



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.	: W2253VQV
FCC ID	: BEJW2253HQV
Trade Name	: LG

Laboratory accreditation



- The test result refers exclusively to the test presented test model / sample.
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- 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.



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Document history

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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 Dec. 23, 2008 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:	W2253VQV
	Serial No:	N/A
	Input:	AC 100-240V 50/60Hz 1A
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 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 six test modes:
 - Mode 1: Full system (VGA 800*600@60Hz)
 - Mode 2: Full system (VGA 1920*1080@60Hz)
 - Mode 3: Full system (VGA 1024*768@75Hz)
 - Mode 4: Full system (DVI 800*600@60Hz)
 - Mode 5: Full system (DVI 1920*1080@60Hz)
 - Mode 6: Full system (DVI 1024*768@75Hz)
 - Mode 7: Full system (HDMI IN)
- e. The final test mode:
 - Mode 2: Full system (VGA 1920*1080@60Hz)



2.3. Description of Test System

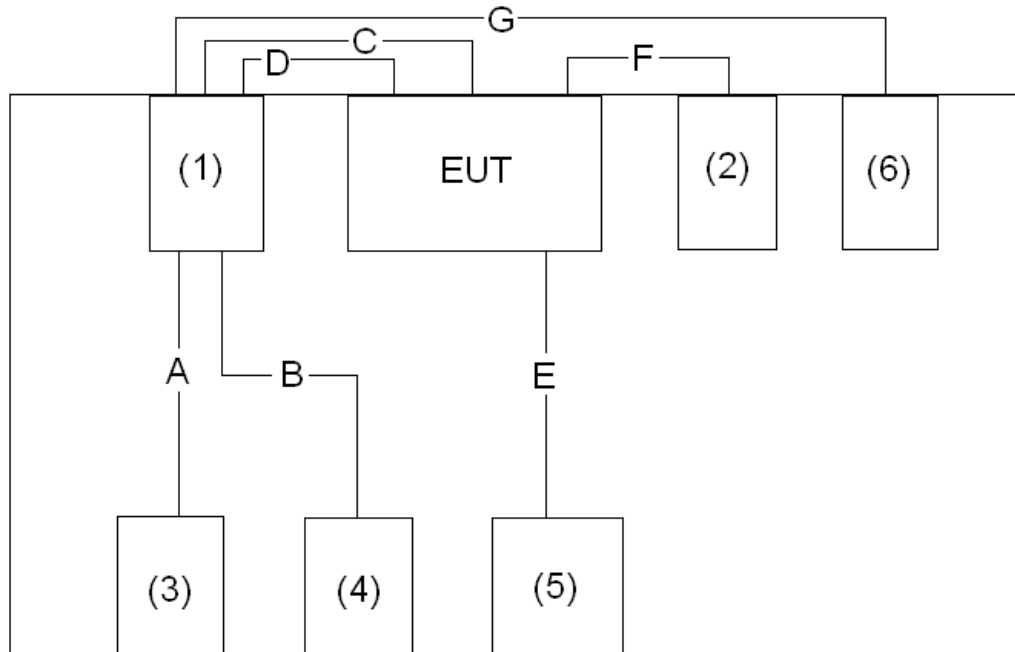
EMI

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
EARPHONE	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	Shielded, 1.5m
HDMI Cable	1	Shielded, 1.2m
Parallel Cable	1	Shielded, 0.8m



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 Earphone to EUT.
- F. The HDMI Cable is connected from DVD to EUT.
- 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 3 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

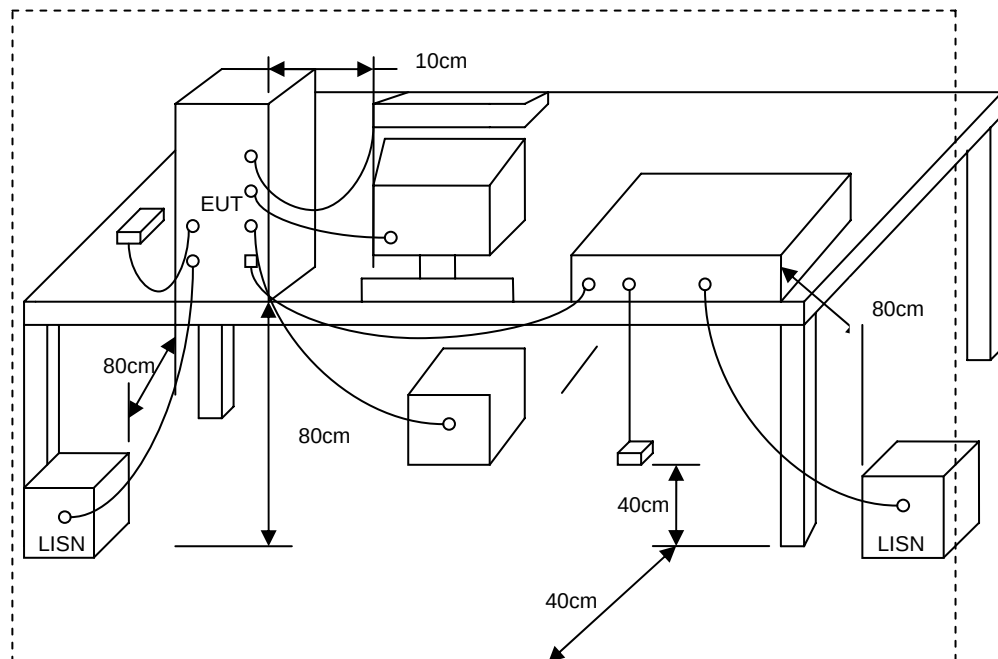
Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown 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



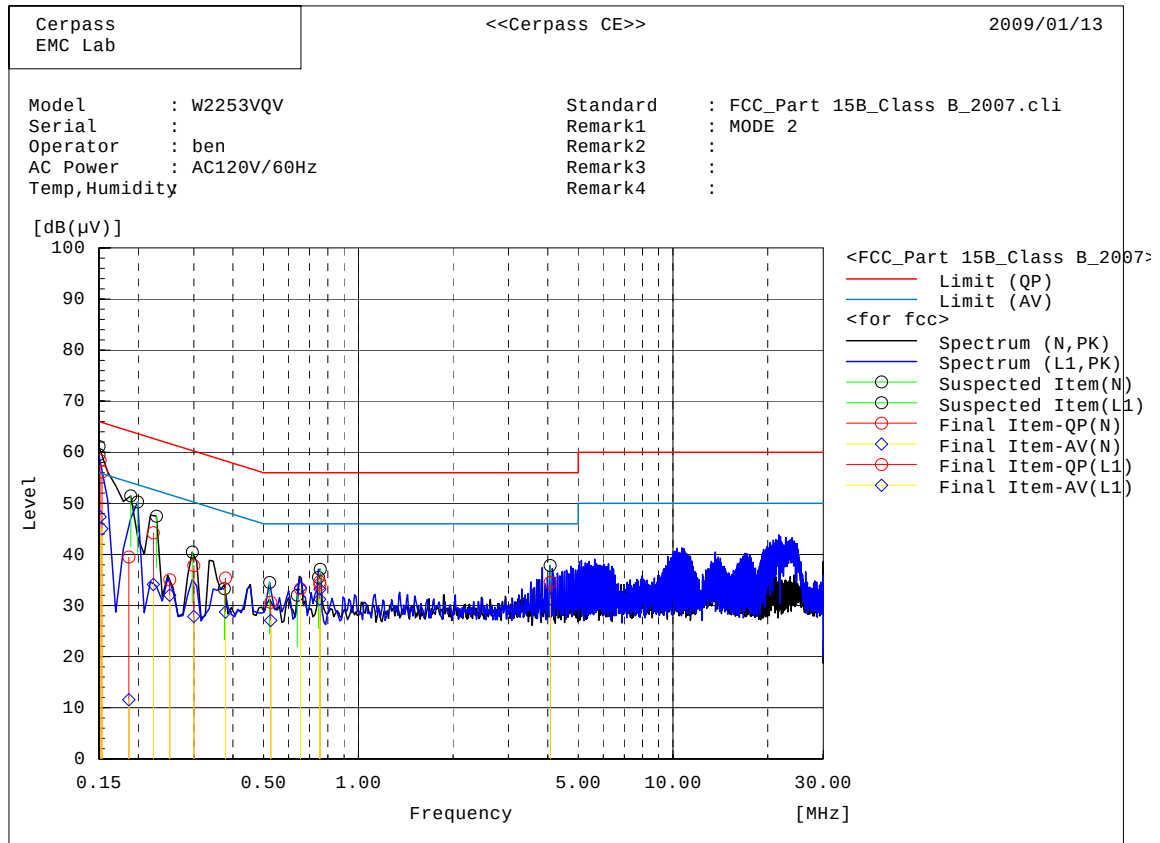
3.4. Measurement equipment

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	: 2009/01/13
Model	: W2253VQV	Serial	: N/A
Operator	: BEN	AC Power	: AC120V/60Hz
Remark	: Mode 2: Full system (VGA 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
0.15126	L1	49.0	38.0	9.4	58.4	47.4	65.9	55.9	7.5	8.5	Pass
0.22324	L1	34.7	24.5	9.6	44.3	34.1	62.7	52.7	18.4	18.6	Pass
0.37824	L1	25.7	19.0	9.7	35.4	28.7	58.3	48.3	22.9	19.6	Pass
0.52665	L1	20.9	17.4	9.7	30.6	27.1	56.0	46.0	25.4	18.9	Pass
0.75441	L1	24.9	21.5	9.7	34.6	31.2	56.0	46.0	21.4	14.8	Pass
4.06676	L1	24.8	21.6	9.7	34.5	31.3	56.0	46.0	21.5	14.7	Pass
0.18667	N	29.7	1.8	9.8	39.5	11.6	64.2	54.2	24.7	42.6	Pass
0.1532	N	46.9	35.8	9.2	56.1	45.0	65.8	55.8	9.7	10.8	Pass
0.25166	N	25.2	22.1	9.9	35.1	32.0	61.7	51.7	26.6	19.7	Pass
0.29996	N	28.0	18.1	9.8	37.8	27.9	60.2	50.2	22.4	22.3	Pass
0.6545	N	23.6	23.7	9.7	33.3	33.4	56.0	46.0	22.7	12.6	Pass
0.75489	N	24.4	23.5	9.7	34.1	33.2	56.0	46.0	21.9	12.8	Pass

Test engineer: Ben Zhang



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

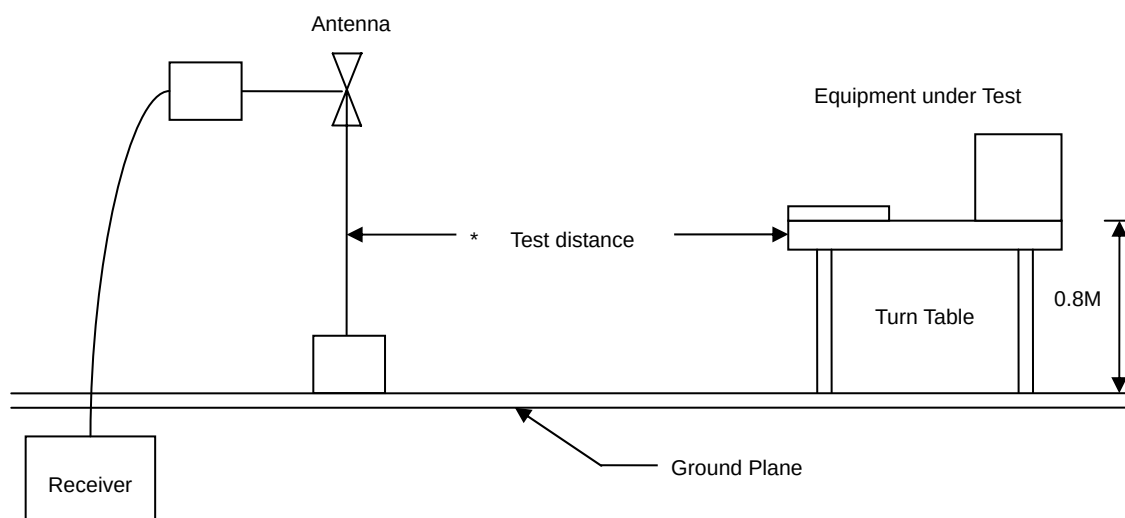


4.2. Test Procedures

- 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

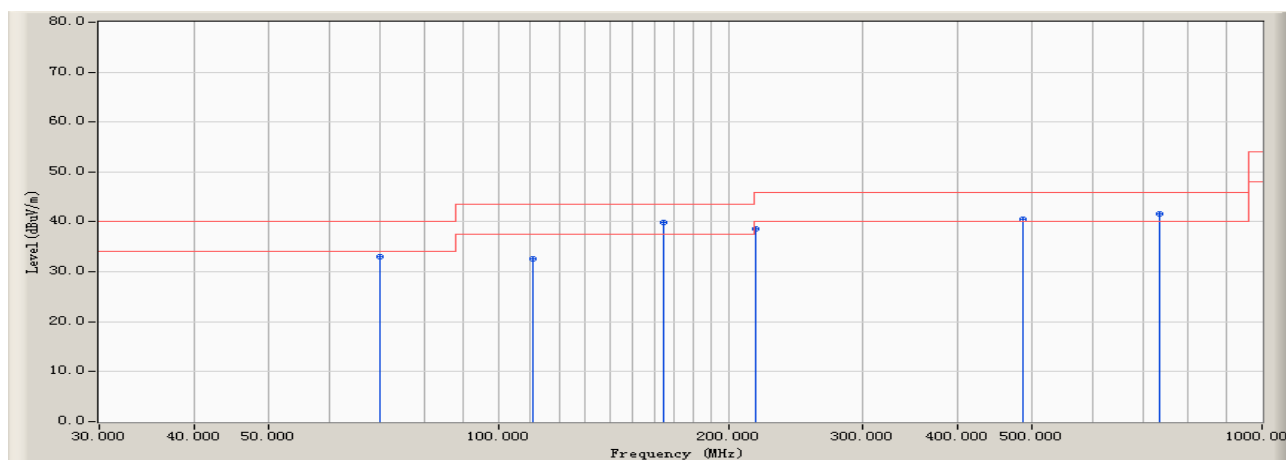
Instrument	Model No.	Manufacturer	Serial No.	Calibration Date
EMI Test Receiver	R&S	ESCI	100564	2008.06.30
Preamplifier	Agilent	87405B	My39500554	2008.11.04
Preamplifier	R&S	PR-AMP26	1248791	2008.06.30
Ultra Broadband Antenna	R&S	HL562	100362	2008.11.04
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	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:

Engineer : Fred	
Site : EMC Lab AC 102	Time : 2008/01/13 - 10:36
Limit : FCC_CLASS_B_03M_QP	Margin : 6
EUT : LCD Monitor	Probe : HL562(30-1000MHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 2: Full system (VGA 1920*1080@60Hz)



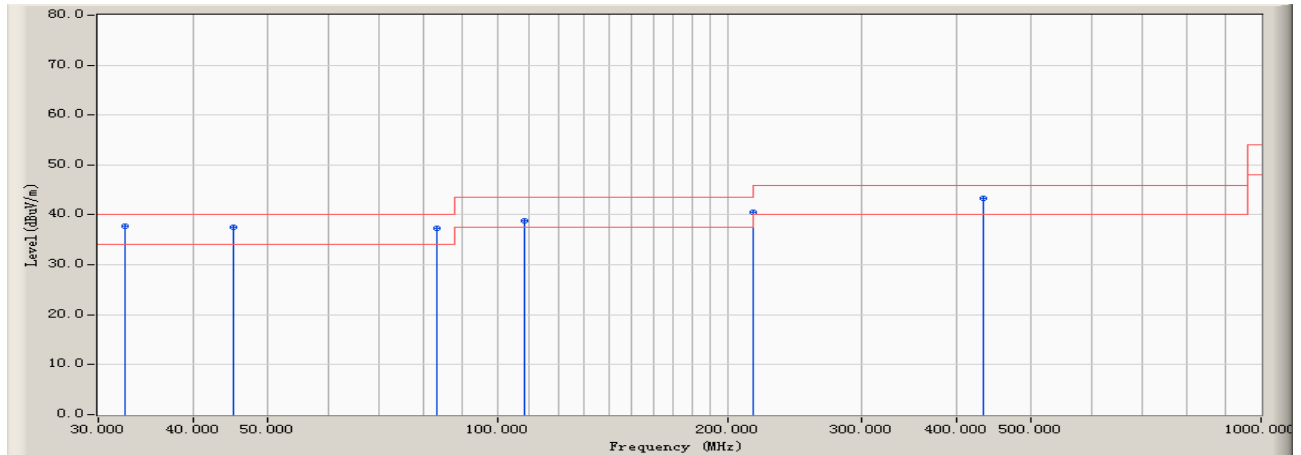
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	69.850	-17.476	50.600	33.124	-6.876	40.000	QUASIPeAK	200.000	152.000
2	110.900	-14.000	46.700	32.700	-10.800	43.500	QUASIPeAK	100.000	24.000
3	* 164.500	-15.402	55.400	39.998	-3.502	43.500	QUASIPeAK	152.000	96.000
4	216.800	-14.440	53.100	38.660	-7.340	46.000	QUASIPeAK	200.000	125.000
5	486.970	-5.115	45.690	40.575	-5.425	46.000	QUASIPeAK	200.000	325.000
6	733.200	0.000	41.550	41.550	-4.450	46.000	QUASIPeAK	200.000	310.000

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



Engineer : Fred	
Site : EMC Lab AC 102	Time : 2008/01/13 - 10:37
Limit : FCC_CLASS_B_03M_QP	Margin : 6
EUT : LCD Monitor	Probe : HL562(30-1000MHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 2: Full system (VGA 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	*	32.450	-6.468	44.300	37.832	-2.168	40.000	QUASIPeAK	100.000	54.000
2		45.100	-13.381	50.917	37.536	-2.464	40.000	QUASIPeAK	100.000	42.000
3		83.400	-15.293	52.700	37.406	-2.594	40.000	QUASIPeAK	100.000	64.000
4		108.400	-14.128	53.000	38.872	-4.628	43.500	QUASIPeAK	100.000	210.000
5		216.440	-14.462	54.900	40.438	-5.562	46.000	QUASIPeAK	120.000	62.000
6		433.600	-6.728	50.100	43.371	-2.629	46.000	QUASIPeAK	100.000	122.000

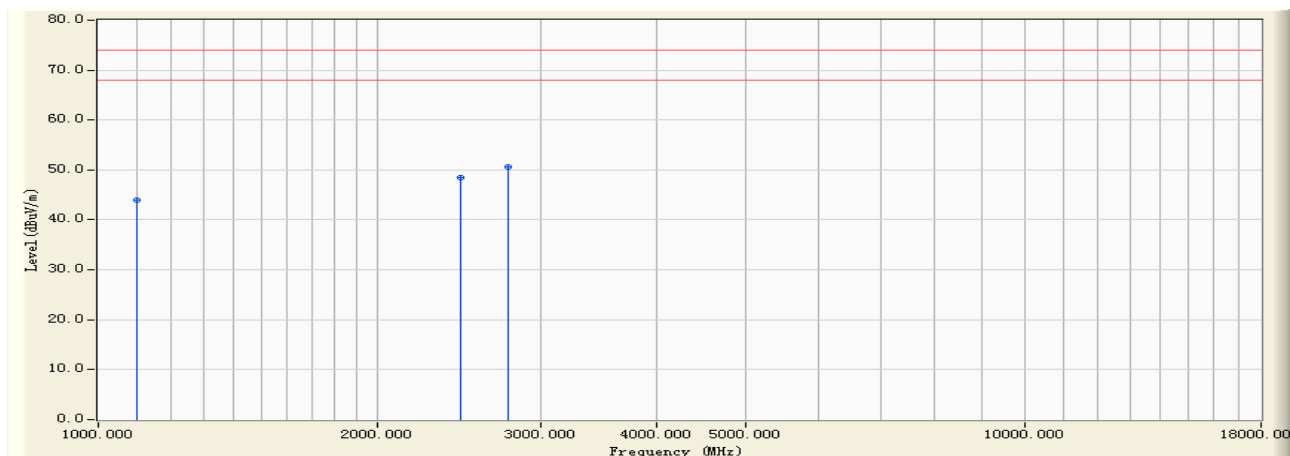
Note:

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2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor



Above 1G:

Engineer : TOPGUNS	
Site : EMC Lab AC 102	Time : 2009/01/14 - 10:01
Limit : FCC_15_03M_PK	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 2: Full system (VGA 1920*1080@60Hz)



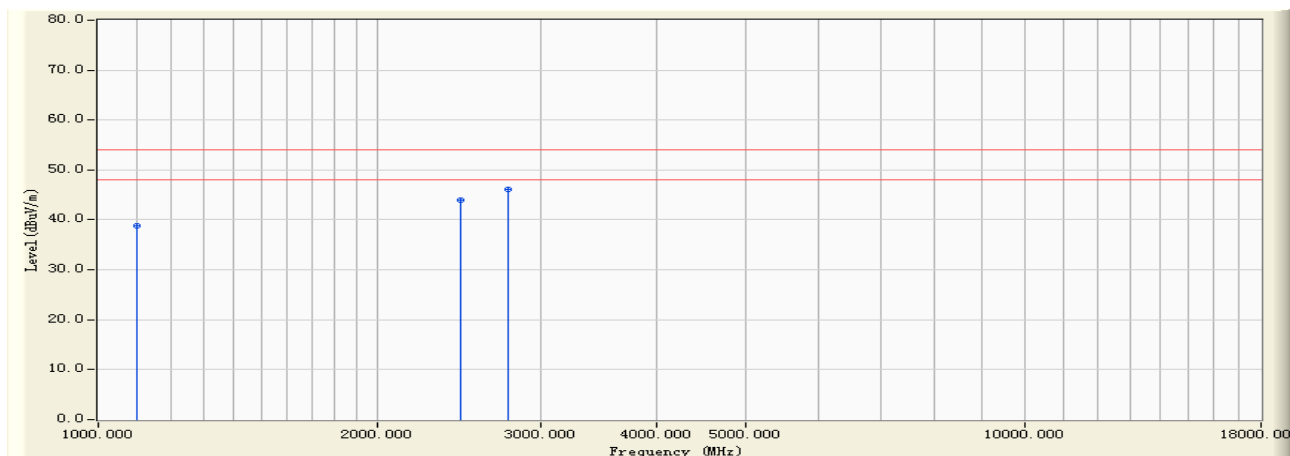
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		1099.250	-12.443	56.360	43.917	-30.083	74.000	PEAK	200.000	140.000
2		2461.260	-7.016	55.470	48.454	-25.546	74.000	PEAK	200.000	130.000
3	*	2773.500	-5.563	56.210	50.647	-23.353	74.000	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



Engineer : TOPGUNS	
Site : EMC Lab AC 102	Time : 2009/01/14 - 10:01
Limit : FCC_15_03M_AV	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 2: Full system (VGA 1920*1080@60Hz)



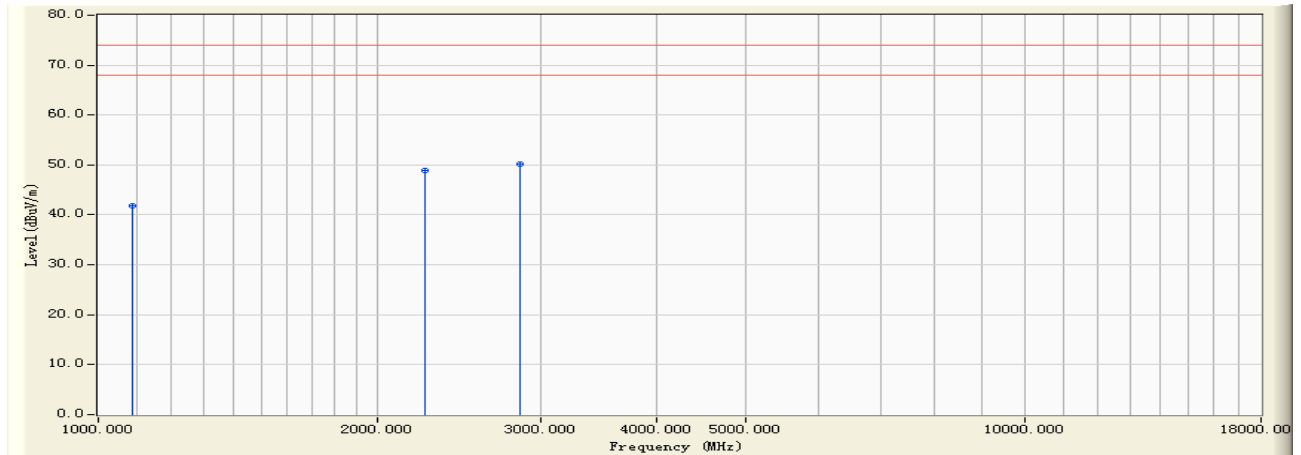
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		1099.250	-12.443	51.260	38.817	-15.183	54.000	AVERAGE	200.000	140.000
2		2461.260	-7.016	50.890	43.874	-10.126	54.000	AVERAGE	200.000	130.000
3	*	2773.500	-5.563	51.600	46.037	-7.963	54.000	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



Engineer : FRED	
Site : EMC Lab AC 102	Time : 2009/01/14 - 09:59
Limit : FCC_15_03M_PK	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 2: Full system (VGA 1920*1080@60Hz)



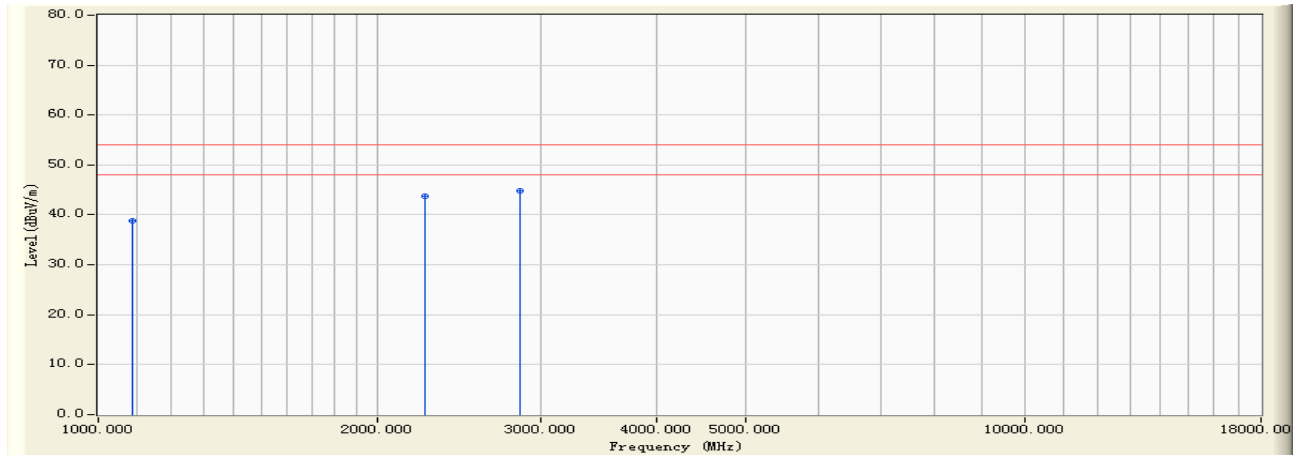
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		1089.300	-12.501	54.260	41.759	-32.241	74.000	PEAK	100.000	150.000
2		2250.250	-7.405	56.210	48.805	-25.195	74.000	PEAK	100.000	130.000
3	*	2851.360	-5.408	55.670	50.262	-23.738	74.000	PEAK	100.000	220.000

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



Engineer : TOPGUNS	
Site : EMC Lab AC 102	Time : 2009/01/14 - 09:59
Limit : FCC_15_03M_AV	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 2: Full system (VGA 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		1089.300	-12.501	51.240	38.739	-15.261	54.000	AVERAGE	100.000	150.000
2		2250.250	-7.405	51.260	43.855	-10.145	54.000	AVERAGE	100.000	130.000
3	*	2851.360	-5.408	50.240	44.832	-9.168	54.000	AVERAGE	100.000	220.000

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

Fred Guo

Test engineer: _____