

EMC TEST REPORT

Project No.	LBE082677	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	August 22, 2008	
EUT	Type of device	Class B personal computers and peripherals	
	Equipment authorization	☐ Declaration of Conformity ☒ Certification ☐ Verification	
	FCC ID	☒ A3LCLP310NVE	
	Kind of product	Printer	
	Model No.	CLP-310N	
		Variant Model No.	CLP-310, CLP-315, CLP-315N
	Manufacturer	Samsung Electronics Co.,Ltd. 259, Gongdan-Dong, Gumi-City, Gyeong-Buk, 730-030, Korea Place:M259 Samsung Electronics (Shandong) Digital Printing Co., Ltd. 264209, Samsung Road, Weihai Hi-Tech. IDZ, Shandong Province, P.R.China	
Applied Standards		FCC Part 15, Subpart B / ANSI C63.4-2003	
Test Period		August 22, 2008 ~ August 27, 2008	
Issue date		September 02, 2008	

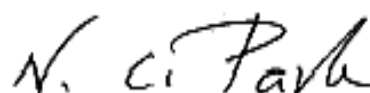
Test result : Complied

The equipment under test has found to be compliant with the applied standards.
 (Refer to the attached test result for more detail.)

Tested by : Sung Jin Sim



Reviewed by : No Cheon Park



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 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 (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
	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 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
	Elektrotechnicky Zkusebni Ustav	Reg. No.: 001
	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
Printer	CLP-310N	-	SAMSUNG	A3LCLP310NVE
Note PC	PP18L	29359007709	Dell	Doc
AC Adaptor	LA65NS1-00	CN-0YD637-71615-83C-0E60	Liteon Technology	Doc
USB Mouse	M-BJ58	HCA42139675	Suzhou Logitech INC.	Doc
Headset		-	Labtec	-

3.2 EUT operating mode

Operating Mode 1	Standby Mode
Operating Mode 2	USB Printing Mode
Operating Mode 3	Network Printing Mode

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
USB	1.8	Yes	EUT to Notebook PC
LAN	2.0	Yes	EUT to Notebook PC
Power	1.8	No	For Notebook PC

3.5 EUT Description

Item	Specification	Remarks
Processor	JUPITER5(375Mhz)	-
Standard System memory	32MB DDR2	-
Resolution	Up to 2400*600 dpi effective output	-
Copy Quality mode	none	-
Paper Handling	Paper Tray(standard) 150 Sheets	-
Power Rating	110~127 VAC, 8A, 50/60 Hz	-
Power Consumption	Power save mode : Less than 10W Stand by mode : 160Watts Printing simplex : 350Watts	-
Printer Language	SPL-C	-
Interfaces	USB2.0 , Ethernet 10/100 Tx Base	-
OS compatibility	Windows 2000/XP/2003/Vista Various Linux OS including Red Hat 8.0~9.0, Mandrake 9.2~10.1, SuSE 8.2~9.2 and Fedora Core 1~4 Mac OS 10.3 ~10.5 and Universal Mac	-
Modes of Operation	USB Printing, Network Printing	-
Intended Class for Emissions	Class B	-

Item	Model	Manufacturer	Remarks
Main Board	PBA-MAIN ()	SAMSUNG ELECTRONICS	JC92-02116A
SMPS	PSPV-TYPE2-V1	SUNGHO ELECTRONICS	REV 3.2
	PSPV-TYPE2-V1	Samsung Electro-Mechanics	REV 3.1
HVPS	Millet HVPS	Suntronix	REV 2.7
	Millet HVPS	SYSHitek	REV 2.7

3.6 Clock Frequencies

Kind of Clocks	Frequency[MHz]	Kind of Clocks	Frequency[MHz]
Main Source	12	Video Source	12
CPU	375	DDR RAM	166
USB Device	12	MAC	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. All operating mode(s) selected were tested to show compliance with relevant standard. Power source for the EUT operating was supplied by CVCF made by the Voltech Corp.

Two different types of SMPS, Samsung electronic mechanics and Sungho electronic were applied during testing.

Each SMPS was installed for testing, tested and reported.

- Configuration 1 : Samsung electronic mechanics SMPS was applied.
- Configuration 2 : Sungho electronic SMPS was applied.

- **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)		3.40 dB
Radiated Disturbance	Horizontal	4.34 dB
	Vertical	5.16 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	100136	2008-04-16	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.	N/A	N/A

4.1.2 Photograph of Test Setup



Front



Rear

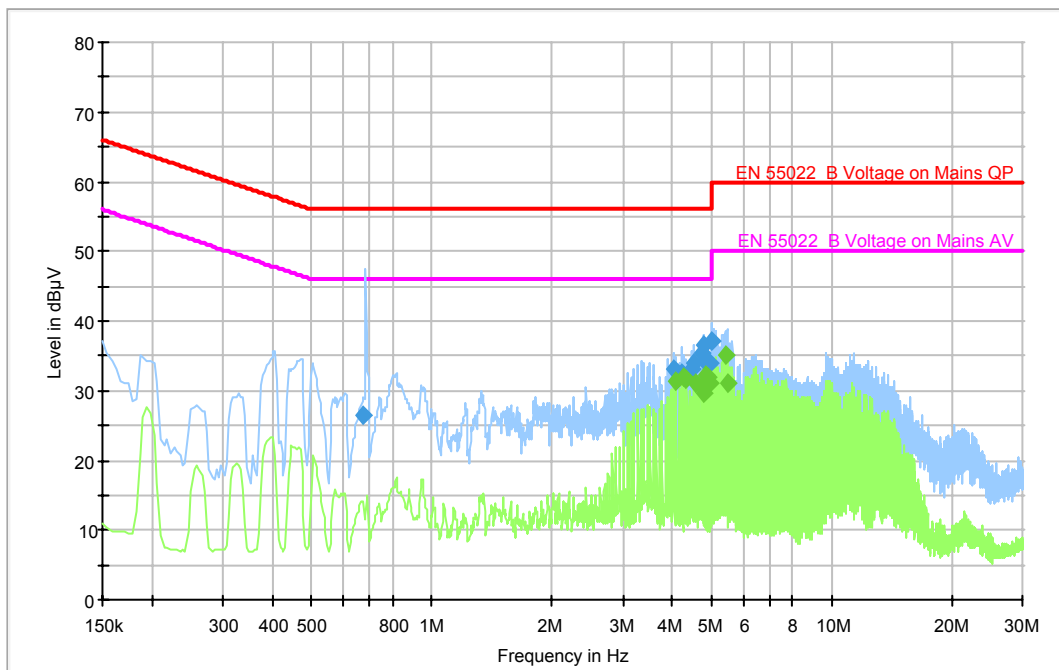
4.1.3 Test results (mains port)

Temperature and humidity condition

Test date	August 25, 2008 ~ August 27, 2008	Test engineer		Sung Jin Sim	
Climate condition	Ambient temperature	23.6 ℃	Relative humidity		35 %
	Atmospheric pressure	100.8 kPa			
Test place	Shielded Room #1				

- Configuration 1 : Stand-by 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)

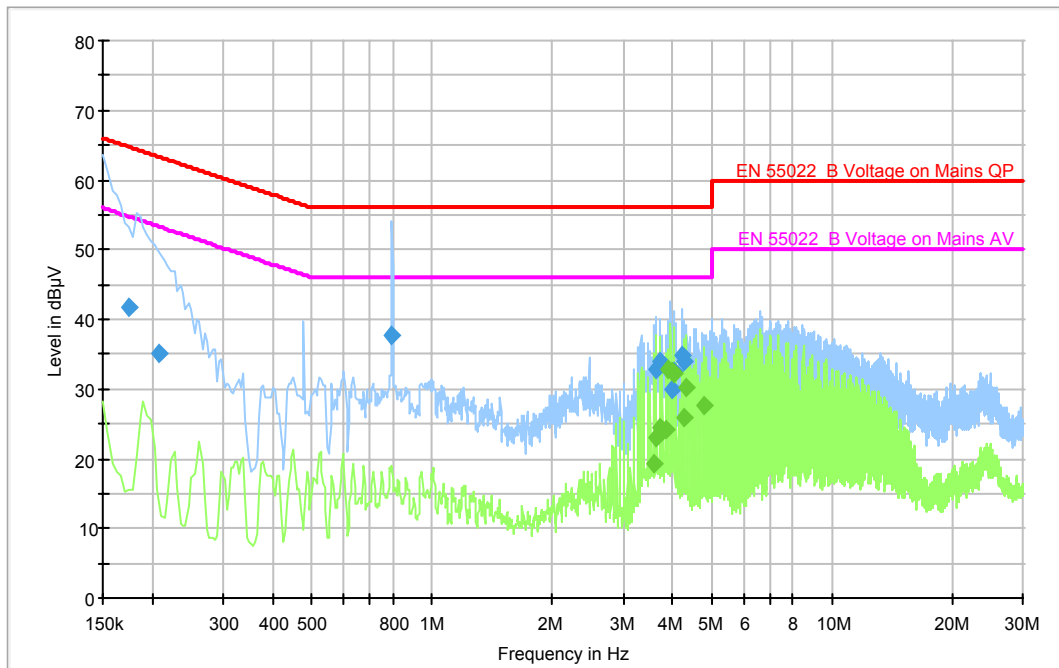
Frequency [MHz]	Quasi-Peak [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
0.675	26.4	N	9.6	29.6	56.0
4.022	33.0	L1	9.8	23.0	56.0
4.207	32.4	L1	9.8	23.6	56.0
4.460	33.0	N	9.8	23.0	56.0
4.523	33.9	L1	9.8	22.1	56.0
4.712	35.3	L1	9.8	20.7	56.0
4.776	36.5	L1	9.8	19.5	56.0
4.900	33.7	L1	9.8	22.3	56.0
4.963	33.9	N	9.8	22.1	56.0
5.027	37.1	L1	9.8	22.9	60.0

Frequency [MHz]	Average [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
4.084	31.3	L1	9.8	14.7	46.0
4.273	32.1	L1	9.8	13.9	46.0
4.336	31.8	L1	9.8	14.2	46.0
4.587	31.1	L1	9.8	14.9	46.0
4.777	29.6	L1	9.8	16.4	46.0
4.838	32.3	L1	9.8	13.7	46.0
4.901	31.9	L1	9.8	14.1	46.0
4.964	31.0	L1	9.8	15.0	46.0
5.404	35.1	L1	9.8	14.9	50.0
5.469	31.0	L1	9.8	19.0	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, 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]	Quasi-Peak [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
0.174	41.8	L1	9.6	23.0	64.7
0.206	35.1	L1	9.6	28.2	63.3
0.786	37.8	L1	9.7	18.2	56.0
3.643	32.9	L1	9.8	23.1	56.0
3.708	33.9	L1	9.8	22.1	56.0
3.962	30.0	L1	9.8	26.0	56.0
4.023	32.4	L1	9.8	23.6	56.0
4.211	34.8	L1	9.8	21.2	56.0
4.274	33.9	L1	9.8	22.1	56.0

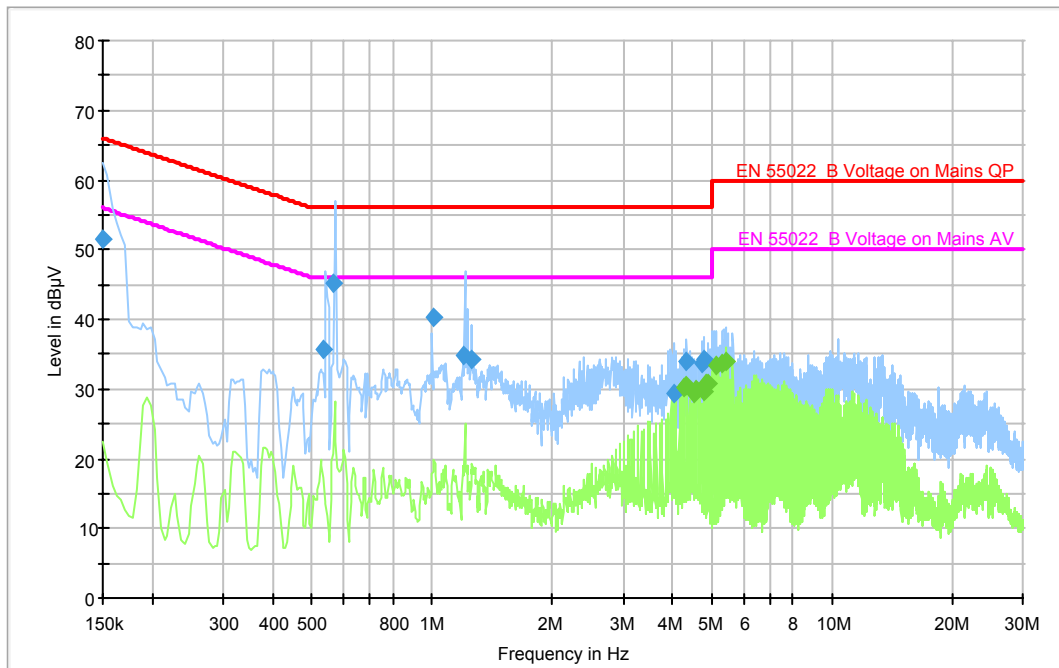
Frequency [MHz]	Average [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
3.583	19.3	L1	9.8	26.7	46.0
3.646	22.9	L1	9.8	23.1	46.0
3.707	24.6	L1	9.8	21.4	46.0
3.835	24.1	N	9.8	21.9	46.0
3.897	32.8	L1	9.8	13.2	46.0
3.960	32.5	L1	9.8	13.5	46.0
4.023	32.3	L1	9.8	13.7	46.0
4.275	25.9	L1	9.8	20.1	46.0
4.337	30.2	L1	9.8	15.8	46.0
4.777	27.6	L1	9.8	18.4	46.0

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 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]	Quasi-Peak [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
0.150	51.5	L1	9.6	14.5	66.0
0.536	35.6	N	9.6	20.4	56.0
0.566	45.2	L1	9.6	10.8	56.0
1.006	40.4	N	9.7	15.6	56.0
1.202	34.8	L1	9.7	21.2	56.0
1.247	34.4	L1	9.7	21.6	56.0
4.024	29.3	L1	9.8	26.7	56.0
4.336	33.8	L1	9.8	22.2	56.0
4.713	33.8	N	9.8	22.2	56.0
4.773	34.3	N	9.8	21.7	56.0

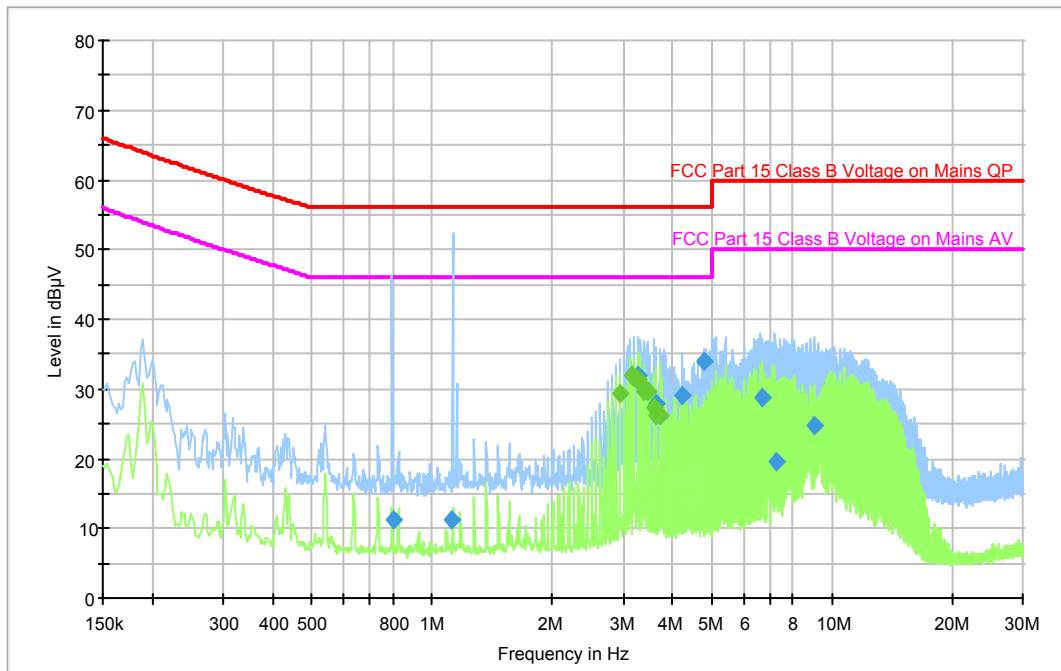
Frequency [MHz]	Average [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
4.272	30.4	N	9.8	15.6	46.0
4.335	30.5	L1	9.8	15.5	46.0
4.524	29.3	L1	9.8	16.7	46.0
4.586	29.9	L1	9.8	16.1	46.0
4.774	29.5	N	9.8	16.5	46.0
4.838	30.8	N	9.8	15.2	46.0
4.901	30.7	L1	9.8	15.3	46.0
5.152	33.4	L1	9.8	16.6	50.0
5.339	33.5	L1	9.8	16.5	50.0
5.403	34.0	N	9.8	16.0	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 2, Stand-by 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]	Quasi-Peak [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
0.799	11.1	L1	9.7	44.9	56.0
1.121	11.2	L1	9.7	44.8	56.0
3.142	32.1	L1	9.8	23.9	56.0
3.267	32.0	L1	9.8	24.0	56.0
3.643	28.0	L1	9.8	28.0	56.0
4.207	29.2	L1	9.8	26.8	56.0
4.774	34.1	N	9.8	21.9	56.0
6.655	28.7	L1	9.9	31.3	60.0
7.213	19.6	L1	9.9	40.4	60.0
9.033	24.8	L1	9.9	35.2	60.0

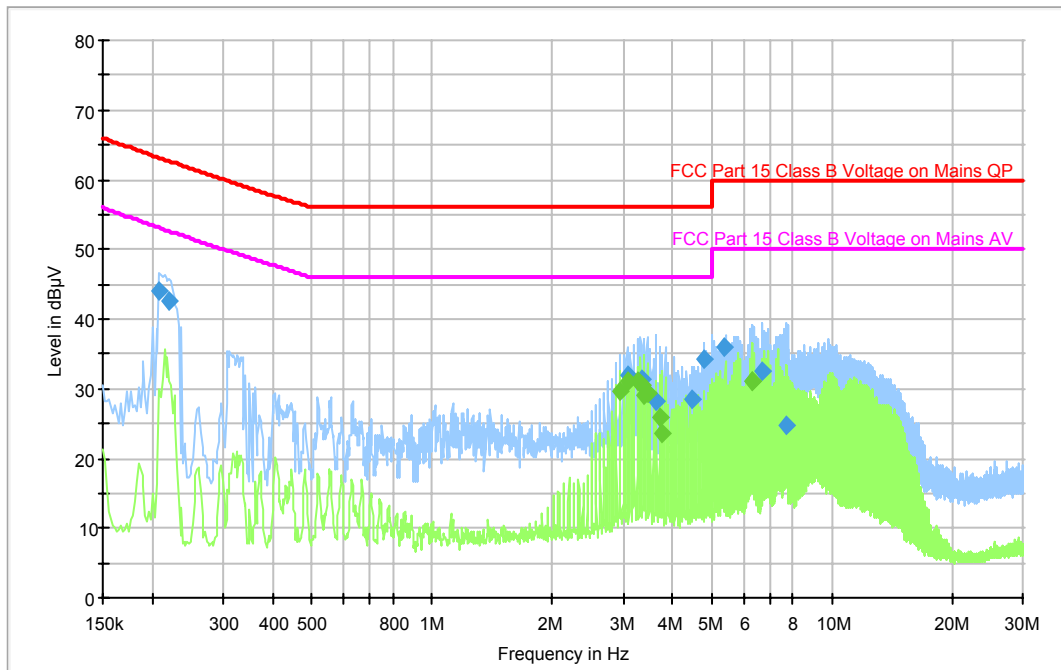
Frequency [MHz]	Average [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
2.953	29.4	L1	9.7	16.6	46.0
3.141	31.9	L1	9.8	14.1	46.0
3.203	31.6	L1	9.8	14.4	46.0
3.267	31.3	L1	9.8	14.7	46.0
3.330	30.6	L1	9.8	15.4	46.0
3.391	29.6	L1	9.8	16.4	46.0
3.455	29.7	L1	9.8	16.3	46.0
3.581	27.2	L1	9.8	18.8	46.0
3.643	26.1	L1	9.8	19.9	46.0
3.707	26.2	L1	9.8	19.8	46.0

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 2, 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]	Quasi-Peak [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
0.206	44.1	N	9.6	19.1	63.2
0.218	42.7	L1	9.6	20.0	62.7
3.078	32.0	L1	9.8	24.0	56.0
3.331	31.4	L1	9.8	24.6	56.0
3.643	28.1	L1	9.8	27.9	56.0
4.458	28.6	N	9.8	27.4	56.0
4.775	34.3	N	9.8	21.7	56.0
5.402	36.0	N	9.8	24.0	60.0
6.659	32.4	L1	9.9	27.6	60.0
7.714	24.8	L1	9.9	35.2	60.0

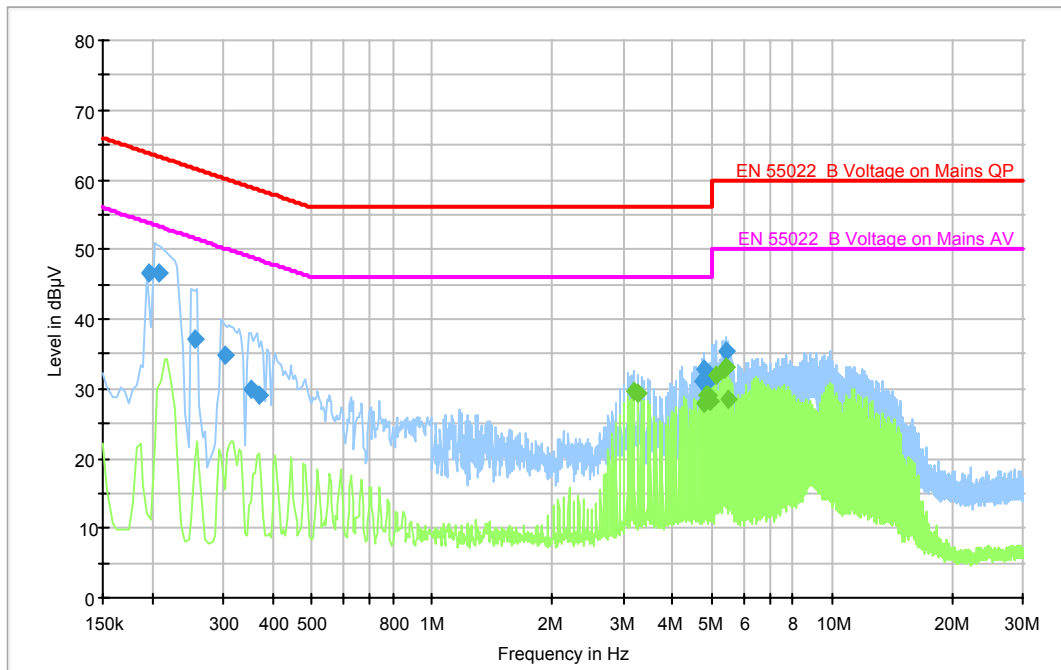
Frequency [MHz]	Average [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
2.953	29.5	L1	9.7	16.5	46.0
3.079	31.2	L1	9.8	14.8	46.0
3.267	31.1	L1	9.8	14.9	46.0
3.330	30.4	L1	9.8	15.6	46.0
3.391	29.1	L1	9.8	16.9	46.0
3.455	29.3	L1	9.8	16.7	46.0
3.707	25.8	L1	9.8	20.2	46.0
3.767	23.5	L1	9.8	22.5	46.0
6.283	31.0	L1	9.9	19.0	50.0
6.347	31.1	L1	9.9	18.9	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)

- Configuration 2, 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]	Quasi-Peak [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
0.196	46.6	N	9.6	17.1	63.8
0.207	46.7	L1	9.6	16.6	63.3
0.254	37.2	L1	9.6	24.4	61.6
0.304	34.9	L1	9.6	25.2	60.1
0.352	29.8	L1	9.6	29.1	58.9
0.368	29.0	L1	9.6	29.6	58.5
4.714	31.2	L1	9.8	24.8	56.0
4.777	32.7	L1	9.8	23.3	56.0
4.962	31.3	N	9.8	24.7	56.0
5.405	35.3	L1	9.8	24.7	60.0

Frequency [MHz]	Average [dBuV]	Line	Factor [dB]	Margin [dB]	Limit [dBuV]
3.204	29.8	N	9.7	16.2	46.0
3.267	29.4	N	9.7	16.6	46.0
4.775	28.0	N	9.8	18.0	46.0
4.838	29.2	N	9.8	16.8	46.0
4.901	29.0	L1	9.8	17.0	46.0
4.963	28.3	L1	9.8	17.7	46.0
5.152	31.9	N	9.8	18.1	50.0
5.341	32.7	N	9.8	17.3	50.0
5.403	33.1	N	9.8	16.9	50.0
5.469	28.5	N	9.8	21.5	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.			

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	CBL6112D	Schaffner	22604	2008-04-15	24
Horn Antenna	BBHA9120B	Schwarzbeck	338	2007-07-27	12
EMI Receiver	ESIB-26	R&S	100287	2008-05-19	12
EMI Receiver	ESIB-26	R&S	100289	2008-04-25	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
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	August 22, 2008 ~ August 26, 2008	Test engineer		Sung Jin Sim	
Climate condition	Ambient temperature	25.8 ℃	Relative humidity	38 %	
	Atmospheric pressure	100.6 kPa			
Test place	Semi-Anechoic Chamber				

4.2.3 Photograph of Test Setup



Front

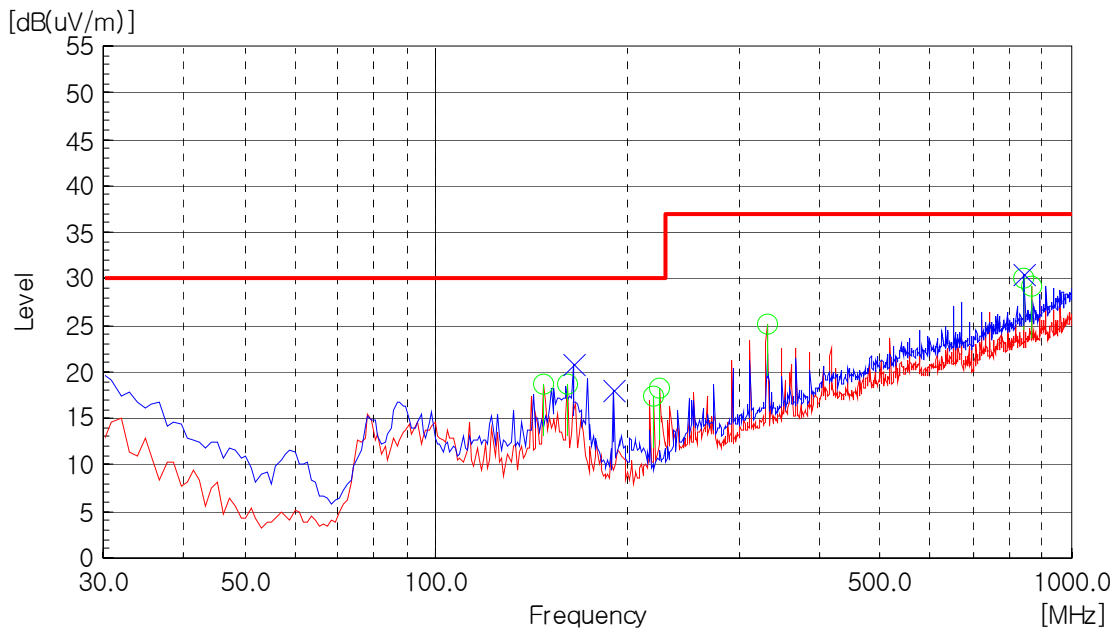


Rear

4.2.4 Test results (30 MHz ~ 1 GHz)

- 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]
147.844	H	36.8	-18.1	18.7	30	11.3	300	47.5
161.367	H	37.3	-18.5	18.8	30	11.2	400	350.3
164.265	V	40.3	-19.4	20.9	30	9.1	300	329.3
190.345	V	38.2	-20.0	18.2	30	11.8	100	0.3
220.289	H	36.0	-18.7	17.3	30	12.7	200	153.7
225.118	H	36.6	-18.4	18.2	30	11.8	300	64.3
331.371	H	37.6	-12.6	25.0	37	12.0	300	94.8
840.593	H	33.7	-3.7	30.0	37	7.0	250	296.6
841.571	V	33.8	-3.4	30.4	37	6.6	250	347.1
864.064	H	32.2	-3.1	29.1	37	7.9	250	70.1

Note) Receiving antenna polarization : Horizontal and/or Vertical

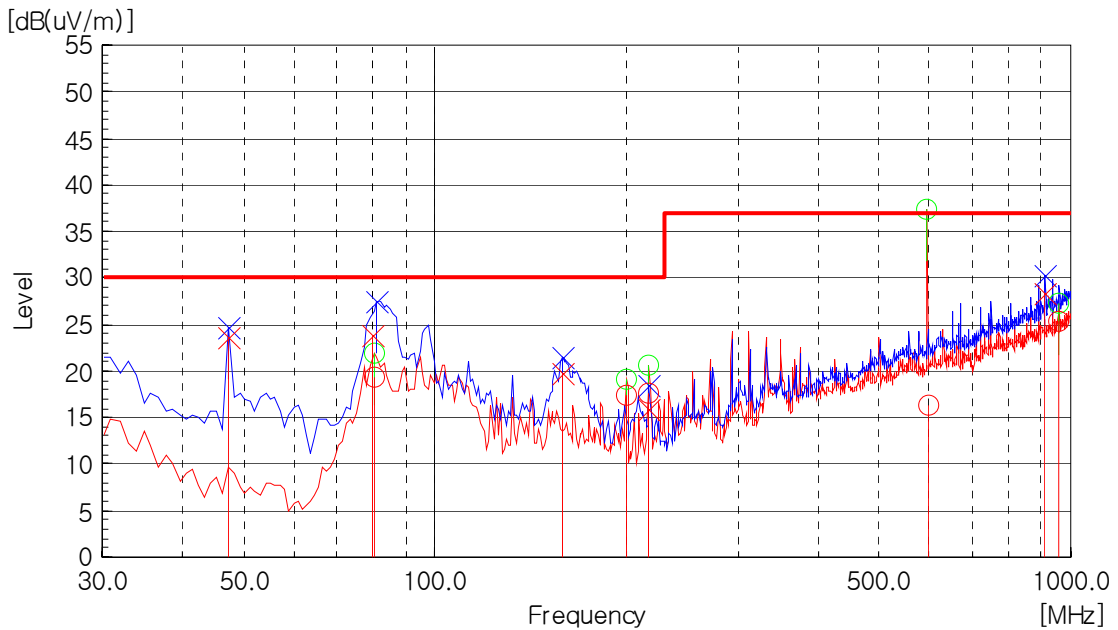
Test Distance : 10m, Antenna Height : 1 to 4 meters

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

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

- 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]
47.387	V	45.6	-21.9	23.7	30	6.3	300	302.7
79.826	V	46.9	-23.1	23.8	30	6.2	149	18.2
80.228	H	41.7	-22.4	19.3	30	10.7	400	192.8
158.469	V	39.0	-19.3	19.7	30	10.3	100	1.8
200.004	H	36.9	-19.6	17.3	30	12.7	300	187.4
217.391	H	36.3	-18.7	17.6	30	12.4	200	161.9
217.391	V	35.3	-19.5	15.8	30	14.2	100	321.5
595.728	H	23.2	-6.8	16.4	37	20.6	189	6.3
912.962	V	30.6	-2.2	28.4	37	8.6	150	111.6
960.882	H	26.9	-1.5	25.4	37	11.6	350	252.4

Note) Receiving antenna polarization : Horizontal and/or Vertical

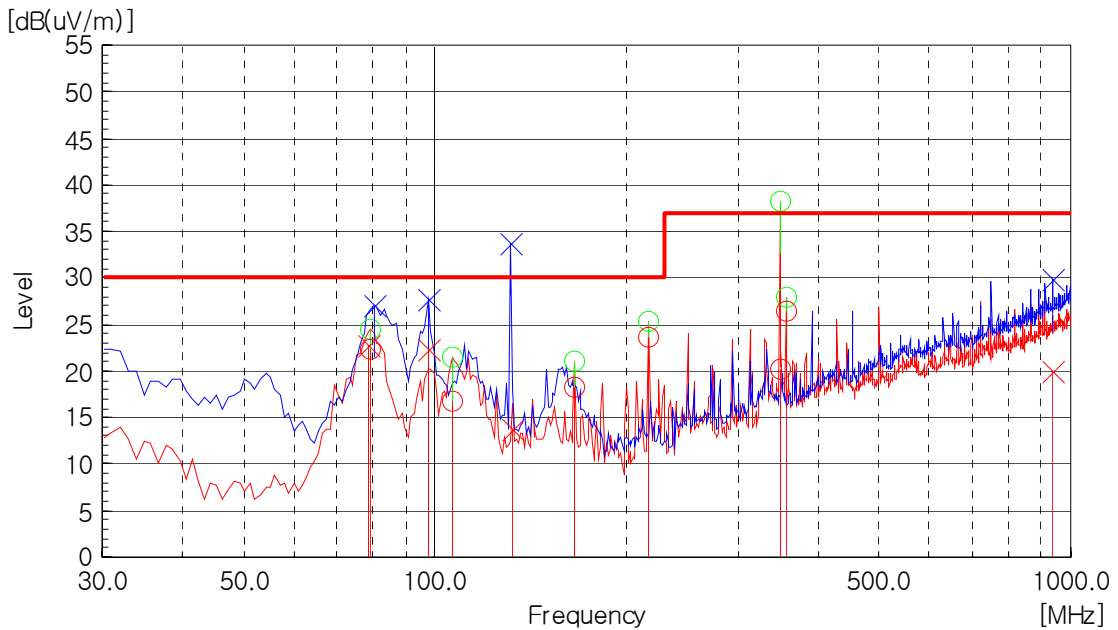
Test Distance : 10m, Antenna Height : 1 to 4 meters

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]
78.725	V	46.0	-23.3	22.7	30	7.3	160	355.8
79.383	H	44.9	-22.6	22.3	30	7.7	400	215
97.615	V	41.5	-19.2	22.3	30	7.7	200	71.2
106.309	H	34.5	-17.7	16.8	30	13.2	400	5.6
132.686	V	31.5	-17.7	13.8	30	16.2	157	254.9
166.196	H	37.0	-18.7	18.3	30	11.7	400	86.5
217.391	H	42.4	-18.7	23.7	30	6.3	400	151.5
350.646	H	32.3	-12.1	20.2	37	16.8	249	164.9
356.485	H	38.5	-12.1	26.4	37	10.6	200	350.3
937.294	V	21.7	-1.8	19.9	37	17.1	150	138.1

Note) Receiving antenna polarization : Horizontal and/or Vertical

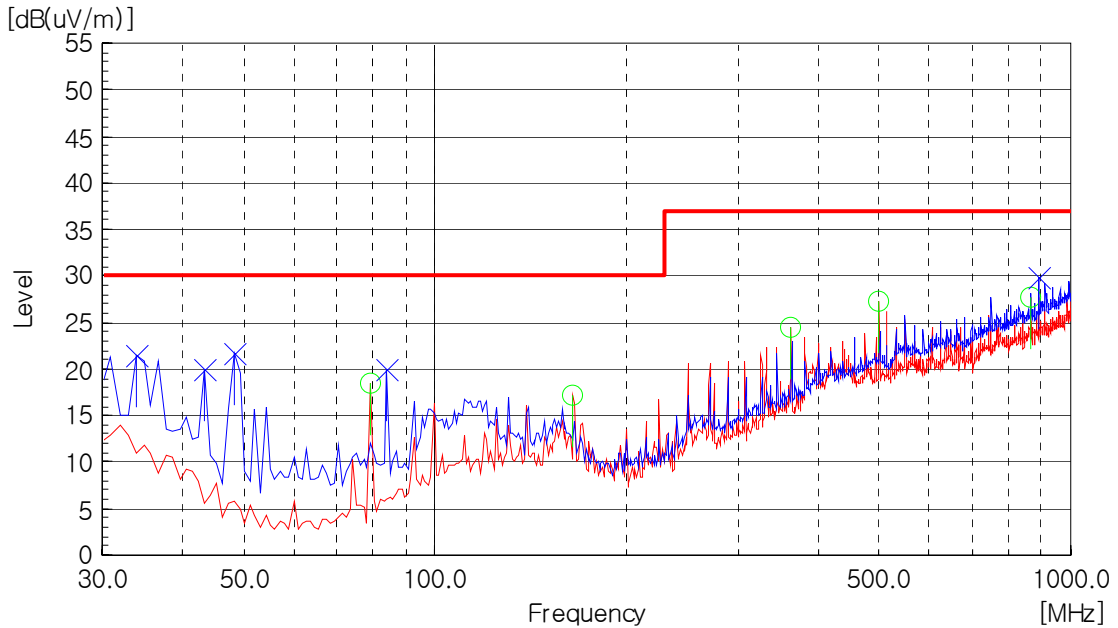
Test Distance : 10m, Antenna Height : 1 to 4 meters

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

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

- Configuration 2 : 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]
33.864	V	36.4	-15.0	21.4	30	8.6	100	10.1
43.523	V	39.9	-20.0	19.9	30	10.1	100	330.6
48.353	V	44.2	-22.4	21.8	30	8.2	100	1.3
79.263	H	41.1	-22.6	18.5	30	11.5	400	68.9
84.092	V	42.3	-22.3	20.0	30	10.0	100	5.9
165.230	H	35.9	-18.7	17.2	30	12.8	400	123.4
363.247	H	36.4	-12	24.4	37	12.6	200	202
500.409	H	35.4	-8.1	27.3	37	9.7	200	300
864.064	H	30.8	-3.1	27.7	37	9.3	150	327.1
889.491	V	32.7	-2.9	29.8	37	7.2	150	25.9

Note) Receiving antenna polarization : Horizontal and/or Vertical

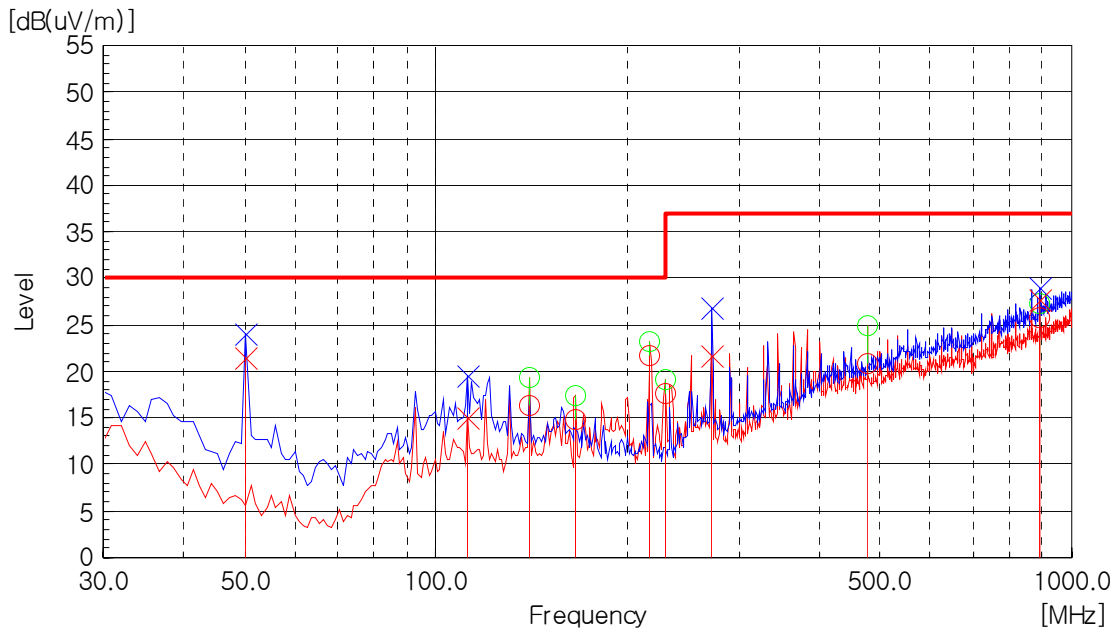
Test Distance : 10m, Antenna Height : 1 to 4 meters

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

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

- Configuration 2 : 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]
50.285	V	44.5	-23.1	21.4	30	8.6	300	347.7
112.104	V	32.8	-17.7	15.1	30	14.9	100	77.2
140.116	H	33.0	-16.6	16.4	30	13.6	300	143.6
166.196	H	33.5	-18.7	14.8	30	15.2	400	320.9
217.391	H	40.4	-18.7	21.7	30	8.3	400	209.6
228.982	H	35.9	-18.2	17.7	30	12.3	300	337.2
271.483	V	36.9	-15.2	21.7	37	15.3	100	331.3
477.226	H	29.3	-8.5	20.8	37	16.2	200	272.6
888.513	H	28.5	-2.7	25.8	37	11.2	350	141.5
889.491	V	30.6	-2.9	27.7	37	9.3	350	124.7

Note) Receiving antenna polarization : Horizontal and/or Vertical

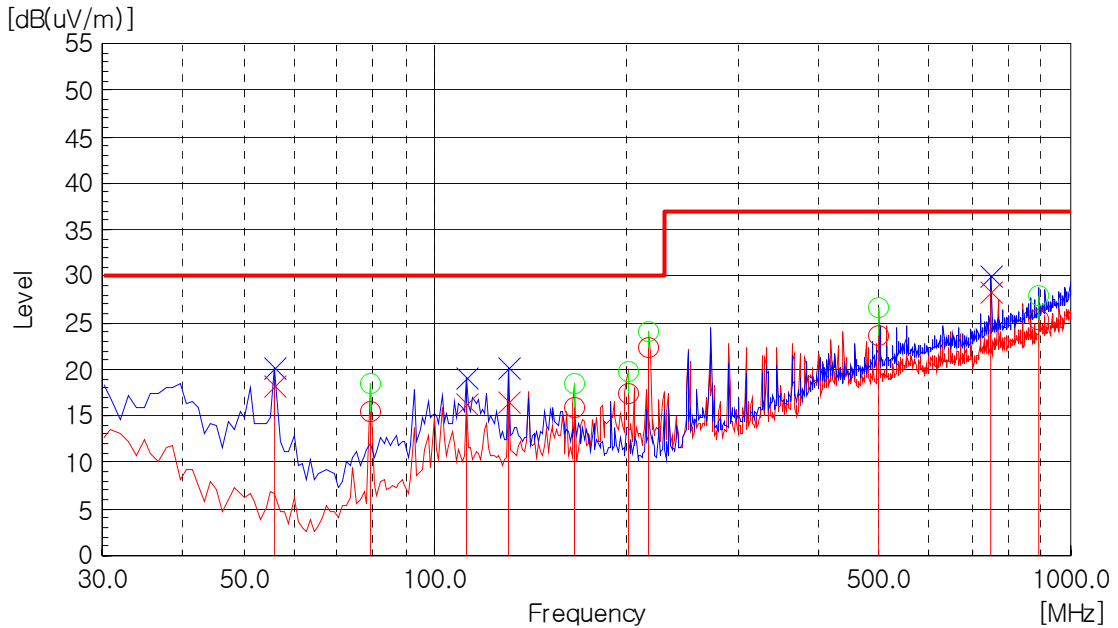
Test Distance : 10m, Antenna Height : 1 to 4 meters

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

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

- Configuration 2 : 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]
56.080	V	42.7	-24.5	18.2	30	11.8	100	357.5
79.263	H	38.0	-22.6	15.4	30	14.6	400	52.4
112.104	V	34.0	-17.7	16.3	30	13.7	100	136.5
130.457	V	34.2	-17.6	16.6	30	13.4	100	321.0
166.196	H	34.6	-18.7	15.9	30	14.1	400	107.1
200.970	H	36.9	-19.6	17.3	30	12.7	400	359.5
217.391	H	41.1	-18.7	22.4	30	7.6	300	200.1
500.409	H	31.8	-8.1	23.7	37	13.3	200	265.4
750.621	V	33.3	-4.9	28.4	37	8.6	250	37.7
888.513	H	28.0	-2.7	25.3	37	11.7	250	59.0

Note) Receiving antenna polarization : Horizontal and/or Vertical

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

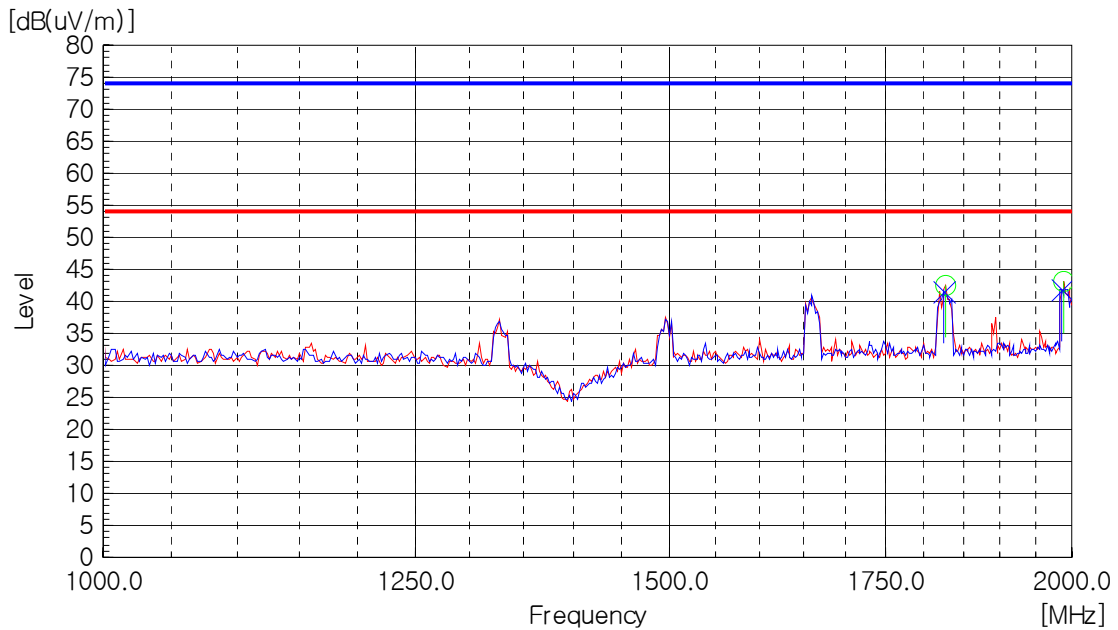
Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

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

4.2.5 Test results (1 GHz ~ 2 GHz)

- Configuration 1 : Stand-by Mode

Test Graph and 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]
1823.647	V	50.0	-8.5	41.5	74	32.5	100	259.3
1827.655	H	50.9	-8.5	42.4	74	31.6	100	265.5
1985.972	V	49.6	-7.6	42.0	74	32.0	100	194.3
1989.980	H	50.6	-7.6	43.0	74	31.0	100	213.1

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

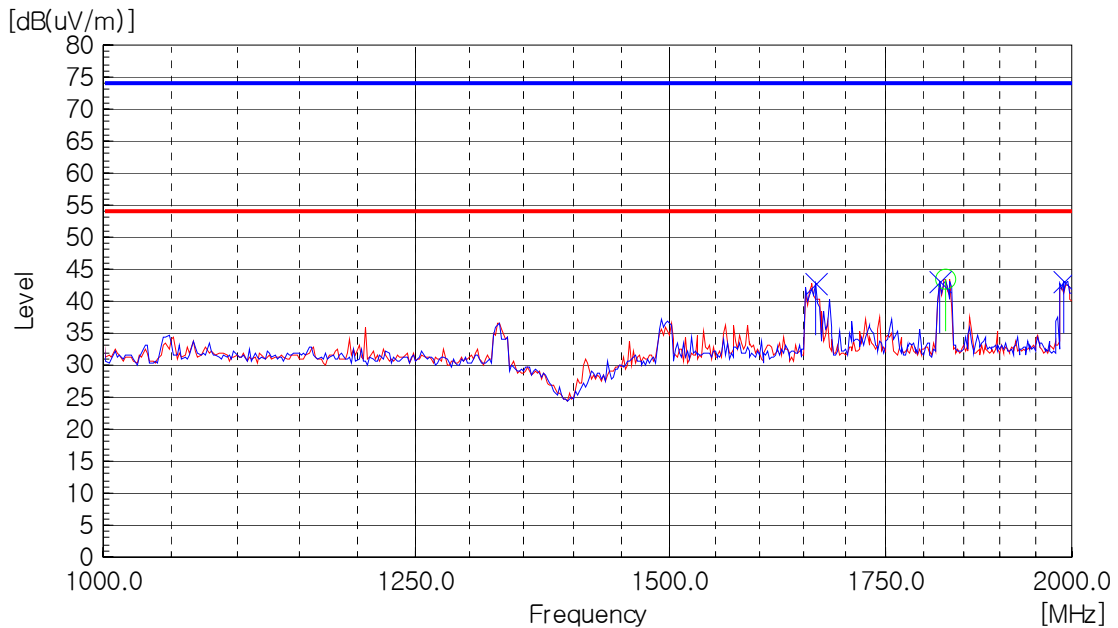
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

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

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

- Configuration 1 : USB Printing Mode

Test Graph and 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]
1665.331	V	52.2	-9.4	42.8	74	31.2	100	117.2
1819.639	V	51.6	-8.5	43.1	74	30.9	100	253.4
1827.655	H	52.0	-8.5	43.5	74	30.5	100	274.0
1987.976	V	50.7	-7.6	43.1	74	30.9	100	192.7

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

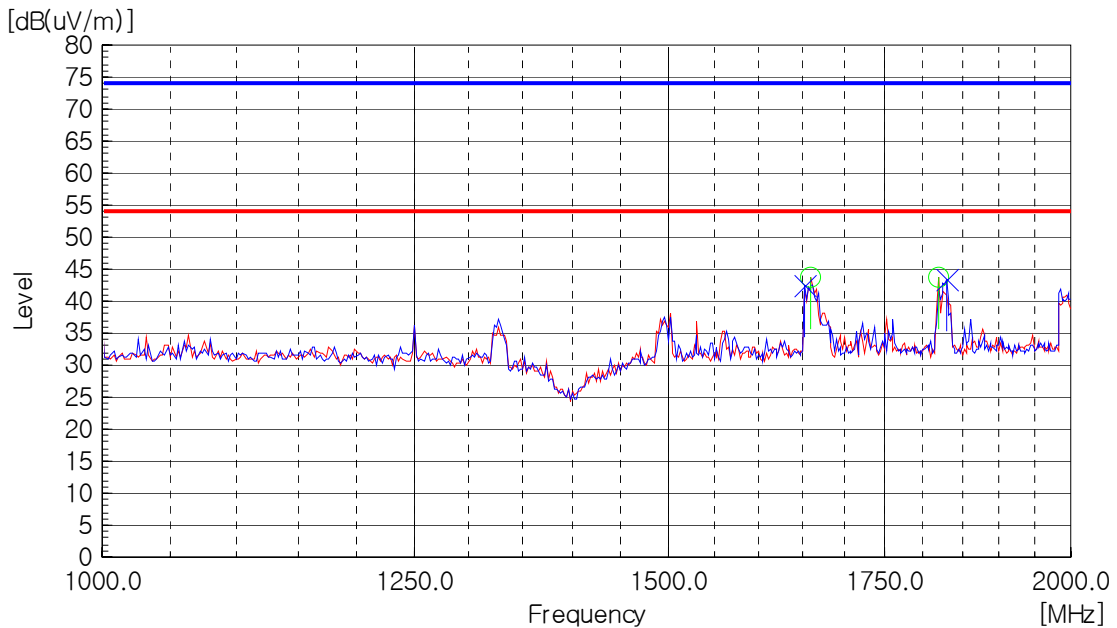
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

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

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

- Configuration 1 : Network Printing Mode

Test Graph and 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]
1661.323	H	53.2	-9.4	43.8	74	30.2	100	244.0
1819.639	H	52.2	-8.5	43.7	74	30.3	100	271.3
1829.659	V	52.0	-8.5	43.5	74	30.5	100	260.9
1653.307	V	52.0	-9.5	42.5	74	31.5	100	29.3

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

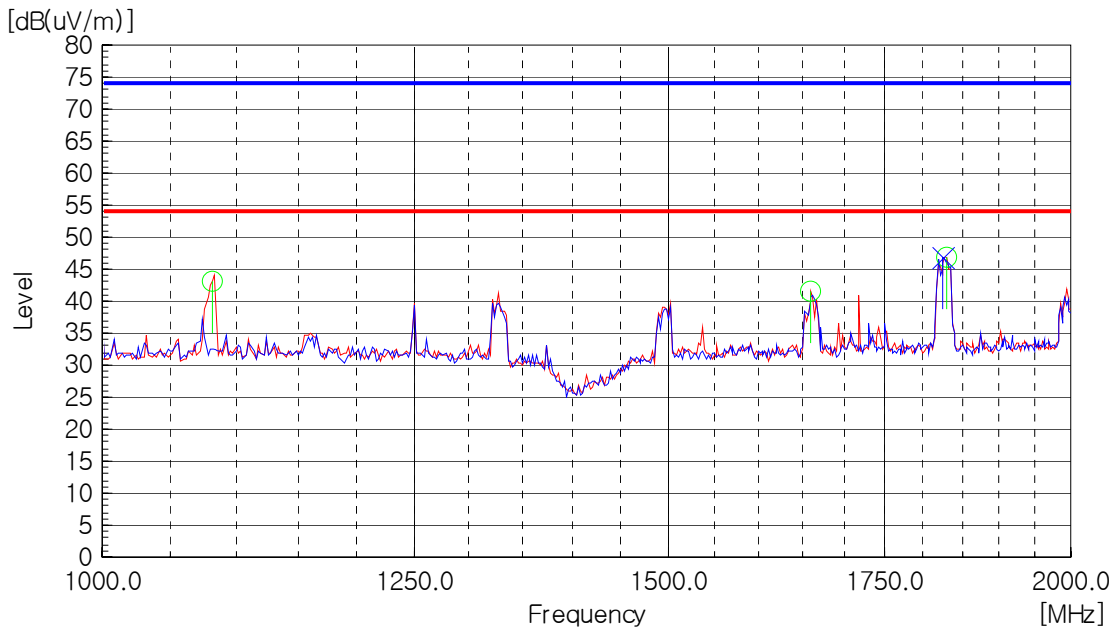
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

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

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

- Configuration 2 : Stand-by Mode

Test Graph and 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]
1825.651	V	55.3	-8.5	46.8	74	27.2	100	163.3
1829.659	H	55.5	-8.5	47.0	74	27.0	100	282.1
1082.164	H	55.5	-12.2	43.3	74	30.7	100	85.1
1661.323	H	51.0	-9.4	41.6	74	32.4	100	116.6

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

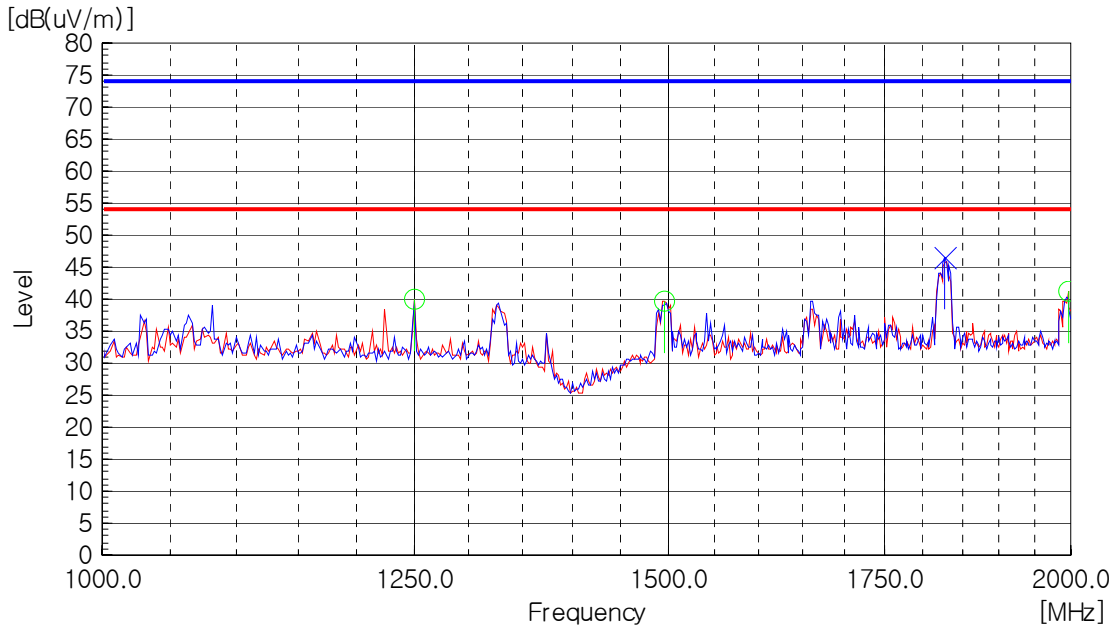
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

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

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

- Configuration 2 : USB Printing Mode

Test Graph and 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]
1250.501	H	51.3	-11.4	39.9	74	34.1	100	138.8
1494.990	H	50.0	-10.3	39.7	74	34.3	100	331.7
1827.655	V	54.9	-8.5	46.4	74	27.6	100	271.1
1995.992	H	48.7	-7.5	41.2	74	32.8	100	138.8

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

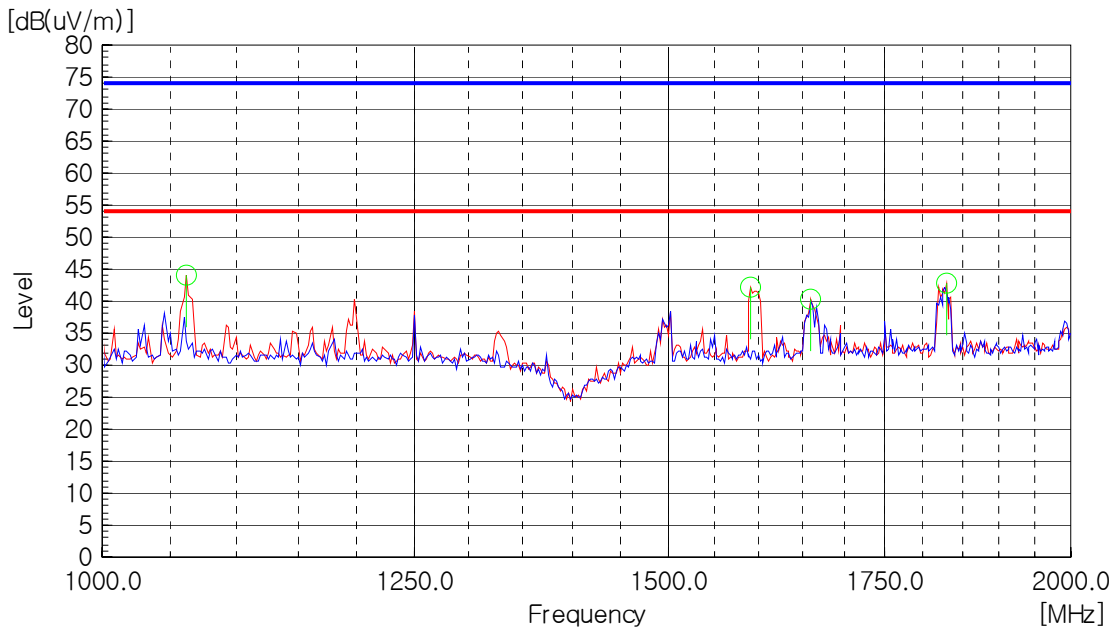
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

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

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

- Configuration 2 : Network Printing Mode

Test Graph and 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]
1062.124	H	56.4	-12.3	44.1	74	29.9	100	42.1
1591.182	H	52.0	-9.8	42.2	74	31.8	100	117.5
1661.323	H	49.8	-9.4	40.4	74	33.6	100	75.6
1829.659	H	51.5	-8.5	43.0	74	31.0	100	241.2

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

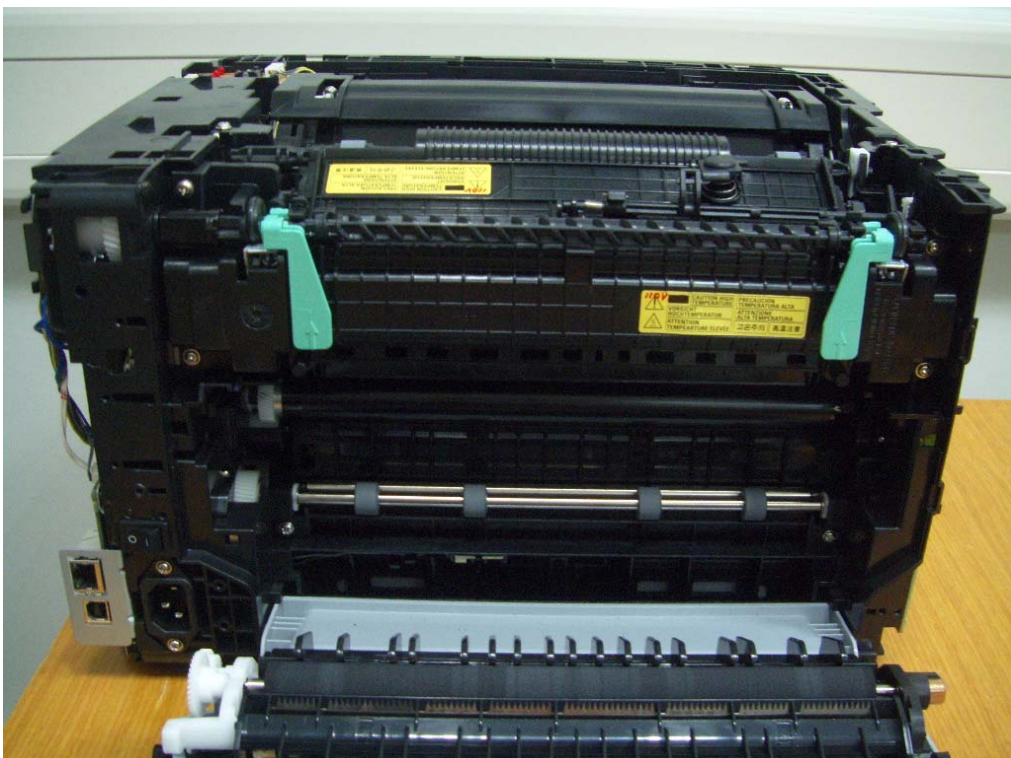
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

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

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



Front view (remove cover)



Rear view (remove cover)



Right view (remove cover)



Left view (remove cover)