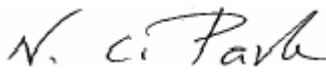


EMI Test Report

According to FCC Part 15 Subpart B

Project No.	LBE052498
Equipment under Test	
Applicant	Samsung Electronics Co., Ltd. 416 Maetan 3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, Korea, 443-742
FCC ID	A3LDC60CPS
Product Name	Laser Printer
Model Name	DC60CPS
Manufacturer	Samsung Electronics Co., Ltd.
Date of Test	Oct 20, 2005
Issued Date	Oct 25, 2005

	Name/Position	Signature
Tested by	Kyeong Dong, Kim Test Engineer	
Reviewed by	No Cheon, Park Manager of EMC Lab.	
Authorized by	Seung Kyu, Cha 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

3. FCC filing Registration Number : 873282

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Annex I. Changing information of EUT

1. General Information

1.1 Basic Information related Product

Applicant	Samsung Electronics Co., Ltd.
Model name	DC60CPS
Applicant Address	416 Maetan 3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, Korea, 443-742
Contact Person	Kyeong Dong, Kim
Kind of product	Laser Printer
Variant list	CLP-600 : Basic Model CLP-600N: with network card
Manufacturer	Samsung Electronics Co., Ltd.
New / Alternative / Permissive change Information	This report is permissive II change report. - SMPS component changed and fan added

1.2 Detail Information related Product

Specification

Item	Specification	Remark
Printing Speed	Black and Color : Up to 20 ppm in A4(21 ppm in Letter)	-
Printing Resolution	Up to 2 400 x 600 dpi	-
Memory	32 MB (not expandable)	-
Interface	CLP-600 : USB 2.0 CLP-600N : USB 2.0, Ethernet 10/100 Base Tx Option : CLP-600N Only(Ethernet 10/100 Base Tx, 802.11 a/b/g Wireless LAN(internal))	-
Power Rating	AC 100-127 V(USA, Canada), 9A	
Power Consumption	550 W average during operation / Less than 35 W in power save mode	-
External Dimensions	465 mm(W) X 465 mm(D) X 445 mm(H)	-

Operating Frequency

Video(31.005 MHz), SDRAM(75 MHz), USB Clk(12 MHz), N/W clock: 25 MHz,
Wireless LAN(2.4 GHz), SDRAM clock of network Card(133 MHz)

1.3 Operating Mode and Condition

The system was configured for testing in typical fashion use. Cable were attached to each of the available I/O port. Where applicable, peripherals were attached to the I/O cables.

This EUT have Wireless Printing server function so Host PC link to EUT and transfer print file formation "H" character document continuously.

The EUT is supporting the USB, LAN and Wireless LAN printing mode.

In each test mode, finally we found worst case emission that is above configuration with the worst case components(in the above table). So, the data of the maximum EUT operation, USB printing was reported.

- Power Input

Voltage : AC 110V

Frequency : 60Hz

1.4 Test System Details

Refer to 1.2

1.5 Equipment Modifications

No equipment modifications were required.

1.6 Test Procedure

1.6.1 Conducted Emission

EUT was placed on a platform nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting ground plane.

The rear of EUT, including peripherals was aligned and flush with rear of tabletop. All other surfaces of tabletop was at least 80cm from any other grounded conducting surface. I/O cables and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bindle 30 cm to 40 cm long and were handed at a 40 cm height to the ground plane.

Each EUT current-carrying power lead, except the ground(safety)lead, were individually connected through a LISN to the input power source.

All unused 50 ohm connectors of the LISN were resistively terminated in 50 ohm when not connected to the measuring equipment.

Frequency Band [MHz]	Instrument	Detector	Resolution Bandwidth	Video Bandwidth
0.15 to 30	EMI Receiver	Quasi-Peak	9 kHz	-
		Average	9 kHz	-

1.6.2 Radiated Emission

EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane.

The rear of EUT, including peripherals was aligned and flush with rear of tabletop.

I/O cables that were connected to the peripherals were bundle in center.

They were folded back and forth forming a bundle 30 cm to 40 cm long and were hanged 40 cm height to the ground plane.

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 and the run table azimuth was varied to obtain the maximum signal strength

The system configuration, clock speed, mode of operation or video resolution, turntable azimuth with respect to the antenna were noted for each frequency found.

The spectrum was scanned from 30 to 1 000 MHz using biconiLog antenna.

Also, the EMI RECEIVER was scanned from 1 000 to 2 000 MHz using linearly polarization Double ridge horn antennas were used. The explanation of measuring instrument setup when Respective function is used in any frequency band is as following;

Frequency Band [MHz]	Instrument	Detector	Resolution Bandwidth	Video Bandwidth
30 to 1 000	EMI Receiver	Quasi-Peak	120 kHz	-
Above 1 000	EMI Receiver	Peak	1 MHz	1 MHz

1.7 Test Configuration

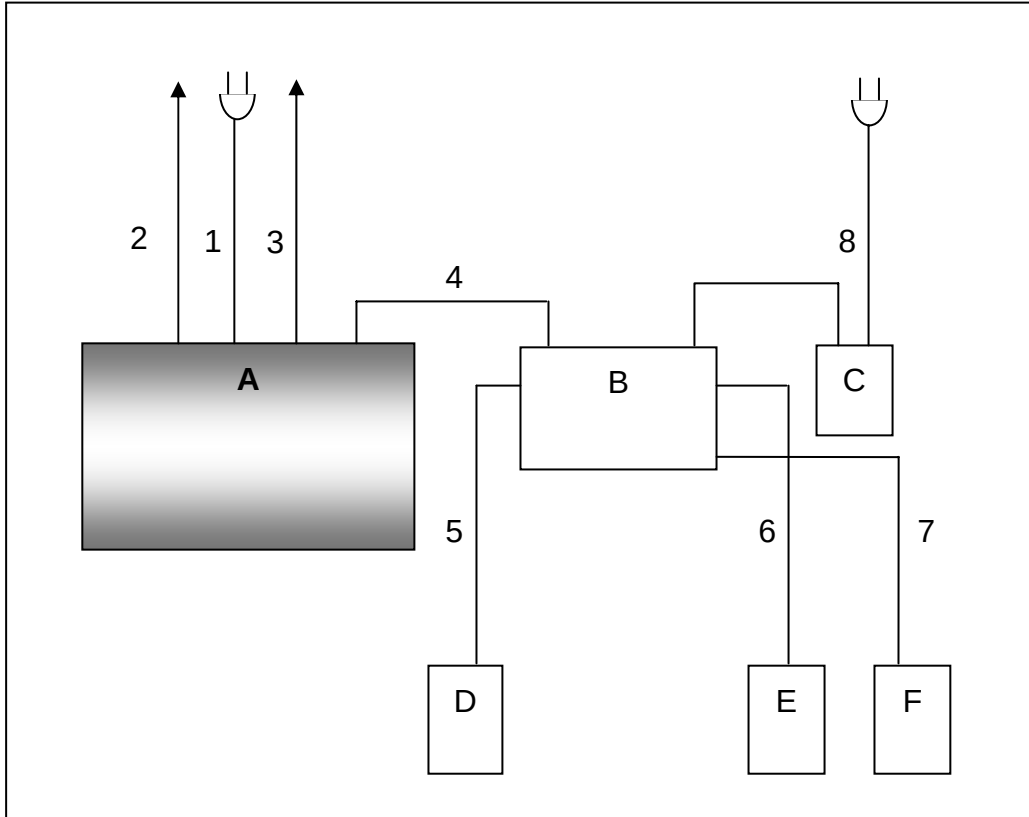
Used EUT and Peripherals

Mark	Item	Model No.	Serial No.	Manufacturer	FCC ID/DoC
A	Laser Printer	DC60CPS	-	Samsung	A3LDC60CPS
B	Notebook PC	Blade I	-	Dell	DoC
C	AC Adapter	PA-1500-05D	00R334-48010-286-00E6	Lite-On	For Notebook PC
D	PC Camera	DCR-PC110	1148606	SONY	DoC
E	Serial Mouse	37964	0988577	Microsoft	C3KMS1
F	USB Mouse	M-UR69	LNA24917708	Logitech	DoC

Used Cable Description

No	Connect Cable	Length [m]	Shielded [Y/N]	Remark
1	Power	1.8	No	For E.U.T
2	LAN (RJ45)	3.5	No	-
3	Wireless LAN	-	-	-
4	USB	1.8	Yes	-
5	1394	1.8	Yes	-
6	Serial	2.0	No	-
7	USB	1.8	Yes	-
8	Power	1.8	No	For Notebook PC

Block Diagram



1.8 Applied Standards

List

Product or Generic Standards	Basic Standards
FCC Part15	ANSI C63.4 : 2 003

1.9 Test Facility

General Information

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

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 CISPR 16-4 and Lab. 34)

Conducted Emission : ± 3.1 dB

Radiated Emission Bi-Log Antenna : ± 7.3 dB

2. Summary of Test Results

Result : PASS

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

Section of the Product Standard		Applied Standard	Result
Electromagnetic Emission Test			
3.1	Conducted Emission	FCC Part 15 Sub. B	Complied
3.2	Radiated Emission	FCC Part 15 Sub. B	Complied

3. Description of Individual Tests

3.1 Conducted Emission

Test Information	
Test Engineer	Kyeong Dong, Kim
Test Date	Oct 20, 2005
Climate Condition	Ambient Temperature : 22.5℃ Relative Humidity : 51%
	Atmospheric Pressure 1021mbar
Test Place	Shielded Room #2

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
EMI TEST RECEIVER	ESCS30	R&S	830986/004	2006-02-17	12
LISN	3810/2NM	EMCO	2251	2006-02-01	12
LISN	ESH3-Z5	R&S	100263	2006-06-06	12

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

The Initial step in collecting conducted data was to perform a peak and average scan over the measurement range using a receiver

The find data represents worst-case emissions.

* Result = Meter Reading(QP or AV) + Corr.(LISN Insertion loss + Cable loss)

* Margin = Limit – Result(Quasi-Peak or Average)

1. Test data

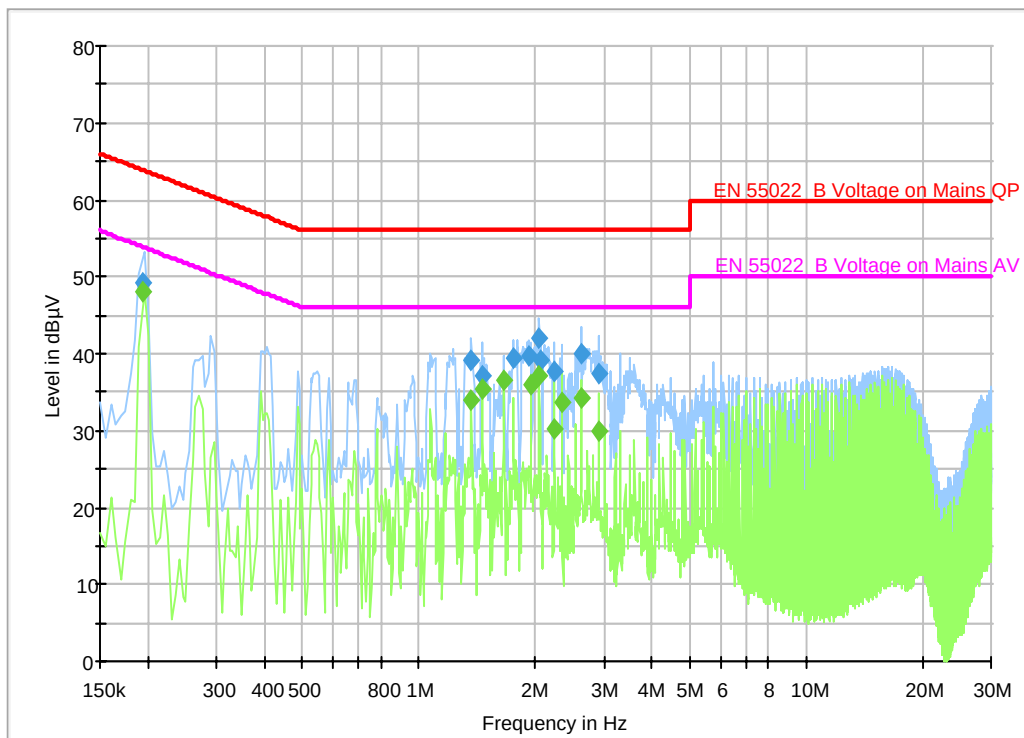
- Quasi Peak Table

Frequency (MHz)	Quasi-Peak (dB μ V)	Corr. (dB)	Margin (dB)	Limit (dB μ V)	PE	Line
0.194000	49.3	0.1	14.6	63.9	GND	N
1.364000	39.1	0.2	16.9	56.0	GND	N
1.459000	37.2	0.2	18.8	56.0	GND	N
1.754000	39.5	0.2	16.5	56.0	GND	N
1.918000	39.7	0.2	16.3	56.0	GND	N
2.048000	42.1	0.2	13.9	56.0	GND	L1
2.055000	39.3	0.2	16.7	56.0	GND	L1
2.239000	37.7	0.2	18.3	56.0	GND	L1
2.633000	40.1	0.2	15.9	56.0	GND	L1
2.923000	37.5	0.2	18.5	56.0	GND	L1

- Average Table

Frequency (MHz)	Average (dB μ V)	Corr. (dB)	Margin (dB)	Limit (dB μ V)	PE	Line
0.194000	48.0	0.1	5.9	53.9	GND	N
1.364000	33.9	0.2	12.1	46.0	GND	L1
1.463000	35.5	0.2	10.5	46.0	GND	L1
1.658000	36.7	0.2	9.3	46.0	GND	L1
1.948000	35.9	0.2	10.1	46.0	GND	L1
2.048000	37.0	0.2	9.0	46.0	GND	L1
2.243000	30.2	0.2	15.8	46.0	GND	L1
2.338000	33.7	0.2	12.3	46.0	GND	L1
2.633000	34.2	0.2	11.8	46.0	GND	L1
2.923000	29.9	0.2	16.1	46.0	GND	L1

2. Graph



3.2 Radiated Emission

Test Information	
Test Engineer	Kyeong Dong, Kim
Test Date	Oct 20, 2005
Climate Condition	Ambient Temperature : 22.8℃ Relative Humidity : 54%
	Atmospheric Pressure 1020mbar
Test Place	10m Semi Anechoic Chamber

Test Equipments

Equipment	Model Name	Manufacturer	Serial No.	Calibration	
				Next Date	Interval
Turn Table	DT430	HD	430/691/01	N/A	N/A
Antenna Mast	MA240	HD	240/678 BJ:01	N/A	N/A
Controller	HD100	HD	100/723	N/A	N/A
Preamplifier	CPA9232	Schaffner	1054	2006-02-07	12
BILOG Antenna	CBL6112B	Schaffner	2804	2005-11-09	12
Test Receiver	ESI26	R&S	100010	2006-09-22	12

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

2. Data (1000MHz~2000MHz)

Freq. [MHz]	Reading [dBuV/m]	c.f. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Azimuth [°]	Pol. [H/V]
1487	65.9	-11.5	54.4	74.0	19.6	100	60	H
1898	65.4	-9.6	55.8	74.0	18.2	100	210	H

* Measurement detector function and bandwidth

- Detector function : peak

- Bandwidth : 1MHz

* Receiving Antenna Mode : Horizontal, Vertical

* Test distance : 3m (Semi-Anechoic Chamber)

* Result = Meter Reading + Total Loss(Antenna factor + Cable loss-Amp. Gain)

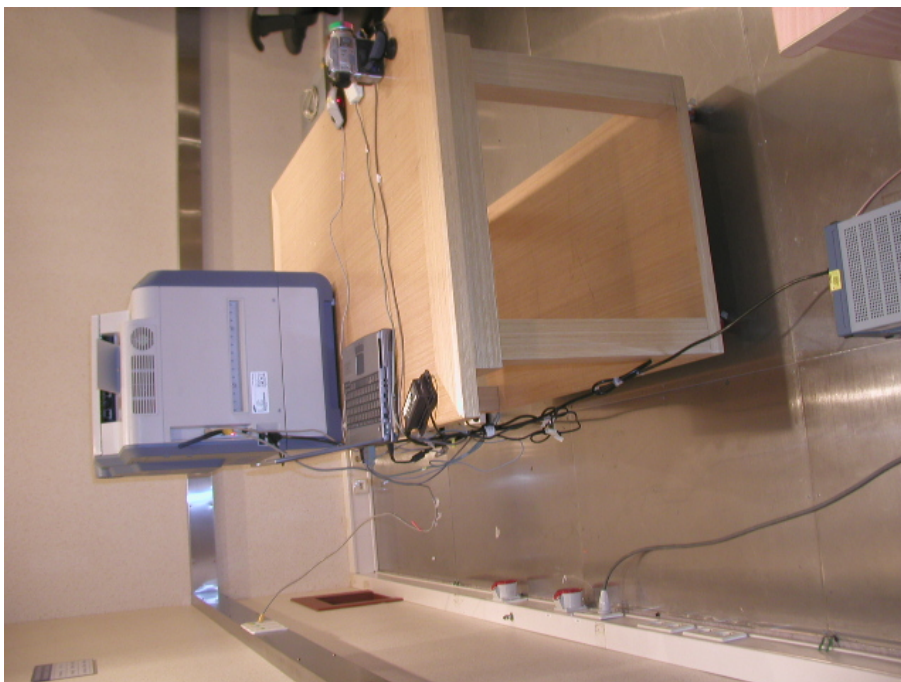
* Margin = Limit – Result

4. Appendix

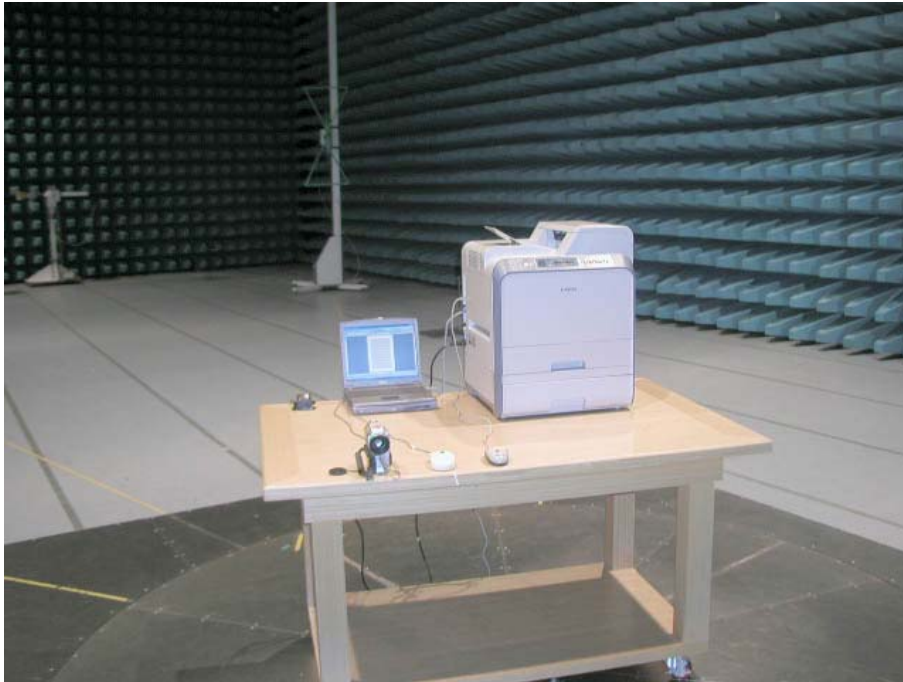
4.1 Test Photography



Picture 1. Conducted Emission (Front)



Picture 2. Conducted Emission (Rear)



Picture 3. Radiated Emission (Front)



Picture 4. Radiated Emission (Rear)

4.2 EUT Photography



Picture 5. EUT (Front)



Picture 6. EUT (Rear)

 Samsung Electronics Co., Ltd. 259, Gongdan-Dong, Gumi-City, Kyung-Buk, 730-030, Korea Place: M259  Serial No.:	Model: CLP-600N Type No.: DC60CPS Volts: AC 110-127V Hertz: 50/60Hz Amps: 9A Manufactured: MARCH 2005	FCC ID: A3LDC60CPS (Printer) FCC ID: A3LSWL-5300M (WLAN) This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: i) This device may not cause harmful interference, and ii) This device must accept any interference received, including interference that may cause undesired operation. This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada. Canadian Certification Number(RSS-210): 649E-SWL5300M (WLAN) This Class B digital apparatus complies with Canadian ICES-003 Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada. This product complies with 21 CFR Chapter 1, subchapter J. MADE IN KOREA REV.00
		LISTED 51Y7 E149091 I.T.E

 Samsung Electronics Co., Ltd. 259, Gongdan-Dong, Gumi-City, Kyung-Buk, 730-030, Korea Place: M259  Serial No.:	Model: CLP-600 Type No.: DC60CPS Volts: AC 110-127V Hertz: 50/60Hz Amps: 9A Manufactured: MARCH 2005	FCC ID: A3LDC60CPS (Printer) This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: i) This device may not cause harmful interference, and ii) This device must accept any interference received, including interference that may cause undesired operation. This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada. This Class B digital apparatus complies with Canadian ICES-003 Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada. This product complies with 21 CFR Chapter 1, subchapter J. MADE IN KOREA REV.00
		LISTED 51Y7 E149091 I.T.E

Picture 7. Label location



Picture 8. Label location

Annex I. Changing information of EUT

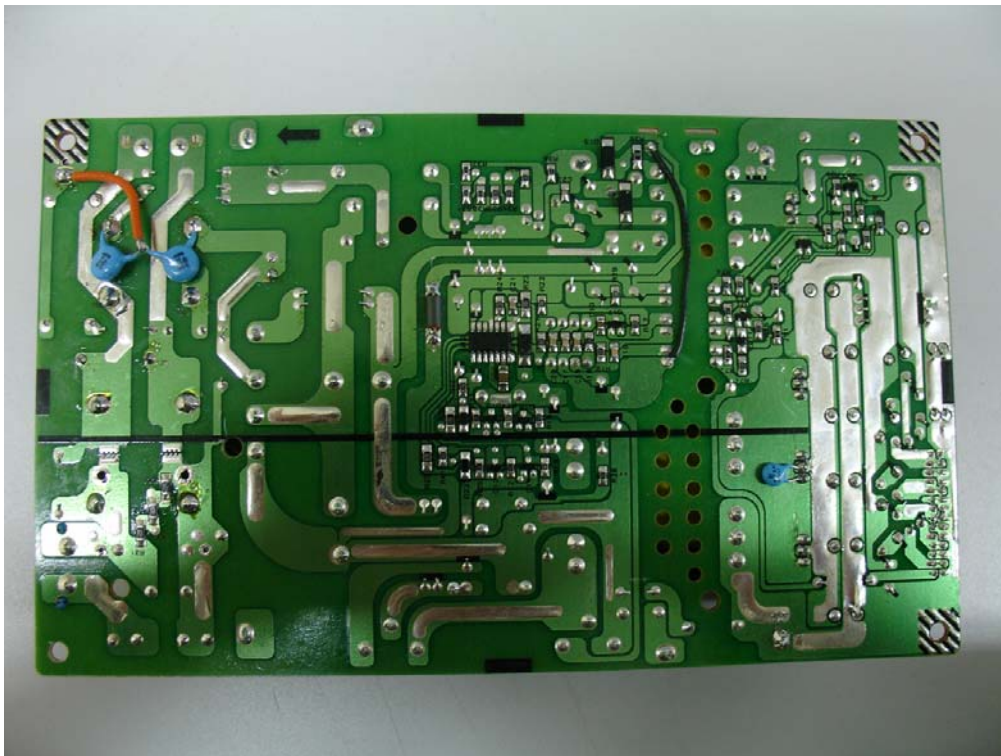
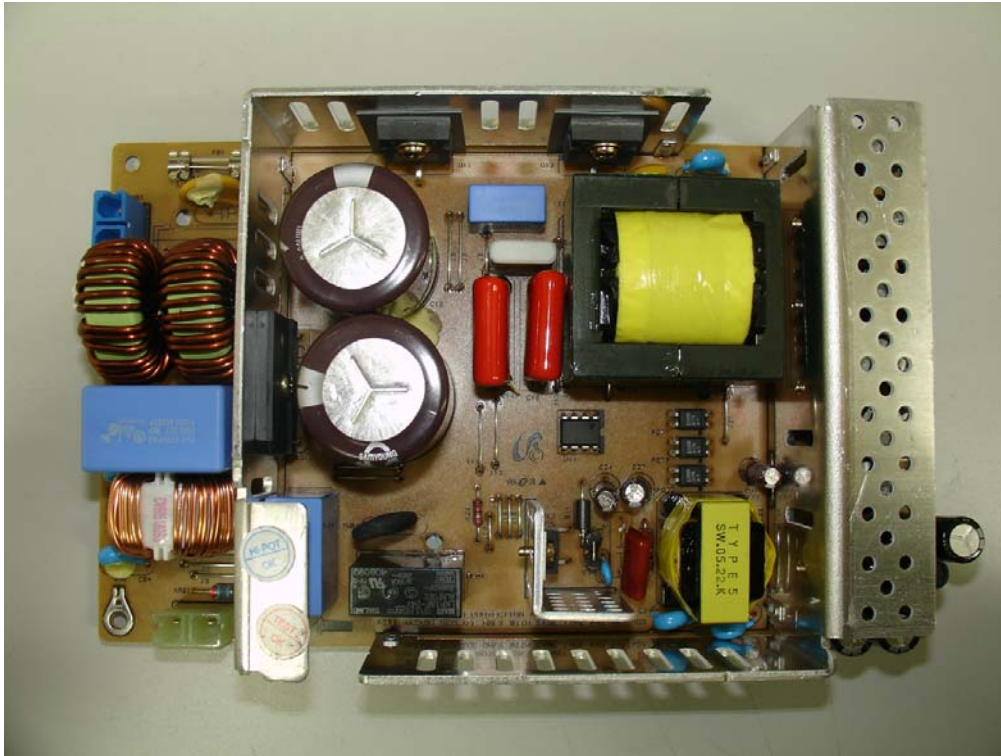
- Fan added (Type/P.N : AD0624HS-A76GL(R1), Manufacturer : ADDA in USA)



- SMPS component changed and added

Location	Description	Rev1.2 (Before)	Rev1.3 EMI (After)
LF01	Line Filter	LSA14027 (Vertical Type : 2.7mH)	NVG270-13100D (Normal Mode : 100uH)
LF02	Line Filter	LSA10165NA (Vertical Type : 16mH)	CV505180BS (Vertical Type : 18mH)
C02	X-CAP	680nF	2200nF
C01	X-CAP	680nF	Removed
C05/C06	Y-CAP	-	100pF
D72	Ceramic CAP (Snubber)	-	470pF 1kV
D71/D72/D73	Bead Injection (Cathode Lead)	-	RH 4*3*1.5
F.G Wire Core	CM Filter (16T)	-	MA100 R25-15-12D

(After)



(Before)

