EMC TEST REPORT

Project No.	LBE080138	**Issue No.**	1
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	2008. 01. 11	
EUT Equipment Under Test	**Type of device**	Class B personal computers and peripherals	
	Equipment authorization	☐ Declaration of Conformity ☒ Certification ☐ Verification	
	FCC ID	**A3LML1630W**	
	Kind of product	**LASER PRINTER**	
	Model No.	**ML-1630W**	
		Variant Model No.	None
	Manufacturer	**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	
Issue date		2008. 01. 22	

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

SAMSUNG

SEC EMC Laboratory
416 Maetan 3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, 443-742 Korea
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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 Minimum margin is 11.8 dB at 4.364 MHz
☒	Radiated Disturbance		Complied	Meets Class B Limit Minimum margin is 11.4 dB at 4000.013 MHz

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 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	ML-1630W	-	Samsung	A3LML1630W
Note PC	NP-Q20	I86191CWC00005	Samsung	A3LNPQ20
AC Adapter	AD-4212A	CNBA440014BASE 383BS0345	Dongguan Samsung Electro-Mechanics	-
USB Mouse	M-UAE96	LZK61923439	Logitech	DoC
Headset	Plantronics	-	Microsoft	-

3.2 EUT operating mode

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

Operating Mode 1	Standby
Operating Mode 2	USB printing
Operating Mode 3	Network printing
Operating Mode 4	Wireless network printing

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	From PC to EUT From PC to Mouse
Cross cable	1.0	No	Between PC and EUT
Headset	1.0	No	From earphone to PC

3.5 EUT Description

The following features describe EUT represented by this report:

Item	Specification	Remarks
Processor	CHORUS3 (ARM926EJS, 16/32 Bit Risc Architecture)	-
Standard System memory	64Mbyte DDR SDRAM	-
Resolution	1200x1200dpi	-
Copy Quality mode	NA	-
Paper Handling	Paper Tray(standard) 100 Sheets 2nd Tray(optional) : NA Bypass Tray : NA	-
Power Rating	110~127 VAC, 4.0A, 50/60 Hz	-
Power Consumption	Power save mode : 8.12Watts Printing simplex : 350Watts	-
Printer Language	SPL	-
Interfaces	Hi-Speed USB2.0 Ethernet 10/100 Base TX IEEE802.11 b/g Wireless LAN	-
OS compatibility	Windows 2000(32bit)/XP(32/64bit)/2003(32/64bit)/Vista(32/64bit) MAC 10.3/10.5, Linux Red Hat 8~9, Fedora Core 1~3, Mandrake 9.2~10.1, and SuSE 8.2~9.2	-
Modes of Operation	USB Printing Network Printing Wireless network	-
Intended Class for Emissions	Class B	-

3.6 Clock Frequencies

Kind of Clocks	Frequency[MHz]	Kind of Clocks	Frequency[MHz]
Main Source	12	Video	19.36
CPU Internal	360	SDRAM	133
USB Device	12		

3.7 Operating mode 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. The EUT is supporting the USB, Network, Wireless network, and standby mode.

- Test Voltage : AC 110 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	± 2.8 dB
Radiated disturbance	Horizontal	± 5.1 dB
	Vertical	± 5.09 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(μV)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60
Note 1: 1 μV 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(μV)	
	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 μV 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 instrumentation used in the Conducted disturbance test was as follows:

Test instrumentation	Model name	Manufacturer	Serial or Firmware (No./Ver.)	Calibration	
				Date	Interval (Month)
Measuring receiver	ESCI	R&S	100368	2007-06-01	12
Artificial mains network	ENV216	R&S	100117	2007-09-03	12
Artificial mains network	ESH3-Z5	R&S	100262	2007-09-03	12
Test software	EMC32	R&S	Ver 4.00.0	N/A	N/A

4.1.2 Temperature and humidity of test shielded facilities

Test date	2008-01-21	**Test engineer**	Sung Jin Sim	
Climate condition	**Ambient temperature**	23.5 ℃	**Relative humidity**	25 %
	Atmospheric pressure	102.2 kPa		
Test place	Shielded room #1			

4.1.3 Photograph of the test Configuration

(Front)

(Rear)

4.1.4 Test results

Operating condition	Stand-by
Note	* QP : Quasi-peak, AV: Average * Level (QP or AV) = Meter Reading(QP or AV) + Corr.(LISN Insertion loss + Cable loss) * Margin = Limit - Level

Test Information

EUT Name: ML_1630W
Serial Number:
Test Description:
Operating Conditions: Stand by mode
Operator Name:
Comment:

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

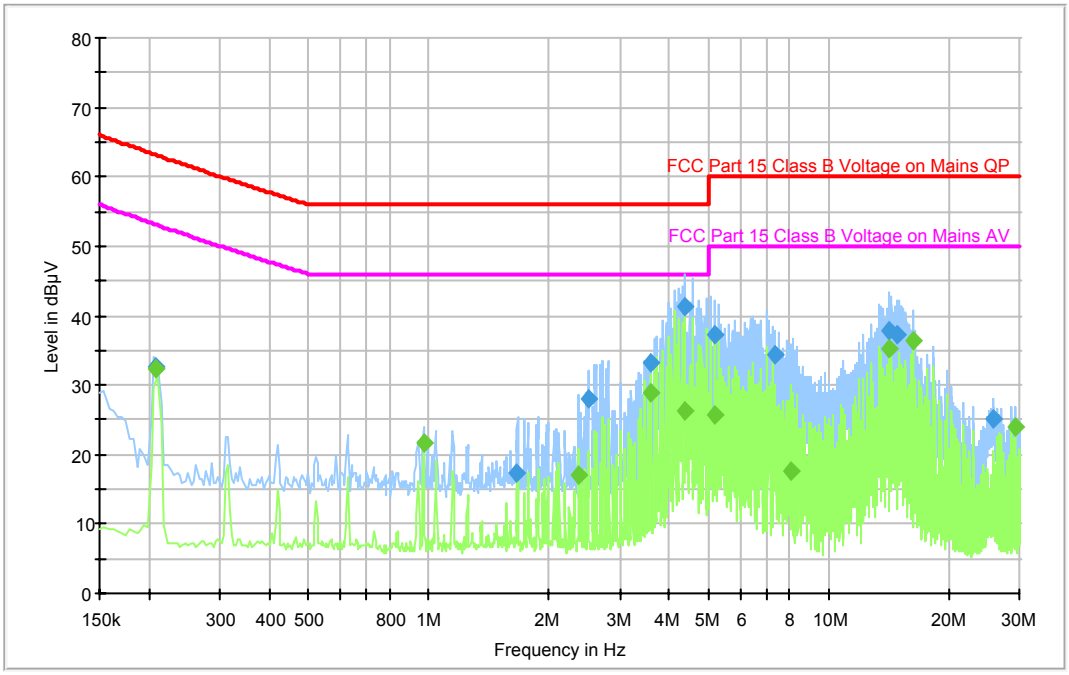
Subrange 1
Frequency Range: 150 kHz – 30 MHz
Receiver: ESCI 3
Transducer: ENV216 / Receiver-2-Line-LISN ENV216

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
150 kHz – 30 MHz	QuasiPeak; Average	9 kHz	15 s	ESCI 3

FCC Part 15 Class_B with ENV 2-Line-LISN



*** The measured value in both LIVE and NEUTRAL mode of LISN is combined to the one graph.**

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.206 500	32.6	N	9.6	30.6	63.2
1.664 500	17.5	N	9.7	38.5	56.0
2.496 500	28.1	L1	9.7	27.9	56.0
3.592 500	33.1	L1	9.8	22.9	56.0
4.360 500	41.3	N	9.8	14.7	56.0
5.196 500	37.2	N	9.8	22.8	60.0
7.312 500	34.5	L1	9.9	25.5	60.0
14.152 500	37.8	N	10.0	22.2	60.0
14.884 500	37.2	N	10.1	22.8	60.0
25.692 500	25.0	N	10.4	35.0	60.0

Final Measurement Detector 2

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.206 500	32.3	N	9.6	20.8	53.2
0.970 500	21.8	L1	9.7	24.2	46.0
2.376 500	17.1	L1	9.7	28.9	46.0
3.596 500	28.9	L1	9.8	17.1	46.0
4.356 500	26.2	N	9.8	19.8	46.0
5.203 500	25.8	N	9.8	24.2	50.0
8.020 500	17.7	N	9.9	32.3	50.0
14.152 500	35.1	N	10.0	14.9	50.0
16.228 500	36.2	N	10.1	13.8	50.0
29.236 500	24.1	N	10.4	25.9	50.0

Operating condition	USB printing
Note	* QP : Quasi-peak, AV: Average * Level (QP or AV) = Meter Reading(QP or AV) + Corr.(LISN Insertion loss + Cable loss) * Margin = Limit - Level

Test Information

EUT Name: ML-1630W
Serial Number:
Test Description:
Operating Conditions: USB Printing mode
Operator Name:
Comment:

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

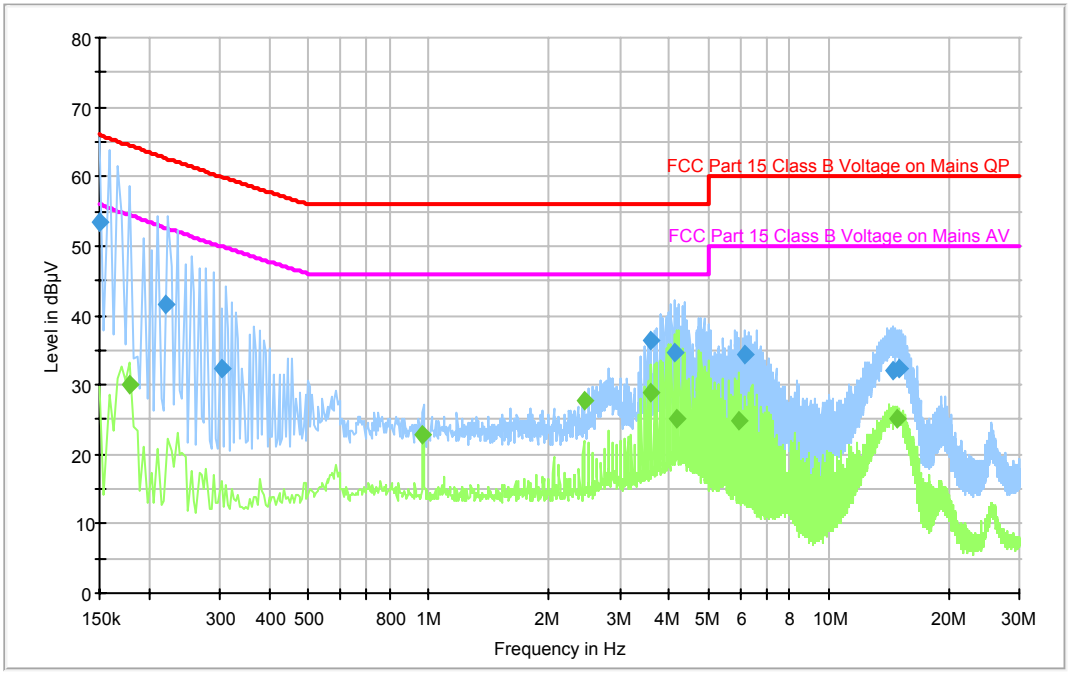
Subrange 1
Frequency Range: 150 kHz – 30 MHz
Receiver: ESCI 3
Transducer: ENV216 / Receiver-2-Line-LISN ENV216

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
150 kHz – 30 MHz	QuasiPeak; Average	9 kHz	15 s	ESCI 3

FCC Part 15 Class_B with ENV 2-Line-LISN



*** The measured value in both LIVE and NEUTRAL mode of LISN is combined to the one graph.**

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150 000	53.4	L1	9.6	12.6	66.0
0.218 500	41.7	L1	9.6	21.0	62.7
0.302 500	32.2	N	9.6	27.7	60.0
3.592 500	36.5	L1	9.8	19.5	56.0
4.111 500	34.6	N	9.8	21.4	56.0
6.156 500	34.4	N	9.9	25.6	60.0
14.564 500	32.0	L1	10.0	28.0	60.0
14.931 500	32.2	L1	10.1	27.8	60.0

Final Measurement Detector 2

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.178 500	30.1	N	9.6	24.4	54.4
0.966 500	22.9	L1	9.7	23.1	46.0
2.440 500	27.8	N	9.7	18.2	46.0
3.592 500	29.0	L1	9.8	17.0	46.0
4.168 500	25.0	N	9.8	21.0	46.0
5.968 500	24.9	L1	9.9	25.1	50.0
14.808 500	25.2	L1	10.1	24.8	50.0

Operating condition	Network printing
Note	* QP : Quasi-peak, AV: Average * Level (QP or AV) = Meter Reading(QP or AV) + Corr.(LISN Insertion loss + Cable loss) * Margin = Limit - Level

Test Information

EUT Name: ML-1630W
Serial Number:
Test Description:
Operating Conditions: Network Printing mode
Operator Name:
Comment:

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

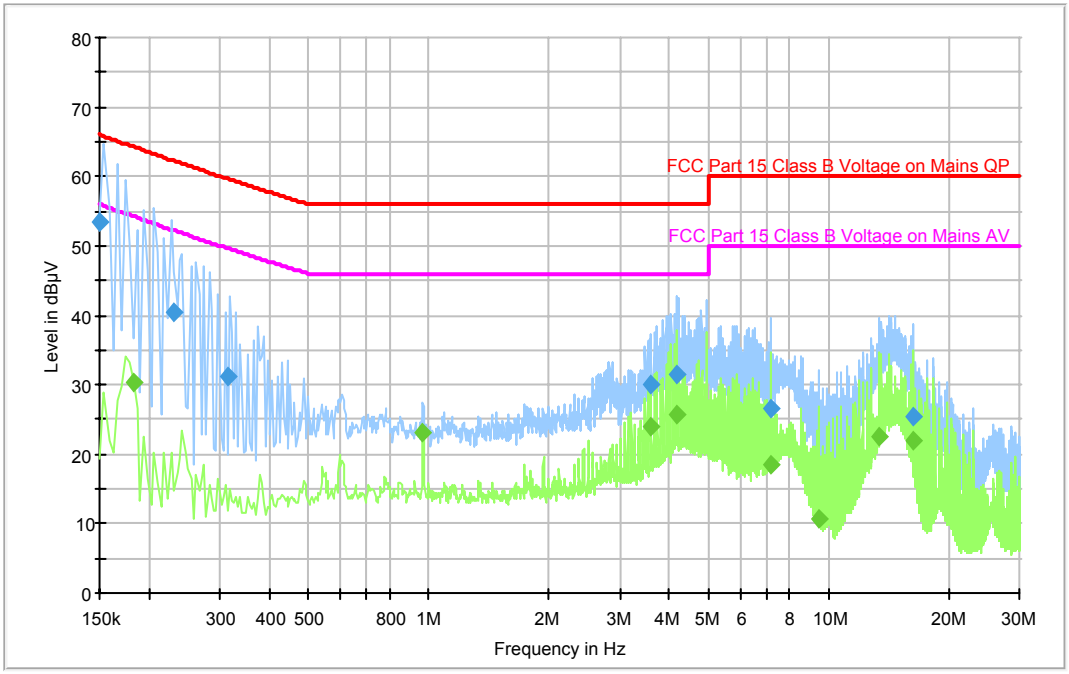
Subrange 1
Frequency Range: 150 kHz – 30 MHz
Receiver: ESCI 3
Transducer: ENV216 / Receiver-2-Line-LISN ENV216

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
150 kHz – 30 MHz	QuasiPeak; Average	9 kHz	15 s	ESCI 3

FCC Part 15 Class_B with ENV 2-Line-LISN



*** The measured value in both LIVE and NEUTRAL mode of LISN is combined to the one graph.**

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150 000	53.5	L1	9.6	12.5	66.0
0.230 500	40.3	N	9.6	21.9	62.2
0.314 500	31.3	L1	9.6	28.4	59.7
3.592 500	30.0	L1	9.8	26.0	56.0
4.175 500	31.5	L1	9.8	24.5	56.0
7.191 500	26.6	L1	9.9	33.4	60.0
16.220 500	25.6	L1	10.1	34.4	60.0

Final Measurement Detector 2

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.181 500	30.4	N	9.6	23.9	54.3
0.966 500	23.0	L1	9.7	23.0	46.0
3.600 500	23.9	L1	9.8	22.1	46.0
4.175 500	25.7	L1	9.8	20.3	46.0
7.176 500	18.5	L1	9.9	31.5	50.0
9.499 500	10.7	L1	9.9	39.3	50.0
13.420 500	22.6	L1	10.0	27.4	50.0
16.228 500	21.8	L1	10.1	28.2	50.0

Operating condition	Wireless network printing
Note	* QP : Quasi-peak, AV: Average * Level (QP or AV) = Meter Reading(QP or AV) + Corr.(LISN Insertion loss + Cable loss) * Margin = Limit - Level

Test Information

EUT Name: ML-1630W
Serial Number:
Test Description:
Operating Conditions: Wireless LAN Printing
Operator Name:
Comment:

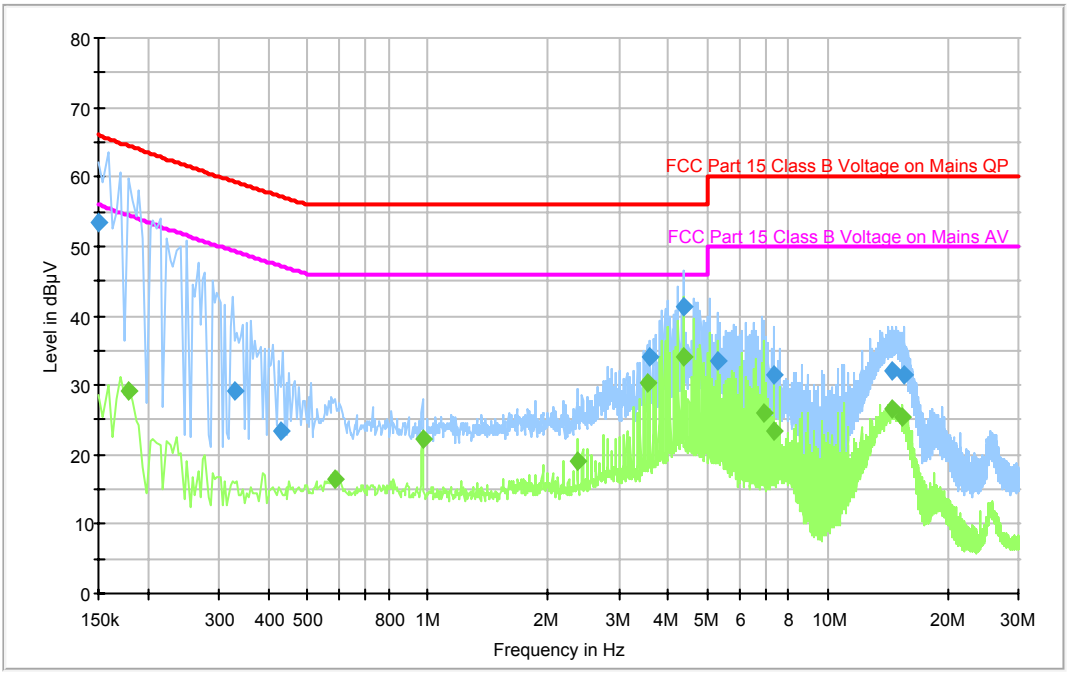
Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz – 30 MHz
Receiver: ESCI 3
Transducer: ENV216 / Receiver-2-Line-LISN ENV216

Hardware Setup: Voltage with ENV 2-Line-LISN
Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150 kHz – 30 MHz	QuasiPeak; Average	9 kHz	15 s	ESCI 3

FCC Part 15 Class_B with ENV 2-Line-LISN



*** The measured value in both LIVE and NEUTRAL mode of LISN is combined to the one graph.**

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150 500	53.4	N	9.6	12.6	66.0
0.330 500	29.1	L1	9.6	30.2	59.3
0.426 500	23.4	L1	9.6	33.8	57.2
3.592 500	34.2	N	9.8	21.8	56.0
4.360 500	41.3	L1	9.8	14.7	56.0
5.320 500	33.6	N	9.8	26.4	60.0
7.308 500	31.3	N	9.9	28.7	60.0
14.464 500	32.2	L1	10.0	27.8	60.0
15.480 500	31.4	L1	10.1	28.6	60.0

Final Measurement Detector 2

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.177 500	29.1	N	9.6	25.4	54.5
0.586 500	16.5	N	9.6	29.5	46.0
0.970 500	22.2	L1	9.7	23.8	46.0
2.372 500	18.9	N	9.7	27.1	46.0
3.528 500	30.5	N	9.8	15.5	46.0
4.364 500	34.2	L1	9.8	11.8	46.0
6.932 500	26.1	N	9.9	23.9	50.0
7.316 500	23.4	N	9.9	26.6	50.0
14.564 500	26.5	L1	10.0	23.5	50.0
15.360 500	25.3	L1	10.1	24.7	50.0

4.2 Radiated disturbance

Of those disturbances above (*L* - 20dB), 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(μV/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 μV/m is regarded as 0 dB.		

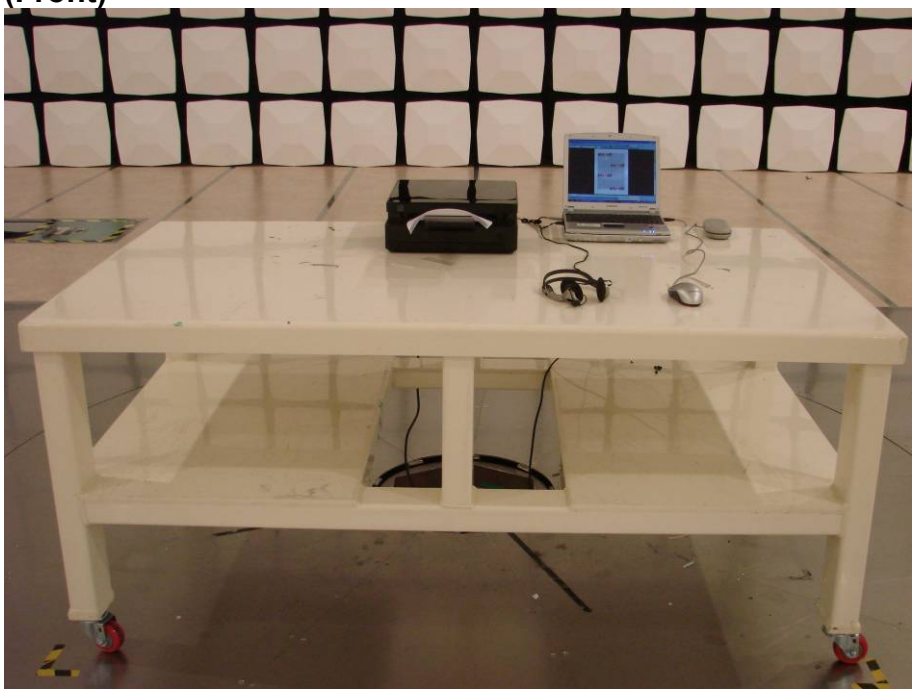
4.2.1 Test instrumentation

Test instrumentation used in the Radiated disturbance was as follows:

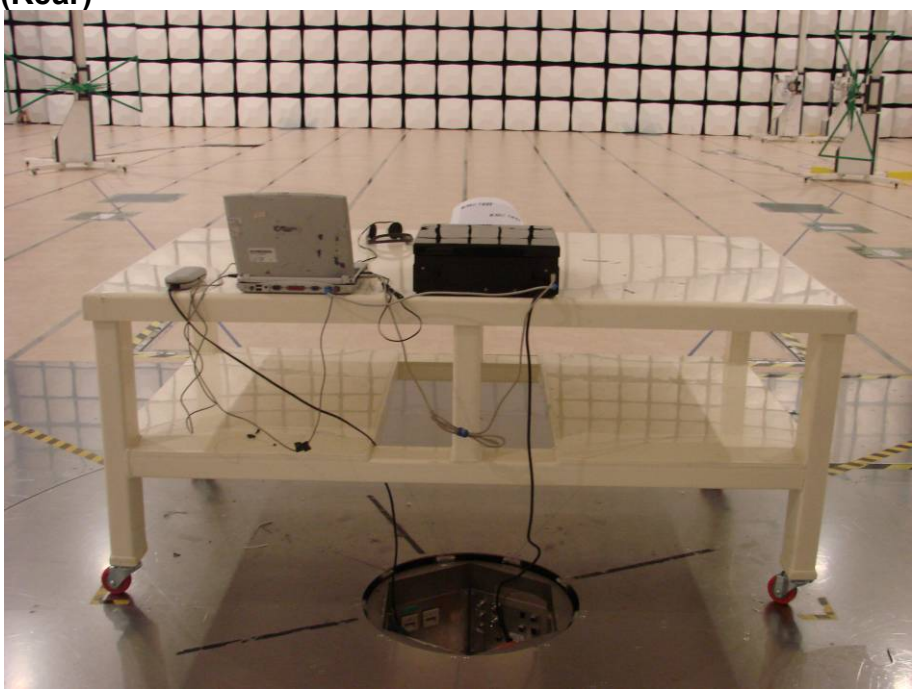
Test instrumentation	Model name	Manufacturer	Serial or Firmware (No./Ver.)	Calibration	
				Date	Interval (Month)
Bi-con Antenna	CBL6112D	SCHAFFNER	22602	2006-06-26	24
Bi-con Antenna	CBL6112D	SCHAFFNER	22601	2007-04-02	24
Horn Antenna	BBHA9120B	SCHWARZBECK	336	2007-03-15	24
EMI Receiver	ESIB-26	R&S	100289	2007-03-22	12
EMI Receiver	ESIB-26	R&S	100287	2007-04-10	12
Amplifier	310N	SONOMA	186467	2007-03-17	12
Amplifier	310N	SONOMA	251673	2007-03-17	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 Photograph of the test Configuration (30 MHz ~ 1 GHz)

(Front)

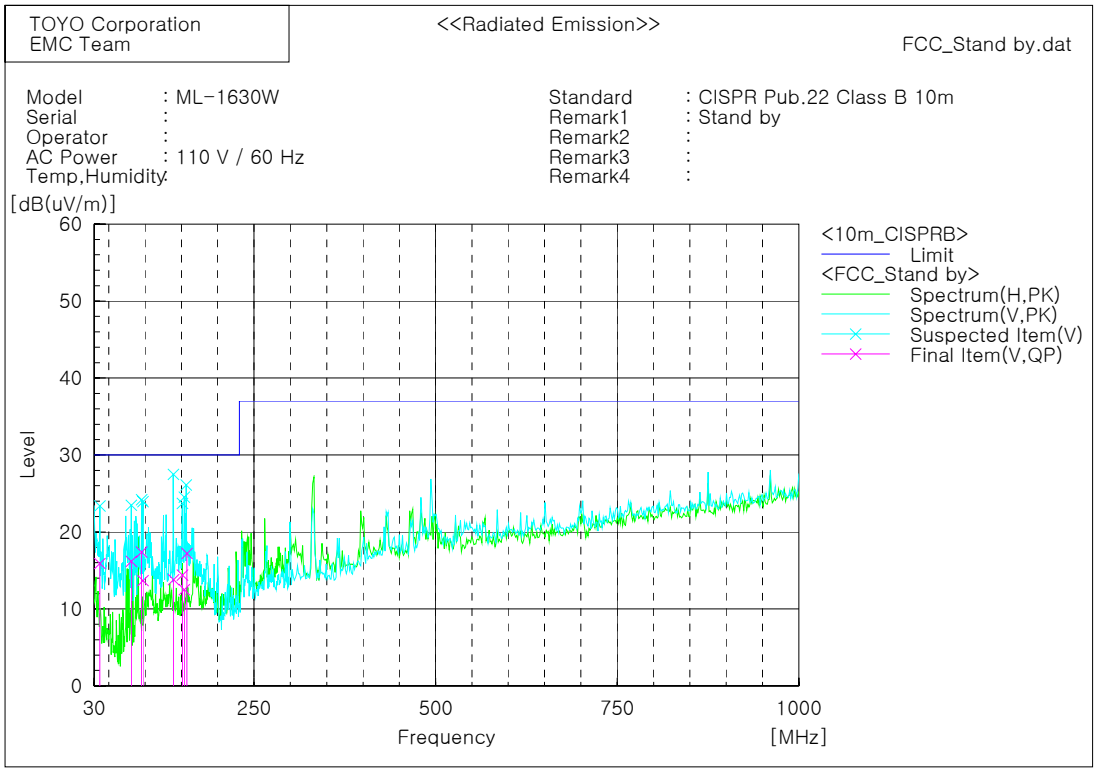


(Rear)



4.2.3 Test results (30 MHz ~ 1 GHz)

Operating condition	Stand-by mode			
Test date	2008-01-18	**Test engineer**	Sung Jin Sim	
Climate condition	**Ambient temperature**	25.8 ℃	**Relative humidity**	34 %
	Atmospheric pressure	102.8 kPa		
Test place	Semi-Anechoic Chamber			
Note	* Receiving antenna mode : Horizontal, Vertical * Test distance : 10 m (RF Semi Anechoic Chamber) * Result = Reading + c.f (Antenna factor + Cable loss- Amp Gain) * Margin = Limit – Result			

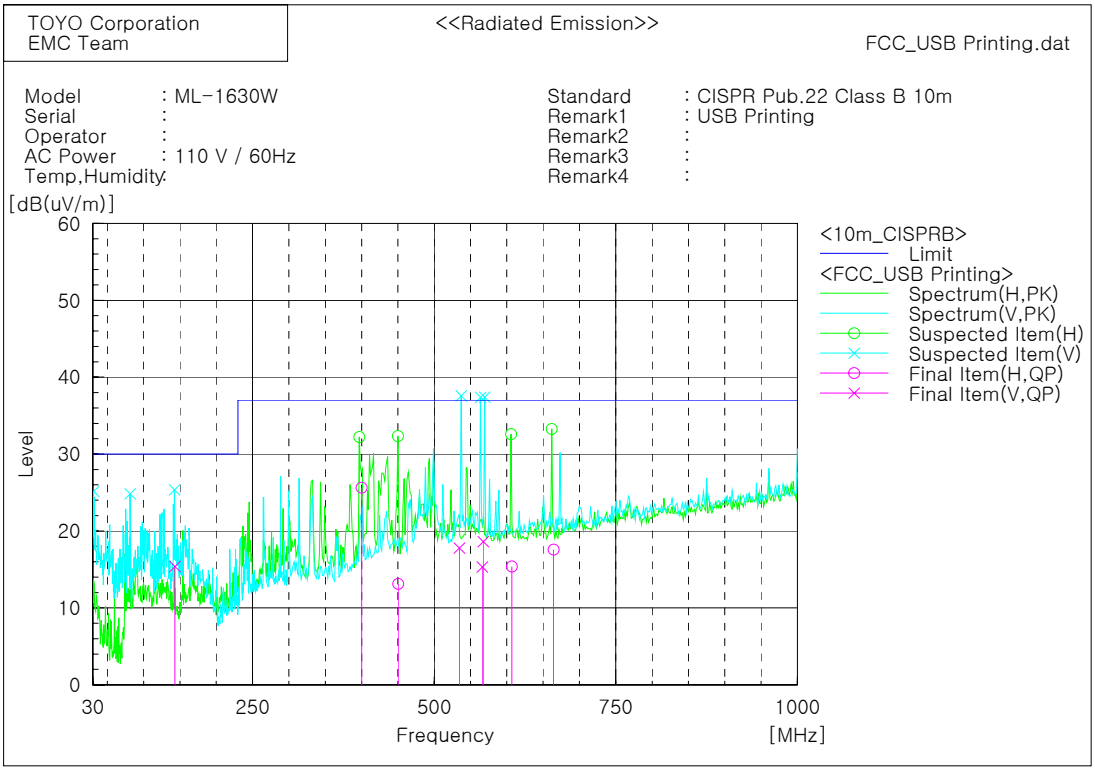


Final Result

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(uV)]	c.f [dB(1/m)]	Result [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]	Remark
1	157.585	36.4	-19.2	17.2	30.0	12.8	
2	139.226	32.0	-18.2	13.8	30.0	16.2	
3	153.908	31.7	-19.2	12.5	30.0	17.5	
4	94.930	37.4	-20.0	17.4	30.0	12.6	
5	97.094	33.4	-19.7	13.7	30.0	16.3	
6	151.202	33.6	-19.2	14.4	30.0	15.6	
7	80.862	39.1	-22.9	16.2	30.0	13.8	
8	37.575	33.2	-17.3	15.9	30.0	14.1	

Operating condition	USB printing			
Test date	2008-01-18	**Test engineer**	Sung Jin Sim	
Climate condition	**Ambient temperature**	25.8 ℃	**Relative humidity**	34 %
	Atmospheric pressure	102.8 kPa		
Test place	Semi-Anechoic Chamber			
Note	* Receiving antenna mode : Horizontal, Vertical * Test distance : 10 m (RF Semi Anechoic Chamber) * Result = Reading + c.f (Antenna factor + Cable loss- Amp Gain) * Margin = Limit – Result			



Final Result

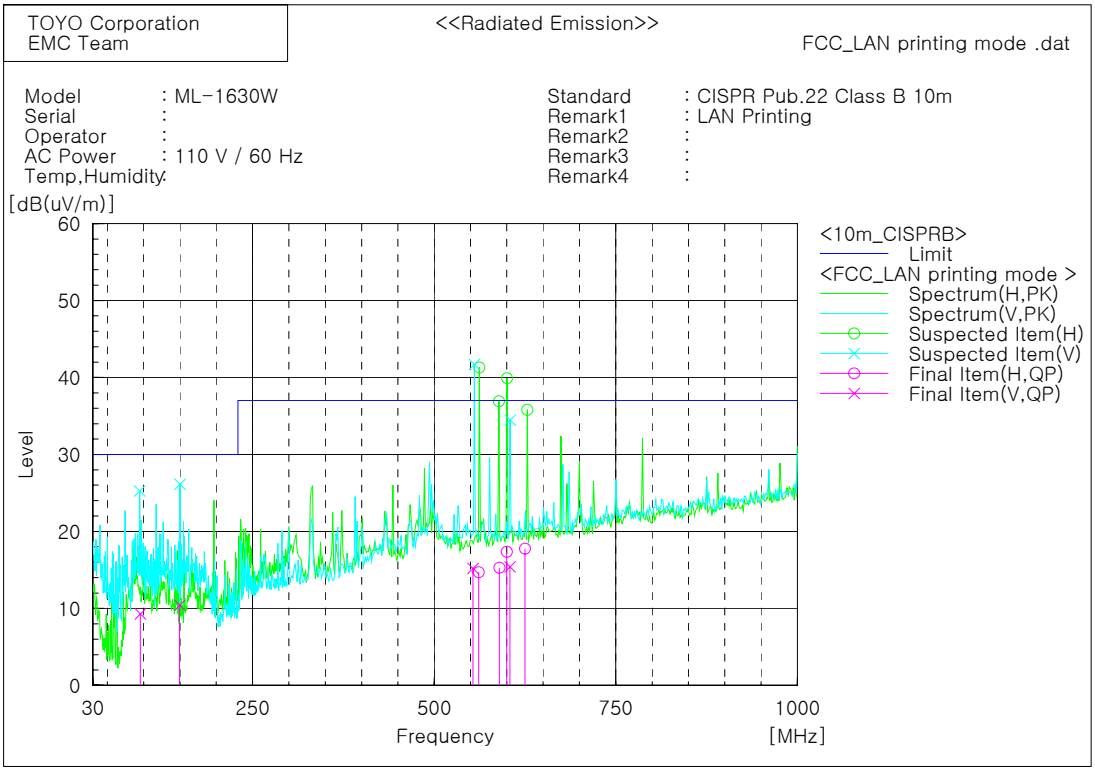
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(uV)]	c.f [dB(1/m)]	Result [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]	Remark
1	400.013	36.5	-10.9	25.6	37.0	11.4	
2	450.248	23.1	-10.0	13.1	37.0	23.9	
3	606.716	22.5	-7.1	15.4	37.0	21.6	
4	664.358	24.5	-6.9	17.6	37.0	19.4	

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(uV)]	c.f [dB(1/m)]	Result [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]	Remark
1	143.159	33.9	-18.5	15.4	30.0	14.6	
2	534.472	25.9	-8.1	17.8	37.0	19.2	
3	566.203	22.6	-7.3	15.3	37.0	21.7	
4	567.480	25.9	-7.3	18.6	37.0	18.4	

Operating condition	Network printing			
Test date	2008-01-18	**Test engineer**	Sung Jin Sim	
Climate condition	**Ambient temperature**	25.8 ℃	**Relative humidity**	34 %
	Atmospheric pressure	102.8 kPa		
Test place	Semi-Anechoic Chamber			
Note	* Receiving antenna mode : Horizontal, Vertical * Test distance : 10 m (RF Semi Anechoic Chamber) * Result = Reading + c.f (Antenna factor + Cable loss- Amp Gain) * Margin = Limit – Result			



Final Result

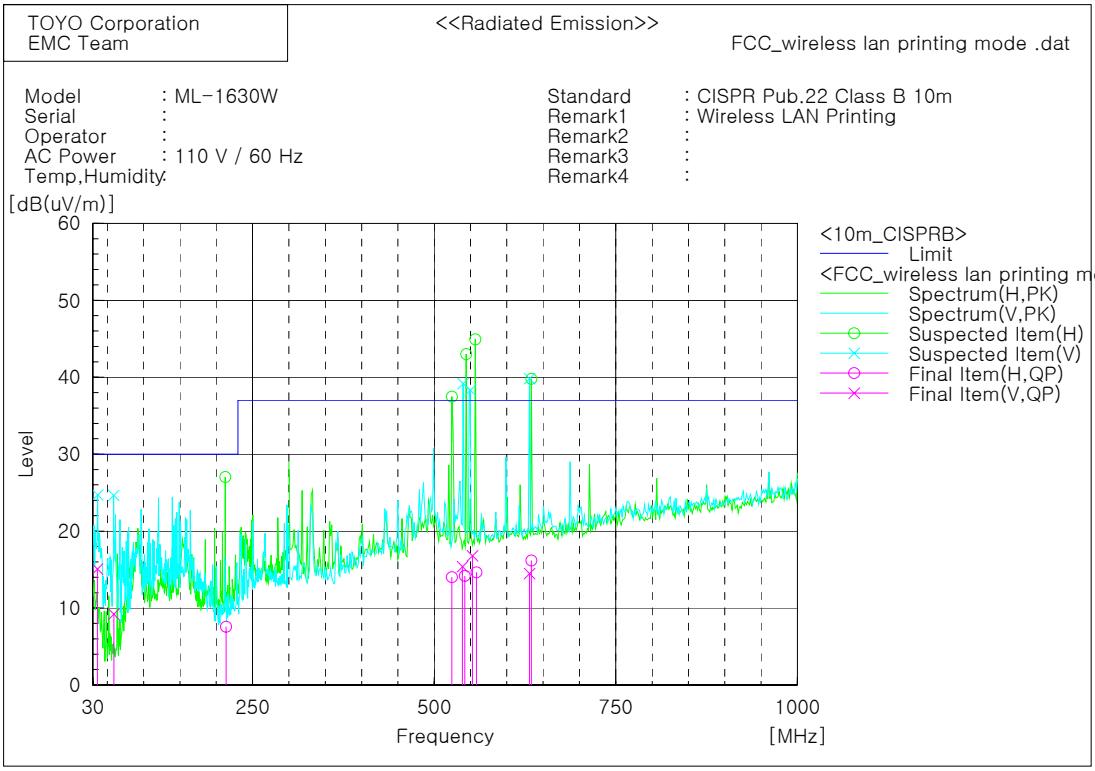
--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(uV)]	c.f [dB(1/m)]	Result [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]	Remark
1	561.181	22.6	-7.9	14.7	37.0	22.3	
2	589.757	22.6	-7.3	15.3	37.0	21.7	
3	599.983	24.5	-7.1	17.4	37.0	19.6	
4	625.009	24.9	-7.1	17.8	37.0	19.2	

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(uV)]	c.f [dB(1/m)]	Result [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]	Remark
1	95.252	29.3	-20.0	9.3	30.0	20.7	
2	149.241	29.5	-19.1	10.4	30.0	19.6	
3	553.199	22.3	-7.1	15.2	37.0	21.8	
4	604.177	22.5	-7.1	15.4	37.0	21.6	

Operating condition	Wireless network printing			
Test date	2008-01-18	**Test engineer**	Sung Jin Sim	
Climate condition	**Ambient temperature**	25.8 ℃	**Relative humidity**	34 %
	Atmospheric pressure	102.8 kPa		
Test place	Semi-Anechoic Chamber			
Note	* Receiving antenna mode : Horizontal, Vertical * Test distance : 10 m (RF Semi Anechoic Chamber) * Result = Reading + c.f (Antenna factor + Cable loss- Amp Gain) * Margin = Limit – Result			



Final Result

--- Horizontal Polarization (QP)---

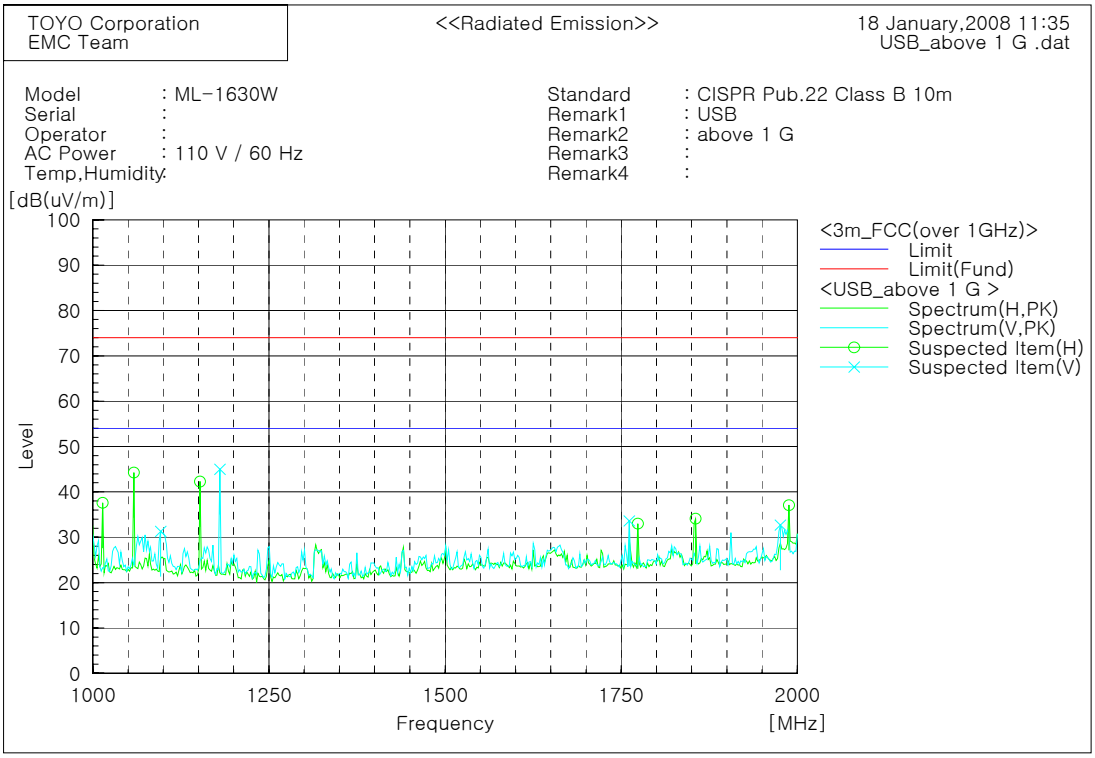
No.	Frequency [MHz]	Reading [dB(uV)]	c.f [dB(1/m)]	Result [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]	Remark
1	213.500	27.6	-20.0	7.6	30.0	22.4	
2	524.456	22.7	-8.7	14.0	37.0	23.0	
3	542.033	22.4	-8.2	14.2	37.0	22.8	
4	558.221	22.6	-7.9	14.7	37.0	22.3	
5	633.868	23.3	-7.1	16.2	37.0	20.8	

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(uV)]	c.f [dB(1/m)]	Result [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]	Remark
1	36.393	31.8	-16.7	15.1	30.0	14.9	
2	58.815	34.2	-25.0	9.2	30.0	20.8	
3	538.680	23.0	-7.6	15.4	37.0	21.6	
4	552.736	23.9	-7.1	16.8	37.0	20.2	
5	631.062	21.2	-6.7	14.5	37.0	22.5	

4.2.3 Test results (1 GHz ~ 2 GHz)

Operating condition	USB printing			
Test date	2008-01-18	**Test engineer**	Sung Jin Sim	
Climate condition	**Ambient temperature**	25.8 ℃	**Relative humidity**	34 %
	Atmospheric pressure	102.8 kPa		
Test place	Semi-Anechoic Chamber			
Note	* Receiving antenna mode : Horizontal, Vertical * Test distance : 3 m (RF Semi Anechoic Chamber) * Result = Reading + c.f (Antenna factor + Cable loss- Amp Gain) * Margin = Limit – Result			



Spectrum Selection

--- Horizontal Polarization ---

No.	Frequency	Reading	c.f	Result PK	Limit	Margin	Remark
	[MHz]	[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	
1	1014.028	50.1	-12.5	37.6	74.0	36.4	
2	1058.116	56.6	-12.3	44.3	74.0	29.7	
3	1152.305	54.1	-11.8	42.3	74.0	31.7	
4	1773.547	41.8	-8.8	33.0	74.0	41.0	
5	1855.711	42.4	-8.3	34.1	74.0	39.9	
6	1987.976	44.7	-7.6	37.1	74.0	36.9	

--- Vertical Polarization ---

No.	Frequency	Reading	c.f	Result PK	Limit	Margin	Remark
	[MHz]	[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	
1	1096.192	43.4	-12.1	31.3	74.0	42.7	
2	1180.361	56.7	-11.7	45.0	74.0	29.0	
3	1761.523	42.4	-8.8	33.6	74.0	40.4	
4	1975.952	40.3	-7.6	32.7	74.0	41.3	

Appendix – EUT photography

Front View

Rear View

Internal View

Label Location

Label