

 ESTECH Co., Ltd. Rm 1015, World Venture Center II, 426-5 Gasan-dong, Guncheon-gu, Seoul, 158-803, Korea	   		Electromagnetic Interference Test Report

Test Report for FCC

Report Number		ESTF150608-010			
Applicant	Company name	LG Electronics USA			
	Address	1000 Sylvan Avenue Englewood Cliffs, NJ 07632			
	Telephone	1-201-266-2420			
Product	Product name	Plasma Monitor			
	Basic Model	71PY1M-WA	Manufacturer	LG Electronics Inc.	
	Additional Model	71PY1MG-WA	Country of origin	KOREA	
Test date	2006-8-21~2006-8-24		Date of issue	30-Aug-06	
Testing location	ESTECH Co., Ltd. 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea				
Standard	FCC PART 15 2006 , ANSI C 63.4 2003 , ICES-003				
Test item	☒ Conducted Emission	☐ Class A	☒ Class B	Test result	OK
	☒ Radiated Emission	☐ Class A	☒ Class B	Test result	OK
Measurement facility registration number		94696			
Tested by	Engineer J.H.Kim  (Signature)				
Reviewed by	Manager Engineer J.M.Yang  (Signature)				
Abbreviation	OK, Pass = Passed, Fail = Failed, N/A = not applicable				
* Note - Basic Model : 71PY1M-WA Additional Model : 71PY1MG-WA - Basic Model and Addition Models are same product, only case color of the product is different. - This test report is not permitted to copy partly without our permission - This test result is dependent on only equipment to be used - This test result based on a single evaluation of one sample of the above mentioned					

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1. Laboratory Information

1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report. ESTECH Lab attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.

ESTECH Lab assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

1.2 Test Lab.

Corporation Name : ESTECH Co. Ltd

Head Office : Rm 1015, World Venture Center II, 426-5, Gasan-dong, Geumcheon-gu, Seoul, Korea
(Safety & Telecom. Test Lab)

EMC Test Lab : 58-1 Osan-Ri, GaNam-Myon, YeoJoo-Gun, KyungKi-Do, Korea
97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea

1.3 Official Qualification(s)

MIC : Granted Accreditation from Ministry of Information & Communication for EMC, Safety and Telecommunication

KOLAS : Accredited Lab By Korea Laboratory Accreditation Schema base on CENELEC requirements

FCC : Filed Laboratory at Federal Communications Commission

VCCI : Granted Accreditation from Voluntary Control Council for Interference from ITE

2. Description of EUT

2.1 Summary of Equipment Under Test

NONE : Plasma Monitor
 Model Number : 71PY1M-WA
 Serial Number : NONE
 Manufacturer : LG Electronics Inc.
 Country of origin : KOREA
 Rating : INPUT:AC120V / 60Hz
 Receipt Date : 2006-08-16

2.2 General descriptions of EUT

Monitor Display Specifications (RGB-PC / DVI-PC Mode) **Product Specifications**

Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)
720x400	31.469	70.08
640x480	31.469	59.94
	35.000	66.66
	37.861	72.80
	37.500	75.00
800x600	43.269	85.00
	37.879	60.31
	46.875	75.00
832x624	53.674	85.06
	49.725	74.55
	48.363	60.00
	56.476	70.06
1024x768	60.023	75.02
	63.981	60.02
	80.000	75.00
1280x1024	75.00	60.00
1600x1200	66.587	59.934
1920x1080		

MODELS		71PY1M (71PY1M-WA)
Width (inches / mm)		68.9 / 1750
Height (inches / mm)		38.7 / 982
Depth (inches / mm)		3.9 / 98
Weight (pounds / kg)		190.6 / 86.5
Power requirement		AC110-240V ~ 50/60Hz
Resolution		1920 x 1080 (Dot)
Viewing Size (mm)		1512.26
Environmental condition	Operating Temperature	32 ~ 104°F (0 ~ 40°C)
	Operating Humidity	Less than 80%
	Storage Temperature	-4 ~ 140°F (-20 ~ 60°C)
	Storage Humidity	Less than 85%

Using Freq. : 6MHz, 14.3MHz(2EA),18.43MHz,20.25MHz, 27MHz(2EA),54MHz

3. Test Standards

Test Standard : FCC PART 15 (2006) & ICES-003

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

Test Method : ANSI C 63.4 (2003)

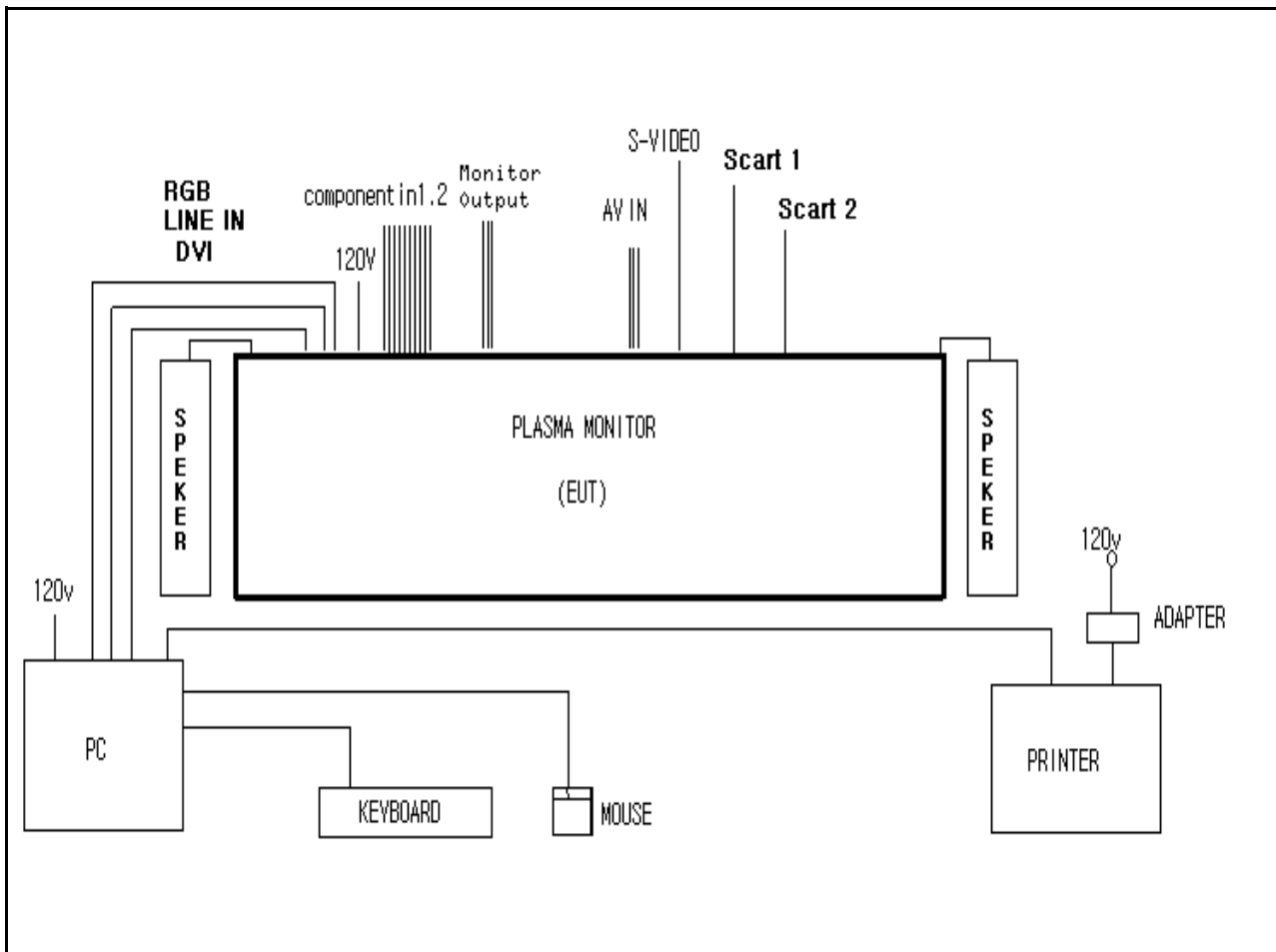
This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain devices that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment. These methods apply to the measurement of individual units or systems comprised of multiple units.

4. Measurement Condition

4.1 EUT Operation.

- * The EUT was in the following operation mode during all testing
- * The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected highest level of emission
- * After setting as test arrangement diagram, we tested the EUT under continuous displaying "H" character and playing Audio out /Video

4.2 Configuration and Peripherals



4.3 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
Plasma Monitor	71PY1M-WA	NONE	LG Electronics Inc.	EUT
PC	DCSM	85RFJ1S	Dell Asia Pacific sdn	
PRINTER	C6414J	TH18M149P2	Hewlett packed	
ADAPTER	C6409-60152	C1H14B	YKOGAWA	
KEYBOARD	SEM-DT35US	31001238	Donggung	
MOUSE	M056U0	507064327	Dell	
Speaker	AP-60SA10	106MJ00034	LG Electronics Inc.	
Speaker	AP-60SA10	106MJ00032	LG Electronics Inc.	

4.4 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
PLASMA MONITOR	RGB	PC	RGB	5	Y	
PLASMA MONITOR	DVI	PC	DVI	1.5	Y	
PLASMA MONITOR	S-VIDEO	-	-	1.5	N	
PLASMA MONITOR	LINE IN	PC	LINE OUT	1.5	N	
PLASMA MONITOR	Monitor Out -3PORT	-	-	2	N	
PLASMA MONITOR	COMPONENT1 -5PORT	-	-	2	N	
PLASMA MONITOR	COMPONENT2 -5PORT	-	-	2	N	
PLASMA MONITOR	AV IN-3PORT	-	-	2	N	
PLASMA MONITOR	Speaker-Out	Speaker	-	2	N	
PLASMA MONITOR	Scart 1	-	-	1	Y	
PLASMA MONITOR	Scart 2	-	-	1	Y	
PC	USB	KEYBOARD	USB	1.5	N	
PC	USB	MOUSE	USB	1.5	N	
PC	USB	PRINTER	USB	1.5	Y	
PRINTER	POWER	Adapter	-	1.5	N	

5. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2006) & ICES-003. The test setup was made according to ANSI C 63.4 (2003) on an open test site, which allows a 3m distance measurement. The EUT was placed in the center of wooden turntable. The height of this table was 0.8m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test setup.

5.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
TEST Receive	ESVS10	Rohde & Schwarz	838562/002	2007. 1. 23
Spectrum Analyzer	R3262C	ADVANTEST	61720116	2007. 4. 19
LogBicon Antenna	VULB 9160	Schwarzbeck	3142	2007. 5. 03
Anokufuer	310N	Sonoma Instrument	185723	2006. 9 . 23
Turn Table	2087	EMCO	2129	—
Antenna Mast	2070-01	EMCO	9702-203	—
ANT Mast Controller	2090	EMCO	1535	—
Turn Table Controller	2090	EMCO	1535	—

5.2 Environmental Condition

Test Place : Open site(3m)
 Temperature (°C) : 29 °C
 Humidity (%) : 48 %

5.3 Test data

Test Date : 21-Aug-06

Measurement Distance : 3 m

Frequency (MHz)	Reading (dB μ V)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dB μ V/m)	Result (dB μ V/m)	Margin (dB)
32.92	23.50	V	1.0	12.27	0.9	40.0	36.67	-3.33
57.12	20.20	V	1.0	12.42	1.1	40.0	33.73	-6.27
75.32	12.70	V	1.0	9.88	1.3	40.0	23.86	-16.14
111.22	10.70	V	1.0	11.09	1.6	43.5	23.40	-20.10
126.95	10.30	H	1.8	12.12	1.7	43.5	24.14	-19.36
196.01	14.80	H	1.5	11.22	2.2	43.5	28.23	-15.27
224.14	6.20	H	1.3	10.86	2.3	46.0	19.38	-26.62
269.00	10.50	H	1.2	12.33	2.5	46.0	25.33	-20.68
297.00	10.70	H	1.1	13.15	2.6	46.0	26.48	-19.52
353.76	11.50	H	1.1	14.38	2.9	46.0	28.77	-17.23
371.25	15.80	H	1.0	14.65	3.0	46.0	33.48	-12.52
400.00	18.40	V	1.0	15.32	3.2	46.0	36.87	-9.13
492.02	10.30	H	1.0	16.99	3.5	46.0	30.81	-15.19
559.31	9.20	H	1.0	18.15	3.7	46.0	31.10	-14.90
602.11	7.00	H	1.0	19.16	4.0	46.0	30.12	-15.88
742.50	10.90	H	1.0	21.05	4.4	46.0	36.33	-9.67
Remark	H : Horizontal, V : Vertical TEST MODE ; Resolution 1920*1080 (60Hz) at DVI mode (Worse Case) Note1-Connected ferrite to Speaker cable(TDK-ferrite type 6210VH0004B)							

5.4 Test data

Test Date : 21-Aug-06

Measurement Distance : 3 m

Frequency (MHz)	Reading (dB μ V)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dB μ V/m)	Result (dB μ V/m)	Margin (dB)
32.92	23.40	V	1.0	12.27	0.9	40.0	36.57	-3.43
57.61	19.20	V	1.0	12.43	1.1	40.0	32.74	-7.26
71.50	16.20	V	1.0	11.01	1.3	40.0	28.50	-11.50
111.14	9.40	V	1.0	11.09	1.6	43.5	22.09	-21.41
126.00	8.40	H	1.8	12.11	1.7	43.5	22.22	-21.28
195.25	15.10	H	1.5	11.21	2.2	43.5	28.51	-14.99
222.90	5.90	H	1.4	10.83	2.3	46.0	19.04	-26.96
287.26	10.10	H	1.3	12.96	2.6	46.0	25.67	-20.33
300.00	8.10	H	1.2	13.19	2.7	46.0	23.99	-22.01
353.80	11.70	H	1.1	14.38	2.9	46.0	28.97	-17.03
400.00	16.00	H	1.0	15.32	3.2	46.0	34.47	-11.53
484.00	13.20	H	1.0	16.92	3.5	46.0	33.62	-12.38
578.13	9.40	H	1.0	18.58	3.8	46.0	31.82	-14.18
601.73	7.20	H	1.0	19.16	4.0	46.0	30.32	-15.68
742.52	11.60	H	1.0	21.05	4.4	46.0	37.03	-8.97
Remark	H : Horizontal, V : Vertical TEST MODE ; Resolution 1920*1080 (60Hz) at RGB mode (Worse Case) Note1-Connected ferrite to Speaker cable(TDK-ferrite type 6210VH0004B) Note2-Connected ferrite to RGB cable(Samwha-ferrite type 6866VA9001B)							

6. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.15 to 30 MHz was measured in accordance to FCC Part 15 (2006) & ICES-003. The test setup was made according to ANSI C 63.4 (2003) in a shielded. The EUT was placed on a non-conductive table at least 80 above the ground plan. A grounded vertical reference plane was positioned in a distance of 40cm from the EUT. The distance from the EUT to other metal surfaces was at least 0.8m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0m.. The test receiver with Quasi Peak detector complies with CISPR 16.

6.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
LISN	NNLA8120A	Schwarzbeck	8120161	2007. 2. 27
LISN	ESH3-Z5	Schwarzbeck	838979/010	2007. 2. 27
TEST Receive	ESP17	Rohde & Schwarz	100185	2007. 8. 24
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	2007. 6. 15

6.2 Environmental Condition

Test Place : Shield Room
 Temperature (°C) : 22 °C
 Humidity (%) : 43 %

6.3 Test data

Test Date : 24-Aug-06

Measurement Distance : 3 m

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dB μ V)	Reading (dB μ V)	Result (dB μ V)	Limit (dB μ V)	Reading (dB μ V)	Result (dB)
0.15	0.07	0.0	N	66.00	44.91	44.98	56.00	29.41	29.48
0.19	0.07	0.0	N	63.86	40.87	40.97	53.86	32.09	32.19
0.20	0.07	0.0	N	63.53	48.22	48.32	53.53	36.59	36.69
0.40	0.07	0.2	N	57.81	30.64	30.86	47.81	—	—
1.00	0.09	0.2	H	56.00	37.62	37.91	46.00	23.64	23.93
1.30	0.10	0.2	H	56.00	30.02	30.35	46.00	24.14	24.47
1.60	0.10	0.3	H	56.00	30.01	30.37	46.00	19.86	20.22
1.80	0.11	0.3	H	56.00	35.12	35.51	46.00	24.86	25.25
2.10	0.11	0.3	N	56.00	38.10	38.51	46.00	23.99	24.40
3.10	0.14	0.3	H	56.00	32.90	33.34	46.00	20.86	21.30
3.50	0.16	0.3	H	56.00	31.97	32.43	46.00	—	—
7.56	0.29	0.4	N	60.00	33.64	34.37	50.00	—	—
7.86	0.30	0.5	H	60.00	33.58	34.34	50.00	20.29	21.05
8.18	0.31	0.5	N	60.00	36.75	37.54	50.00	26.39	27.18
8.32	0.32	0.5	H	60.00	37.27	38.07	50.00	26.02	26.82
10.12	0.37	0.6	H	60.00	41.47	42.44	50.00	26.79	27.76
10.48	0.38	0.6	H	60.00	37.62	38.62	50.00	27.28	28.28
23.83	0.79	0.9	H	60.00	38.33	40.00	50.00	26.88	28.55
Remark	H : Hot Line, N : Neutral Line								



ESTECH Co., Ltd.

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Seoul, 158-803, Korea

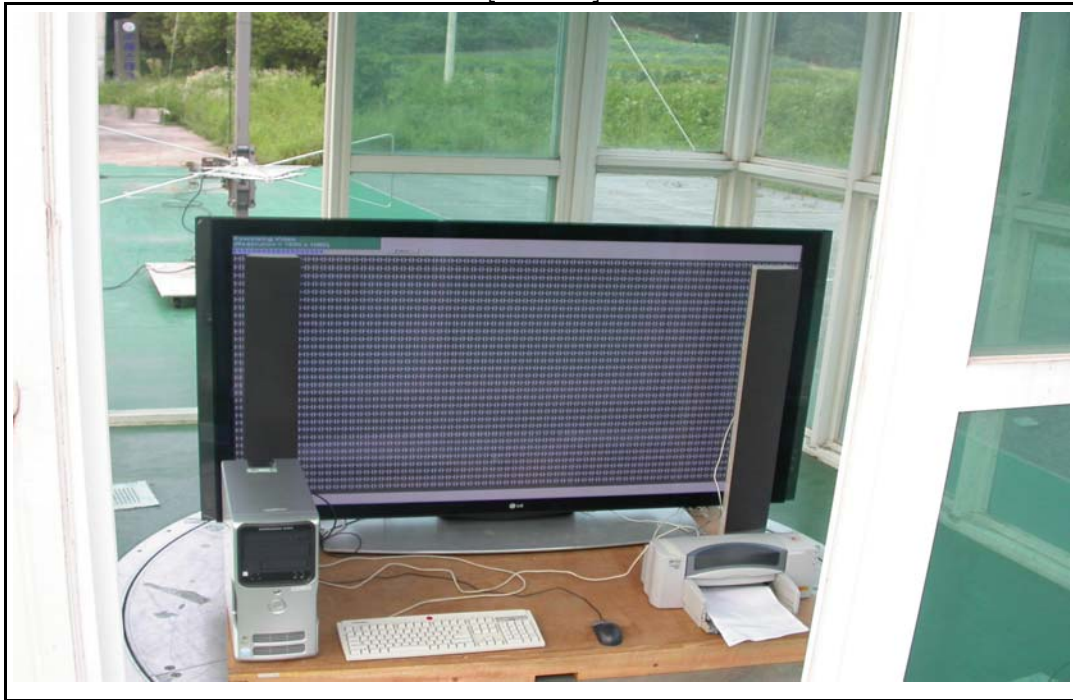


Electromagnetic Interference Test Report

7. Photographs of test setup

7.1 Setup for Radiated Test : 30 ~ 1000 MHz

[Front]



[Rear]





ESTECH Co., Ltd.

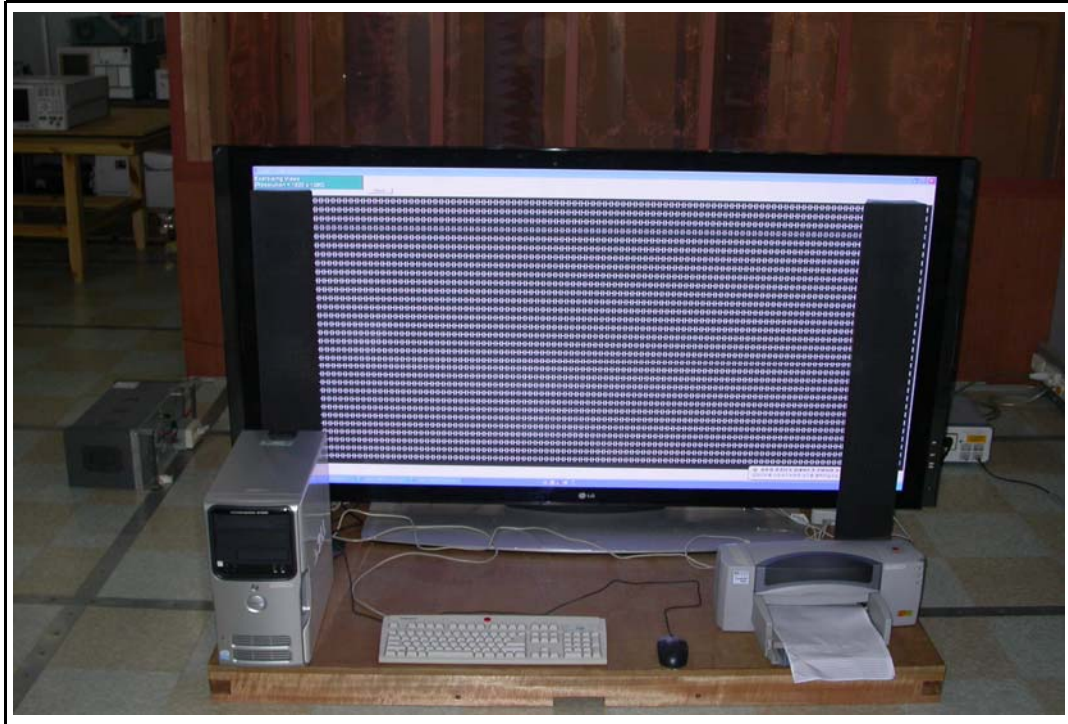
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**Electromagnetic
Interference
Test Report**

7.2 Setup for Conducted Test : 0.15 ~ 30 MHz

[Front]



[Rear]





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**Electromagnetic
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Test Report**

8. Photographs of EUT

[Front]



[Rear]



Appendix 1. Spectral diagram



Comment: 71PY1M-WA HOT
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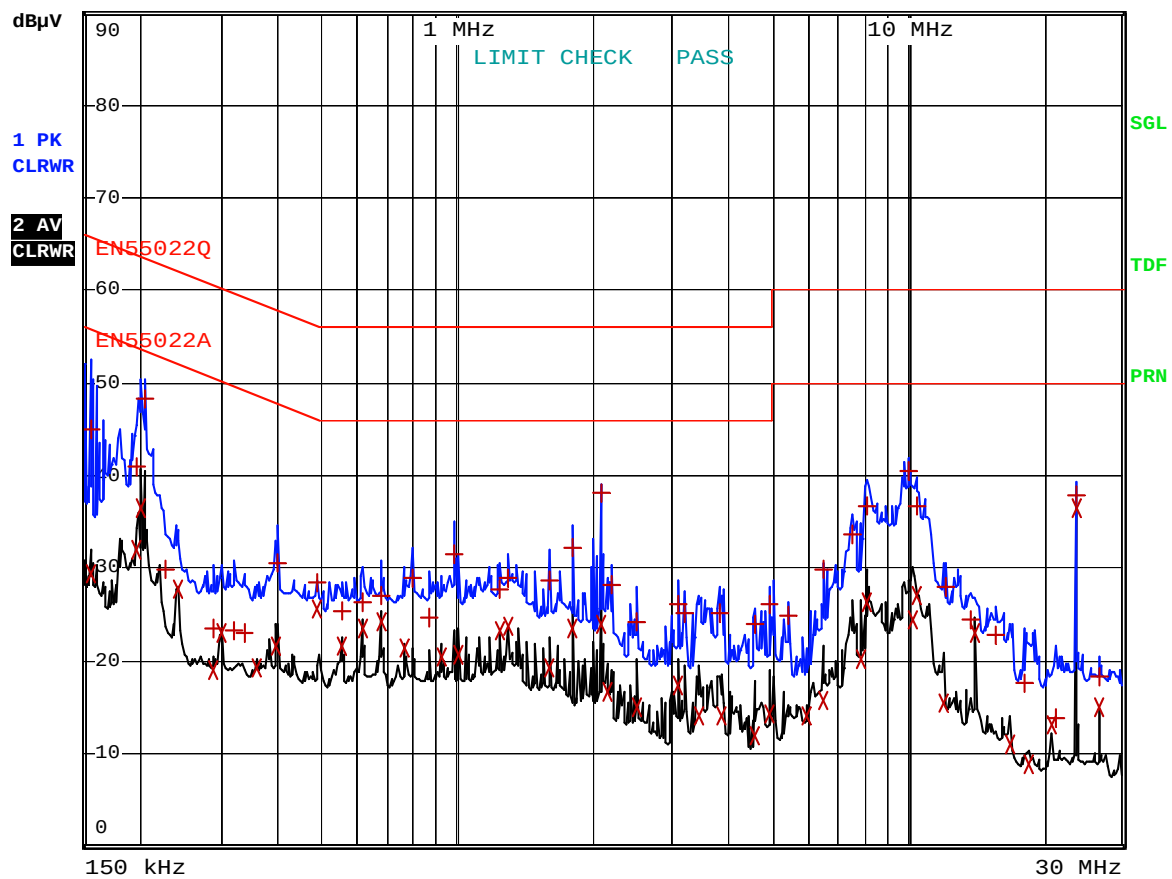


RBW 9 kHz

PREAMP OFF

Att 10 dB

PREAMP OFF



Comment: 71PY1M-WA NEUTRAL
Date: 24.AUG.2006 22:17:01