



FCC TEST REPORT

According to

47 CFR, Part 2, Part 15 and CISPR PUB. 22

Applicant	: LG Electronics USA
Address	: 1000 Sylvan Avenue Englewood Cliffs New Jersey United States
Manufacturer	: LG Electronics Nanjing Display Co.,Ltd.
Address	: No.346,Yaoxin Road Economic & Technical Development Zone Nanjing China
Equipment	: LCD Monitor
Model No.	: W2353VQV
FCC ID	: BEJW2353HQV
Trade Name	: LG

Laboratory accreditation



- The test result refers exclusively to the test presented test model / sample.
- Without written approval of **Cerpass Technology Corp.** the test report shall not be reproduced except in full.
- The test report must not be used by the clients to claim product certification approval by **CNLA, NVLAP, NIST** or any agency of the Government.



Table of Contents

1. Summary of Test Procedure and Test Result	5
2. Test Configuration of Equipment under Test.....	6
2.1. Feature of Equipment under Test	6
2.2. Test Manner.....	6
2.3. Description of Test System	7
2.4. Connection Diagram of Test System	8
2.5. General Information of Test	9
2.6. Measurement Uncertainty	9
3. Test of Conducted Emission	10
3.1. Test Limit	10
3.2. Test Procedures.....	10
3.3. Typical test Setup	11
3.4. Measurement equipment.....	11
3.5. Test Result and Data	12
4. Test of Radiated Emission	14
4.1. Test Limit	14
4.2. Test Procedures.....	15
4.3. Typical test Setup	16
4.4. Measurement equipment.....	16
4.5. Test Result and Data	17



Document history

[illegible]



FCC TEST REPORT

According to

47 CFR, Part 2, Part 15 and CISPR PUB. 22

Applicant	: LG Electronics USA
Address	: 1000 Sylvan Avenue Englewood Cliffs New Jersey United States
Manufacturer	: LG Electronics Nanjing Display Co.,Ltd.
Address	: No.346,Yaoxin Road Economic & Technical Development Zone Nanjing China
Equipment	: LCD Monitor
Model No.	: W2353VQV
FCC ID	: BEJW2353HQV
Trade Name	: LG

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 – 2003** and the energy emitted by this equipment was ***passed*** **CISPR PUB. 22 and FCC Part 15** in both radiated and conducted emission class B limits. Testing was carried out on Jan. 07, 2009 at ***Cerpass Technology Corp.***

Signature

Hudson Chen /Manager



1. Summary of Test Procedure and Test Result

Test Item	Normative References	Test Result
Conducted Emission	ANSI C63.4-2003 FCC Part 15 Subpart B	Pass
Radiated Emission	ANSI C63.4-2003 FCC Part 15 Subpart B	Pass



2. Test Configuration of Equipment under Test

2.1. Feature of Equipment under Test

LCD Monitor	Model No:	W2353VQV
	Serial No:	N/A
	Power Rating:	AC 100-240 50/60 Hz 1.0A
DVI Cable	Shielded, 1.5m, with two ferrite cores bonded	
DVI Cable	Shielded, 1.5m	
VGA Cable	Shielded, 1.8m, with two ferrite cores bonded	
VGA Cable	Shielded, 1.8m	
Power Supply	Non-shielded, 1.8m with one ferrite cores bonded	
Note: The VGA and DVI wire are alternative on selling.		

2.2. Test Manner

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- b. The complete test system included the PC, Printer, USB Keyboard, USB Mouse , DVD, Earphone and EUT for EMI test.
- c. During the test, Setup up the EUT and all system, turn on the power of all Equipment, run the test software "H", make the EUT in the Mode 1,2,3,4,5,6, 7 and it is normal operation, and then test.
- d. The following test with two kinds of adapter includes seven six test modes:
 - Mode 1: Full system (VGA 800* 600@60Hz)
 - Mode 2: Full system (VGA 1024* 768@75Hz)
 - Mode 3: Full system (VGA 1920*1080@60Hz)
 - Mode 4: Full system (DVI 800* 600@60Hz)
 - Mode 5: Full system (DVI 1024* 768@75Hz)
 - Mode 6: Full system (DVI 1920*1080@60Hz)
 - Mode 7: Full system (HDMI IN)
- e. The final test mode:
 - Mode 6: Full system (DVI 1920*1080@60Hz)



2.3. Description of Test System

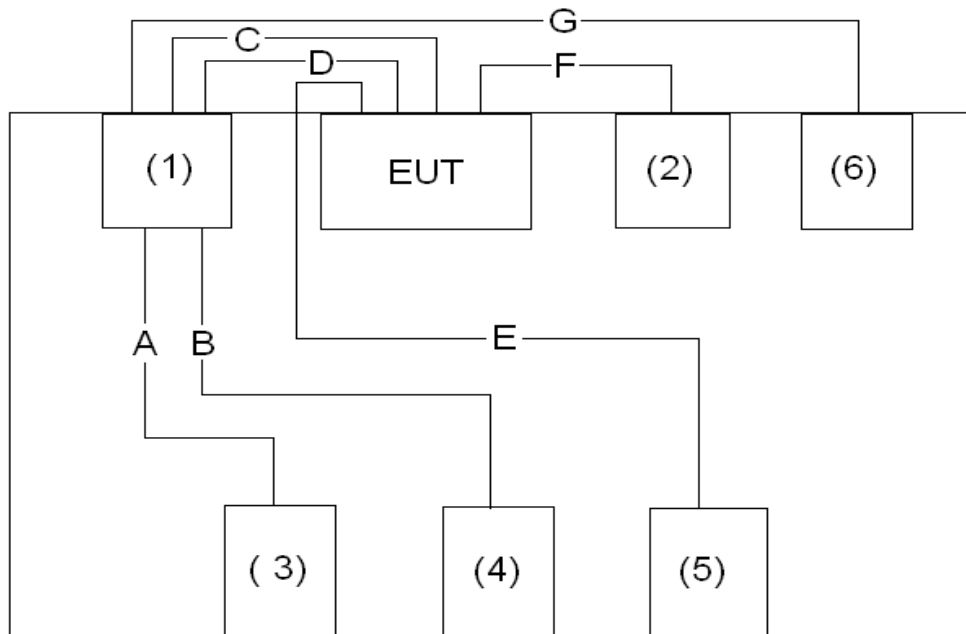
EMI

Device	Manufacturer	Model No.	Description
PC	DELL	OPTIPLEX320	N/A
DVD	PINEER	DV-989AVI-G	N/A
USB Keyboard	DELL	SK-8115	N/A
USB Mouse	DELL	G0K02XZQ	0CJ339
EARPHONR	PHILIPS	SHM1500	N/A
Printer	Brother	MFL-7240	N/A

EMI use cable		
Cable	Quantity	Description
USB Cable	1	Shielded, 2.1m with one ferrite core bonded
USB Cable	1	Shielded, 1.85m with one ferrite core bonded
DVI Cable	1	Shielded, 1.5m
VGA Cable	1	Shielded, 1.8m
Audio Cable	1	Non-Shielded,1.5m
HDMI Cable	1	Shielded,1.2m
Parallel Cable	1	Shielded, 1.0m



2.4. Connection Diagram of Test System



- A. The USB Cable is connected from PC to the USB Keyboard.
- B. The USB Cable is connected from PC to the USB Mouse.
- C. The DVI Cable is connected from PC to EUT.
- D. The VGA Cable is connected from PC to EUT.
- E. The Audio Cable is connected from EUT to Earphone.
- F. The HDMI Cable is connected from EUT to DVD.
- G. The Parallel Cable is connected from PC to the Printer.



2.5. General Information of Test

Test Site :	Cerpass Technology Corp. No.66, Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China
Test Site Location (OATS1-SD):	No.68-1, Shihbachongsi, shihding Township, Taipei City 223, Taiwan
FCC Registration Number :	632249 (Taipei) 916572 (SuZhou)
IC Registration Number :	6597A-1 (Taipei) 7290A-1 (SuZhou)
VCCI Registration Number :	T-338 for Telecommunication Test (Taipei) C-2188 for Conducted emission test (Taipei) R-2670 for Radiated emission test (Taipei)
	T-343 for Telecommunication Test (Suzhou) C-2919 for Conducted emission test (Suzhou) R-1902 for Radiated emission test (Suzhou)
Test Voltage:	AC 120V/ 60Hz
Test in Compliance with:	Normative References : CISPR22:2006 Class B ANSI C63.4-2003 FCC Part 15 Subpart B
Frequency Range Investigated :	Conducted: from 150kHz to 30 MHz Radiated: from 30 MHz to 1,000 MHz Radiated: from 1G to 18G
Test Distance :	The test distance of radiated emission below 1GHz from antenna to EUT is 10 M. The test distance of radiated emission above 1GHz from antenna to EUT is 3 M.

2.6. Measurement Uncertainty

Conducted Emission
The measurement uncertainty is evaluated as ± 2.24 dB.
Radiated Emission
(30MHz -1000MHz) The measurement uncertainty is evaluated as ± 2.98 dB.
(1G-18GHz) The measurement uncertainty is evaluated as ± 2.15 dB.



3. Test of Conducted Emission

3.1. Test Limit

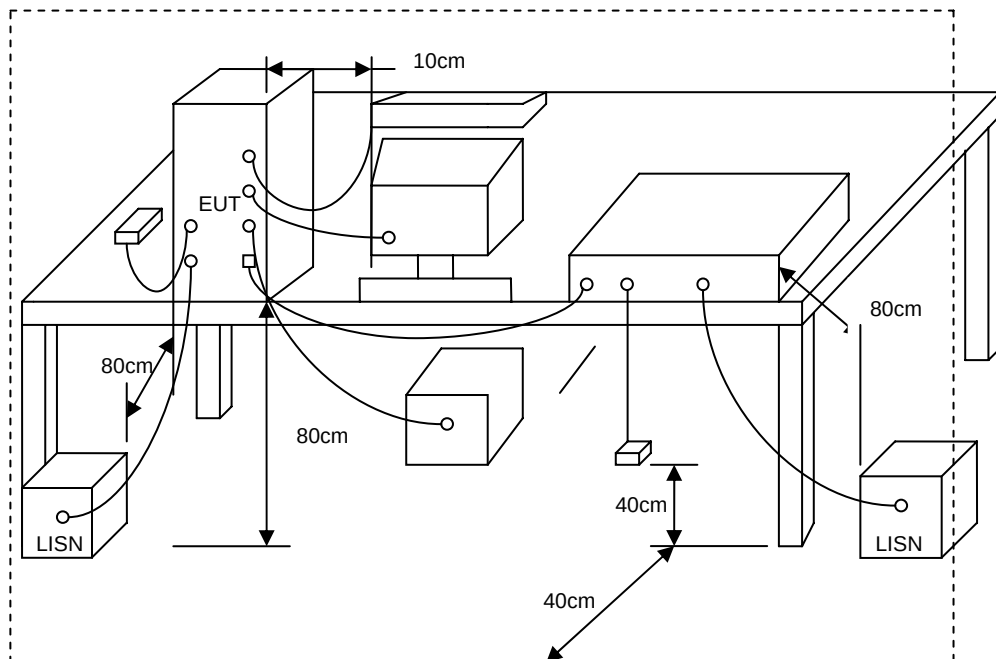
Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

3.2. Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

3.3. Typical test Setup



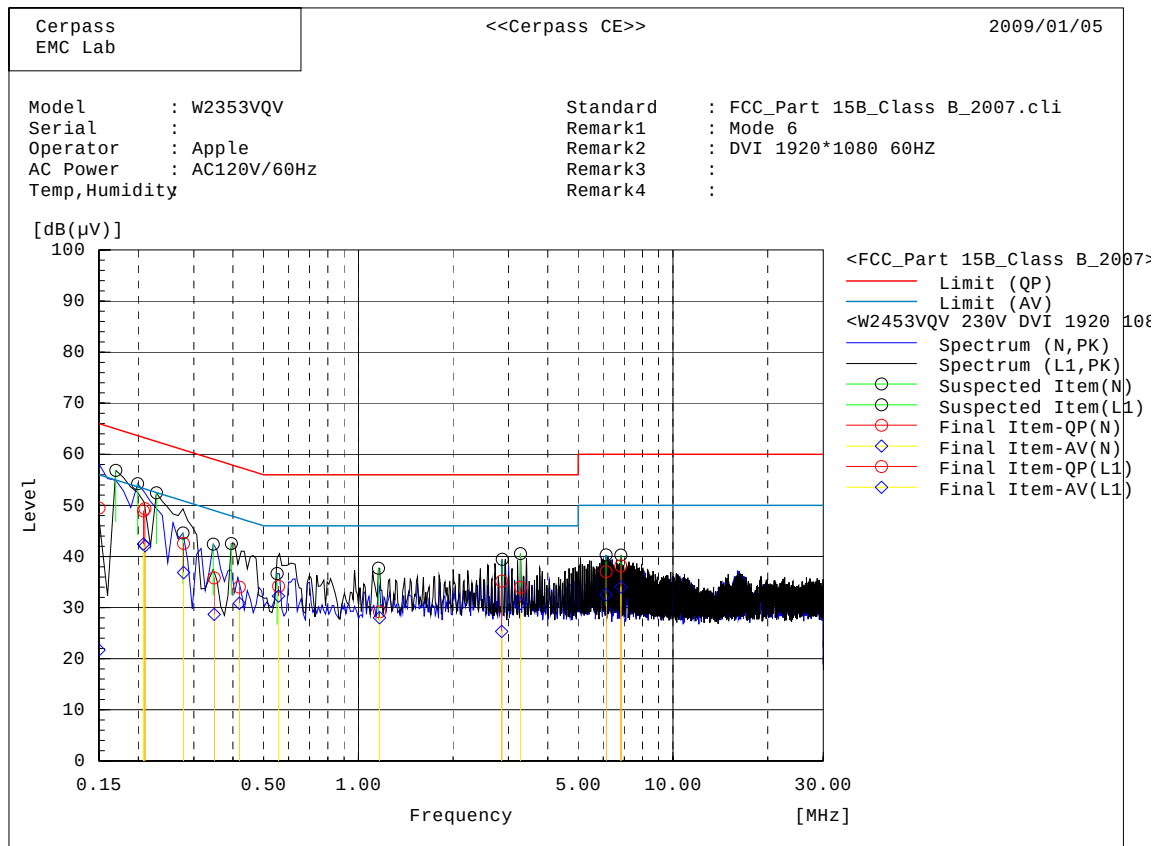
3.4. Measurement equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Data
EMC Emission Tester	EMCPARTNER	Harmonics-1000	159	2008.06.30
Test Receiver	R&S	ESCI	100565	2008.06.30
AMN	R&S	ESH2-Z5	100182	2008.06.30
Two-Line V-Network	R&S	ENV216	100325	2008.06.30
ISN	FCC	FCC-TLISN-T2-02	20379	2008.06.30
ISN	FCC	FCC-TLISN-T4-02	20380	2008.06.30
ISN	FCC	FCC-TLISN-T8-02	20381	2008.06.30
Current Probe	R&S	EZ-17	100303	2008.06.30
Passive Voltage Probe	R&S	ESH2-Z3	100026	2008.06.30
Decoupling Clamp	LUTHI	FTC 40 X 15 E	5685	2008.11.01
Absorbing Clamp	Schwarzbeck	MDS21	3753	2008.11.01
Minimum Loss Pad	Agilent	11852B	61650	2008.06.30
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2008.09.24



3.5. Test Result and Data

Standard	: FCC_Part 15B_Class B_2007	Date/Time	: 2009/01/05
Model	: W2353VQV	Serial	: N/A
Operator	: Apple	AC Power	: AC120V/60Hz
Temp	: 20'	Humidity	: 50%
Remark	: Mode 6: Full system (DVI 1920*1080@60Hz)		





Final Data List

Frequency MHz	Line Phase	Reading dB(uV) QP	Reading dB(uV) AV	Factor dB	Level dB(uV) QP	Level dB(uV) AV	Limit dB(uV) QP	Limit dB(uV) AV	Margin dB QP	Margin dB AV	Pass/Fail
0.150	L1	40.3	12.5	9.2	49.5	21.7	66.0	56.0	16.5	34.3	Pass
0.20762	L1	39.3	32.8	9.6	48.9	42.4	63.3	53.3	14.4	10.9	Pass
0.41908	L1	24.3	21.1	9.7	34.0	30.8	57.5	47.5	23.5	16.7	Pass
3.27447	L1	24.3	21.1	9.7	34.0	30.8	56.0	46.0	22.0	15.2	Pass
6.8257	L1	28.4	24.2	9.8	38.2	34.0	60.0	50.0	21.8	16.0	Pass
1.16821	L1	19.6	18.4	9.6	29.2	28.0	56.0	46.0	26.8	18.0	Pass
0.20995	N	39.5	32.2	9.9	49.4	42.1	63.2	53.2	13.8	11.1	Pass
0.27833	N	32.8	27.0	9.8	42.6	36.8	60.9	50.9	18.3	14.1	Pass
0.34856	N	26.0	18.9	9.8	35.8	28.7	59.0	49.0	23.2	20.3	Pass
6.1293	N	27.3	22.8	9.7	37.0	32.5	60.0	50.0	23.0	17.5	Pass
2.85475	N	25.5	15.6	9.7	35.2	25.3	56.0	46.0	20.8	20.7	Pass
0.55789	N	24.5	22.5	9.7	34.2	32.2	56.0	46.0	21.8	13.8	Pass

Test engineer: Apple Ji



4. Test of Radiated Emission

4.1. Test Limit

Radiated emissions from 30 MHz to 1,000 MHz were measured with a bandwidth of 120 kHz according to the methods defines in ANSI C63.4-2003. The EUT was placed on a nonmetallic stand in the open-field site, 0.8 meter above the ground plane, as shown in section 3.2. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (m)	Level (dBuV/m)	Level (dBuV/m)
30 - 88	3	40(QP)	N/A
88 - 216	3	43(QP)	N/A
216-960	3	46(QP)	N/A
960-1000	3	54(QP)	N/A
1000-18000	3	74(PK)	54(AV)
18000-40000	1	84(PK)	64(AV)

For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the below table.

Frequency (MHz)	Distance Meters	Radiated (dB μ V/ M)
30-230	10	30
230-1000	10	37

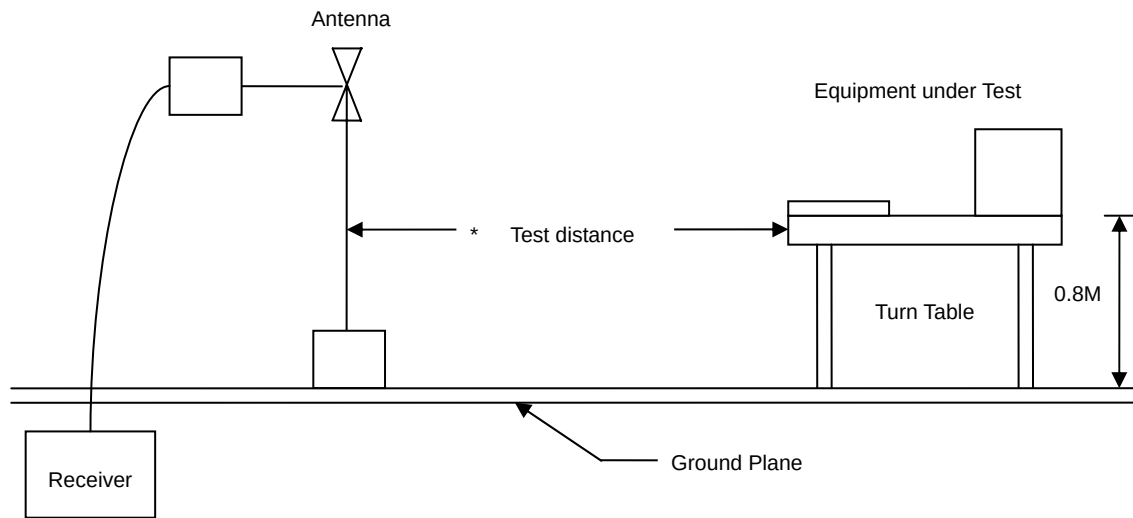


4.2. Test Procedures

- a. The EUT was placed on a Rota table top 0.8 meter above ground.
- b. The EUT and its simulators are placed on the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters or 1 meter.
- c. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
- d. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.
- e. Radiated emissions were investigated over the frequency range from 30MHz to 1GHz using a receiver bandwidth of 120KHz and the frequency range from 1GHz to 18GHz using a receiver bandwidth of 1MHz. Radiated was performed at an antenna to EUT distance of 3 meters .



4.3. Typical test Setup



4.4. Measurement equipment

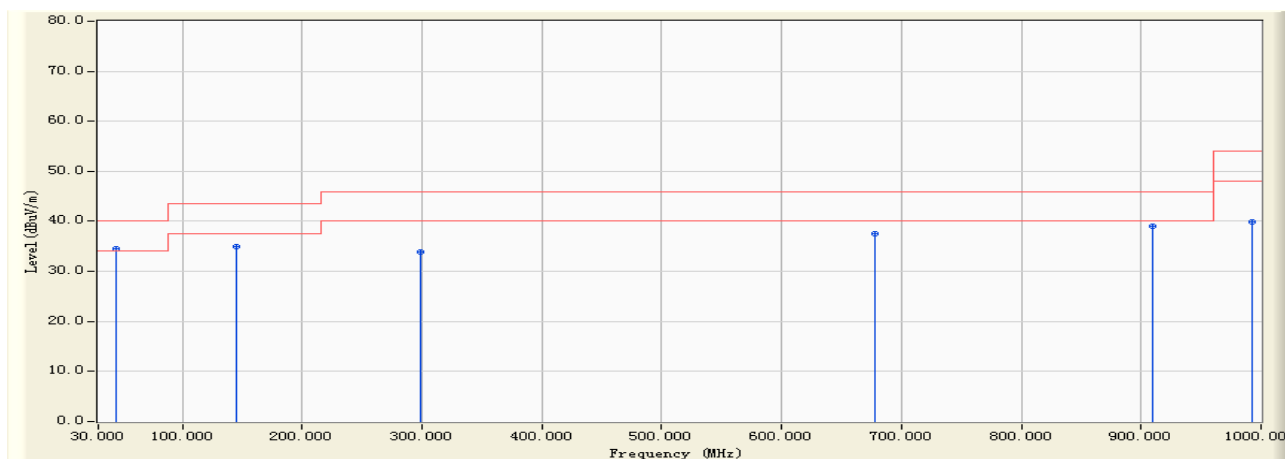
Instrument	Model No.	Manufacturer	Serial No.	Calibration Date
EMI Test Receiver	R&S	ESCI	100564	2008.06.30
Preamplifier	Agilent	87405B	My39500554	2008.11.04
Preamplifier	R&S	PR-AMP26	1248791	2008.06.30
Ultra Broadband Antenna	R&S	HL562	100362	2008.11.04
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2008.09.26
Spectrum Analyzer	R&S	FSP40	100324	2008.09.28
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-001	2008.09.24



4.5. Test Result and Data

Under 1G:

Site : EMC Lab AC 102	Time : 2009/01/07 - 11:36
Limit : FCC_CLASS_B_03M_QP	Margin : 6
EUT : LCD Monitor	Probe : HL562(30-1000MHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 6: Full system (DVI 1920*1080@60Hz)



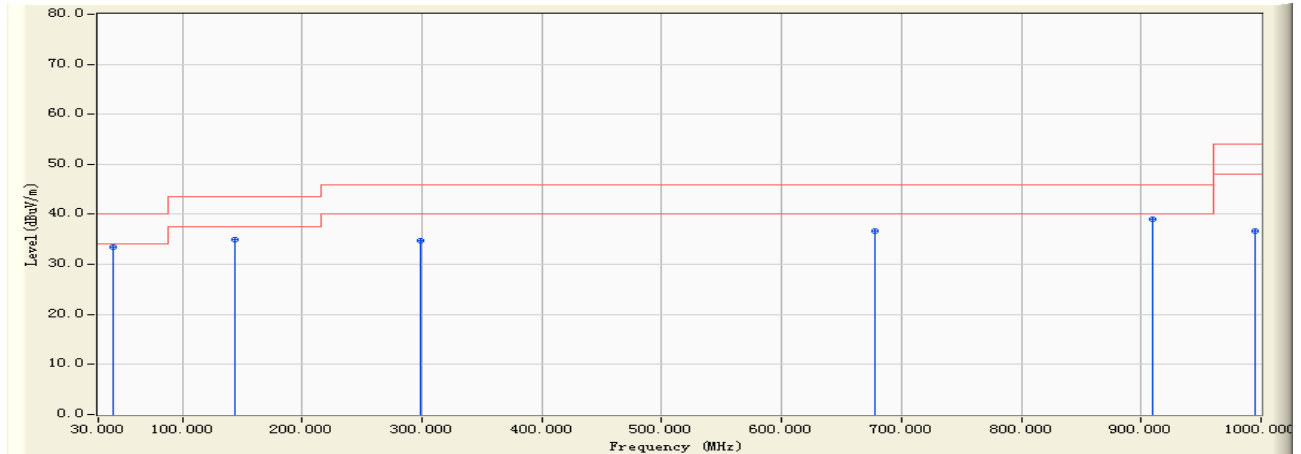
1	*	44.500	-13.010	47.500	34.490	-5.510	40.000	QUASIPeAK	100.000	130.000
2		145.600	-15.169	50.100	34.931	-8.569	43.500	QUASIPeAK	100.000	130.000
3		298.300	-10.944	44.800	33.856	-12.144	46.000	QUASIPeAK	200.000	210.000
4		677.400	-0.791	38.400	37.609	-8.391	46.000	QUASIPeAK	200.000	120.000
5		909.040	3.236	35.800	39.035	-6.965	46.000	QUASIPeAK	100.000	180.000
6		992.300	4.211	35.600	39.811	-14.189	54.000	QUASIPeAK	100.000	150.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor



Site : EMC Lab AC 102	Time : 2009/01/07 - 11:37
Limit : FCC_CLASS_B_03M_QP	Margin : 6
EUT : LCD Monitor	Probe : HL562(30-1000MHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 6: Full system (DVI 1920*1080@60Hz)



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	*	42.300	-11.681	45.200	33.519	-6.481	40.000	QUASIPeAK	100.000	120.000
2		143.500	-15.060	50.100	35.040	-8.460	43.500	QUASIPeAK	100.000	90.000
3		298.400	-10.940	45.670	34.730	-11.270	46.000	QUASIPeAK	100.000	130.000
4		678.500	-0.787	37.500	36.713	-9.287	46.000	QUASIPeAK	100.000	150.000
5		909.120	3.239	35.700	38.939	-7.061	46.000	QUASIPeAK	100.000	150.000
6		995.200	4.260	32.400	36.660	-17.340	54.000	QUASIPeAK	100.000	210.000

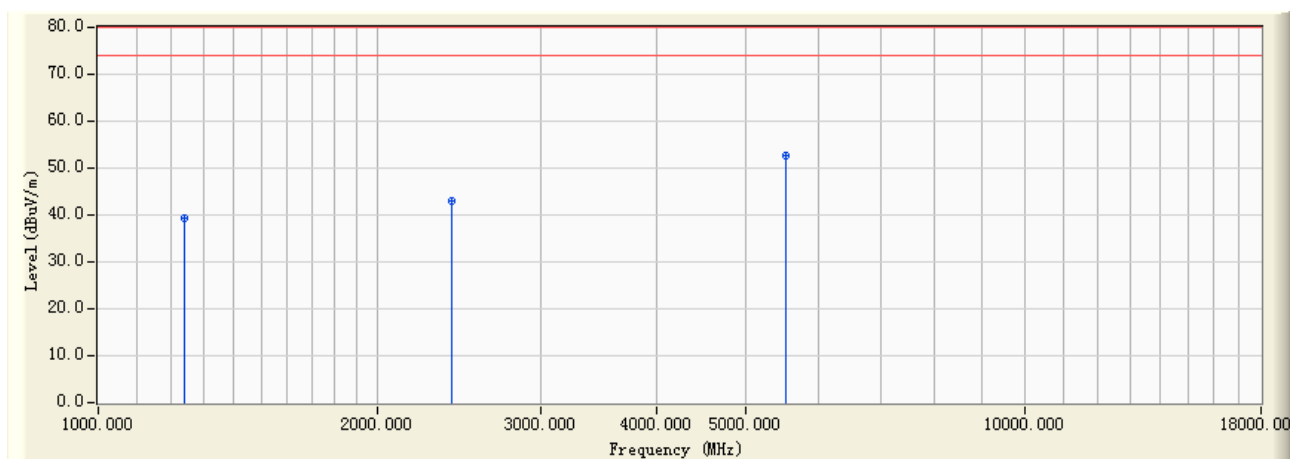
Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor



Above 1G:

Site : EMC Lab AC 102	Time : 2009/01/07 - 11:34
Limit : FCC_A_(Above_1G)_03M_PK	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 6: Full system (DVI 1920*1080@60Hz)



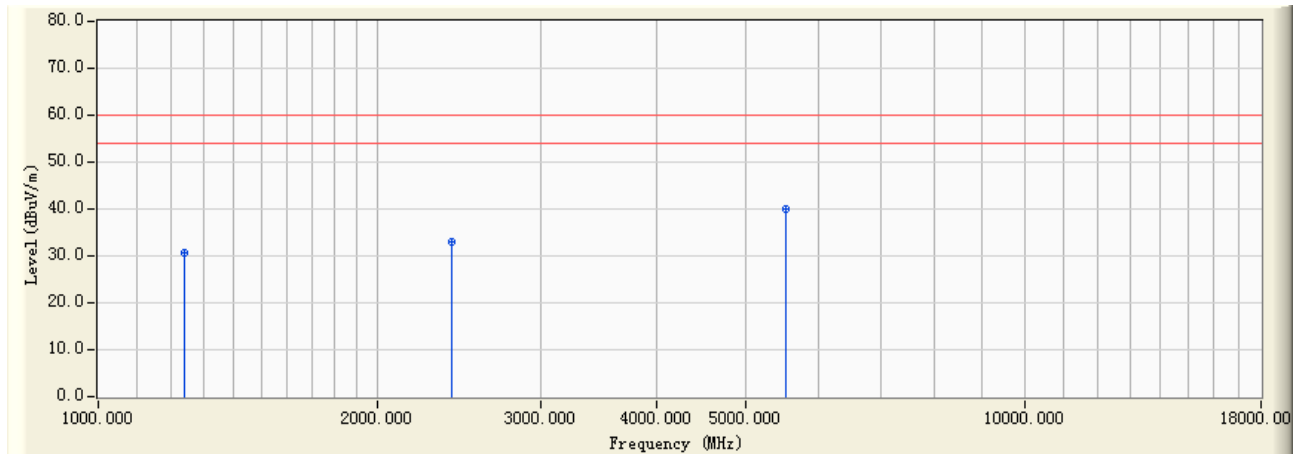
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		1240.300	-11.860	51.200	39.340	-40.660	80.000	PEAK	100.000	130.000
2		2411.300	-7.055	50.200	43.145	-36.855	80.000	PEAK	100.000	130.000
3	*	5532.200	1.599	51.110	52.709	-27.291	80.000	PEAK	100.000	140.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor



Site : EMC Lab AC 102	Time : 2009/01/07 - 11:34
Limit : FCC_A_(Above_1G)_03M_AV	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 6: Full system (DVI 1920*1080@60Hz)



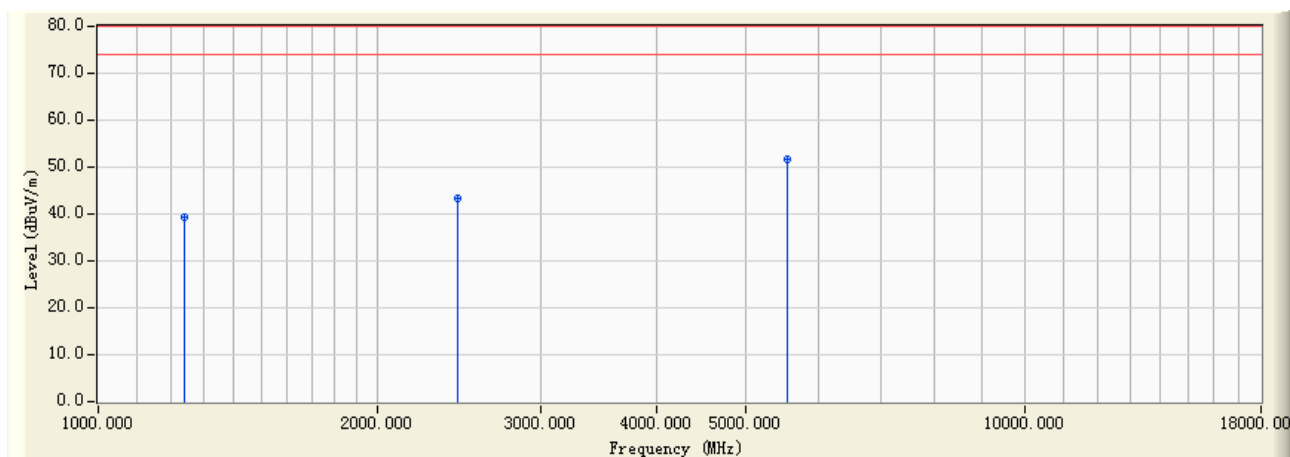
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	1240.300	-11.860	42.500	30.640	-29.360	60.000	AVERAGE	100.000	130.000
2	2411.300	-7.055	40.200	33.145	-26.855	60.000	AVERAGE	100.000	130.000
3	* 5532.200	1.599	38.500	40.099	-19.901	60.000	AVERAGE	100.000	140.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor



Site : EMC Lab AC 102	Time : 2009/01/07 - 11:34
Limit : FCC_A_(Above_1G)_03M_PK	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 6: Full system (DVI 1920*1080@60Hz)



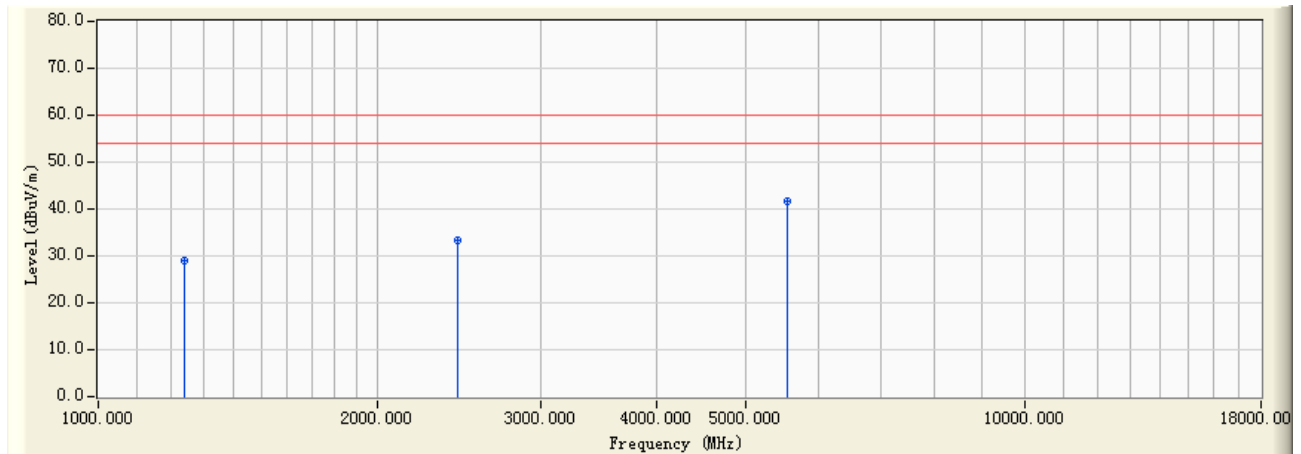
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		1240.540	-11.859	51.260	39.402	-40.598	80.000	PEAK	200.000	120.000
2		2445.600	-7.072	50.300	43.228	-36.772	80.000	PEAK	200.000	150.000
3	*	5542.300	1.609	50.200	51.809	-28.191	80.000	PEAK	200.000	320.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor



Site : EMC Lab AC 102	Time : 2009/01/07 - 11:34
Limit : FCC_A_(Above_1G)_03M_AV	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 6: Full system (DVI 1920*1080@60Hz)



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	1240.540	-11.859	40.800	28.942	-31.058	60.000	AVERAGE	200.000	120.000
2	2445.600	-7.072	40.400	33.328	-26.672	60.000	AVERAGE	200.000	150.000
3	* 5542.300	1.609	40.100	41.709	-18.291	60.000	AVERAGE	200.000	320.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Apple Ji

Test engineer:_____