

EMC TEST REPORT

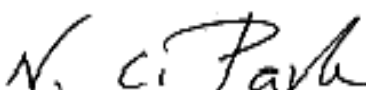
Project No.	LBE10030152	Issue No.	2
Applicant	Name of organization	Samsung Electronics Co., Ltd.	
	Address	416 Maetan 3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do 443-742 Korea	
	Date of application	March 08, 2010	
EUT	Type of device	Class B digital devices, peripherals	
	Equipment authorization	☐ Declaration of Conformity ☒ Certification ☐ Verification	
	FCC ID	A3LSCX3200	
	Kind of product	Mono Laser MFP	
	Model No.	SCX-3200W	
		Variant Model No.	SCX-3200, SCX-3201, SCX-3205, SCX-3205W
	Manufacturer	Samsung Electronics Co., Ltd. 259, Gongdan-Dong, Gumi-City, Gyeong-Buk, 730-030, Korea Samsung Electronics (Shandong) Digital Printing Co., Ltd. 264209, Samsung Road, Weihai Hi-Tech IDZ, Shandong Province, P.R. China Shin Heung Digital Electronics Co., Ltd. 98, Samsung Road, Weihai Hi-Tech IDZ, Shandong Province, P.R. China Intops (Weihai) Electronics Co., Ltd. Keji Road-268-1, Weihai Hi-Tech, Industries Development Zone, Shandong Province, CHINA	
Applied Standards		FCC Part 15, Subpart B / ANSI C63.4-2003	
Test Period		March 11, 2010 ~ April 20, 2010	
Issue date		April 20, 2010	
Test result : Complied The equipment under test has found to be compliant with the applied standards. (Refer to the attached test result for more detail.)			
Tested by : Sung Jin Sim 		Reviewed by : No Cheon Park 	
This report is the test result about the sphere accredited by KOLAS which signed the Mutual Recognition Arrangement of International Laboratory Accreditation Cooperation. The test results in this report only apply to the tested sample. This report must not be reproduced, except in full, without written permission from SEC EMC Laboratory.			
 416 Maetan 3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, 443-742 Korea Tel: 82 31 277 7752, Fax: 82 31 277 7753			

Table of contents

1. Summary of test results

1.1 Emission

2. General Information

2.1 Test facility

2.2 Accreditation and listing

3. Test configuration

3.1 Test Peripherals

3.2 EUT operating mode

3.3 Details of Sampling

3.4 Used cable description

3.5 EUT Description

3.6 Clock Frequencies

3.7 Test configuration and condition

3.8 Measurement uncertainty

4. Result of individual tests

4.1 Conducted disturbance

4.2 Radiated disturbance

Appendix – EUT photography

1. Summary of test results

1.1 Emission

The EUT has been tested according to the following specifications:

Applied	Test type	Applied standard	Result	Remarks
☒	Conducted Disturbance (Mains Port)	FCC Part 15 Subpart B	Complied	Meets Class B Limit
☒	Radiated Disturbance		Complied	Meets Class B Limit

2. General Information

2.1 Test facility

The SEC EMC Laboratory is located on Samsung Electronics Co., Ltd. at 416 Maetan 3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, South Korea.

All testing are performed in Semi-anechoic chambers conforming to the site attenuation Characteristics defined by ANSI C63.4, CISPR 22, 16-1 and 16-2. and Shielded rooms.

The SEC EMC Laboratory is operated as testing laboratory in accordance with the requirements of ISO/IEC 17025:2005.

2.2 Accreditation and listing

Laboratory Qualifications		Remarks
	UKAS(United Kingdom Accreditation Service)	Accredited : 4290
	Korea Communications Commission Radio Research Agency	Accredited : KR0004
	FCC(Federal Communications Commission)	Accredited : KR0004
	National Voluntary Laboratory Accreditation Program	Lab Code: 200623-0
	Norges Elektriske Materiellkontroll	Accredited : ELA 195
	VCCI (Voluntary Control Council for Interference by Information Technology Equipment)	C-2421,R-2224
	China Quality Certification Center	5-053, 5-054
	TUV Rhineland	H9354285
	GOST(GOSTSTANDART)	ROSTEST
	Elektrotechnický Zkusební Ústav	Reg. No.: 001
 Industry Canada	IC(Industry Canada)	Assigned Code: 5871

3. Test Setup configuration

3.1 Test Peripherals

The cables used for these peripherals are either permanently attached by the peripheral manufacturer or coupled with an assigned cable as defined below.

The following is a listing of the EUT and peripherals utilized during the performance of EMC test:

Description	Model No.	Serial No.	Manufacturer	FCC ID/DoC
Mono Laser MFP	SCX-3200W	–	SAMSUNG	A3LSCX3200
PC	PP18L	27182225373	DELL	DoC
AC Adapter	LA65NS1-00	CN-0YD637-71615-83C-0A0A	Dongguang Lite Power	DoC
USB mouse	MS201U	7B50528	Monterey international corp.	DoC
Headset	–	–	Plantronics	–

3.2 EUT operating mode

To achieve compliance applied standard specification, the following mode(s) were made during compliance testing:

Operating Mode 1	1:99 copy printing
Operating Mode 2	USB printing
Operating Mode 3	Network printing
Operating Mode 4	Wireless Network printing
Operating Mode 5	Scan to PC (2400 dpi)
Operating Mode 6	Stand-by

3.3 Details of Sampling

Customer selected, single unit.

3.4 Used cable description

The EUT is configured, installed, arranged and operated in a manner consistent with typical applications. Interface cables/loads/devices are connected to at least one of each type of interface port of the EUT, and where practical, each cable shall be terminated in a device typical of actual usage. The type(s) of interconnecting cables to be used and the interface port (of the EUT) to which these were connected;

Connected cable	Length [m]	Shielded [Y/N]	Note
Power	1.5	No	-
USB	1.8	Yes	-
Headset	1.6	No	
LAN	2.0	No	-

3.5 EUT Description

The following features describe EUT represented by this report:

Item	Specification and Description
Processor	JUPITER5(375Mhz)
Standard System memory	128MB DDR2 SDRAM
Resolution	True 600x600dpi (Addressible 1 200dpi support)
Copy Quality mode	Text : 600x300dpi Mixed : 600x300dpi Photo : 600x600dpi
Paper Handling	Paper Tray(standard) 150 Sheets
Power Rating	110~127 VAC, 4A, 50/60 Hz
Power Consumption	Power off mode: Less than 0.45W Ready mode: Less than 36W Power save mode: 5.6W Average operating mode : Less than 270W
Printer Language	SPL, PCL5e
PC Interfaces	USB2.0, Ethernet 10/100 Tx Base, 802.11b/g/n(Wireless model only)
OS compatibility	Windows 2000/XP(32/64bit)/2003(32/64bit)/Vista(32/64bit)/2008(32/64bit)/Win7(32/64bit)/2008R2(64bit) Various Linux OS: - RedHat Enterprise Linux WS 4, 5 (32/64bit) - Fedora Core 2~9 (32/64bit) - Mandriva 2005, 2006, 2007, 2008(32/64bit) - openSuSE 9.1, 9.2, 9.3, 10.0, 10.1, 10.2, 10.3, 11.0 (32bit) - SuSE Linux Enterprise Desktop 9, 10 (32/64bit) - Ubuntu 6.04, 6.10, 7.04, 7.10, 8.04 (32/64bit) - Debian 3.1, 4.0 (32/64bit) Mac OS 10.3~10.6
Modes of Operation	USB Printing, Network Printing, Wireless Network Printing, Scan to PC, Copy
Intended Class for Emissions	Class B

3.6 Clock Frequencies

Kind of Clocks	Frequency[MHz]	Kind of Clocks	Frequency[MHz]
Main source clock	12	Video clock	20.46
USB device/host clock	12	DDR2 Clock	166
CPU internal clock	375	CIS	4.16
MAC clock	25		

3.7 Test configuration and condition

The system was configured for testing in typical fashion use. Cables were attached to each of the available I/O Ports. Where applicable, peripherals were attached to the I/O cables. The mode of operation utilized for testing was selected to best simulate typical EUT use.

Power source for the EUT operating was supplied by CVCF made by the Voltech Corp.

The EUT was measured all testing with toner cartridge.

- Test Voltage : AC 120 V, 60 Hz

3.8 Measurement uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus: (According to CISPR 16-4 and UKAS Lab 34.)

3.8.1 Emission

Test type		Measurement uncertainty (C.L. 95 %, k = 2)
Conducted disturbance	Main terminal	3.50 dB
Radiated Disturbance (30 MHz ~ 1 GHz)	Horizontal	5.05 dB
	Vertical	5.08 dB
Radiated Disturbance (1 GHz ~ 6 GHz)	Horizontal	3.32 dB
	Vertical	3.32 dB

4. Results of individual test

4.1 Conducted disturbance

Both conducted lines are measured in Quasi-Peak and Average mode, including the worst-case data points for each tested configuration. The EUT measured in accordance with the methods described in standards.

Limits for conducted disturbance at the mains ports of class A ITE

Frequency range Limits MHz	Resolution Bandwidth	Limits dB(μV)	
		Quasi-peak	Average
0,15 to 0,50	9 kHz	79	66
0,50 to 30	9 kHz	73	60
NOTE The lower limit shall apply at the transition frequency			

Limits for conducted disturbance at the mains ports of class B ITE

Frequency range Limits MHz	Resolution Bandwidth	Limits dB(μV)	
		Quasi-peak	Average
0,15 to 0,50	9 kHz	66 to 56	56 to 46
0,50 to 5	9 kHz	56	46
5 to 30	9 kHz	60	50
NOTE 1 The lower limit shall apply at the transition frequency			
NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.			

4.1.1 Test instrumentation

Test instrumentation	Model name	Manufacturer	Serial or Firmware (No./Ver.)	Calibration	
				Date	Interval (Month)
Measuring receiver	ESCI	R&S	100370	2009-05-07	12
Artificial mains network	ENV216	R&S	100116	2009-10-01	12
Artificial mains network	ESH3-Z5	R&S	100262	2009-09-18	12
Test software	EMC32	R&S	Ver 4.40.	N/A	N/A

4.1.2 Temperature and humidity condition

Test date	April 20, 2010	Test engineer	Sung Jin Sim
Test place	Shielded Room #1		

4.1.3 Photograph of Test Setup



Front



Rear

4.1.4 Test results (mains port)

- Configuration 1 : 1:99 Copy Printing Mode

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1

Frequency Range: 150kHz - 30MHz

Receiver: ESCI 3

Transducer: ENV216 / Receiver-2-Line-LISN ENV216

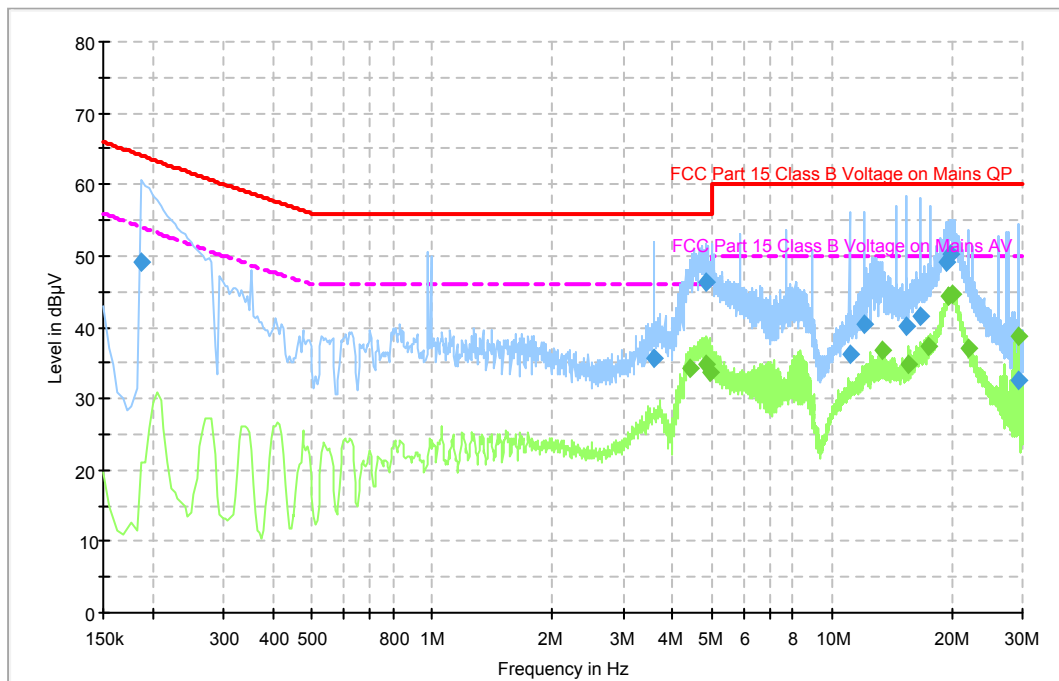
Scan Setup: FCC Part 15 Class_B with ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN

Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	Quasi Peak; Average	9kHz	15s	ESCI 3

Test Graph



Note) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Test Results (Quasi-Peak and Average)

Quasi-peak final measurement results table

Frequency (MHz)	Quasi-Peak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.186	49.1	L1	9.7	15.0	64.1
3.579	35.5	N	9.8	20.5	56.0
4.848	46.2	L1	9.7	9.8	56.0
11.058	36.1	L1	9.9	23.9	60.0
12.025	40.3	N	9.9	19.7	60.0
15.324	40.1	N	10.0	19.9	60.0
16.620	41.5	L1	10.0	18.5	60.0
19.410	49.0	N	10.1	11.0	60.0
19.729	50.2	N	10.1	9.8	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
4.398	34.3	N	9.8	11.7	46.0
4.870	34.8	N	9.8	11.2	46.0
4.983	33.8	N	9.8	12.2	46.0
13.357	36.7	N	10.0	13.3	50.0
15.616	34.9	N	10.0	15.1	50.0
17.434	37.4	L1	10.0	12.6	50.0
19.590	44.3	N	10.1	5.7	50.0
20.067	44.7	N	10.1	5.3	50.0
21.849	37.0	N	10.1	13.0	50.0
29.233	38.9	N	10.3	11.1	50.0

Note) Level (Quasi-Peak and/or Average) = Meter Reading (Quasi-Peak and/or Average) +
Factor (LISN Insertion Loss + Cable Loss)

Margin = Limit – Level (Quasi-Peak and/or Average)

- Configuration 1 : USB Printing Mode

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1

Frequency Range: 150kHz - 30MHz

Receiver: ESCI 3

Transducer: ENV216 / Receiver-2-Line-LISN ENV216

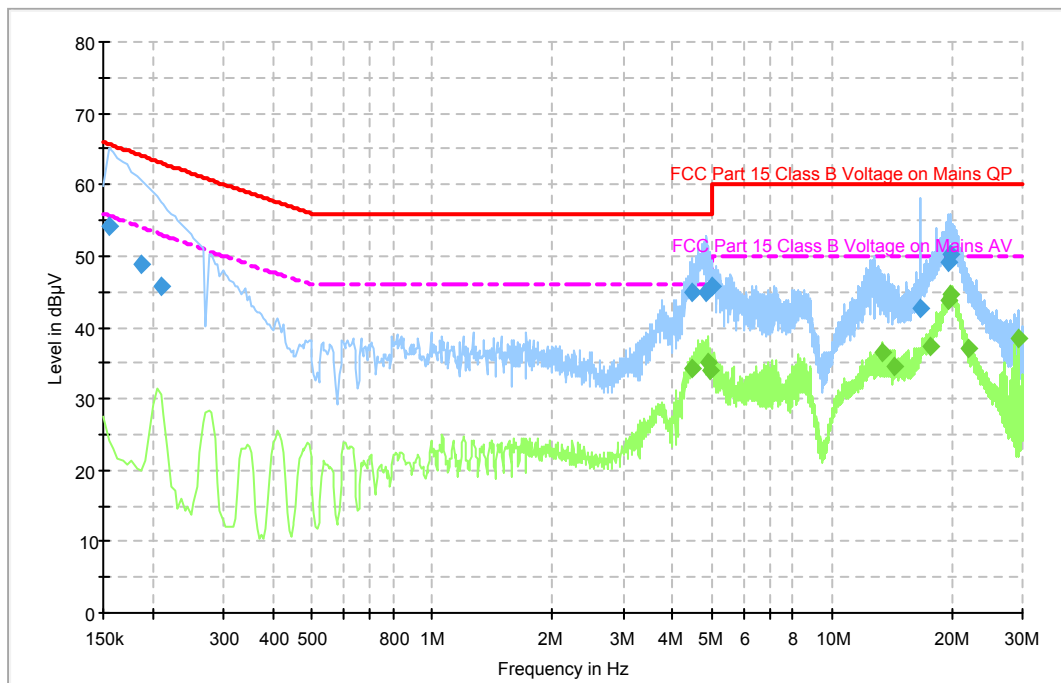
Scan Setup: FCC Part 15 Class_B with ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN

Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	Quasi Peak; Average	9kHz	15s	ESCI 3

Test Graph



Note) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Test Results (Quasi-Peak and Average)

Quasi-peak final measurement results table

Frequency (MHz)	Quasi-Peak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.155	54.2	L1	9.7	11.5	65.7
0.186	48.9	L1	9.7	15.2	64.1
0.209	45.8	L1	9.7	17.3	63.1
4.447	44.9	N	9.8	11.1	56.0
4.870	44.8	N	9.8	11.2	56.0
4.987	45.8	N	9.8	10.2	56.0
16.579	42.8	N	10.0	17.2	60.0
19.464	49.1	N	10.1	10.9	60.0
19.833	50.4	L1	10.0	9.6	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
4.447	34.3	N	9.8	11.7	46.0
4.884	35.0	N	9.8	11.0	46.0
4.965	34.0	N	9.8	12.0	46.0
13.357	36.5	N	10.0	13.5	50.0
14.334	34.6	N	10.0	15.4	50.0
17.623	37.2	N	10.0	12.8	50.0
19.464	43.7	N	10.1	6.3	50.0
19.887	44.7	N	10.1	5.3	50.0
21.858	37.0	N	10.1	13.0	50.0
29.233	38.6	N	10.3	11.4	50.0

Note) Level (Quasi-Peak and/or Average) = Meter Reading (Quasi-Peak and/or Average) +
Factor (LISN Insertion Loss + Cable Loss)

Margin = Limit – Level (Quasi-Peak and/or Average)

- Configuration 1 : Network (100 M Full Duplex) Printing Mode

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1

Frequency Range: 150kHz - 30MHz

Receiver: ESCI 3

Transducer: ENV216 / Receiver-2-Line-LISN ENV216

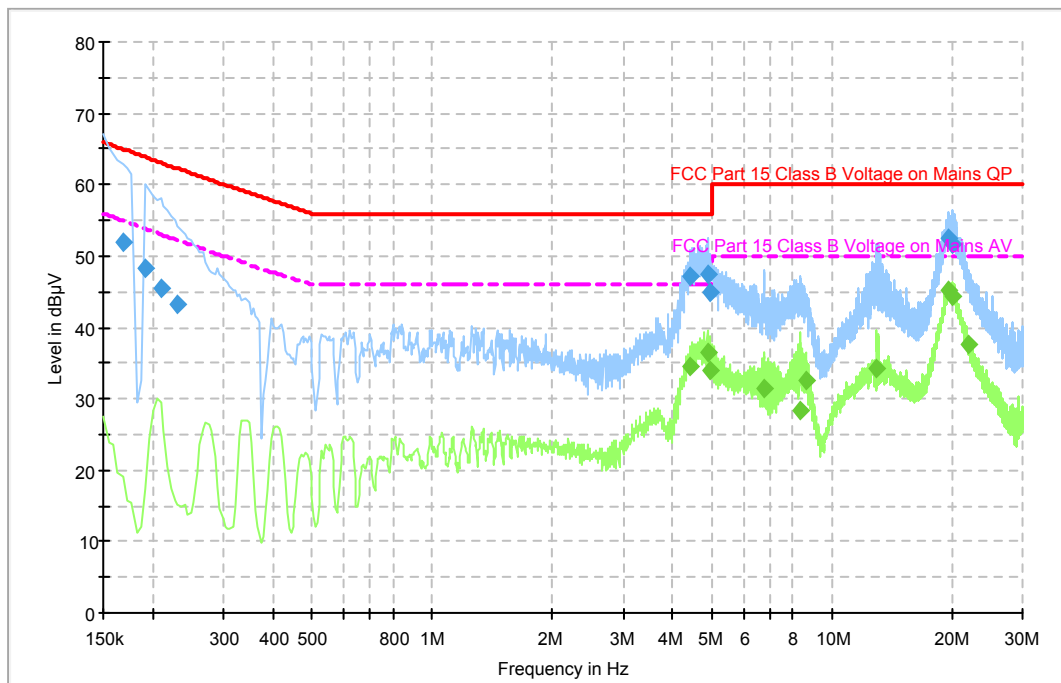
Scan Setup: FCC Part 15 Class_B with ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN

Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	Quasi Peak; Average	9kHz	15s	ESCI 3

Test Graph



Note) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Test Results (Quasi-Peak and Average)

Quasi-peak final measurement results table

Frequency (MHz)	Quasi-Peak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.168	51.9	L1	9.7	13.1	65.0
0.191	48.4	L1	9.7	15.5	63.9
0.209	45.6	N	9.7	17.5	63.1
0.231	43.2	L1	9.7	19.0	62.2
4.425	47.3	L1	9.7	8.7	56.0
4.888	47.4	N	9.8	8.6	56.0
4.983	45.0	N	9.8	11.0	56.0
19.581	52.4	L1	10.0	7.6	60.0
20.125	51.7	L1	10.0	8.3	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
4.429	34.6	N	9.8	11.4	46.0
4.875	36.5	N	9.8	9.5	46.0
4.956	33.8	L1	9.7	12.2	46.0
6.778	31.3	N	9.8	18.7	50.0
8.331	28.3	L1	9.8	21.7	50.0
8.578	32.4	N	9.8	17.6	50.0
12.966	34.2	N	9.9	15.8	50.0
19.626	45.1	N	10.1	4.9	50.0
20.139	44.4	L1	10.0	5.6	50.0
21.858	37.7	N	10.1	12.3	50.0

Note) Level (Quasi-Peak and/or Average) = Meter Reading (Quasi-Peak and/or Average) +
Factor (LISN Insertion Loss + Cable Loss)

Margin = Limit – Level (Quasi-Peak and/or Average)

- Configuration 1 : Wireless Network Printing Mode

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1

Frequency Range: 150kHz - 30MHz

Receiver: ESCI 3

Transducer: ENV216 / Receiver-2-Line-LISN ENV216

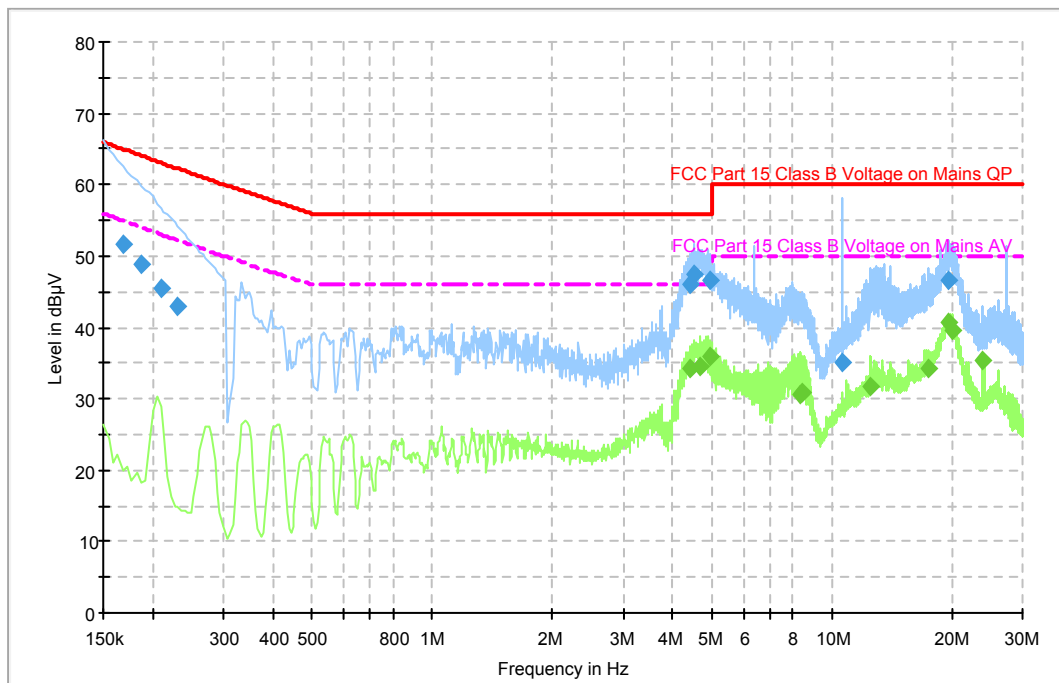
Scan Setup: FCC Part 15 Class_B with ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN

Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	Quasi Peak; Average	9kHz	15s	ESCI 3

Test Graph



Note) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Test Results (Quasi-Peak and Average)

Quasi-peak final measurement results table

Frequency (MHz)	Quasi-Peak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.168	51.8	L1	9.7	13.2	65.0
0.186	48.8	L1	9.7	15.2	64.1
0.209	45.3	N	9.7	17.8	63.1
0.231	43.0	L1	9.7	19.2	62.2
4.425	46.1	N	9.8	9.9	56.0
4.533	47.4	N	9.8	8.6	56.0
4.983	46.5	N	9.8	9.5	56.0
10.626	35.0	N	9.9	25.0	60.0
19.468	46.6	L1	10.0	13.4	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
4.429	34.1	N	9.8	11.9	46.0
4.677	34.6	N	9.8	11.4	46.0
4.983	35.9	N	9.8	10.1	46.0
8.371	30.7	N	9.8	19.3	50.0
8.439	30.9	N	9.8	19.1	50.0
12.489	31.7	N	9.9	18.3	50.0
17.358	34.3	N	10.0	15.7	50.0
19.603	40.6	N	10.1	9.4	50.0
20.107	39.7	L1	10.0	10.3	50.0
23.914	35.3	N	10.2	14.7	50.0

Note) Level (Quasi-Peak and/or Average) = Meter Reading (Quasi-Peak and/or Average) +
Factor (LISN Insertion Loss + Cable Loss)

Margin = Limit – Level (Quasi-Peak and/or Average)

- Configuration 1 : Scan to PC (2 400 dpi) Mode

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1

Frequency Range: 150kHz - 30MHz

Receiver: ESCI 3

Transducer: ENV216 / Receiver-2-Line-LISN ENV216

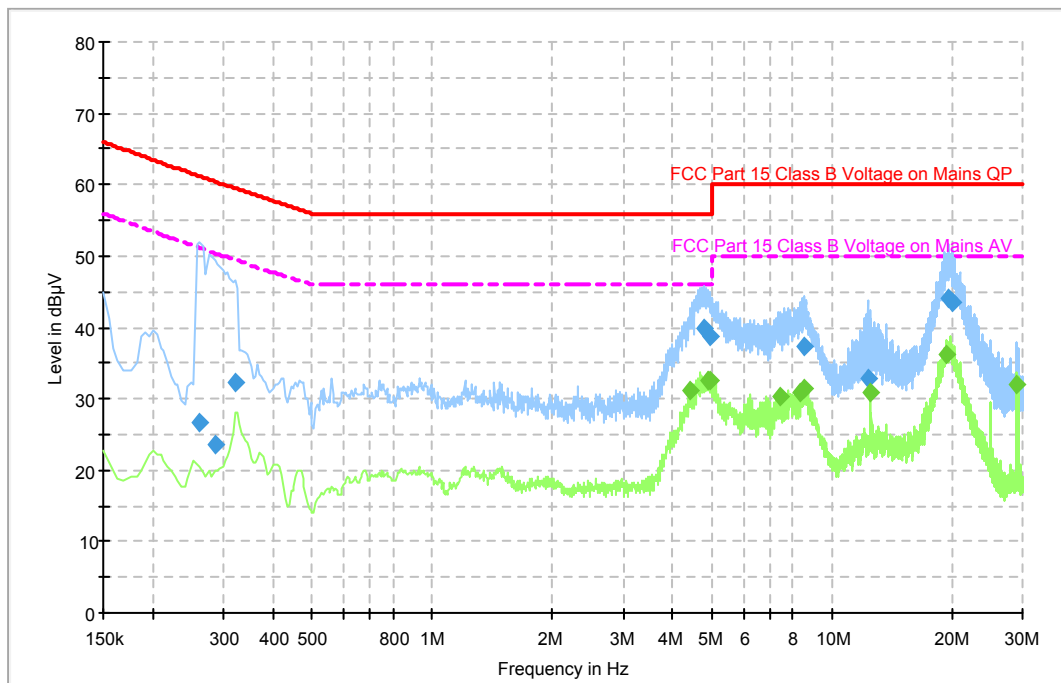
Scan Setup: FCC Part 15 Class_B with ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN

Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	Quasi Peak; Average	9kHz	15s	ESCI 3

Test Graph



Note) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Test Results (Quasi-Peak and Average)

Quasi-peak final measurement results table

Frequency (MHz)	Quasi-Peak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.263	26.6	L1	9.7	34.5	61.1
0.285	23.5	L1	9.7	37.0	60.5
0.321	32.2	L1	9.7	27.3	59.5
4.807	39.8	N	9.8	16.2	56.0
4.965	38.6	N	9.8	17.4	56.0
8.511	37.3	N	9.8	22.7	60.0
12.264	32.7	N	9.9	27.3	60.0
19.509	44.2	L1	10.0	15.8	60.0
19.936	43.6	L1	10.0	16.4	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
4.438	31.2	N	9.8	14.8	46.0
4.902	32.6	N	9.8	13.4	46.0
4.974	32.6	N	9.8	13.4	46.0
7.390	30.4	N	9.8	19.6	50.0
8.367	30.8	N	9.8	19.2	50.0
8.515	31.5	N	9.8	18.5	50.0
12.502	30.9	N	9.9	19.1	50.0
19.432	36.2	N	10.1	13.8	50.0
29.121	32.0	L1	10.1	18.0	50.0

Note) Level (Quasi-Peak and/or Average) = Meter Reading (Quasi-Peak and/or Average) +
Factor (LISN Insertion Loss + Cable Loss)

Margin = Limit – Level (Quasi-Peak and/or Average)

- Configuration 1 : Standby Mode

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1

Frequency Range: 150kHz - 30MHz

Receiver: ESCI 3

Transducer: ENV216 / Receiver-2-Line-LISN ENV216

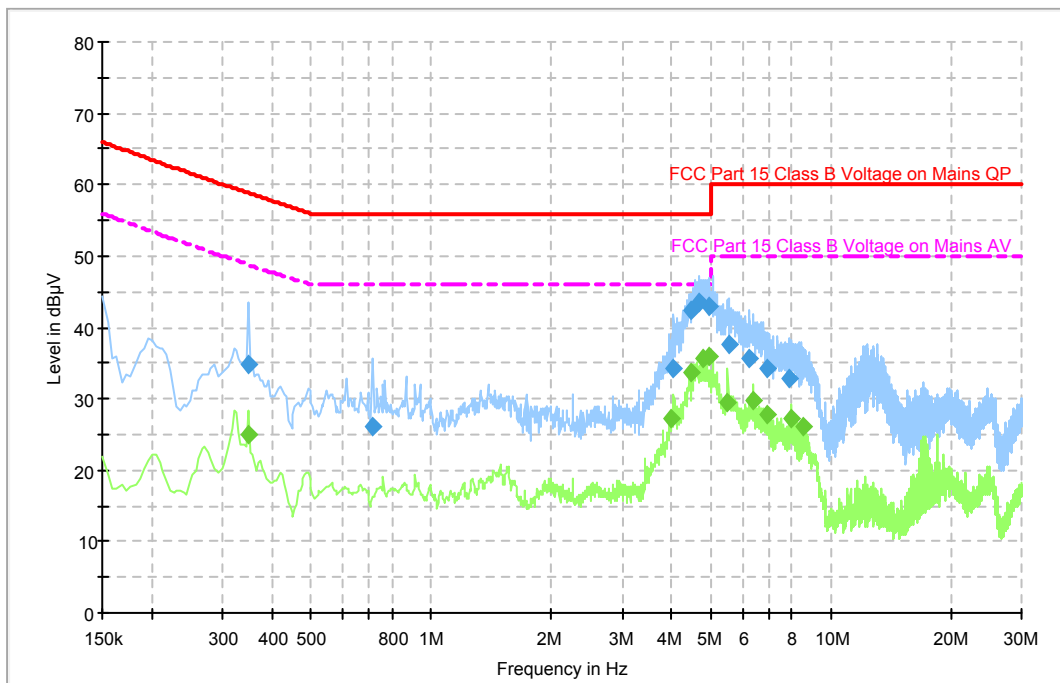
Scan Setup: FCC Part 15 Class_B with ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN

Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150kHz - 30MHz	Quasi Peak; Average	9kHz	15s	ESCI 3

Test Graph



Note) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Test Results (Quasi-Peak and Average)

Quasi-peak final measurement results table

Frequency (MHz)	Quasi-Peak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.348	34.9	N	9.7	24.0	58.8
0.713	26.2	N	9.7	29.8	56.0
4.006	34.4	N	9.8	21.6	56.0
4.443	42.5	N	9.8	13.5	56.0
4.690	43.4	N	9.8	12.6	56.0
4.978	42.9	N	9.8	13.1	56.0
5.532	37.6	L1	9.7	22.4	60.0
6.211	35.6	L1	9.7	24.4	60.0
6.963	34.2	L1	9.8	25.8	60.0
7.890	32.9	L1	9.8	27.1	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.348	25.0	N	9.7	23.8	48.8
3.984	27.2	N	9.8	18.8	46.0
4.443	33.7	N	9.8	12.3	46.0
4.776	35.8	N	9.8	10.2	46.0
4.974	36.0	N	9.8	10.0	46.0
5.527	29.5	L1	9.7	20.5	50.0
6.418	29.8	N	9.8	20.2	50.0
6.963	27.9	L1	9.8	22.1	50.0
7.962	27.2	N	9.8	22.8	50.0
8.502	26.0	L1	9.8	24.0	50.0

Note) Level (Quasi-Peak and/or Average) = Meter Reading (Quasi-Peak and/or Average) +
Factor (LISN Insertion Loss + Cable Loss)

Margin = Limit – Level (Quasi-Peak and/or Average)

4.2 Radiated disturbance

Of those disturbances above ($L - 20\text{dB}$), where L is the limit level in logarithmic units, record at least the disturbance levels and the frequencies of the six highest disturbances.

The following data lists the significant emission frequencies, measured levels, correction factors (for antenna and cables), orientation of table, polarization and height of antenna, the corrected reading, the limit, and the amount of margin. All measurements were taken utilizing quasi-peak detection unless stated otherwise.

Measurements were performed at an antenna to EUT distance of 10 meters and elevated between 1 and 4 meters. Both vertical and horizontal antenna polarizations were measured.

Limits for radiated disturbance of ITE at a measuring distance of 10 m

Frequency range Limits MHz	Resolution Bandwidth	Quasi-peak Limits dB dB($\mu\text{V}/\text{m}$)	
		Class A	Class B
30 to 230	120 kHz	40	30
230 to 1000	120 kHz	47	37
NOTE 1 The lower limit shall apply at the transition frequency			
NOTE 2 Additional provisions may be required for cases where interference occurs.			

Peak measurements were made over the changeable frequency range 1GHz to 40GHz or 5th in accordance with internal maximum operating frequency at a measurement distance of 3m for the following antenna and turntable arrangements:

Antenna Height (Cm)	Antenna Polarisation	Turntable position (degrees)
100	Horizontal, Vertical	Continuous

Limits for above 1GHz radiated disturbance of ITE at a measuring distance of 3 m

Class	Limits - dB(μV/m)	
	Peak	Average
A	80	60
B	74	54
Average limit $500 \cdot 20 \log 500 = 53.979 \text{ dB} \rightarrow 54 \text{ dB}$		

Antenna height was adjusted to 108cm to be parallel from EUT to antenna centre.
Measurements within 20dB of the limit were then maximized by adjusting turntable position.
Final measurements were made using a average detector.

Results checked manually; and points close to the limit line were re-measured.

4.2.1 Test instrumentation

Test instrumentation	Model name	Manufacturer	Serial or Firmware (No./Ver.)	Calibration	
				Date	Interval (Month)
Bi-con Antenna	CBL6112D	Schaffner	22602	2008-04-15	24
Bi-con Antenna	CBL6112D	Schaffner	22604	2008-04-15	24
Horn Antenna	3115	EMCO	00027026	2009-03-16	24
EMI Receiver	ESIB-26	R&S	100287	2009-08-27	12
EMI Receiver	ESIB-26	R&S	100147	2009-06-30	12
Amplifier	310N	Agilent	185861	2010-01-28	12
Amplifier	310N	Agilent	251676	2010-01-28	12
Amplifier	TPA0108-40	TOYO	0343	2010-01-19	12
Antenna Mast	MA4000	INN CO	-	N/A	N/A
Antenna Mast	MA4000	INN CO	-	N/A	N/A
Mast Controller	CO2000	INN CO	-	N/A	N/A
Test software	EP5/RE	TOYO	VER 3.1.20	N/A	N/A
RF Selector	NS4900	TOYO	-	N/A	N/A

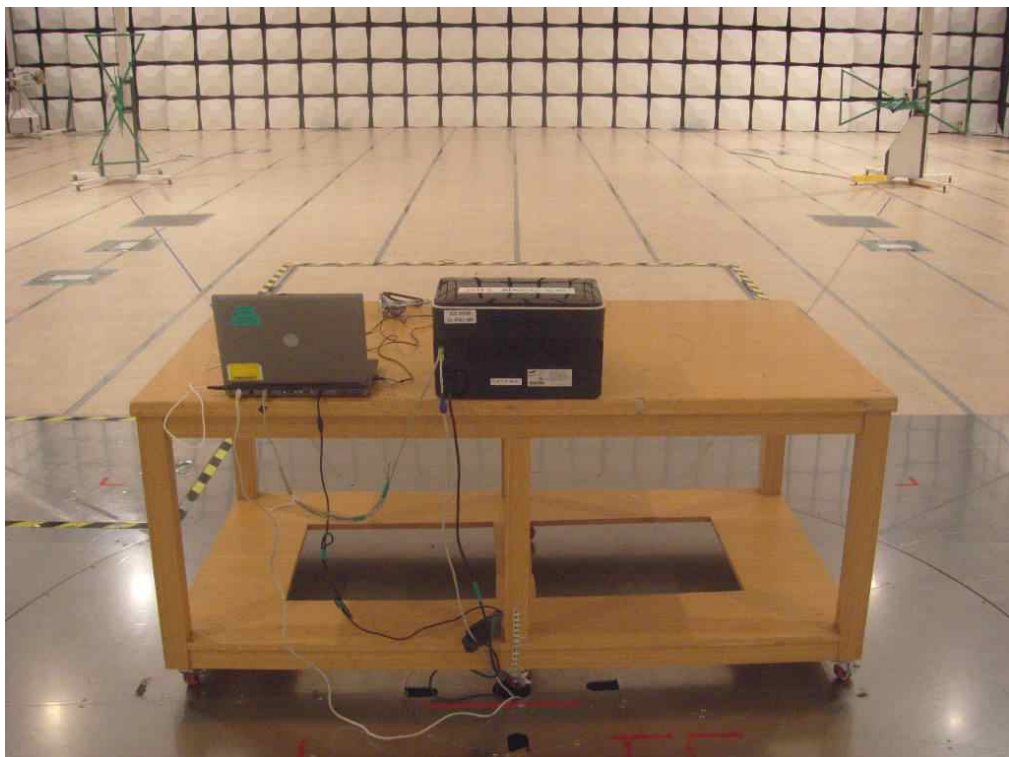
4.2.2 Temperature and humidity condition

Test date	March 24, 2010 ~ March 29, 2010	Test engineer	Sung Jin Sim
Test place	10 m Semi-Anechoic Chamber		

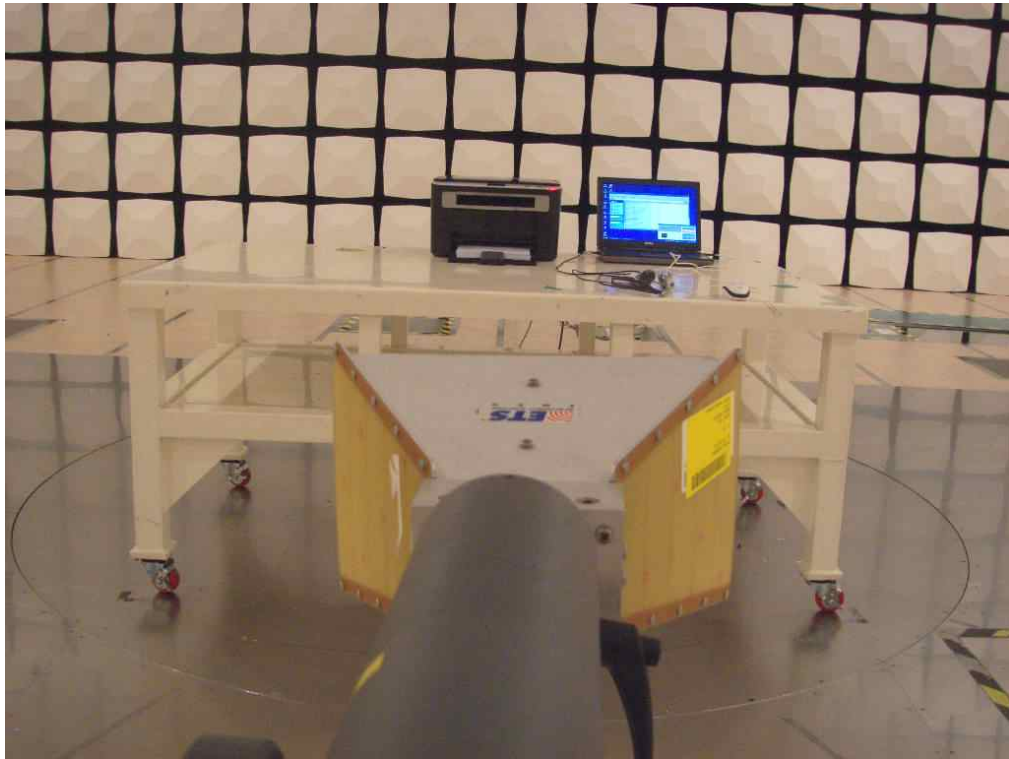
4.2.3 Photograph of Test Setup



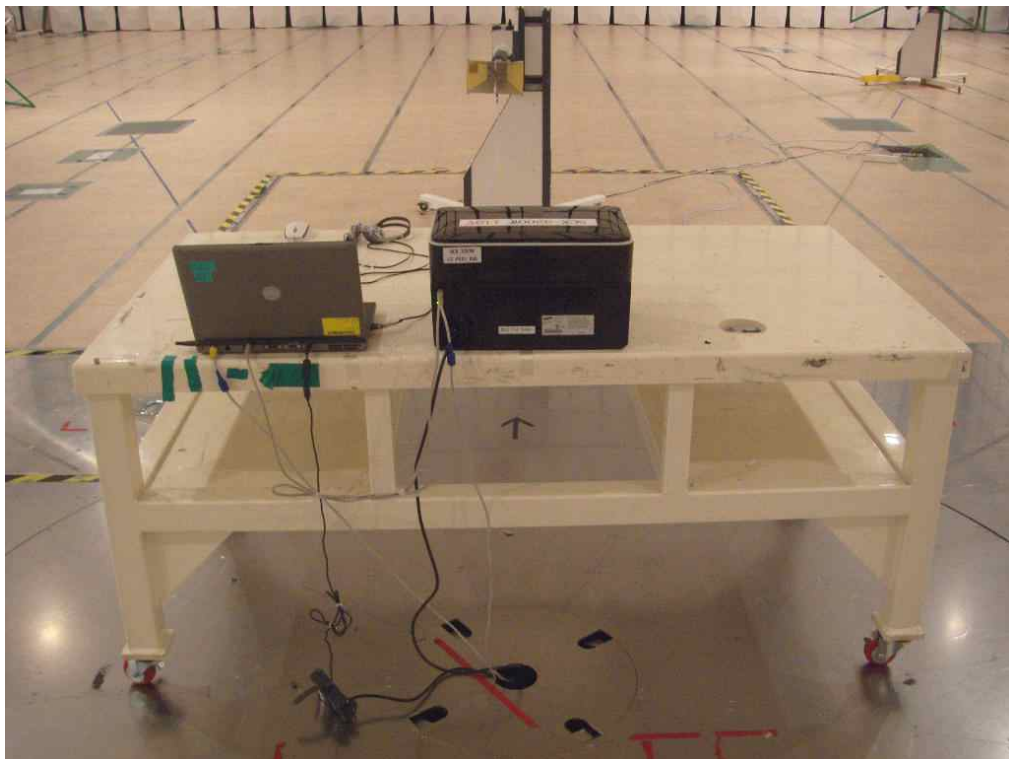
Front (30 MHz to 1 GHz)



Rear (30 MHz to 1 GHz)



Front (1 GHz to 2 GHz)



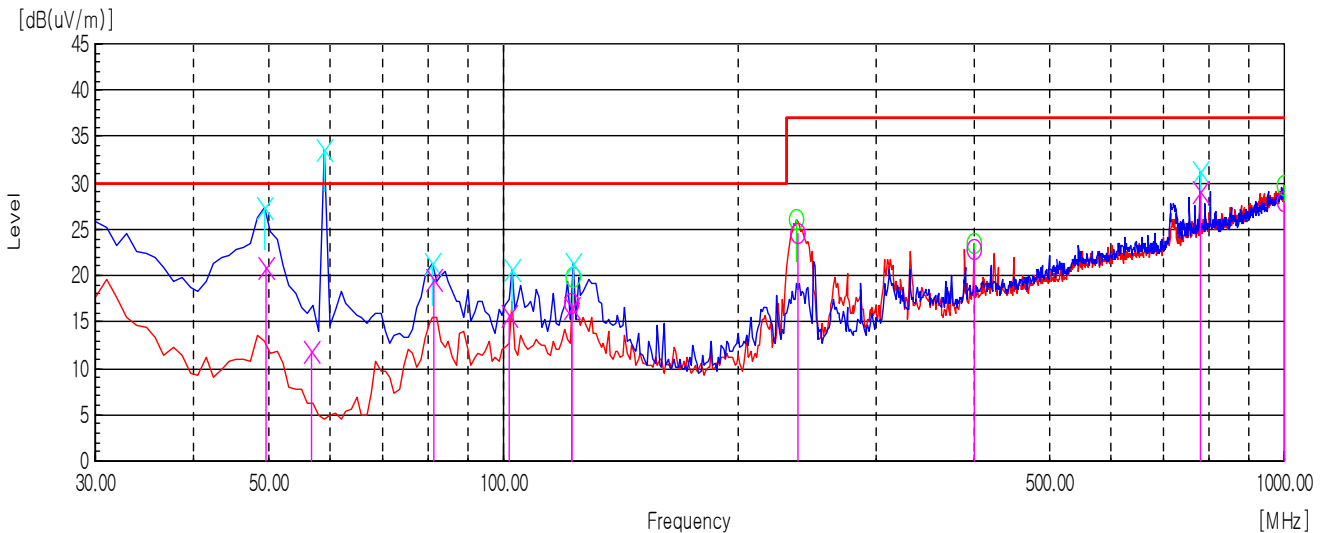
Rear (1 GHz to 2 GHz)

4.2.4 Test results

4.2.4.1 30 MHz to 1GHz test results

- Configuration 1 : 1 :99 Copy Printing Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μ V)]	Factor [dB(1/m)]	Level QP [dB(μ V /m)]	Limit [dB(μ V /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
49.613	V	43.9	-23.0	20.9	30	9.1	101	251.9
56.771	V	36.7	-24.9	11.8	30	18.2	351	8.3
81.445	V	42.7	-23.1	19.6	30	10.4	150	315.8
101.682	V	34.5	-18.7	15.8	30	14.2	250	199.7
122.115	V	33.9	-17.4	16.5	30	13.5	250	252.1
122.264	H	34.4	-17.3	17.1	30	12.9	349	227.2
238.325	H	42.4	-17.9	24.5	37	12.5	349	122.0
401.322	H	33.4	-10.6	22.8	37	14.2	250	184.0
779.203	V	33.2	-4.1	29.1	37	7.9	250	70.5.0
998.031	H	28.3	-0.4	27.9	37	9.1	250	173.8

Note) Receiving antenna polarization : Horizontal and/or Vertical

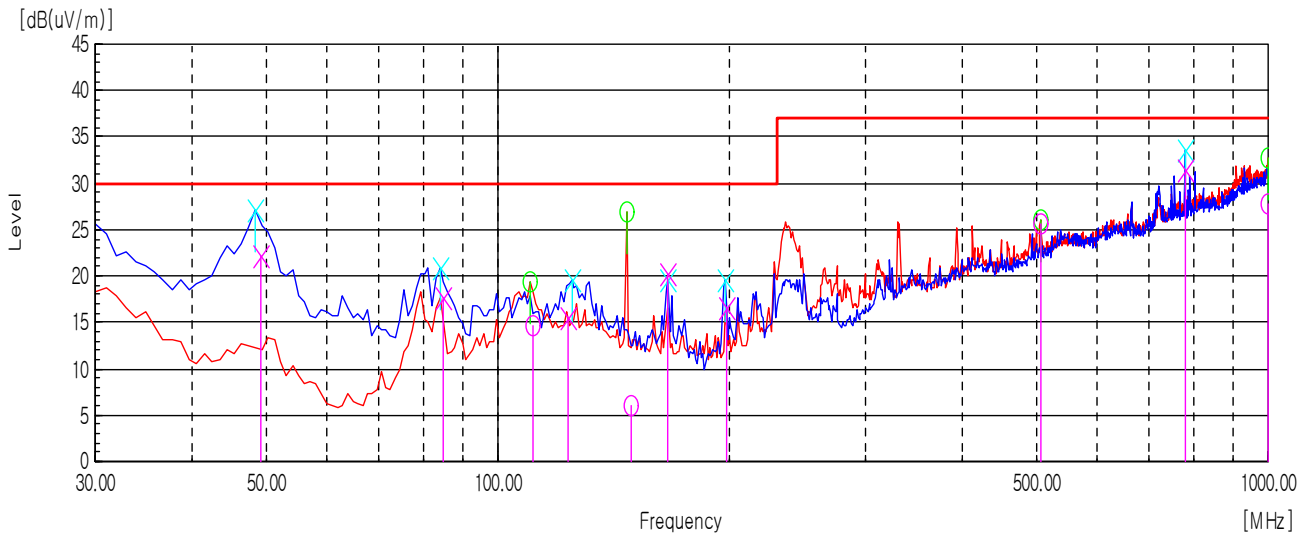
Test Distance : 10m, Antenna Height : 1 to 4 meters

Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

Margin QP (Quasi-Peak) = Limit – Level QP

- Configuration 1 : USB Printing Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μ V)]	Factor [dB(1/m)]	Level QP [dB(μ V /m)]	Limit [dB(μ V /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
49.159	V	45.1	-22.9	22.2	30	7.8	142	234.8
84.882	V	40.1	-22.4	17.7	30	12.3	153	232.1
110.823	H	32.2	-17.6	14.6	30	15.4	253	311.5
123.327	V	33.0	-17.4	15.6	30	14.4	238	176.2
149.240	H	24.5	-18.6	5.9	30	24.1	386	234.8
166.228	V	39.9	-19.6	20.3	30	9.7	152	0.7
197.682	V	36.8	-20.2	16.6	30	13.4	153	39.9
506.086	H	34.1	-8.4	25.7	37	11.3	151	142.4
780.004	V	35.6	-4.1	31.5	37	5.5	208	45.8
999.423	H	28.1	-0.4	27.7	37	9.3	260	277.4

Note) Receiving antenna polarization : Horizontal and/or Vertical

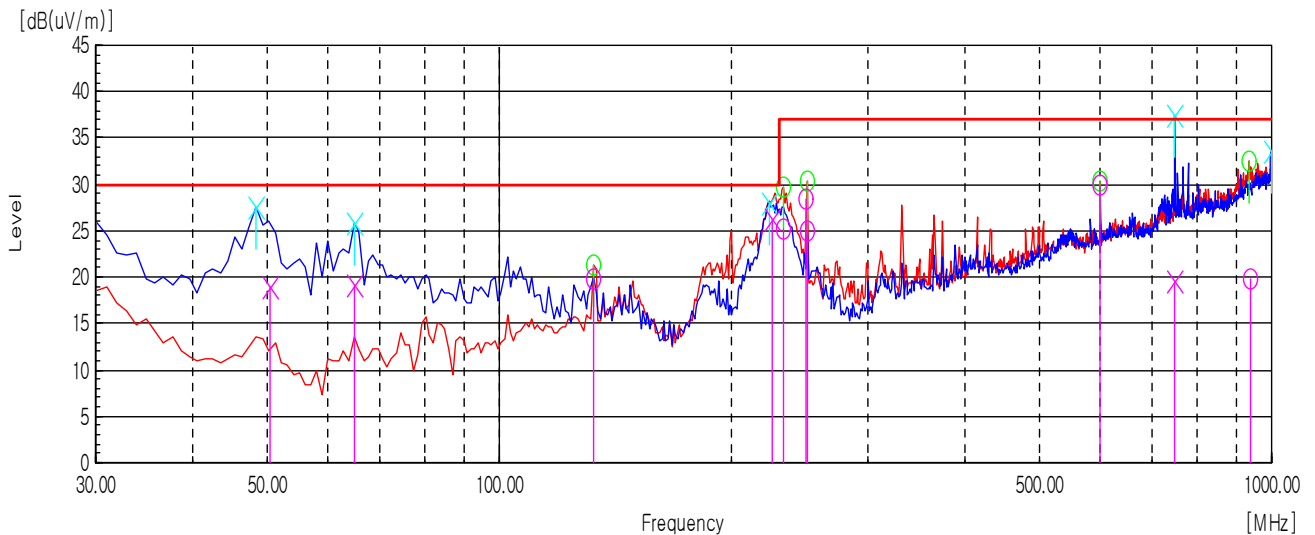
Test Distance : 10m, Antenna Height : 1 to 4 meters

Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

Margin QP (Quasi-Peak) = Limit – Level QP

- Configuration 1 : Network Printing Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μ V)]	Factor [dB(1/m)]	Level QP [dB(μ V /m)]	Limit [dB(μ V /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
50.405	V	42.2	-23.3	18.9	30	11.1	104	255.2
64.774	V	44.1	-24.9	19.2	30	10.8	251	3.3
132.389	H	37.4	-17.5	19.9	30	10.1	348	121
225.123	V	45.2	-19.0	26.2	30	3.8	100	345.5
232.846	H	43.7	-18.5	25.2	37	11.8	348	121
249.996	H	44.2	-15.7	28.5	37	8.5	387	108.9
250.232	H	40.7	-15.7	25.0	37	12.0	348	103.3
600.001	H	36.5	-6.7	29.8	37	7.2	166	104.7
749.374	V	23.8	-4.3	19.5	37	17.5	392	2.3
937.142	H	21.0	-1.1	19.9	37	17.1	100	40.3

Note) Receiving antenna polarization : Horizontal and/or Vertical

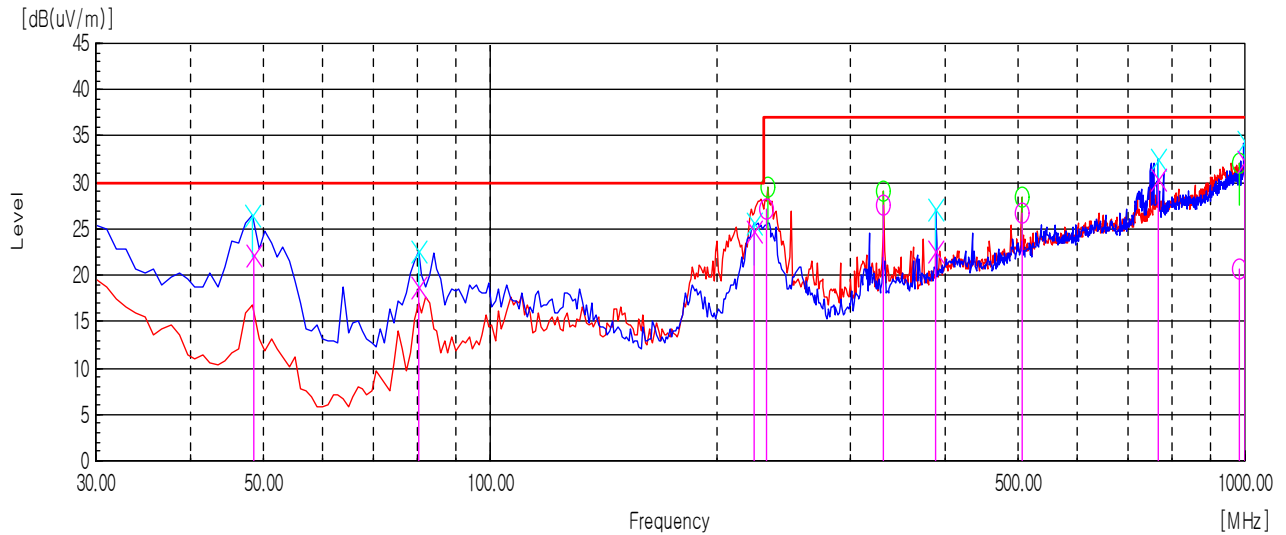
Test Distance : 10m, Antenna Height : 1 to 4 meters

Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

Margin QP (Quasi-Peak) = Limit – Level QP

- Configuration 1 : Wireless Network Printing Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μ V)]	Factor [dB(1/m)]	Level QP [dB(μ V /m)]	Limit [dB(μ V /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
48.647	V	44.9	-22.7	22.2	30	7.8	164	245.2
80.228	V	42.0	-23.3	18.7	30	11.3	151	69.9
224.152	V	43.8	-19.0	24.8	30	5.2	151	0.3
232.474	H	45.5	-18.5	27.0	37	10.0	358	94.1
332.337	H	40.7	-13.1	27.6	37	9.4	249	149.8
389.327	V	33.6	-11.0	22.6	37	14.4	350	333.2
506.204	H	35.0	-8.4	26.6	37	10.4	150	208.8
767.247	V	34.5	-4.2	30.3	37	6.7	250	88.0
984.847	H	21.5	-0.8	20.7	37	16.3	100	109.9
998.880	V	32.4	-0.2	32.2	37	4.8	169	11.3

Note) Receiving antenna polarization : Horizontal and/or Vertical

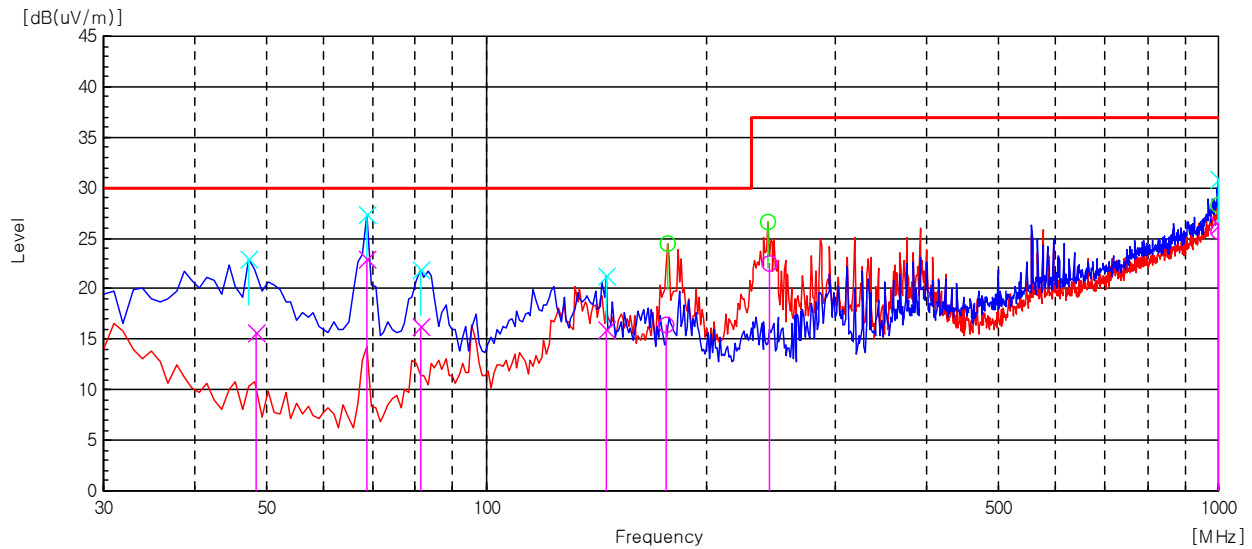
Test Distance : 10m, Antenna Height : 1 to 4 meters

Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

Margin QP (Quasi-Peak) = Limit – Level QP

- Configuration 1 : Scan to PC (2 400dpi) Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μ V)]	Factor [dB(1/m)]	Level QP [dB(μ V /m)]	Limit [dB(μ V /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
48.425	V	38.4	-22.7	15.7	30	14.3	202	28.7
68.555	V	48.1	-25.2	22.9	30	7.1	171	192.9
81.194	V	39.3	-23.1	16.2	30	13.8	150	189.8
145.912	V	34.5	-18.6	15.9	30	14.1	250	0.3
176.315	H	37.9	-21.5	16.4	30	13.6	390	149.7
244.133	H	41	-18.5	22.5	37	14.5	400	145.6
999.022	V	26.3	0	26.3	37	10.7	150	26.5
999.022	H	27.5	-1.8	25.7	37	11.3	150	225.7

Note) Receiving antenna polarization : Horizontal and/or Vertical

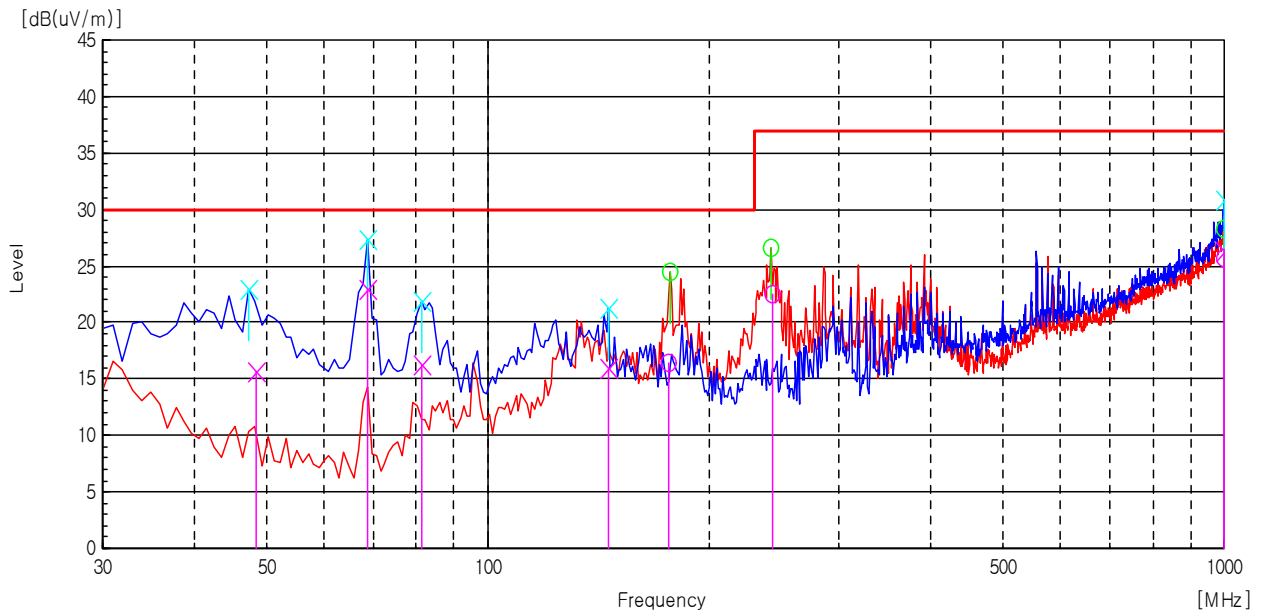
Test Distance : 10m, Antenna Height : 1 to 4 meters

Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

Margin QP (Quasi-Peak) = Limit – Level QP

- Configuration 1 : Stand by Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μ V)]	Factor [dB(1/m)]	Level QP [dB(μ V /m)]	Limit [dB(μ V /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
48.425	V	38.4	-22.7	15.7	30	14.3	202	28.7
68.555	V	48.1	-25.2	22.9	30	7.1	171	192.9
81.194	V	39.3	-23.1	16.2	30	13.8	150	189.8
145.912	V	34.5	-18.6	15.9	30	14.1	250	0.3
176.315	H	37.9	-21.5	16.4	30	13.6	390	149.7
244.133	H	41.0	-18.5	22.5	37	14.5	400	145.6
999.022	V	26.3	0.0	26.3	37	10.7	150	26.5
999.022	H	27.5	-1.8	25.7	37	11.3	150	225.7

Note) Receiving antenna polarization : Horizontal and/or Vertical

Test Distance : 10m, Antenna Height : 1 to 4 meters

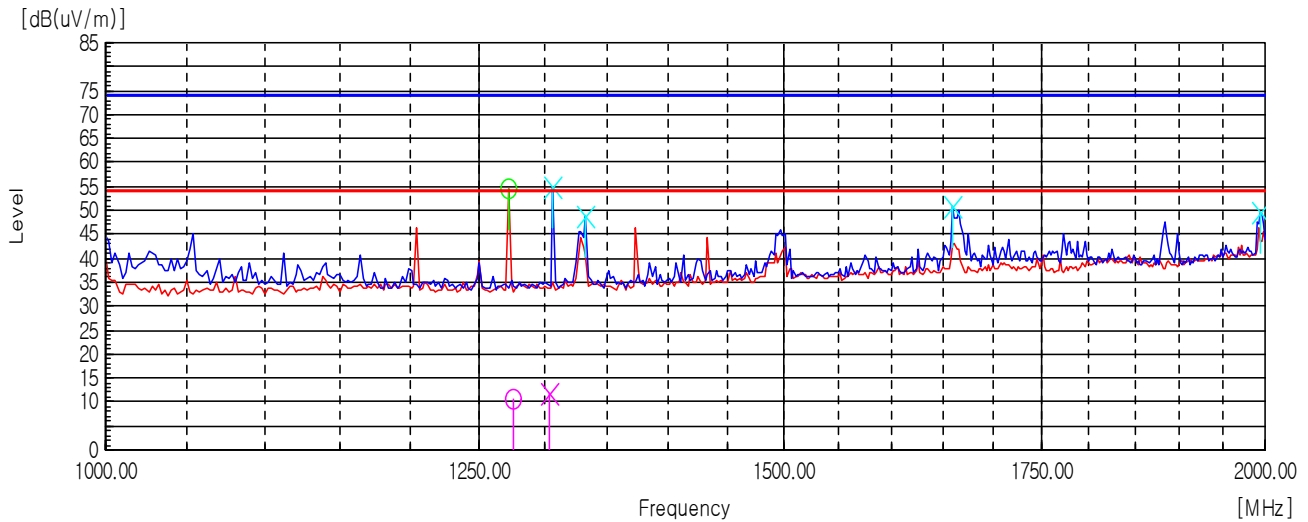
Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

Margin QP (Quasi-Peak) = Limit – Level QP

4.2.4.2 1 GHz to 2 GHz test results

- Configuration 1 : 1 :99 Copy Printing Mode

Test Results



Peak Measurement

Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1272.545	H	67.6	-13.1	54.5	74	19.5	100	105.8
1306.613	V	67.7	-12.8	54.9	74	19.1	100	205.3
1332.665	V	61.3	-12.6	48.7	74	25.3	100	347.2
1659.319	V	60.3	-9.6	50.7	74	23.3	100	15.4
1993.988	V	56.3	-6.8	49.5	74	24.5	100	357.4

Average Measurement

Frequency [MHz]	POL	Reading AV [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Limit [dB(uV/m)]	Margin AV [dB]	Height [cm]	Angle [deg]
1276.403	H	23.9	-13.1	10.8	54	43.2	100	51.3
1304.218	V	24.7	-12.8	11.9	54	42.1	100	355.4

Note1) Representative operating modes were selected by customer and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Level P K(Peak) = Reading PK(Peak) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

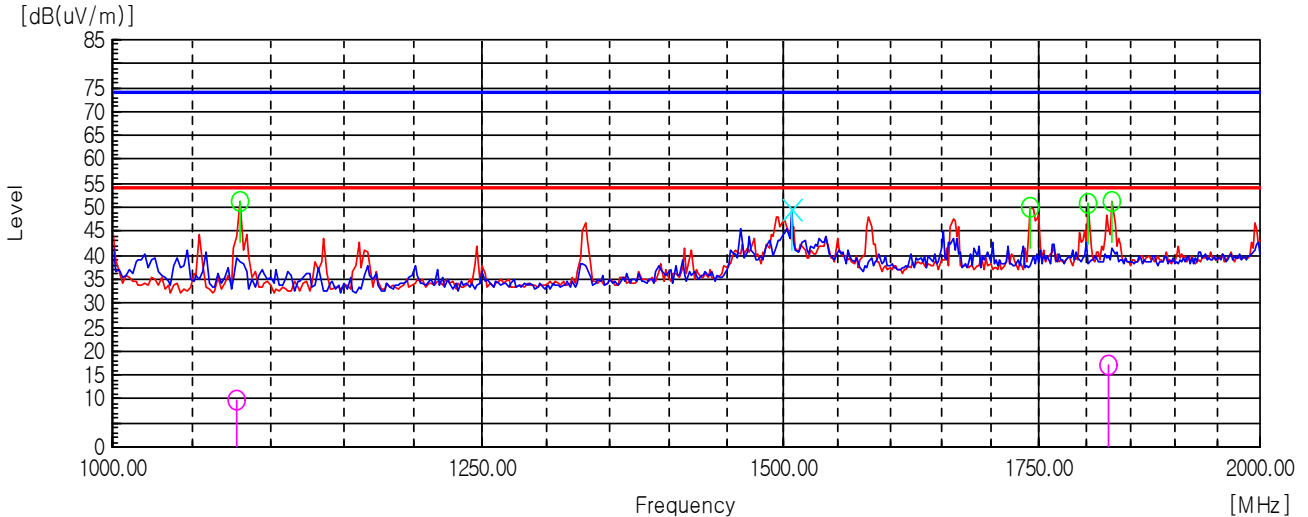
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Margin PK (Peak) = Limit – Level PK (Peak)

Margin AV (Average) = Limit – Level AV (Average)

- Configuration 1 : USB Printing Mode

Test Results



Peak Measurement

Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1080.160	H	66.1	-14.7	51.4	74	22.6	100	347.2
1507.014	V	60.7	-10.9	49.8	74	24.2	100	264.5
1741.483	H	58.8	-8.9	49.9	74	24.1	100	0.3
1803.607	H	59.4	-8.4	51.0	74	23.0	100	110.9
1829.659	H	59.4	-8.2	51.2	74	22.8	100	126.6

Average Measurement

Frequency [MHz]	POL	Reading AV [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Limit [dB(uV/m)]	Margin AV [dB]	Height [cm]	Angle [deg]
1078.126	H	24.5	-14.8	9.7	54	44.3	100	119.2
1825.340	H	25.4	-8.2	17.2	54	36.8	100	120.7

Note1) Representative operating modes were selected by customer and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Level P K(Peak) = Reading PK(Peak) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

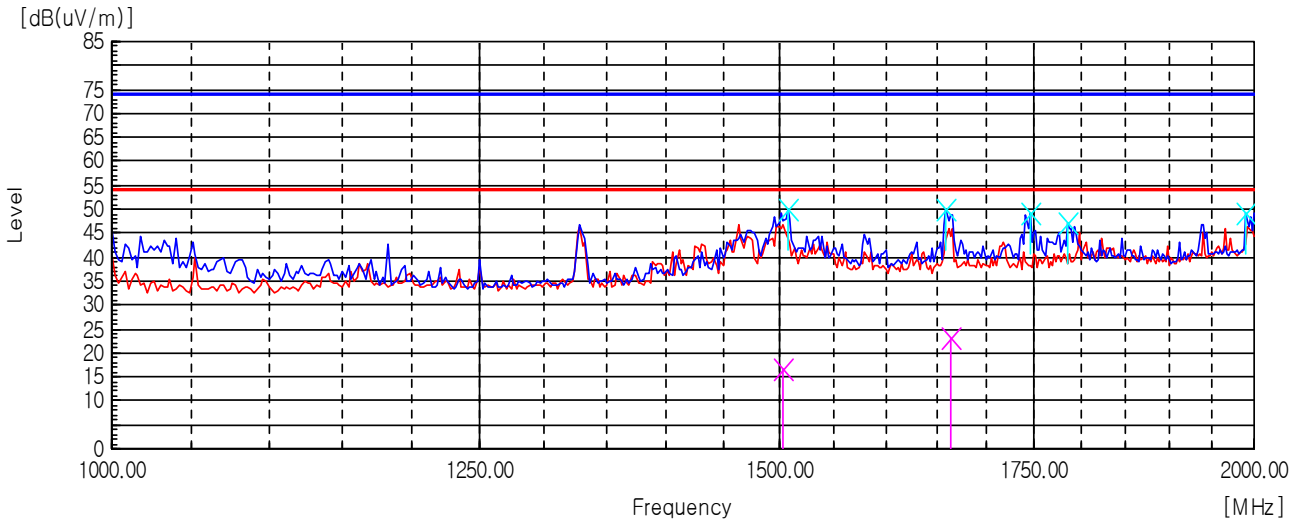
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Margin PK (Peak) = Limit – Level PK (Peak)

Margin AV (Average) = Limit – Level AV (Average)

- Configuration 1 : Network Printing Mode

Test Results



Peak Measurement

Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1507.014	V	61.0	-10.9	50.1	74	23.9	100	138.1
1659.319	V	59.5	-9.6	49.9	74	24.1	100	355.8
1745.491	V	58.0	-8.9	49.1	74	24.9	100	185.6
1785.571	V	55.9	-8.5	47.4	74	26.6	100	26.5
1989.980	V	55.8	-6.8	49.0	74	25.0	100	328.7

Average Measurement

Frequency [MHz]	POL	Reading AV [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Limit [dB(uV/m)]	Margin AV [dB]	Height [cm]	Angle [deg]
1502.796	V	27.6	-11.0	16.6	54	37.4	100	253.8
1663.017	V	32.6	-9.5	23.1	54	30.9	100	29.2

Note1) Representative operating modes were selected by customer and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Level P K(Peak) = Reading PK(Peak) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

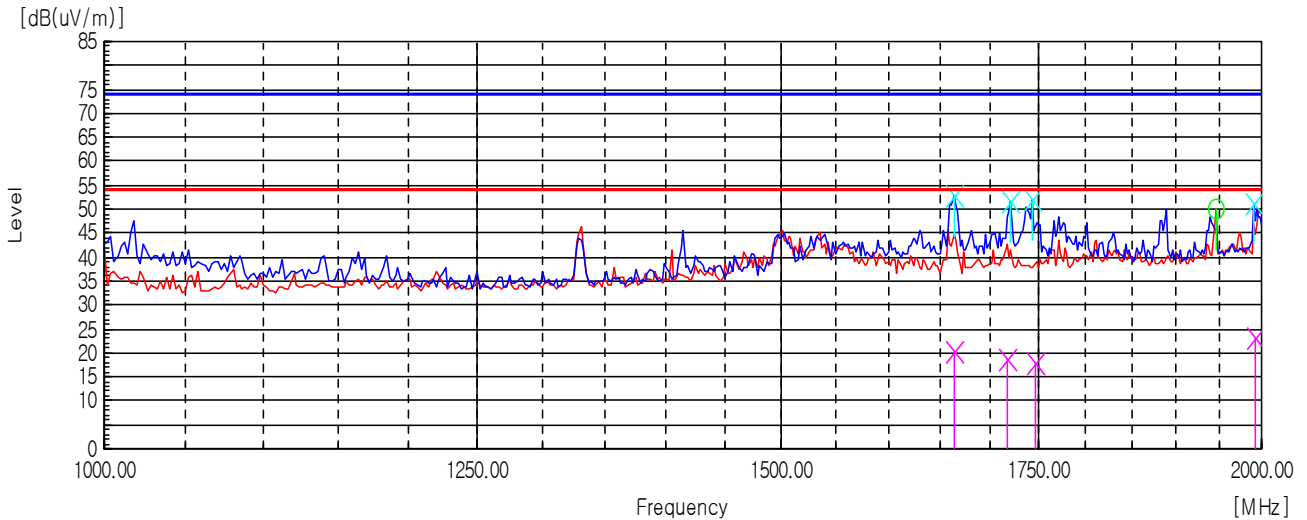
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Margin PK (Peak) = Limit – Level PK (Peak)

Margin AV (Average) = Limit – Level AV (Average)

- **Configuration 1 : Wireless Network Printing Mode**

Test Results



Peak Measurement

Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1663.327	V	62.3	-9.5	52.8	74	21.2	100	15.1
1721.443	V	60.5	-9.0	51.5	74	22.5	100	79.0
1743.487	V	61.1	-8.9	52.2	74	21.8	100	7.3
1945.892	H	57.2	-7.2	50.0	74	24.0	100	26.0
1989.980	V	58.2	-6.8	51.4	74	22.6	100	237.3

Average Measurement

Frequency [MHz]	POL	Reading AV [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Limit [dB(uV/m)]	Margin AV [dB]	Height [cm]	Angle [deg]
1663.818	V	29.9	-9.5	20.4	54	33.6	100	4.7
1717.846	V	27.8	-9.1	18.7	54	35.3	100	71.2
1746.082	V	26.5	-8.8	17.7	54	36.3	100	33.7
1993.076	V	29.8	-6.8	23.0	54	31.0	100	210.4

Note1) Representative operating modes were selected by customer and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Level P K(Peak) = Reading PK(Peak) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

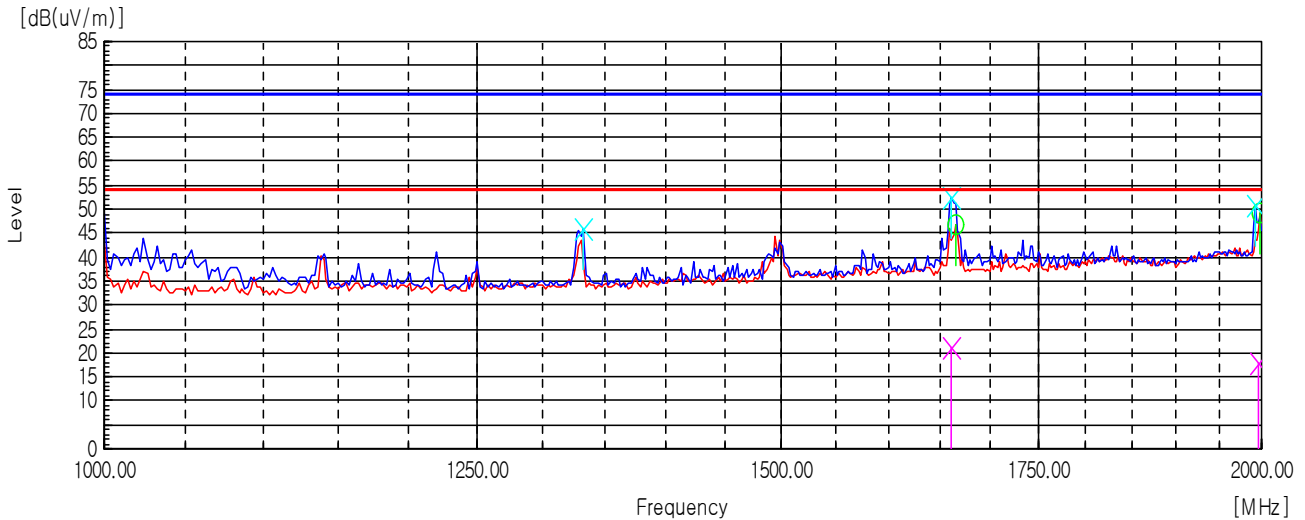
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Margin PK (Peak) = Limit – Level PK (Peak)

Margin AV (Average) = Limit – Level AV (Average)

- Configuration 1 : Scan to PC (2 400 dpi) Mode

Test Results



Peak Measurement

Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1332.665	V	58.4	-12.6	45.8	74	28.2	100	354.1
1661.323	V	62.0	-9.5	52.5	74	21.5	100	63.2
1665.331	H	56.1	-9.5	46.6	74	27.4	100	355.5
1991.984	V	57.5	-6.8	50.7	74	23.3	100	220.6
1997.996	H	55.9	-6.8	49.1	74	24.9	100	26.1

Average Measurement

Frequency [MHz]	POL	Reading AV [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Limit [dB(uV/m)]	Margin AV [dB]	Height [cm]	Angle [deg]
1660.972	V	30.7	-9.5	21.2	54	32.8	100	55.3
1996.563	V	24.6	-6.8	17.8	54	36.2	100	71.9

Note1) Representative operating modes were selected by customer and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Level P K(Peak) = Reading PK(Peak) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

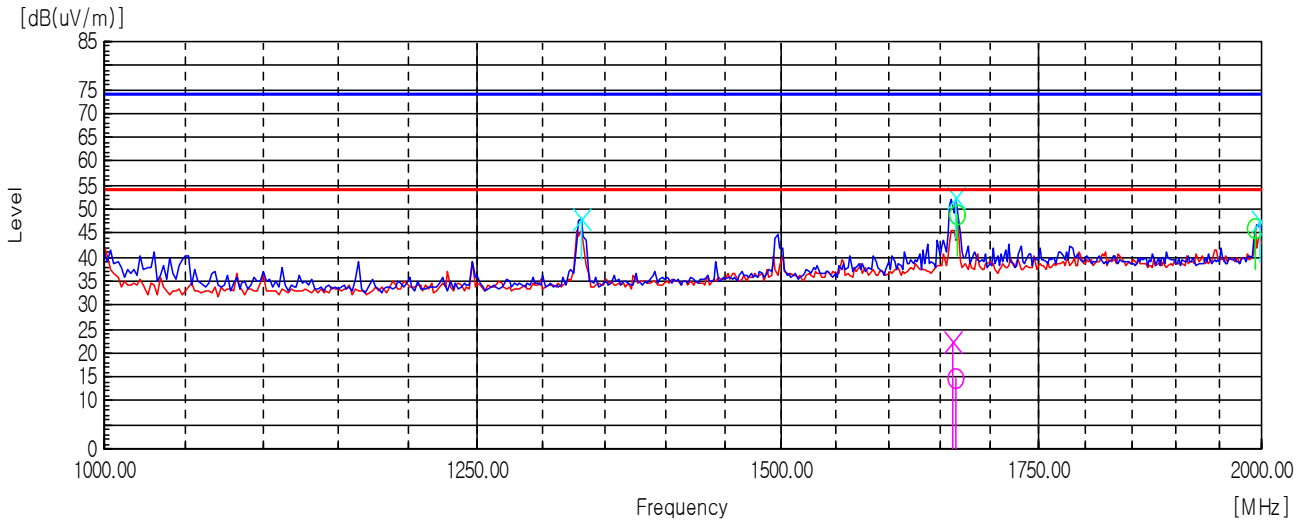
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Margin PK (Peak) = Limit – Level PK (Peak)

Margin AV (Average) = Limit – Level AV (Average)

- Configuration 1: Stand by Mode

Test Results



Peak Measurement

Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1330.661	V	60.7	-12.6	48.1	74	25.9	100	355.3
1665.331	V	61.8	-9.5	52.3	74	21.7	100	11.1
1667.335	H	58.2	-9.5	48.7	74	25.3	100	14.9
1991.984	H	52.9	-6.8	46.1	74	27.9	100	78.7
1997.996	V	54.5	-6.8	47.7	74	26.3	100	168.6

Average Measurement

Frequency [MHz]	POL	Reading AV [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Limit [dB(uV/m)]	Margin AV [dB]	Height [cm]	Angle [deg]
1661.954	V	31.8	-9.5	22.3	54	31.7	100	17.9
1664.700	H	24.1	-9.5	14.6	54	39.4	100	309.6

Note1) Representative operating modes were selected by customer and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Level P K(Peak) = Reading PK(Peak) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Margin PK (Peak) = Limit – Level PK (Peak)

Margin AV (Average) = Limit – Level AV (Average)

Appendix – EUT photography



Front View



Rear View & Label position



Leftside



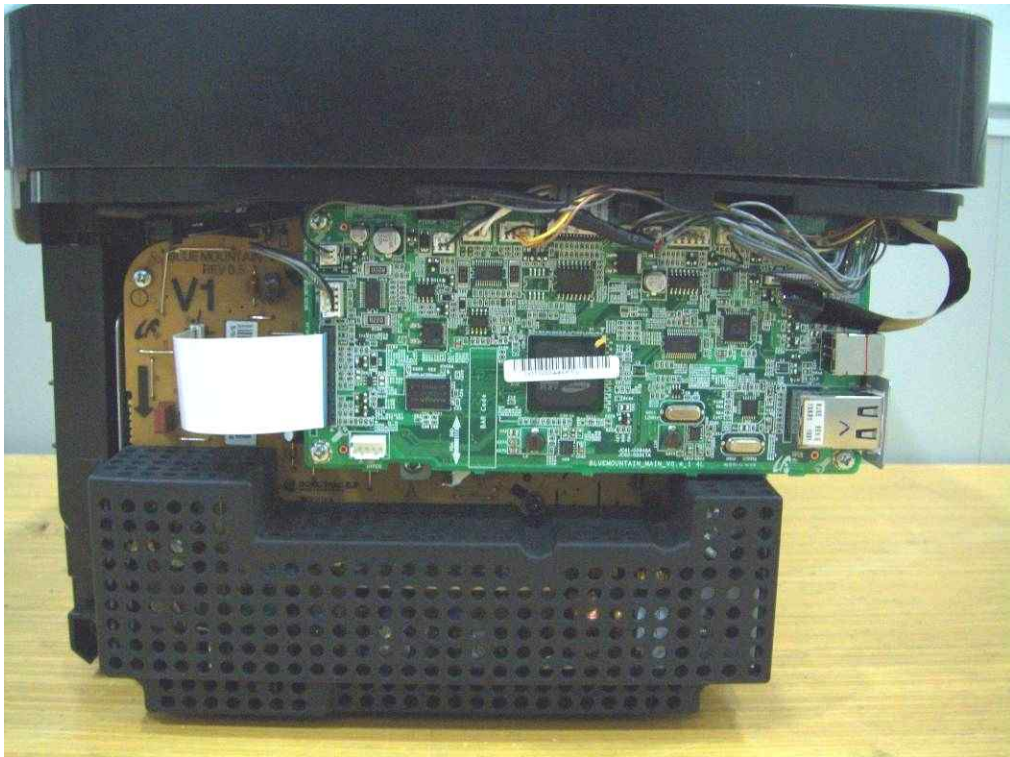
rightside



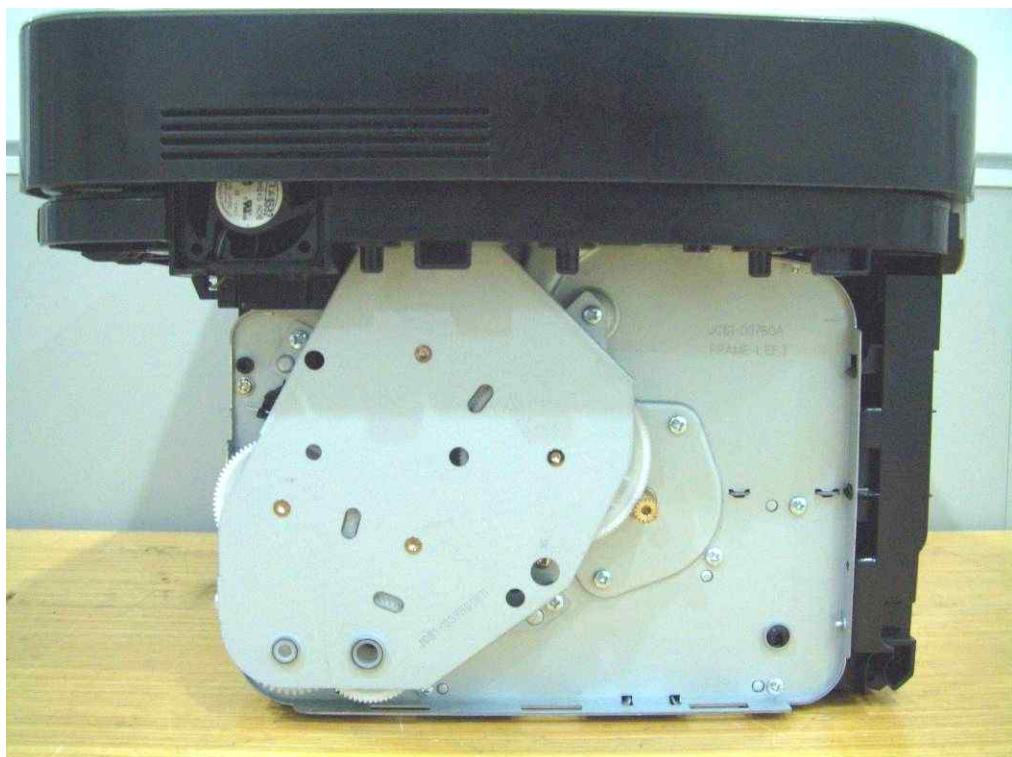
Top View



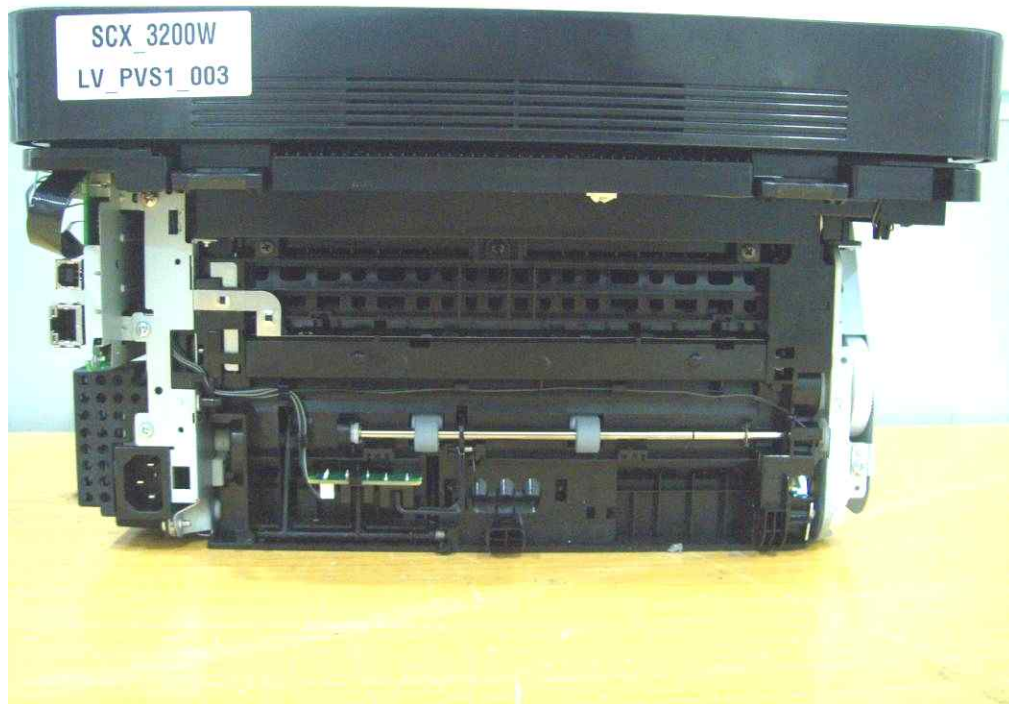
Bottom View



Inside View – Leftside



Inside View – rightside



Inside View – Rearside

SAMSUNG Samsung Electronics Co., Ltd. Suwon, Korea, 443-742 Place: M259	Model: SCX-3200W	FCC ID : A3LSCX3200 (Printer)
	Volts: AC 110-127V	Contains FCC ID : A3LSWL-2920U
	Hertz: 50/60 Hz	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.
	Amps: 4A	This product complies with 21 CFR Chapter 1, subchapter J.
	Manufactured:	This Class B digital apparatus complies with Canadian ICES-003 Cet appareil numérique de la class B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada. Canadians IC : 649E-SWL2900U
Serial No.	51Y7 E149091 I.T.E.	Made in Korea Fabriqu� en Cor�e REV.00

Label