EMC Test Report

Project No.		**LBE040670**
Equipment under Test		
	Applicant	Samsung Electronics Co.Ltd 416 Maetan-3 Dong, Yeongtong-Ku, Suwon City, Gyeonggi-Do, Korea, 443-742
	Product Name	**PDP TV Monitor**
	Model Name	**MZ42S4**
	Manufacturer	Samsung Electronics Co. Ltd
	Brand Name	SAMSUNG
	Variant Model	See Page 2
Issued Date		01-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	Tae Young, Jang Test Engineer	
Reviewed by	No Cheon, Park Manager of EMC Lab.	
Authorized by	Kyu Baek, Chung Chief of EMC Lab.	

Samsung EMC Testing and Certification Laboratory	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

	Address	416 Maetan-3 Dong, Yeongtong-Ku, Suwon City, Gyeonggi-Do,Korea, 443-742
	Telephone No.	82-31-200-2135
	Fax No.	82-31-200-2189

1. General Information

1.1 Basic Information related Product

Applicant	Samsung Electronics Co. Ltd
Product name	PDP TV Monitor
Model name	MZ42S4
Brand Name	SAMSUNG
FCC ID Number	A3LHPP4261
Manufacturer	Samsung Electronics Co. Ltd
Variant Models	-

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	PDP TV Monitor	MZ42S4	-	SAMSUNG	EUT
B	Personal Computer	MP11	A24692GT300039	SAMSUNG	-
C	Printer	LQ-580H	CG2Y014504	Epson	-
D	PS/2 Keyboard	5900	K14102993	BTC Co.Ltd.	-
E	USB Mouse	M-U48a	LZE01521783	Logitech	-

Used Cable Description

No.	Item	Length[m]	Shielded	Remark
1	USB Mouse Cable	1.8	N	
2	PS/2 Keyboard Cable	1.6	N	
3	Video Cable	1.5	Y	
4	AC Power Cable(Monitor)	1.2	N	
5	AC Power Cable(PC)	1.8	N	
6	Printer Cable	1.6	Y	
7	AC Power Cable(Printer)	1.8	N	
8	S-Vedio Cable	1.5	N	
9	DVI Cable	1.5	N	
10	RCA Cable	1.5	N	
11	Line-in Cable	1.5	N	

1.4 Operating Mode and Conditions

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

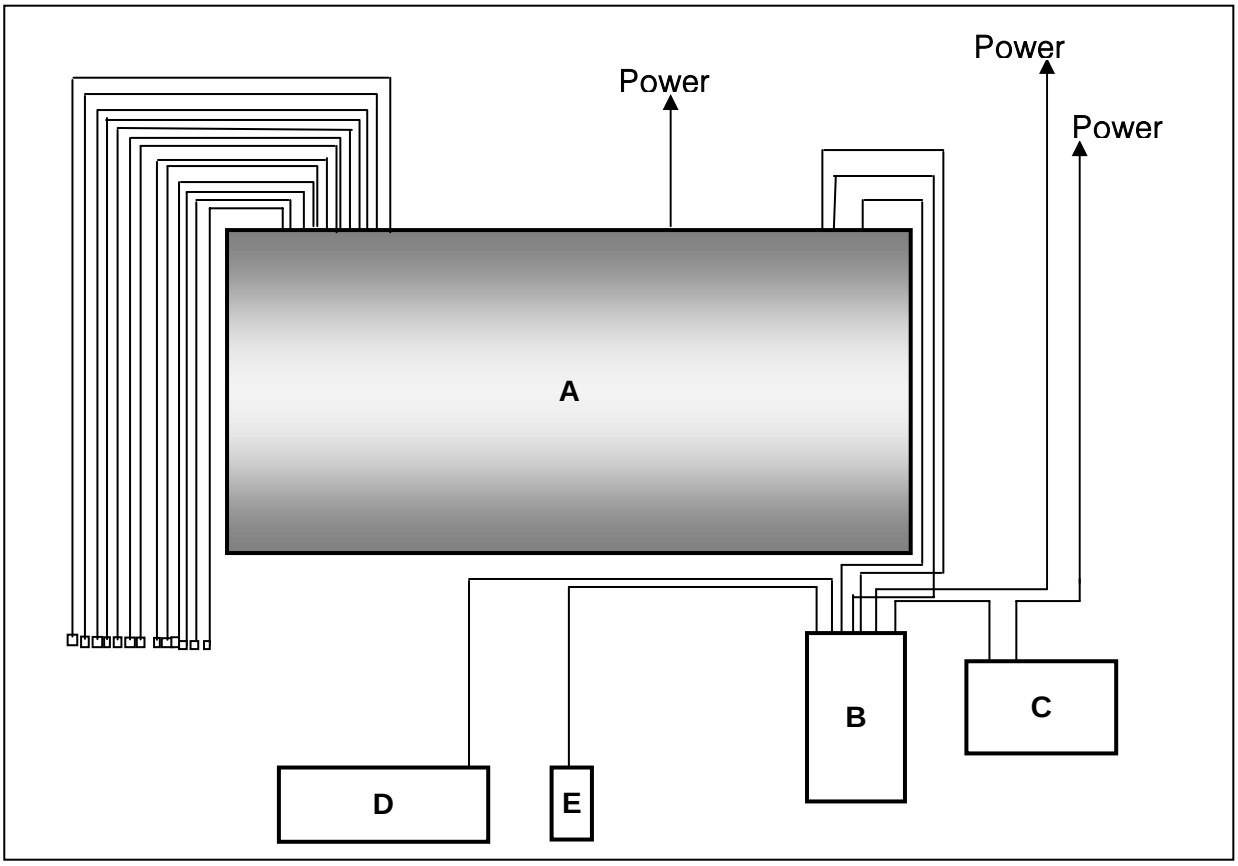
- PC Video Input
- PC DVI Input

Operating Condition

Operating Condition	Resolutions	Refresh Rates	Colors
"H" Pattern Display	1280 * 768	Horizontal Freq. : 48.363 ~ 63.677 kHz	24 bits
		Vertical Freq. : 60.004 ~ 84.997 Hz	

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.

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 (M 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
Conducted Emission	FCC Part 15 Subpart B	Complied
Radiated Emission	FCC Part 15 Subpart B	Complied

*** N/A : Test not applicable**

3. Description of Individual Tests

3.1 Disturbance voltage at the mains terminals

Test Information	
Test Engineer	Tae Young, Jang
Test Date	26-Mar-04
Climate Condition	Ambient Temperature : 23.5℃ , Relative Humidity : 49%
Test Place	Shield Room #5

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Next Calibration Date
TEST RECEIVER	ESI26	R & S	839809/002	27/06/2004
LISN	ESH3-Z5	R & S	847265/028	16/07/2004
LISN	ESH3-Z5	R & S	100261	16/07/2004
Test Software	EP5/CE	TOYO	Version : 2.0.860	N/A

Test Setup

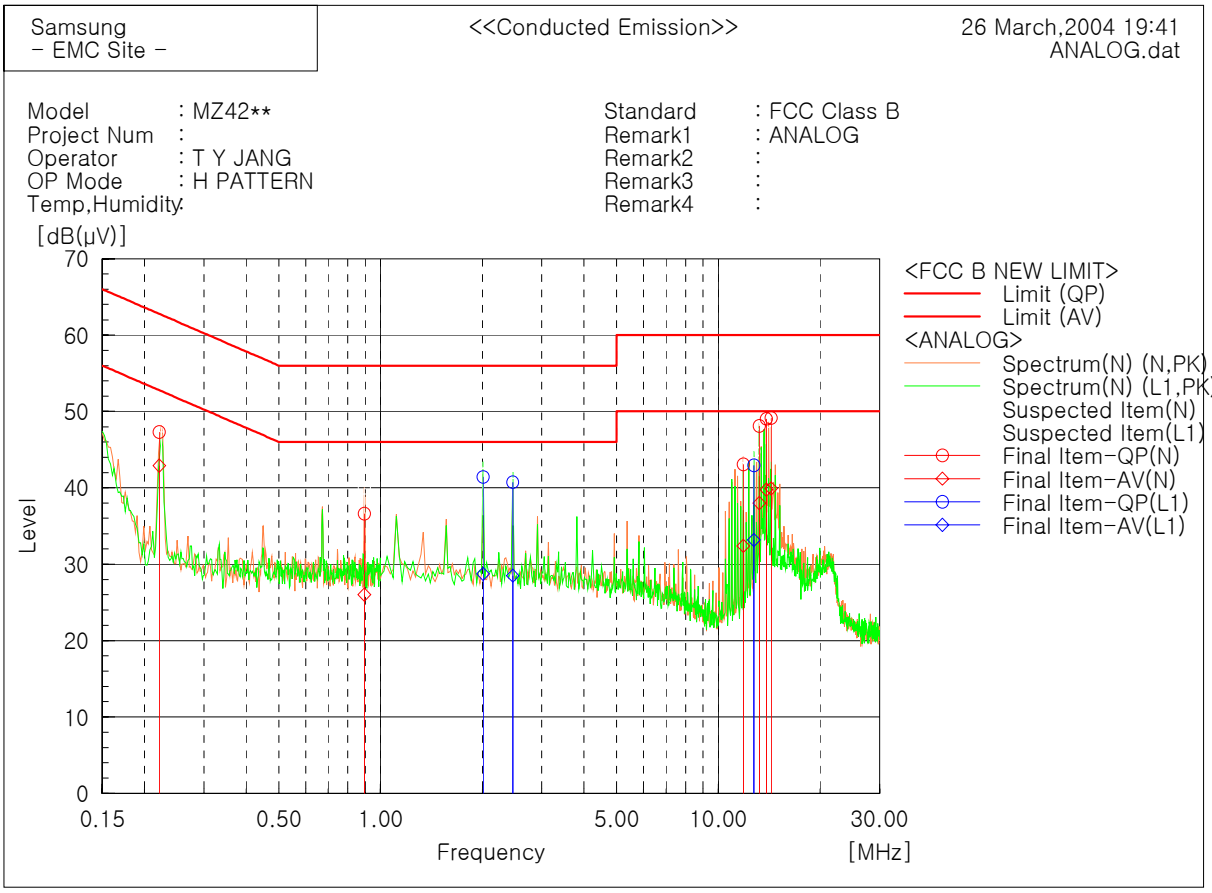
EUT was placed on a platform of nominal size, raised 80cm above the conducting ground plane. The rear of table top was located 40cm to the vertical conducting plane. The rear of EUT was aligned and flushed with rear of tabletop. All other surfaces of tabletop was at least 80cm from any other grounded 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 Data

- PC Vedio 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	0.22104	47.2	42.8	0.1	47.3	42.9	62.8	52.8	15.5	9.9
2	0.89462	36.5	25.9	0.1	36.6	26.0	56.0	46.0	19.4	20.0
3	11.855	42.8	32.1	0.3	43.1	32.4	60.0	50.0	16.9	17.6
4	13.198	47.5	37.4	0.6	48.1	38.0	60.0	50.0	11.9	12.0
5	13.868	48.3	39.1	0.7	49.0	39.8	60.0	50.0	11.0	10.2
6	14.3155	48.4	39.2	0.7	49.1	39.9	60.0	50.0	10.9	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	2.0125	41.3	28.6	0.1	41.4	28.7	56.0	46.0	14.6	17.3
2	2.4605	40.7	28.4	0.1	40.8	28.5	56.0	46.0	15.3	17.5
3	12.7505	42.4	32.6	0.6	43.0	33.2	60.0	50.0	17.1	16.8

Test Data

- PC DVI Input **LISN Mode : Live & Neutral**

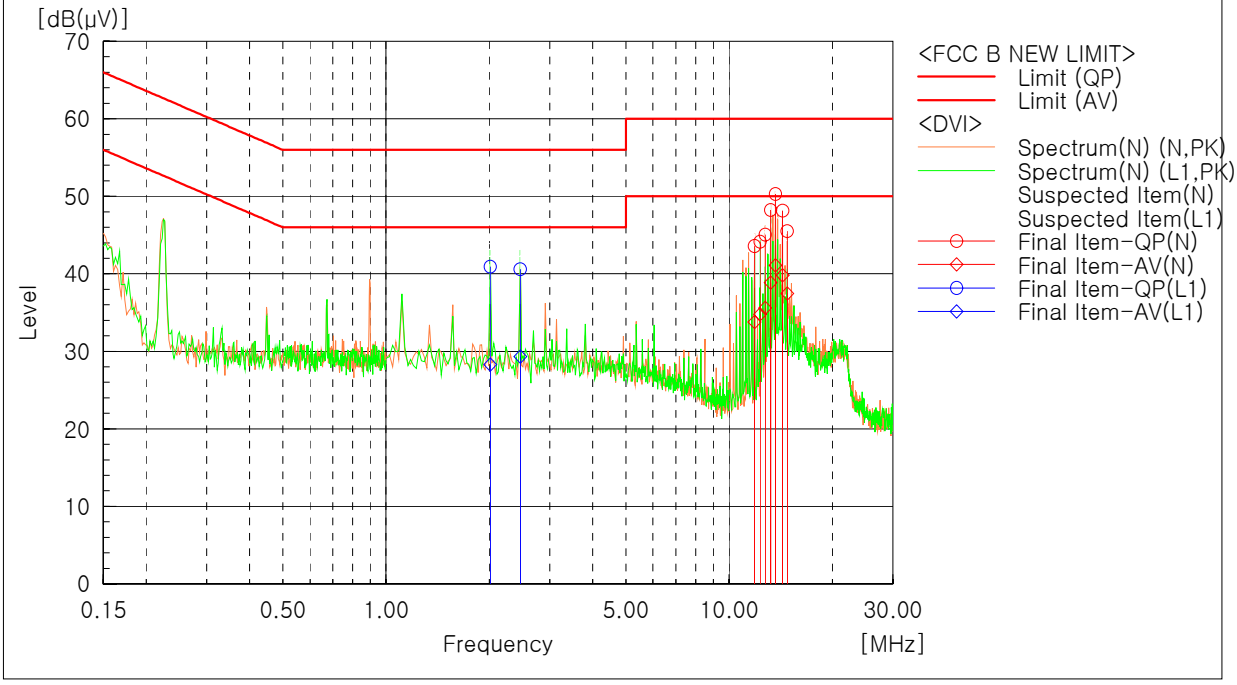
Samsung
- EMC Site -

<<Conducted Emission>>

26 March,2004 19:25
DVI.dat

Model : MZ42**
Project Num :
Operator : T Y JANG
OP Mode : H PATTERN
Temp,Humidity:

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



Final Result

--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	11.856	43.3	33.5	0.3	43.6	33.8	60.0	50.0	16.4	16.2
2	12.3035	43.8	34.4	0.4	44.2	34.8	60.0	50.0	15.8	15.2
3	12.749	44.6	35.1	0.5	45.1	35.6	60.0	50.0	14.9	14.4
4	13.196	47.6	38.3	0.6	48.2	38.9	60.0	50.0	11.8	11.2
5	13.6445	49.7	40.5	0.6	50.3	41.1	60.0	50.0	9.7	8.9
6	14.317	47.5	39.1	0.7	48.2	39.8	60.0	50.0	11.8	10.2
7	14.7635	44.7	36.6	0.8	45.5	37.4	60.0	50.0	14.5	12.6

--- 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	2.0132	40.8	28.2	0.1	40.9	28.3	56.0	46.0	15.1	17.7
2	2.4607	40.5	29.2	0.1	40.6	29.3	56.0	46.0	15.4	16.7

3.2 Radiated Disturbances

Test Information	
Test Engineer	Tae Young, Jang
Test Date	30-Mar-04
Climate Condition	Ambient Temperature : 22℃, Relative Humidity : 51%
Test Place	Shield Room #1

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Next Calibration Date
Test Receiver	ESCS30	R & S	100104	17/01/2004
Secetrum Analyzer	E7405A	AGILENT	US41110272	14/06/2004
RF Selector	NS4900	TOYO	0303-015	N/A
Mast Controller	HD2000	HD	HD20000902027	N/A
Bi-Log Antenna	CBL6112B	SCHAFFNER	2766	20/06/2004
Preamp	8447D	Agilent	2944A10430	25/07/2004
Test Software	EP5/RE	TOYO	Version : 2.0.860	N/A
Antenna Mast	MA240	HD	240/620	N/A
Turn Table	DS412	HD	-	N/A

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.

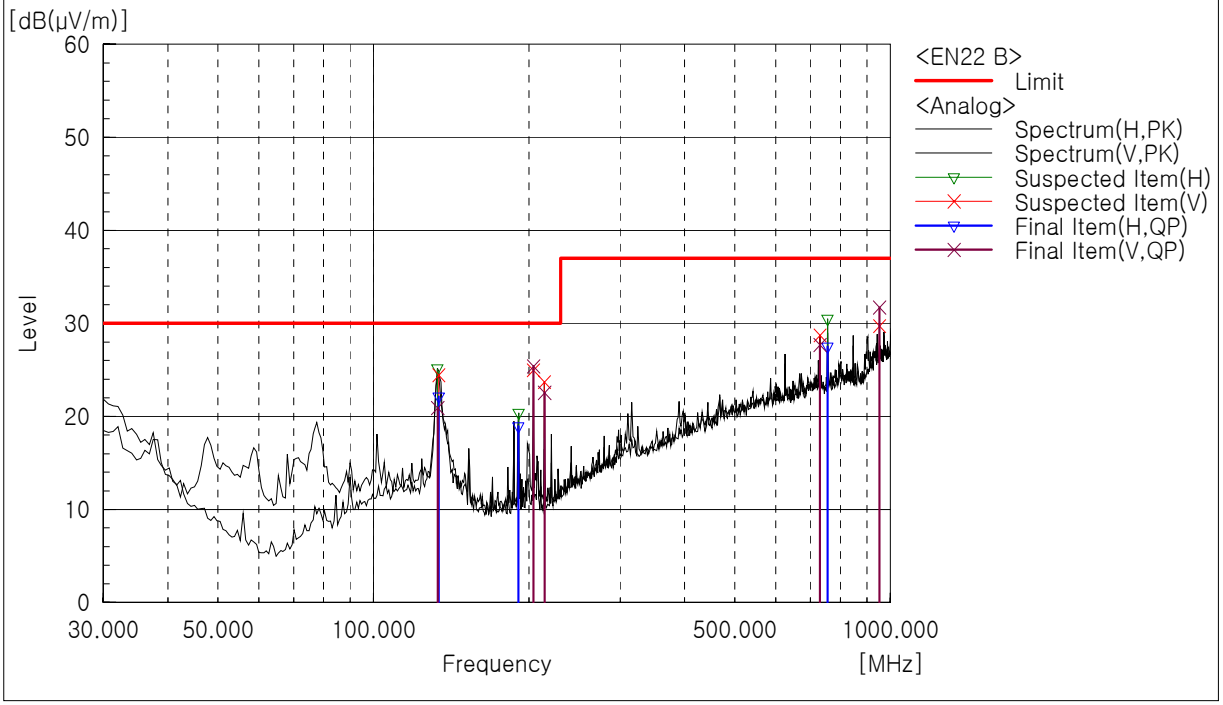
Test Graph & Data

- PC Vedio Input

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

Model : MZ42**
Serial : -
Operator : T Y JANG
AC Power :
Temp,Humidity:

Standard : EN 55022 Class B
Project Num :
OP Mode : H Pattern
Remark3 : Analog
Remark4 :



Final Result

--- Horizontal Polarization (QP)---

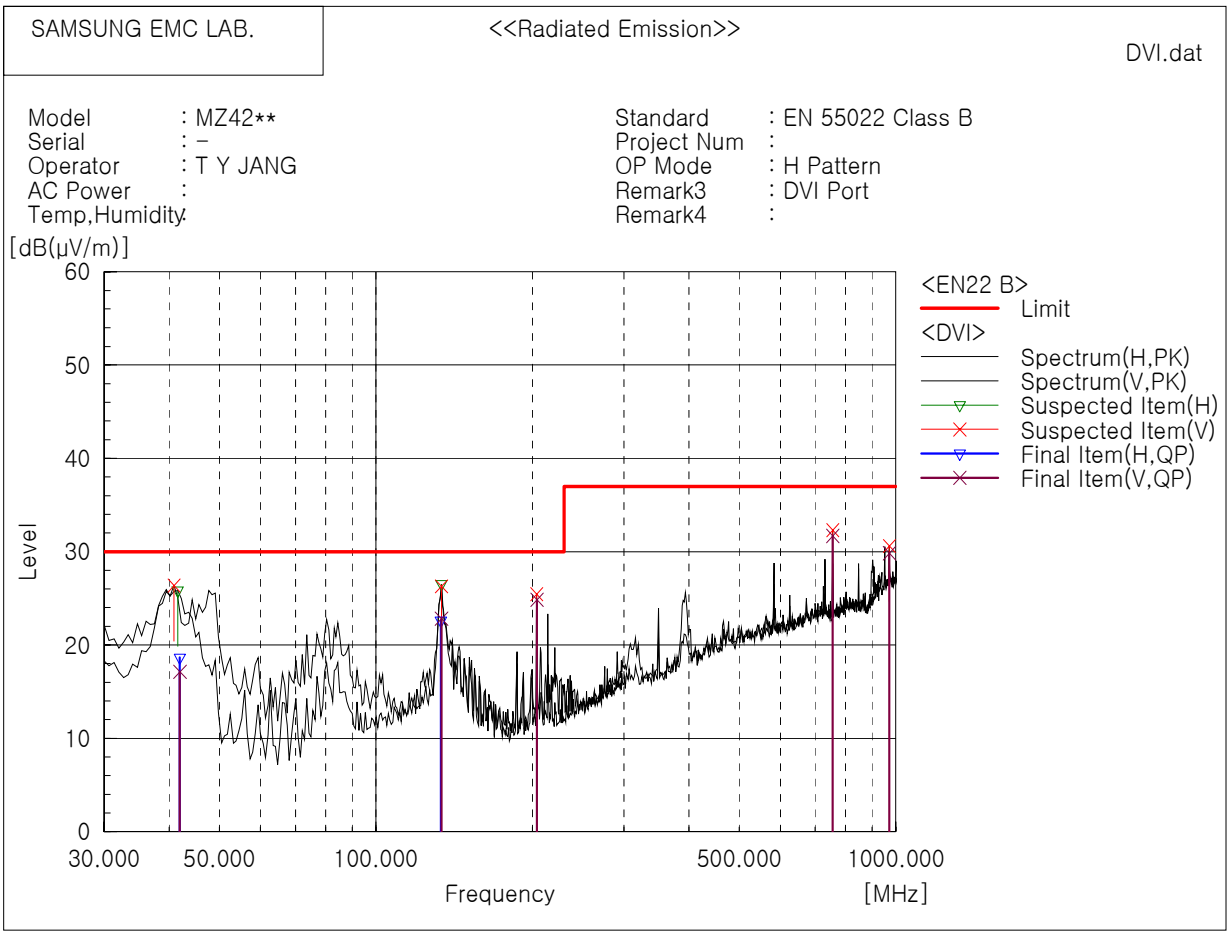
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	133.626	37.8	-15.6	22.2	30.0	7.9	
2	190.603	35.9	-17.0	18.9	30.0	11.1	
3	755.600	31.2	-3.7	27.5	37.0	9.5	

--- 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	133.127	36.5	-15.6	20.9	30.0	9.1	
2	203.995	42.2	-16.8	25.4	30.0	4.6	
3	214.302	39.3	-16.7	22.6	30.0	7.5	
4	731.010	31.6	-3.9	27.7	37.0	9.3	
5	952.000	32.4	-0.7	31.7	37.0	5.3	

Test Graph & Data

- PC DVI Input



Final Result

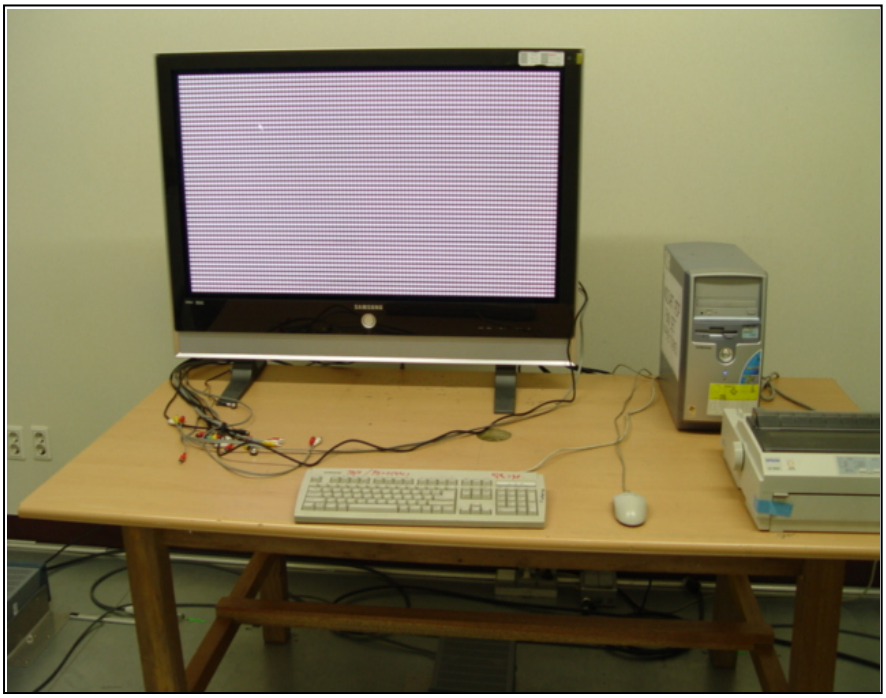
--- Horizontal Polarization (QP)---

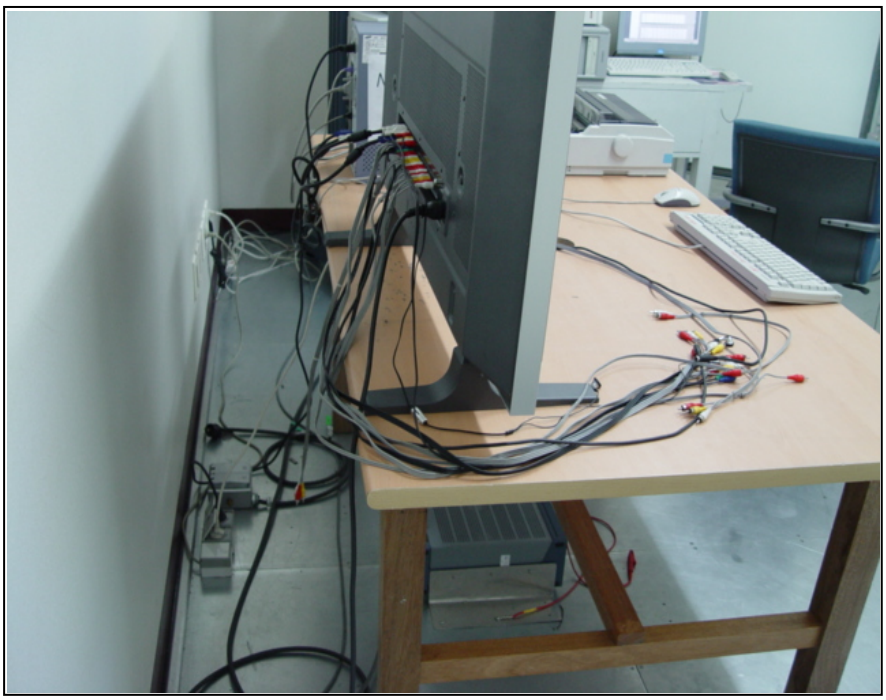
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	41.948	34.4	-15.8	18.6	30.0	11.4	
2	133.410	38.2	-15.6	22.6	30.0	7.4	

--- 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	41.948	32.9	-15.8	17.1	30.0	12.9	
2	133.714	38.4	-15.6	22.8	30.0	7.2	
3	204.002	41.7	-16.8	24.9	30.0	5.1	
4	755.600	35.4	-3.7	31.7	37.0	5.3	
5	971.480	30.0	-0.2	29.8	37.0	7.2	

* Test Set up Photographs

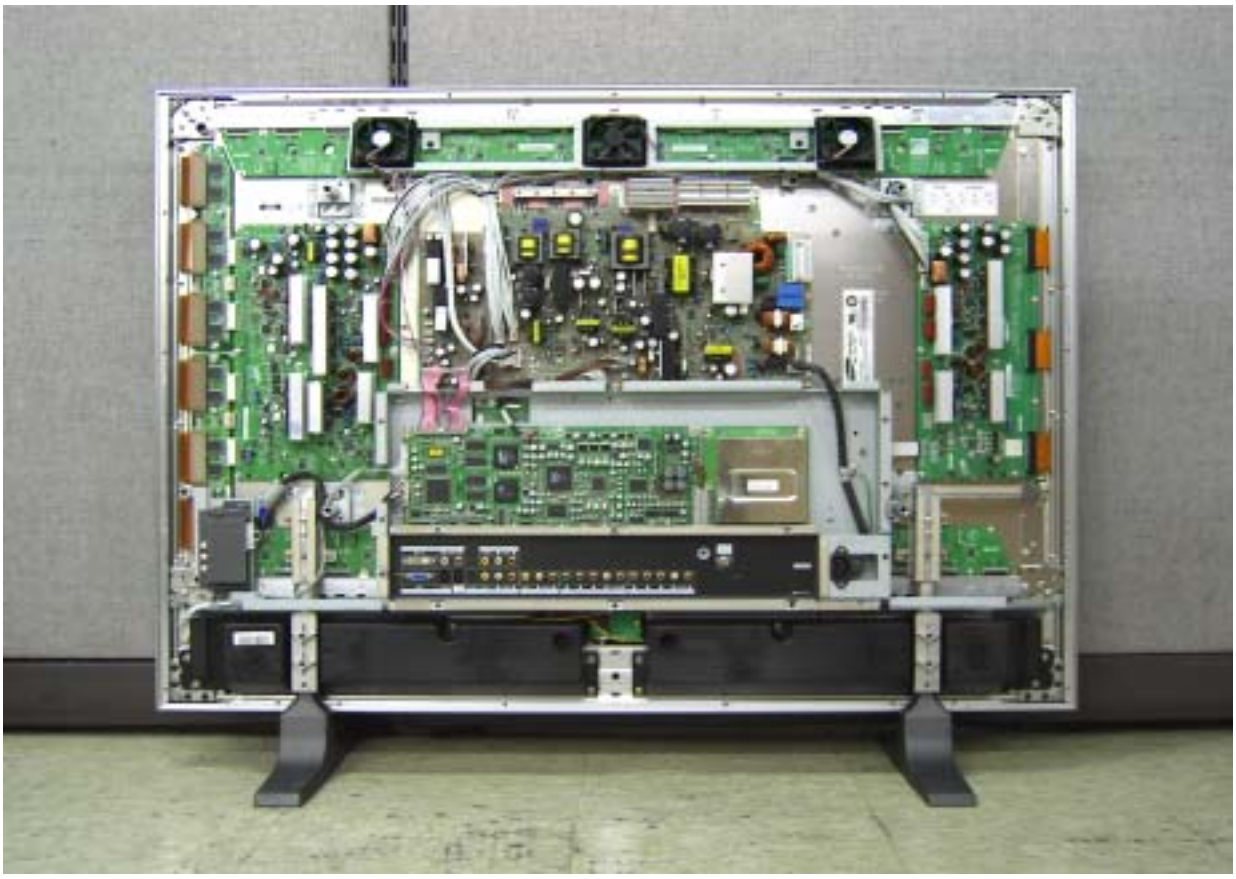




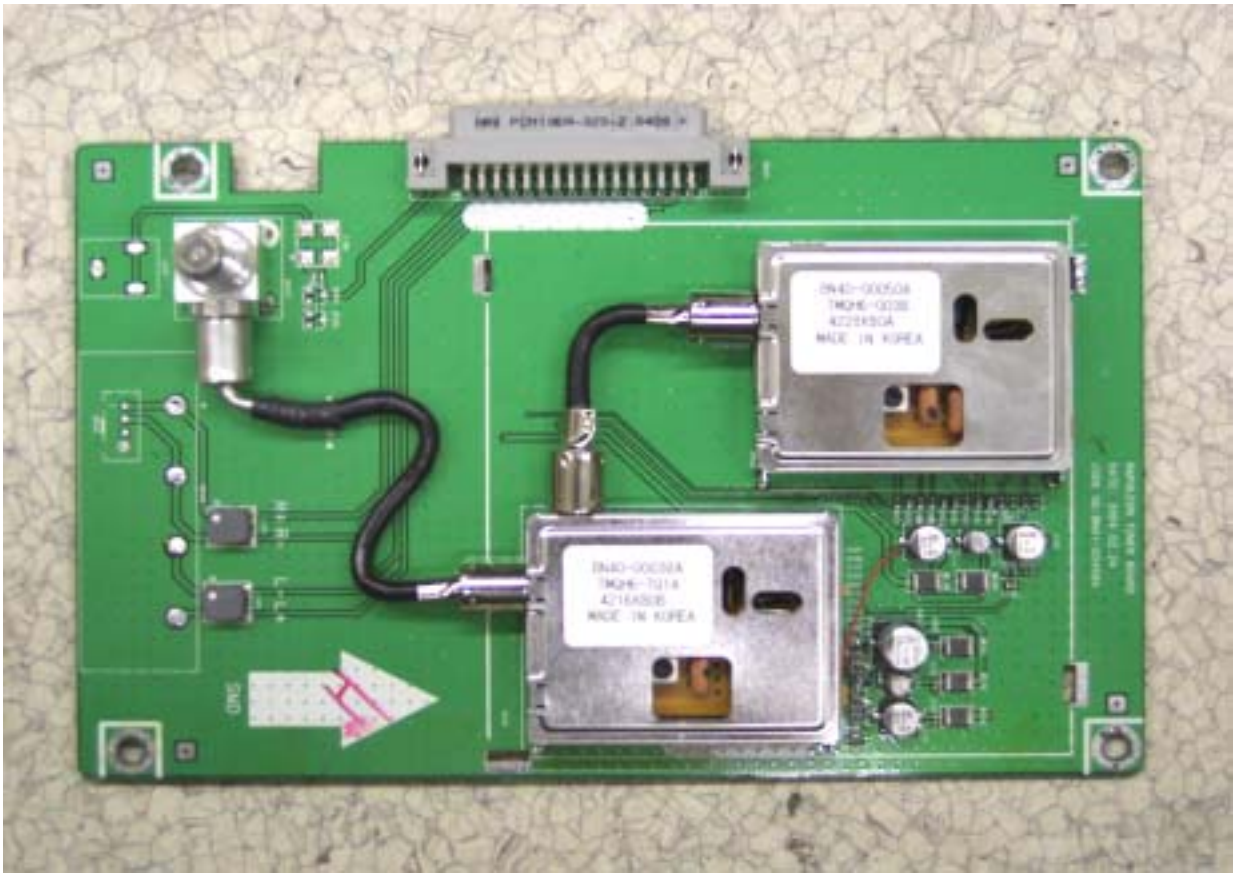
EUT front view

EUT rear view

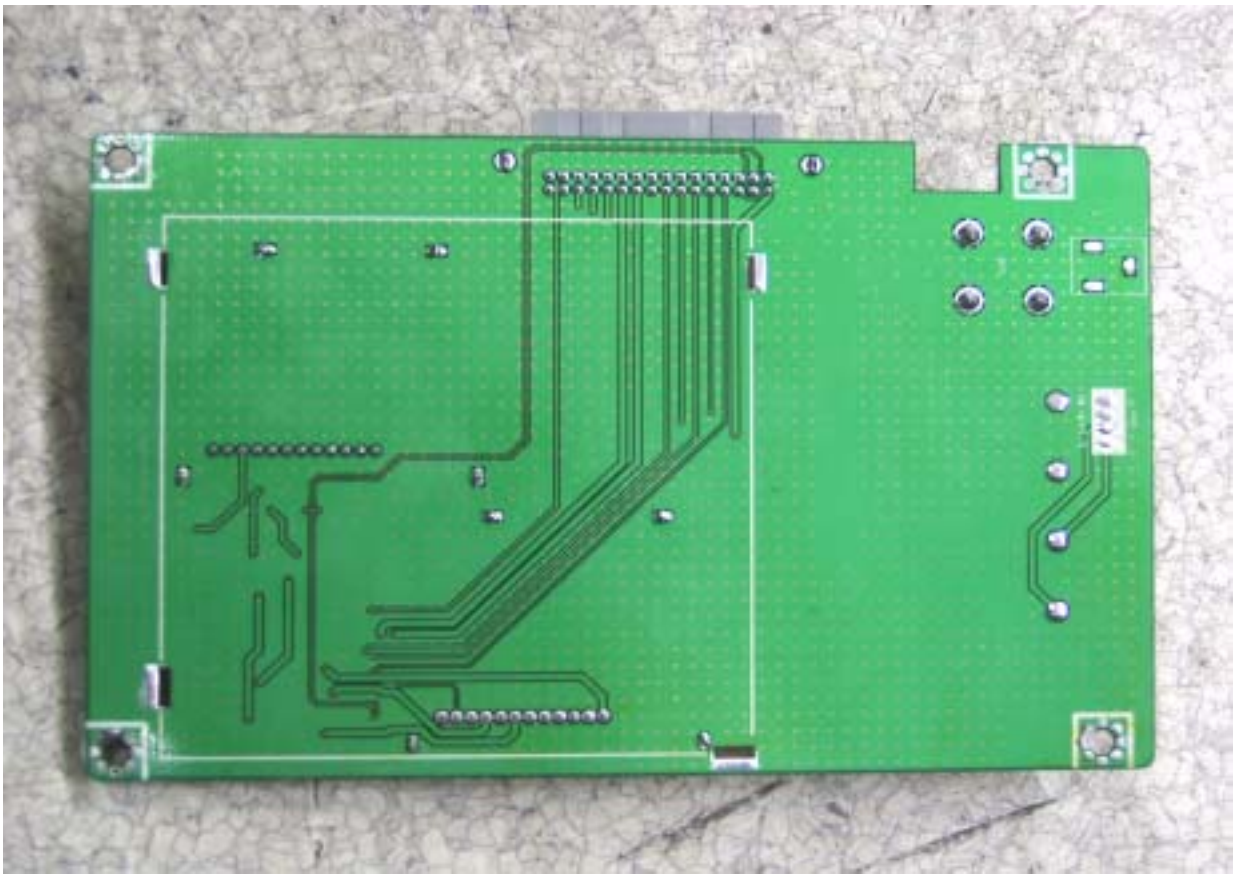
Label view



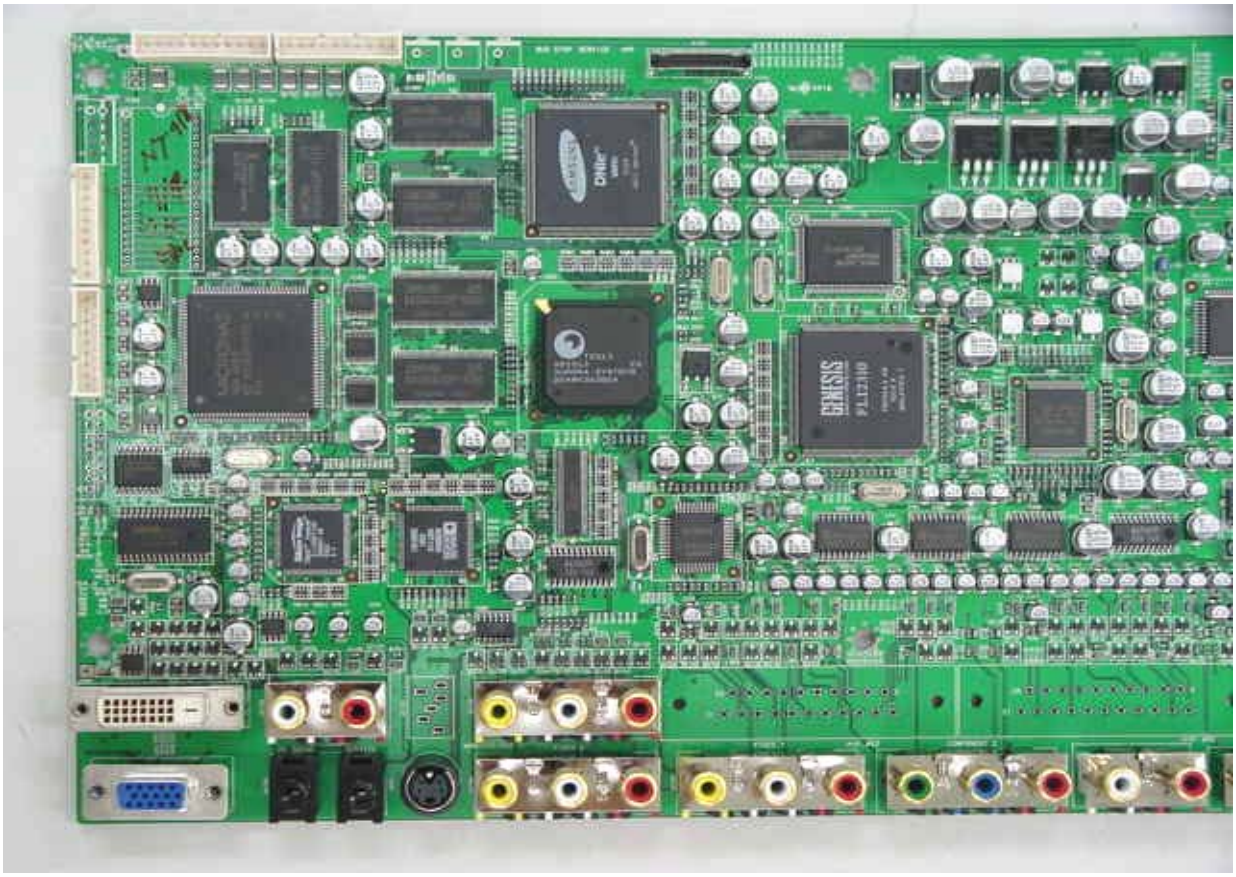
EUT internal view



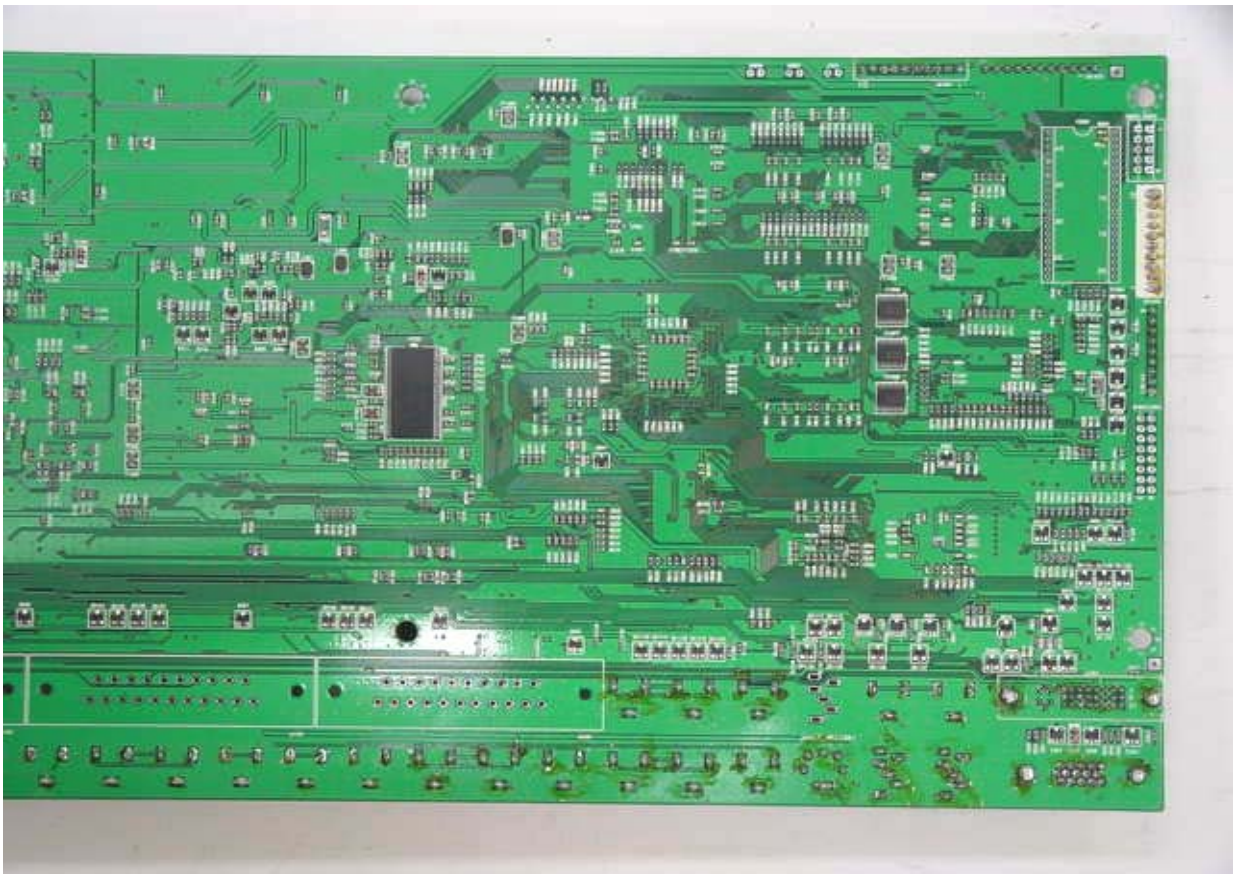
Tuner board top view



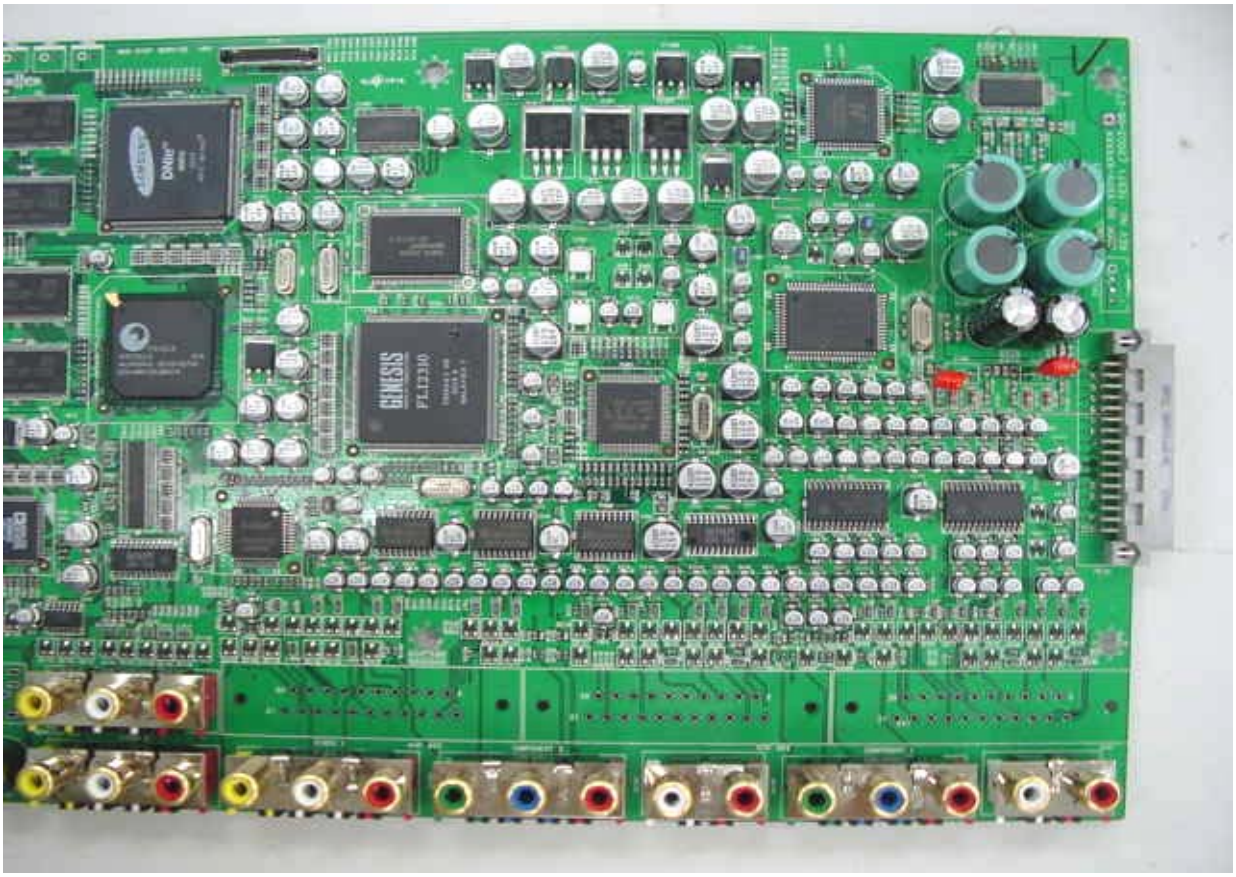
Tuner board bottom view



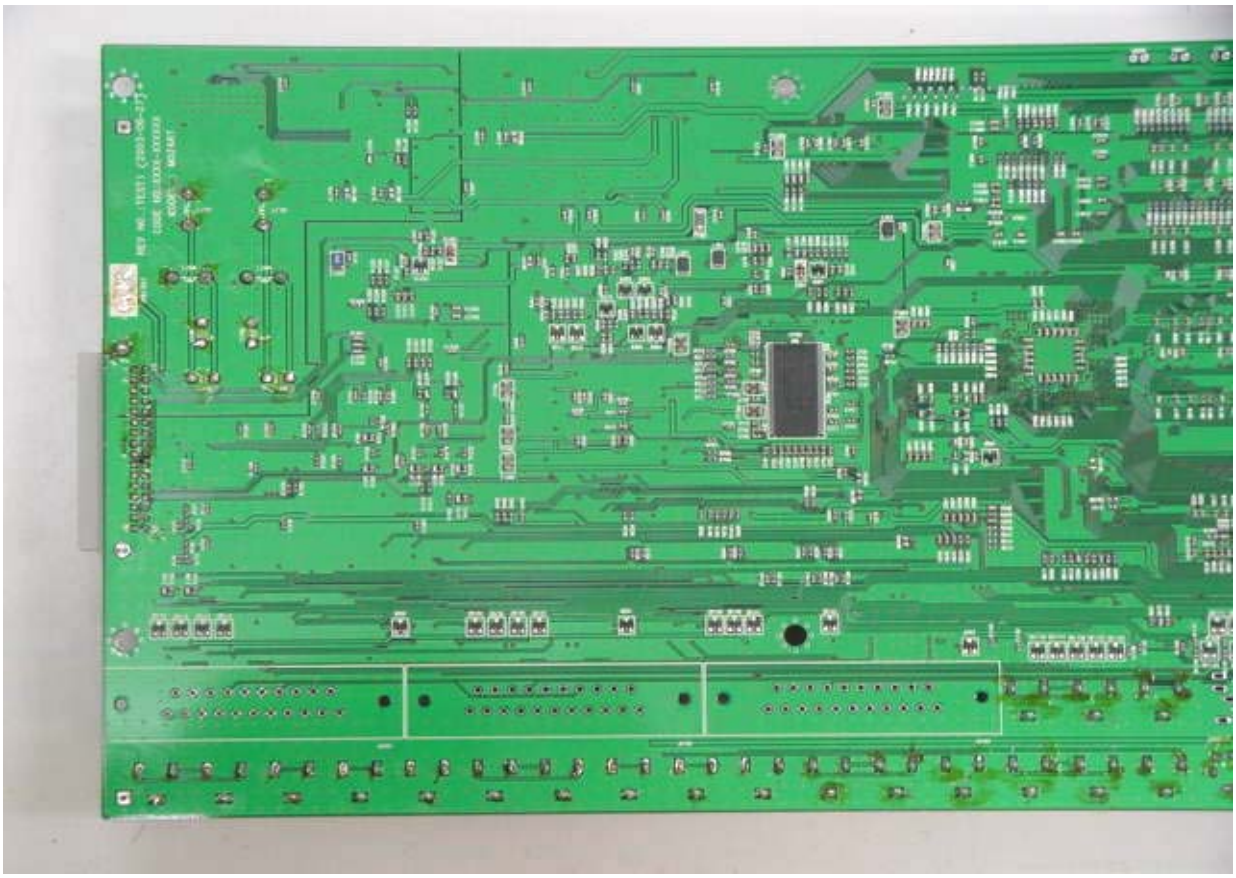
Visual board top view



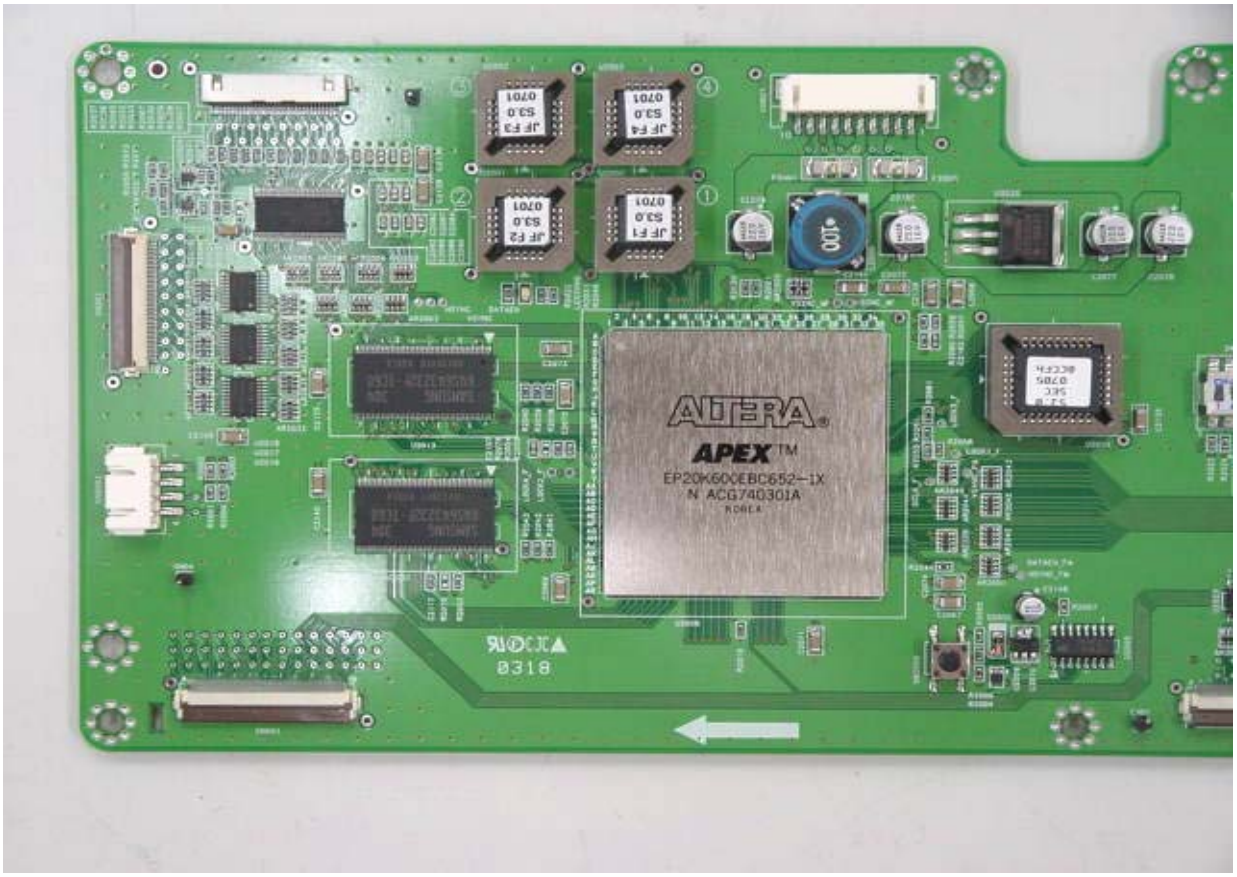
Visual board bottom view



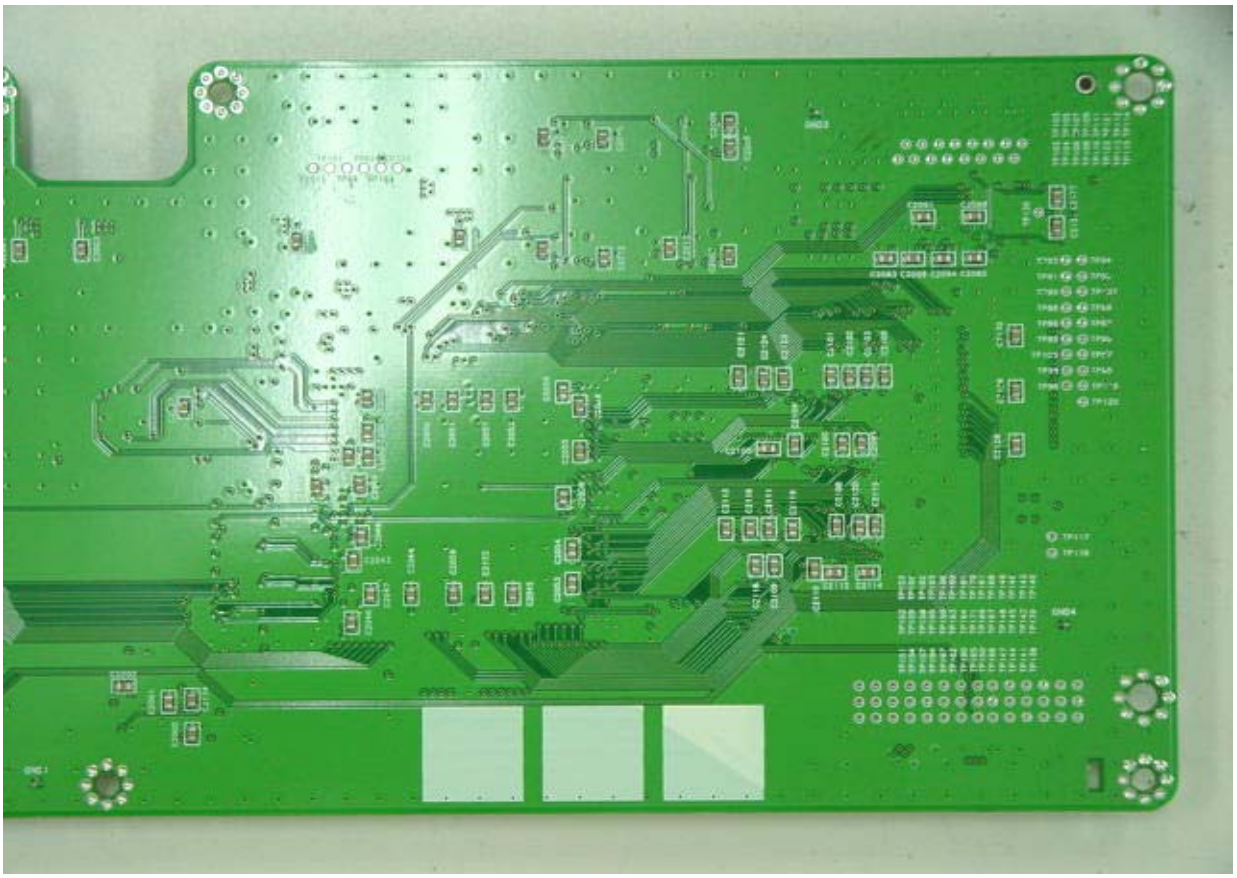
Visual board-1 top view



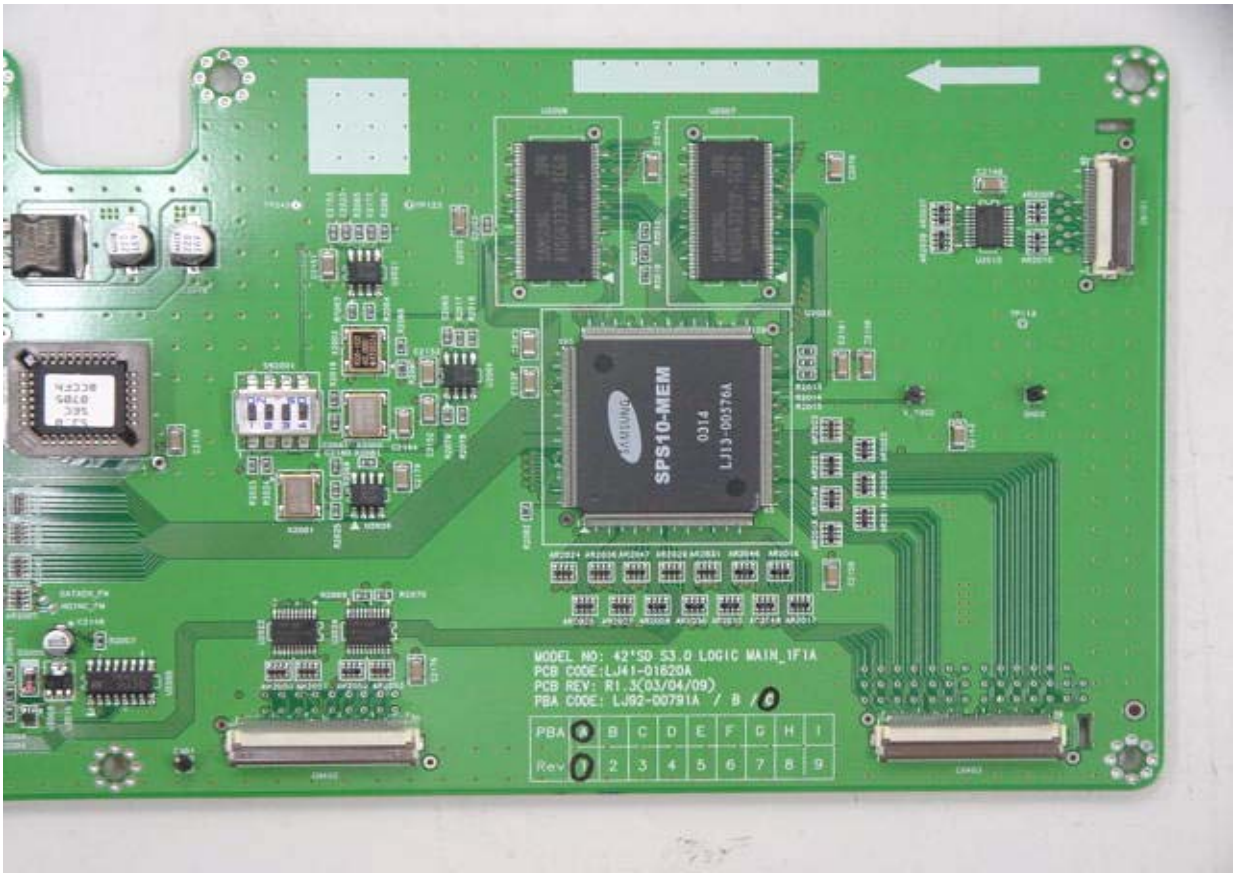
Visual board-1 bottom view



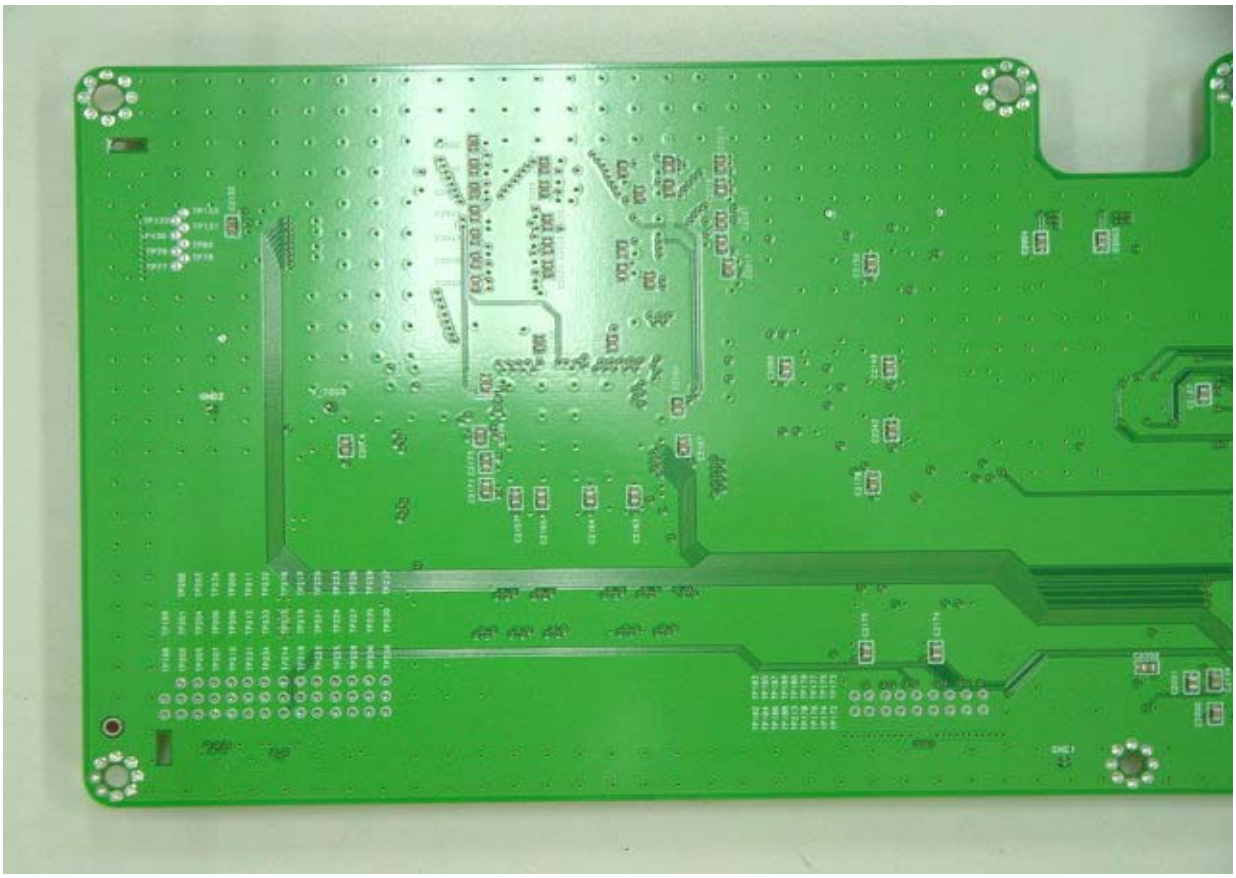
Logic board top view



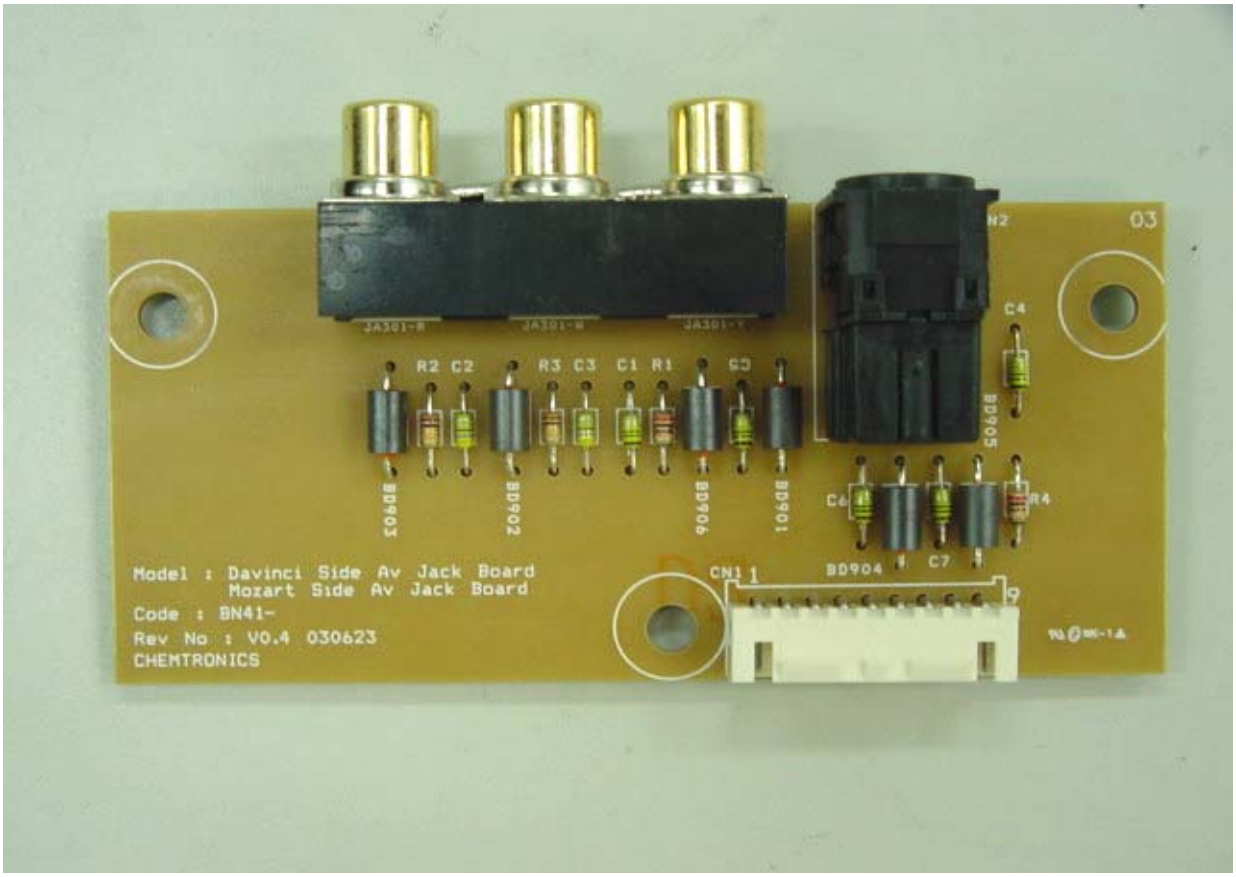
Logic board bottom view



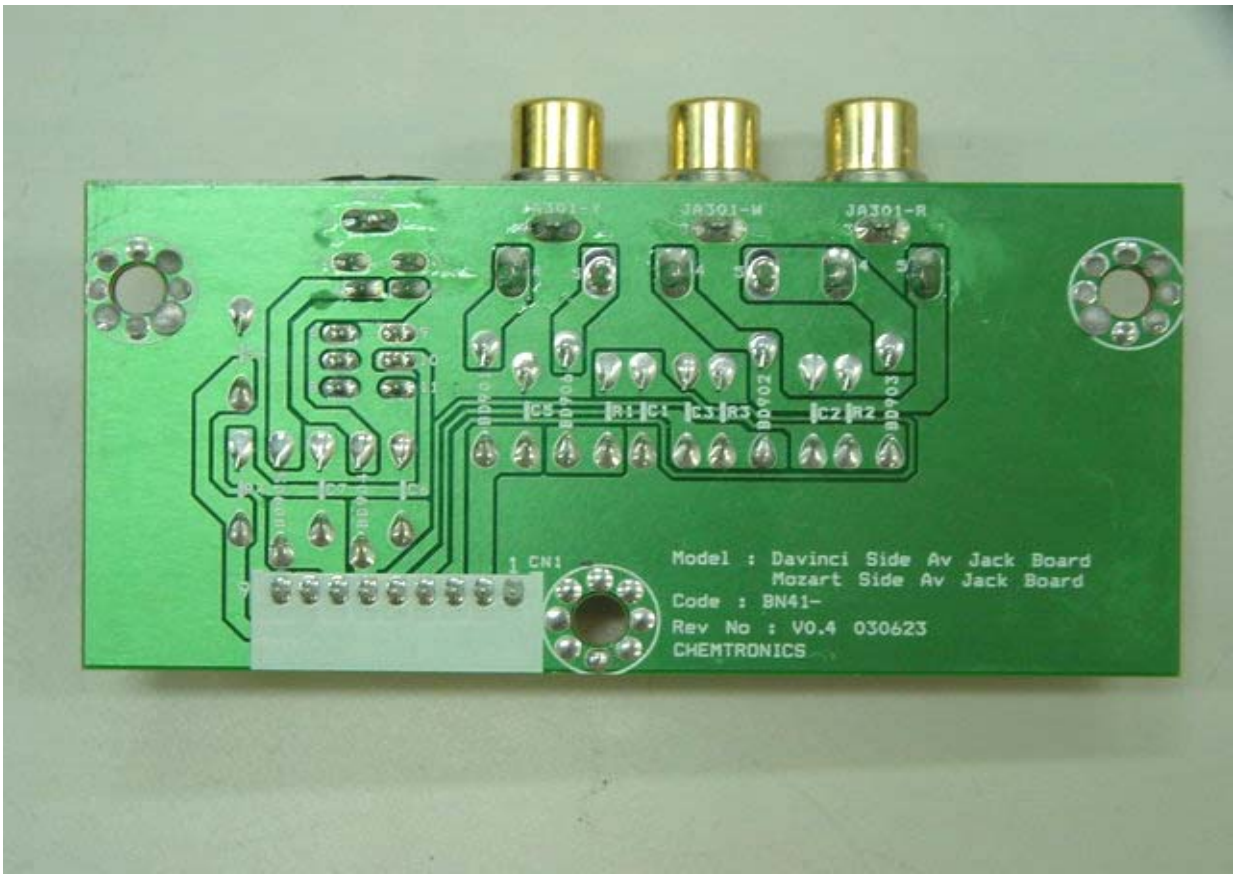
Logic board - 1 top view



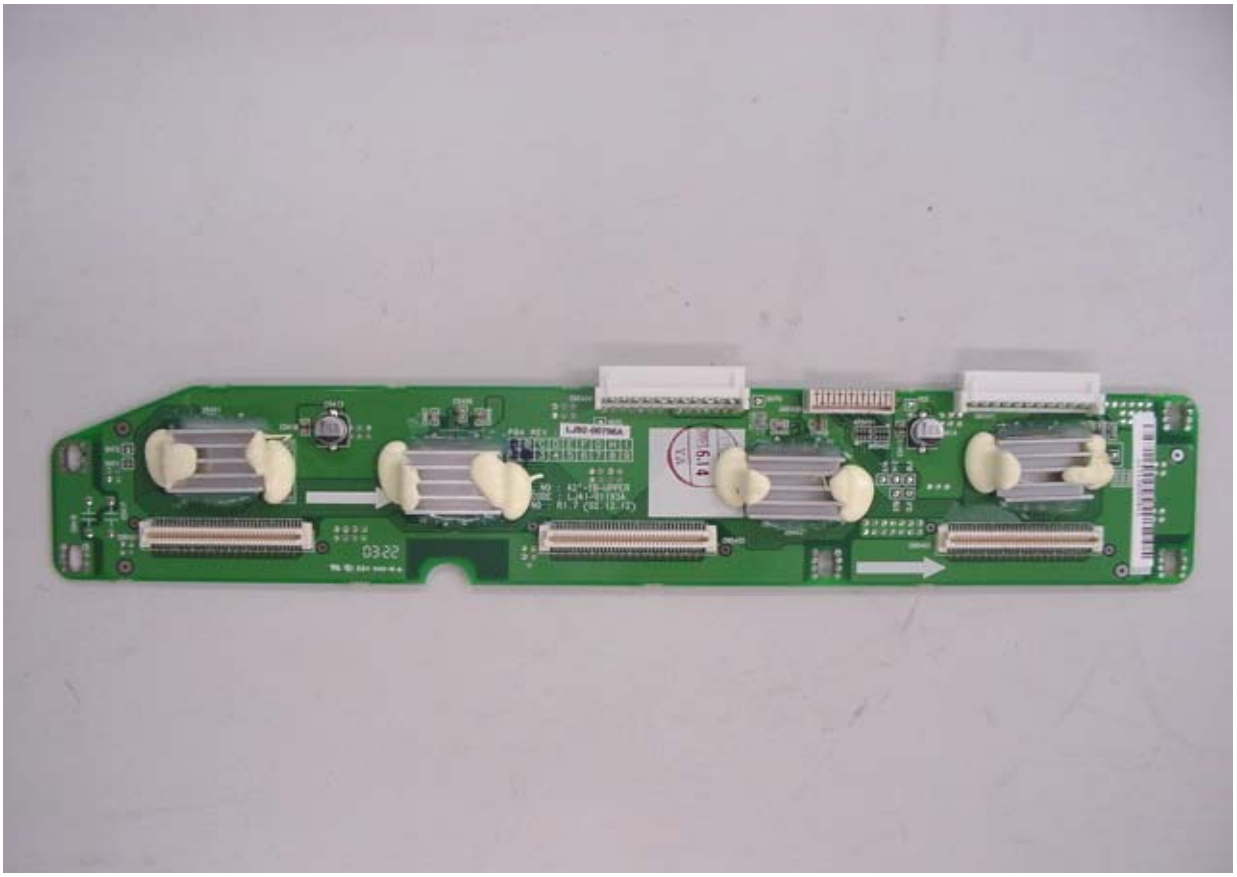
Logic board - 1 bottom view



AV jack board top view

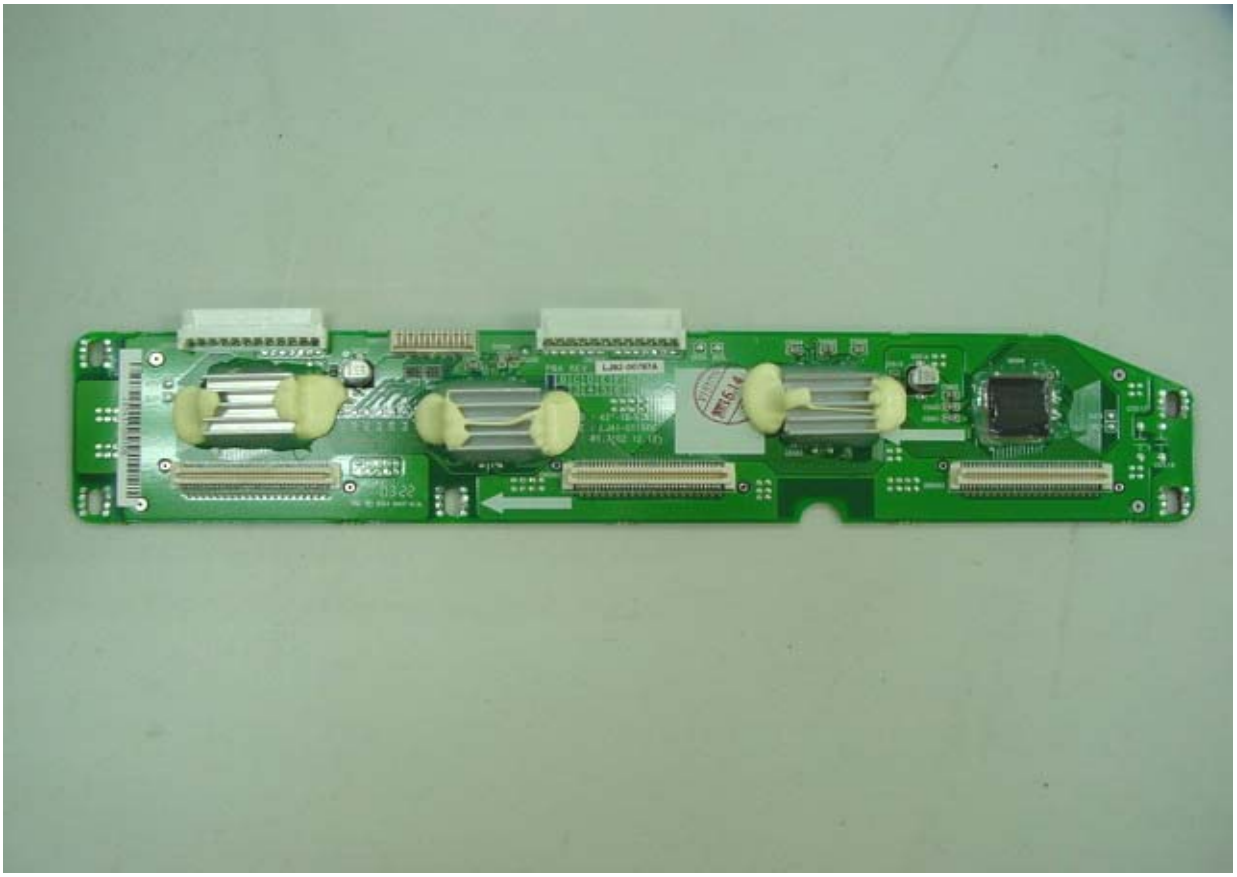


AV jack board bottom view

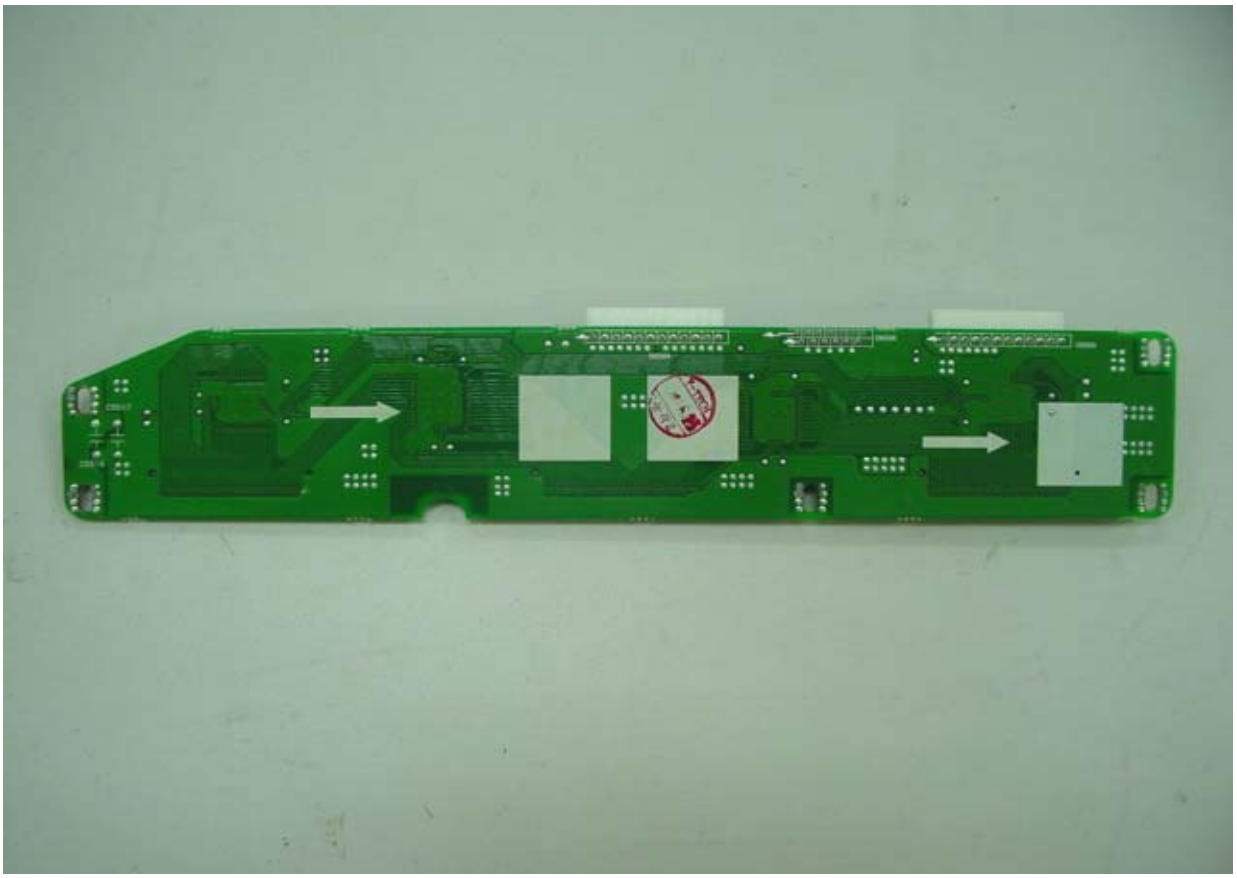


YB upper board top view

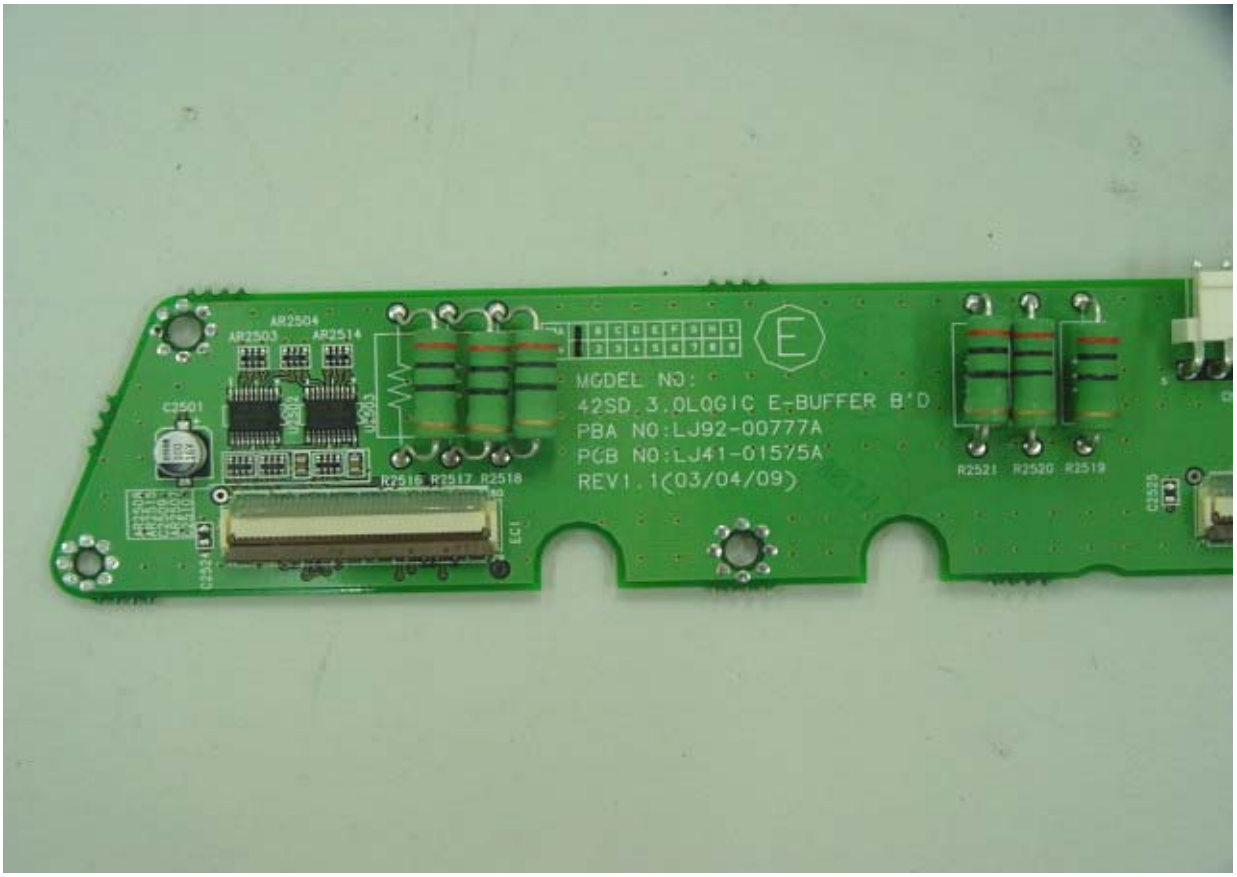
YB upper board bottom view



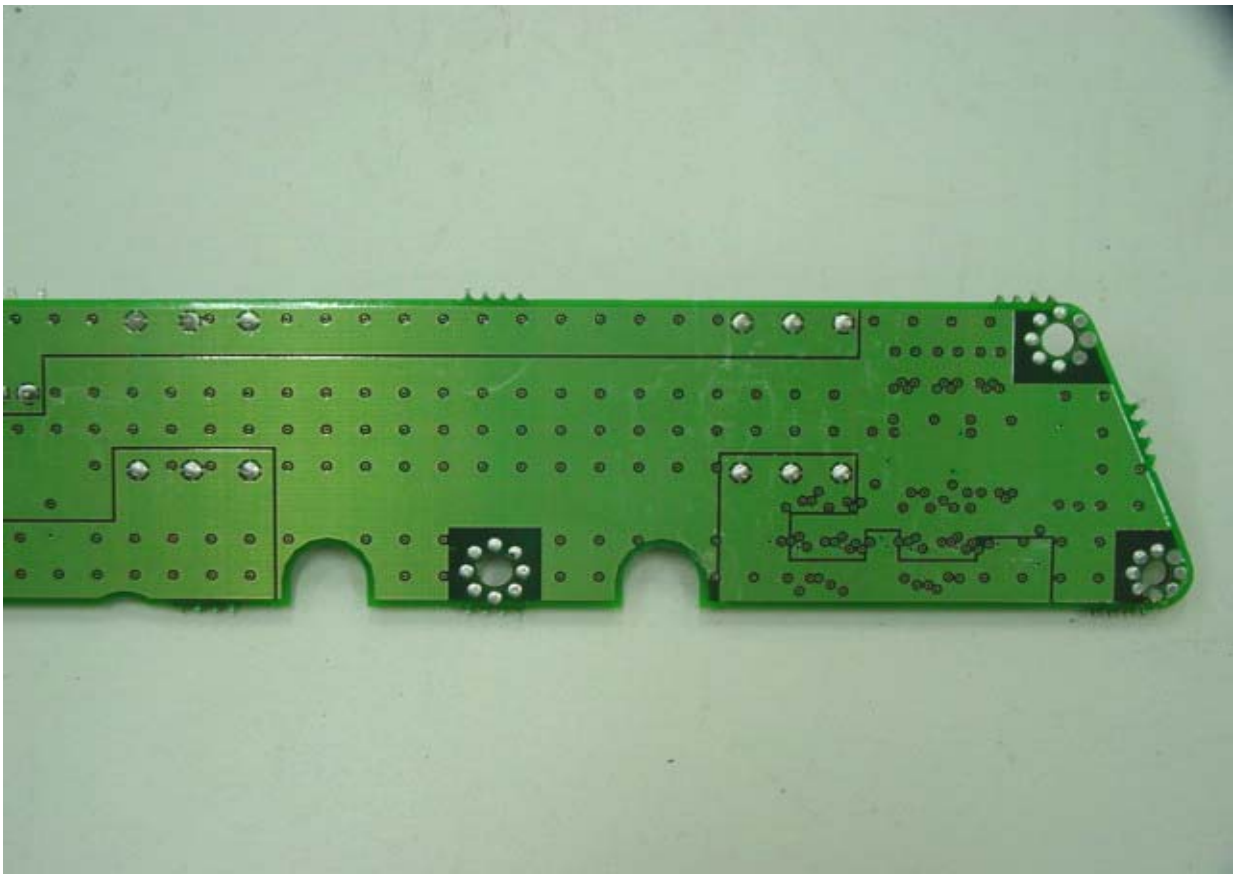
YB lower board top view



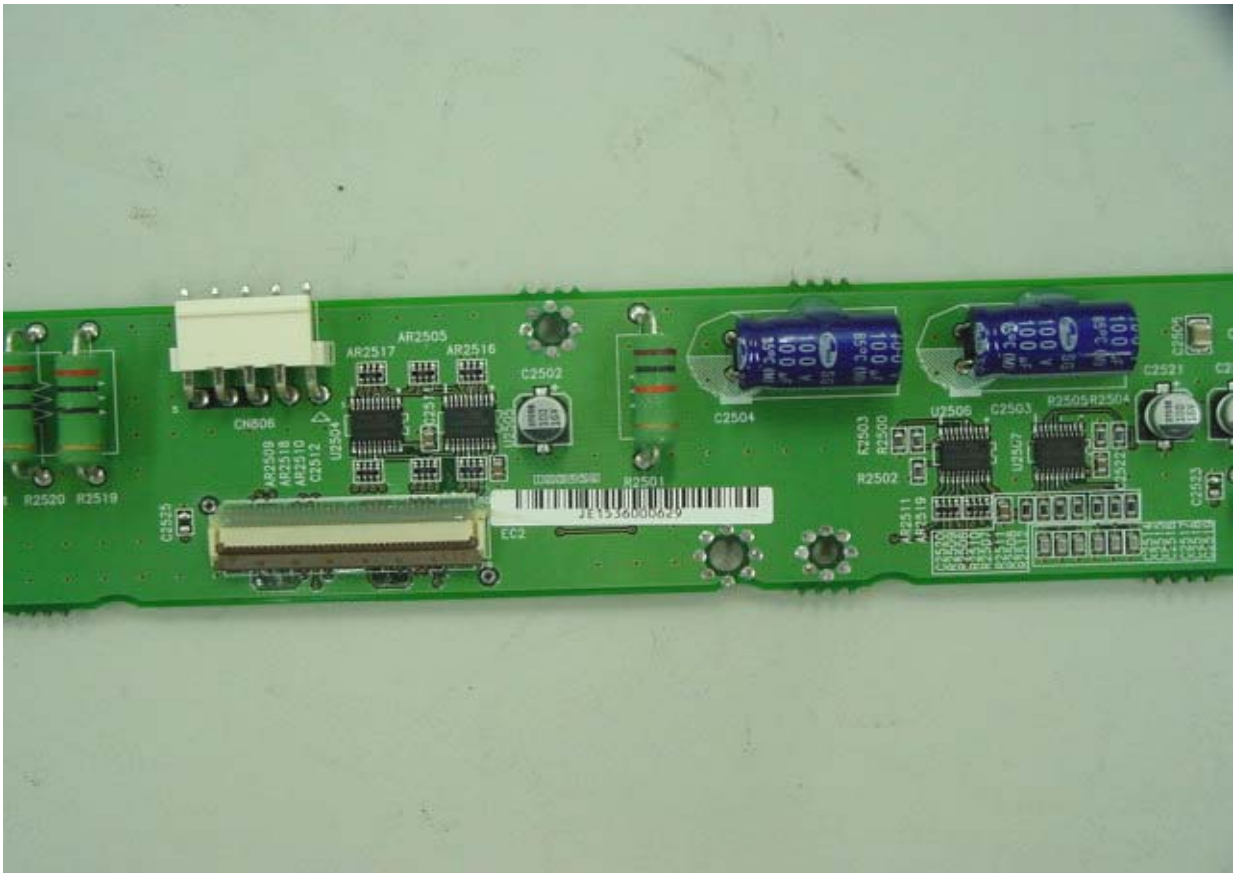
YB lower board bottom view



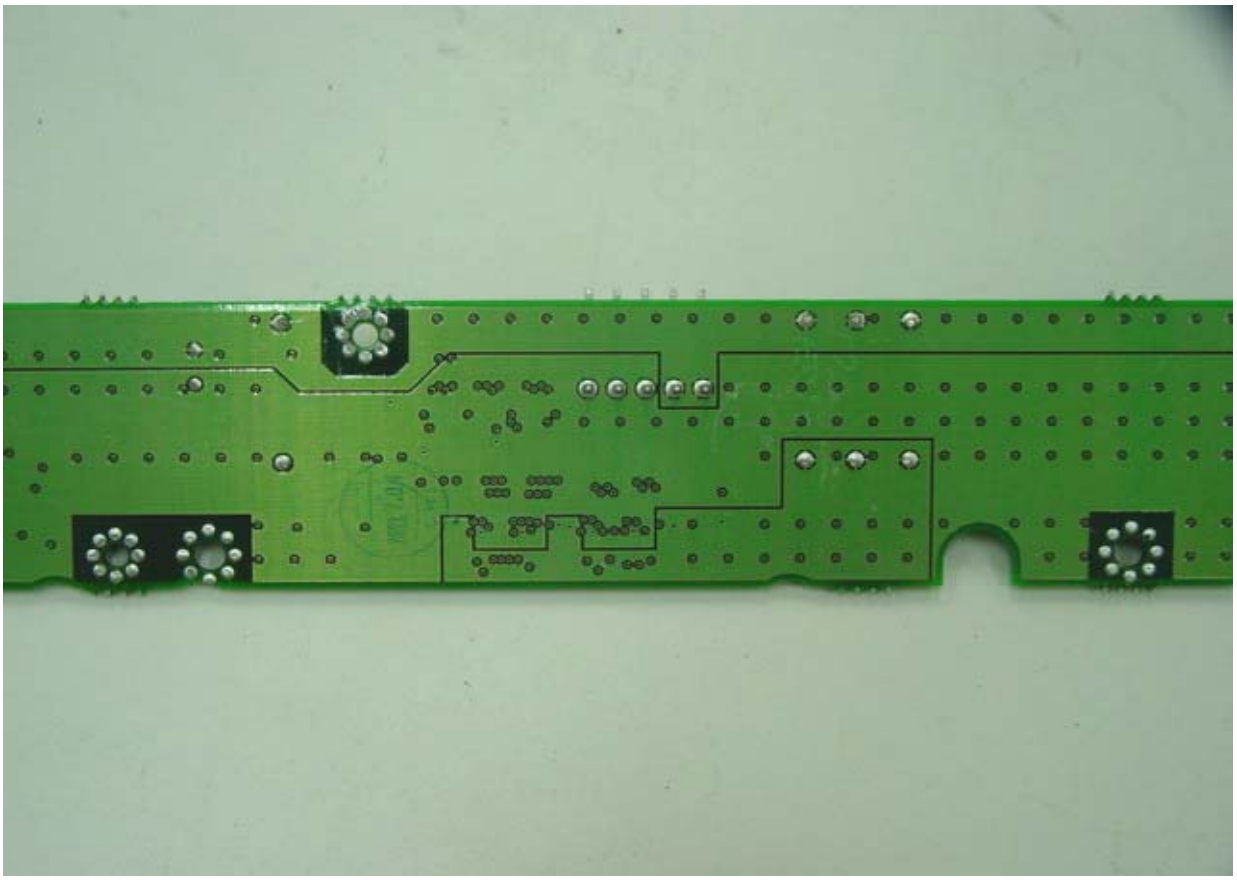
Logic E-buffer board top view



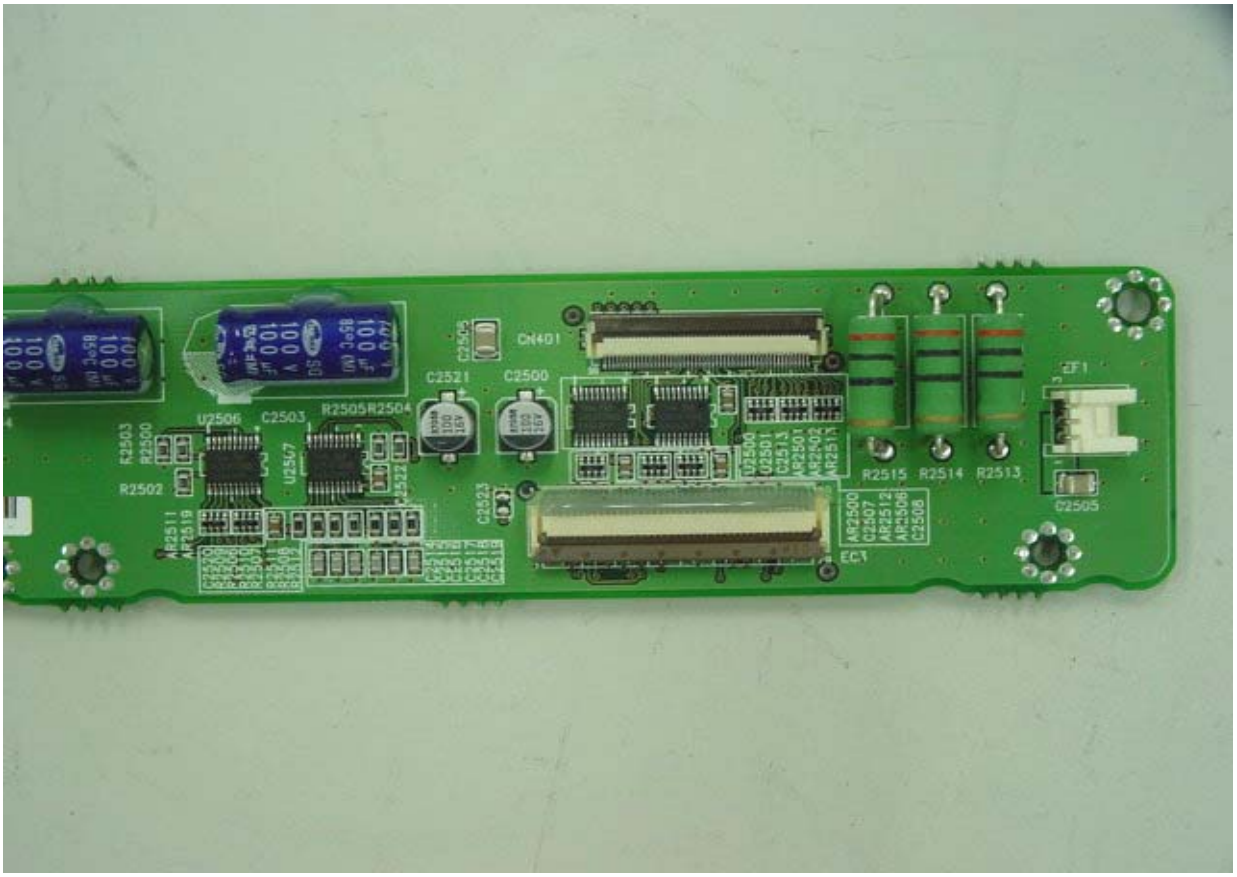
Logic E-buffer board bottom view



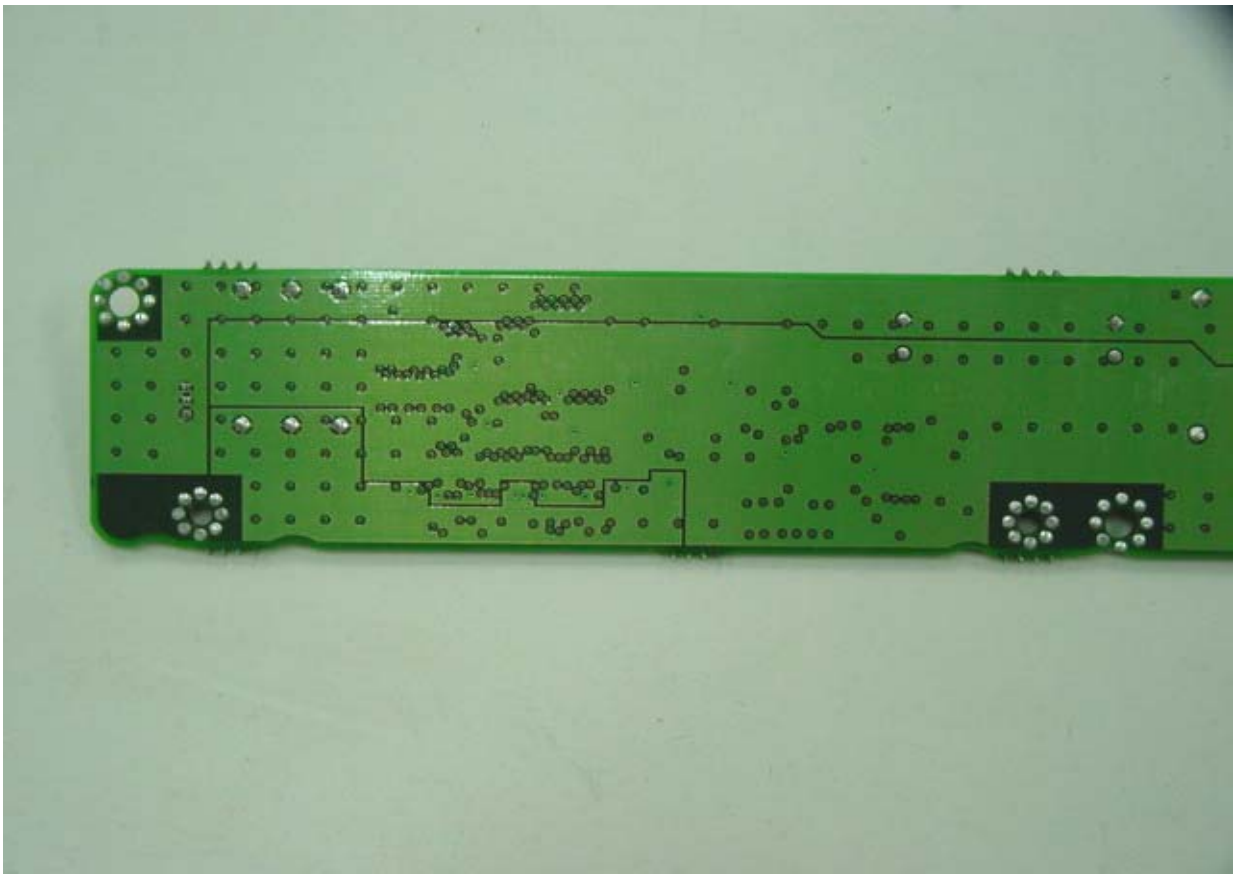
Logic E-buffer board-1 top view



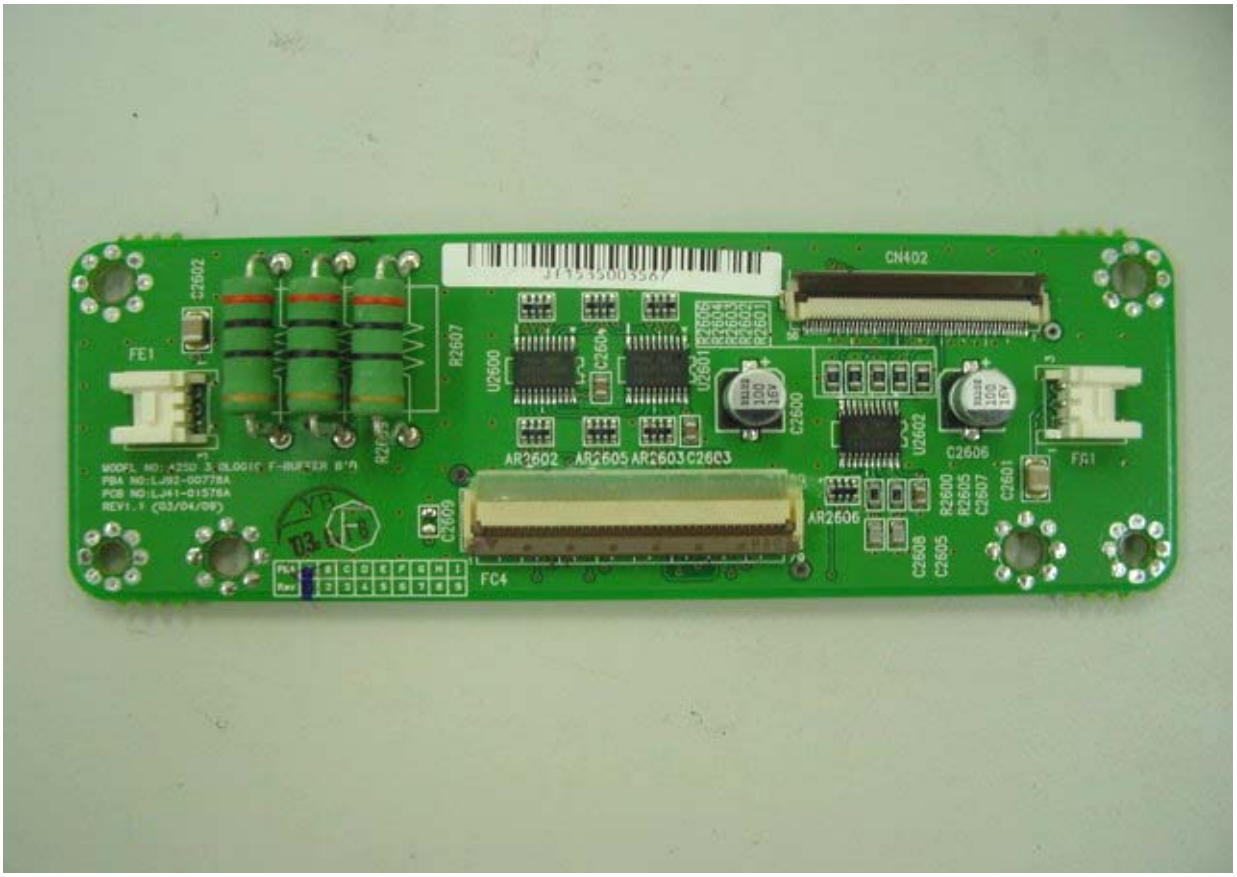
Logic E-buffer board-1 bottom view



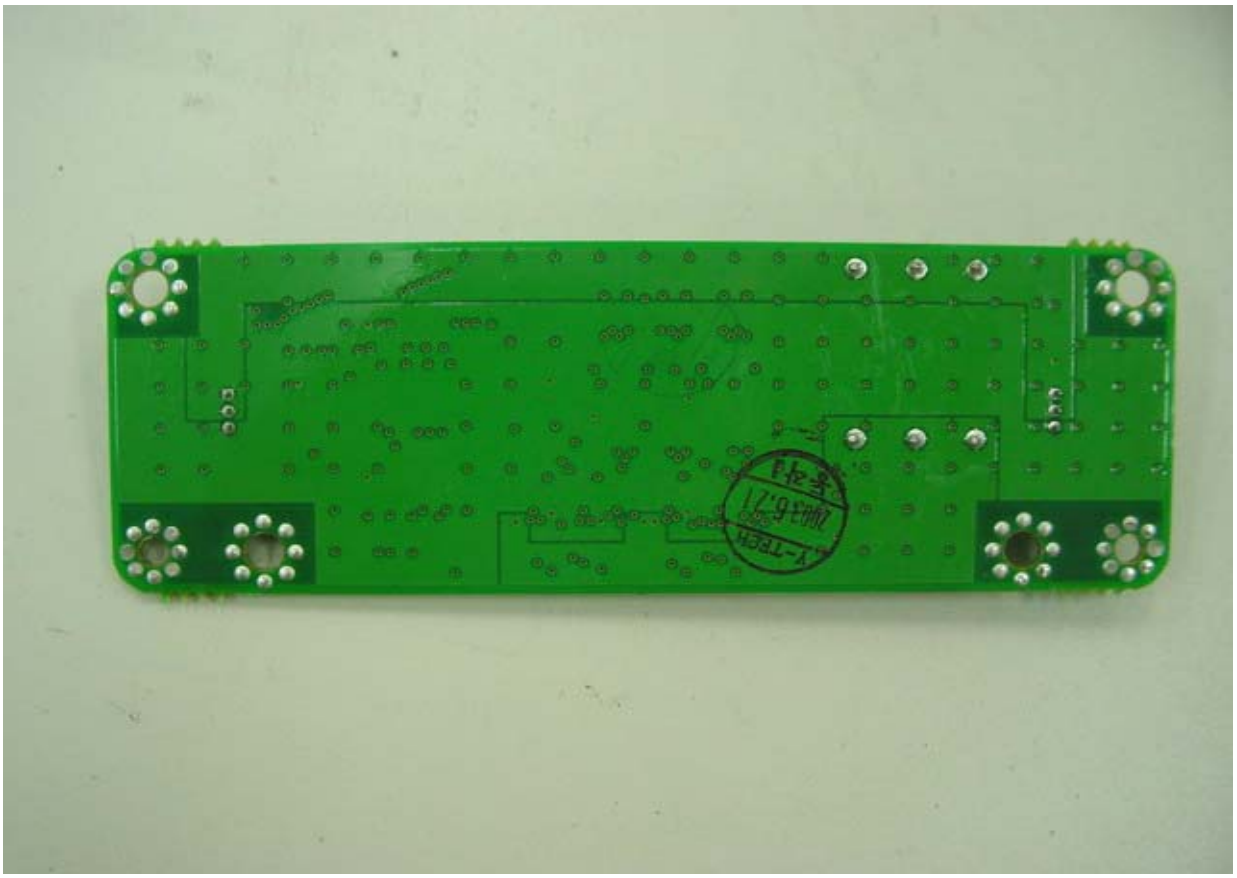
Logic E-buffer board-2 top view



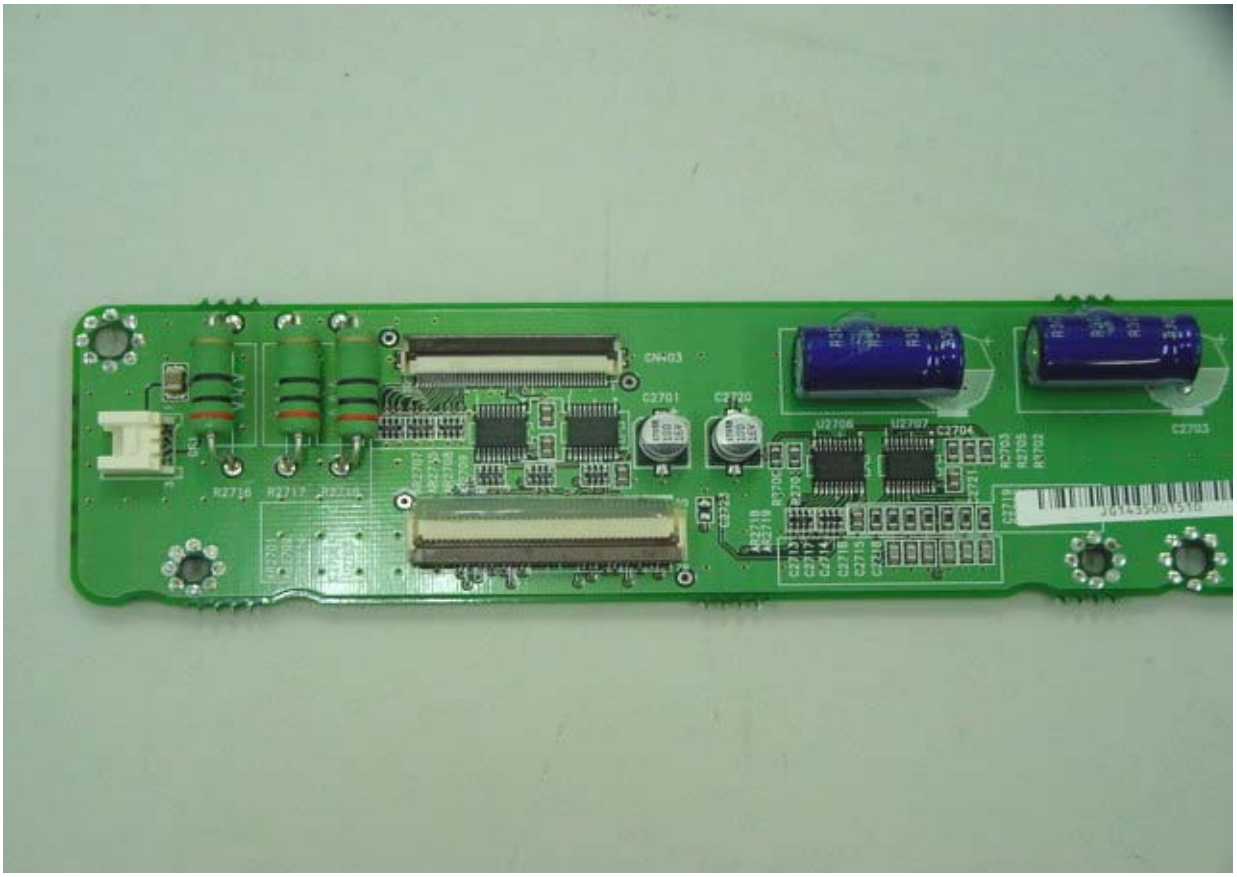
Logic E-buffer board-2 bottom view



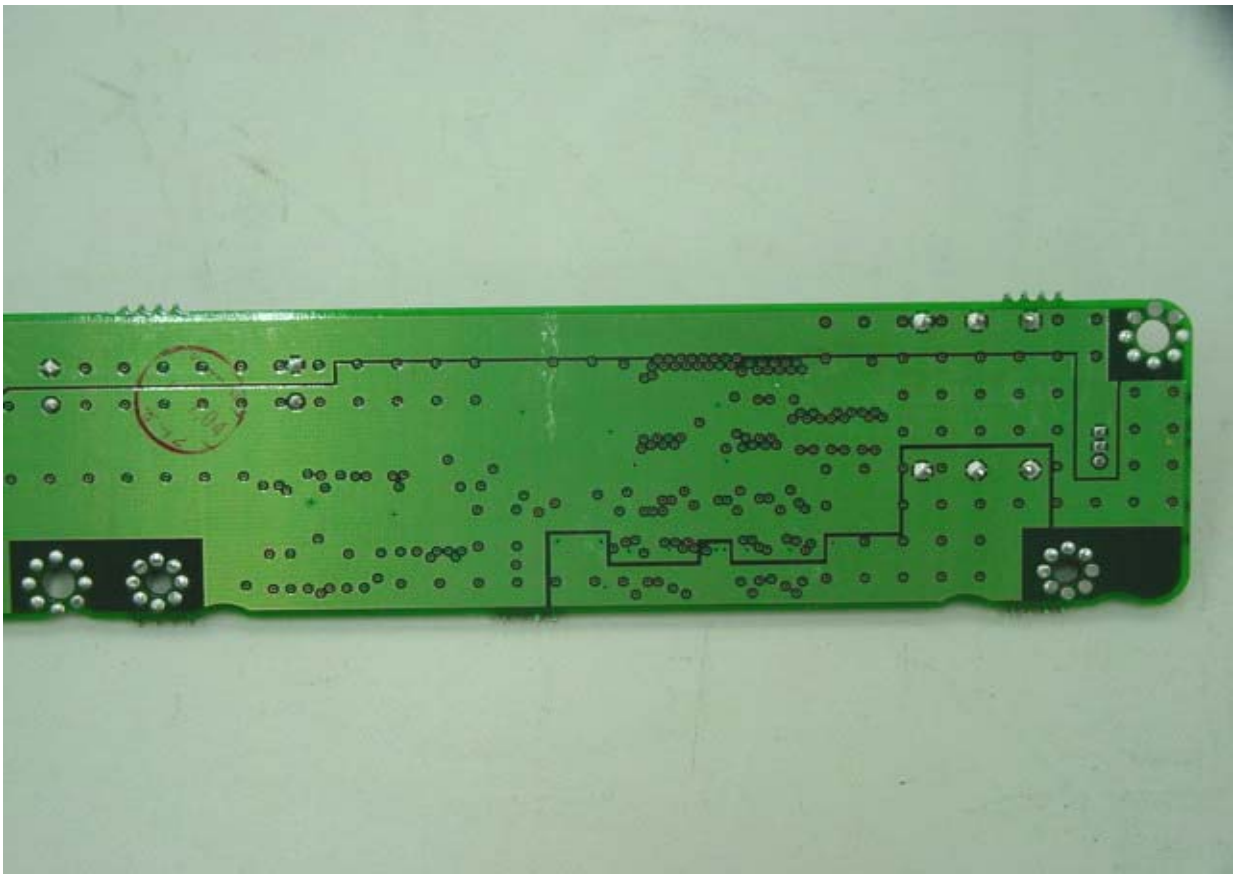
Logic F-buffer board top view



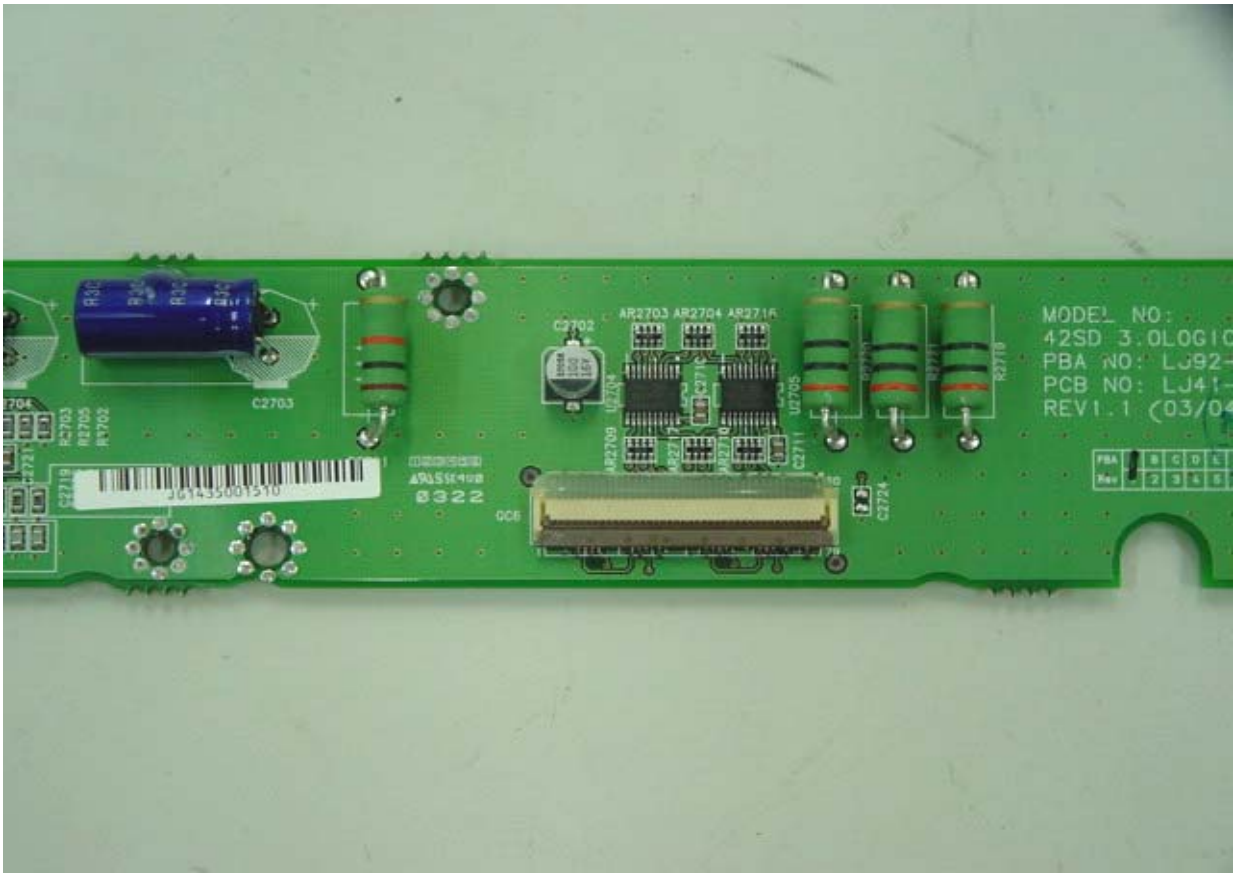
Logic F-buffer board bottom view



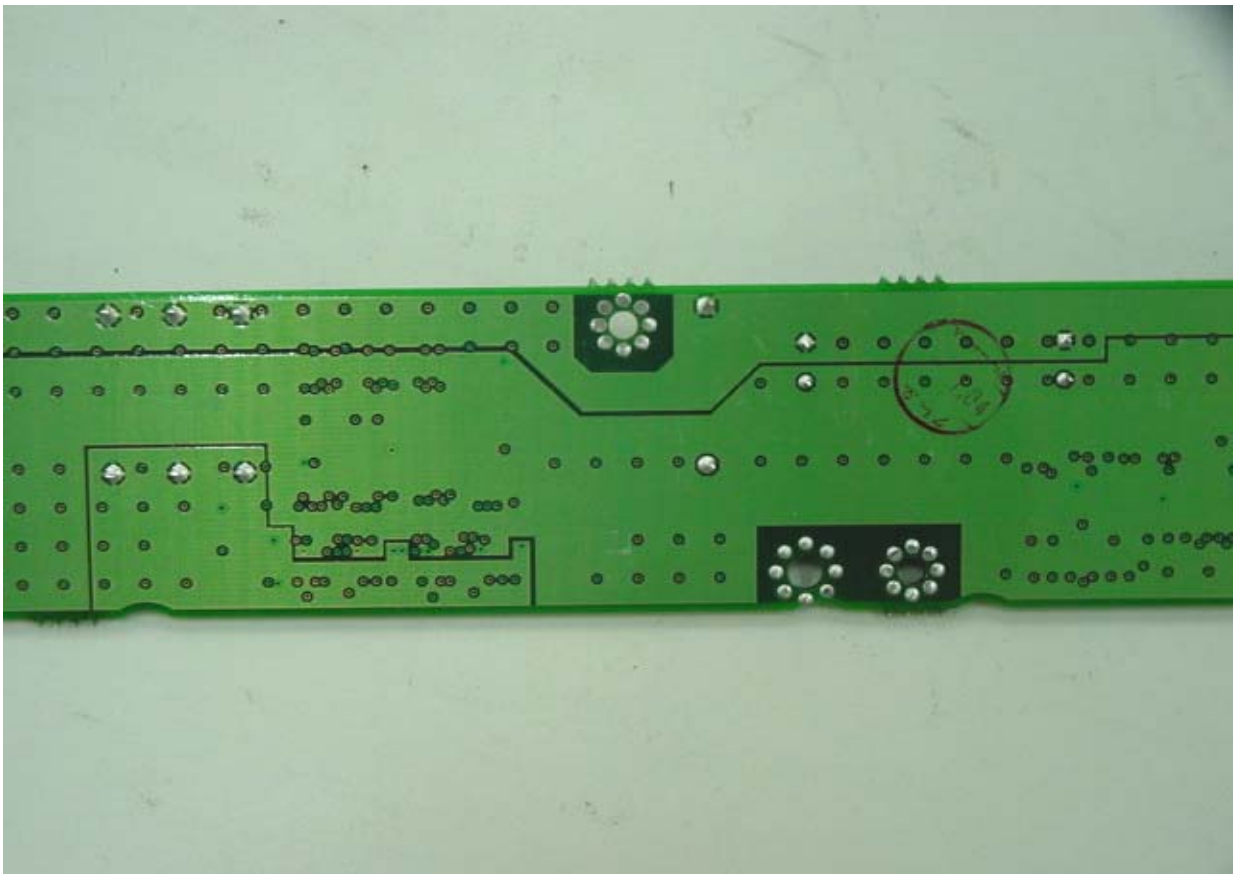
Logic G-buffer board top view



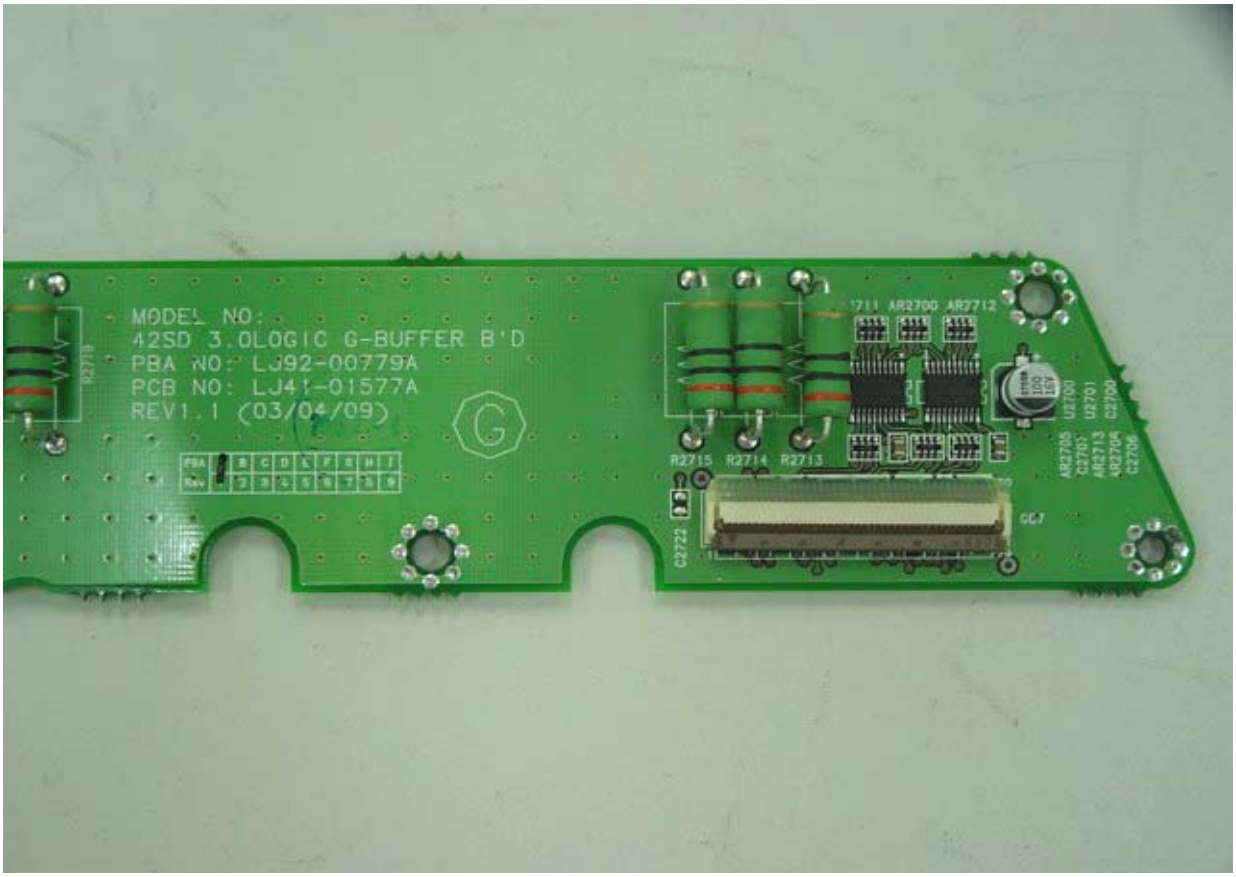
Logic G-buffer board bottom view



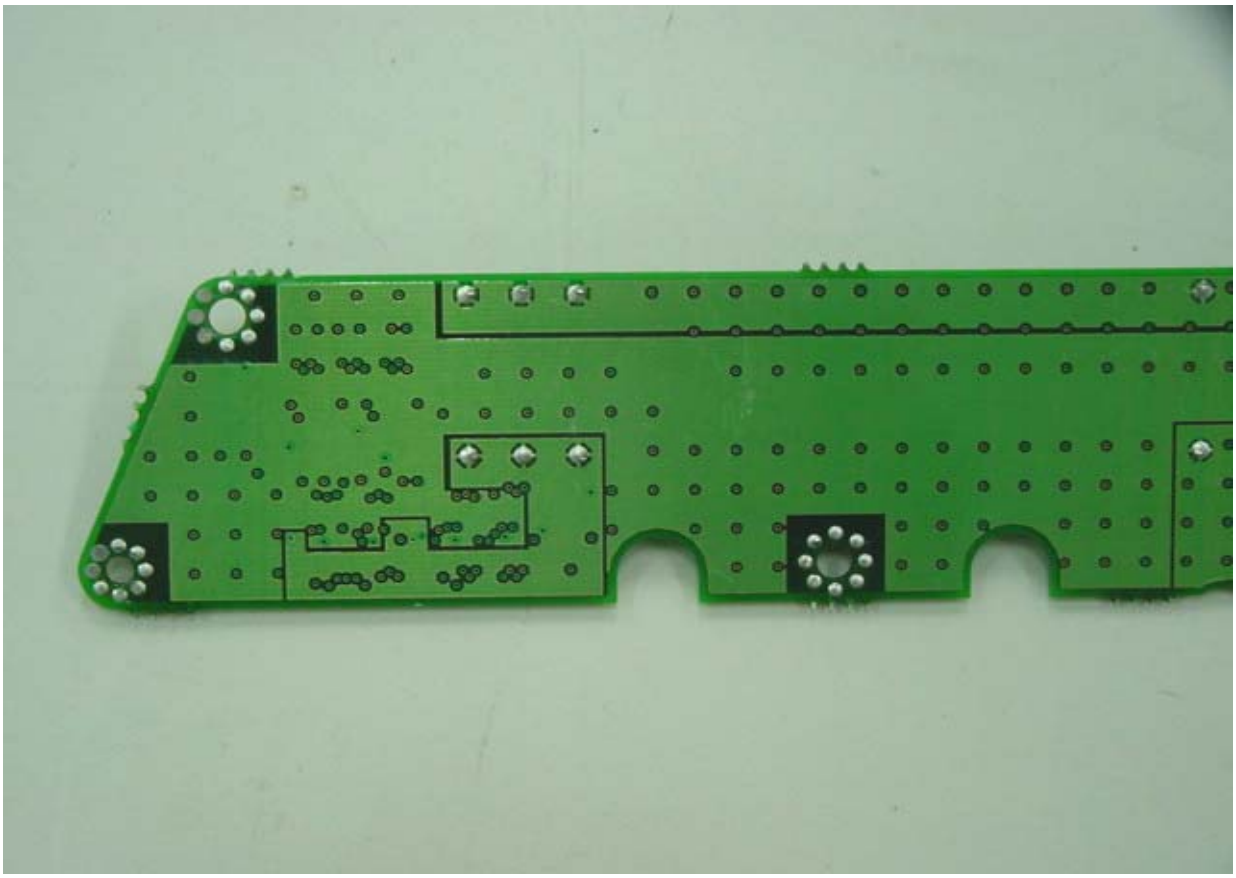
Logic G-buffer board-1 top view



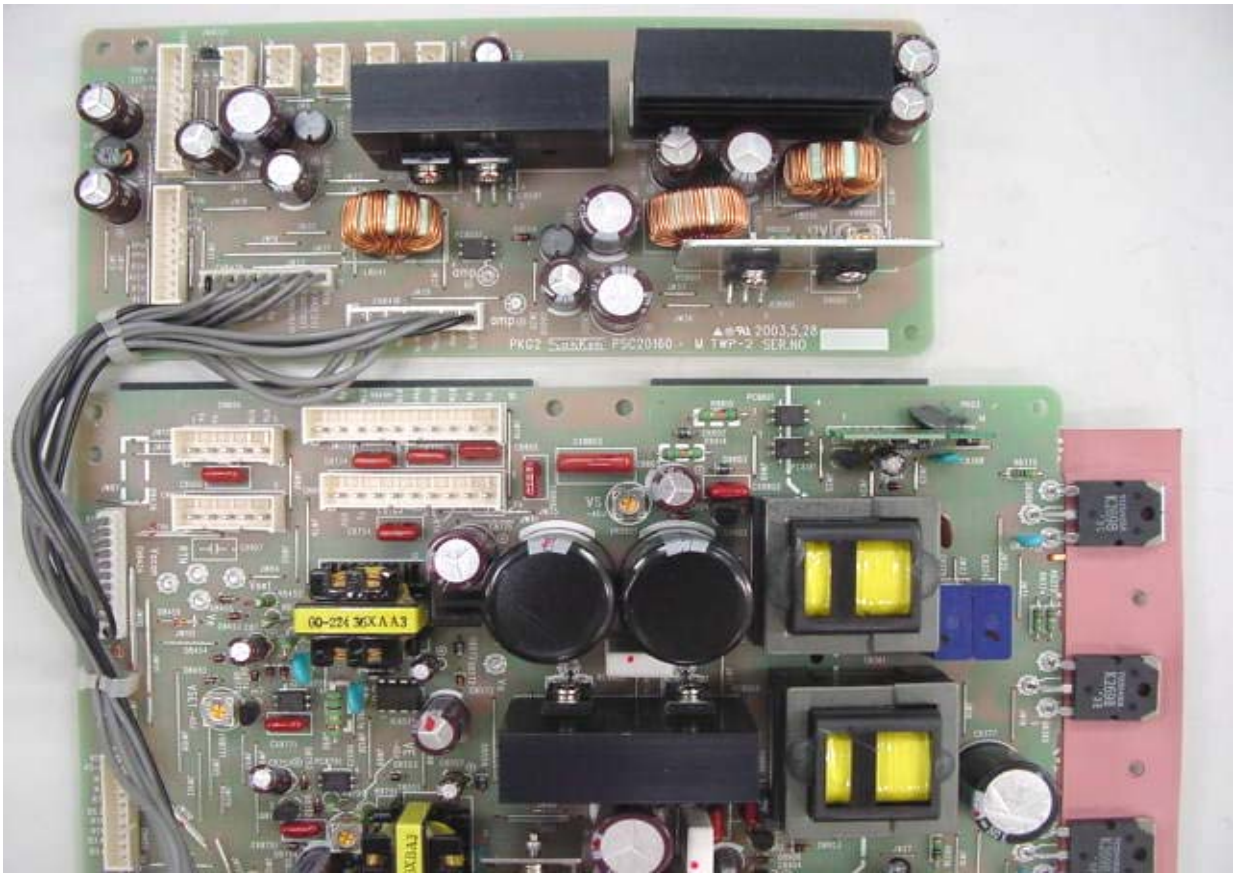
Logic G-buffer board-1 bottom view



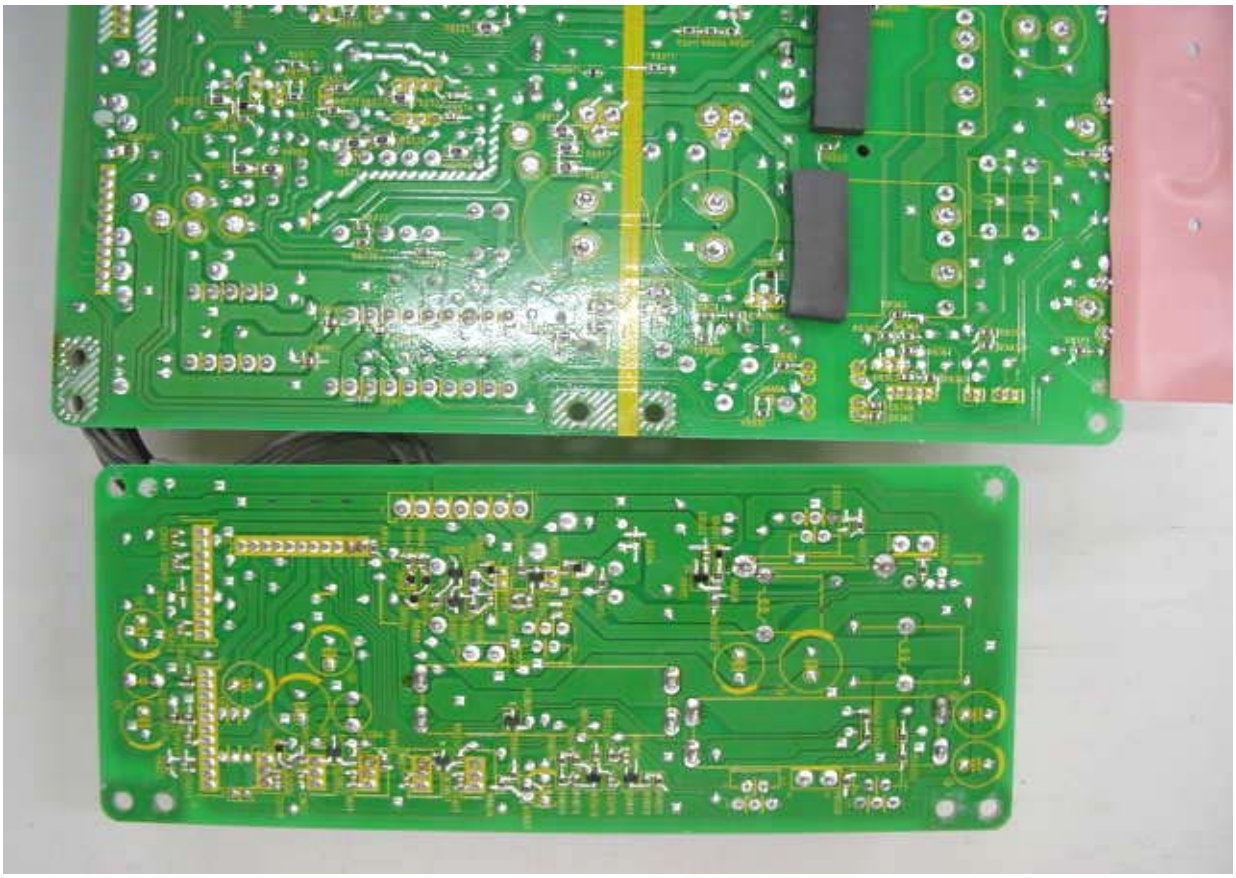
Logic G-buffer board-2 top view



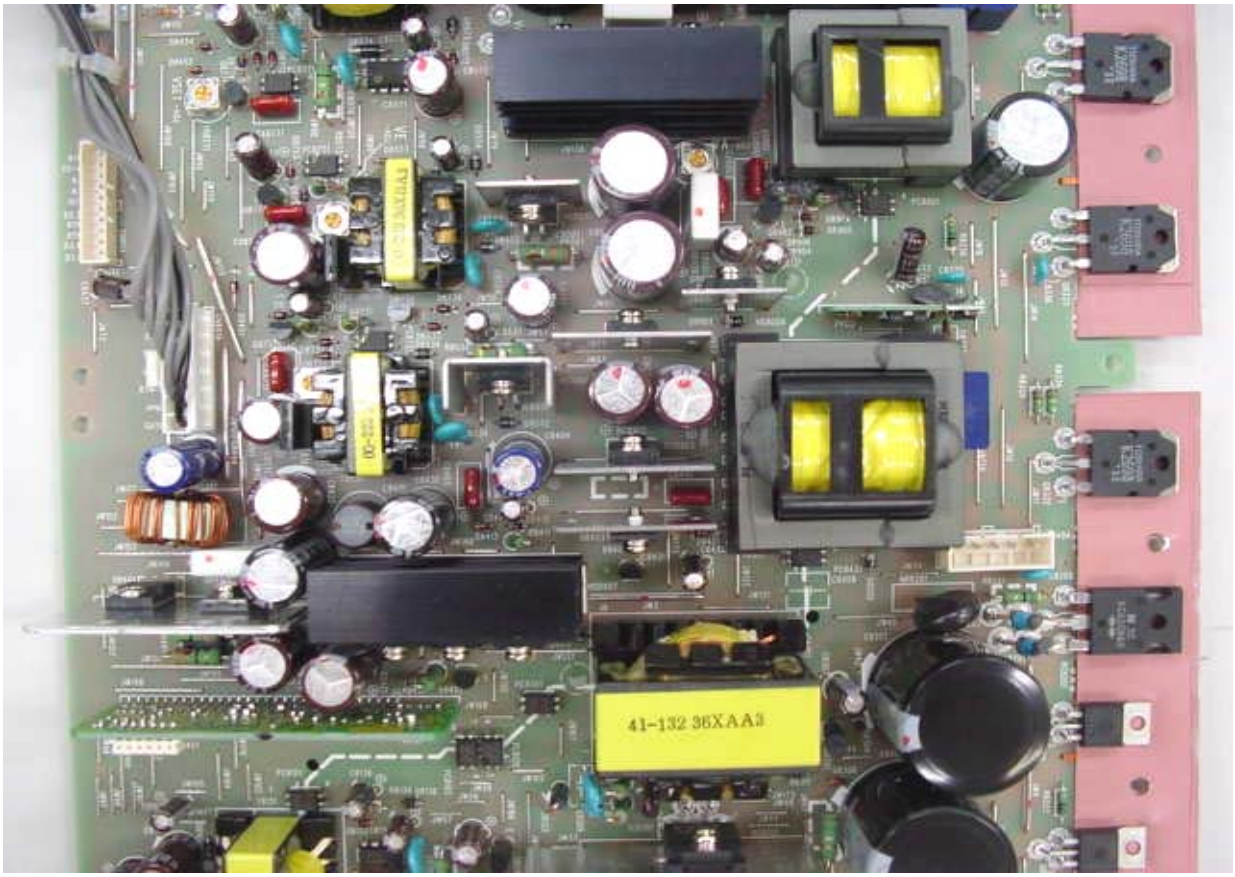
Logic G-buffer board-2 bottom view



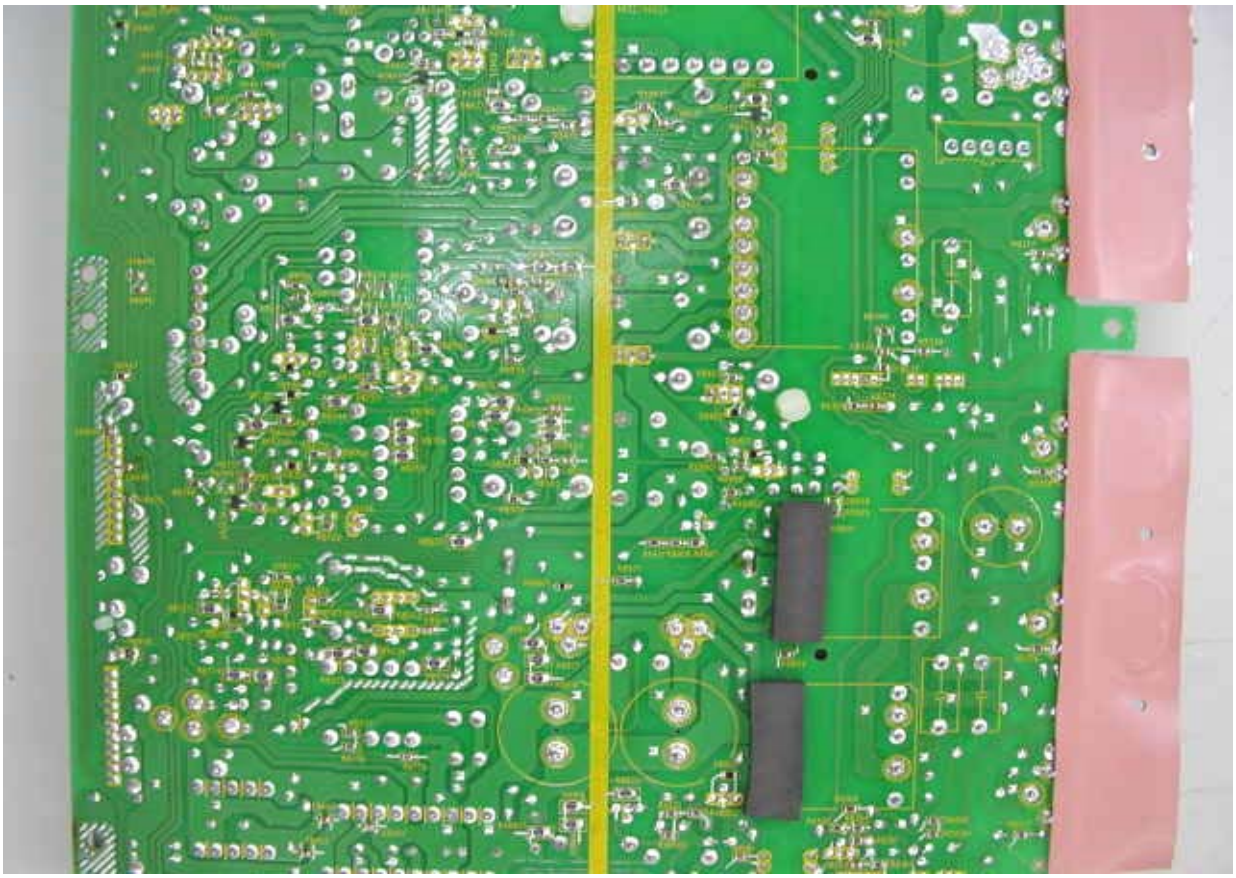
SMPS board top view



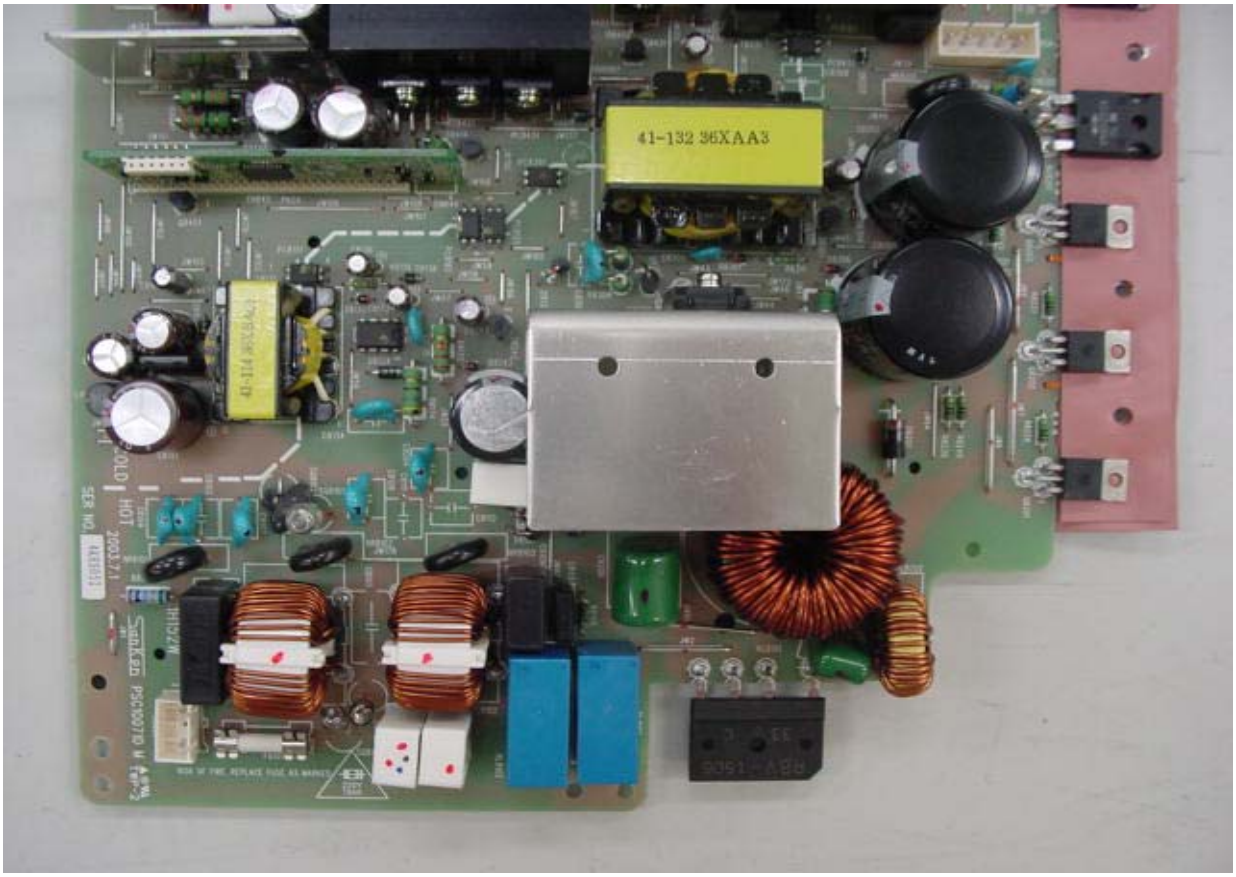
SMPS board bottom view



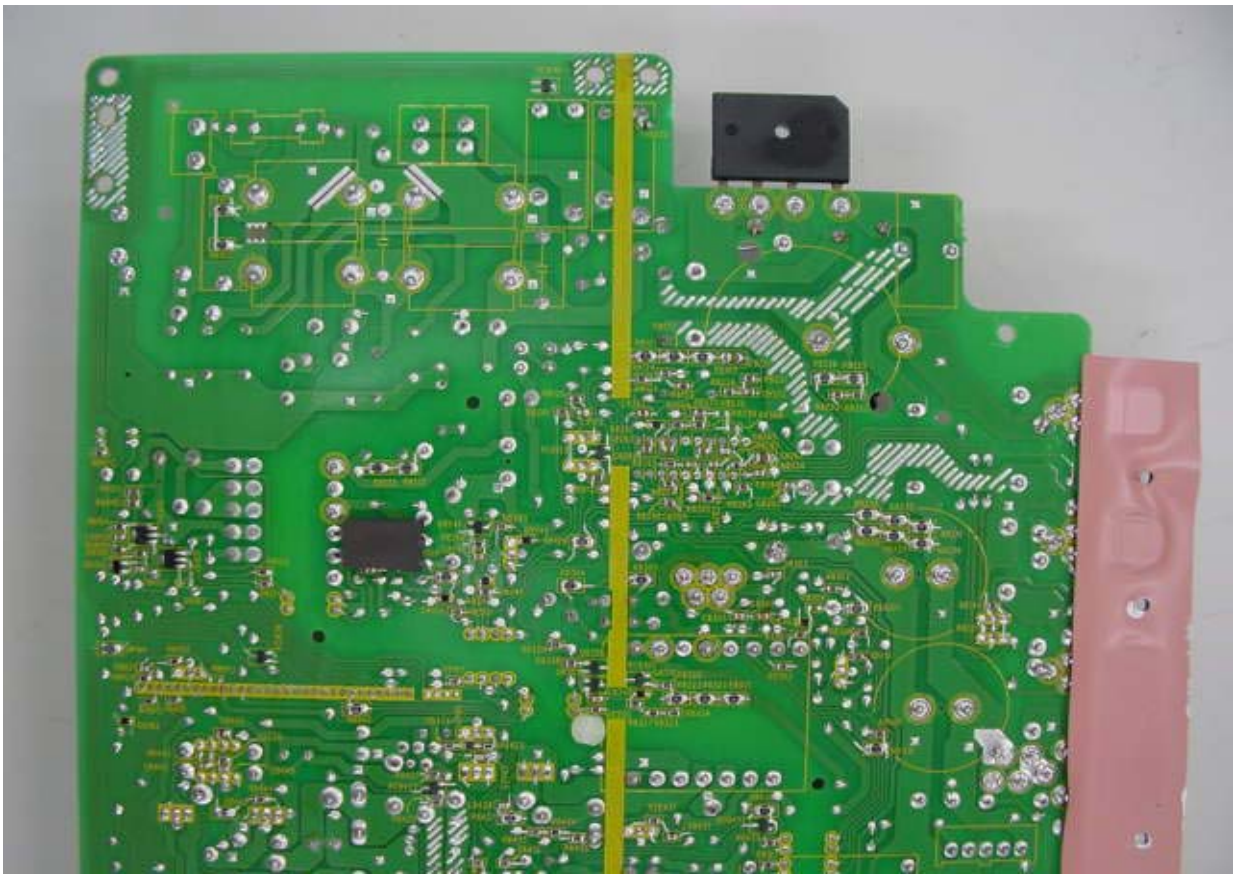
SMPS board-1 top view



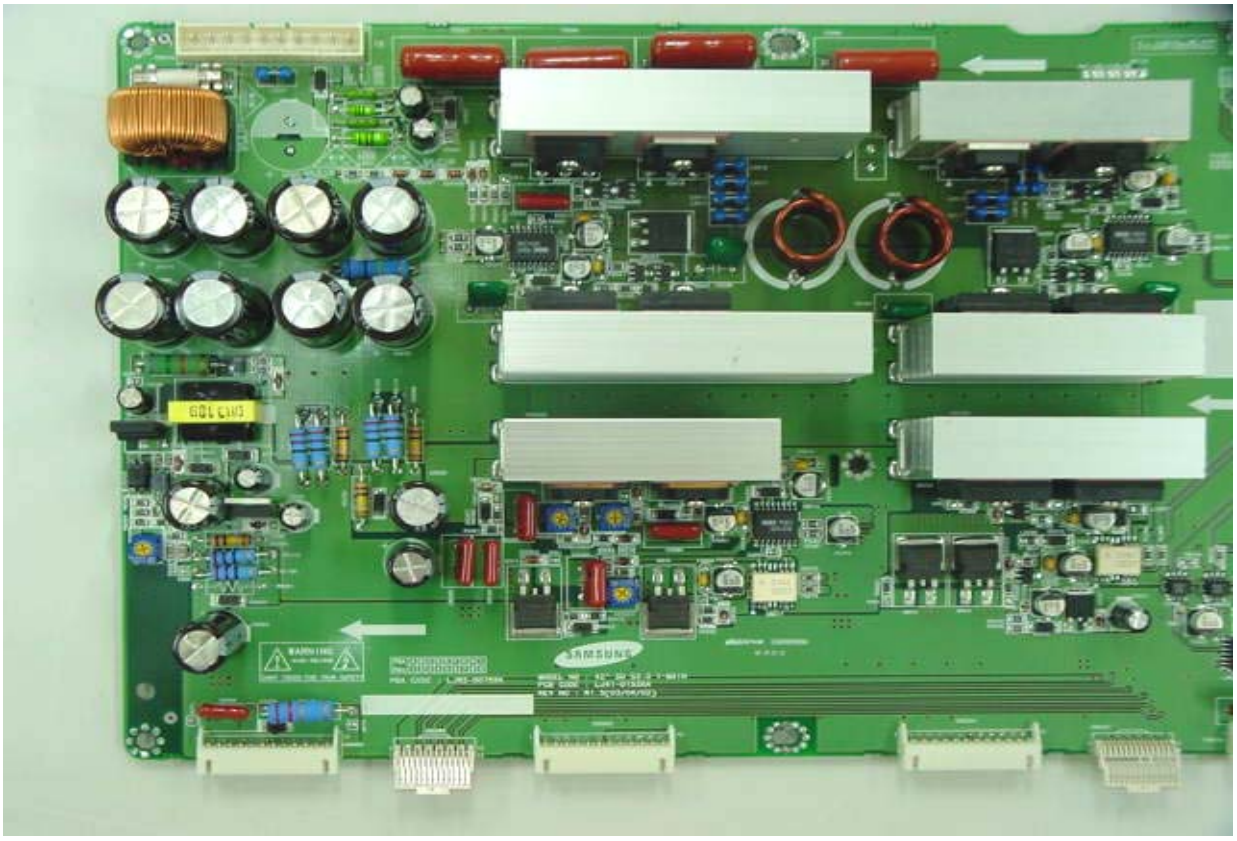
SMPS board-1 bottom view



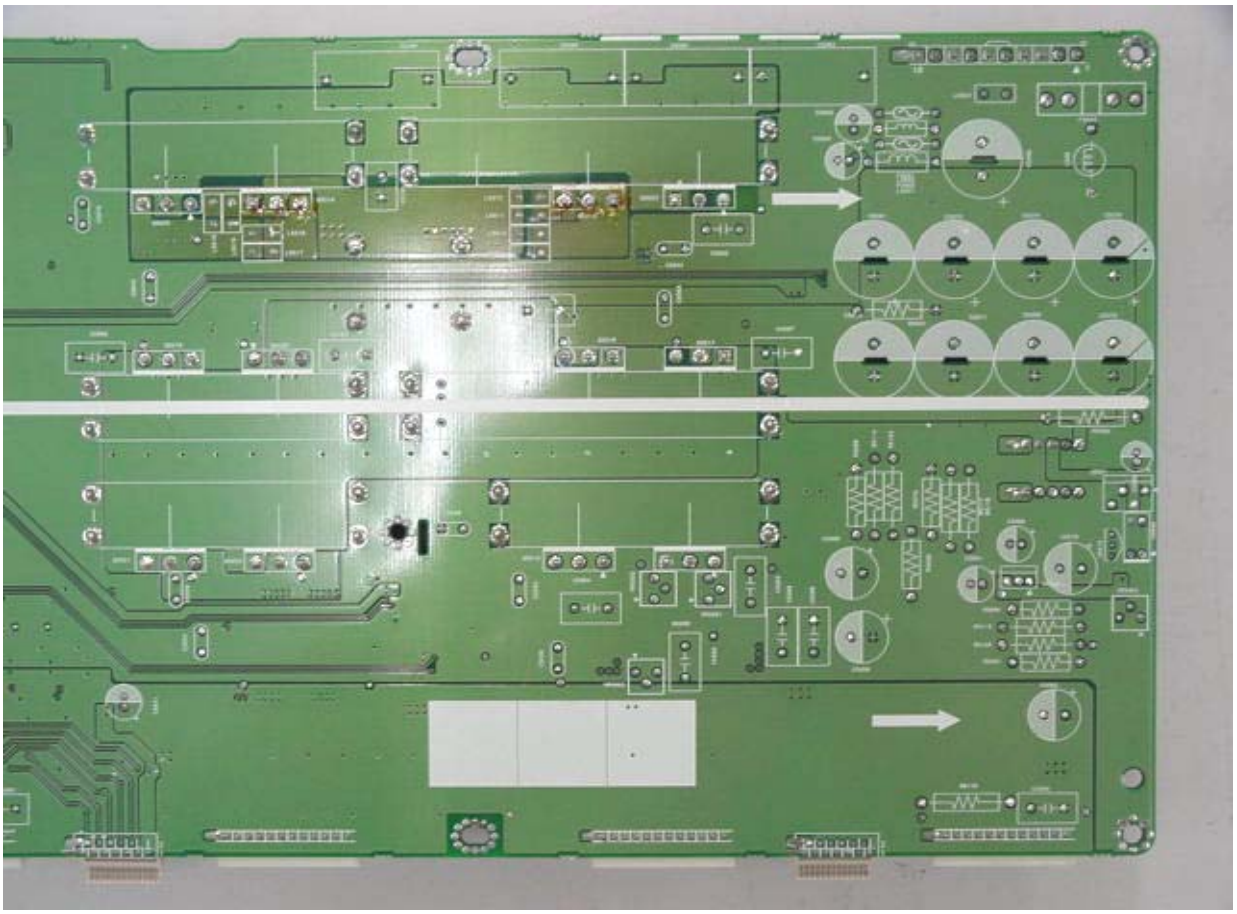
SMPS board-2 top view



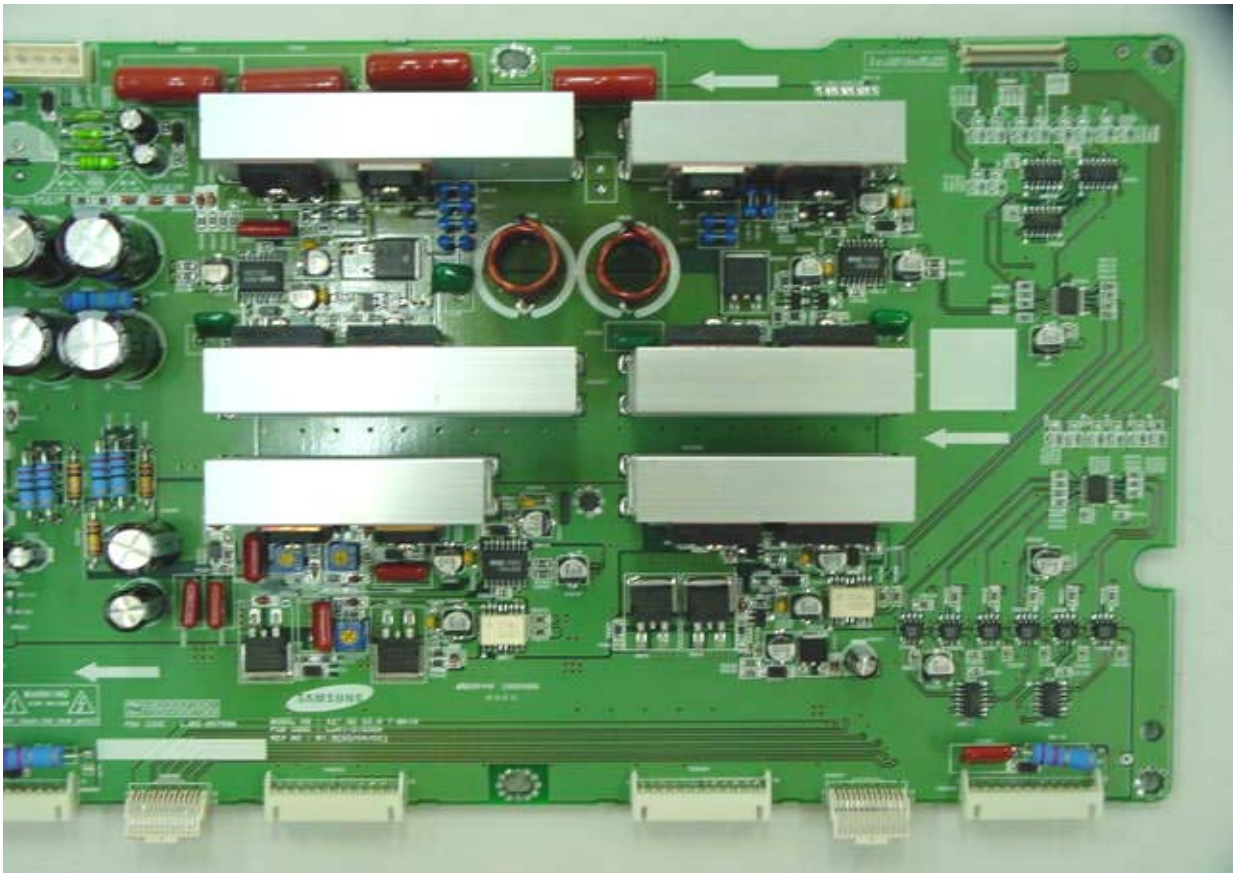
SMPS board-2 bottom view



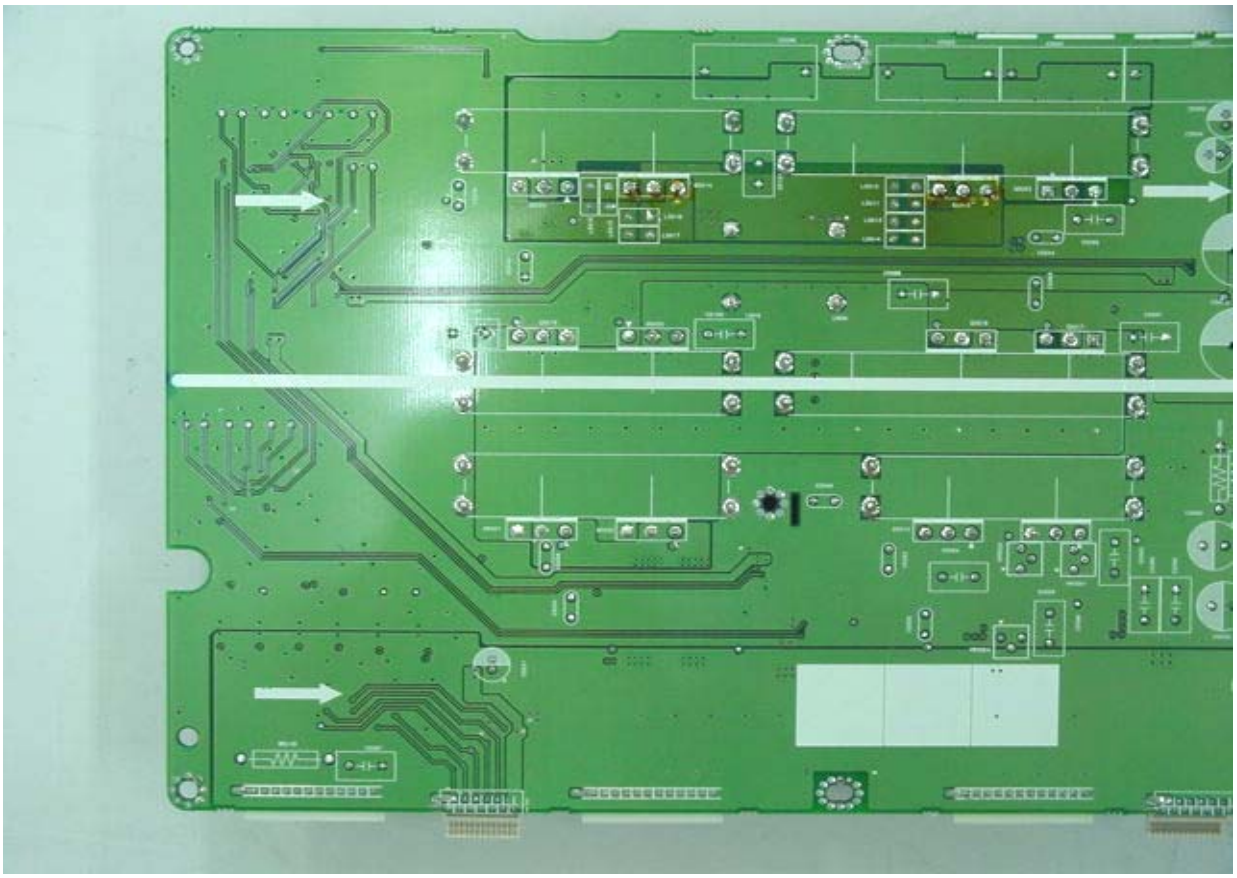
Y driver board top view



Y driver board bottom view

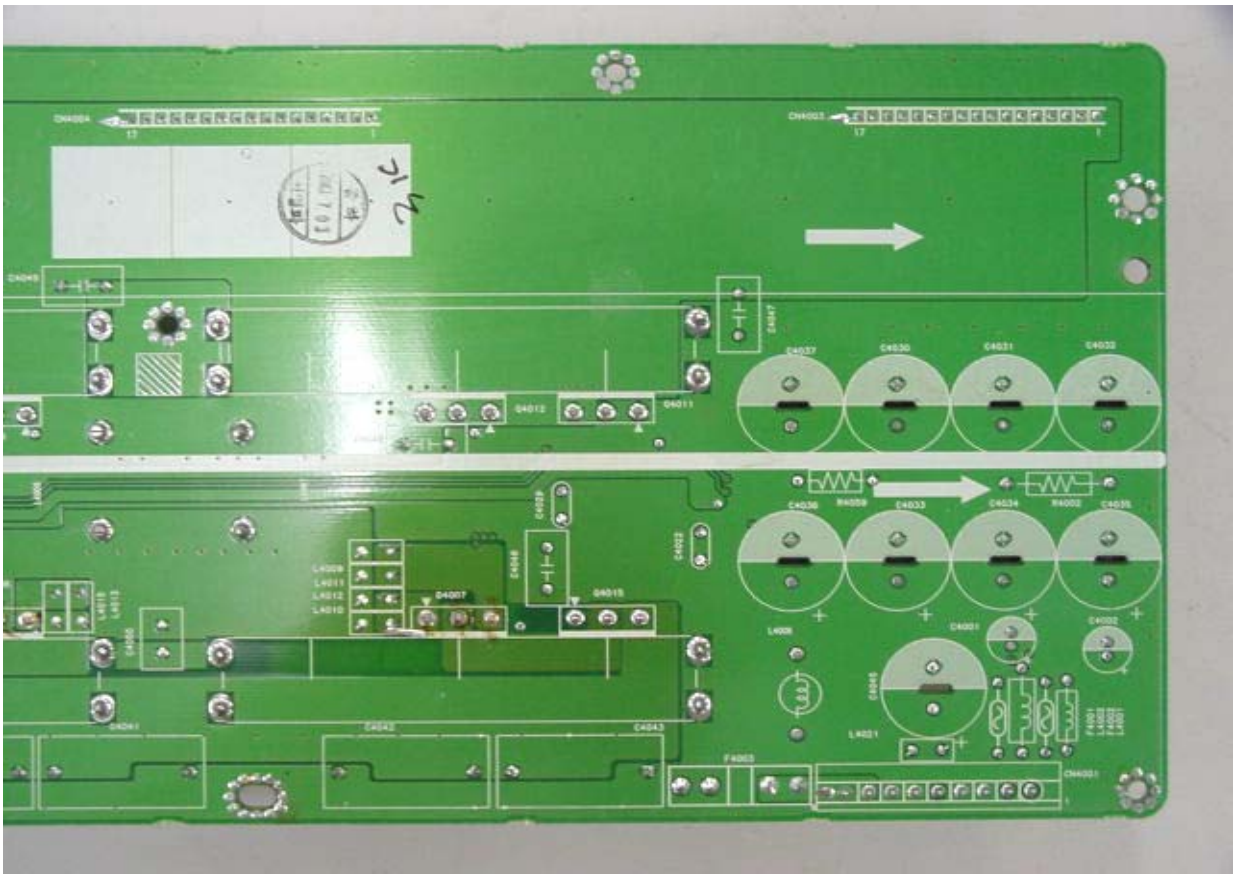


Y driver board-1 top view

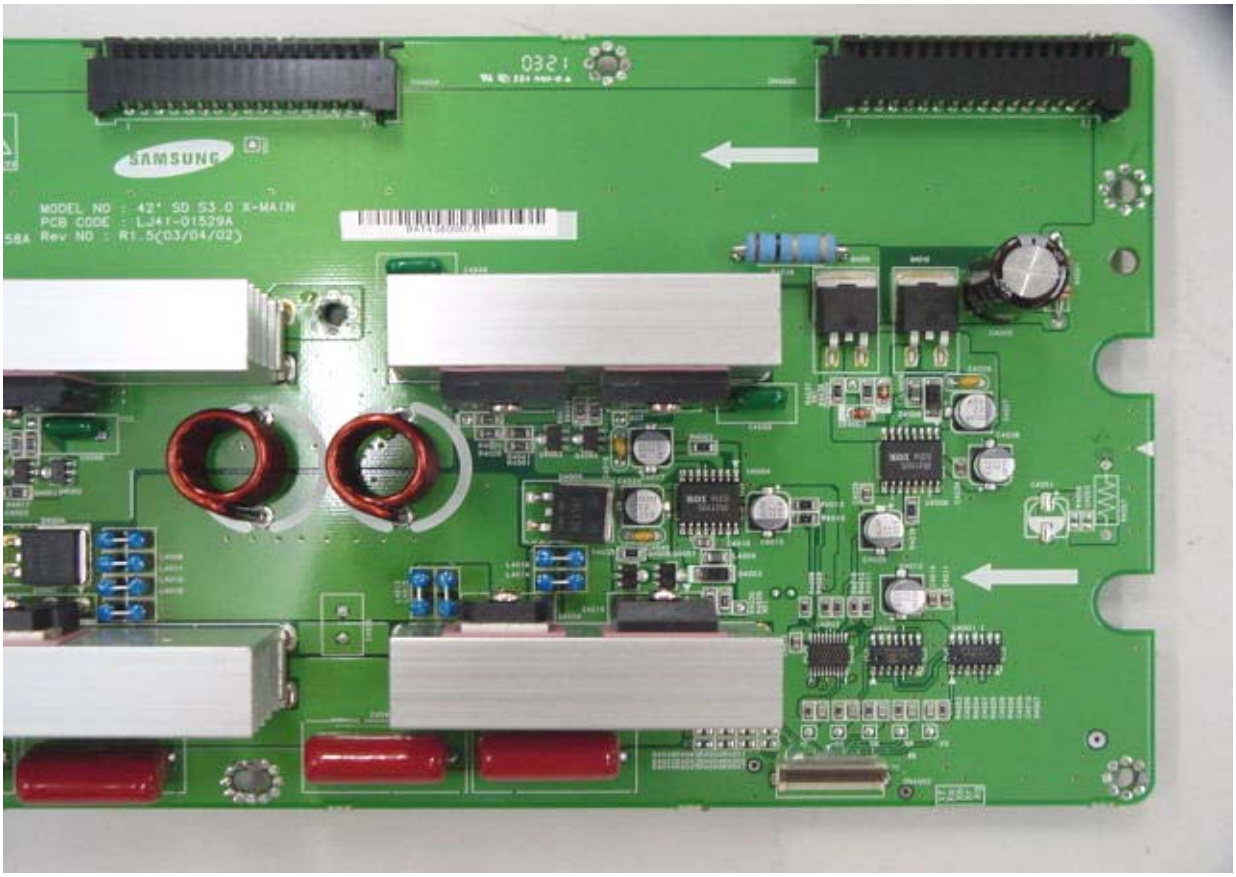


Y driver board-1 bottom view

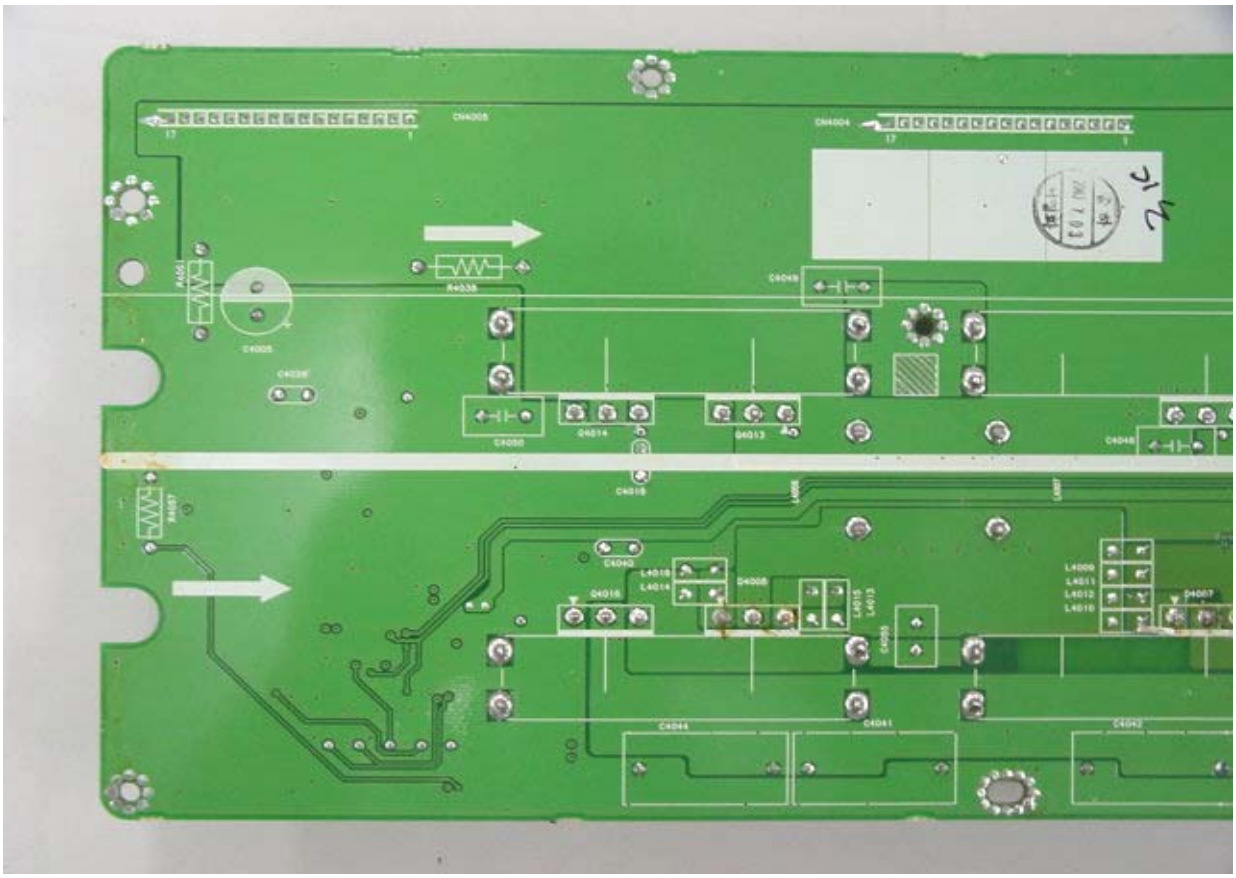
X driver board top view



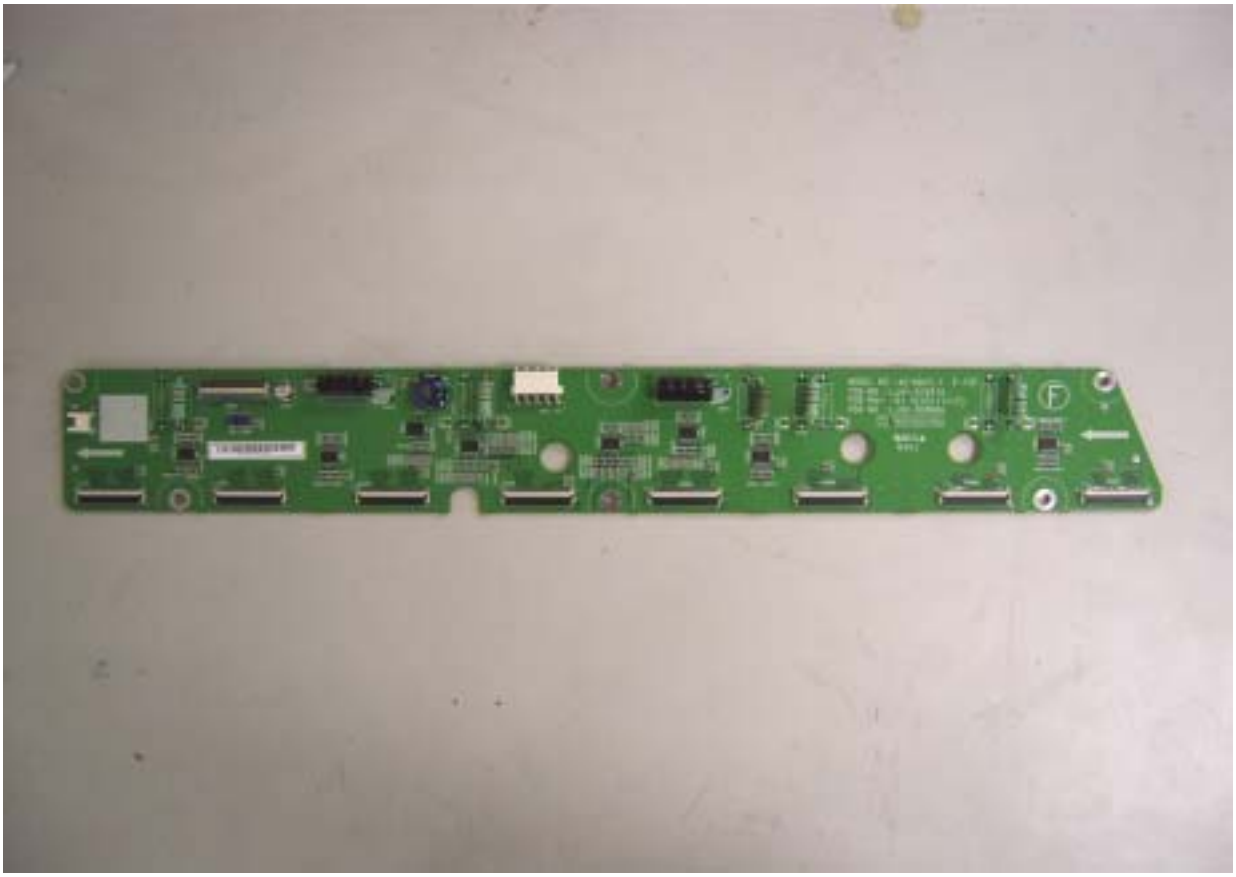
X driver board bottom view



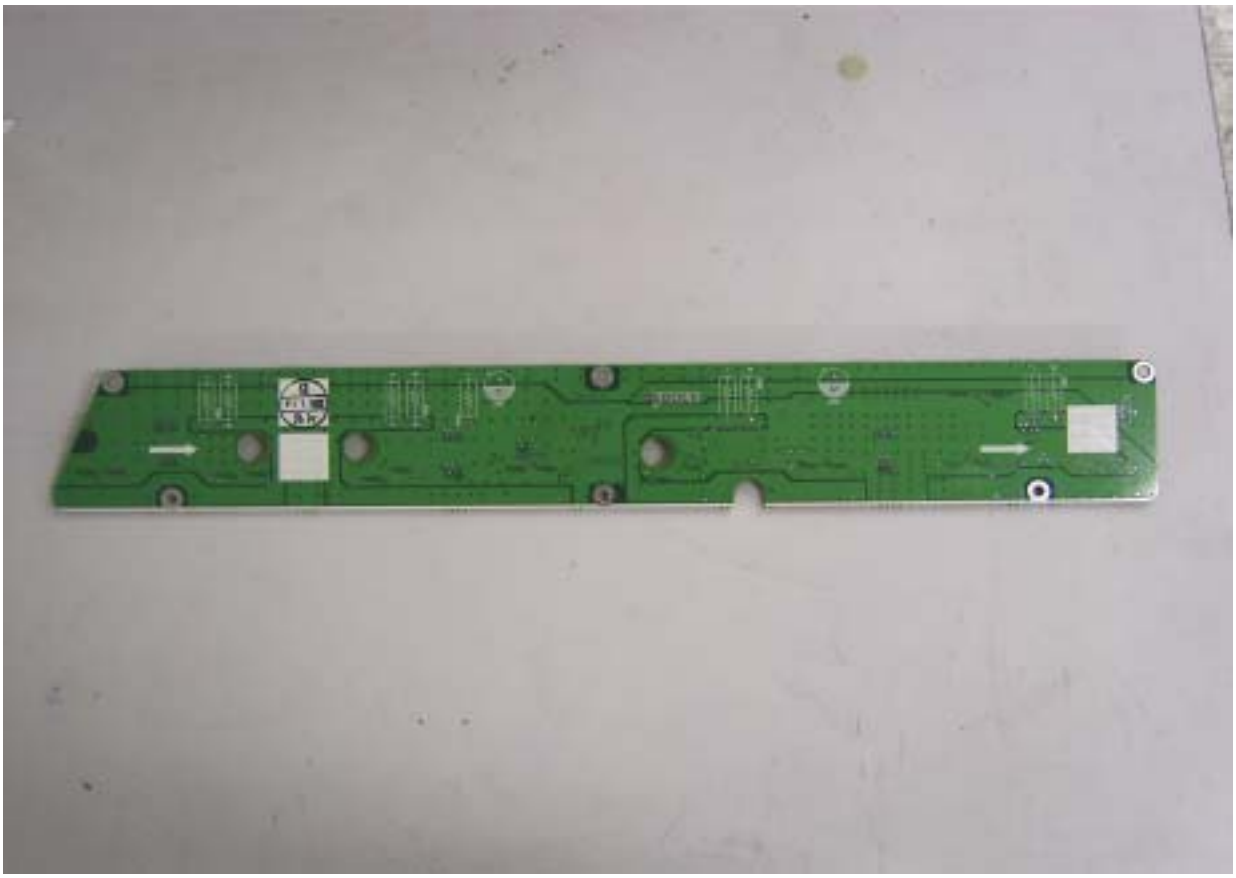
X driver board - 1 top view



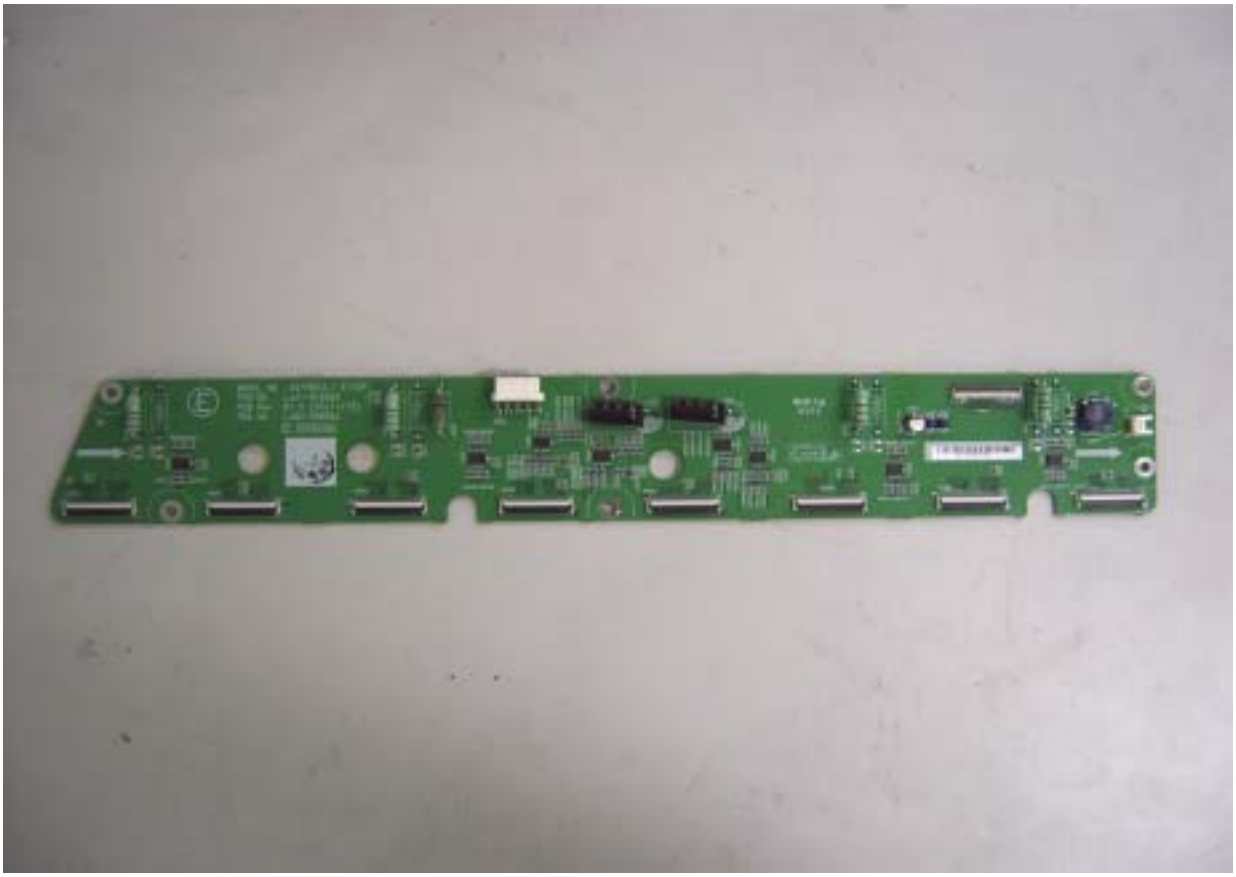
X driver board - 1 bottom view



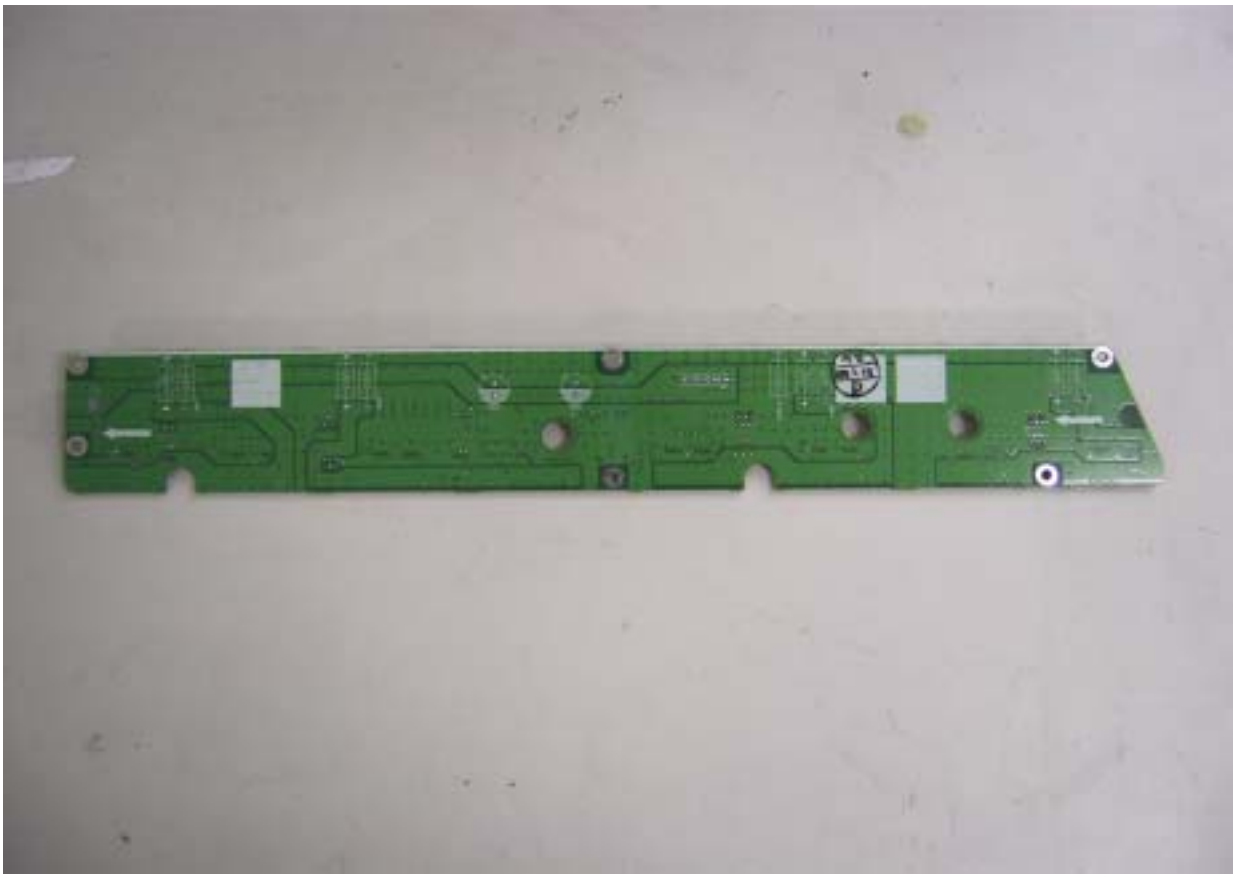
F board top view



F board bottom view



E board top view



E board bottom view