

EMC TEST REPORT

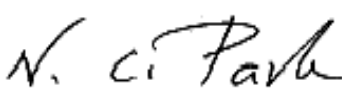
Project No.	LBE081864	Issue No.	1
Applicant	Name of organization	Samsung Electronics Co., Ltd.	
	Address	416 Maetan 3-Dong, Yeongtong-Gu, Suwon-City, Gyeonggi-Do, Korea 443-742	
	Date of application	Jun 05, 2008	
EUT	Type of device	Class B digital devices and peripherals	
	Equipment authorization	Cerification	
	FCC ID	A3LML3471ND	
	Kind of product	Printer	
	Model No.	ML-3471ND	
		Variant Model No.	ML-3470D
	Manufacturer	1) Samsung Electronics Co.,Ltd. 259, Gongdan-Dong, Gumi-City, Gyeongsangbuk-Do, 730-030 Korea 2) Samsung Electronics(Shandong) Digital Printing Co., Ltd. 264209, Samsung Road, Weihai Hi-Tech IDZ, Shandong Province, China 3) Weihai Shin Heung Digital Electronics Co., Ltd. 98, Samsung Road, Weihai Hi- Tech. IDZ, Shandong Province, P.R.China	
Applied Standards		FCC Part 15, Subpart B / ANSI C63.4-2003	
Test Period		Jun 19, 2008 ~ July 18, 2008	
Issue date		July 28, 2008	
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 : Ho Jin Choi 		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.			
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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	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
	KOLAS(Korea Laboratory Accreditation Scheme)	Accredited : 124
	Radio Research Laboratory	Accredited : KR0004
	FCC(Federal Communications Commission)	Accredited : KR0004
	National Voluntary Laboratory Accreditation Program	Lab Code: 200623-0
	Norges Elektriske Materiekkontroll	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 Zkušební Ústav	Reg. No.: 001
	IC(Industry Canada)	Assigned Code: 5871

3. Test configuration

3.1 Test Peripherals

The following is a listing of the EUT and supporting peripherals utilized during testing.

Description	Model No.	Serial No.	Manufacturer	FCC ID and/or DoC
LASER MFP	ML-3471ND	-	Samsung	A3LML3471ND
Notebook PC	NP-P29	KRBA59012/8A0 0CF43M00MH	DELL	DOC
AC Adapter	AD-9019S	CNBA4400215A D2VH681	DELL	DOC
USB Mouse	M-BJ58	HCA2100675	Suzhu Logitech	DOC

3.2 EUT operating mode (selected)

Operating Mode 1	USB Printing
Operating Mode 2	Parallel Printing
Operating Mode 3	LAN Printing
Operating Mode 4	Wireless Printing
Operating Mode 5	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	1.8	No	For EUT
Ethernet	20.0	No	From EUT to Hub
Power	1.8	No	For Note PC
USB	1.8	Yes	From EUT to PC From PC to mouse
Parallel	1.8	No	From EUT to PC

3.5 EUT Description

Item	Specification	Remarks
Print Speed	Black and White : Up to 33 PPM in A4(35 PPM in Letter)	-
Resolution	Printer: Up to 1200 x 1200 dpi(effective output)	-
First print out time	From Standby Mode : Less than 8.5 seconds From ColdBoot : Less than 25 seconds	-
Warm-up time	Less than 15 seconds	-
Power Rating	220 ~ 240 VAC, 3.3A, 50/60 Hz	-
Power Consumption	Printing : 600 W Power Save mode : Less than 10 W	-
Noise Level	Printing mode: Less than 54 dBA Standby mode : Less than 39 dBA Warm-up: Less than 50dBA	-
Consumable life	Black Toner Cartridge : Approx. 4,000 A4/Letter pages at 5% Coverage	-
Duty cycle (Max. Monthly Volume)	Print: 20,000 pages	-
Weight	12.7 kg (including consumables)	-
Package weight	3.1 kg	-
External dimensions (W x D x H)	400 x 435 x 284 mm(15.7 x 17.1 x 11.2 in)	-
Operating Environment	Temperature : 10 ~ 32 °C (50 ~ 90 °F) Humidity : 20 ~ 80 % RH	-
Printer Language	PCL6, PostScript3, PCL5e	-
Memory	64MB (MAX320MB)	-
Interface	USB 2.0, IEEE1284, Ethernet 10/100 Base TX, WLAN	-
OS compatibility	- Windows 98/Me/NT4.0/2000/XP(32/64bit)/2003 Server(32/64bit) - Mac OS 8.6~9.2/10.1~10.4 - Various Linux OS including Red Hat 8~9, Fedora Core 1~4, - Mandrake 9.2~10.1, and SuSE 8.2~9.2 - NetWare 4.x, 5.x, 6.x - Unix HP-UX, Solaris, SunOS, SCO UNIX	-

3.6 Clock Frequencies

Kind of Clocks	Frequency[MHz]	Kind of Clocks	Frequency[MHz]
Main Source	12	Video	12
CPU Internal	400	SDRAM	100
USB Device	12	Network Device	25

3.7 Test configuration and condition

Item	Model Name	P/N	Manufacturer
Main Board	PBA-MAIN	REV 0.2	SAMSUNG ELECTRONICS
SMPS	PSPV-TYPE3-V1 PSPV-TYPE3-V2C	REV3.2	SUNGHO ELECTRONICS
		REV3.7	SYSHITEK
HVPS	CYGNUS-HVPS	REV 1.0	DONGYANG E&P, SUNTRONIX

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. All operating mode(s) selected were tested to show compliance with relevant standard for radiated disturbance below 1GHz and conducted disturbance. Radiated disturbance above 1GHz for operating mode that have minimum margin of radiated disturbance below 1GHz were tested and reported.

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

- **Testing Voltage : AC 115 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	Mains Port	± 3.4 dB
Radiated disturbance	Horizontal	± 4.3 dB
	Vertical	± 5.2 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 mains ports of class A

Frequency range Limits MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60

Note 1: 1 μ V is regarded as 0 dB.
Note 2: If the average limit is met in the measurement with quasi-peak detector, the measurement with average detector at the same frequency is unnecessary.
Note 3: The lower limit shall apply at the transition frequency.

Limits for conducted disturbance at the mains ports of class B

Frequency range Limits MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

Note 1: 1 μ V is regarded as 0 dB.
Note 2: The limits shall decreases linearly with the logarithm of the frequency in the range 150 - 500 kHz.
Note 3: If the average limit is met in the measurement with quasi-peak detector, the measurement with average detector is unnecessary.
Note 4: The lower limit shall apply at the transition frequency.

4.1.1 Test instrumentation

Test instrumentations used in the Conducted disturbance test were as follows:

Test instrumentation	Model name	Manufacturer	Serial or Firmware (No./Ver.)	Calibration	
				Date	Interval (Month)
Measuring receiver	ESCI	R&S	100368	2008-06-11	12
Artificial mains network	ENV216	R&S	100116	2007-09-13	12
Artificial mains network	ESH3-Z5	R&S	100262	2007-09-03	12
Test software	EMC32	R&S	Ver 4.40.0	N/A	N/A

4.1.2 Temperature and humidity condition

Test date	Jun 24, 2008 ~Jul 18, 2008	Test engineer		Ho Jin Choi	
Climate condition	Ambient temperature	22.3 ℃	Relative humidity		33 %
	Atmospheric pressure	100.7 kPa			
Test place	Shielded Room #1				

4.1.3 Photograph of Test Setup



Front

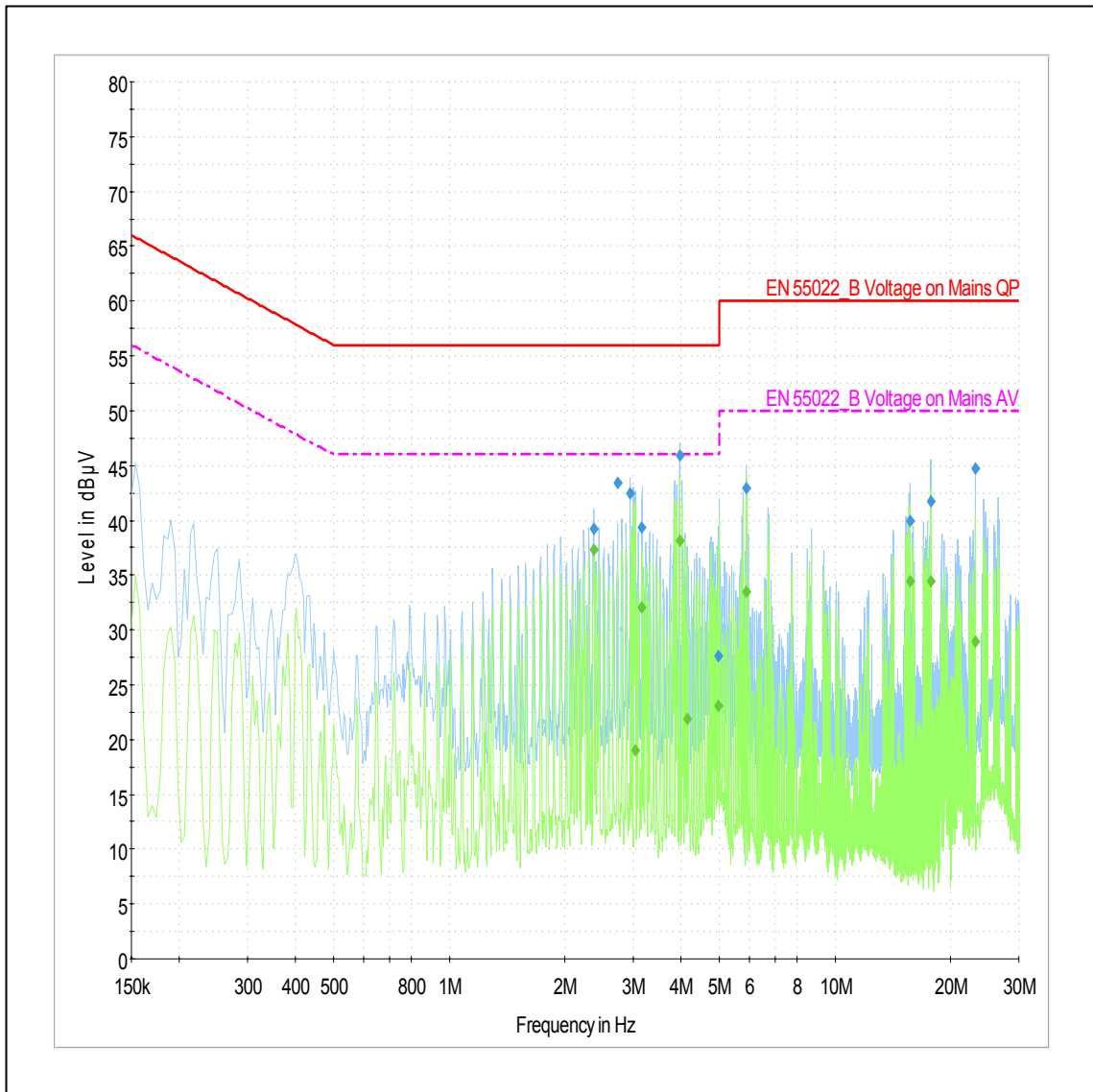


Rear

4.1.4 Test results (mains port)

- Standby Mode

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)

Frequency [MHz]	Line	Bandwidth [kHz]	Factor [dB]	Quasi-Peak [dBuV]	Margin [dB]	Limit [dBuV]
2.374	L1	9.0	9.7	39.2	16.8	56.0
2.734	N	9.0	9.7	43.5	12.5	56.0
2.949	N	9.0	9.7	42.4	13.6	56.0
3.162	L1	9.0	9.8	39.3	16.7	56.0
3.955	L1	9.0	9.8	46.0	10.0	56.0
4.999	L1	9.0	9.8	27.6	28.4	56.0
5.907	N	9.0	9.8	42.9	17.1	60.0
15.615	N	9.0	10.1	39.9	20.1	60.0
17.692	L1	9.0	10.1	41.7	18.3	60.0
23.130	L1	9.0	10.3	44.8	15.2	60.0

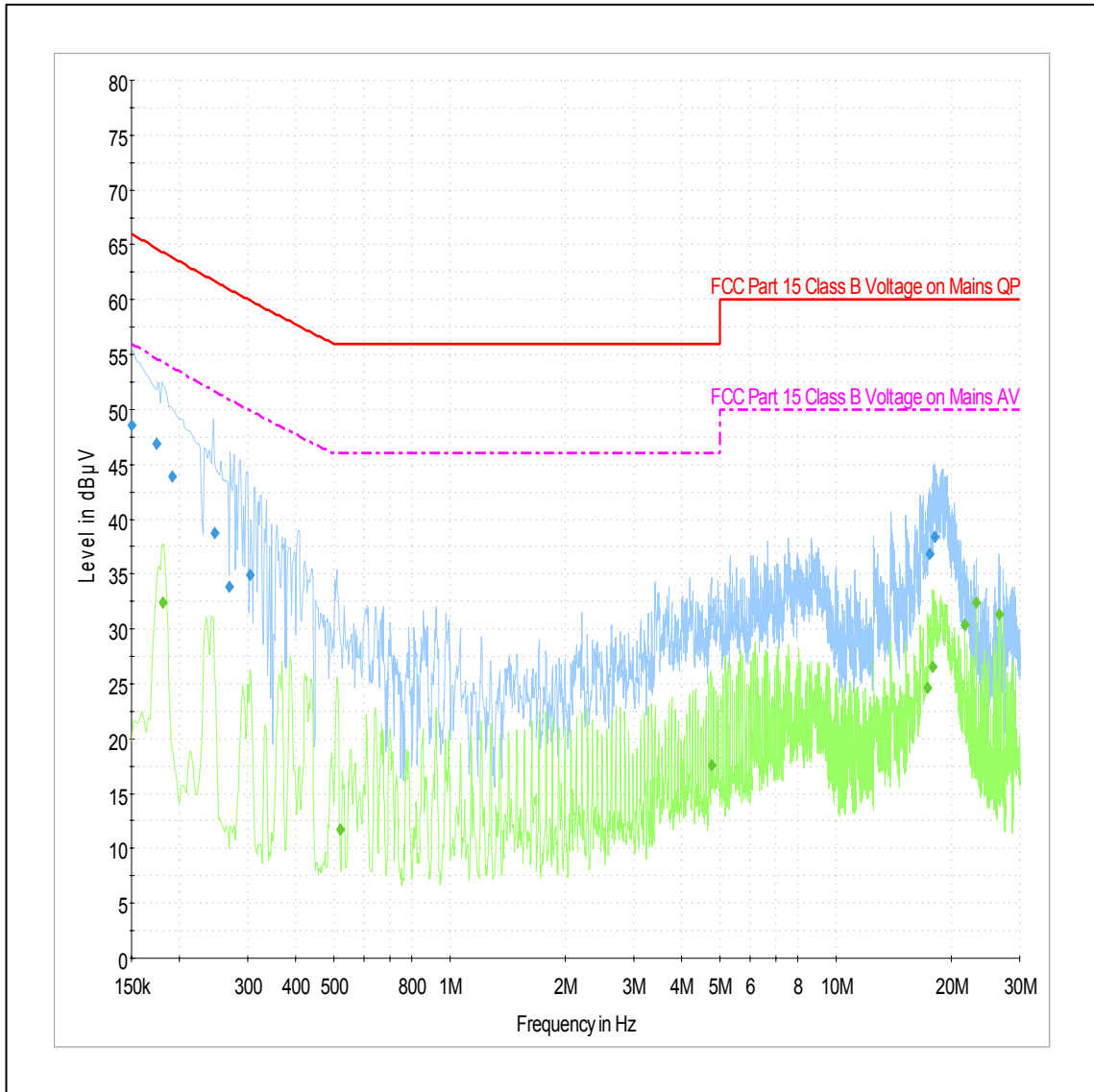
Frequency [MHz]	Line	Bandwidth [kHz]	Factor [dB]	Average [dBuV]	Margin [dB]	Limit [dBuV]
2.374	L1	9.0	9.7	37.3	8.7	46.0
3.046	N	9.0	9.7	19.0	27.0	46.0
3.162	L1	9.0	9.8	32.1	13.9	46.0
3.955	L1	9.0	9.8	38.1	7.9	46.0
4.143	L1	9.0	9.8	21.9	24.1	46.0
4.988	L1	9.0	9.8	23.1	22.9	46.0
5.906	N	9.0	9.8	33.5	16.5	50.0
15.619	N	9.0	10.1	34.5	15.5	50.0
17.695	L1	9.0	10.1	34.4	15.6	50.0
23.134	L1	9.0	10.3	29	21	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)

- Network Printing Mode

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)

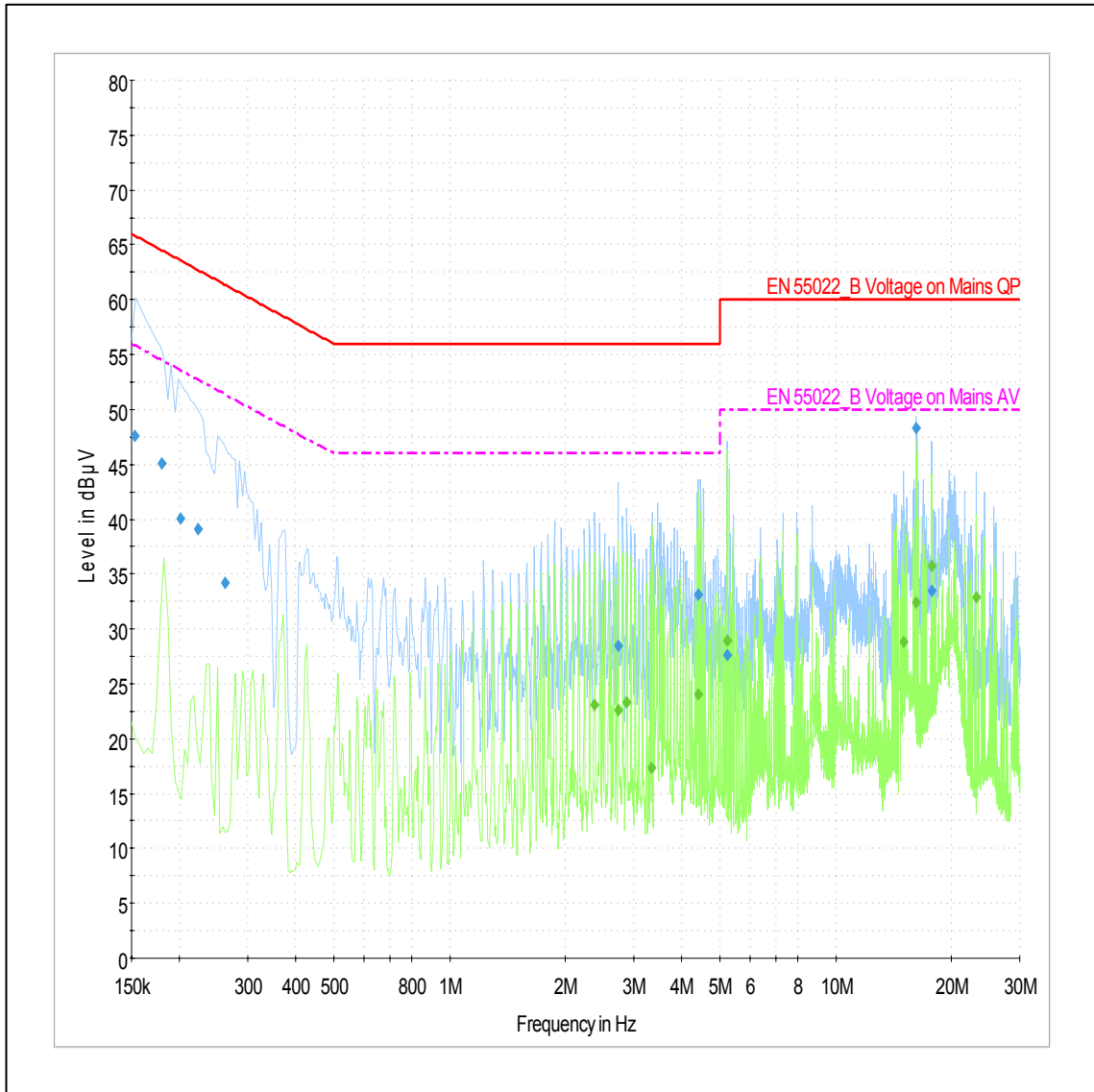
Frequency [MHz]	Line	Bandwidth [kHz]	Factor [dB]	Quasi-Peak [dBuV]	Margin [dB]	Limit [dBuV]
0.150	L1	9.0	9.6	48.6	17.4	66.0
0.175	L1	9.0	9.6	46.9	17.8	64.7
0.191	L1	9.0	9.6	43.9	20.0	63.9
0.246	N	9.0	9.6	38.8	23.0	61.7
0.269	L1	9.0	9.6	33.8	27.2	61.0
0.305	L1	9.0	9.6	34.9	25.0	59.9
17.495	L1	9.0	10.1	36.8	23.2	60.0
18.090	N	9.0	10.1	38.4	21.6	60.0
		9.0				
		9.0				

Frequency [MHz]	Line	Bandwidth [kHz]	Factor [dB]	Average [dBuV]	Margin [dB]	Limit [dBuV]
0.181	N	9.0	9.6	32.4	21.9	54.3
0.520	N	9.0	9.6	11.7	34.3	46.0
4.764	L1	9.0	9.8	17.6	28.4	46.0
17.327	L1	9.0	10.1	24.7	25.3	50.0
17.886	N	9.0	10.1	26.6	23.4	50.0
21.663	N	9.0	10.2	30.4	19.6	50.0
23.129	N	9.0	10.3	32.4	17.6	50.0
26.488	L1	9.0	10.3	31.4	18.6	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)

- USB Printing Mode

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)

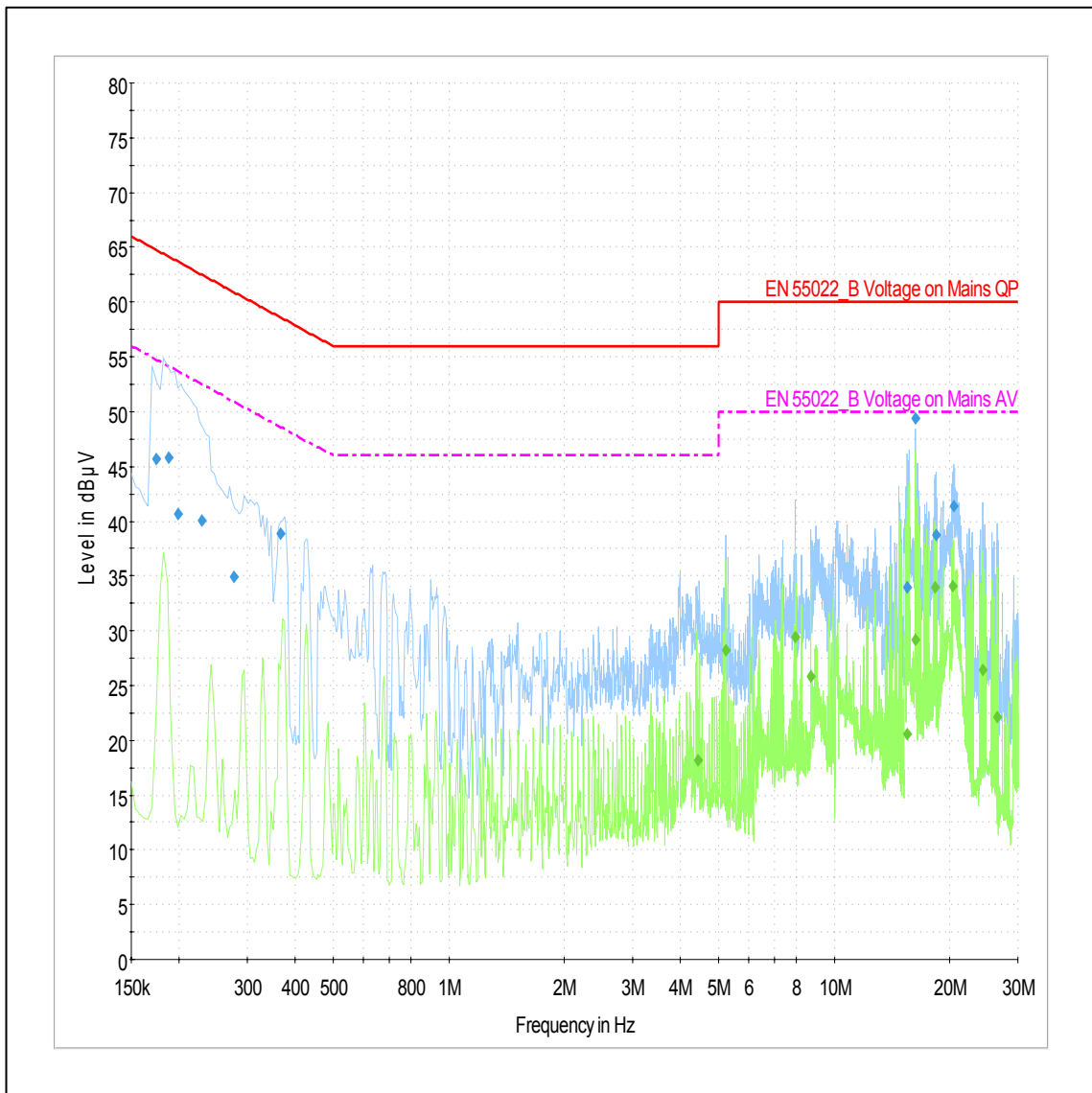
Frequency [MHz]	Line	Bandwidth [kHz]	Factor [dB]	Quasi-Peak [dBuV]	Margin [dB]	Limit [dBuV]
0.153	L1	9.0	9.6	47.6	18.2	65.8
0.180	L1	9.0	9.6	45.1	19.4	64.5
0.201	N	9.0	9.6	40.1	23.5	63.6
0.223	N	9.0	9.6	39.1	23.7	62.7
0.263	L1	9.0	9.6	34.1	27.2	61.4
2.732	L1	9.0	9.7	28.4	27.6	56.0
4.414	L1	9.0	9.8	33.1	22.9	56.0
5.229	L1	9.0	9.8	27.6	32.4	60.0
16.169	N	9.0	10.1	48.3	11.7	60.0
17.703	N	9.0	10.1	33.4	26.6	60.0

Frequency [MHz]	Line	Bandwidth [kHz]	Factor [dB]	Average [dBuV]	Margin [dB]	Limit [dBuV]
2.377	L1	9.0	9.7	23.1	22.9	46.0
2.734	L1	9.0	9.7	22.6	23.4	46.0
2.879	L1	9.0	9.8	23.3	22.7	46.0
3.340	L1	9.0	9.8	17.4	28.6	46.0
4.413	L1	9.0	9.8	24.0	22.0	46.0
5.237	L1	9.0	9.8	28.9	21.1	50.0
15.004	L1	9.0	10.1	28.8	21.2	50.0
16.164	N	9.0	10.1	32.4	17.6	50.0
17.694	N	9.0	10.1	35.7	14.3	50.0
23.130	N	9.0	10.3	32.9	17.1	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)

- Parallel Printing mode

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)

Frequency [MHz]	Line	Bandwidth [kHz]	Factor [dB]	Quasi-Peak [dBuV]	Margin [dB]	Limit [dBuV]
0.175	L1	9.0	9.6	45.7	19.1	64.7
0.188	N	9.0	9.6	45.7	18.4	64.1
0.199	L1	9.0	9.6	40.7	23.0	63.7
0.229	N	9.0	9.6	40.1	22.4	62.5
0.278	L1	9.0	9.6	34.9	26.0	60.9
0.367	N	9.0	9.6	38.9	19.7	58.6
15.447	L1	9.0	10.1	34.0	26.0	60.0
16.230	N	9.0	10.1	49.4	10.6	60.0
18.363	N	9.0	10.1	38.8	21.2	60.0
20.385	N	9.0	10.2	41.3	18.7	60.0

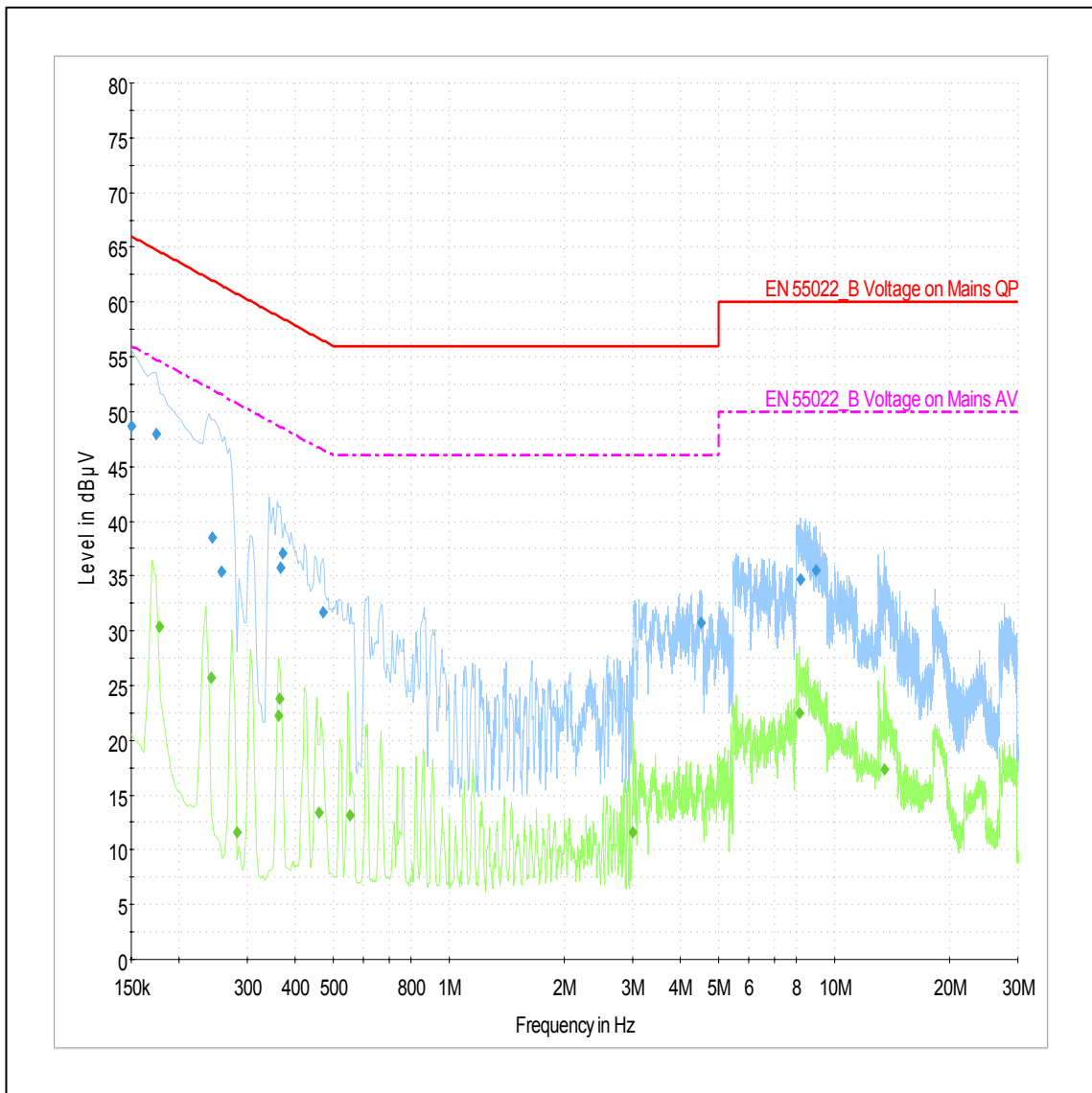
Frequency [MHz]	Line	Bandwidth [kHz]	Factor [dB]	Average [dBuV]	Margin [dB]	Limit [dBuV]
4.418	N	9.0	9.8	18.2	27.8	46.0
5.237	L1	9.0	9.8	28.3	21.7	50.0
7.922	L1	9.0	9.9	29.4	20.6	50.0
8.714	L1	9.0	9.9	25.8	24.2	50.0
15.426	L1	9.0	10.1	20.6	29.4	50.0
16.236	N	9.0	10.1	29.2	20.8	50.0
18.246	N	9.0	10.1	33.9	16.1	50.0
20.321	N	9.0	10.2	34.1	15.9	50.0
24.355	L1	9.0	10.3	26.4	23.6	50.0
26.484	L1	9.0	10.3	22.1	27.9	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)

- Wireless Printing mode

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)

Frequency [MHz]	Line	Bandwidth [kHz]	Factor [dB]	Quasi-Peak [dBuV]	Margin [dB]	Limit [dBuV]
0.150	L1	9.0	9.6	48.7	17.3	66.0
0.175	L1	9.0	9.6	47.9	16.8	64.7
0.244	L1	9.0	9.6	38.5	23.5	62.0
0.257	L1	9.0	9.6	35.4	26.1	61.5
0.366	L1	9.0	9.6	35.7	22.9	58.6
0.371	N	9.0	9.6	37.1	21.4	58.5
0.473	N	9.0	9.6	31.7	24.8	56.5
4.517	N	9.0	9.8	30.7	25.3	56.0
8.159	L1	9.0	9.9	34.7	25.3	60.0
8.970	L1	9.0	9.9	35.6	24.4	60.0

Frequency [MHz]	Line	Bandwidth [kHz]	Factor [dB]	Average [dBuV]	Margin [dB]	Limit [dBuV]
0.178	L1	9.0	9.6	30.4	24.2	54.6
0.242	N	9.0	9.6	25.7	26.4	52.0
0.282	N	9.0	9.6	11.6	39.1	50.8
0.362	L1	9.0	9.6	22.2	26.5	48.7
0.363	L1	9.0	9.6	23.8	24.8	48.7
0.461	N	9.0	9.6	13.4	33.3	46.7
0.554	N	9.0	9.6	13.1	32.9	46.0
3.001	L1	9.0	9.8	11.6	34.4	46.0
8.119	L1	9.0	9.9	22.5	27.5	50.0
13.501	L1	9.0	10.0	17.4	32.6	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	Quasi-peak Limits dB dB($\mu\text{V}/\text{m}$)	
	Class A	Class B
30 to 230	40	30
230 to 1000	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. Note 3: 1 $\mu\text{V}/\text{m}$ is regarded as 0 dB.		

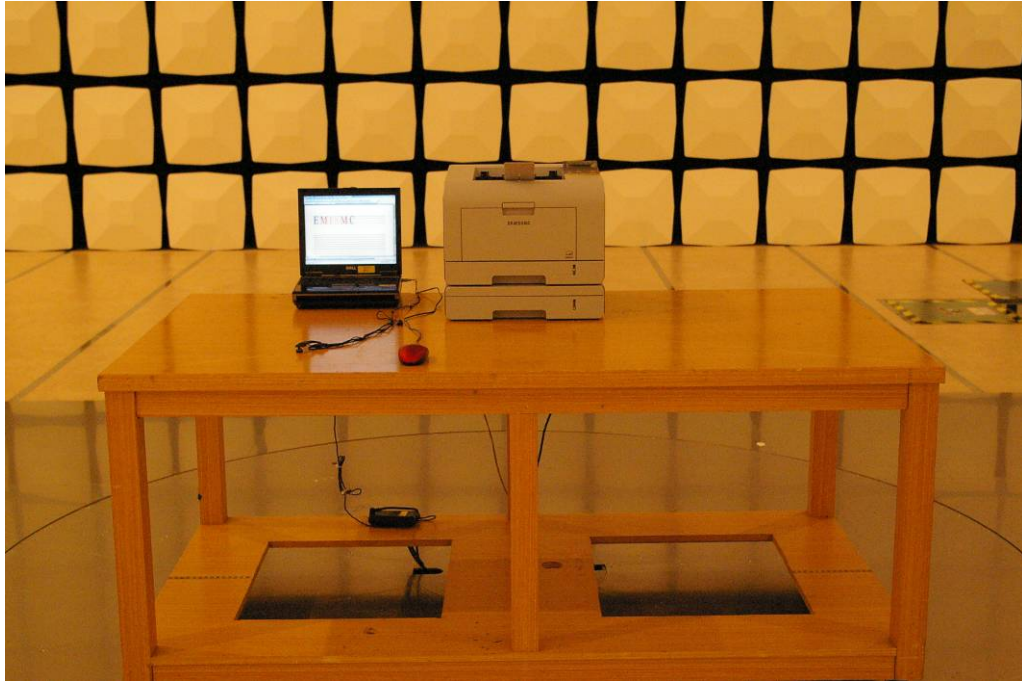
4.2.1 Test instrumentation

Test instrumentation	Model name	Manufacturer	Serial or Firmware (No./Ver.)	Calibration	
				Date	Interval (Month)
Bi-con Antenna	CBL6112D	Schaffner	22601	2007-04-02	24
Bi-con Antenna	CBL6112B	Schaffner	2804	2007-04-16	24
Horn Antenna	BBHA9120B	Schwarzbeck	338	2007-07-27	12
EMI Receiver	ESIB-26	R&S	100289	2008-04-25	12
EMI Receiver	ESIB-26	R&S	100287	2008-05-19	12
Amplifier	310N	Agilent	185861	2007-12-04	12
Amplifier	310N	Agilent	251676	2008-03-13	12
Amplifier	TPA0108-40	TOYO	0433	N/A	N/A
Antenna Mast	MA4000	INN CO	-	N/A	N/A
Antenna Mast	MA4000	INN CO	-	N/A	N/A
Antenna Mast	MA2000	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

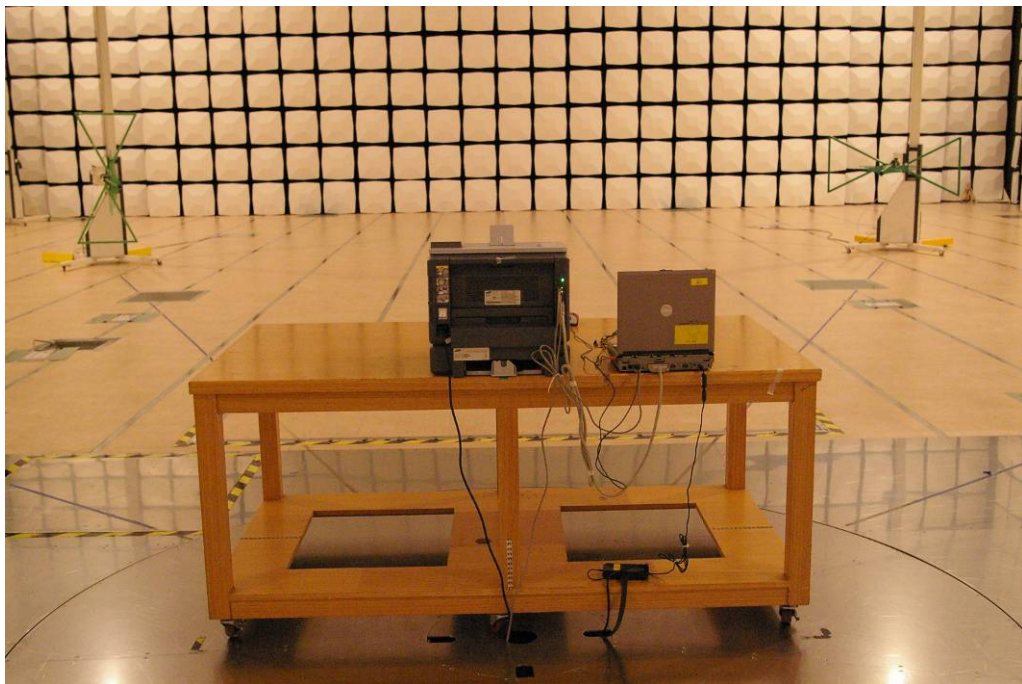
4.2.2 Temperature and humidity condition

Test date	Jun 19, 2008 ~ Jul 17, 2008	Test engineer		Ho Jin Choi	
Climate condition	Ambient temperature	23.8 °C	Relative humidity		31%
	Atmospheric pressure	100.5 kPa			
Test place	Semi-Anechoic Chamber				

4.2.3 Photograph of Test setup (30 MHz ~ 1 GHz)



Front

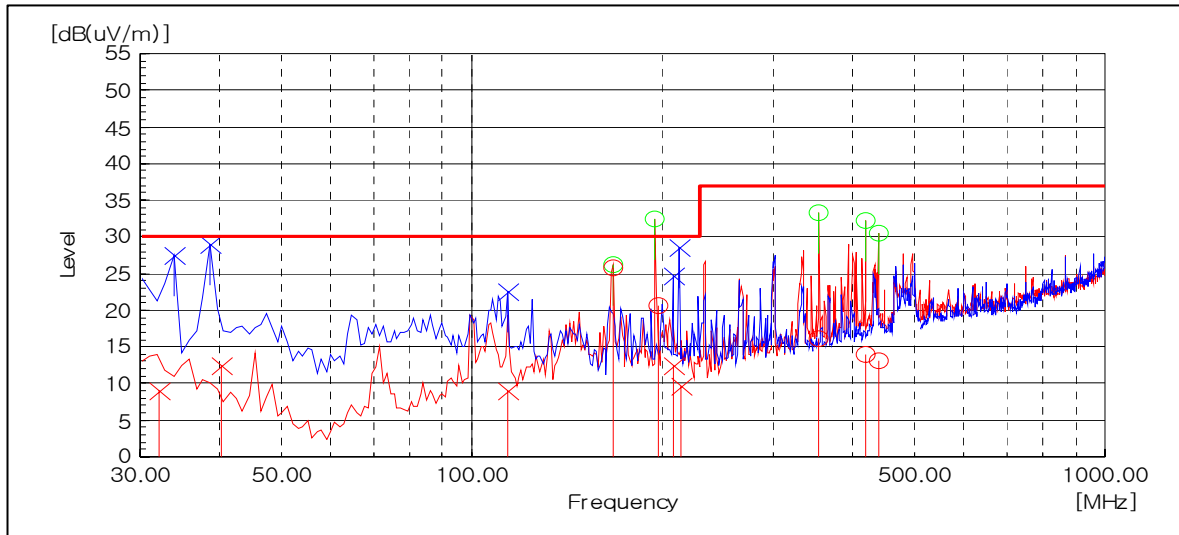


Rear

4.2.4 Test results (30 MHz ~ 1 GHz)

- Standby Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
32.12	V	23	-14	9	30	21	132	359.3
40.244	V	29.8	-17.4	12.4	30	17.6	102	21
114.036	V	26.8	-17.9	8.9	30	21.1	100	138.9
167.109	H	44.5	-18.8	25.7	30	4.3	399	248.8
196.609	H	40	-19.4	20.6	30	9.4	400	117.3
207.732	V	29.8	-17.4	12.4	30	17.6	100	264.9
214.247	V	26.8	-17	9.8	30	20.2	134	343
352.317	H	28.2	-12.1	16.1	37	20.9	281	171
419.271	H	23.3	-9.3	14	37	23	200	47.8
438.589	H	22.5	-9.5	13	37	24	300	52.8

Note) Receiving antenna polarization : Horizontal and/or Vertical

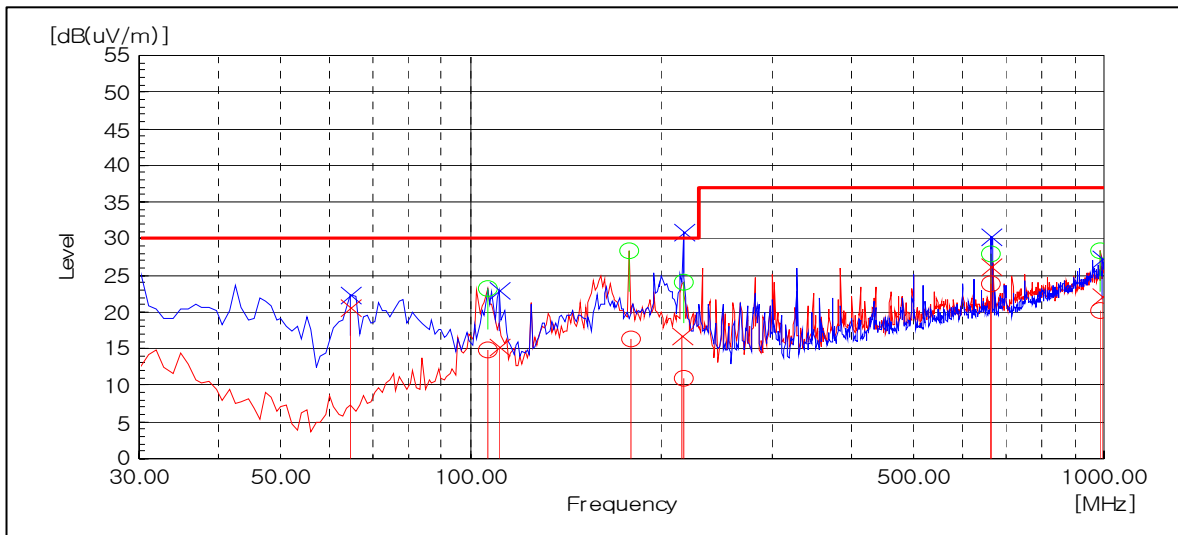
Test Distance : 10m, Antenna Height : 1 to 4 meters

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

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

- USB Printing Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
42.92	V	38.3	-19.1	19.2	30	10.8	109	176
99.55	H	29.3	-18.7	10.6	30	19.4	400	145
106.31	V	30.9	-18.4	12.5	30	17.5	100	72
114.04	H	25.8	-17.1	8.7	30	21.3	400	95.2
166.20	H	40.7	-18.7	22.0	30	8.0	400	292.2
200.97	V	29.8	-17.9	11.9	30	18.1	100	359.3
217.65	H	43.4	-18.7	24.7	30	5.3	312	342.2
500.41	V	30.0	-9.1	20.9	37	16.1	300	310.9
864.06	H	28.1	-3.1	25.0	37	12.0	150	232.2
991.20	V	23.0	-0.5	22.5	37	14.5	150	0.7

Note) Receiving antenna polarization : Horizontal and/or Vertical

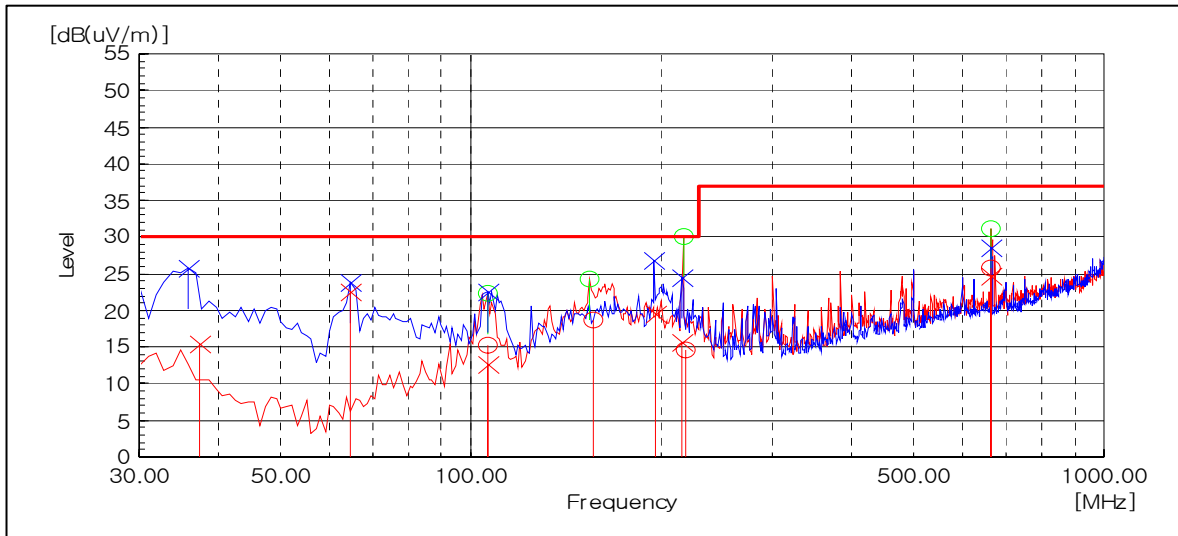
Test Distance : 10m, Antenna Height : 1 to 4 meters

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

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

- Network Printing Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
37.414	V	31.7	-16.1	15.6	30	14.4	102	359.3
64.774	V	46.9	-24.4	22.5	30	7.5	253	319.5
106.309	H	32.9	-17.7	15.2	30	14.8	400	95.7
106.309	V	31	-18.4	12.6	30	17.4	158	278.7
155.924	H	37.2	-18.5	18.7	30	11.3	366	209.1
196	V	37.7	-18.2	19.5	30	10.6	102	17.4
215.459	V	32.7	-17	15.7	30	14.3	108	346.2
218.458	H	33.4	-18.7	14.7	30	15.3	324	210.4
663.583	H	31.9	-6.2	25.7	37	11.3	118	359.6
663.583	V	31.8	-7	24.8	37	12.2	301	150.1

Note) Receiving antenna polarization : Horizontal and/or Vertical

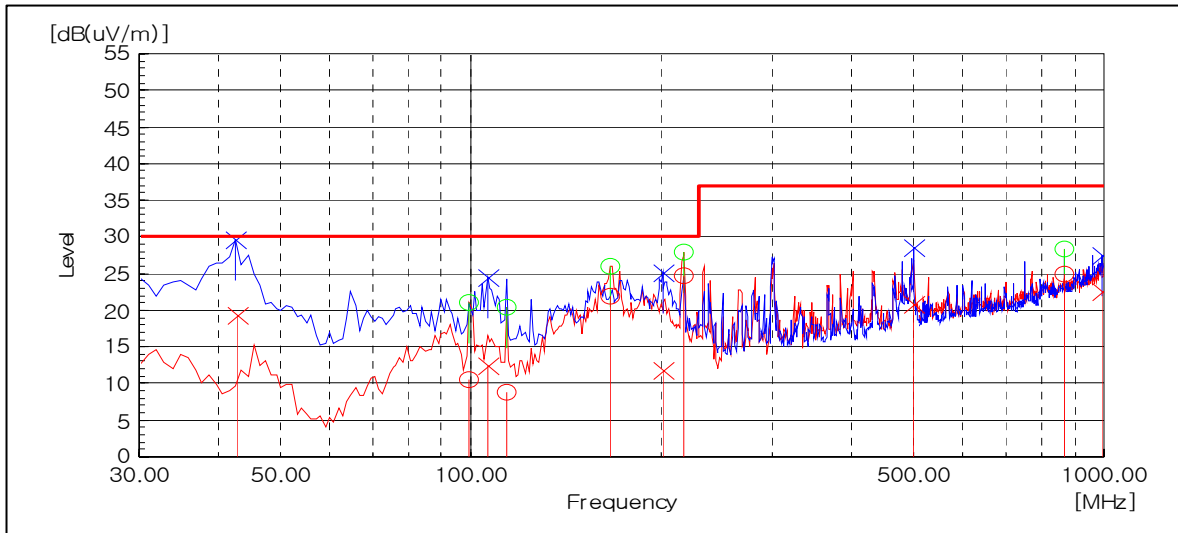
Test Distance : 10m, Antenna Height : 1 to 4 meters

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

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

- Parallel Printing Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
42.92	V	38.3	-19.1	19.2	30	10.8	109	176
99.55	H	29.3	-18.7	10.6	30	19.4	400	145
106.31	V	30.9	-18.4	12.5	30	17.5	100	72
114.04	H	25.8	-17.1	8.7	30	21.3	400	95.2
166.20	H	40.7	-18.7	22.0	30	8.0	400	292.2
200.97	V	29.8	-17.9	11.9	30	18.1	100	359.3
217.65	H	43.4	-18.7	24.7	30	5.3	312	342.2
500.41	V	30.0	-9.1	20.9	37	16.1	300	310.9
864.06	H	28.1	-3.1	25.0	37	12.0	150	232.2
991.20	V	23.0	-0.5	22.5	37	14.5	150	0.7

Note) Receiving antenna polarization : Horizontal and/or Vertical

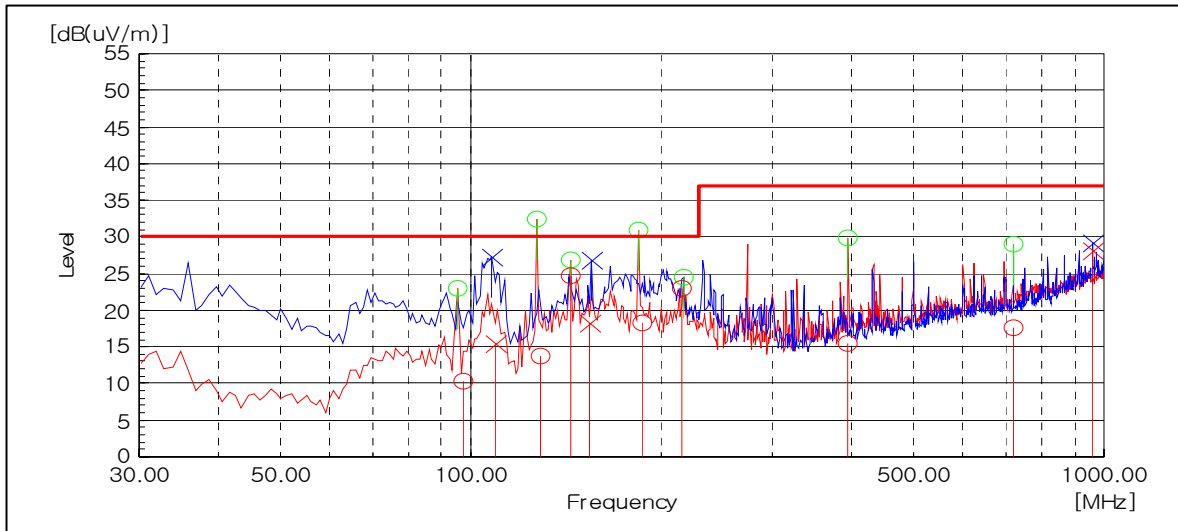
Test Distance : 10m, Antenna Height : 1 to 4 meters

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

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

- Wireless Printing Mode

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
97.253	H	29.4	-19.1	10.3	30	19.7	398	198.7
109.202	V	33.6	-18.2	15.4	30	14.6	131	262.3
128.636	H	30.9	-17.2	13.7	30	16.3	342	0.3
143.985	H	42	-17.3	24.7	30	5.3	329	130.6
154.233	V	36.8	-18.6	18.2	30	11.8	104	235.6
186.52	H	37.1	-18.9	18.2	30	11.8	335	255.7
215.715	H	41.8	-18.8	23	30	7	343	312.9
393.785	H	26.2	-10.7	15.5	37	21.5	190	1
719.156	H	22.9	-5.2	17.7	37	19.3	112	176.4
959.977	V	29.5	-1.4	28.1	37	8.9	237	349.4

Note) Receiving antenna polarization : Horizontal and/or Vertical

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

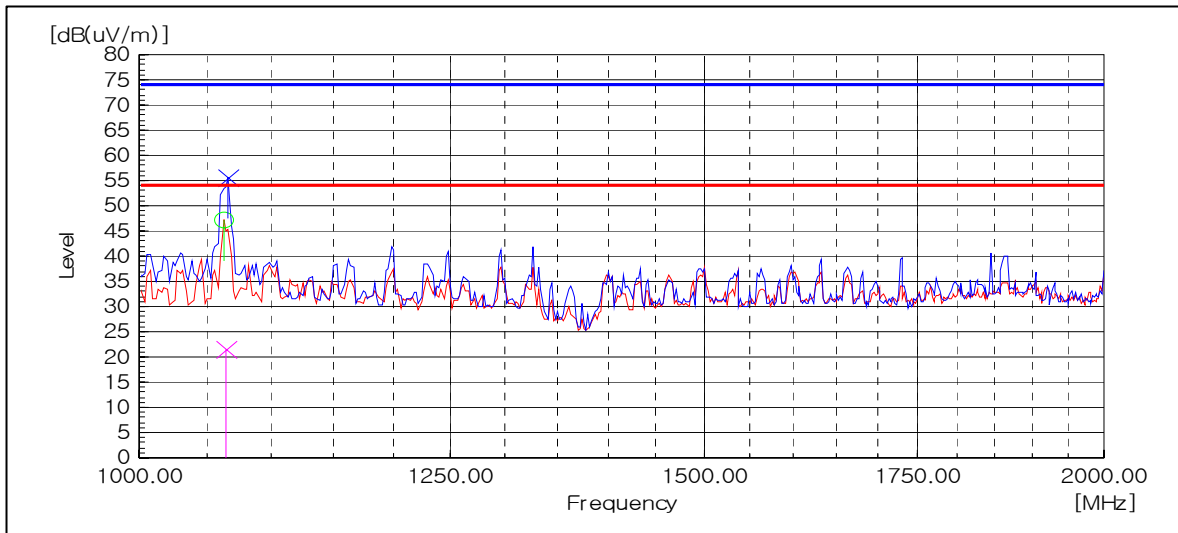
Level QP(Quasi-Peak) = Reading QP + Factor(Antenna Factor + Cable Loss - Amp. Gain)

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

4.2.5 Test results (1 GHz ~ 2 GHz)

- Parallel Printing Mode

Test Graph and Results



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]
1064.389	V	33.7	-12.2	21.5	54	32.5	147	316.9

Note1) Representative operating mode having minimum margin below 1GHz were selected for radiated emission measurement above 1GHz, and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

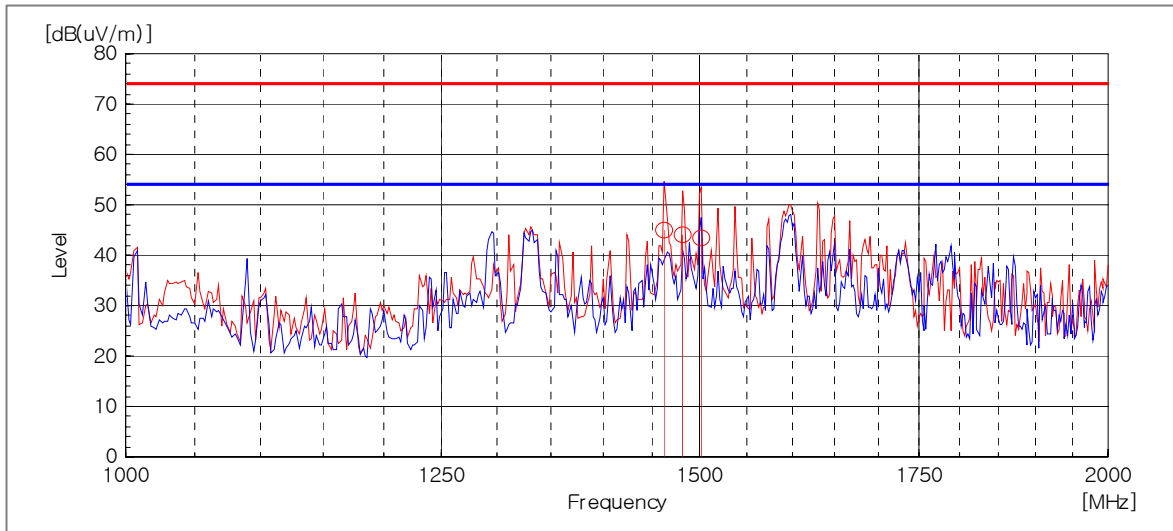
Test Distance : 3m, Antenna Height : 1 to 2 meters

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

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

- USB Printing Mode

Test Graph and Results



- Peak Results

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]
1064.449	V	38.4	-12.2	26.2	54	27.8	100	295.3
1064.088	H	36.3	-12.2	24.1	54	29.9	105	222.1

Note1) Representative operating mode having minimum margin below 1GHz were selected for radiated emission measurement above 1GHz, and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

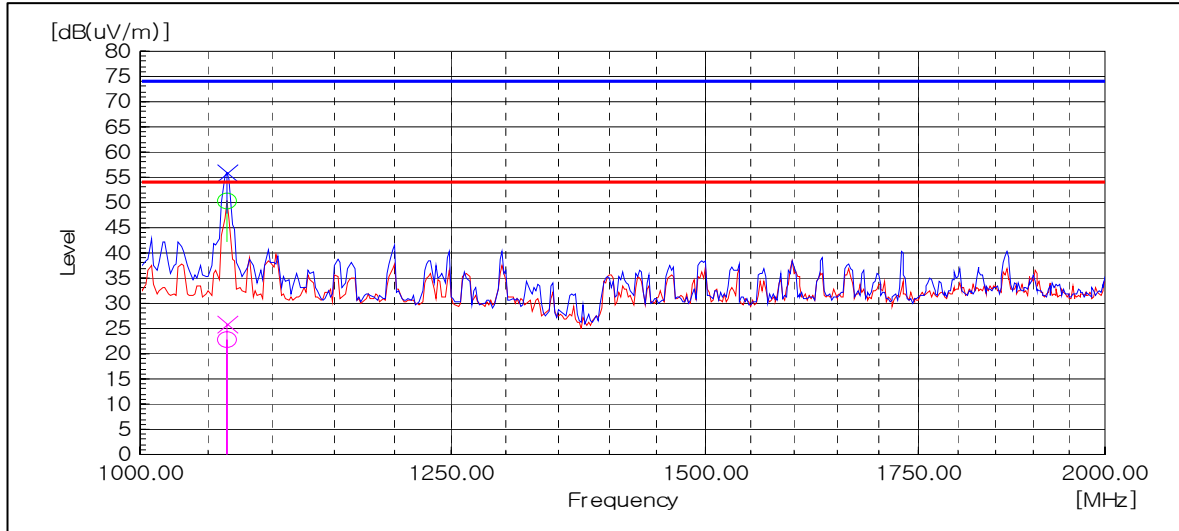
Test Distance : 3m, Antenna Height : 1 to 2 meters

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

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

- USB Printing Mode

Test Graph and Results



- Peak Results

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]
1064.169	V	38.3	-12.2	26.1	54	27.9	102	317.4
1064.549	H	35	-12.2	22.8	54	31.2	101	218.4

Note1) Representative operating mode having minimum margin below 1GHz were selected for radiated emission measurement above 1GHz, and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Test Distance : 3m, Antenna Height : 1 to 2 meters

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

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

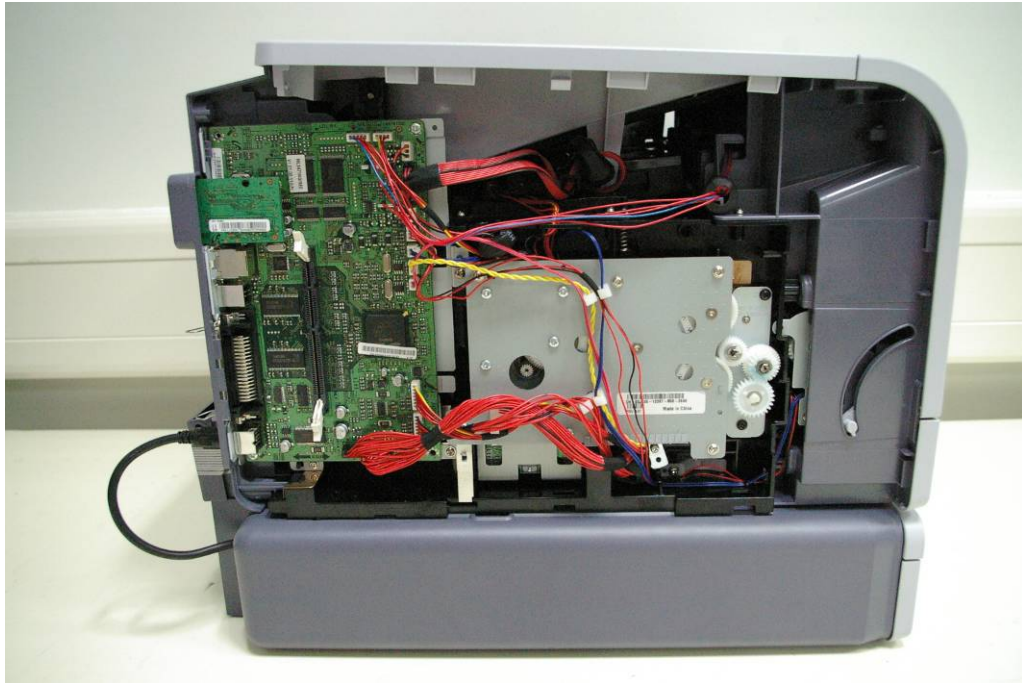
Appendix – EUT photography



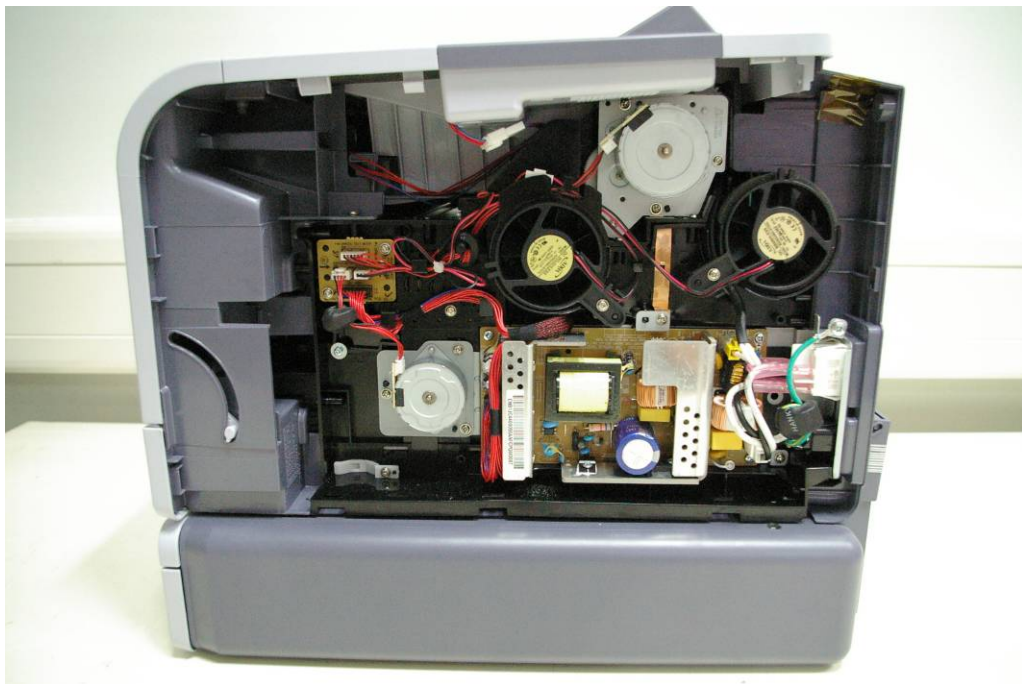
Front View



Rear View



Internal View-1



Internal View-2



Label Location



Project No. : LBE081864



Printer : ML-3471ND

Samsung Electronics Co., Ltd.
Suwon, Korea, 443-742
Place: M264

Model: ML-3470D
Volts: AC 110-127V
Hertz: 50/60 Hz
Amps: 6.5A
Manufactured:

FCC ID : A3LML3471ND (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 class 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.

51Y7
US E149091
I.T.E.

S/N

MADE IN KOREA REV.00

Samsung Electronics Co., Ltd.
Suwon, Korea, 443-742
Place: M264

Model: ML-3471ND
Volts: AC 110-127V
Hertz: 50/60 Hz
Amps: 6.5A
Manufactured:

FCC ID : A3LML3471ND (Printer)
FCC ID : A3LSWL-2460C (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 class B respecte toutes les
exigences du Règlement sur le matériel brouilleur du Canada.
Canadian Certification Number(RSS-210): 649E-S/M2460C (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.

51Y7
US E149091
I.T.E.

S/N

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Rating Label