tested by	Tae Young JANG Test Engineer	
Reviewed by	No Cheon, Park Manager of EMC Lab.	
Authorized by	Kyu Baek, Chung 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

Table of Contents

1. General Information

1.1 Basic Information related Product

Applicant	Samsung Electronics Co. Ltd;
Model name	DVD-VR300
Applicant Address	Samsung Electronics Co. Ltd; 416 Maetan3- Dong, Yeongtong-Gu, Suwon-City, Gyeonggi-Do, Korea, 443-742
Contact Person	WOOSUNG CHO
Kind of product	DVD Recorder / Video Cassette Recorder
Valiant list	
Manufacturer	Samsung Electronics Co.Ltd;

1.2 Detail Information related Product

Specification

Gerneral	Power Requirment	120V AC, 60Hz
	Power Consumption	45Watts
	Weight	4.1 kg
	Dimensions	430mm(W)*270mm(D)*79mm(H)
Input	Video(1,2,3)	1.0V p-p at 75ohm load, sync negative
		S-Vedio input(Y:1.0V p-p,C:0.286V p-p at 75 ohm load)
	Max. Audio Inout Level	2 Vrms
	DV Input	IEEE 1394(4p) compatible jack
	Receivable Channels	Regular TV broadcasting : VHF(2~13),UHF(14~60)
		Cable TV broadcasting : 1 ~125
Output	Audio	Audio input jacks 1,2
		Optical/Coaxial digital audio output support
		Min 100dB signal-to-noise ratio
		Max. 0.005% total harmonic distortion(T.H.D) at average 1kHz
	Video	Video input jacks 1,2
		S-video output 1,2(Y:1.0V p-p,C:0.286Vp-p,at 75 ohm load)
		Component output(Y:1.0Vp-p,Pb:0.70Vp-p,Pr:0.70Vp-p at 75 ohm load)
DVD	Picture Compression format	MPEG-II
	Audio Compression format	Dolby AC-3 256kbps
	Recording Quality	LP(2 Mbps), SP(4 Mbps), XP(8 Mbps)
	Video S/N Ratio	Min. 50dB at standard recording
	Audio S/N Ratio	Min. 75dB
	Audio frequency characteristics	20Hz ~ 20kHz

1.3 Operating Mode and Condition

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

1) DVD Recording (NTSC Signal)

A NTSC signal(Color bar) was supplied at ch.69(801.25MHz) through the ant. Input connector

2) DVD Recording (1V VITS Signal)

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

3) DVD Recording (5V VITS Signal)

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

4) DVD Play

In this test mode, a DVD recorded with NTSC signal was played on the EUT.

5) DVD Copy mode

In this test mode, a video tape recorded with NTSC signal copy to DVD disc.

6) VCR Recording (NTSC Signal)

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

7) VCR Recording (1V VITS Signal)

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

8) VCR Recording (5V VITS Signal)

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

9) VCR Play

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

10) VCR Copy mode

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

1.4 Equipment Modifications

No equipment modifications were required.

1.5 Test Configuration

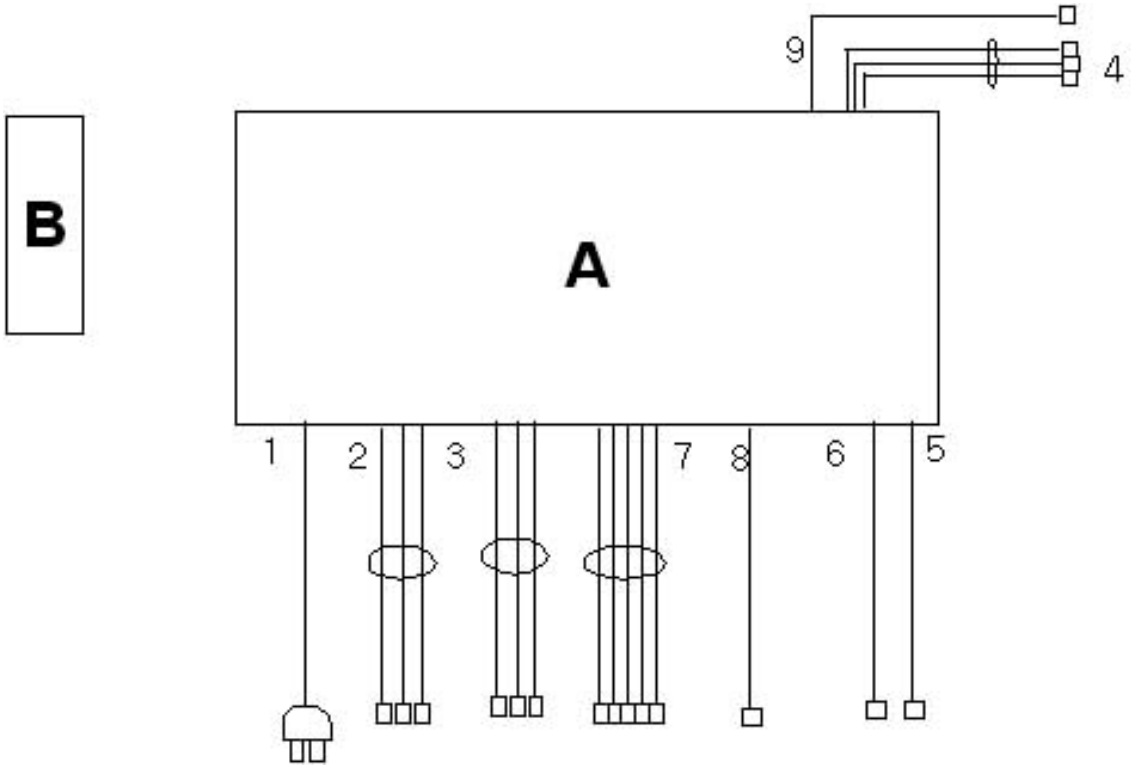
Used EUT and Peripherals

Seq	Device	Model Name	Serial #	Maker	Note
A	DVD Combo	DVD-VR300	-	SAMSUNG	EUT
B	Remote Controller	-	-	SAMSUNG	EUT

Used Cable Description

	Connect Cable	Length [m]	Shielded [Y/N]	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	AV Out Cable	1.2	N	Terminated video : 75 ohm Audio In : 10k ohm
4	Front AV In Cable	1.2	N	Terminated video : 75 ohm Audio In : 1k ohm
5	RF In Cable	1.5	Y	75 ohm Terminated
6	RF Out Cable	1.2	Y	75 ohm Terminated
7	Component	1.2	N	Terminated video : 75 ohm Audio In : 1k ohm
8	S-Video	1.5	N	Terminated
9	S-Video	1.5	N	Terminated

Block Diagram



1.6 Applied Standards

List

Applied Standards	Test Procedure
FCC Part15 Subpart B	ANSI 63.4 : 2000

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

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
3.3	Output Signal Level	FCC Part15:2003-10-01 Class B	Complied
3.4	Output Terminal Conducted Spurious Emission	FCC Part15:2003-10-01 Class B	Complied
3.5	Ant. Transfer Switch	FCC Part15:2003-10-01 Class B	Complied

3. Description of Individual Tests

3.1 Conducted Emission

Test Information		
	Test Engineer	Tae Young JANG
	Test Date	May 11, 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	2004-06-14	12
TV Signal Generator	PM5418-TDSI	PHILIPS	LO612437	2004-09-20	12
L.I.S.N	ESH3-Z5	R&S	100261	2004-07-16	12
Field strength meter	ESS	R&S	844661	2004-05-31	12
RF Relais Matrix	PSU	R&S	861206/024	N/A	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..

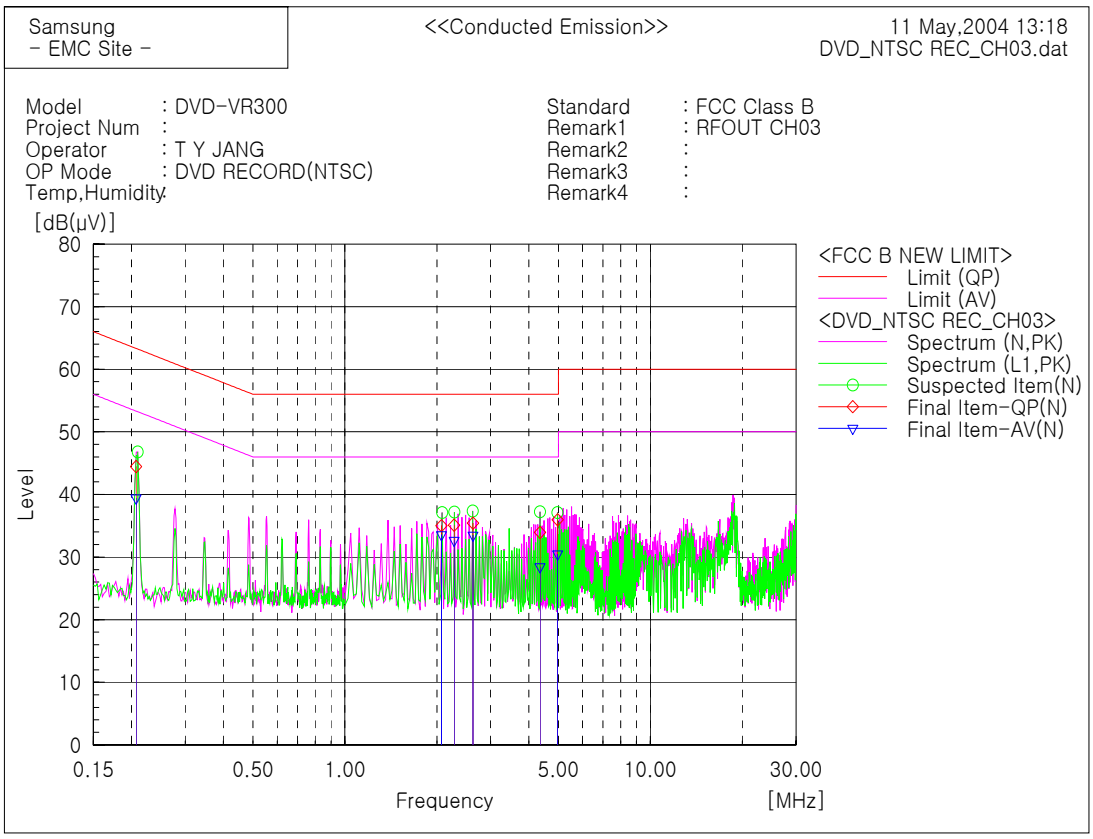
Test Result

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

Test Data

■ Operating Mode : DVD RECORD(NTSC)_CH03

[Graph and Data]



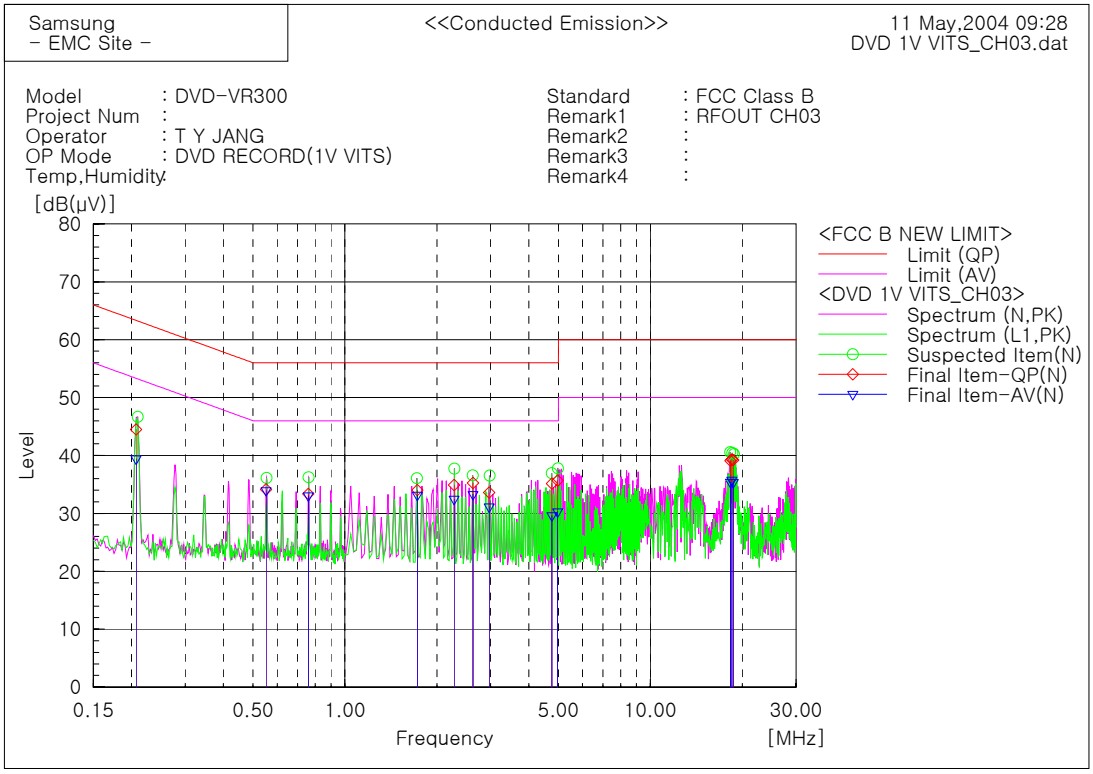
Final Result

--- 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	0.20687	44.4	39.3	0.1	44.5	39.4	63.3	53.3	18.9	13.9
2	2.0717	34.9	33.5	0.1	35.0	33.6	56.0	46.0	21.0	12.4
3	2.2778	35.0	32.6	0.1	35.1	32.7	56.0	46.0	20.9	13.3
4	2.6236	35.3	33.4	0.1	35.4	33.5	56.0	46.0	20.6	12.5
5	4.3496	33.9	28.4	0.1	34.0	28.5	56.0	46.0	22.1	17.5
6	4.9695	36.0	30.5	0.0	36.0	30.5	56.0	46.0	20.0	15.5

■ Operating Mode : DVD RECORD(1V VITS)_CH03

[Graph and Data]



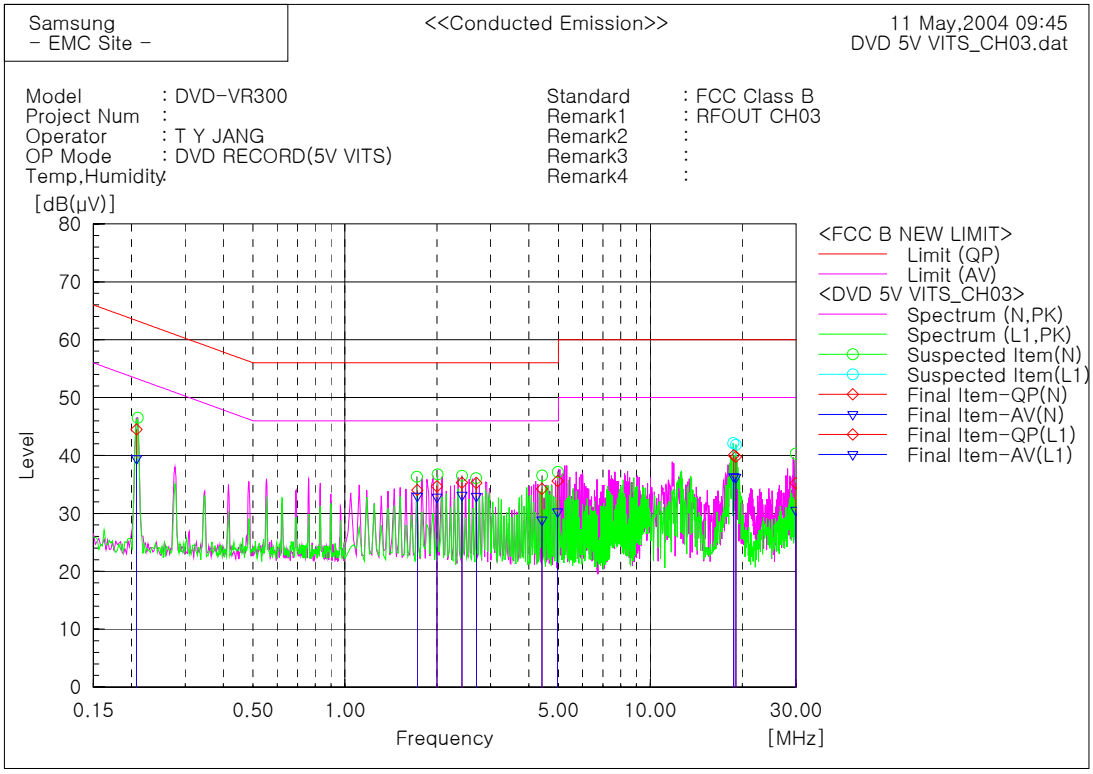
Final Result

--- 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	0.20706	44.4	39.3	0.1	44.5	39.4	63.3	53.3	18.8	13.9
2	0.5522	34.1	33.8	0.1	34.2	33.9	56.0	46.0	21.9	12.1
3	0.75932	33.3	32.9	0.1	33.4	33.0	56.0	46.0	22.6	13.0
4	1.7252	33.9	33.1	0.1	34.0	33.2	56.0	46.0	22.0	12.8
5	2.2782	34.8	32.4	0.1	34.9	32.5	56.0	46.0	21.1	13.5
6	2.6232	35.1	33.2	0.1	35.2	33.3	56.0	46.0	20.8	12.7
7	2.9676	33.5	31.1	0.1	33.6	31.2	56.0	46.0	22.4	14.9
8	4.7631	35.1	29.6	0.0	35.1	29.6	56.0	46.0	20.9	16.4
9	4.9704	35.7	30.3	0.0	35.7	30.3	56.0	46.0	20.3	15.7
10	18.2895	38.2	34.5	0.9	39.1	35.4	60.0	50.0	20.9	14.6
11	18.498	38.4	34.8	0.9	39.3	35.7	60.0	50.0	20.7	14.3
12	18.706	38.3	34.4	0.9	39.2	35.3	60.0	50.0	20.8	14.7

■ Operating Mode : DVD RECORD(5V VITS)_CH03

[Graph and Data]



Final Result

--- N Phase ---

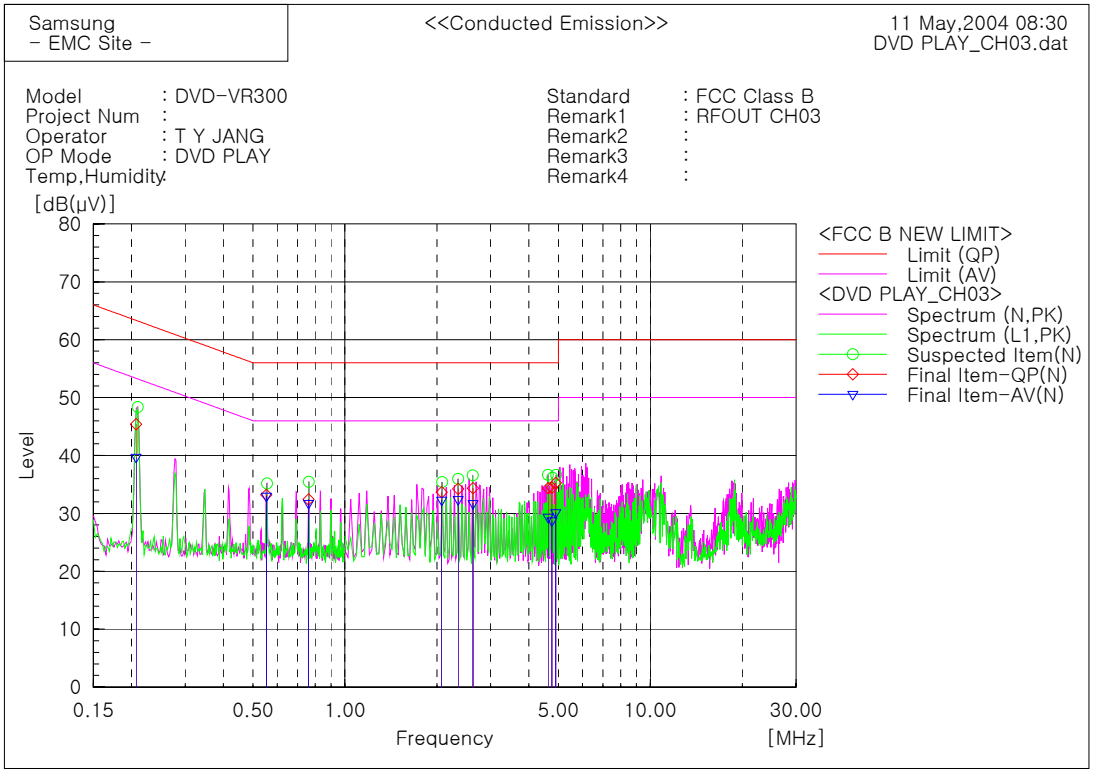
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.20767	44.4	39.4	0.1	44.5	39.5	63.3	53.3	18.8	13.8
2	1.7259	33.9	32.9	0.1	34.0	33.0	56.0	46.0	22.0	13.0
3	2.0022	34.6	32.7	0.1	34.7	32.8	56.0	46.0	21.3	13.2
4	2.4153	35.2	33.1	0.1	35.3	33.2	56.0	46.0	20.7	12.8
5	2.692	35.1	32.9	0.1	35.2	33.0	56.0	46.0	20.8	13.0
6	4.4184	34.1	28.8	0.1	34.2	28.9	56.0	46.0	21.8	17.1
7	4.9701	35.6	30.3	0.0	35.6	30.3	56.0	46.0	20.4	15.7
8	29.955	35.4	30.8	-0.2	35.2	30.6	60.0	50.0	24.8	19.4

--- 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	18.7745	38.8	35.1	1.2	40.0	36.3	60.0	50.0	20.0	13.7
2	19.0495	38.6	35.1	1.2	39.8	36.3	60.0	50.0	20.2	13.7

■ Operating Mode : DVD Play_CH03

[Graph and Data]



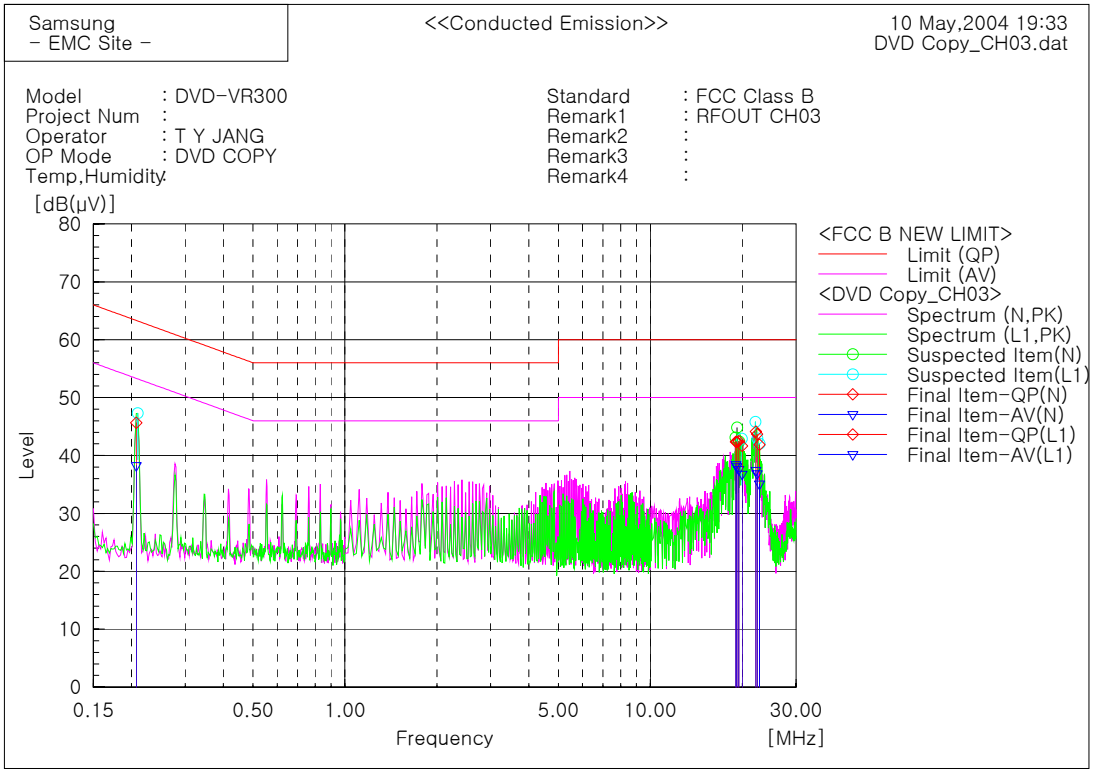
Final Result

--- 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	0.20695	45.3	39.6	0.1	45.4	39.7	63.3	53.3	17.9	13.6
2	0.55258	33.1	32.9	0.1	33.2	33.0	56.0	46.0	22.8	13.0
3	0.76007	32.3	31.7	0.1	32.4	31.8	56.0	46.0	23.6	14.2
4	2.073	33.5	32.2	0.1	33.6	32.3	56.0	46.0	22.4	13.7
5	2.3493	34.1	32.3	0.1	34.2	32.4	56.0	46.0	21.8	13.6
6	2.6254	34.2	31.6	0.1	34.3	31.7	56.0	46.0	21.7	14.3
7	4.6295	34.4	29.4	0.0	34.4	29.4	56.0	46.0	21.6	16.7
8	4.7665	34.4	28.7	0.0	34.4	28.7	56.0	46.0	21.6	17.3
9	4.9053	35.2	30.2	0.0	35.2	30.2	56.0	46.0	20.8	15.9

■ Operating Mode : DVD Copy_CH03

[Graph and Data]



Final Result

--- N Phase ---

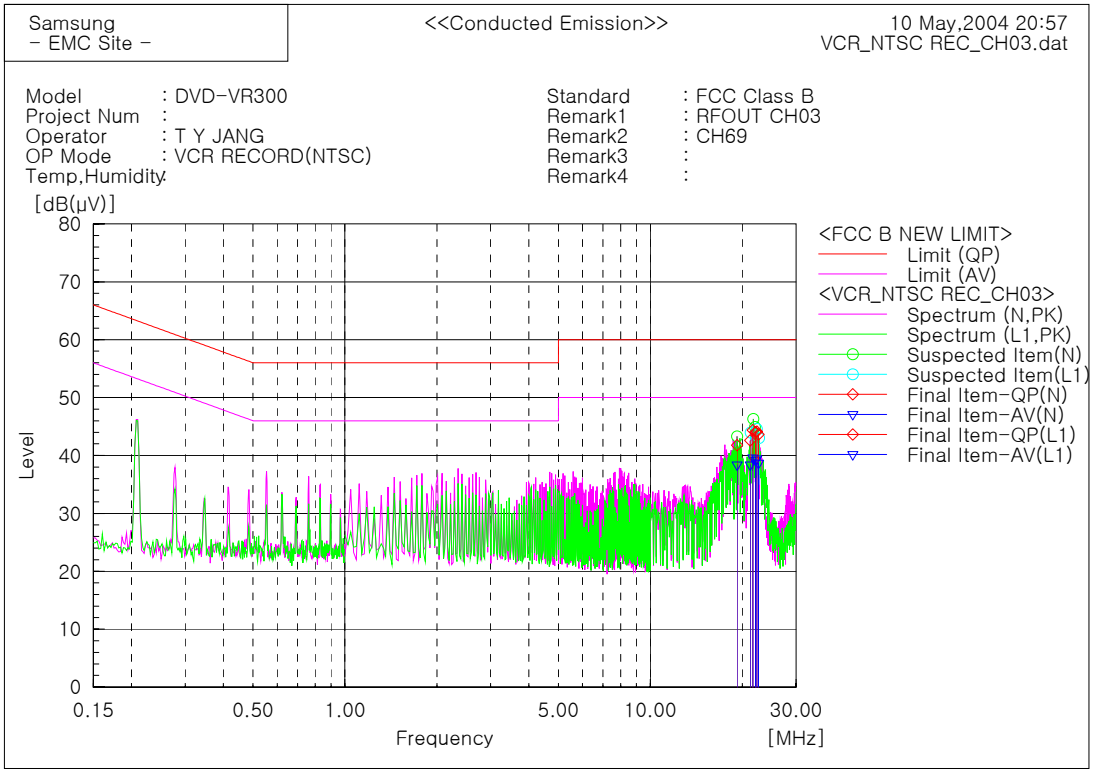
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	19.0645	41.4	37.5	0.9	42.3	38.4	60.0	50.0	17.7	11.6
2	19.202	41.5	37.2	0.9	42.4	38.1	60.0	50.0	17.6	11.9
3	19.4785	41.6	36.7	0.9	42.5	37.6	60.0	50.0	17.5	12.4

--- 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	0.20742	45.6	38.2	0.1	45.7	38.3	63.3	53.3	17.6	15.0
2	19.9605	40.5	35.6	1.2	41.7	36.8	60.0	50.0	18.4	13.2
3	22.1685	43.2	36.6	0.9	44.1	37.5	60.0	50.0	15.9	12.6
4	22.3745	42.8	36.0	0.9	43.7	36.9	60.0	50.0	16.3	13.1
5	22.7895	41.1	34.3	0.8	41.9	35.1	60.0	50.0	18.1	14.9

■ Operating Mode : VCR RECORD(NTSC)_CH03

[Graph and Data]



Final Result

--- N Phase ---

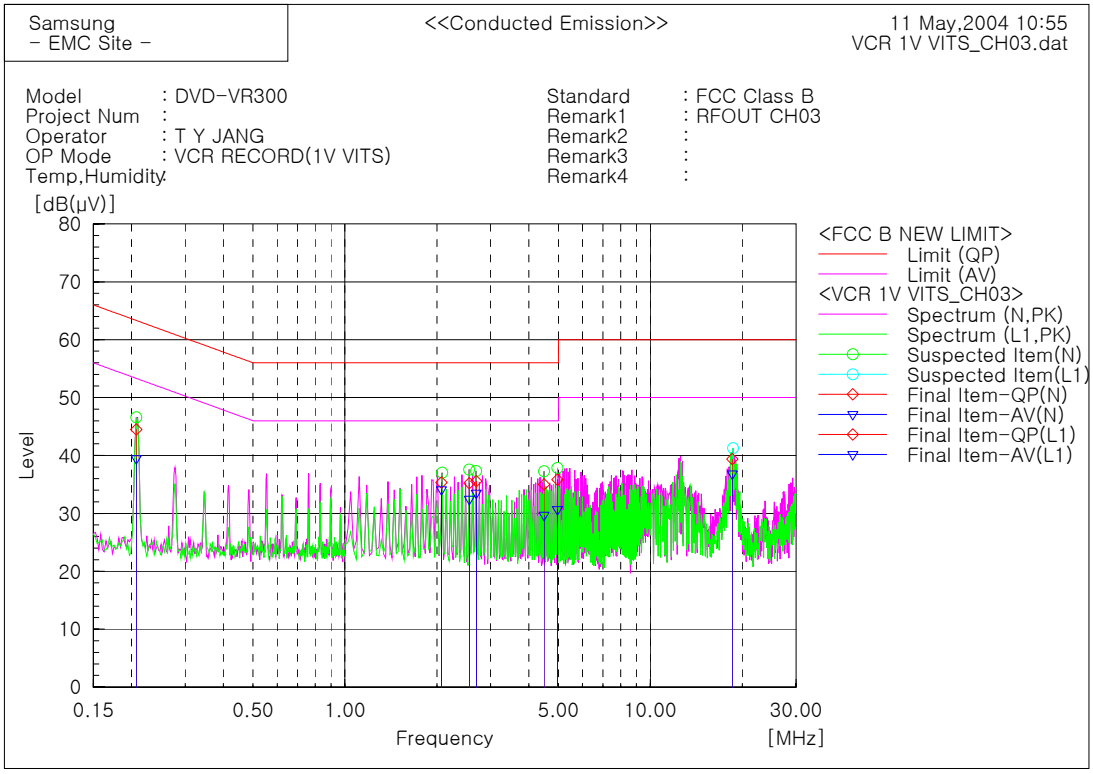
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	19.249	40.9	37.5	0.9	41.8	38.4	60.0	50.0	18.2	11.6
2	21.662	43.6	38.8	0.8	44.4	39.6	60.0	50.0	15.6	10.4
3	22.0765	43.3	38.5	0.7	44.0	39.2	60.0	50.0	16.0	10.8

--- 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	21.2485	41.6	37.4	1.0	42.6	38.4	60.0	50.0	17.4	11.6
2	22.3515	43.2	38.5	0.9	44.1	39.4	60.0	50.0	15.9	10.6
3	22.627	42.7	37.8	0.9	43.6	38.7	60.0	50.0	16.4	11.3

■ Operating Mode : VCR RECORD(1V VITS)_CH03

[Graph and Data]



Final Result

--- N Phase ---

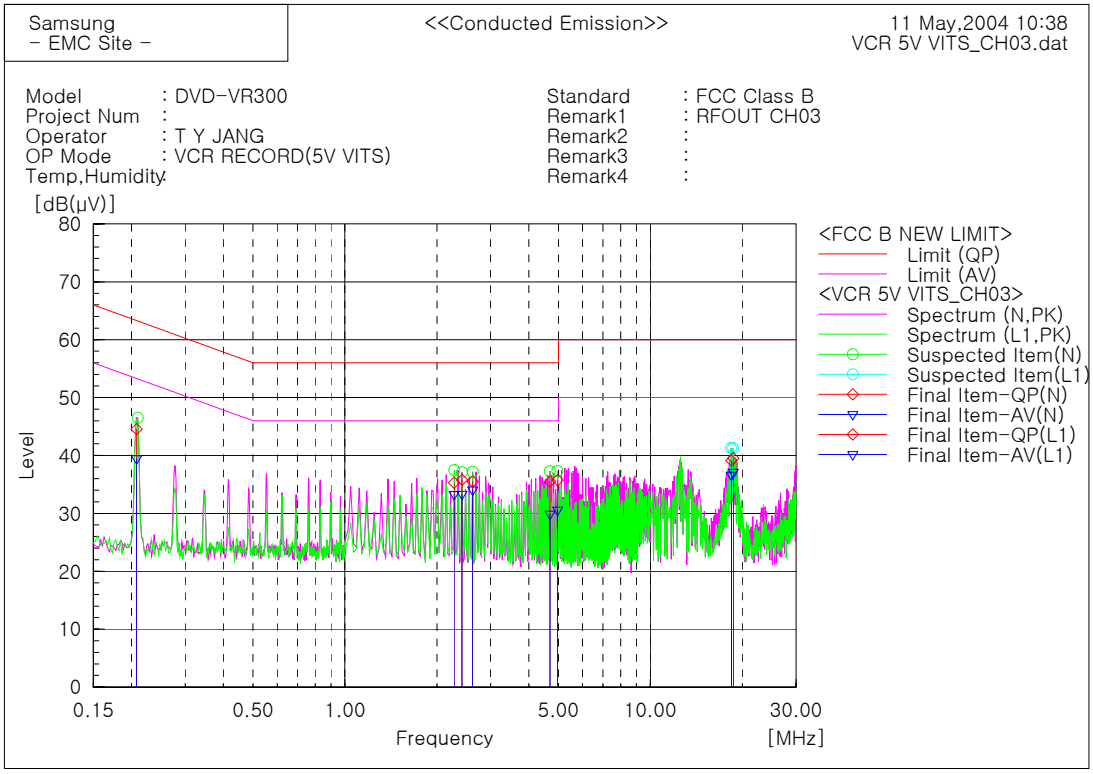
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.20733	44.4	39.4	0.1	44.5	39.5	63.3	53.3	18.8	13.8
2	2.0701	35.2	34.0	0.1	35.3	34.1	56.0	46.0	20.7	11.9
3	2.5536	35.1	32.4	0.1	35.2	32.5	56.0	46.0	20.8	13.6
4	2.6911	35.5	33.4	0.1	35.6	33.5	56.0	46.0	20.4	12.5
5	4.4853	34.9	29.6	0.1	35.0	29.7	56.0	46.0	21.0	16.3
6	4.9679	35.8	30.7	0.0	35.8	30.7	56.0	46.0	20.2	15.3

--- 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	18.5625	38.2	35.6	1.2	39.4	36.8	60.0	50.0	20.6	13.2

■ Operating Mode : VCR RECORD(5V VITS)_CH03

[Graph and Data]



Final Result

--- N Phase ---

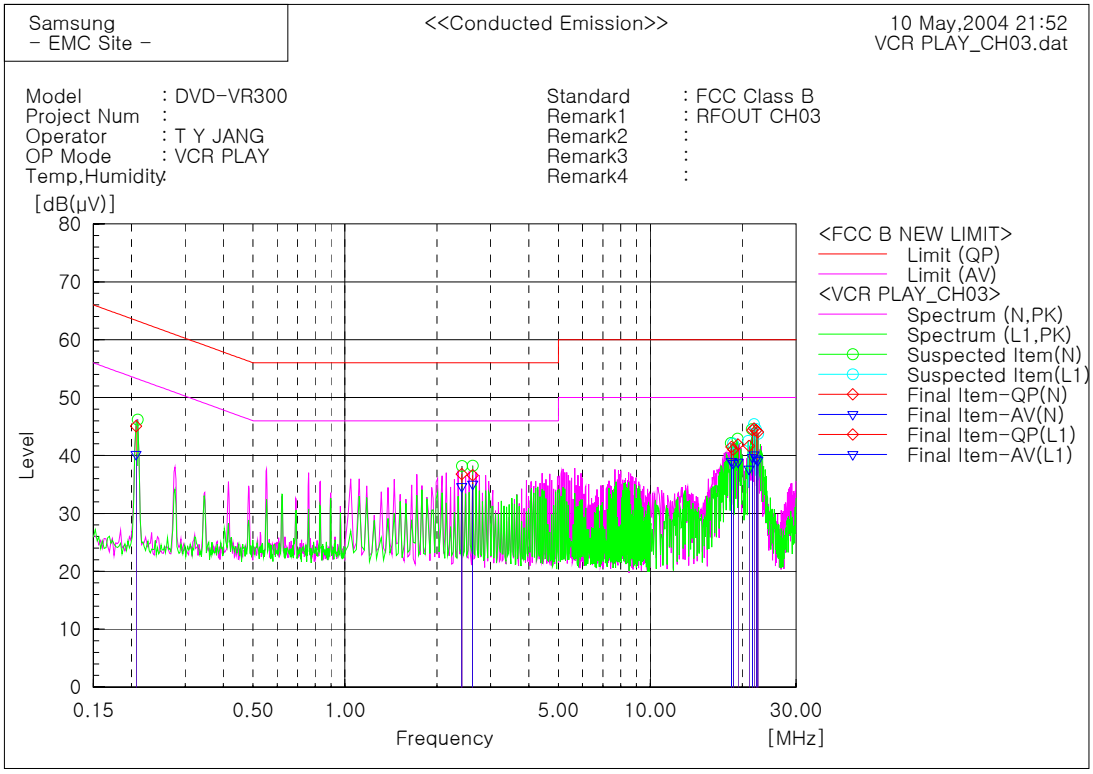
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.20759	44.4	39.4	0.1	44.5	39.5	63.3	53.3	18.8	13.8
2	2.2771	35.2	33.2	0.1	35.3	33.3	56.0	46.0	20.7	12.7
3	2.4157	35.7	33.2	0.1	35.8	33.3	56.0	46.0	20.2	12.7
4	2.6227	35.4	34.0	0.1	35.5	34.1	56.0	46.0	20.5	11.9
5	4.6929	35.5	29.9	0.0	35.5	29.9	56.0	46.0	20.5	16.1
6	4.9695	35.7	30.6	0.0	35.7	30.6	56.0	46.0	20.3	15.4

--- 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	18.4245	37.9	35.4	1.2	39.1	36.6	60.0	50.0	20.9	13.4
2	18.7015	38.4	35.9	1.2	39.6	37.1	60.0	50.0	20.5	12.9

■ Operating Mode : VCR PLAY_CH03

[Graph and Data]



Final Result

--- N Phase ---

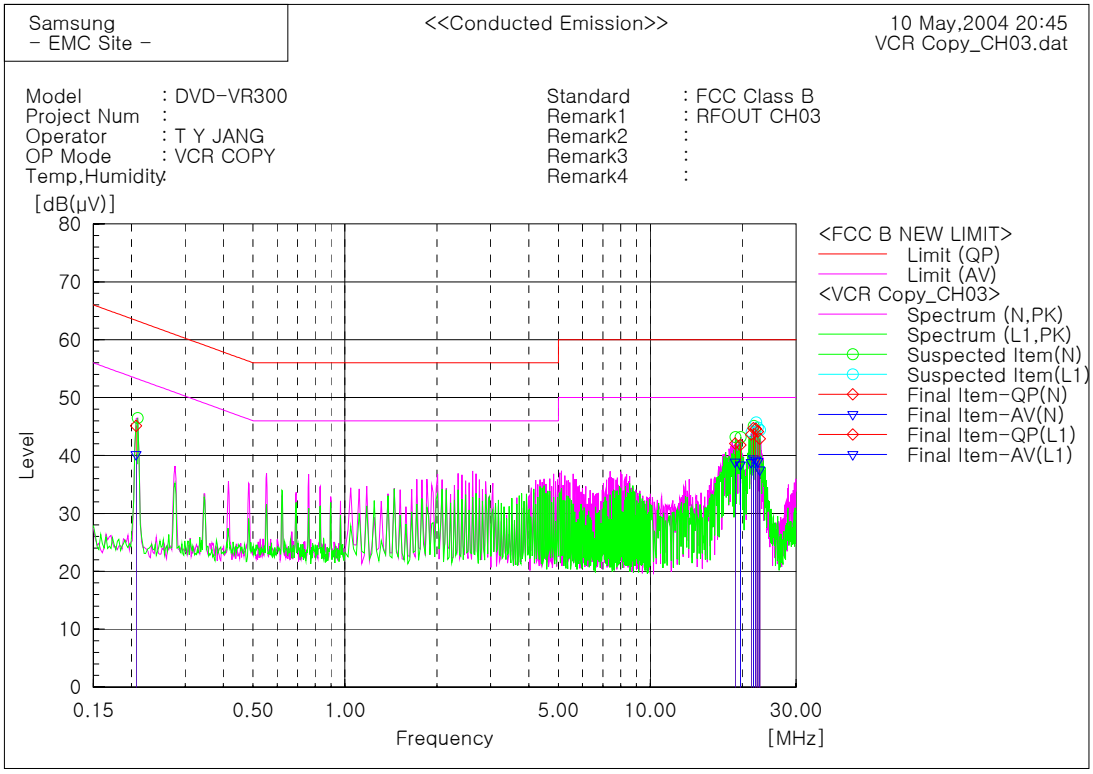
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.20704	45.0	40.1	0.1	45.1	40.2	63.3	53.3	18.2	13.1
2	2.4141	36.7	34.5	0.1	36.8	34.6	56.0	46.0	19.2	11.4
3	2.6211	36.5	34.9	0.1	36.6	35.0	56.0	46.0	19.4	11.0
4	18.417	40.6	38.1	0.9	41.5	39.0	60.0	50.0	18.5	11.1
5	19.3825	41.0	38.0	0.9	41.9	38.9	60.0	50.0	18.1	11.1
6	21.590	43.6	38.9	0.8	44.4	39.7	60.0	50.0	15.6	10.3

--- 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	18.693	39.8	37.5	1.2	41.0	38.7	60.0	50.0	19.0	11.4
2	21.038	40.5	36.6	1.1	41.6	37.7	60.0	50.0	18.4	12.3
3	21.8655	43.7	39.1	1.0	44.7	40.1	60.0	50.0	15.3	9.9
4	22.211	43.5	38.5	0.9	44.4	39.4	60.0	50.0	15.7	10.6
5	22.485	43.1	38.3	0.9	44.0	39.2	60.0	50.0	16.0	10.8

■ Operating Mode : VCR COPY_CH03

[Graph and Data]



Final Result

--- N Phase ---

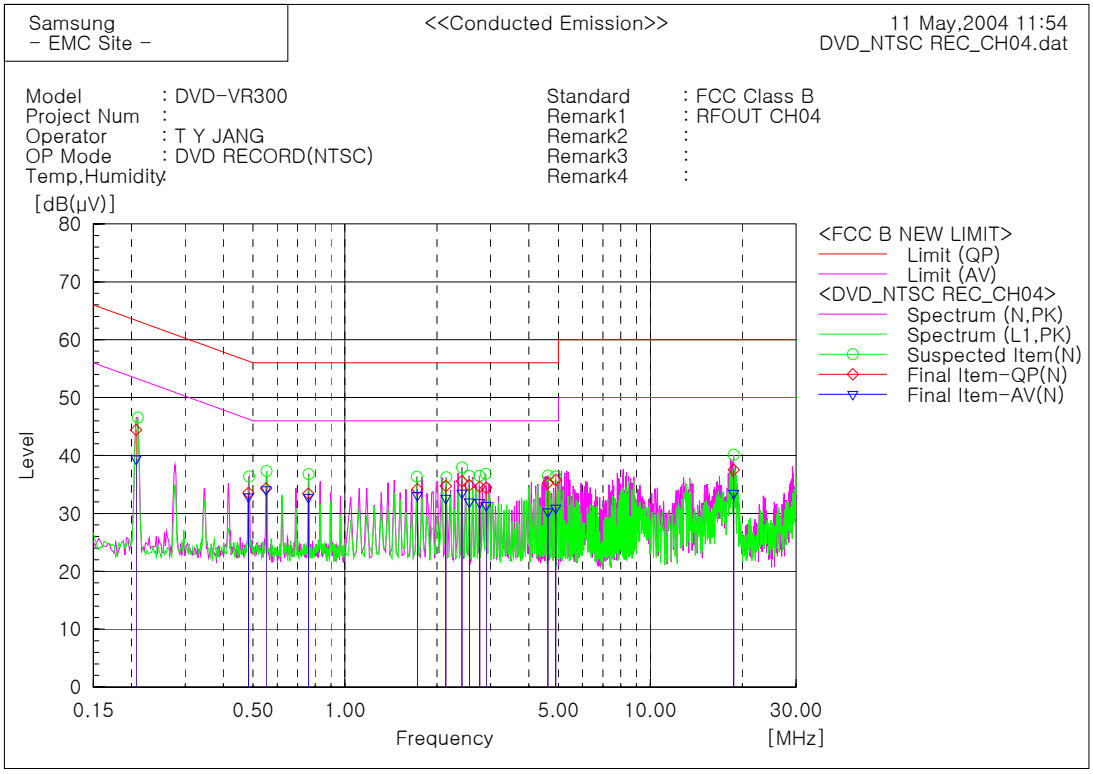
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.20691	45.0	40.1	0.1	45.1	40.2	63.3	53.3	18.2	13.2
2	18.974	41.2	38.0	0.9	42.1	38.9	60.0	50.0	18.0	11.1
3	19.7325	40.9	37.5	0.9	41.8	38.4	60.0	50.0	18.2	11.6
4	21.7325	43.9	38.7	0.8	44.7	39.5	60.0	50.0	15.3	10.5

--- 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	21.3895	42.6	37.8	1.0	43.6	38.8	60.0	50.0	16.4	11.2
2	22.1485	43.7	38.3	0.9	44.6	39.2	60.0	50.0	15.4	10.8
3	22.4925	43.2	38.1	0.9	44.1	39.0	60.0	50.0	15.9	11.0
4	22.8375	42.1	36.7	0.8	42.9	37.5	60.0	50.0	17.1	12.5

■ Operating Mode : DVD RECORD(NTSC)_CH04

[Graph and Data]



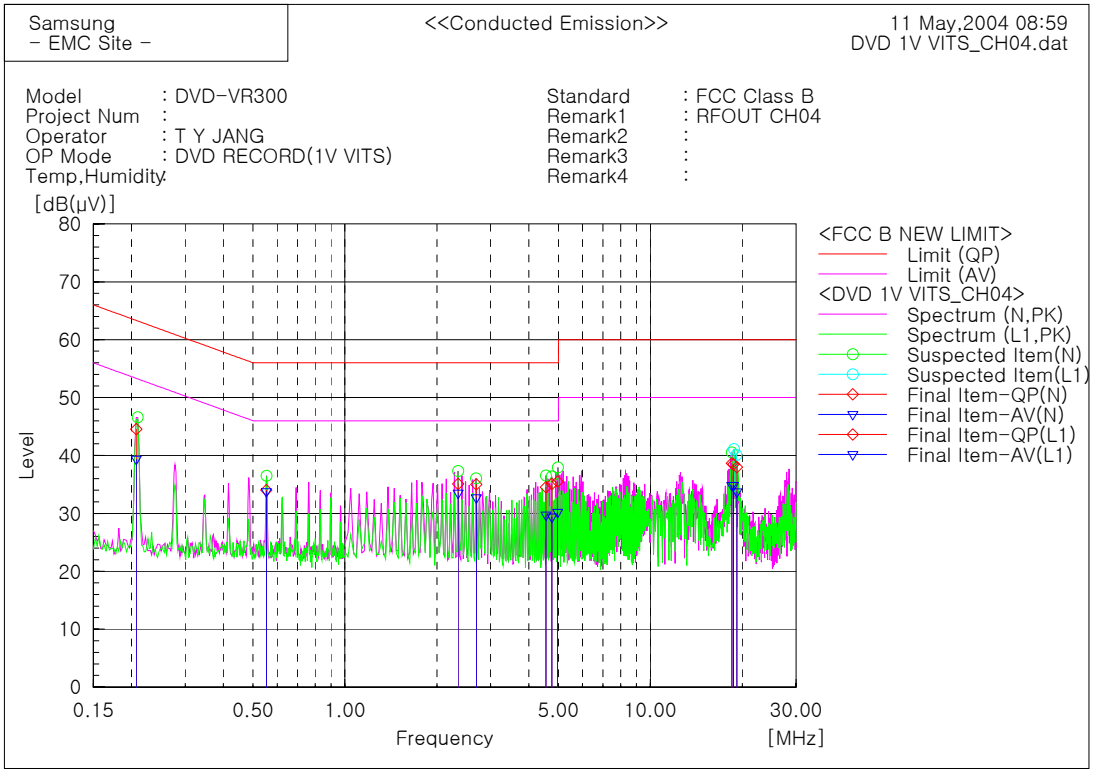
Final Result

--- 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	0.20716	44.3	39.3	0.1	44.4	39.4	63.3	53.3	18.9	13.9
2	0.48343	33.4	32.8	0.1	33.5	32.9	56.3	46.3	22.8	13.4
3	0.55203	34.2	34.0	0.1	34.3	34.1	56.0	46.0	21.7	11.9
4	0.75917	33.3	32.7	0.1	33.4	32.8	56.0	46.0	22.6	13.2
5	1.7254	34.1	33.0	0.1	34.2	33.1	56.0	46.0	21.8	12.9
6	2.1399	34.6	32.5	0.1	34.7	32.6	56.0	46.0	21.3	13.4
7	2.4155	35.4	33.4	0.1	35.5	33.5	56.0	46.0	20.5	12.5
8	2.5545	34.8	31.9	0.1	34.9	32.0	56.0	46.0	21.1	14.0
9	2.7606	34.5	31.8	0.1	34.6	31.9	56.0	46.0	21.4	14.1
10	2.8983	34.3	31.3	0.1	34.4	31.4	56.0	46.0	21.6	14.6
11	4.6227	35.3	30.3	0.0	35.3	30.3	56.0	46.0	20.7	15.7
12	4.899	35.8	30.9	0.0	35.8	30.9	56.0	46.0	20.2	15.1
13	18.7705	36.6	32.6	0.9	37.5	33.5	60.0	50.0	22.5	16.5

■ Operating Mode : DVD RECORD(1V VITS)_CH04

[Graph and Data]



Final Result

--- N Phase ---

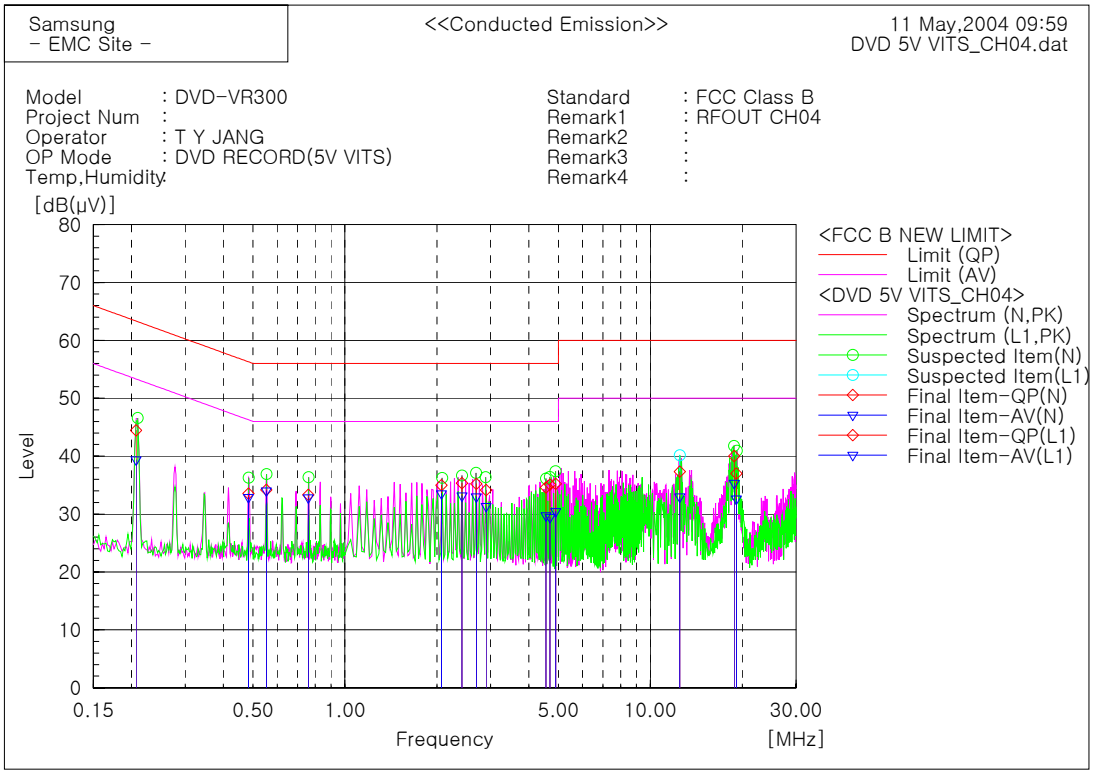
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.20725	44.5	39.3	0.1	44.6	39.4	63.3	53.3	18.8	13.9
2	0.55233	33.9	33.7	0.1	34.0	33.8	56.0	46.0	22.0	12.2
3	2.348	35.0	33.4	0.1	35.1	33.5	56.0	46.0	20.9	12.5
4	2.6934	34.9	32.6	0.1	35.0	32.7	56.0	46.0	21.0	13.3
5	4.5566	34.5	29.8	0.0	34.5	29.8	56.0	46.0	21.5	16.3
6	4.7645	35.1	29.4	0.0	35.1	29.4	56.0	46.0	20.9	16.6
7	4.9699	35.5	30.2	0.0	35.5	30.2	56.0	46.0	20.5	15.8
8	18.5015	37.7	33.9	0.9	38.6	34.8	60.0	50.0	21.4	15.2

--- 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	18.7095	37.3	33.7	1.2	38.5	34.9	60.0	50.0	21.5	15.2
2	19.192	36.8	32.5	1.2	38.0	33.7	60.0	50.0	22.0	16.3

■ Operating Mode : DVD RECORD(5V VITS)_CH04

[Graph and Data]



Final Result

--- N Phase ---

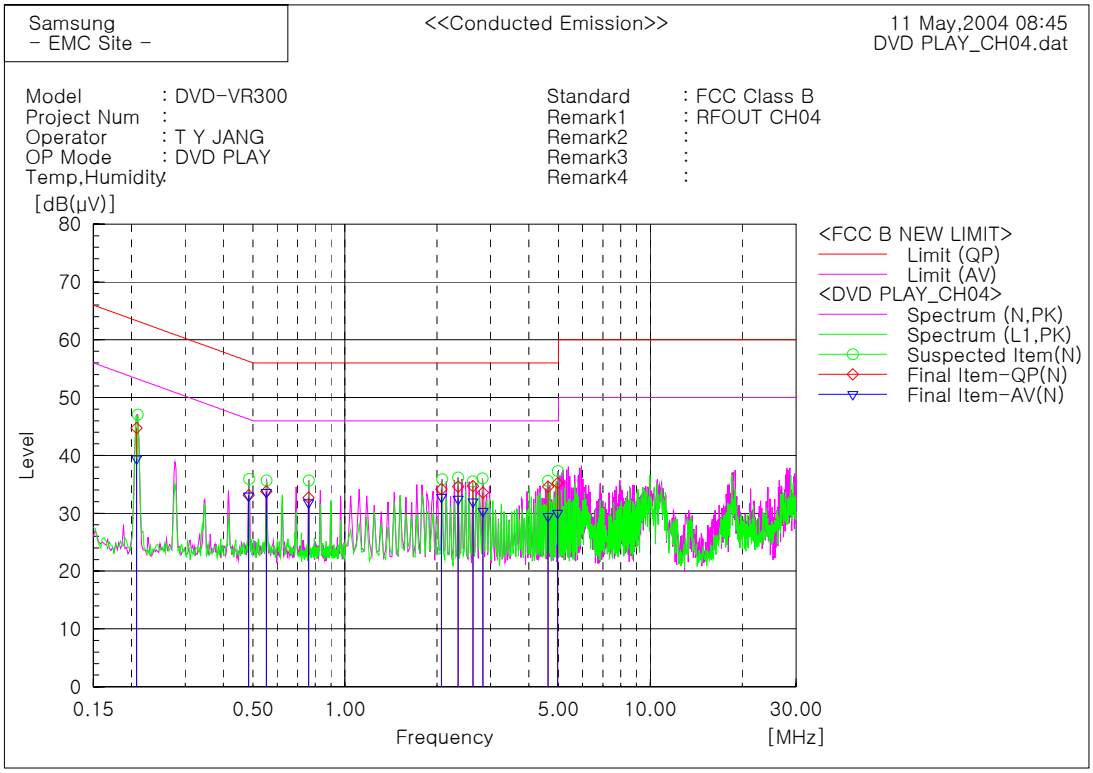
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.20687	44.4	39.3	0.1	44.5	39.4	63.3	53.3	18.9	13.9
2	0.48292	33.4	32.8	0.1	33.5	32.9	56.3	46.3	22.8	13.5
3	0.55243	34.1	33.9	0.1	34.2	34.0	56.0	46.0	21.8	12.0
4	0.75888	33.2	32.7	0.1	33.3	32.8	56.0	46.0	22.7	13.2
5	2.0708	34.9	33.4	0.1	35.0	33.5	56.0	46.0	21.0	12.5
6	2.4155	35.2	33.1	0.1	35.3	33.2	56.0	46.0	20.7	12.8
7	2.6916	35.1	32.9	0.1	35.2	33.0	56.0	46.0	20.8	13.0
8	2.8995	34.0	31.2	0.1	34.1	31.3	56.0	46.0	21.9	14.7
9	4.5552	34.6	29.8	0.0	34.6	29.8	56.0	46.0	21.4	16.3
10	4.6932	35.1	29.5	0.0	35.1	29.5	56.0	46.0	20.9	16.6
11	4.9006	35.2	30.4	0.0	35.2	30.4	56.0	46.0	20.8	15.6
12	18.842	39.1	34.5	0.9	40.0	35.4	60.0	50.0	20.0	14.7
13	19.1175	36.1	31.7	0.9	37.0	32.6	60.0	50.0	23.0	17.4

--- 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	12.493	36.7	32.4	0.6	37.3	33.0	60.0	50.0	22.7	17.0

■ Operating Mode : DVD Play_CH04

[Graph and Data]



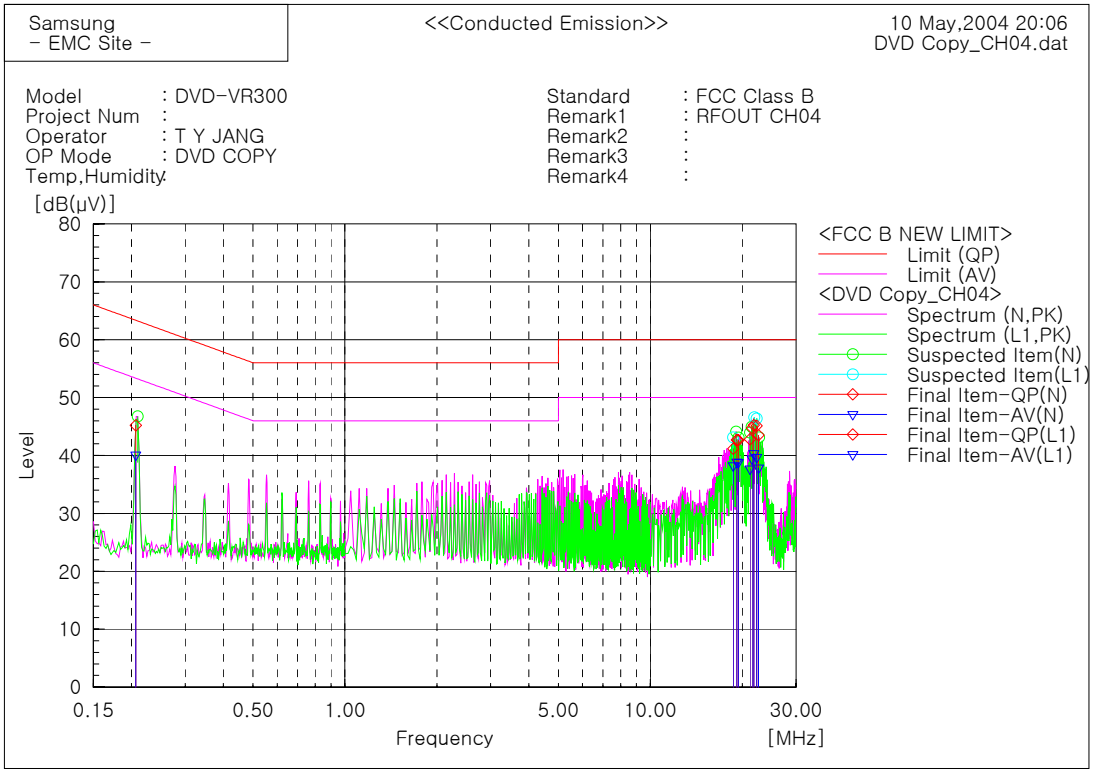
Final Result

--- 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	0.20757	44.6	39.3	0.1	44.7	39.4	63.3	53.3	18.6	13.9
2	0.48367	33.0	32.9	0.1	33.1	33.0	56.3	46.3	23.2	13.3
3	0.55275	33.7	33.5	0.1	33.8	33.6	56.0	46.0	22.2	12.4
4	0.76032	32.6	31.8	0.1	32.7	31.9	56.0	46.0	23.3	14.2
5	2.0721	34.0	32.7	0.1	34.1	32.8	56.0	46.0	21.9	13.2
6	2.3482	34.5	32.4	0.1	34.6	32.5	56.0	46.0	21.4	13.5
7	2.6245	34.6	31.8	0.1	34.7	31.9	56.0	46.0	21.3	14.1
8	2.832	33.5	30.3	0.1	33.6	30.4	56.0	46.0	22.5	15.6
9	4.6259	34.6	29.5	0.0	34.6	29.5	56.0	46.0	21.4	16.5
10	4.9737	35.2	30.0	0.0	35.2	30.0	56.0	46.0	20.8	16.0

■ Operating Mode : DVD Copy_CH04

[Graph and Data]



Final Result

--- N Phase ---

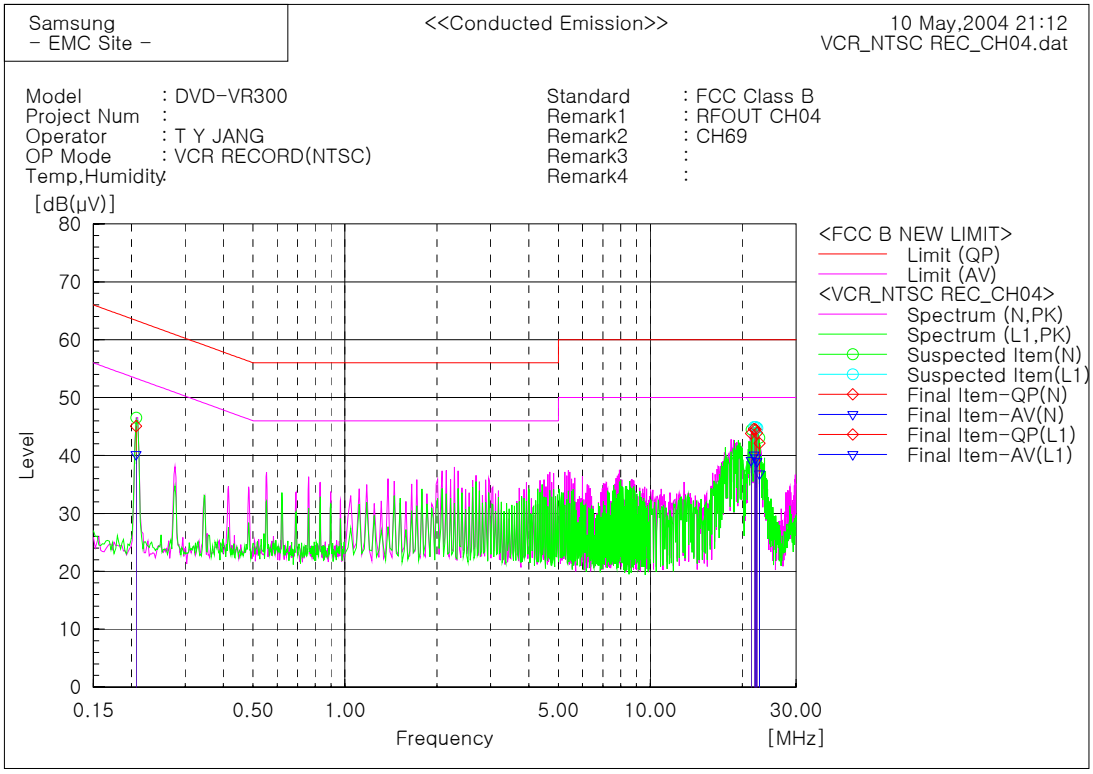
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.20678	45.1	40.0	0.1	45.2	40.1	63.3	53.3	18.1	13.2
2	19.187	41.8	38.0	0.9	42.7	38.9	60.0	50.0	17.3	11.1
3	19.395	41.7	37.9	0.9	42.6	38.8	60.0	50.0	17.4	11.2
4	21.1895	41.9	36.8	0.9	42.8	37.7	60.0	50.0	17.2	12.3
5	21.5325	44.0	38.6	0.8	44.8	39.4	60.0	50.0	15.3	10.6
6	22.6375	42.9	37.3	0.6	43.5	37.9	60.0	50.0	16.5	12.2

--- 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	18.704	39.9	37.0	1.2	41.1	38.2	60.0	50.0	18.9	11.8
2	21.8095	44.3	39.3	1.0	45.3	40.3	60.0	50.0	14.8	9.7
3	22.2925	44.2	38.8	0.9	45.1	39.7	60.0	50.0	14.9	10.3

■ Operating Mode : VCR RECORD(NTSC)_CH04

[Graph and Data]



Final Result

--- N Phase ---

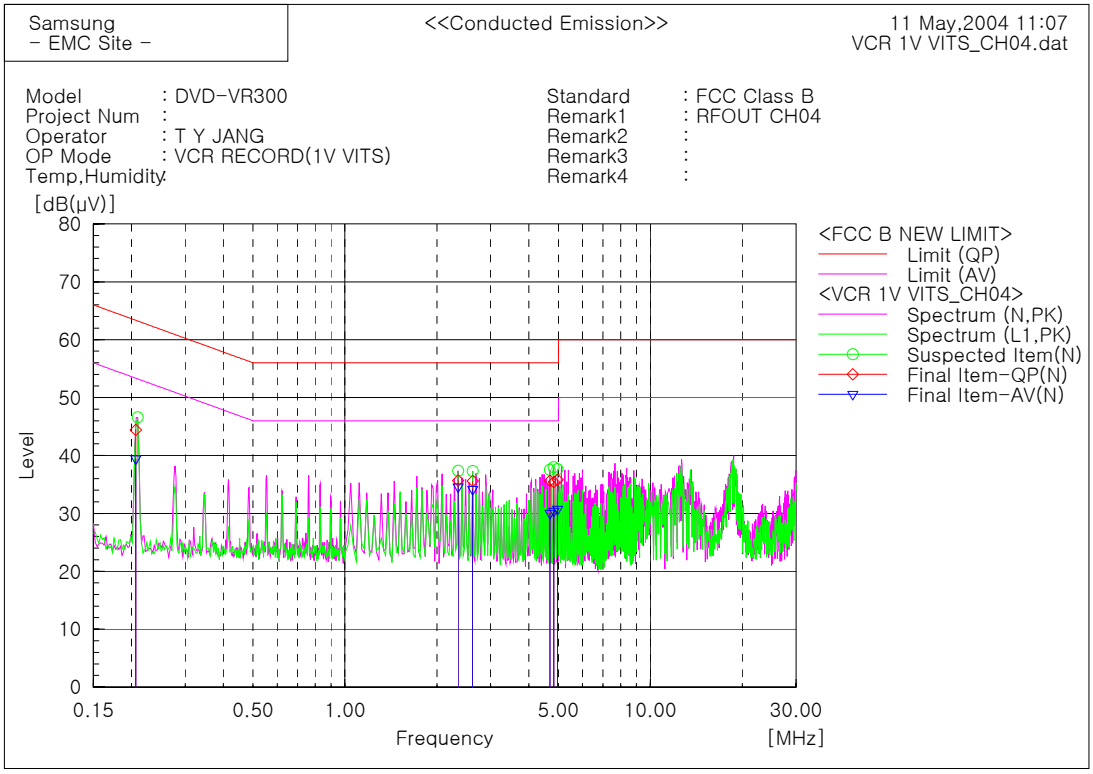
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.20714	45.0	40.1	0.1	45.1	40.2	63.3	53.3	18.2	13.2
2	21.384	42.9	38.3	0.9	43.8	39.2	60.0	50.0	16.2	10.8
3	22.7635	41.5	36.2	0.6	42.1	36.8	60.0	50.0	17.9	13.2

--- 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	21.868	43.6	39.1	1.0	44.6	40.1	60.0	50.0	15.4	9.9
2	22.1445	43.6	38.7	0.9	44.5	39.6	60.0	50.0	15.5	10.4
3	22.3515	43.0	38.1	0.9	43.9	39.0	60.0	50.0	16.1	11.1

■ Operating Mode : VCR RECORD(1V VITS)_CH04

[Graph and Data]



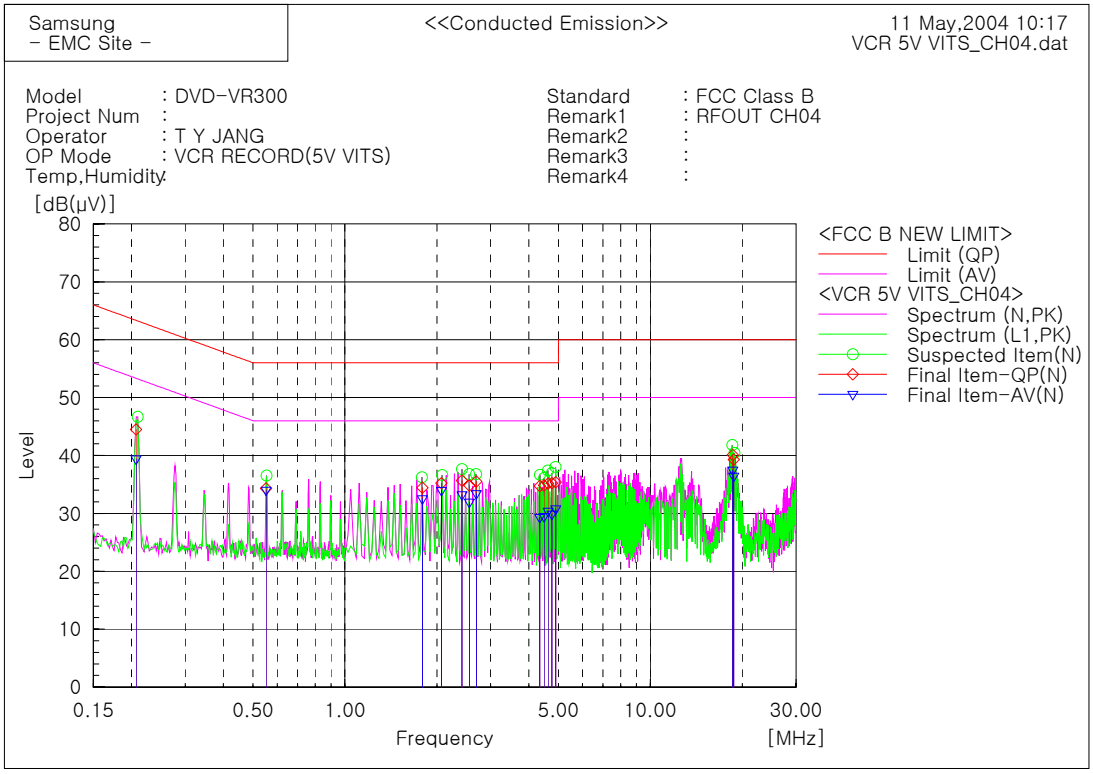
Final Result

--- 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	0.20661	44.3	39.3	0.1	44.4	39.4	63.3	53.3	18.9	13.9
2	2.3462	35.6	34.5	0.1	35.7	34.6	56.0	46.0	20.3	11.4
3	2.6218	35.5	34.1	0.1	35.6	34.2	56.0	46.0	20.4	11.9
4	4.6929	35.6	30.0	0.0	35.6	30.0	56.0	46.0	20.4	16.0
5	4.8309	35.4	30.4	0.0	35.4	30.4	56.0	46.0	20.6	15.6
6	4.9681	35.8	30.7	0.0	35.8	30.7	56.0	46.0	20.2	15.3

■ Operating Mode : VCR RECORD(5V VITS)_CH04

[Graph and Data]



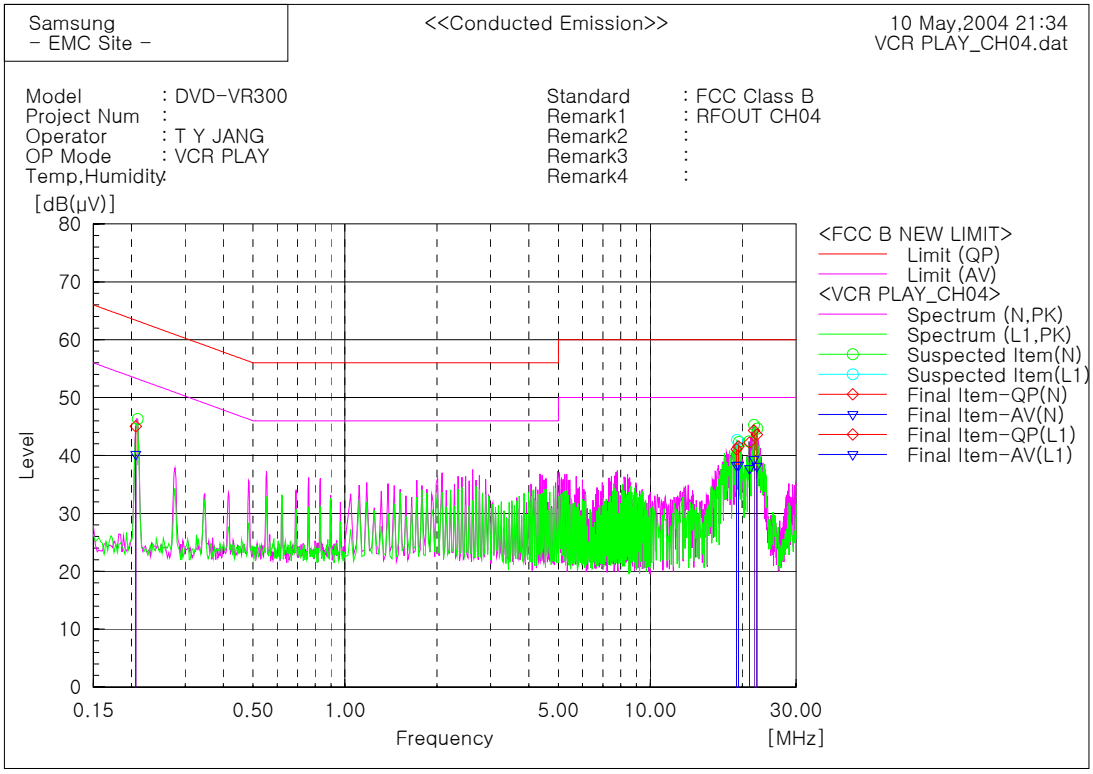
Final Result

--- 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	0.20704	44.4	39.3	0.1	44.5	39.4	63.3	53.3	18.8	13.9
2	0.55209	34.2	33.9	0.1	34.3	34.0	56.0	46.0	21.7	12.0
3	1.7943	34.3	32.5	0.1	34.4	32.6	56.0	46.0	21.6	13.5
4	2.0706	35.1	33.9	0.1	35.2	34.0	56.0	46.0	20.8	12.0
5	2.4155	35.6	33.1	0.1	35.7	33.2	56.0	46.0	20.3	12.8
6	2.555	34.7	31.9	0.1	34.8	32.0	56.0	46.0	21.2	14.0
7	2.692	35.4	33.4	0.1	35.5	33.5	56.0	46.0	20.5	12.6
8	4.3482	34.6	29.2	0.1	34.7	29.3	56.0	46.0	21.3	16.7
9	4.4859	34.8	29.4	0.1	34.9	29.5	56.0	46.0	21.1	16.5
10	4.6239	35.1	30.4	0.0	35.1	30.4	56.0	46.0	20.9	15.6
11	4.7616	35.2	29.9	0.0	35.2	29.9	56.0	46.0	20.8	16.1
12	4.8993	35.4	30.8	0.0	35.4	30.8	56.0	46.0	20.6	15.2
13	18.633	39.2	36.6	0.9	40.1	37.5	60.0	50.0	19.9	12.5
14	18.771	38.4	35.6	0.9	39.3	36.5	60.0	50.0	20.7	13.5

■ Operating Mode : VCR PLAY_CH04

[Graph and Data]



Final Result

--- N Phase ---

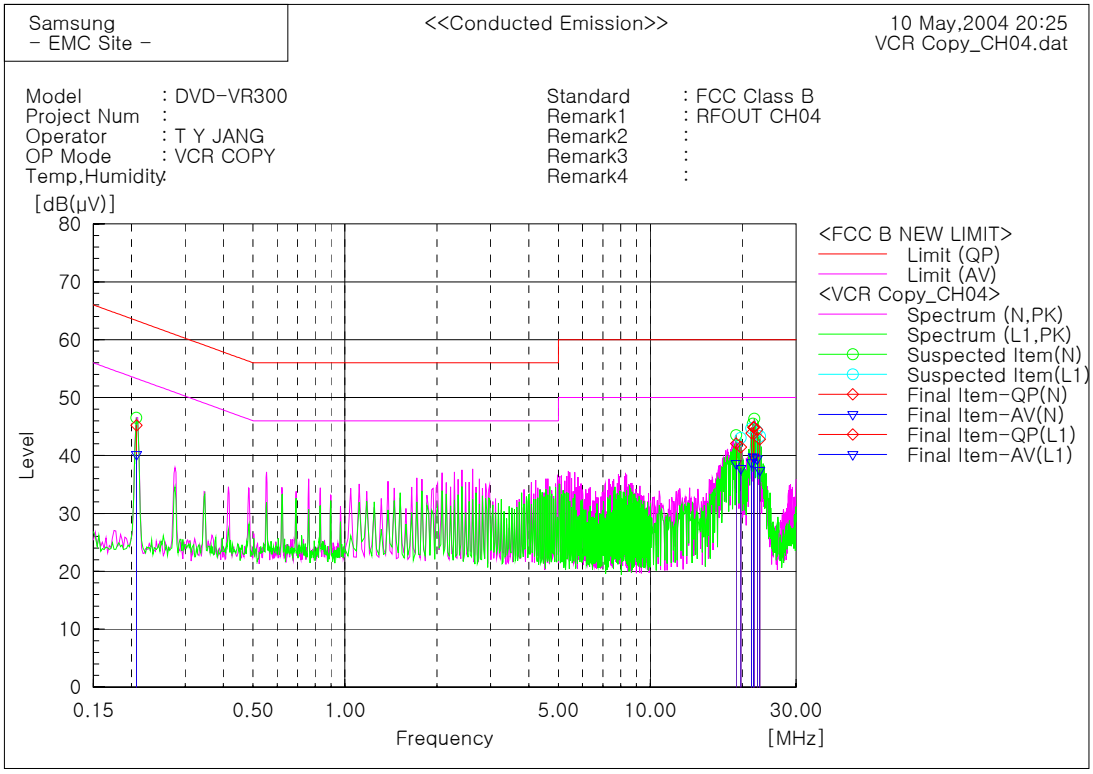
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.20672	44.9	40.1	0.1	45.0	40.2	63.3	53.3	18.3	13.1
2	19.452	40.7	37.4	0.9	41.6	38.3	60.0	50.0	18.4	11.7
3	21.1085	41.3	36.9	0.9	42.2	37.8	60.0	50.0	17.8	12.3
4	21.866	43.5	38.6	0.8	44.3	39.4	60.0	50.0	15.7	10.6
5	22.3495	42.9	37.5	0.7	43.6	38.2	60.0	50.0	16.4	11.9

--- 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	19.1765	39.9	37.1	1.2	41.1	38.3	60.0	50.0	18.9	11.7

■ Operating Mode : VCR COPY_CH03

[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	0.20769	45.1	40.1	0.1	45.2	40.2	63.3	53.3	18.1	13.1
2	19.1155	41.2	37.8	0.9	42.1	38.7	60.0	50.0	18.0	11.4
3	21.737	44.1	39.0	0.8	44.9	39.8	60.0	50.0	15.1	10.2
4	21.8745	44.0	38.8	0.8	44.8	39.6	60.0	50.0	15.2	10.4

--- 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	19.806	40.2	36.6	1.2	41.4	37.8	60.0	50.0	18.6	12.2
2	21.4585	42.9	37.8	1.0	43.9	38.8	60.0	50.0	16.2	11.2
3	22.3565	43.6	38.5	0.9	44.5	39.4	60.0	50.0	15.6	10.6
4	22.8395	42.0	36.7	0.8	42.8	37.5	60.0	50.0	17.2	12.6

3.2 Radiated Emission

Test Information		
	Test Engineer	Tae Young JANG
	Test Date	May 18, 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	2004-06-03	12
Mast Controller	HD2000	HD	HD20000902027	N/A	N/A
Test Software	EP5RE	TOYO	None	N/A	12
TV Signal Generator	PM5418-TDSI	PHILIPS	LO612437	2004-09-20	12
Biconilog Antenna	6112B	SCHAFFNER	2766	2004-06-03	12
Spectrum Analyzer	E7405A	Agilent	MY42000109	2004-11-27	12

EUT Test Setup

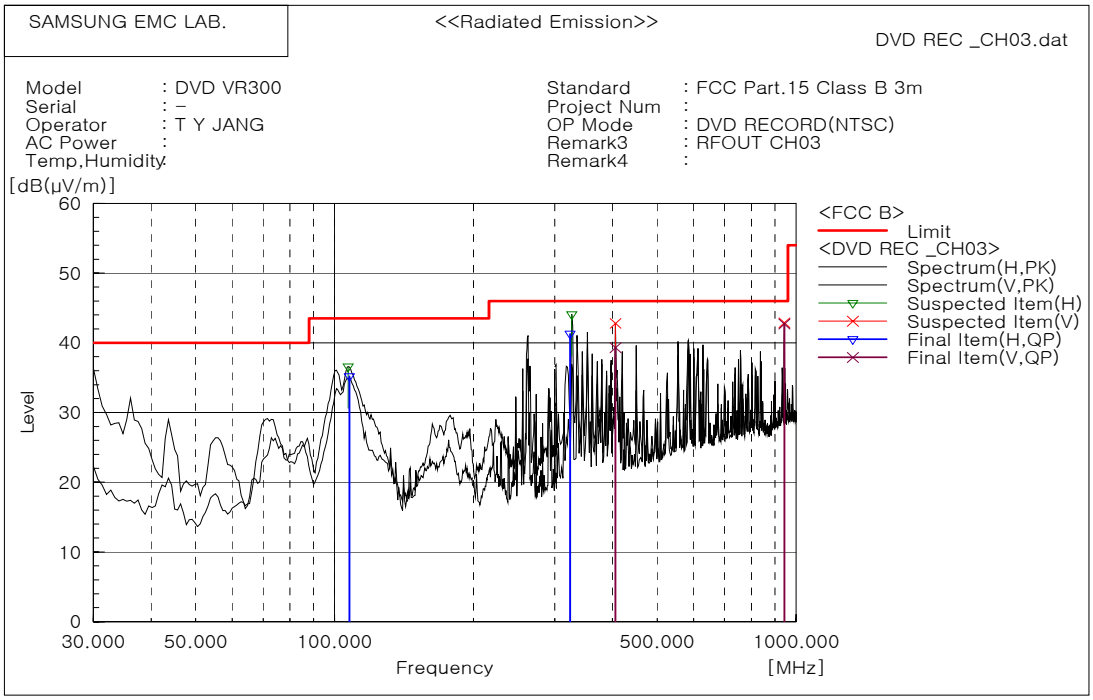
EUT set up in semi-anechoic chamber. EUT positioned at 3m from antenna in center of table. All ports terminated into characteristic loads.

Test Result

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

Test Data (Other Frequency)

■ Operating Mode : DVD RECORD(NTSC)_CH03



Final Result

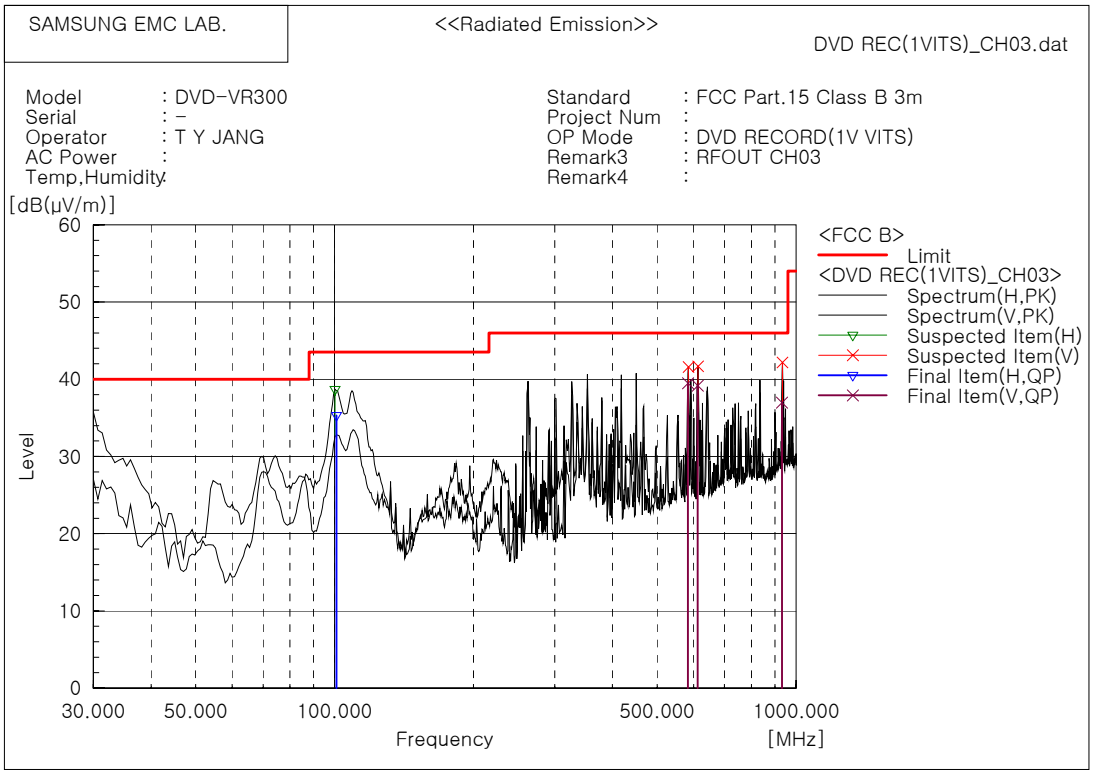
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	107.699	49.5	-14.3	35.2	43.5	8.3	
2	324.010	50.7	-9.4	41.3	46.0	4.7	

--- 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	405.882	46.5	-7.2	39.3	46.0	6.7	
2	943.370	40.9	1.8	42.7	46.0	3.3	

■ Operating Mode : DVD RECORD(1V VITS)_CH03



Final Result

--- Horizontal Polarization (QP)---

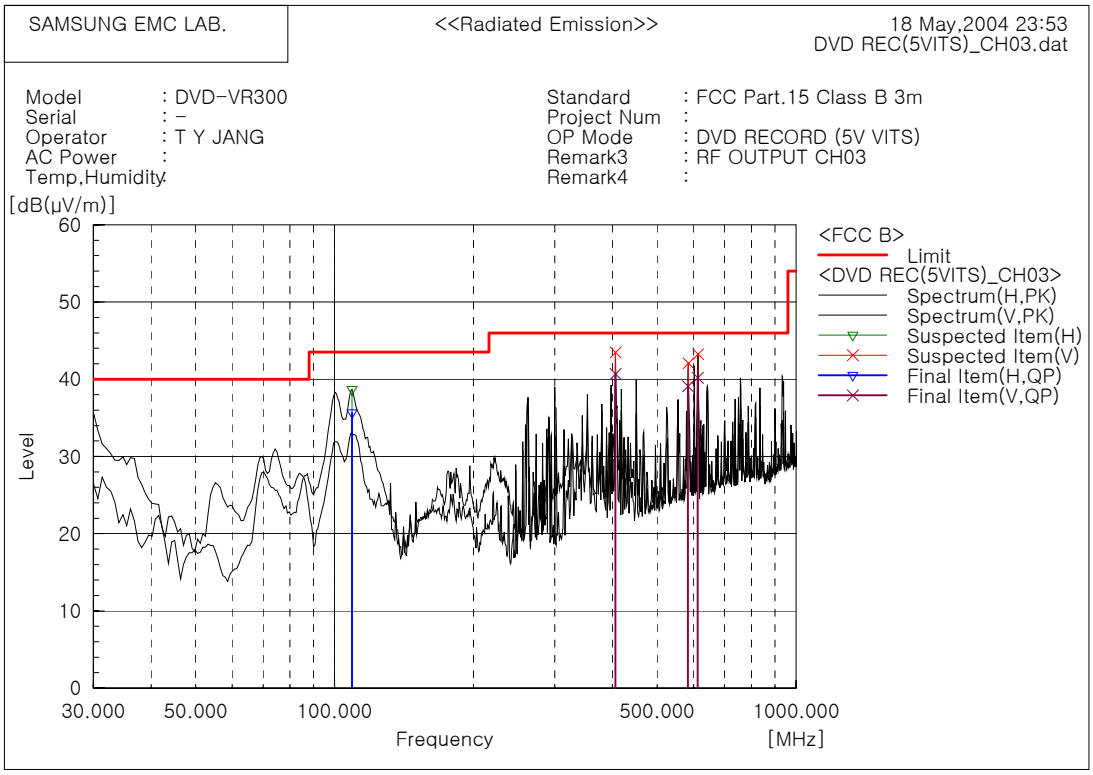
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	100.943	50.2	-14.9	35.3	43.5	8.2	

--- 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	583.268	43.4	-3.9	39.5	46.0	6.5	
2	612.268	42.7	-3.5	39.2	46.0	6.8	
3	932.625	35.5	1.5	37.0	46.0	9.0	

v

■ Operating Mode : DVD RECORD(5V VITS)_CH03



Final Result

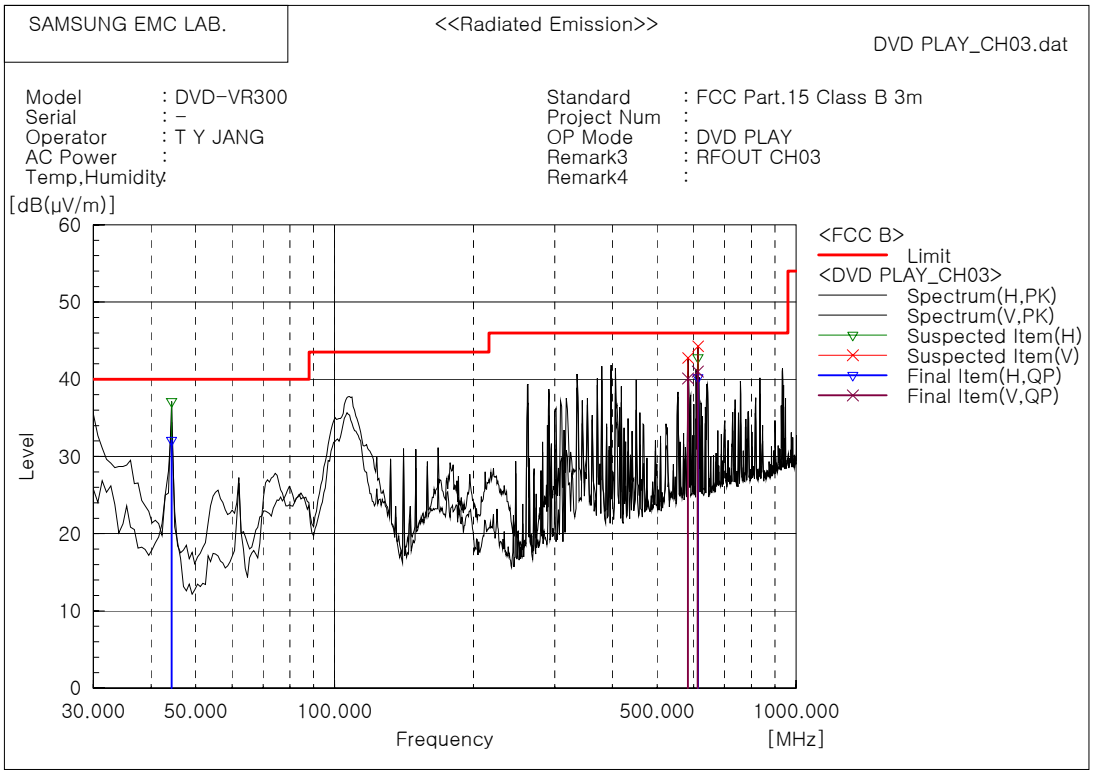
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	109.016	49.9	-14.2	35.7	43.5	7.8	

--- 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	405.875	47.9	-7.2	40.7	46.0	5.3	
2	583.118	43.0	-3.9	39.1	46.0	6.9	
3	612.073	43.7	-3.5	40.2	46.0	5.8	

■ Operating Mode : DVD PLAY_CH03



Final Result

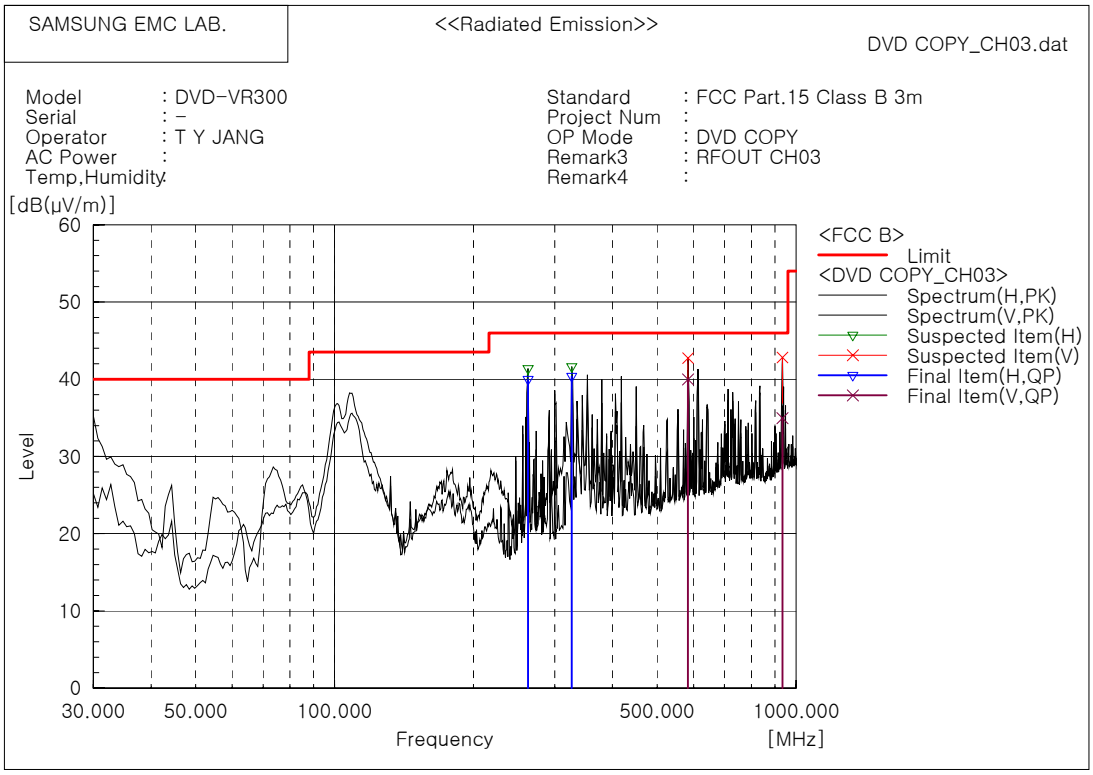
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	44.317	48.3	-16.2	32.1	40.0	7.9	
2	612.848	43.7	-3.5	40.2	46.0	5.8	

--- 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	582.800	44.0	-3.9	40.1	46.0	5.9	
2	612.098	44.5	-3.5	41.0	46.0	5.0	

■ Operating Mode : DVD COPY_CH03



Final Result

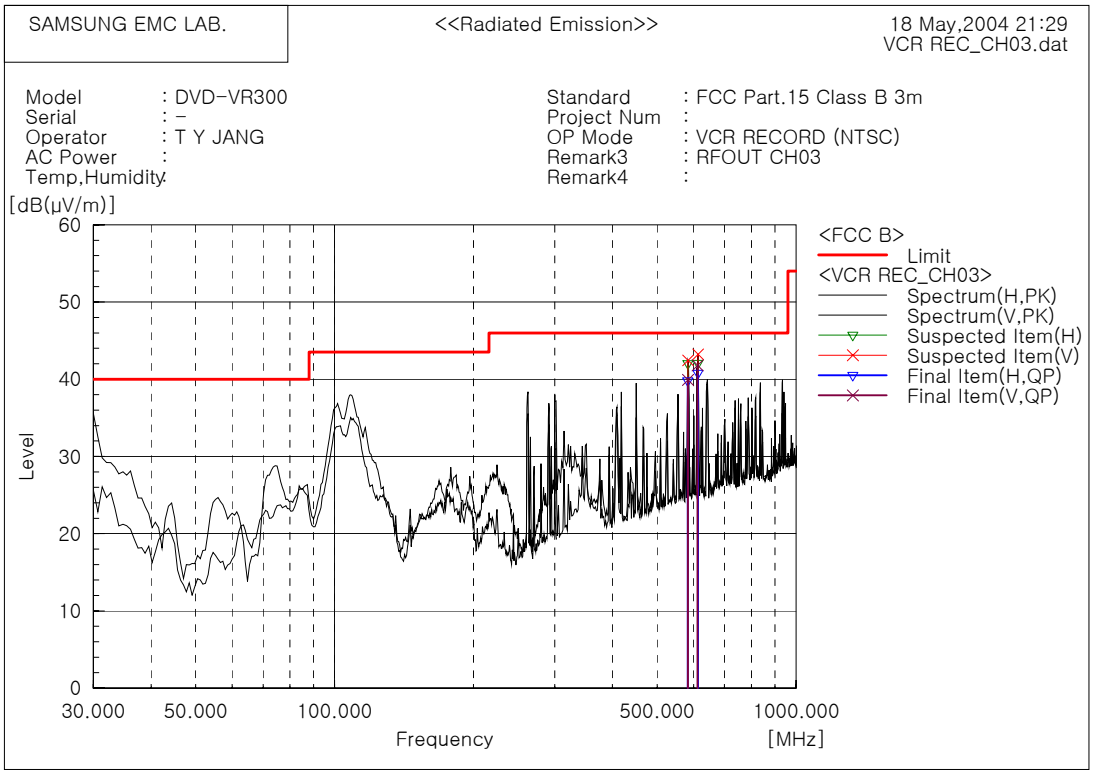
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	262.477	51.0	-11.0	40.0	46.0	6.0	
2	326.472	49.8	-9.4	40.4	46.0	5.6	

--- 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	582.800	43.9	-3.9	40.0	46.0	6.0	
2	933.830	33.5	1.5	35.0	46.0	11.0	

■ Operating Mode : VCR RECORD(NTSC)_CH03



Final Result

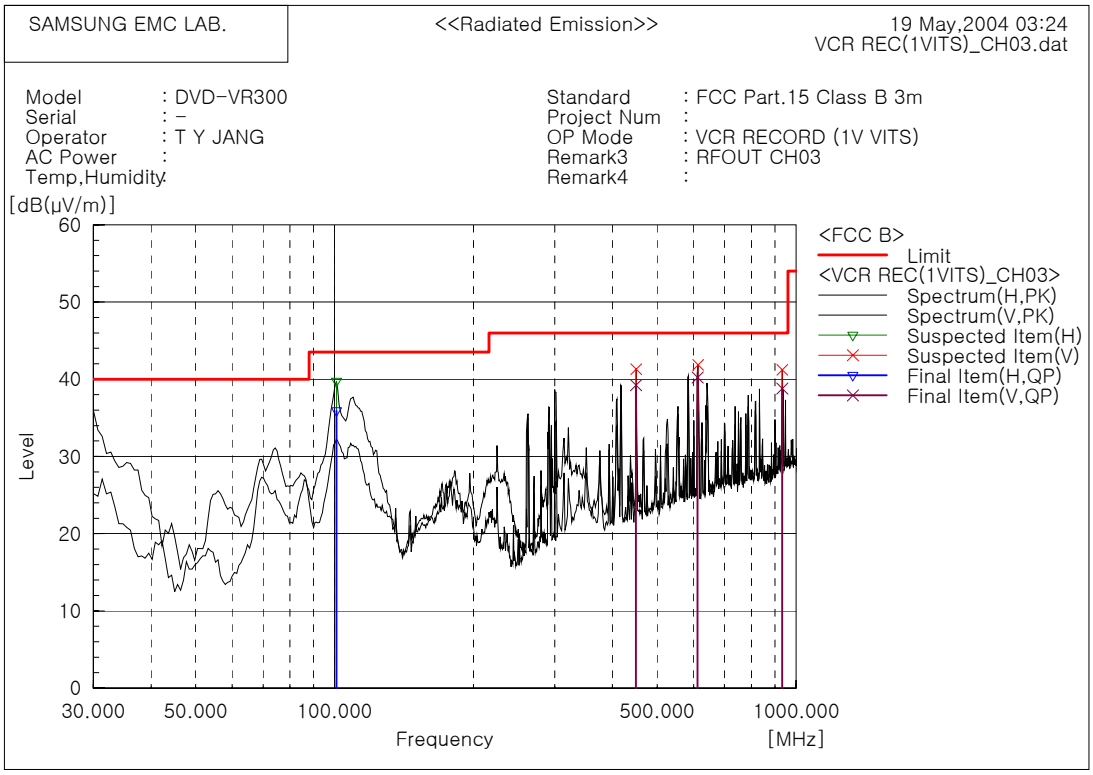
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	582.680	43.7	-3.9	39.8	46.0	6.2	
2	612.848	44.3	-3.5	40.8	46.0	5.2	

--- 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	582.800	43.8	-3.9	39.9	46.0	6.1	
2	611.890	45.3	-3.5	41.8	46.0	4.2	

■ Operating Mode : VCR RECORD(1V VITS)_CH03



Final Result

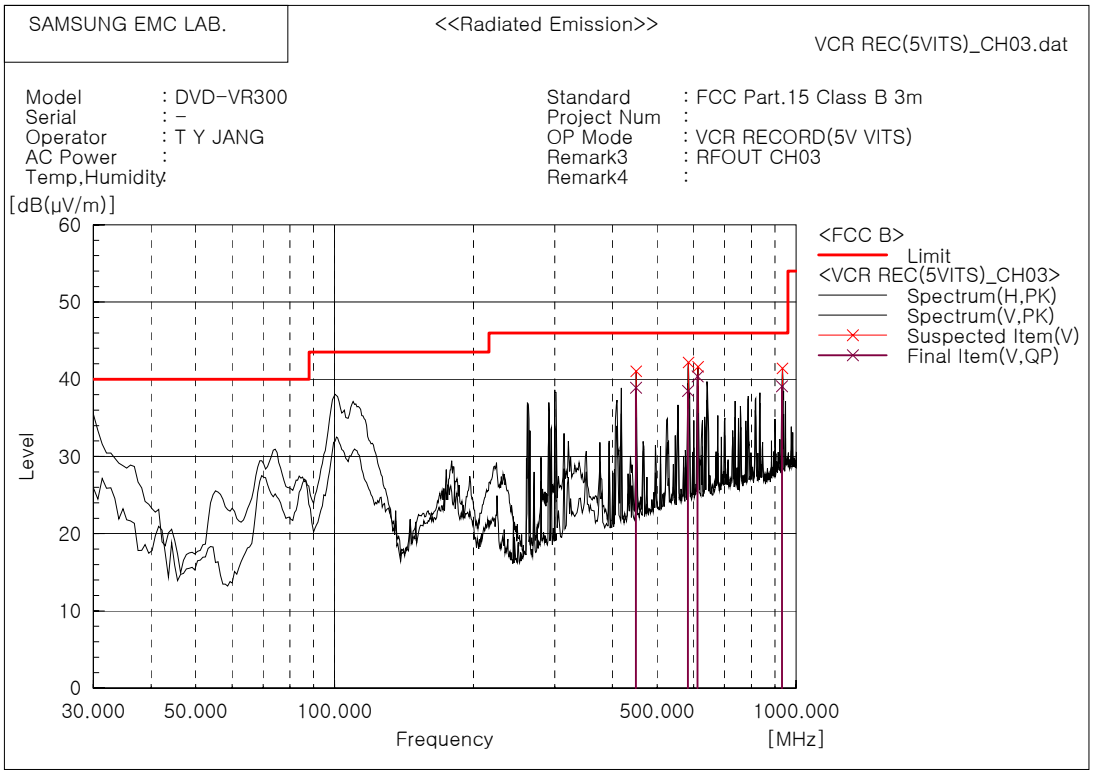
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	100.909	50.8	-14.9	35.9	43.5	7.6	

--- 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	450.010	45.8	-6.6	39.2	46.0	6.8	
2	611.850	43.7	-3.5	40.2	46.0	5.8	
3	932.765	37.3	1.5	38.8	46.0	7.2	

■ Operating Mode : VCR RECORD(5V VITS)_CH03

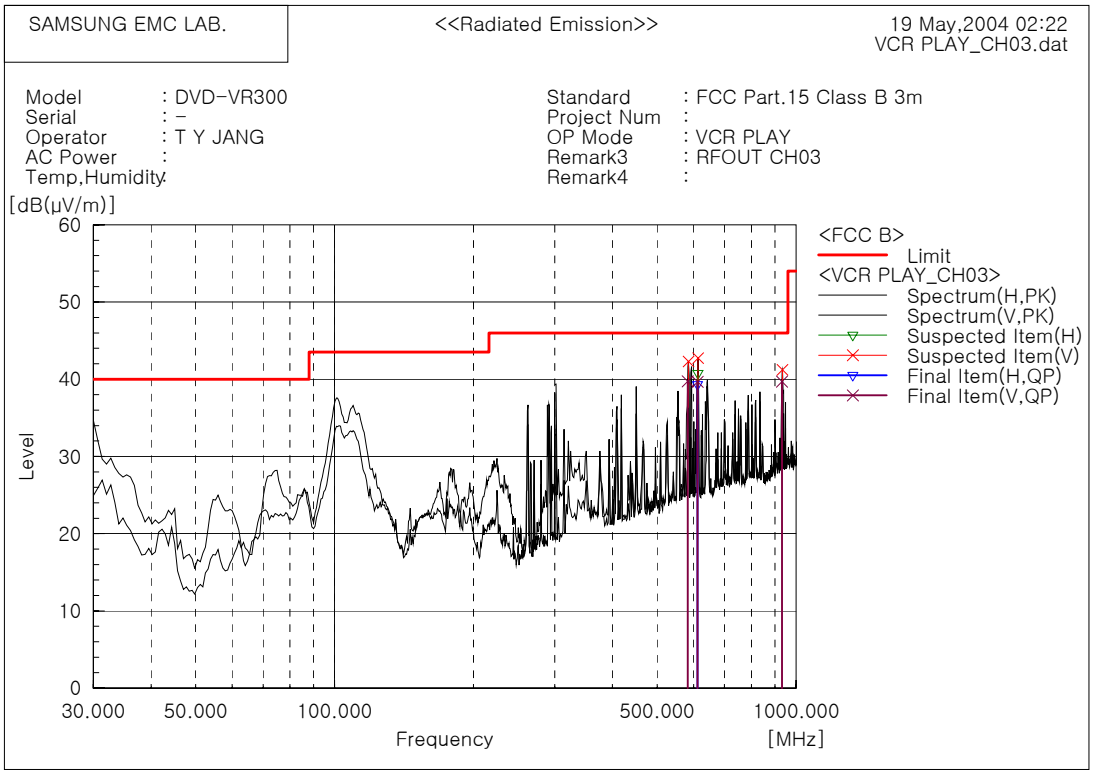


Final Result

--- 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	450.010	45.5	-6.6	38.9	46.0	7.1	
2	583.150	42.4	-3.9	38.5	46.0	7.5	
3	611.748	44.0	-3.6	40.4	46.0	5.6	
4	932.473	37.6	1.5	39.1	46.0	6.9	

■ Operating Mode : VCR PLAY_CH03



Final Result

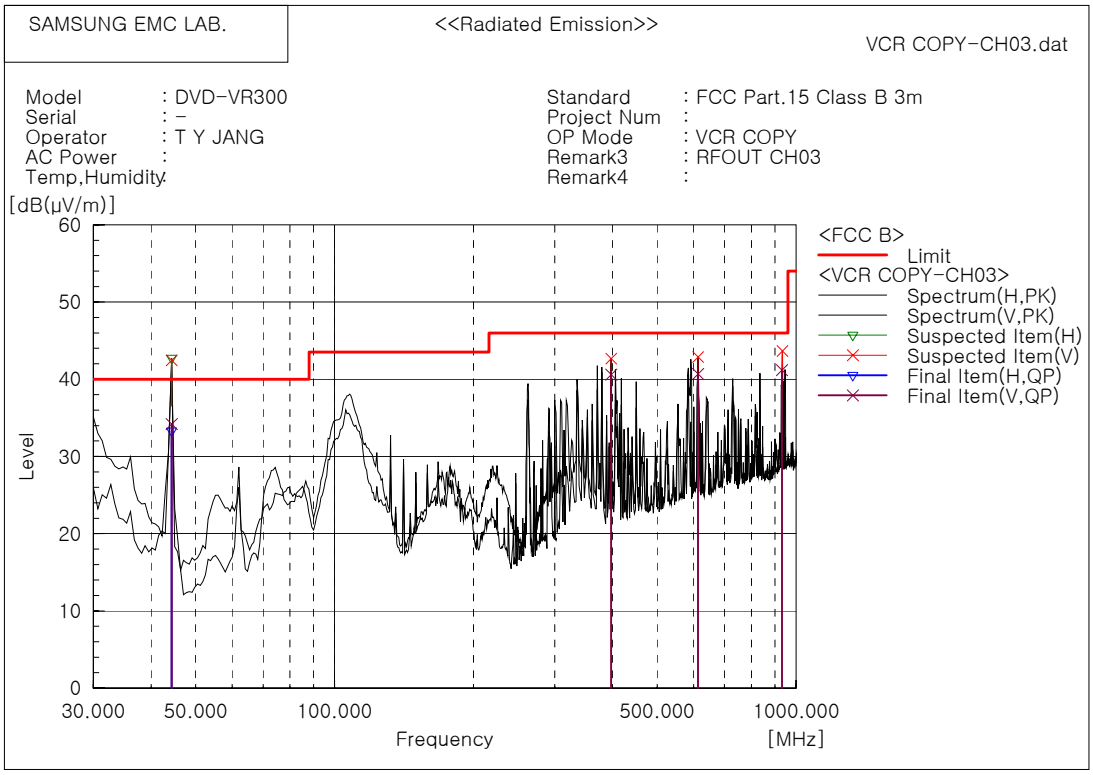
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	611.873	42.8	-3.5	39.3	46.0	6.7	

--- 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	582.710	43.6	-3.9	39.7	46.0	6.3	
2	611.890	43.2	-3.5	39.7	46.0	6.3	
3	932.508	38.2	1.5	39.7	46.0	6.3	

■ Operating Mode : VCR COPY_CH03



Final Result

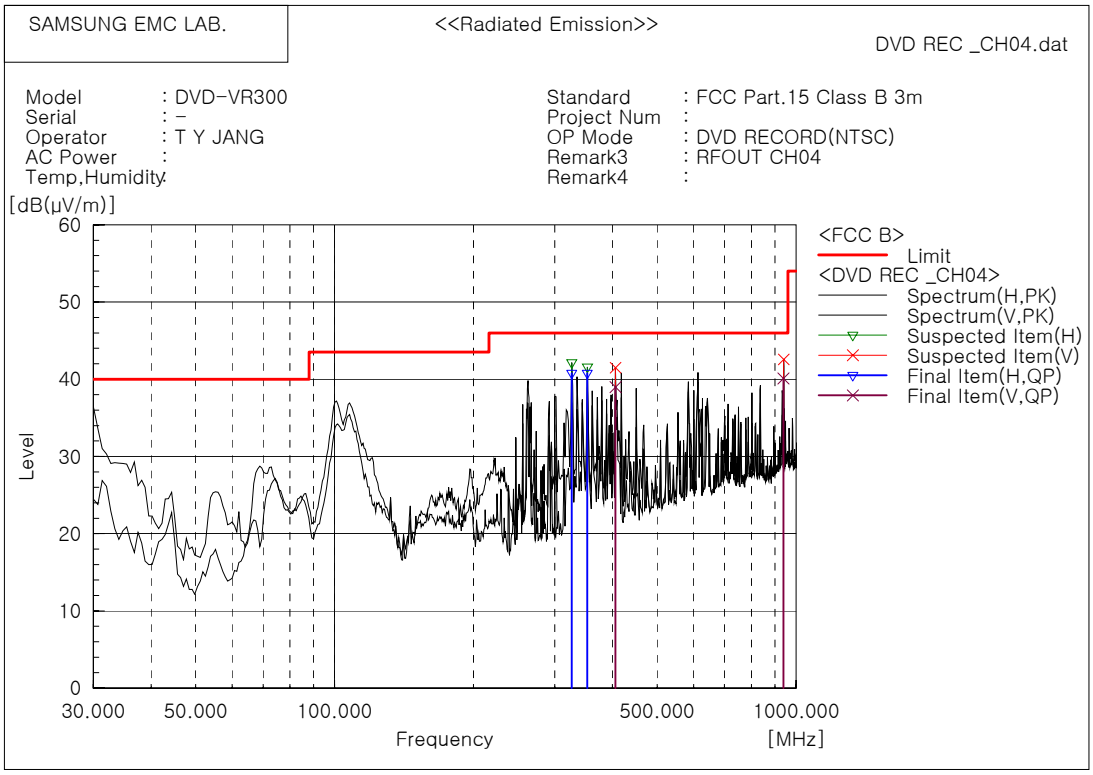
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	44.317	49.5	-16.2	33.3	40.0	6.7	

--- 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	44.317	50.4	-16.2	34.2	40.0	5.8	
2	612.848	44.2	-3.5	40.7	46.0	5.3	
3	932.500	39.7	1.5	41.2	46.0	4.8	
4	397.213	48.0	-7.4	40.6	46.0	5.4	

■ Operating Mode : DVD RECORD(NTSC)_CH04



Final Result

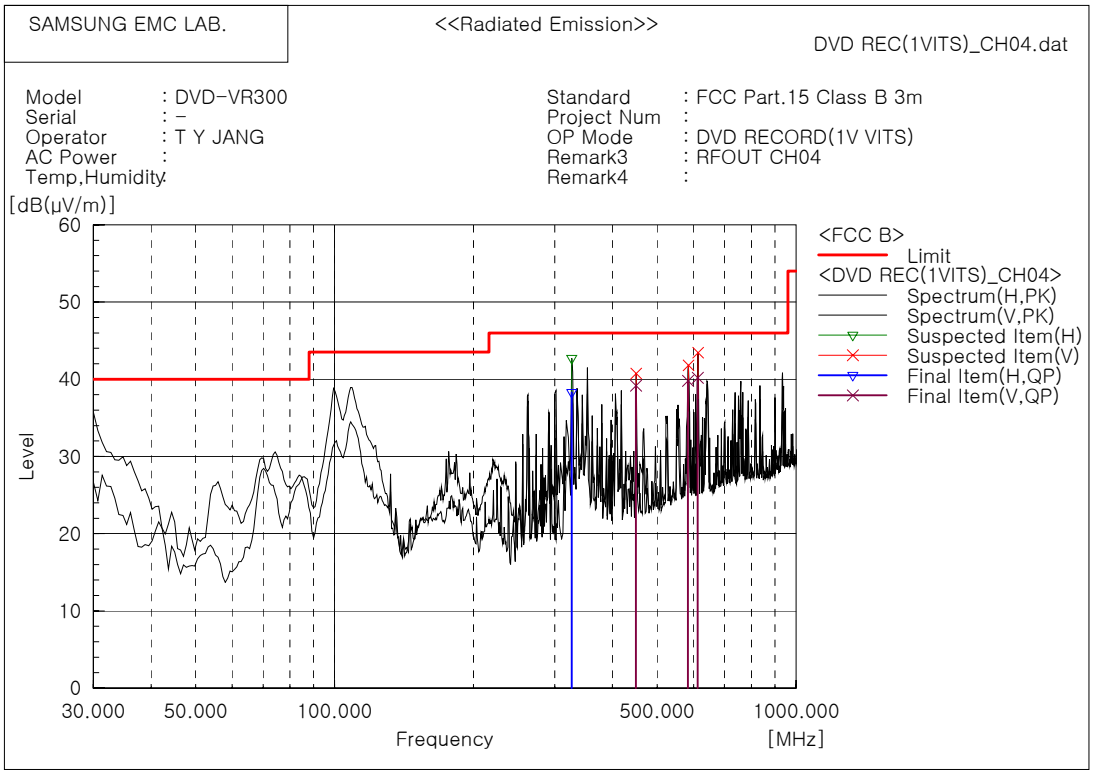
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	326.462	50.2	-9.4	40.8	46.0	5.2	
2	352.940	49.6	-8.8	40.8	46.0	5.2	

--- 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	405.875	46.2	-7.2	39.0	46.0	7.0	
2	939.100	38.4	1.7	40.1	46.0	5.9	

■ Operating Mode : DVD RECORD(1V VITS)_CH04



Final Result

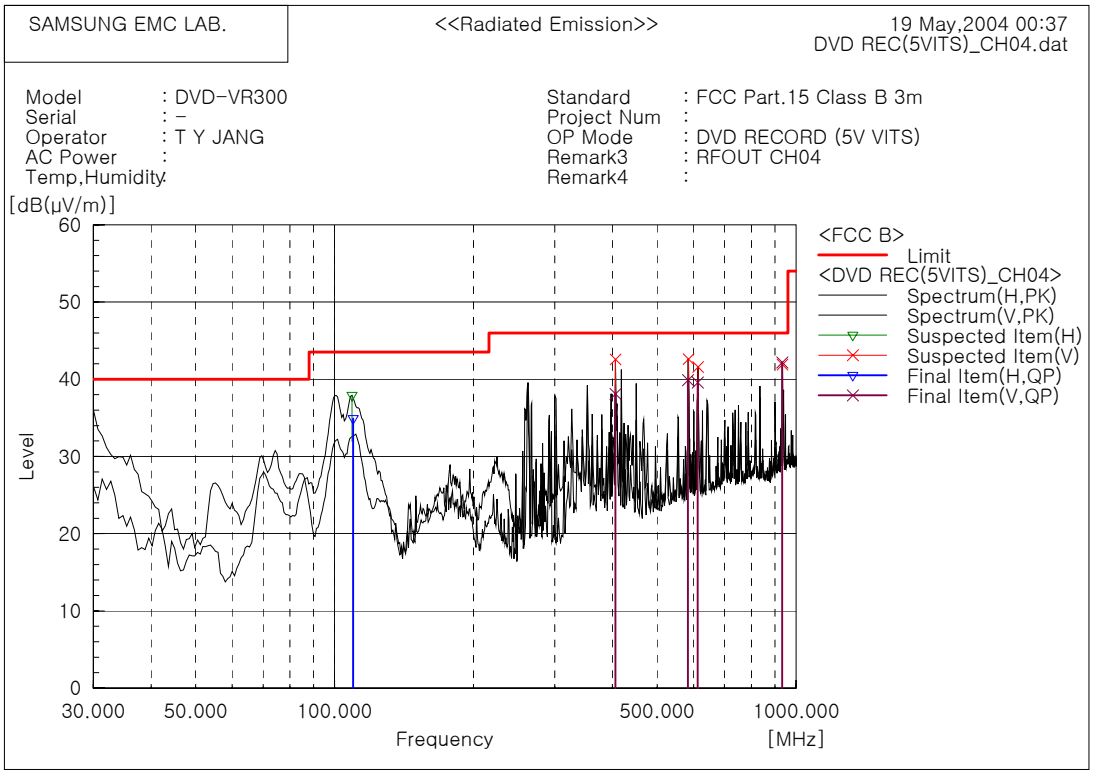
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	326.513	47.7	-9.4	38.3	46.0	7.7	

--- 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	449.998	45.8	-6.6	39.2	46.0	6.8	
2	583.218	43.7	-3.9	39.8	46.0	6.2	
3	612.193	43.7	-3.5	40.2	46.0	5.8	

■ Operating Mode : DVD RECORD(5V VITS)_CH04



Final Result

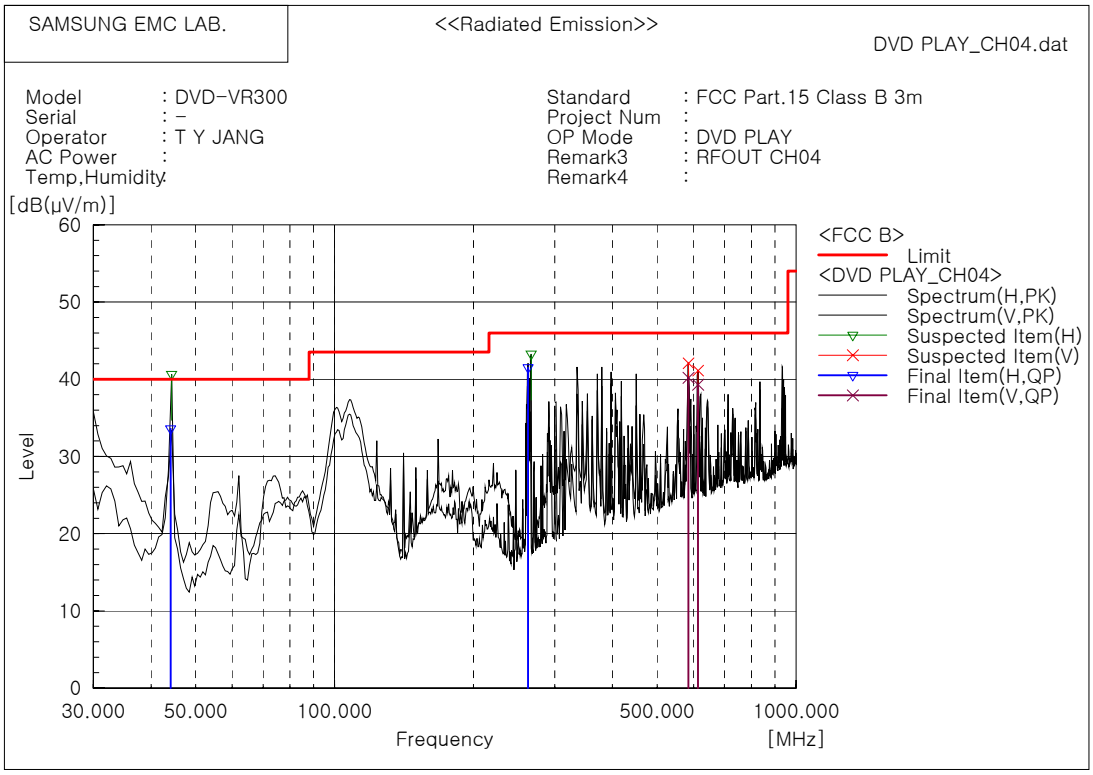
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	109.670	49.1	-14.2	34.9	43.5	8.6	

--- 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	405.888	45.3	-7.2	38.1	46.0	7.9	
2	583.041	43.8	-3.9	39.9	46.0	6.1	
3	612.298	43.1	-3.5	39.6	46.0	6.4	
4	932.958	40.7	1.5	42.2	46.0	3.8	

■ Operating Mode : DVD PLAY_CH04



Final Result

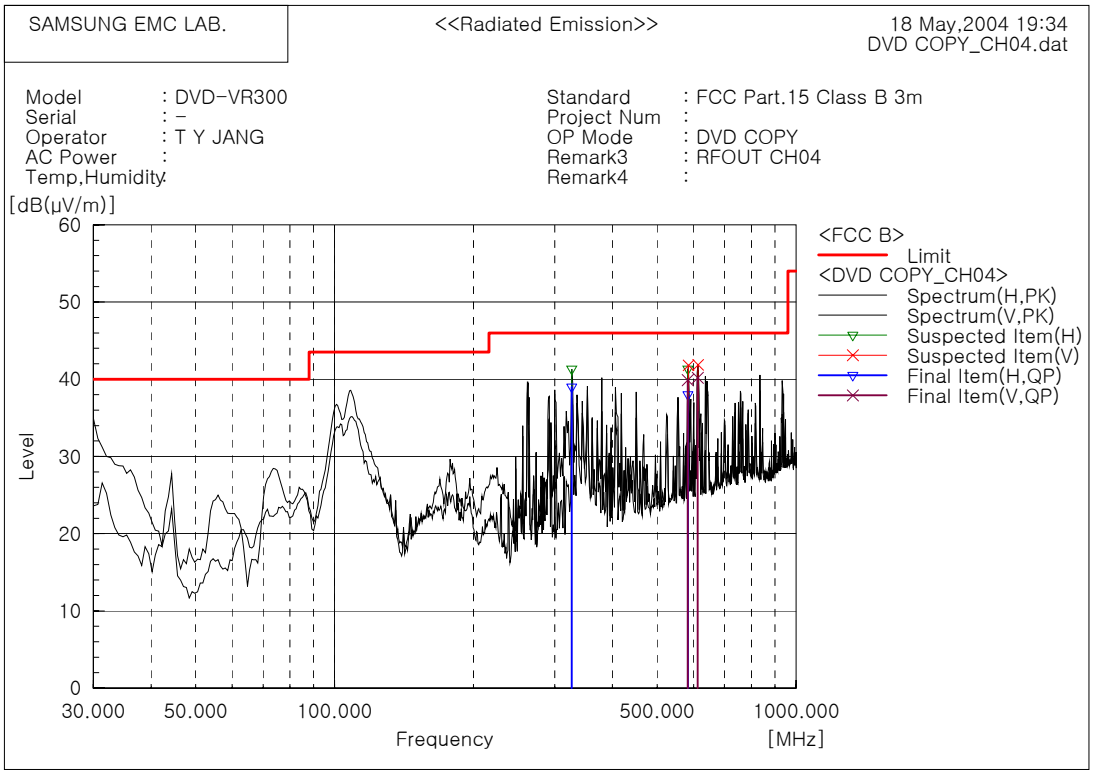
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	44.116	49.8	-16.2	33.6	40.0	6.4	
2	262.485	52.5	-11.0	41.5	46.0	4.5	

--- 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	584.568	44.1	-3.9	40.2	46.0	5.8	
2	612.848	42.8	-3.5	39.3	46.0	6.7	

■ Operating Mode : DVD COPY_CH04



Final Result

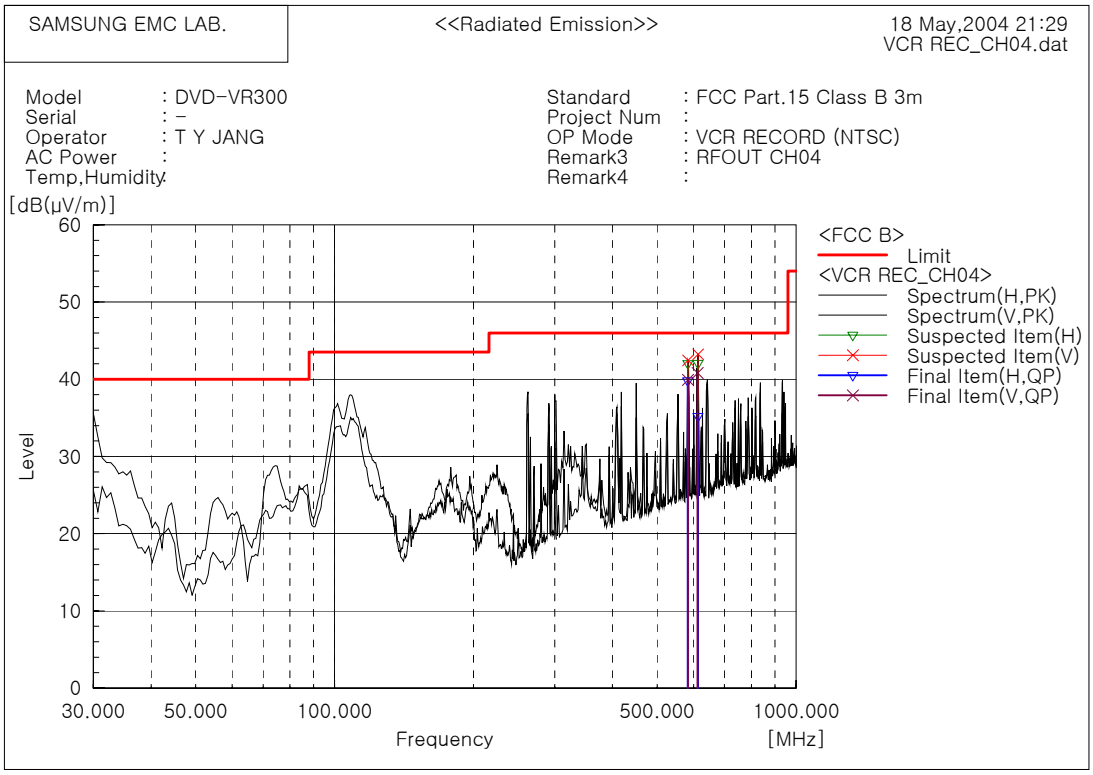
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	326.513	48.4	-9.4	39.0	46.0	7.0	
2	582.800	41.9	-3.9	38.0	46.0	8.0	

--- 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	582.710	43.8	-3.9	39.9	46.0	6.1	
2	612.098	43.7	-3.5	40.2	46.0	5.8	

■ Operating Mode : VCR RECORD(NTSC)_CH04



Final Result

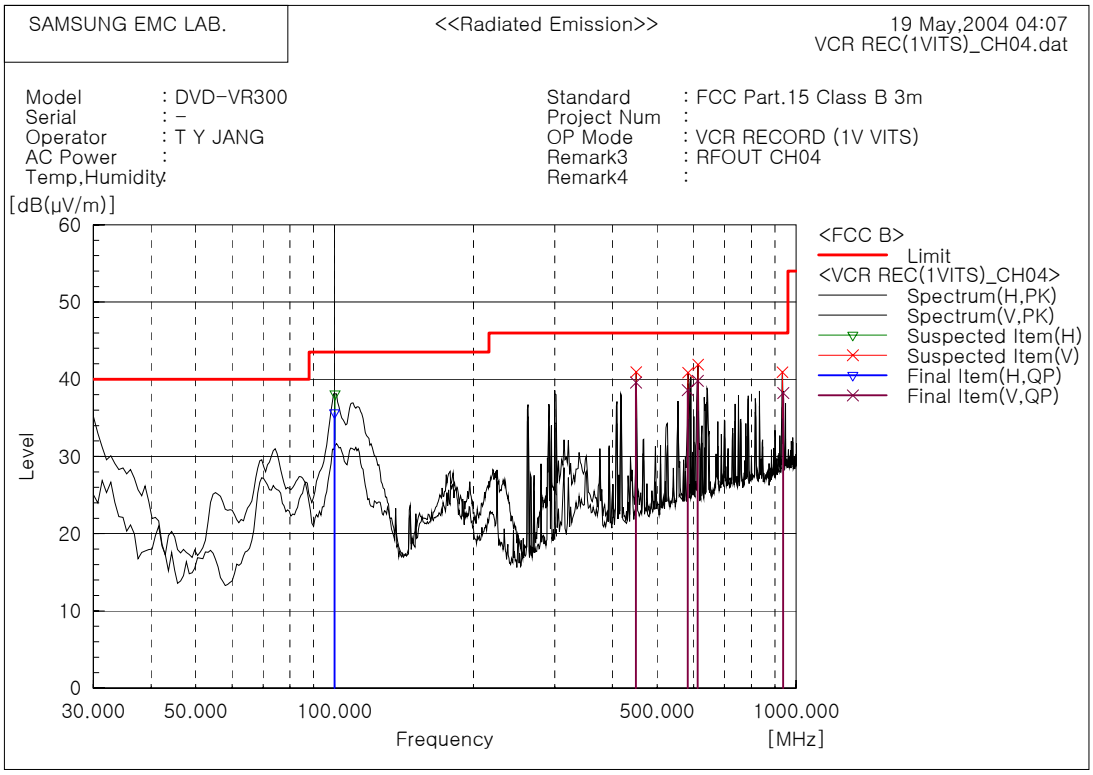
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	582.680	43.7	-3.9	39.8	46.0	6.2	
2	612.848	38.7	-3.5	35.2	46.0	10.8	

--- 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	582.800	43.8	-3.9	39.9	46.0	6.1	
2	611.890	44.3	-3.5	40.8	46.0	5.2	

■ Operating Mode : VCR RECORD(1V VITS)_CH04



Final Result

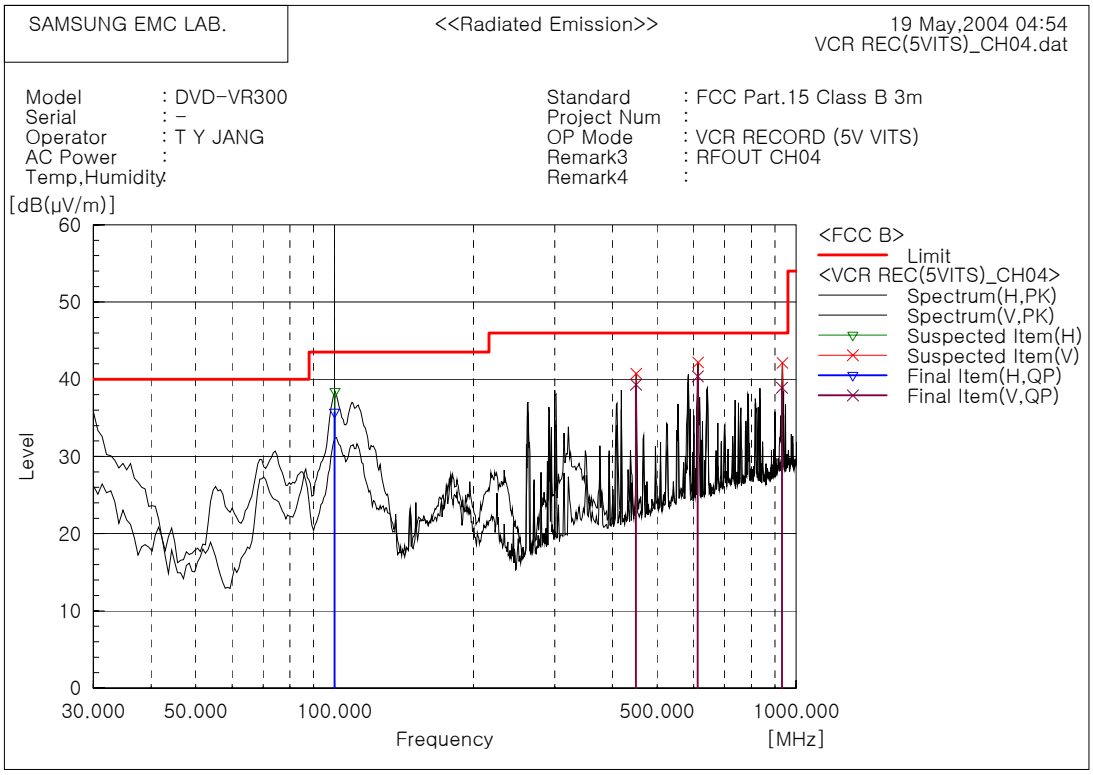
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	99.957	50.8	-15.1	35.7	43.5	7.9	

--- 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	450.010	46.2	-6.6	39.6	46.0	6.4	
2	582.720	42.5	-3.9	38.6	46.0	7.4	
3	611.923	43.3	-3.5	39.8	46.0	6.2	
4	937.440	36.6	1.6	38.2	46.0	7.8	

■ Operating Mode : VCR RECORD(5V VITS)_CH04



Final Result

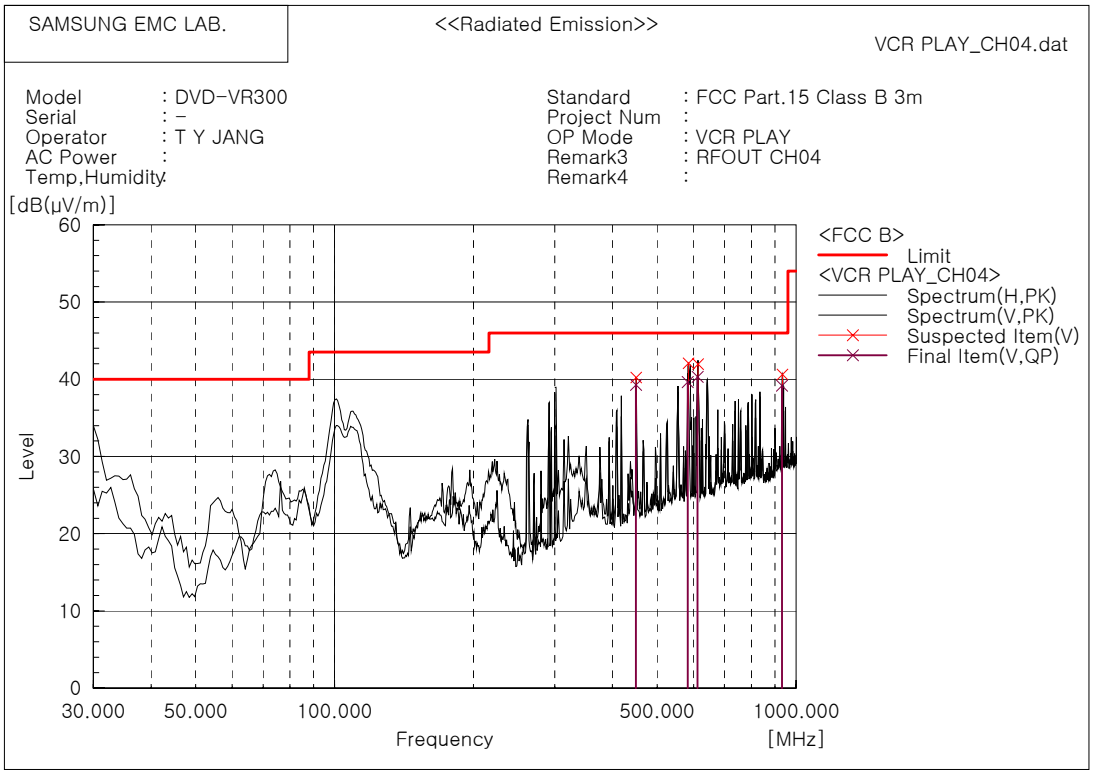
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	99.944	50.9	-15.1	35.8	43.5	7.8	

--- 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	450.010	45.9	-6.6	39.3	46.0	6.7	
2	611.923	43.9	-3.5	40.4	46.0	5.6	
3	932.383	37.4	1.5	38.9	46.0	7.1	

■ Operating Mode : VCR PLAY_CH04

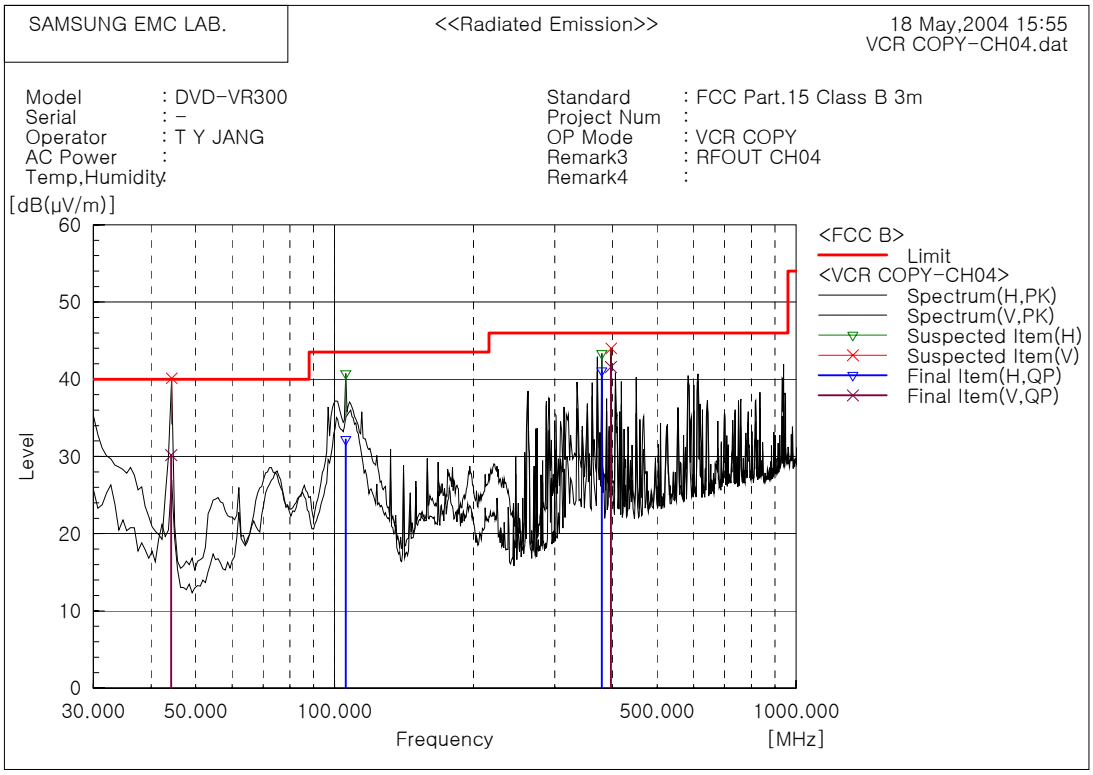


Final Result

--- 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	450.010	45.9	-6.6	39.3	46.0	6.7	
2	582.680	43.6	-3.9	39.7	46.0	6.3	
3	611.850	43.8	-3.5	40.3	46.0	5.7	
4	932.433	37.7	1.5	39.2	46.0	6.8	

■ Operating Mode : VCR COPY_CH04



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	105.674	46.6	-14.4	32.2	43.5	11.3	
2	379.410	49.0	-7.9	41.1	46.0	4.9	

--- 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	44.243	46.4	-16.2	30.2	40.0	9.8	
2	397.000	49.0	-7.4	41.6	46.0	4.4	

3.3 Output Signal Level

Test Information		
	Test Engineer	Tae Young JANG
	Test Date	May 13, 2004
	Climate Condition	Ambient Temperature : 23℃ Relative Humidity : 37%
	Test Place	Shied Room #5

Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
TV Signal Generator	PM5418-TDSI	PHILIPS	LO612437	2004-09-20	12
Pre-Amplifier	310N	SONOMA	185861	2004-09-20	12
Test Receiver	ESS	R&S	844861/005	2005-01-05	12
Matching Pad	RAM	R&S	834188/009	2005-01-08	12
Spectrum Analyzer	E7405A	Agilent	US41110272	2004-07-12	12
RF Matrix	PSU	R&S	861206/024	N/A	12

EUT Test Setup

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

Test Result

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

Test Data

■ Operating Mode : DVD RECORD(NTSC) RF Output CH No. :3CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
56.765	76.5	-25.1	51.4	56.5	5.1
61.255	90	-25.1	64.9	69.5	4.7
65.745	76	-25.1	50.9	56.5	5.6

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

■ Operating Mode : DVD RECORD(NTSC) RF Output CH No. :4CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
62.738	76.7	-25.1	51.6	56.5	5
67.238	89.9	-25.1	64.8	69.5	4.7
71.73	75.8	-25.1	50.7	56.5	5.8

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

■ Operating Mode : DVD RECORD(1V VITS) RF Output CH No. :3CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
56.755	76.5	-25.1	51.4	56.5	5.1
61.253	89.9	-25.1	64.8	69.5	4.7
65.753	75.9	-25.1	50.8	56.5	5.7

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

■ Operating Mode : DVD RECORD(1V VITS) RF Output CH No. :4CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
62.743	76.5	-25.1	51.4	56.5	5.1
67.245	89.8	-25.1	64.7	69.5	4.8
71.74	75.6	-25.1	50.5	56.5	6

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

■ Operating Mode : DVD RECORD(5V VITS) RF Output CH No. :3CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
56.755	76.5	-25.1	51.4	56.5	5.1
61.258	90	-25.1	64.9	69.5	4.7
65.76	76.1	-25.1	51	56.5	5.5

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

■ Operating Mode : DVD RECORD(5V VITS) RF Output CH No. :4CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
62.743	76.5	-25.1	51.4	56.5	5.1
67.248	89.9	-25.1	64.8	69.5	4.7
71.74	75.6	-25.1	50.5	56.5	6

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

■ Operating Mode : DVD PLAY RF Output CH No. :3CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
56.755	76.5	-25.1	51.4	56.5	5.1
61.253	89.9	-25.1	64.8	69.5	4.7
65.755	76	-25.1	50.9	56.5	5.6

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

■ Operating Mode : DVD PLAY RF Output CH No. :4CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
62.743	76.6	-25.1	51.5	56.5	5.1
67.243	89.8	-25.1	64.7	69.5	4.8
71.74	75.7	-25.1	50.6	56.5	6

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

■ Operating Mode : DVD COPY RF Output CH No. :3CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
56.758	76.5	-25.1	51.4	56.5	5.1
61.255	89.9	-25.1	64.8	69.5	4.7
65.76	76	-25.1	50.9	56.5	5.6

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

■ Operating Mode : DVD COPY RF Output CH No. :4CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
62.735	76.5	-25.1	51.4	56.5	5.1
67.238	89.8	-25.1	64.7	69.5	4.9
71.728	75.7	-25.1	50.6	56.5	6.0

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

■ Operating Mode : VCR RECORD(NTSC) RF Output CH No. :3CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
56.76	76.5	-25.1	51.4	56.5	5.1
61.255	89.9	-25.1	64.8	69.5	4.7
65.76	76	-25.1	50.9	56.5	5.6

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

■ Operating Mode : VCR RECORD(NTSC) RF Output CH No. :4CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
62.75	76.4	-25.1	51.3	56.5	5.2
67.243	89.7	-25.1	64.6	69.5	4.9
71.735	75.6	-25.1	50.5	56.5	6.0

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

■ Operating Mode : VCR RECORD(1V VITS) RF Output CH No. :3CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
56.76	76.5	-25.1	51.4	56.5	5.1
61.26	90	-25.1	64.9	69.5	4.7
65.763	76.1	-25.1	51	56.5	5.5

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

■ Operating Mode : VCR RECORD(1V VITS) RF Output CH No. :4CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
62.743	76.3	-25.1	51.2	56.5	5.3
67.248	89.7	-25.1	64.6	69.5	4.9
71.748	75.6	-25.1	50.5	56.5	6.0

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

■ Operating Mode : VCR RECORD(5V VITS) RF Output CH No. :3CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
56.76	76.5	-25.1	51.4	56.5	5.1
61.26	90	-25.1	64.9	69.5	4.7
65.763	76.1	-25.1	51	56.5	5.5

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

■ Operating Mode : VCR RECORD(5V VITS) RF Output CH No. :4CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
62.745	76.4	-25.1	51.3	56.5	5.2
67.245	89.6	-25.1	64.5	69.5	5.0
71.743	75.6	-25.1	50.5	56.5	6.1

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

■ Operating Mode : VCR PLAY RF Output CH No. :3CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
56.755	76.4	-25.1	51.3	56.5	5.2
61.255	89.9	-25.1	64.8	69.5	4.7
65.76	76.1	-25.1	51	56.5	5.5

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

■ Operating Mode : VCR PLAY RF Output CH No. :4CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
62.768	76.4	-25.1	51.3	56.5	5.2
67.24	89.6	-25.1	64.5	69.5	5.0
71.723	75.5	-25.1	50.4	56.5	6.1

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

■ Operating Mode : VCR COPY RF Output CH No. :3CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
56.768	76.5	-25.1	51.4	56.5	5.1
61.253	89.9	-25.1	64.8	69.5	4.7
65.743	76	-25.1	50.9	56.5	5.6

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

■ Operating Mode : VCR COPY RF Output CH No. :4CH

Frequency [MHz]	Reading [dBuV]	Factor [dB]	Level [dBuV]	Limit [dBuV]	Margin [dB]
62.745	76.4	-25.1	51.3	56.5	5.2
67.24	89.5	-25.1	64.4	69.5	5.1
71.743	75.6	-25.1	50.5	56.5	6.1

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

3.4 Output Terminal Conducted Spurious

Test Information		
	Test Engineer	Tae Young, JANG
	Test Date	May 13, 2004
	Climate Condition	Ambient Temperature : 23℃ Relative Humidity : 37%
	Test Place	Shied Room #5

Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Pre-Amplifier	310N	SONOMA	185861	2004-09-20	12
RF Matrix	PSU	R&S	861206/024	N/A	12
Spectrum Analyzer	E7405A	Agilent	US41110272	2004-07-12	12
COLOR TV PATTERN GENERATOR	PM5418-TDSI	PHILIPS	LO612437	9/20/2004	

EUT Test Setup

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

Tested frequency range were from 30MHz to more than 4.6MHz below the visual carrier frequency, and from more than 7.4MHz above the visual carrier frequency to 1000MHz

Test Result

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

Test Data

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
55.7526	32.5	-25.1	7.4	39.5	32.1
55.7013	32	-25.1	6.9	39.5	32.6
56.101	35.2	-25.1	10.1	39.5	29.4
750.01	40.9	-24.2	16.7	39.5	22.8
801.26013	50.3	-24.2	26.1	39.5	13.4
846.93	59.4	-24	35.4	39.5	4.1

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
47.7569	39.6	-25.1	14.5	39.5	25
55.7272	33.1	-25.1	8	39.5	31.5
55.9331	35.2	-25.1	10.1	39.5	29.4
134.49	40.4	-25	15.4	39.5	24.1
801.26013	50.3	-24.2	26.1	39.5	13.4
846.97988	59.3	-24	35.3	39.5	4.2

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
54.1302	38.7	-25.1	13.6	39.5	25.9
54.9591	47.4	-25.1	22.3	39.5	17.2
55.4188	54.4	-25.1	29.3	39.5	10.2
796.75	39.6	-24.2	15.4	39.5	24.1
801.26013	50.3	-24.2	26.1	39.5	13.4
846.96	59.3	-24	35.3	39.5	4.2

* 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]
54.0983	38.4	-25.1	13.3	39.5	26.2
55.4035	54.8	-25.1	29.7	39.5	9.8
56.0017	47.4	-25.1	22.3	39.5	17.2
796.78013	39.6	-24.2	15.4	39.5	24.1
801.26013	50.3	-24.2	26.1	39.5	13.4
846.96	59.3	-24	35.3	39.5	4.2

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
47.7536	39.6	-25.1	14.5	39.5	25
55.532	31.2	-25.1	6.1	39.5	33.4
56.1237	32	-25.1	6.9	39.5	32.6
750.01	41.6	-24.2	17.4	39.5	22.1
801.26013	50.4	-24.2	26.2	39.5	13.3
846.94013	59.4	-24	35.4	39.5	4.1

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
47.7529	39.6	-25.1	14.5	39.5	25
54.0936	37.1	-25.1	12	39.5	27.5
56.4155	35.6	-25.1	10.5	39.5	29
796.75	39.7	-24.2	15.5	39.5	24
801.26013	50.3	-24.2	26.1	39.5	13.4
846.88	59.5	-24	35.5	39.5	4.0

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
47.7562	39.7	-25.1	14.6	39.5	25
55.5314	32.9	-25.1	7.8	39.5	31.7
55.9298	35.1	-25.1	10	39.5	29.5
795	24.9	-24.2	0.7	39.5	38.8
801.26013	50.3	-24.2	26.1	39.5	13.4
846.91	59.4	-24	35.4	39.5	4.1

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
47.7569	39.9	-25.1	14.8	39.5	24.8
54.1422	39.2	-25.1	14.1	39.5	25.4
55.3581	55.1	-25.1	30	39.5	9.5
750.01	39.7	-24.2	15.5	39.5	24
801.26013	50.4	-24.2	26.2	39.5	13.3
846.91	59.4	-24	35.4	39.5	4.1

* 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]
55.2762	30.6	-25.1	5.5	39.5	34
55.6779	31.2	-25.1	6.1	39.5	33.5
56.177	33	-25.1	7.9	39.5	31.6
796.75	39.8	-24.2	15.6	39.5	23.9
801.26013	50.4	-24.2	26.2	39.5	13.3
846.88	59.4	-24	35.4	39.5	4.1

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
47.7089	39.1	-25.1	14	39.5	25.5
55.648	31.1	-25.1	6	39.5	33.5
56.101	35.4	-25.1	10.3	39.5	29.3
796.75	39.8	-24.2	15.6	39.5	23.9
801.26013	50.4	-24.2	26.2	39.5	13.3
846.89	59.3	-24	35.3	39.5	4.2

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
53.6998	38.3	-25.1	13.2	39.5	26.3
61.042	28.9	-25.1	3.8	39.5	35.7
62.0868	35.1	-25.1	10	39.5	29.6
750.01	43.5	-24.2	19.3	39.5	20.2
801.26013	50.2	-24.2	26	39.5	13.5
846.94013	59.3	-24	35.3	39.5	4.2

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.4362	35.5	-25.1	10.4	39.5	29.1
61.6909	31.8	-25.1	6.7	39.5	32.8
62.2729	36.8	-25.1	11.7	39.5	27.8
750.01	43.3	-24.2	19.1	39.5	20.4
801.26013	50.2	-24.2	26	39.5	13.5
846.94013	59.2	-24	35.2	39.5	4.3

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
53.7455	38.7	-25.1	13.6	39.5	25.9
60.1017	37.1	-25.1	12	39.5	27.5
61.3873	53.9	-25.1	28.8	39.5	10.7
750.01	43.7	-24.2	19.5	39.5	20
801.26013	50.2	-24.2	26	39.5	13.5
846.94013	59.3	-24	35.3	39.5	4.2

* 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]
53.7415	38.6	-25.1	13.5	39.5	26
58.2398	31.1	-25.1	5.8	39.5	33.6
62.1594	32	-25.1	6.9	39.5	32.6
750.01	43.1	-24.2	18.9	39.5	20.6
801.26013	50.2	-24.2	26	39.5	13.5
846.94013	59.2	-24	35.2	39.5	4.3

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
53.7415	38.6	-25.1	13.5	39.5	26
58.2398	31	-25.1	5.9	39.5	33.7
62.1594	32	-25.1	6.9	39.5	32.6
750.01	36.7	-25.1	11.6	39.5	27.9
801.26013	47.6	-25	22.6	39.5	17
846.94013	47.1	-24	23.1	39.5	16.5

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
53.6957	39.1	-25.1	14	39.5	25.5
61.7725	32.5	-25.1	7.4	39.5	32.2
62.086	34.9	-25.1	9.8	39.5	29.7
750.01	43.1	-24.2	18.9	39.5	20.6
801.26013	50.2	-24.2	26	39.5	13.5
846.88	59.5	-24	35.5	39.5	4.0

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
53.7464	39.7	-25.1	14.6	39.5	24.9
61.4371	36.4	-25.1	11.3	39.5	28.2
62.2378	37.3	-25.1	12.2	39.5	27.4
796.79	39.6	-24.2	15.4	39.5	24.1
801.28	50.2	-24.2	26	39.5	13.5
846.94013	59.4	-24	35.4	39.5	4.1

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
53.7464	39.8	-25.1	14.7	39.5	24.8
60.1327	38.8	-25.1	13.7	39.5	25.8
61.375	55	-25.1	29.9	39.5	9.6
134.49	40.4	-25	15.4	39.5	24.1
801.26013	50.2	-24.2	26	39.5	13.5
846.94013	59.3	-24	35.3	39.5	4.2

* 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]
53.6827	39.1	-25.1	14	39.5	25.5
61.5701	31.2	-25.1	6.1	39.5	33.5
62.0762	31.7	-25.1	6.6	39.5	33
796.75	39.7	-24.2	15.5	39.5	24
801.26013	50.2	-24.2	26	39.5	13.5
846.89988	59.1	-24	35.1	39.5	4.4

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
53.7415	39.5	-25.1	14.4	39.5	25.1
60.0968	38	-25.1	12.9	39.5	26.6
61.3881	54.4	-25.1	29.3	39.5	10.2
750.01	42.4	-24.2	18.2	39.5	21.3
801.26013	50.2	-24.2	26	39.5	13.5
846.95	59.2	-24	35.2	39.5	4.3

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

3.5 Antenna Transfer Switch Measurement

Test Information		
	Test Engineer	Tae Young JANG
	Test Date	May 13, 2004
	Climate Condition	Ambient Temperature : 23℃ Relative Humidity : 37%
	Test Place	Shied Room #5

Test Equipments

Equipment	Modal Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
TV Signal Generator	PM5418-TDSI	PHILIPS	LO612437	2004-09-20	12
Pre-Amplifier	310N	SONOMA	185861	2004-09-20	12
Matching Pad	RAM	R&S	834188/009	2005-01-08	12
RF Matrix	PSU	R&S	861206/024	N/A	12
Spectrum Analyzer	E7405A	Agilent	US4110272	2004-07-12	12
Test Receiver	ESS	R&S	844861/005	2005-01-05	12

EUT Test Setup

The Antenna 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).

Test Result

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

Test Data

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.25675	29.6	-25.1	4.5	9.5	5.0

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.2549	29.5	-25.1	4.4	9.5	5.1

* 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]
61.25865	29.6	-25.1	4.5	9.5	5.0

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.25035	29	-25.1	3.9	9.5	5.7

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.25985	29.2	-25.1	4.1	9.5	5.4

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.25505	29	-25.1	3.9	9.5	5.6

* 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]
61.25855	29.1	-25.1	4	9.5	5.5

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
61.25355	29.1	-25.1	4	9.5	5.5

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
67.245	28.6	-25.1	3.5	9.5	6

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
67.245	28.6	-25.1	3.5	9.5	6

* 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]
67.245	28.6	-25.1	3.5	9.5	6

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
67.24	27.9	-25.1	2.8	9.5	6.7

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
67.245	28.1	-25.1	3	9.5	6.5

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

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

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
67.245	27.9	-25.1	2.8	9.5	6.7

* 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]
67.245	28	-25.1	2.9	9.5	6.6

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

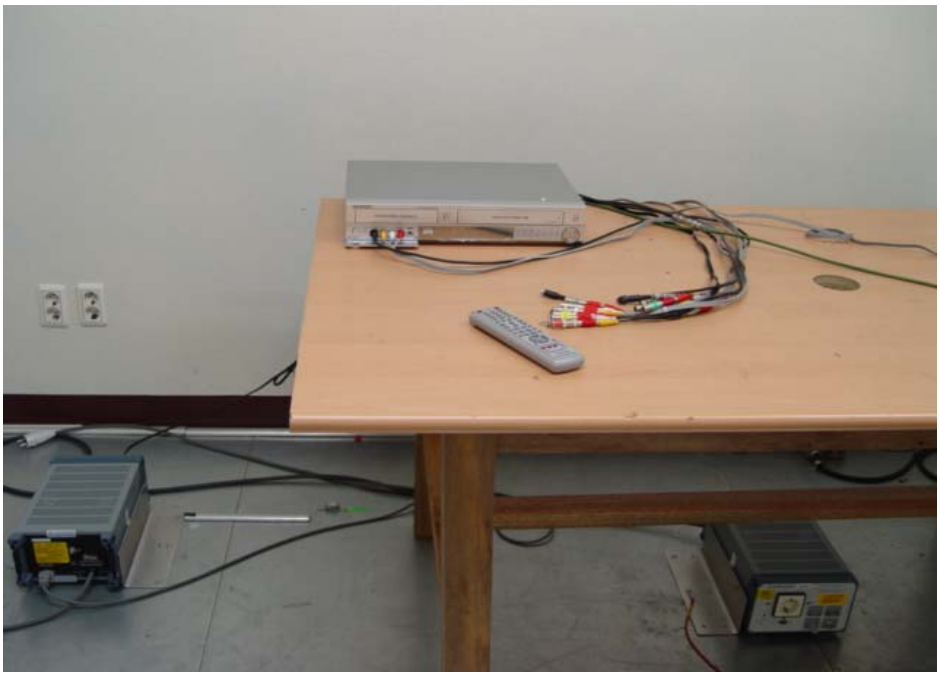
*** Operating Mode : VCR COPY** **RF Out Ch. : CH 4**

Frequency [MHz]	Reading [dB(μV)]	Factor [dB]	Level [dB(μV)]	Limit [dB(μV)]	Margin [dB]
67.24	28	-25.1	2.9	9.5	6.7

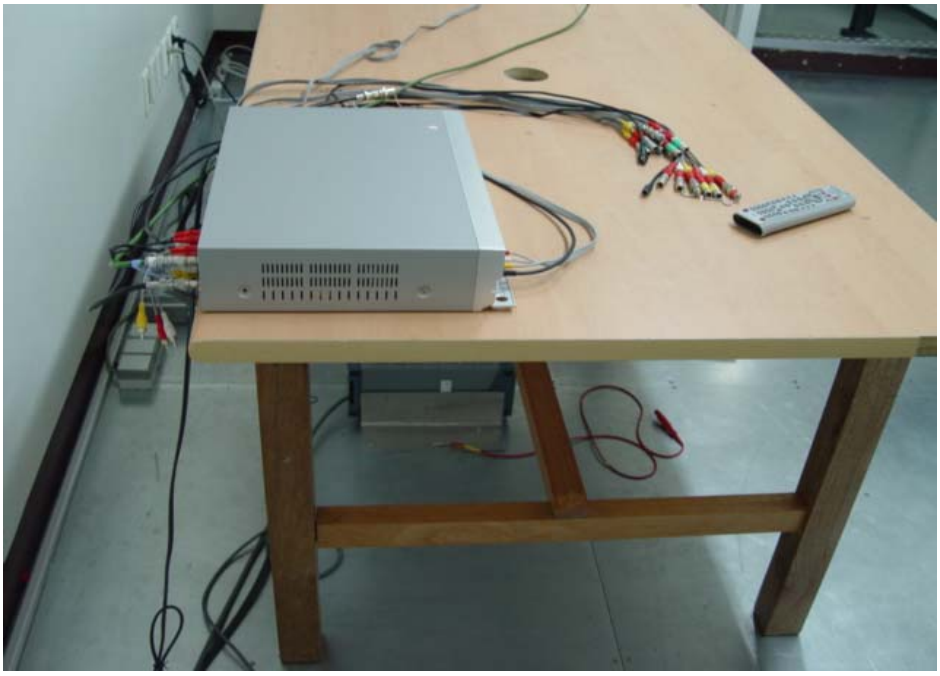
* Factor = Preamp Gain + Matching Pad Loss + Cable Loss

4. Appendix A

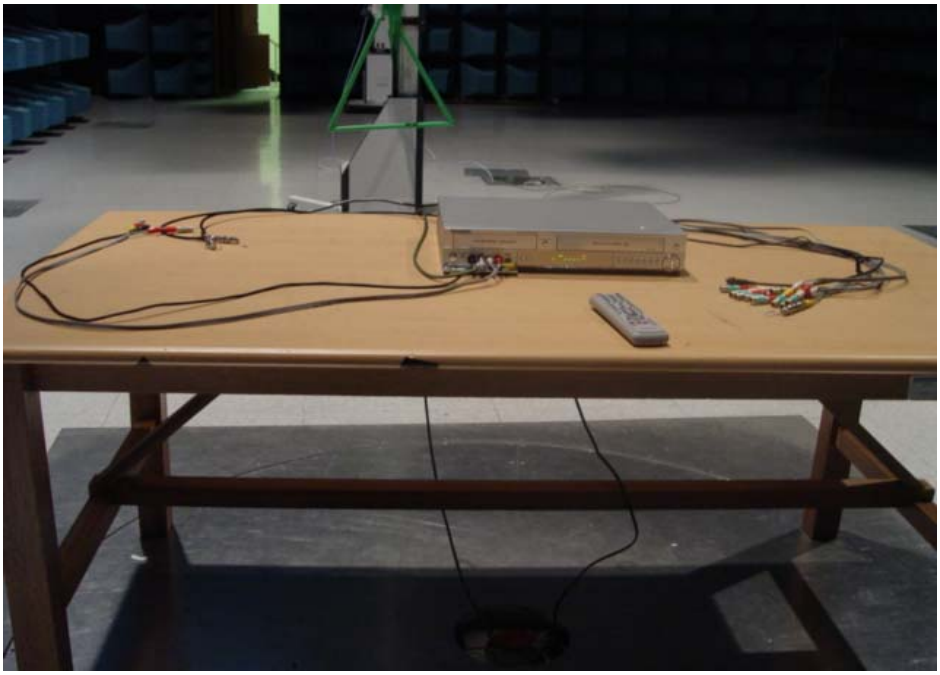
4.1 Test Photography



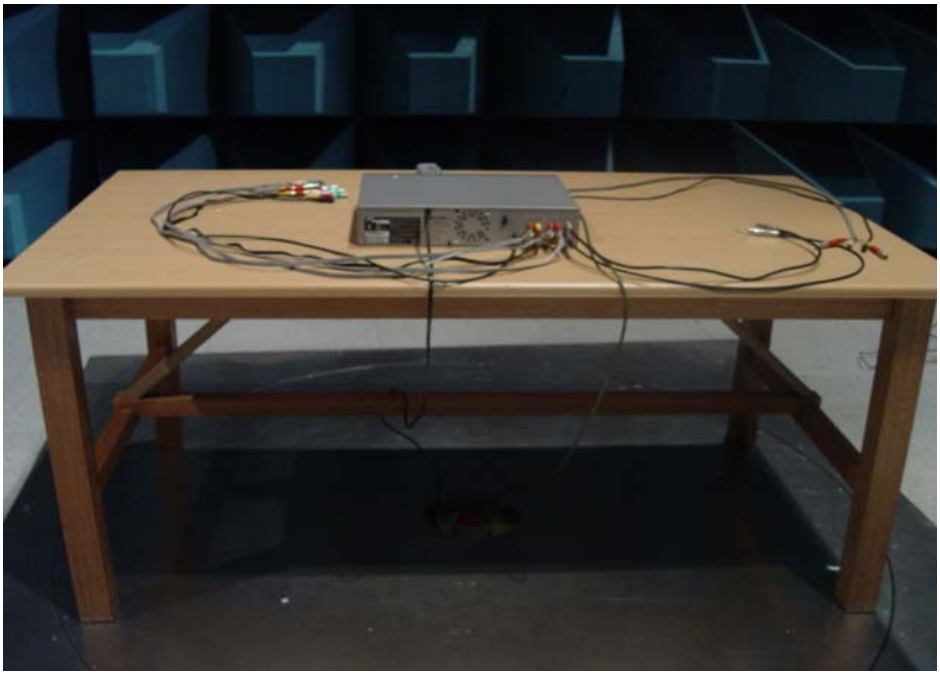
Picture 1. Conducted Emission (Front)



Picture 2. Conducted Emission (Rear)



Picture 3. Radiated Emission (Front)



Picture 4. Radiated Emission (Rear)

Picture 5. Output Signal Level

4.2 EUT Photography

Picture 8. EUT (Front)

Picture 9. EUT (Rear)