

# EMC TEST REPORT

Project No. : LBE032343

**Product** : **PDP Monitor**

**Model No.** : **NT42P3**

**Date of test** : November. 6 ~ 10, 2003

**Issued Date** : November. 18, 2003

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## Table of Contents

### **1. Introduction & Summary**

- 1.1 Description of the EUT
- 1.2 Test facility
- 1.3 Test equipment

### **2. Test Set-up**

- 2.1 Test mode
- 2.2 Justification
- 2.3 Test equipment setup
- 2.4 Tested System Details
- 2.5 System Block Diagram of Test Configuration
- 2.6 Test rule and Procedure
- 2.7 Test Summary

### **3. Test Results**

- 3.1 AC POWERLINE CONDUCTED EMISSION MEASUREMENT
- 3.2 RADIATED EMISSION MEASUREMENT

## 1. Introduction & Summary

### 1.1 Description of the EUT

Applicant	SAMSUNG ELECTRONICS Co., Ltd.
Project Number	LBE032343
Equipment Under Test	PDP Monitor
Trade Name	SAMSUNG
Model Number	NT42P3
Variant Model	-
Operating Frequency	60Hz
FCC ID Number	A3LPPM42H3
Mains input	120V

### 1.2 Test facility

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

The 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).

Measured in Semi-anechoic chamber #1 that is FCC Registration Number 98856.

### 1.3 Test equipment

Description	Model	Manufacturer	Serial No.	Applied
TEST RECEIVER	ESI26	R & S	839809/002	o
RF RELAIS MATRIX	PSU	R & S	861206/024	o
10dB ATTENUATOR	8491B	Agilent	58226	o
LISN	ESH3-Z5	R & S	847265/028	o
TEST SOFTWARE	EP5CE	TOYO	-	o
TEST RECEIVER	ESCS30	R & S	100104	o
SPECTRUM ANALYZER	E7405A	Agilent	US41110272	o
BI-LOG ANTENNA	CBL6112B	SCHAFFNER	2766	o
RF SELECTOR	NS4900	TOYO	0303-015	o
MAST CONTROLLER	HD2000	HD	HD2000090202 7	o
TEST SOFTWARE	EP5RE	TOYO	-	o
Turn Table	DS412	HD	-	N/A
Antenna Mast	MA240	HD	240/620	N/A
Preamplifier	310	SONOMA Instrument	185821	o

## 2. Test Set-up

### 2.1 Test mode

The EUT was tested in the following operating modes for the tests mention in this report:

#### Description of Testing operating mode & Tested Resolution

Operating Mode	Resolutions	Refresh rates	Colors
"H" Pattern display	1024x768	Horizontal F.: 48.4kHz Vertical F. : 60Hz	32bits

Measured each about 2 input(PC VIDEO INPUT mode & Digital Video Interface)of EUT. Further details of cabling and configuration are shown in the test system configuration. The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to typical use.

### 2.2 Justification

The system was configured for testing in typical fashion use. Cable were attached to each of the available I/O Ports.

The mode of operation utilized for testing was selected to best simulate typical EUT use.

### 2.3 Test equipment setup

The explanation of measuring equipment setup when respective function is used in any frequency band is as following:

Frequency Band [MHz]	Equipment	Detector function	Resolution Bandwidth	Video Bandwidth
0.15 to 30	EMI Test receiver	Quasi-Peak	9kHz	-
30 to 1000	Spectrum analyzer	Peak	100kHz	1MHz
	EMI Test receiver	Quasi-Peak	120kHz	-
Above 1000	EMI Test receiver	Peak	1MHz	1MHz

## 2.4 Tested System Details

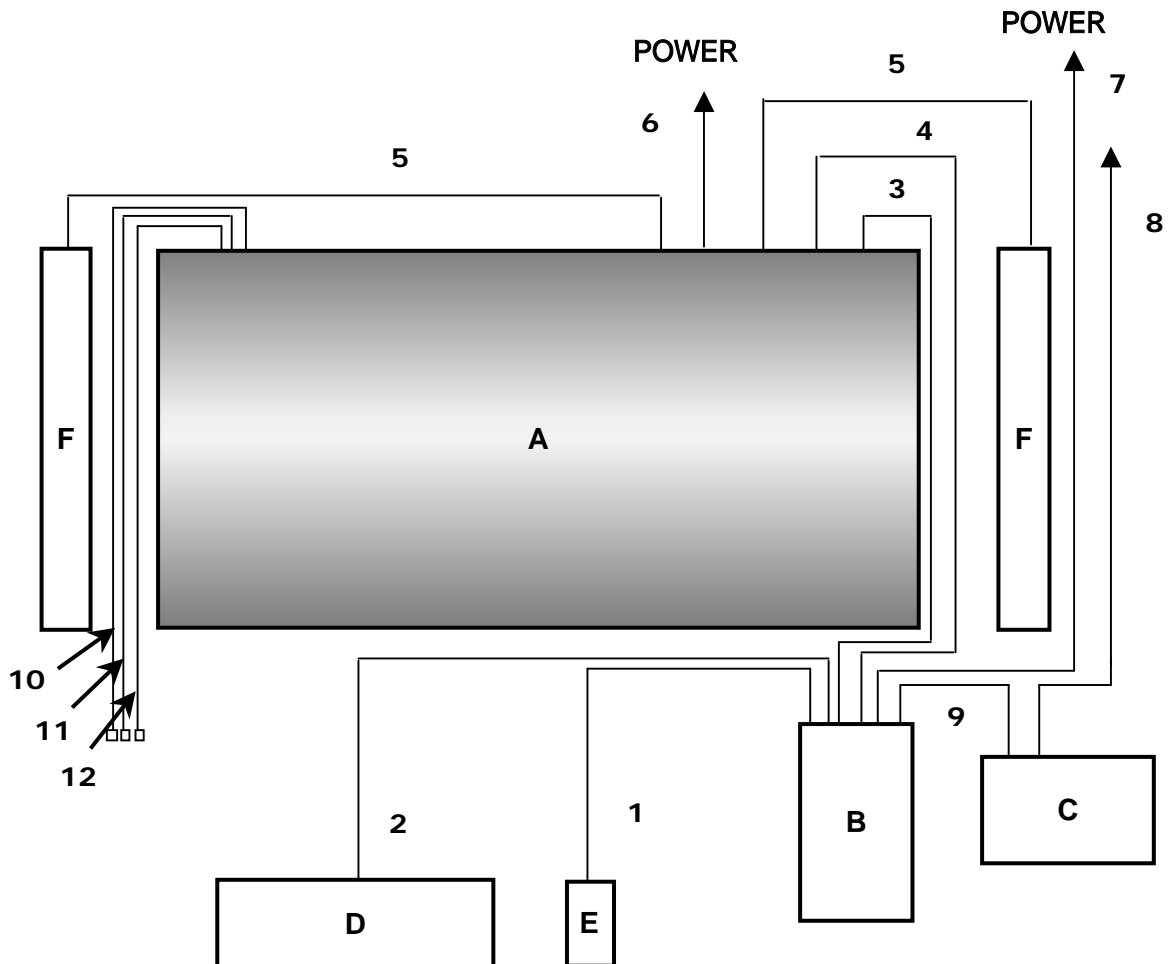
### 1) Configuration of EUT and peripherals

Mark	Item	Model No.	Serial No.	Manufacturer	Remark
A	PDP Monitor	NT42P3	-	Samsung	EUT
B	Personal Computer	Dinension 8200	000045-144-204-361	DELL	-
C	Printer	LQ-580H	CG2Y014537	Epson	-
D	PS/2 Keyboard	KT7D20	TH-05N292-37171-2135-2131	DELL	-
E	PS/2 Mouse	-	6167967-8	DELL	-
F	Speaker	-	-	Samsung	-

### 2) Used Cable Description

No.	Item	Length[m]	Shielded(Y/N)	Remark
1	PS/2 Mouse Cable	1.8	N	
2	PS/2 Keyboard Cable	1.6	N	
3	Video Cable(Analog)	1.5	Y	
4	Video Cable(Digital)	1.5	Y	
5	Speaker Cable	1.2	N	
6	AC Power Cable(Monitor)	1.8	N	
7	AC Power Cable(PC)	1.8	N	
8	AC Power Cable(Printer)	1.8	N	
9	Printer Cable	1.5	Y	
10	A/V In Cable	1.2	N	
11	S-Video In Cable	1.2	N	
12	Component Cable	1.2	N	

## 2.5 System Block Diagram of Test Configuration



## 2.6 Test rule and Procedure

FCC Rule Part 15, Subpart B : Unintentional Radiators

Test Procedure : ANSI C63.4-1992

## 2.7 Test Summary

Test item	Test Procedure	Result
AC POWERLINE CONDUCTED EMISSION	ANSI C63.4-1992	Pass
RADIATED EMISSION	ANSI C63.4-1992	Pass

\* N/A : Test not applicable

## 3. Test Results

### 3.1 AC POWERLINE CONDUCTED EMISSION MEASUREMENT

#### 3.1.1 Test Procedure

Configure the EUT System in accordance with ANSI C63.4-1992 section 7 and 12.2.

Connect the EUT's AC line cord to the EUT port of LISN.

All input terminals are terminated in the proper impedance.

The output ports are connected to the cable provided with the device and the ending port are terminated in the proper impedance.

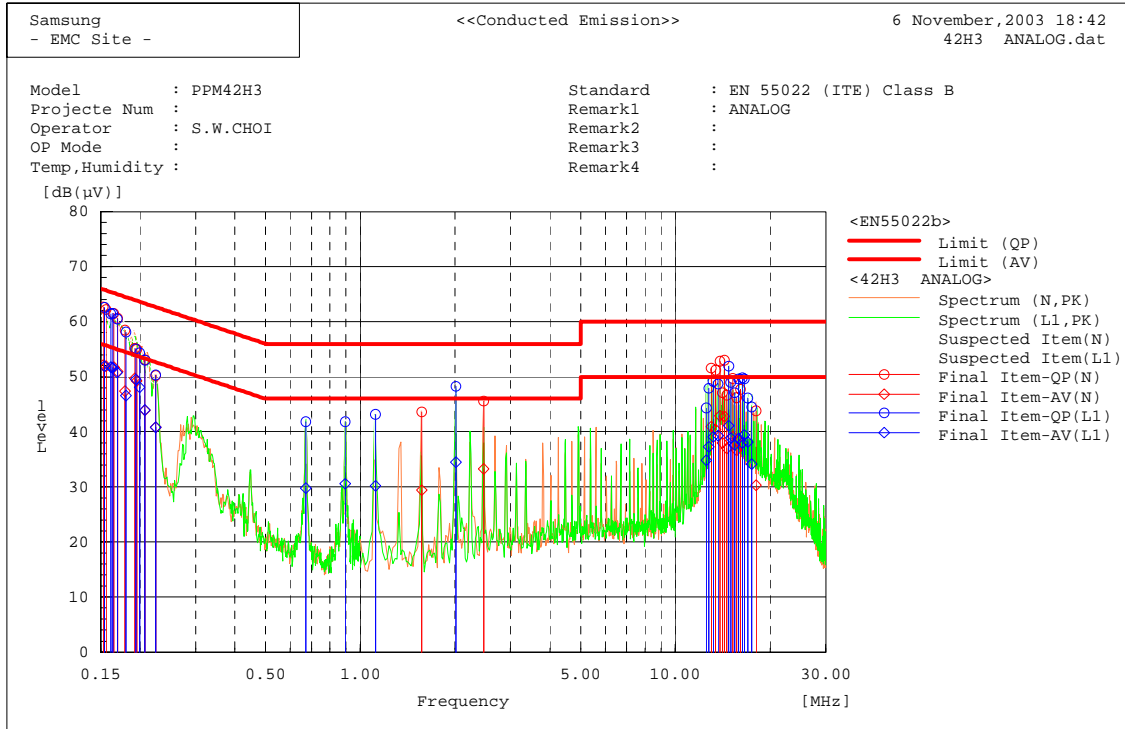
Using a calibrated coaxial cable, the TEST RECEIVER is connected to the measuring port of the LISN for EUT. To find out an EUT condition procedure the maximum emission, the position of cables, EUT operations mode are checked under normal usage of EUT.

Then, the emission are scanned from 0.15MHz to 30MHz relative to the limit are recorded.

### 3.1.2 Test Results

- Operating Mode : PC Video Input

LISN Mode : Live & Neutral



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	14.31483	42.7	32.5	10.3	53.0	42.8	60.0	50.0	7.0	7.2
2	13.86914	42.5	32.6	10.3	52.8	42.9	60.0	50.0	7.2	7.1
3	13.42144	40.9	30.1	10.3	51.2	40.4	60.0	50.0	8.8	9.6
4	2.46065	35.6	23.3	10.0	45.6	33.3	56.0	46.0	10.4	12.7
5	12.97174	41.2	30.7	10.3	51.5	41.0	60.0	50.0	8.5	9.0
6	15.21102	39.4	28.9	10.3	49.7	39.2	60.0	50.0	10.3	10.8
7	16.1048	37.3	27.3	10.4	47.7	37.7	60.0	50.0	12.3	12.3
8	14.54088	36.4	26.7	10.3	46.7	37.0	60.0	50.0	13.3	13.0
9	1.56462	33.6	19.4	10.0	43.6	29.4	56.0	46.0	12.4	16.6
10	14.09319	36.8	27.7	10.3	47.1	38.0	60.0	50.0	12.9	12.0
11	15.65751	35.8	26.2	10.4	46.2	36.6	60.0	50.0	13.8	13.4
12	18.03186	33.4	19.9	10.4	43.8	30.3	60.0	50.0	16.2	19.7
13	0.224	40.3	30.9	9.9	50.2	40.8	62.7	52.7	12.5	11.9
14	0.20724	43.2	34.0	9.9	53.1	43.9	63.3	53.3	10.2	9.4
15	0.19549	45.1	39.4	9.9	55.0	49.3	63.8	53.8	8.8	4.5
16	0.19275	45.3	39.8	9.9	55.2	49.7	63.9	53.9	8.7	4.2
17	0.17919	48.7	37.6	9.8	58.5	47.4	64.5	54.5	6.0	7.1
18	0.16989	50.8	41.1	9.8	60.6	50.9	65.0	55.0	4.4	4.1
19	0.1652	51.7	41.9	9.8	61.5	51.7	65.2	55.2	3.7	3.5
20	0.15589	52.4	42.1	9.8	62.2	51.9	65.7	55.7	3.5	3.8
21	0.15279	53.1	42.5	9.6	62.7	52.1	65.8	55.8	3.1	3.7

--- 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	14.76052	41.5	30.7	10.4	51.9	41.1	60.0	50.0	8.1	8.9
2	2.01282	38.3	24.5	10.0	48.3	34.5	56.0	46.0	7.7	11.5
3	15.87996	39.1	28.3	10.5	49.6	38.8	60.0	50.0	10.4	11.2
4	13.19659	38.7	28.7	10.4	49.1	39.1	60.0	50.0	10.9	10.9
5	12.7489	37.7	26.9	10.3	48.0	37.2	60.0	50.0	12.0	12.8

**Continued Test Data**

**- Operating Mode : PC Video Input ,**

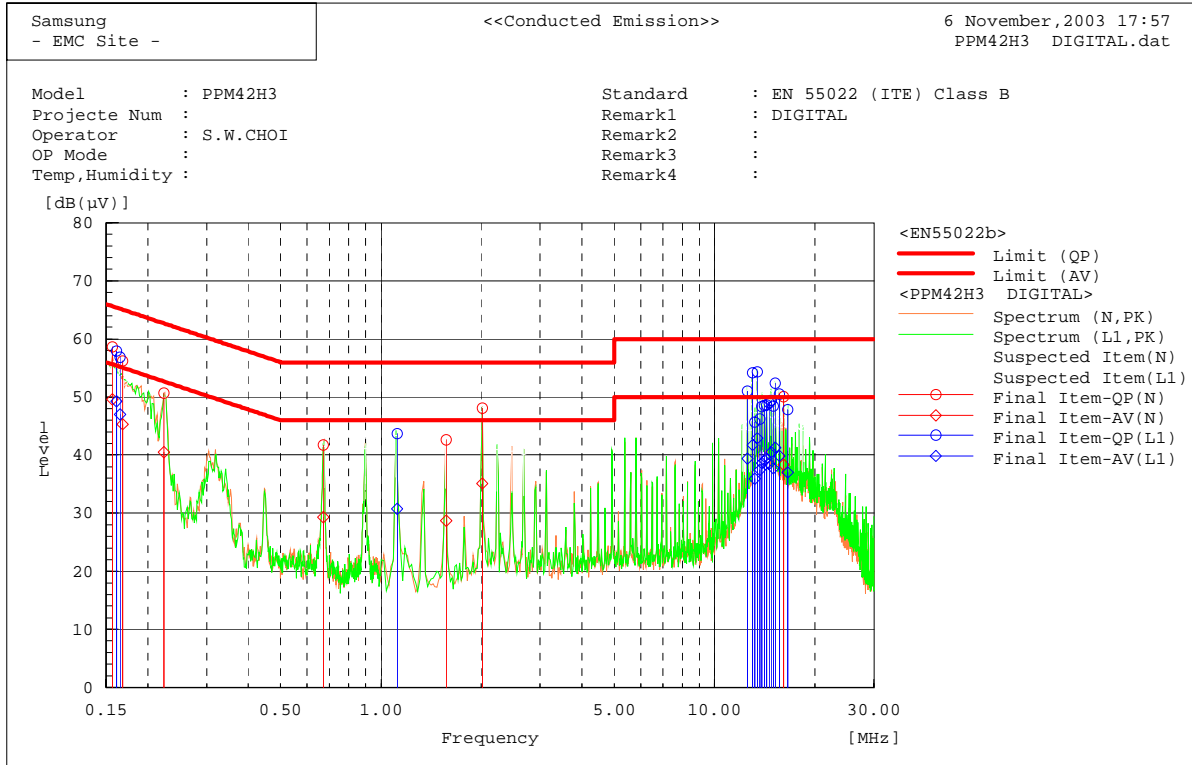
**LISN Mode: Live & Neutral**

Final Result

--- 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]
6	16.55131	39.1	28.9	10.5	49.6	39.4	60.0	50.0	10.4	10.6
7	13.64228	38.3	28.9	10.4	48.7	39.3	60.0	50.0	11.3	10.7
8	14.98778	38.6	28.5	10.4	49.0	38.9	60.0	50.0	11.0	11.1
9	16.32926	39.3	27.4	10.5	49.8	37.9	60.0	50.0	10.2	12.1
10	12.52926	34.1	24.6	10.3	44.4	34.9	60.0	50.0	15.6	15.1
11	1.11823	33.3	20.3	9.9	43.2	30.2	56.0	46.0	12.8	15.8
12	15.43387	36.6	27.2	10.5	47.1	37.7	60.0	50.0	12.9	12.3
13	16.9994	35.7	27.7	10.5	46.2	38.2	60.0	50.0	13.8	11.8
14	17.4487	34.0	23.7	10.5	44.5	34.2	60.0	50.0	15.5	15.8
15	0.6713	31.8	19.8	10.0	41.8	29.8	56.0	46.0	14.2	16.2
16	0.89467	31.9	20.6	9.9	41.8	30.5	56.0	46.0	14.2	15.5
17	0.15428	52.8	42.1	9.8	62.6	51.9	65.8	55.8	3.2	3.9
18	0.16169	51.6	42.0	9.8	61.4	51.8	65.4	55.4	4.0	3.6
19	0.16415	51.7	41.9	9.8	61.5	51.7	65.3	55.3	3.8	3.6
20	0.1696	50.7	41.0	9.8	60.5	50.8	65.0	55.0	4.5	4.2
21	0.18064	48.3	36.8	9.8	58.1	46.6	64.5	54.5	6.4	7.9
22	0.19408	45.1	39.6	9.9	55.0	49.5	63.9	53.9	8.9	4.4
23	0.19908	44.4	38.1	9.9	54.3	48.0	63.6	53.6	9.3	5.6
24	0.2075	43.1	34.1	9.9	53.0	44.0	63.3	53.3	10.3	9.3
25	0.224	40.4	31.0	9.9	50.3	40.9	62.7	52.7	12.4	11.8

**- Operating Mode : Digital Video Interface , LISN Mode : Live & Neutral**



Final Result

--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(µV)]	Reading AV [dB(µV)]	c.f [dB]	Result QP [dB(µV)]	Result AV [dB(µV)]	Limit QP [dB(µV)]	Limit AV [dB(µV)]	Margin QP [dB]	Margin AV [dB]
1	2.013	38.0	25.1	10.0	48.0	35.1	56.0	46.0	8.0	10.9
2	16.10641	39.7	27.9	10.4	50.1	38.3	60.0	50.0	9.9	11.7
3	0.22332	40.8	30.6	9.9	50.7	40.5	62.7	52.7	12.0	12.2
4	0.67132	31.8	19.3	10.0	41.8	29.3	56.0	46.0	14.2	16.7
5	1.56534	32.7	18.7	10.0	42.7	28.7	56.0	46.0	13.3	17.3
6	0.15665	48.8	39.8	9.8	58.6	49.6	65.6	55.6	7.0	6.0
7	0.16837	46.4	35.5	9.8	56.2	45.3	65.0	55.0	8.8	9.7

--- 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	13.42184	44.0	32.5	10.4	54.4	42.9	60.0	50.0	5.6	7.1
2	12.97214	43.9	31.4	10.3	54.2	41.7	60.0	50.0	5.8	8.3
3	15.21062	41.9	30.8	10.5	52.4	41.3	60.0	50.0	7.6	8.7
4	15.65591	40.0	29.4	10.5	50.5	39.9	60.0	50.0	9.5	10.1
5	12.52645	40.7	29.2	10.3	51.0	39.5	60.0	50.0	9.0	10.5
6	14.76213	39.0	30.1	10.4	49.4	40.5	60.0	50.0	10.6	9.5
7	13.86714	38.0	28.2	10.4	48.4	38.6	60.0	50.0	11.6	11.4
8	14.53728	38.6	28.1	10.4	49.0	38.5	60.0	50.0	11.0	11.5
9	13.64468	35.8	27.1	10.4	46.2	37.5	60.0	50.0	13.8	12.5
10	14.09279	38.1	28.6	10.4	48.5	39.0	60.0	50.0	11.5	11.0
11	16.55291	37.3	26.5	10.5	47.8	37.0	60.0	50.0	12.2	13.0
12	14.31604	38.2	29.0	10.4	48.6	39.4	60.0	50.0	11.4	10.6
13	1.11931	33.8	20.9	9.9	43.7	30.8	56.0	46.0	12.3	15.2
14	13.19859	35.3	25.6	10.4	45.7	36.0	60.0	50.0	14.3	14.0
15	14.98617	38.1	27.3	10.4	48.5	37.7	60.0	50.0	11.5	12.3
16	0.16091	48.1	39.4	9.8	57.9	49.2	65.4	55.4	7.5	6.2
17	0.16524	47.1	37.2	9.8	56.9	47.0	65.2	55.2	8.3	8.2

## **3.2 RADIATED EMISSION MEASUREMENT**

### **3.2.1 Test Procedure**

Configure the EUT System in accordance with ANSI C63.4-1992 section 8 and 12.2.

Power cords for the EUT System are connected to the receptacle on the ground plane.

The output ports are connected to the cable provided with the device and the ending port of the cable are terminated in the proper impedance.

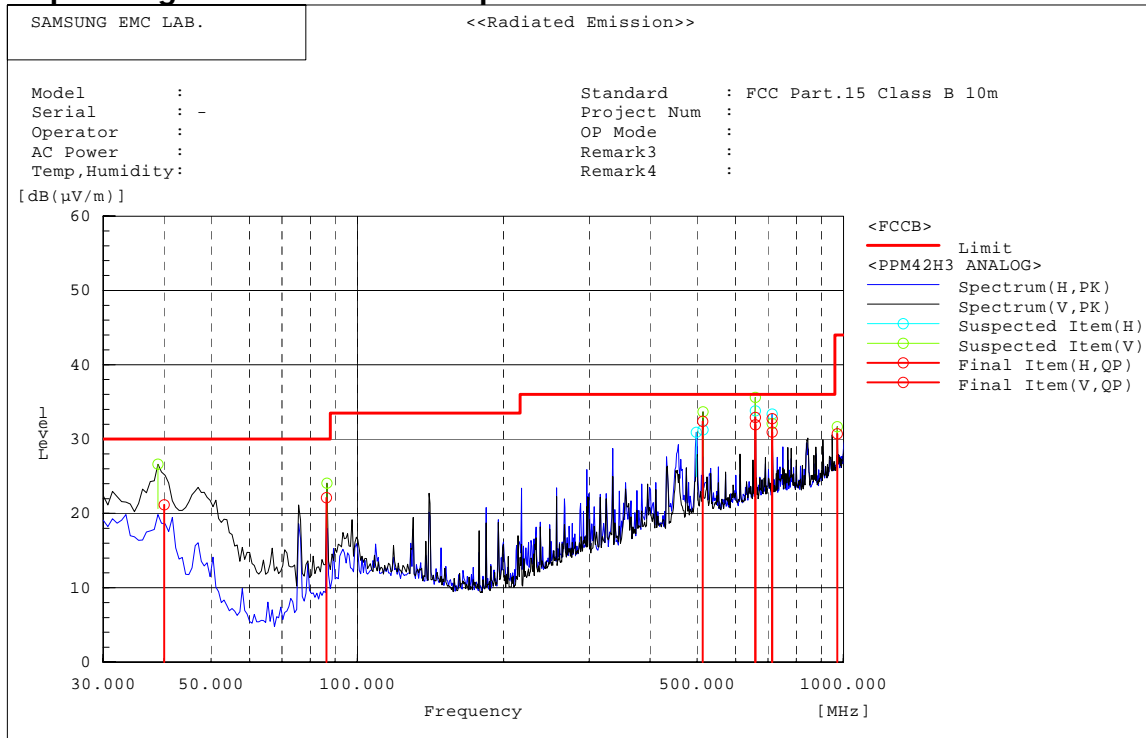
To find out the maximum emission, change the position of the cable, and the EUT operation mode under normal usage of the EUT.

The spectrum analyzer is scanned from 30MHz to 2,000MHz.

And, detecting wave mode is peak mode, Graph's result in worst arrangement state of EUT. Spectrum analyzer result did horizontal and vertical polarization maxhold.

### 3.2.2 Test Results

#### - Operating Mode : PC Video Input



#### Final Result

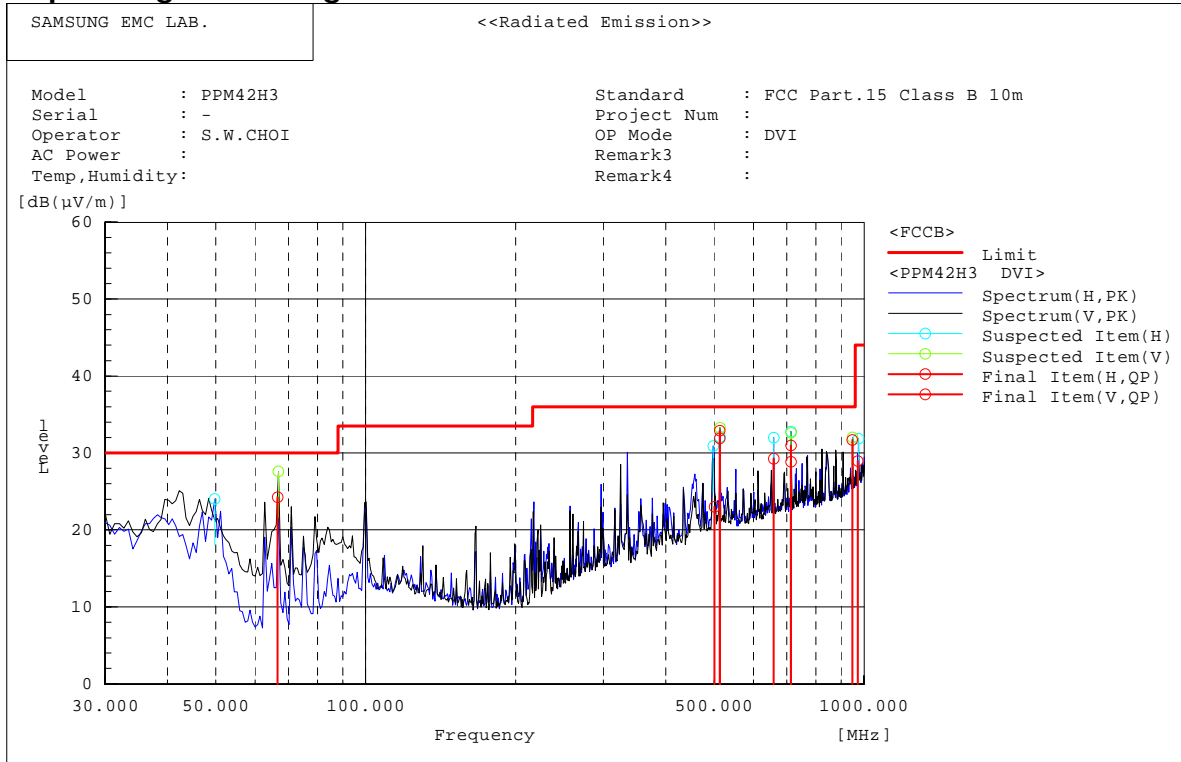
##### --- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
1	658.660	37.0	-5.1	31.9	36.0	4.1
2	713.560	35.2	-4.3	30.9	36.0	5.1

##### --- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
1	40.044	36.0	-14.8	21.2	30.0	8.8
2	86.376	40.8	-18.7	22.1	30.0	7.9
3	658.660	38.0	-5.1	32.9	36.0	3.1
4	513.260	40.2	-7.8	32.4	36.0	3.6
5	713.560	37.1	-4.3	32.8	36.0	3.2
6	971.980	30.9	-0.2	30.7	44.0	13.3

**- Operating Mode : Digital Video Interface**



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]
1	713.560	35.3	-4.3	31.0	36.0	5.0
2	513.310	38.6	-6.7	31.9	36.0	4.1
3	658.660	34.4	-5.1	29.3	36.0	6.8
4	971.980	29.2	-0.2	29.0	44.0	15.0
5	501.130	29.8	-6.8	23.0	36.0	13.0

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
1	66.578	46.4	-22.1	24.3	30.0	5.7
2	513.310	40.7	-7.8	32.9	36.0	3.1
3	713.560	33.2	-4.3	28.9	36.0	7.1
4	947.640	32.5	-0.8	31.7	36.0	4.3

# Test Set up Photographs

[AC POWERLINE CONDUCTED EMISSION MEASUREMENT]







# Test Set up Photographs

[RADIATED EMISSION MEASUREMENT]



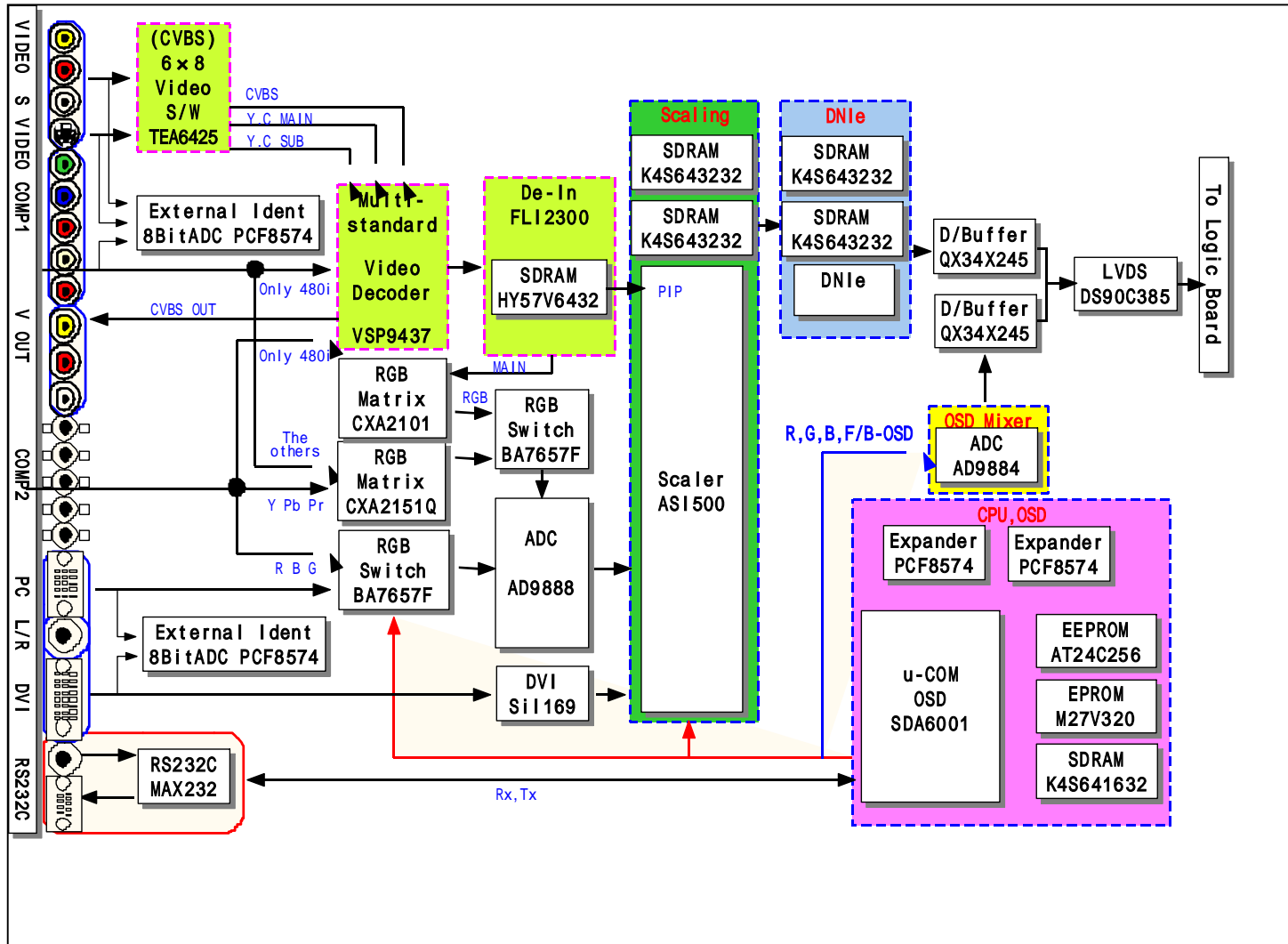
# EUT Photographs

[Label and Label position]

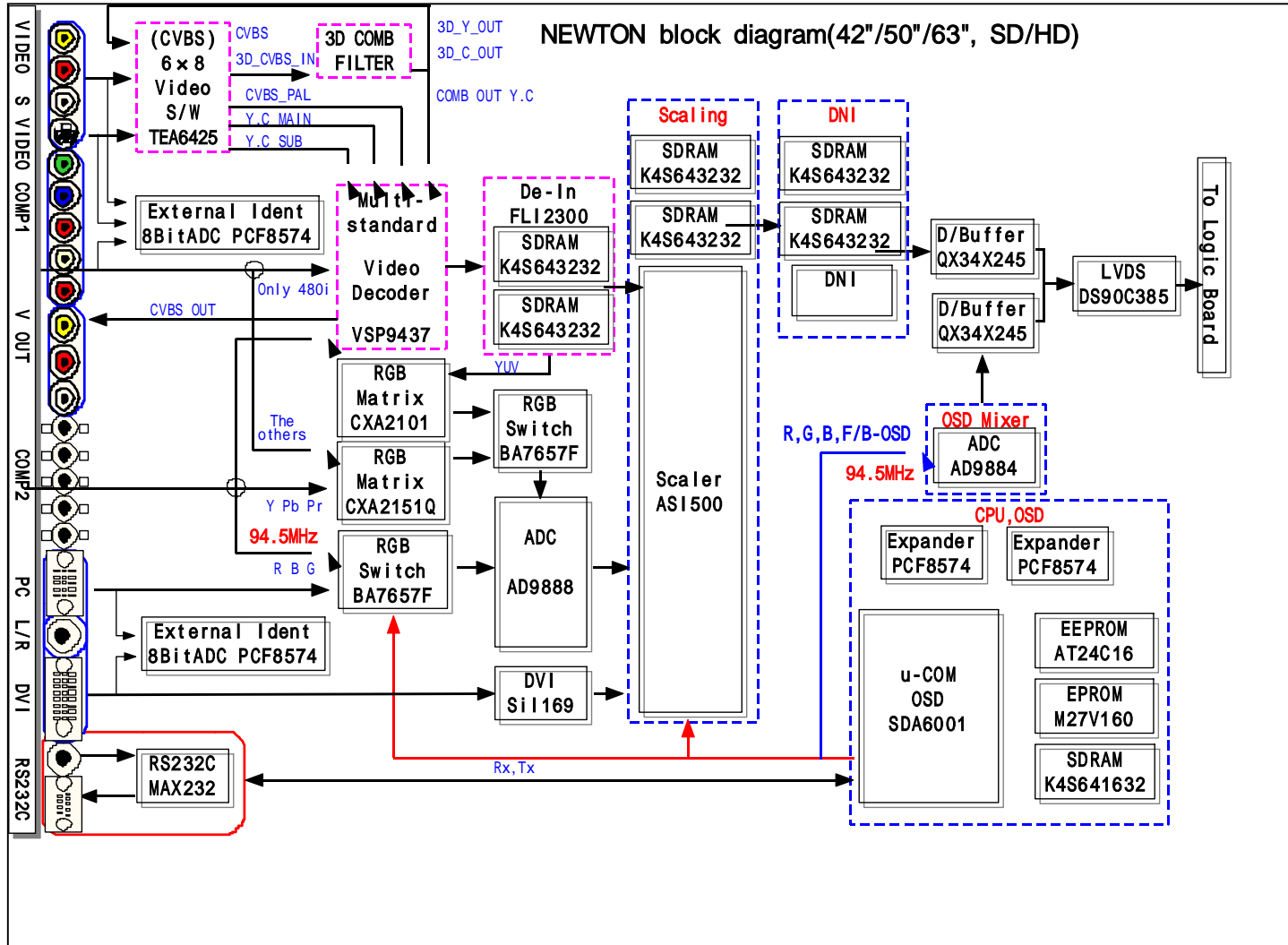
		<b>SAMSUNG ELECTRONICS CANADA INC</b> 7037 Financial Drive Mississauga, Ontario L5N 6R3 CANADA
		<b>SAMSUNG ELECTRONICS AMERICA INC.</b> 105 CHALLENGER ROAD, RIDGEFIELD PARK N.J. 07660-0511, U.S.A
<b>PLASMA DISPLAY PANEL</b> MODEL : PPM42H3 TYPE. NO : NT42P3 RATED INPUT AC120 ~ ,60Hz 380W CHASSIS NO.: D55B		This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
	LISTED 77HN E215927	 LR38329
		FCC ID : A3LPPM42H3
Serial NO. XXXXXXXXXXXXXXXXXXXX	Manufactured/Fabrique : XX. XX. 2003 MADE IN SUWON KOREA(SEC) FABRIQUE EN SUWON COREE	
		
<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN		
WARNING : TO PREVENT FIRE OR SHOCK HAZARD DO NOT OPEN EXPOSE THIS UNIT TO RAIN OR MOISTURE AVIS : RISQUE DE CHOC ELECTRIQUE-NE PAS OUVRIR		



# Block Diagram-Video Switching Part



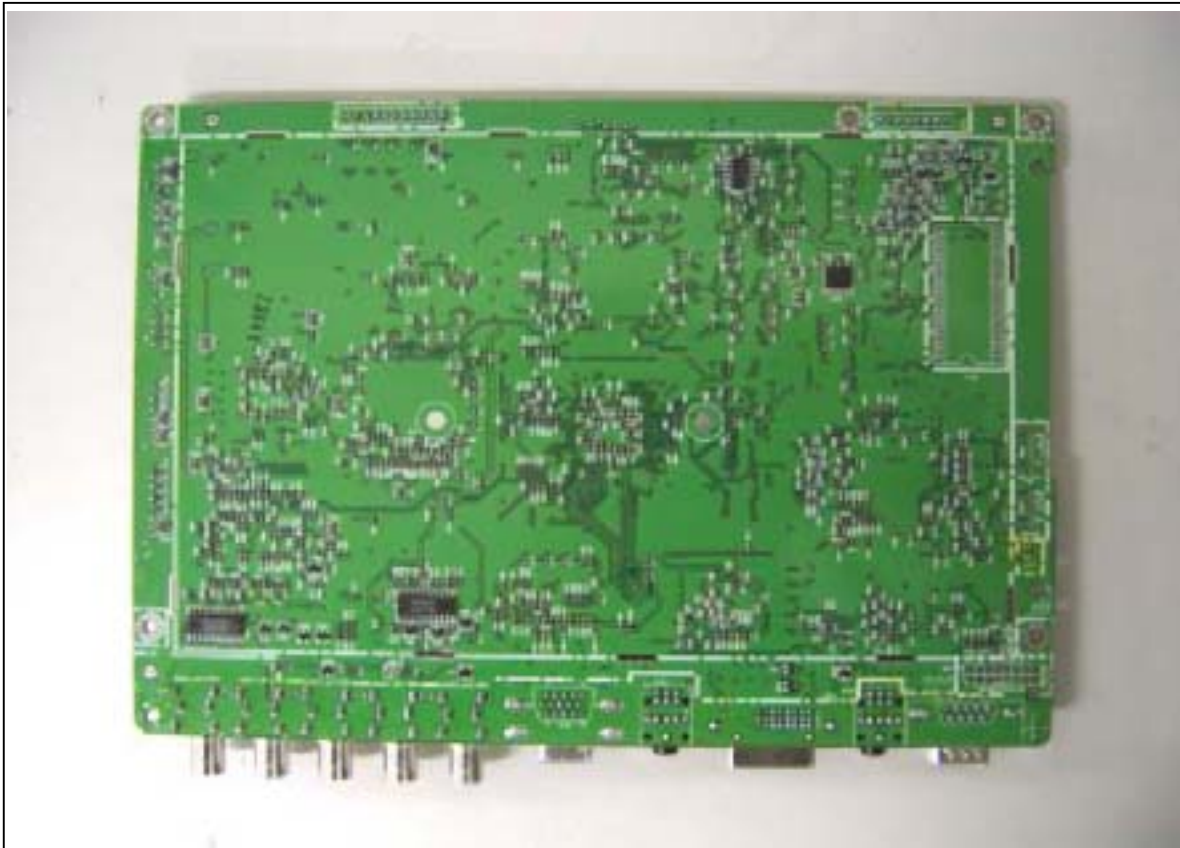
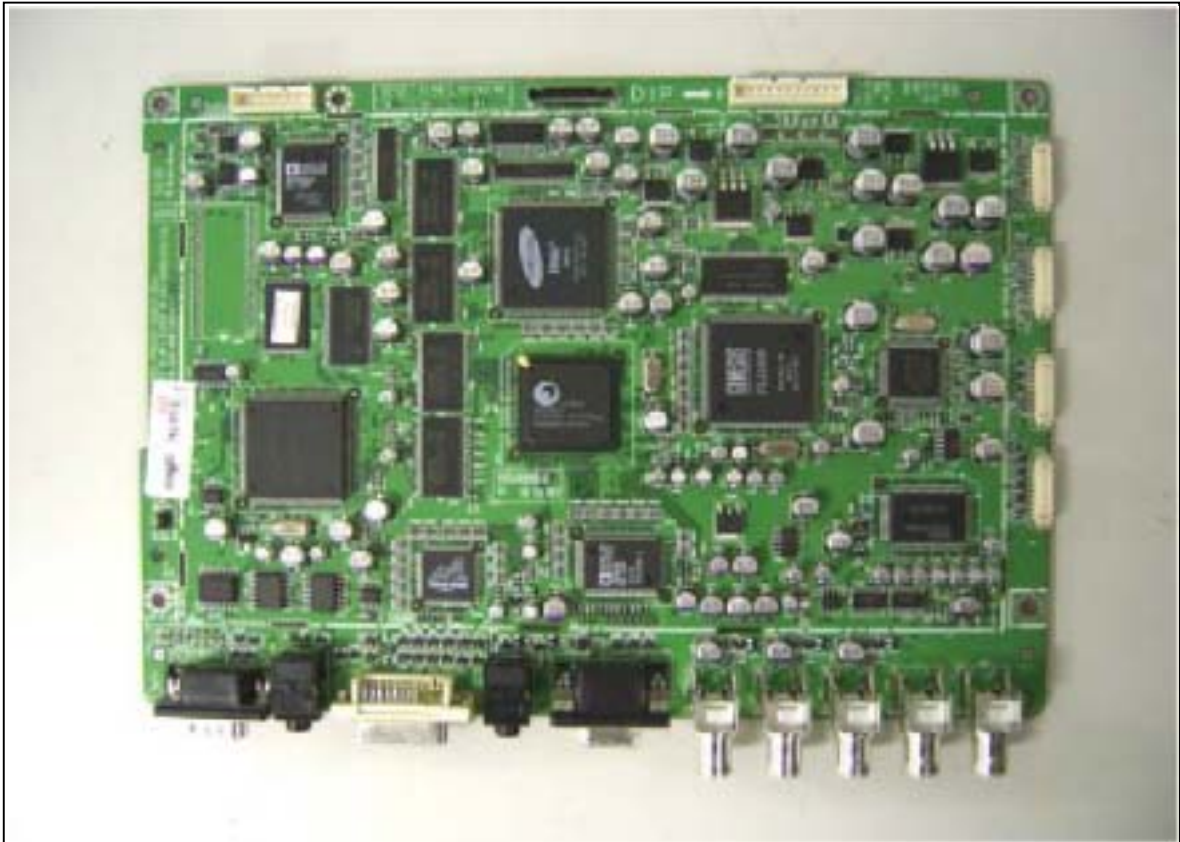
# Block Diagram-Audio Switching Part



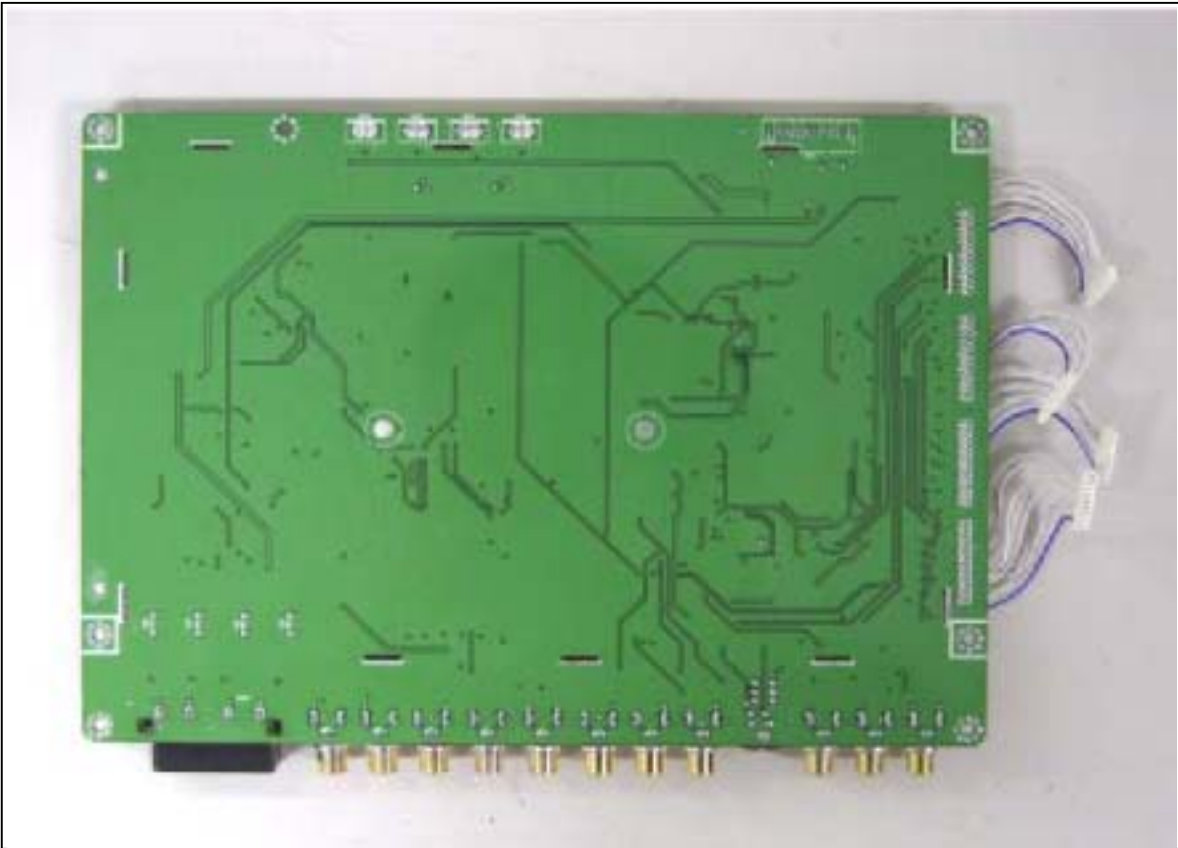
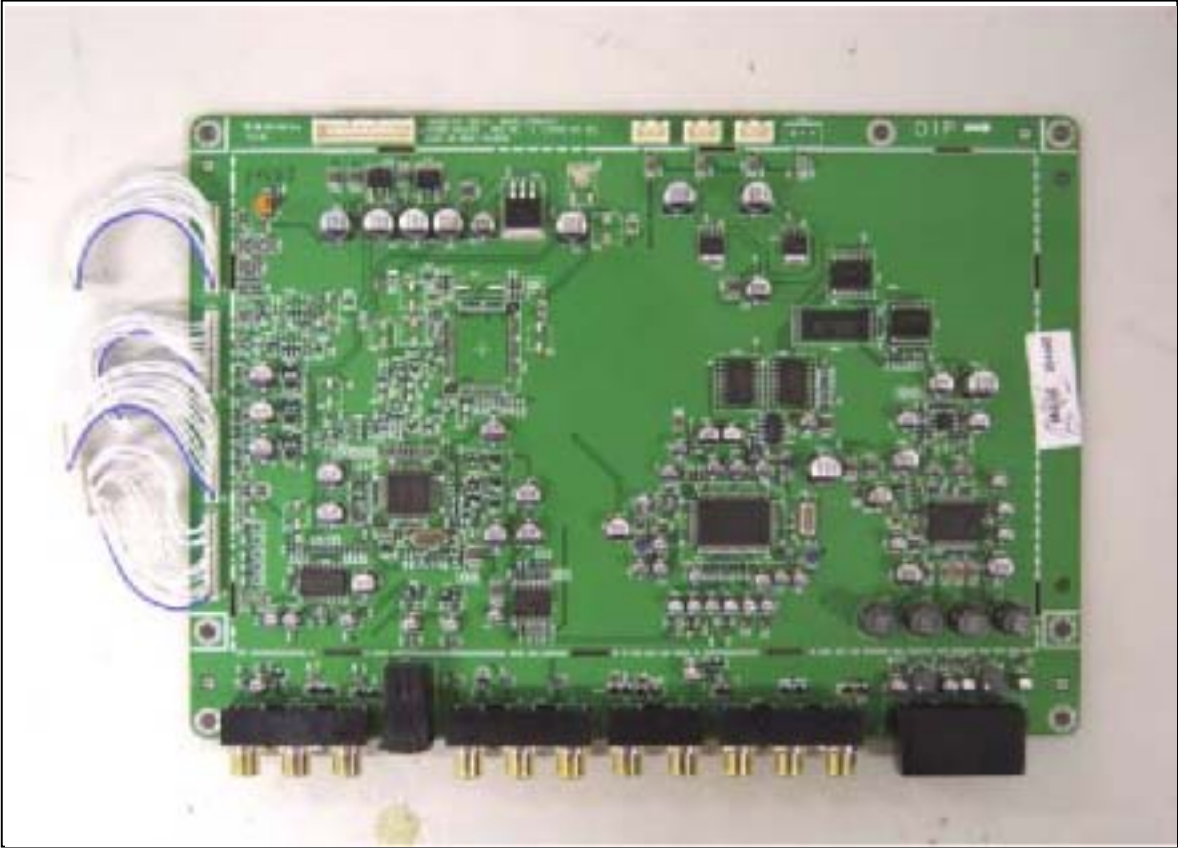
## EUT Photographs



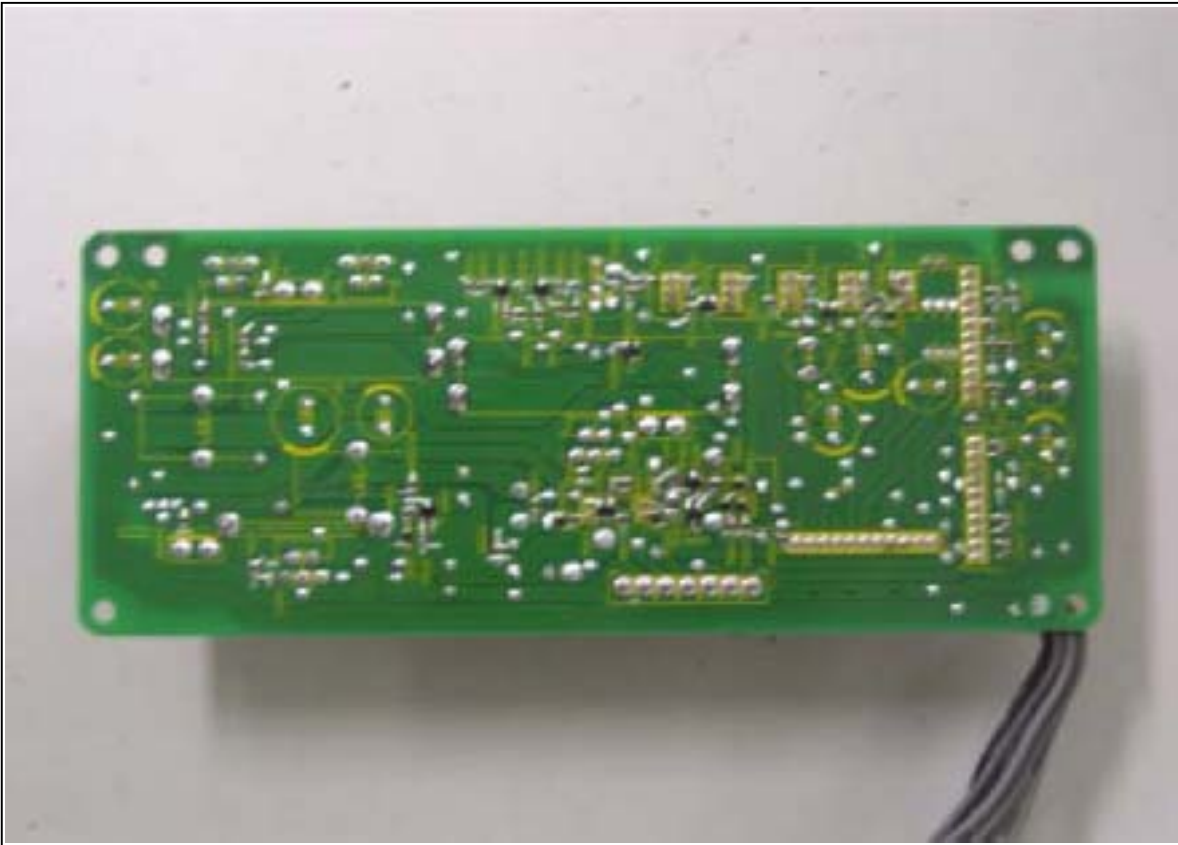
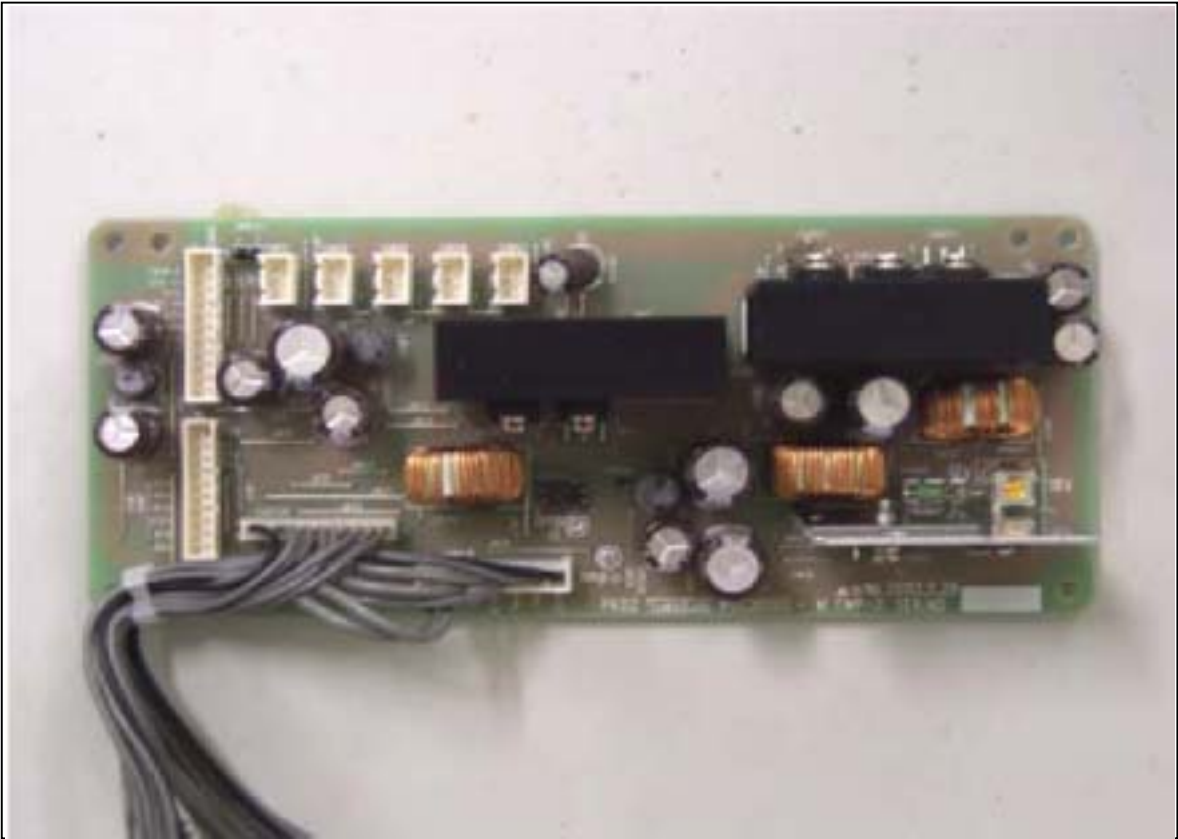
# EUT Photographs



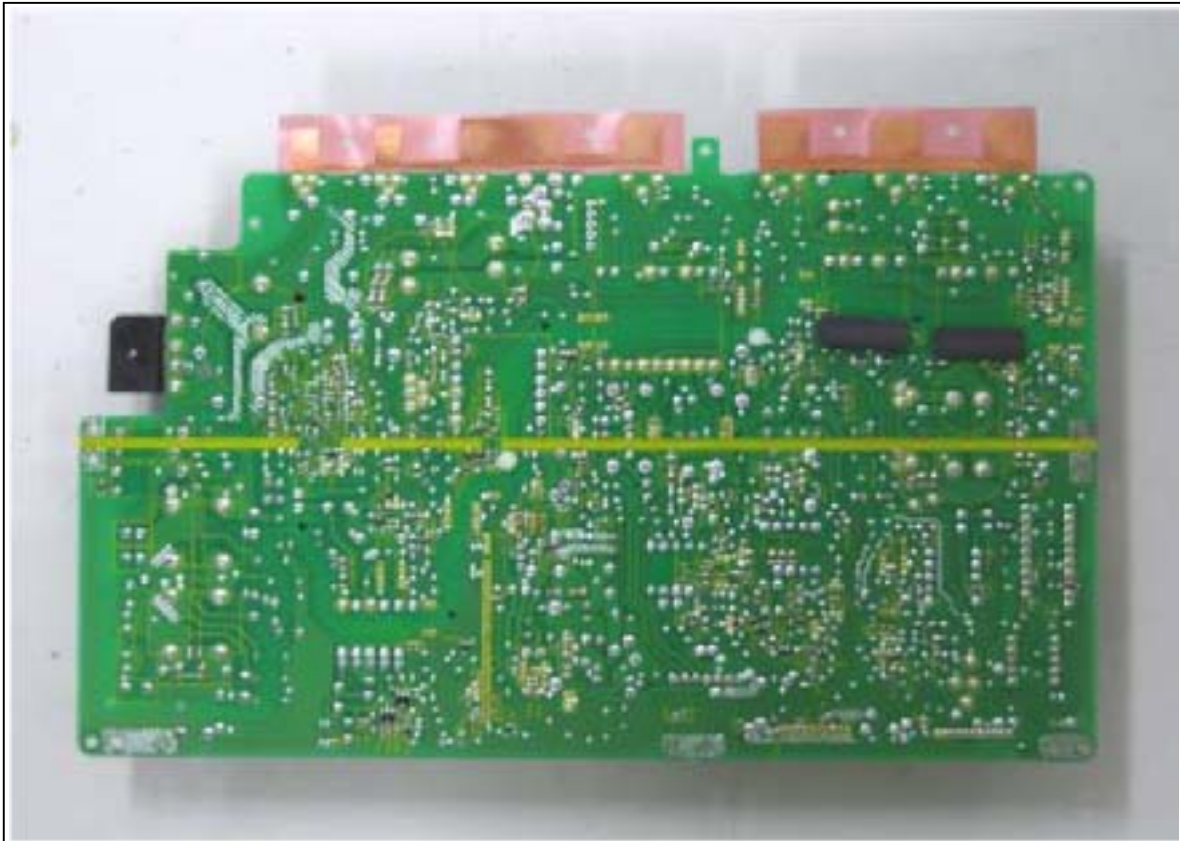
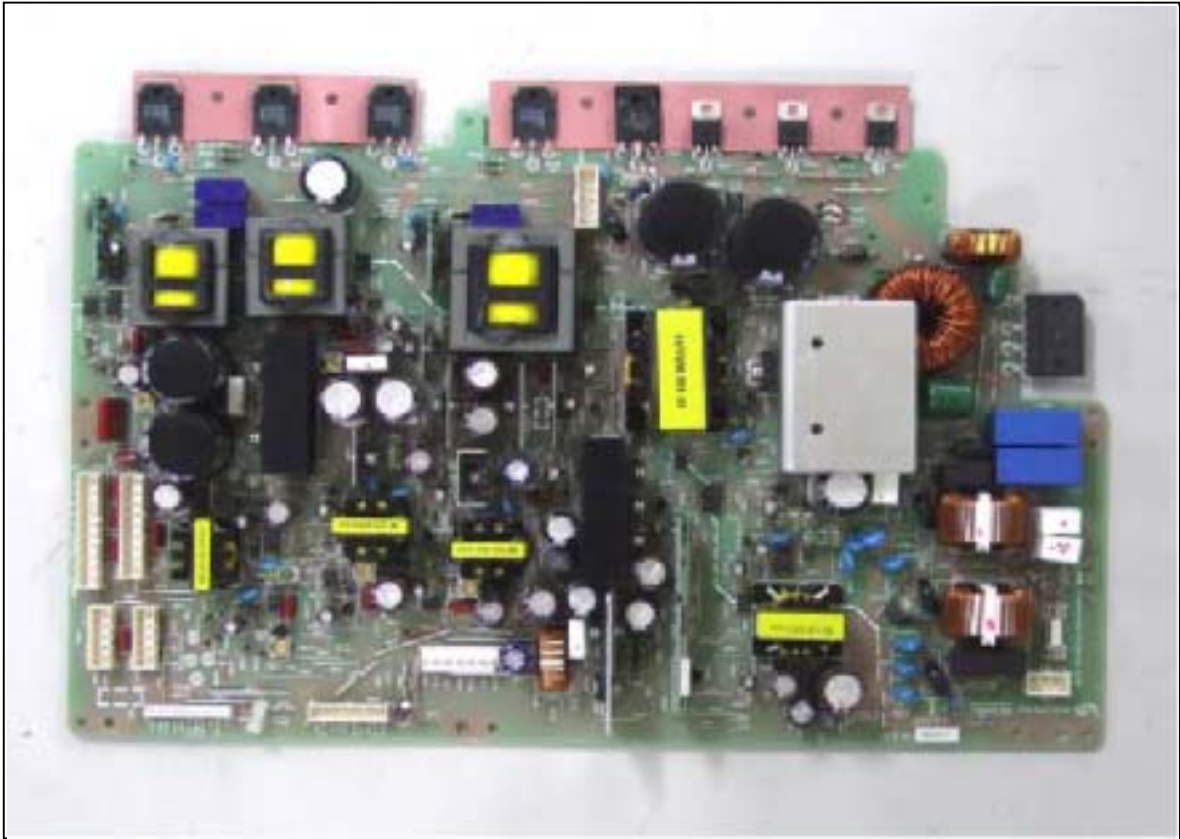
# EUT Photographs



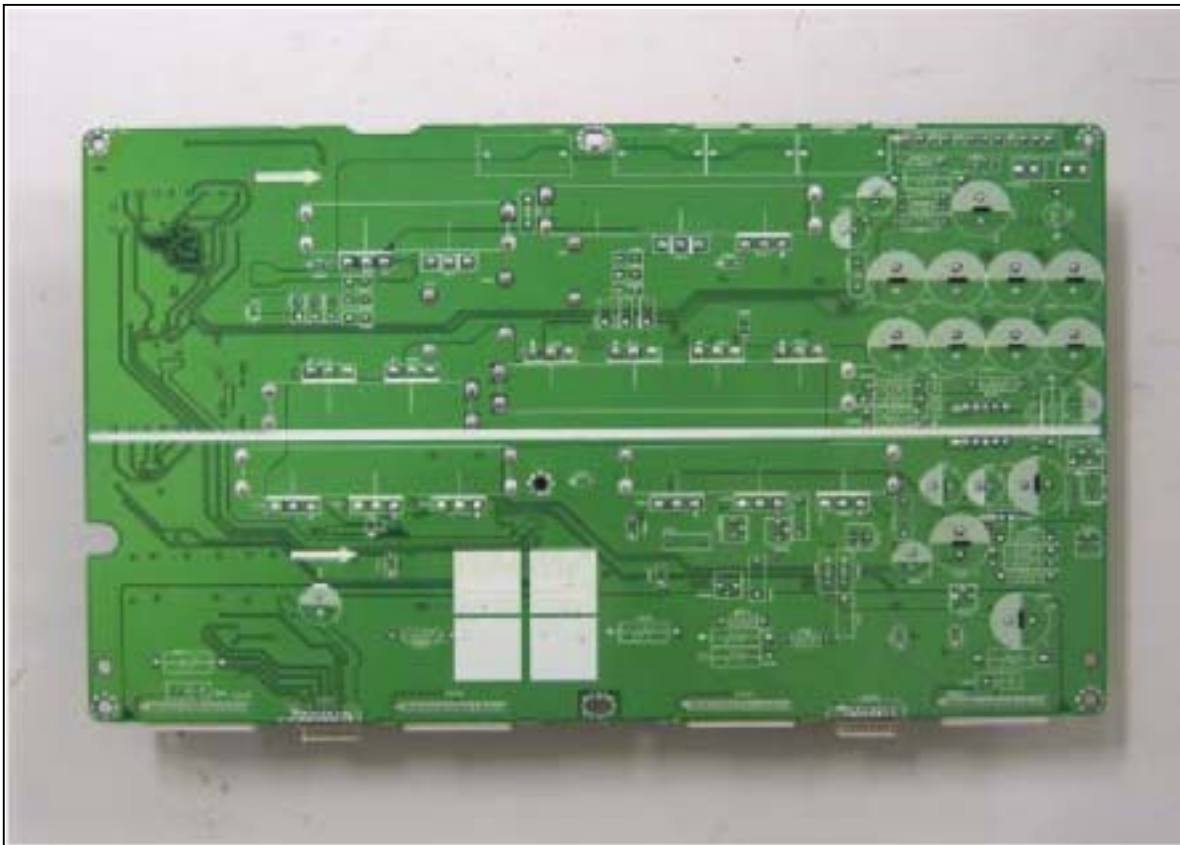
# EUT Photographs



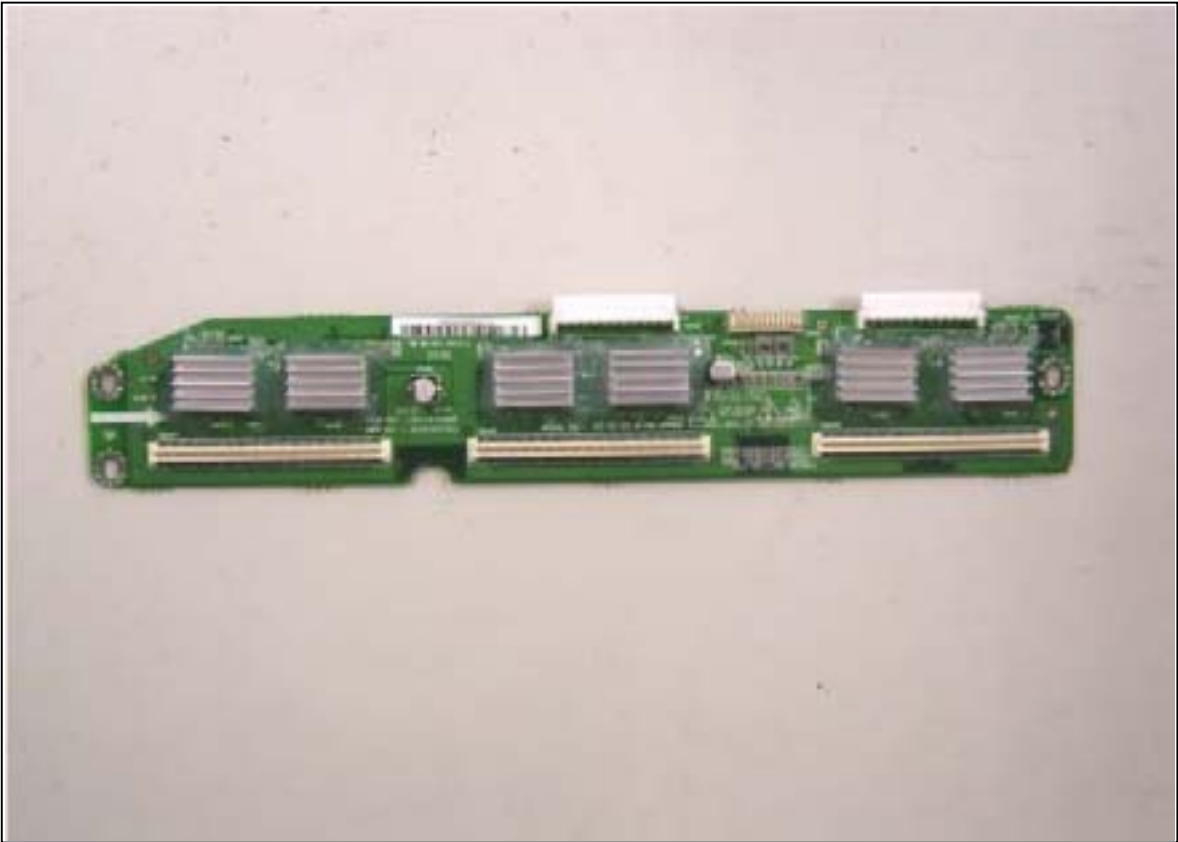
# EUT Photographs



# EUT Photographs



**EUT Photographs**



# EUT Photographs

