



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.	: E2240SV
FCC ID	: BEJE2240SV
Trade Name	: LG

- 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 **NVLAP** or any agency of the Government.



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Document history

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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 Mar 08, 2010 at **CerpPASS Technology Corp.**

Documented By:

Approved By:

Cathy Chen/ Administration

John Wang/ Technical director



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:	E2240SV
Adapter #1	Manufacturer:	LG
	Model No:	FSP036-DGAA1
	Input:	100-240V~, 1.3A(1,3A), 50-60Hz
	Output:	12.0V(12,0V)~3.0A(3,0A) MAX
DC Cable	Non-Shielded, 1.5m, with one ferrite core bonded	
Adapter #2	Manufacturer:	LG
	Model No:	LCAP07F
	Input:	100-240V~, 50-60Hz, 1.0A(1,0A) Max
	Output:	12V~3.0A(3,0A)
DC Cable	Non-Shielded, 1.5m, with one ferrite core bonded	
VGA Cable	Shielded, 1.8m, with two ferrite cores bonded	
VGA Cable	Shielded, 1.8m	
Power Supply cable	Non-Shielded, 1.8m	
Note : The VGA Cable are alternative on selling.		

2.2. Test Manner

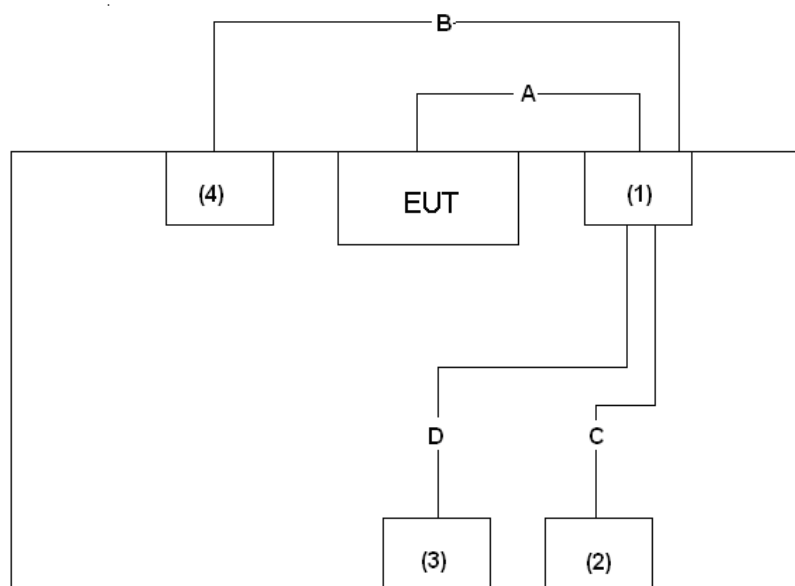
Test Software	
a	During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
b	The complete test system included the Printer, PC, USB Mouse, USB Keyboard and EUT for EMI test.
c	During the test, setup up the EUT and all system, turn on the power of all Equipments, run the EMC test software "H", set the contrast control to maximum, set the brightness control to maximum, use white letters on a black background to represent all colors, make the EUT at the test mode and it is normal operation, and then test.
The pre-test modes	
	Test Mode 1: Full system (VGA mode 1920*1080@60Hz) with Adapter #1
	Test Mode 2: Full system (VGA mode 1024*768@75Hz) with Adapter #1
	Test Mode 3: Full system (VGA mode 720*400@70Hz) with Adapter #1
	Test Mode 4: Full system (VGA mode 1920*1080@60Hz) with Adapter #2
	Test Mode 5: Full system (VGA mode 1024*768@75Hz) with Adapter #2
	Test Mode 6: Full system (VGA mode 720*400@70Hz) with Adapter #2
Select the worst case of the pre-test modes as the final test mode	
	Test Mode 4: Full system (VGA mode 1920*1080@60Hz) with Adapter #2



2.3. Description of Test System

No	Device	Manufacturer	Model No.	Description
1	PC	Dell	DCTA	N/A
2	USB Mouse	DELL	G0K02XYK	N/A
3	USB Keyboard	DELL	SK-8115	N/A
4	Printer	Epson	EX3	N/A

2.4. Connection Diagram of Test System



No	Cable	Quantity	Description
A	VGA Cable	1	Shielded, 1.8m
B	Parallel Cable	1	Shielded, 1.8m
C	USB Cable	1	Shielded, 1.5m
D	USB Cable	1	Shielded, 1.8m, with one ferrite core bonded



2.5. General Information of Test

Test Site :	CerpPASS Technology Corp.
Performed Location :	No.66, Tangzhuang Road, Suzhou Industrial Park, Jiangsu, China
NVLAP LAB Code :	200814-0
FCC Registration Number :	916572
VCCI Registration Number :	T-343 for Telecommunication Test C-2919 for Conducted emission test R-2670 for Radiated emission test
Test in Compliance with :	ANSI C63.4-2003 FCC Part 15 Subpart B
Frequency Range Investigated :	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 1,000 MHz Radiation: from 1GHz to 18GHz
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.

Laboratory accreditation



2.6. Measurement Uncertainty

Conducted Emission		
The measurement uncertainty is evaluated as ± 2.71 dB.		
Radiated Emission		
(30MHz -1000MHz)	Horizontal	The measurement uncertainty is evaluated as ± 3.89 dB.
	Vertical	The measurement uncertainty is evaluated as ± 3.59 dB.
(1G-18GHz)	Horizontal	The measurement uncertainty is evaluated as ± 2.31 dB.
	Vertical	The measurement uncertainty is evaluated as ± 2.15 dB.



3. Test of Conducted Emission

3.1. Test Limit

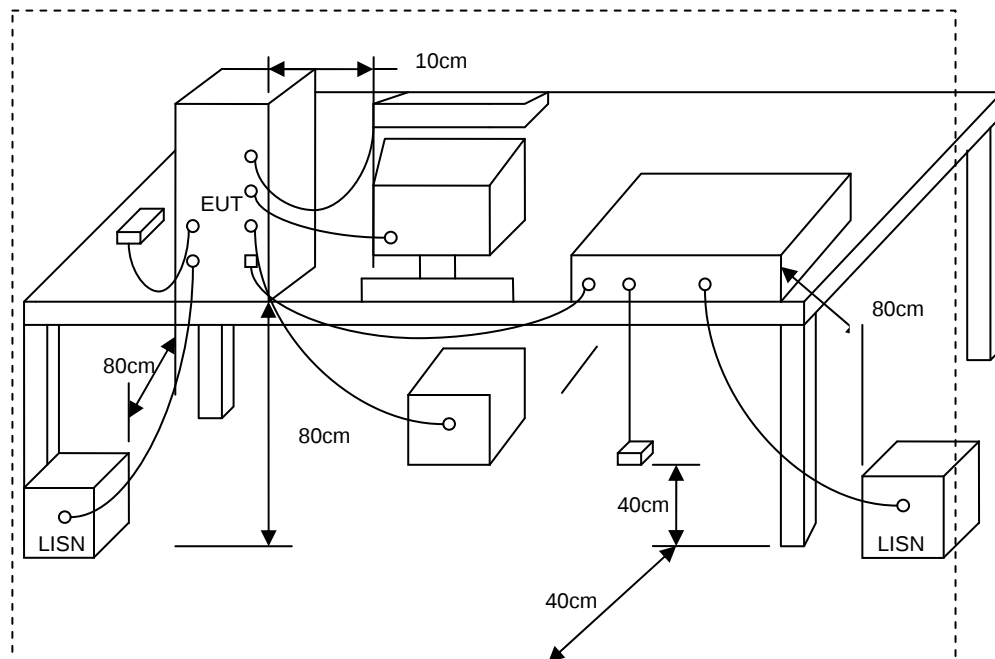
Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown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



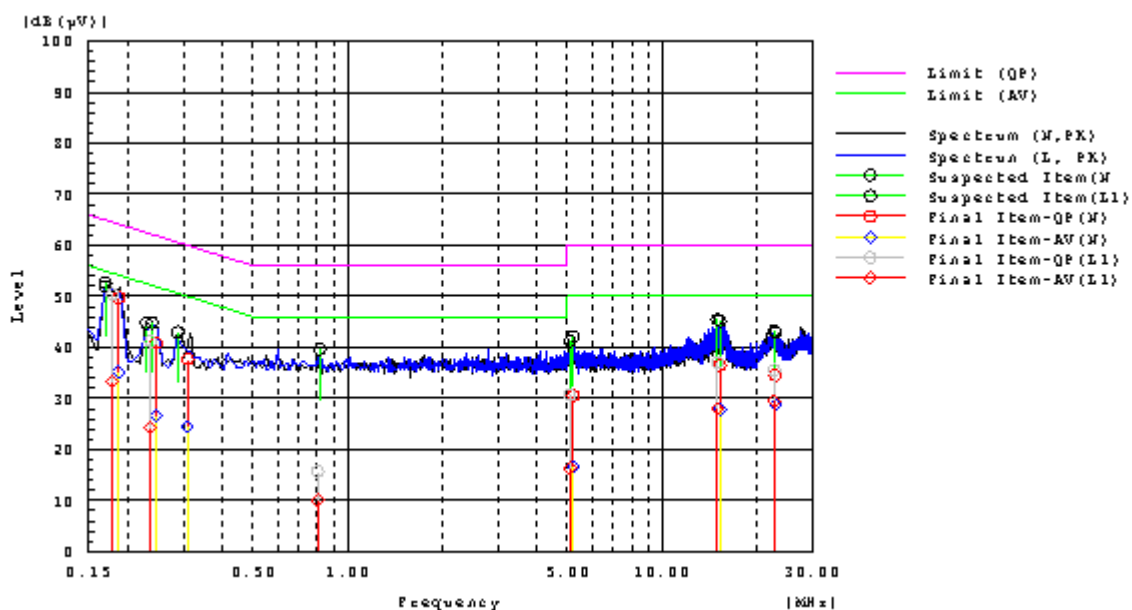
3.4. Measurement equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date
EMC Emission Tester	EMCPARTNER	Harmonics-1000	159	2009.09.08
Test Receiver	R&S	ESCI	100565	2010.01.15
AMN	R&S	ESH2-Z5	100182	2009.06.23
Two-Line V-Network	R&S	ENV216	100325	2009.06.23
ISN	FCC	FCC-TLISN-T2-02	20379	2009.06.23
ISN	FCC	FCC-TLISN-T4-02	20380	2009.06.23
ISN	FCC	FCC-TLISN-T8-02	20381	2009.06.23
Attenuator	R&S	ESH3-Z2	100529	2010.01.11
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2009.10.19



3.5. Test Result and Data

Test Mode :	Mode 4: Full system (VGA mode 1920*1080@60Hz) with Adapter #2		
AC Power :	AC 120V/60Hz	Phase :	L&N
EUT :	LCD Monitor	Model No.:	E2240SV
Temperature :	20°C	Humidity :	43%
Pressur(mbar) :	1002	Date :	2010/03/03



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
0.17832	L1	31.1	13.9	19.4	50.5	33.3	64.6	54.6	14.1	21.3	Pass
0.23594	L1	21.7	4.8	19.5	41.2	24.3	62.2	52.2	21.0	27.9	Pass
0.80339	L1	-3.8	-9.5	19.5	15.7	10.0	56.0	46.0	40.3	36.0	Pass
0.18725	N	30.1	15.5	19.7	49.8	35.2	64.2	54.2	14.4	19.0	Pass
0.31005	N	18.0	4.8	19.7	37.7	24.5	60.0	50.0	22.3	25.5	Pass
5.0798	L1	10.9	-3.4	19.8	30.7	16.4	60.0	50.0	29.3	33.6	Pass
0.24564	N	21.1	7.0	19.8	40.9	26.8	61.9	51.9	21.0	25.1	Pass
5.2134	N	10.7	-3.2	19.8	30.5	16.6	60.0	50.0	29.5	33.4	Pass
14.9689	L1	16.8	7.8	20.2	37.0	28.0	60.0	50.0	23.0	22.0	Pass
15.2868	N	16.2	7.6	20.3	36.5	27.9	60.0	50.0	23.5	22.1	Pass
22.733	L1	15.0	9.1	20.5	35.5	29.6	60.0	50.0	24.5	20.4	Pass
22.8874	N	13.9	8.1	20.6	34.5	28.7	60.0	50.0	25.5	21.3	Pass

Note: Measurement Level = Reading Level + Correct Factor

Test engineer:



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)

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

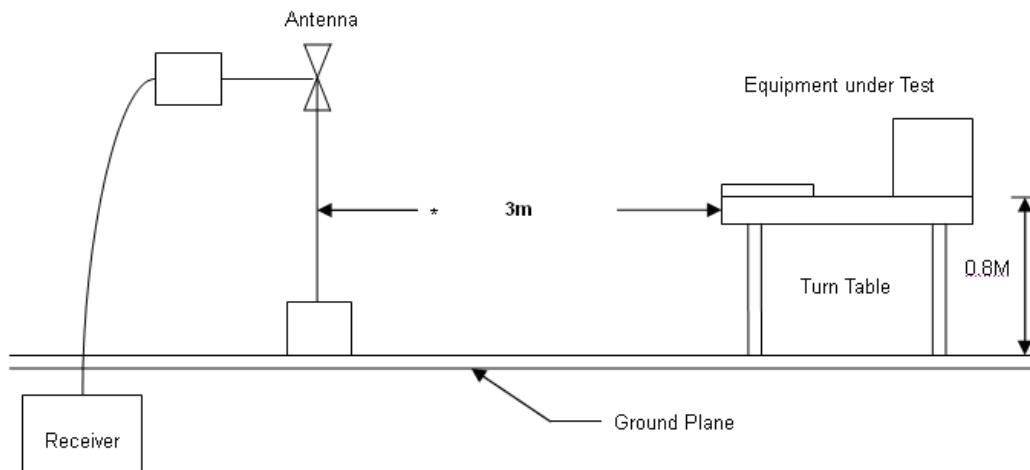


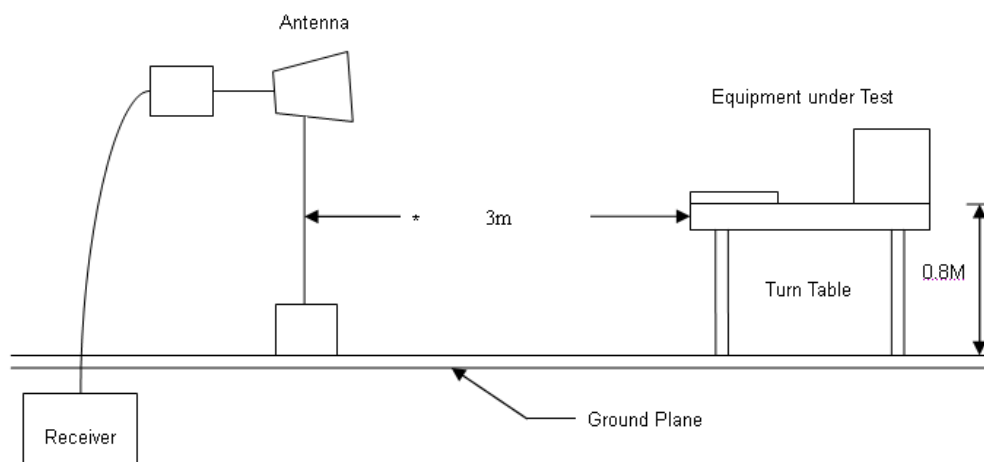
4.2. Test Procedures

- The EUT was placed on a Rota table top 0.8 meter above ground.
- 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.
- The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
- 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.
- 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.

4.3. Typical test Setup

Below 1GHz Test Setup



**Above 1GHz Test Setup****4.4. Measurement equipment**

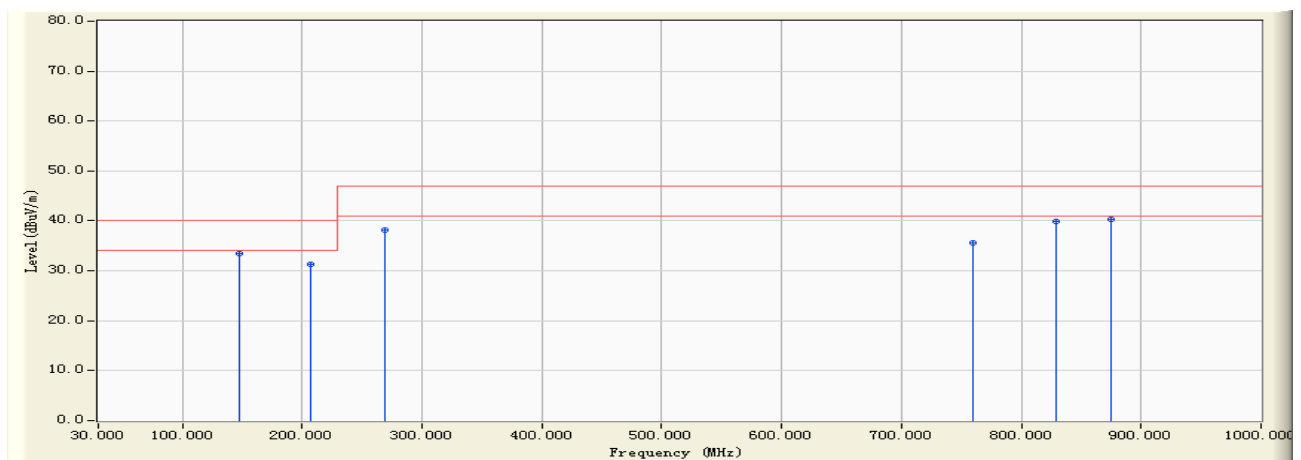
Instrument	Model No.	Manufacturer	Serial No.	Calibration Date
EMI Test Receiver	R&S	ESCI	100564	2009.06.23
H64 Amplifier	HP	8447F	3113A05582	2009.12.01
Preamplifier	Agilent	8449B	ED-HE-EMI-077	2010.02.10
Ultra Broadband Antenna	R&S	HL562	100362	2009.11.25
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2009.11.10
Spectrum Analyzer	R&S	FSP40	100324	2009.11.02
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-001	2009.10.19



4.5. Test Result and Data

Under 1G

Engineer : Fred	
Site : EMC Lab AC 102	Time : 2010/03/07 - 19:00
Limit : CISPR22_B_03M_QP	Margin : 6
EUT : LCD Monitor	Probe : (30-1000MHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 4: Full system (VGA mode 1920*1080@60Hz) with Adapter #2



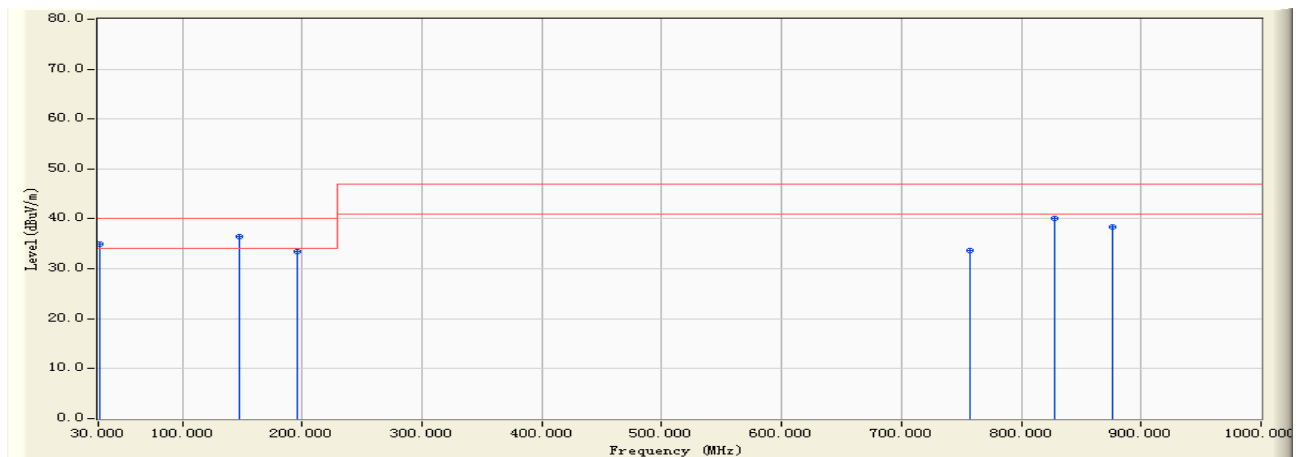
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	*	148.240	-17.878	51.430	33.552	-6.448	40.000	QUASIPeAK	385.400	186.900
2		206.620	-17.307	48.650	31.343	-8.657	40.000	QUASIPeAK	400.000	132.400
3		268.550	-14.056	52.200	38.144	-8.856	47.000	QUASIPeAK	250.000	195.400
4		760.130	-4.062	39.640	35.578	-11.422	47.000	QUASIPeAK	224.500	175.300
5		829.420	-3.162	43.090	39.928	-7.072	47.000	QUASIPeAK	100.000	0.000
6		875.032	-1.982	42.340	40.358	-6.642	47.000	QUASIPeAK	226.400	250.000

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 : 2010/03/07 - 19:00
Limit : CISPR22_B_03M_QP	Margin : 6
EUT : LCD Monitor	Probe : (30-1000MHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 4: Full system (VGA mode 1920*1080@60Hz) with Adapter #2



		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		30.950	-8.190	43.050	34.860	-5.140	40.000	QUASIPeAK	187.900	355.600
2	*	148.264	-17.880	54.300	36.421	-3.579	40.000	QUASIPeAK	100.000	54.200
3		196.520	-17.800	51.200	33.400	-6.600	40.000	QUASIPeAK	100.000	355.400
4		757.430	-4.143	37.810	33.666	-13.334	47.000	QUASIPeAK	100.000	250.000
5		827.420	-3.214	43.360	40.146	-6.854	47.000	QUASIPeAK	186.400	202.500
6		875.620	-2.023	40.320	38.297	-8.703	47.000	QUASIPeAK	100.000	155.400

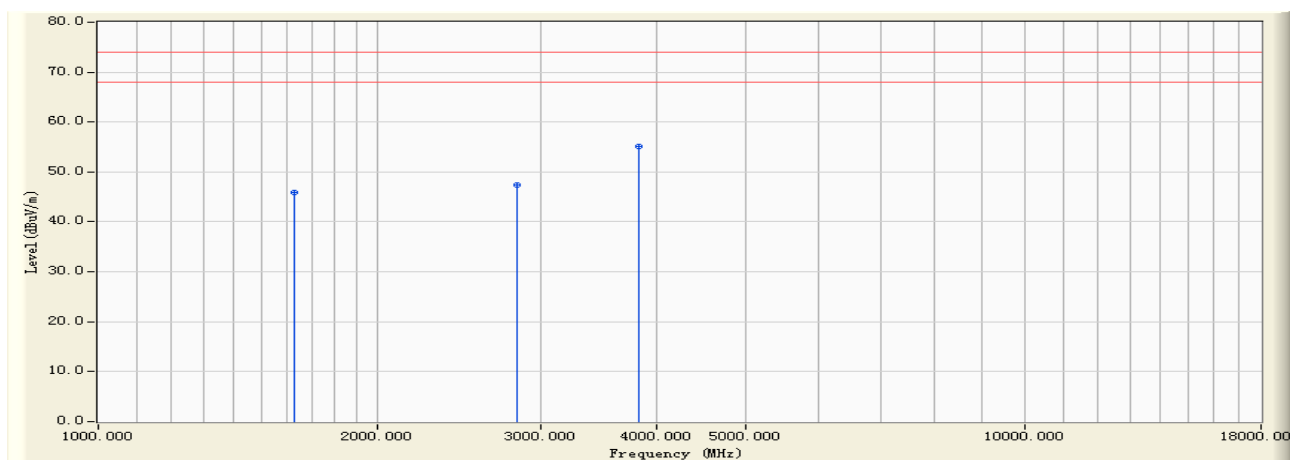
Note:

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:

Engineer : Fred	
Site : EMC Lab AC 102	Time : 2010/03/08 - 12:51
Limit : FCC_15_03M_PK	Margin : 6
EUT : LCD Monitor	Probe : (1-18GHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 4: Full system (VGA mode 1920*1080@60Hz) with Adapter #2



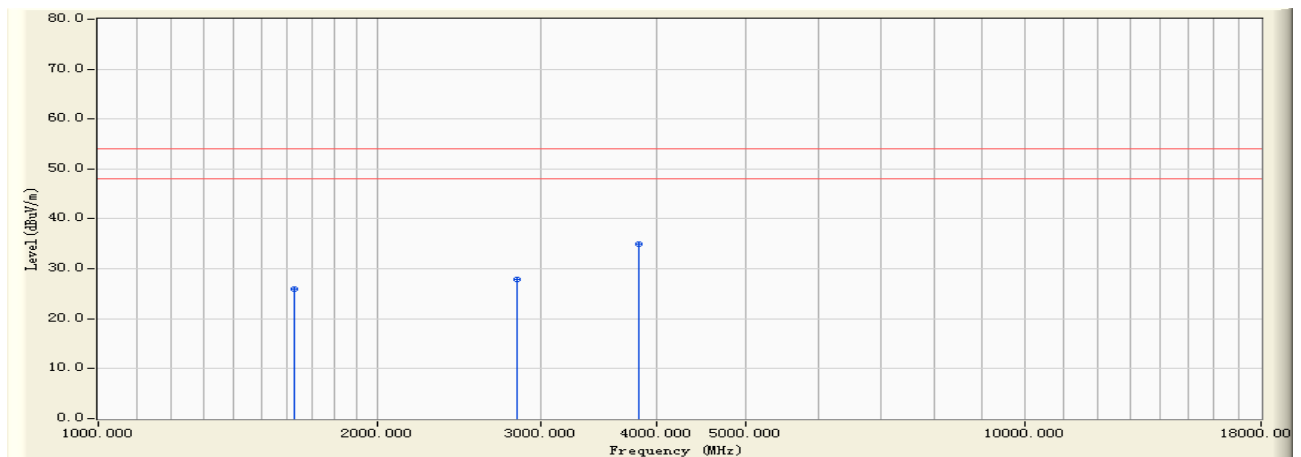
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		1630.484	-4.184	50.130	45.947	-28.053	74.000	PEAK	400.000	120.600
2		2836.170	0.547	46.820	47.367	-26.633	74.000	PEAK	198.600	320.700
3	*	3830.150	3.802	51.340	55.142	-18.858	74.000	PEAK	220.300	158.900

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 : 2010/03/08 - 12:51
Limit : FCC_15_03M_AV	Margin : 6
EUT : LCD Monitor	Probe : (1-18GHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 4: Full system (VGA mode 1920*1080@60Hz) with Adapter #2



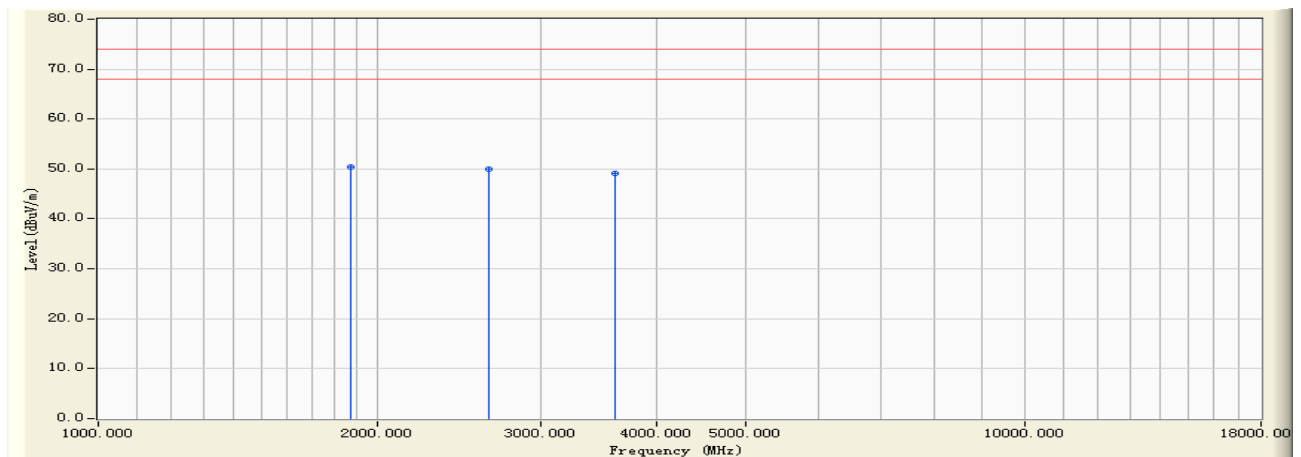
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		1630.484	-4.184	30.174	25.991	-28.009	54.000	AVERAGE	400.000	120.600
2		2836.170	0.547	27.340	27.887	-26.113	54.000	AVERAGE	198.600	320.700
3	*	3830.150	3.802	31.210	35.012	-18.988	54.000	AVERAGE	220.300	158.900

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
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3. Measurement Level = Reading Level + Correct Factor



Engineer : Fred	
Site : EMC Lab AC 102	Time : 2010/03/08 - 12:54
Limit : FCC_15_03M_PK	Margin : 6
EUT : LCD Monitor	Probe : (1-18GHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 4: Full system (VGA mode 1920*1080@60Hz) with Adapter #2



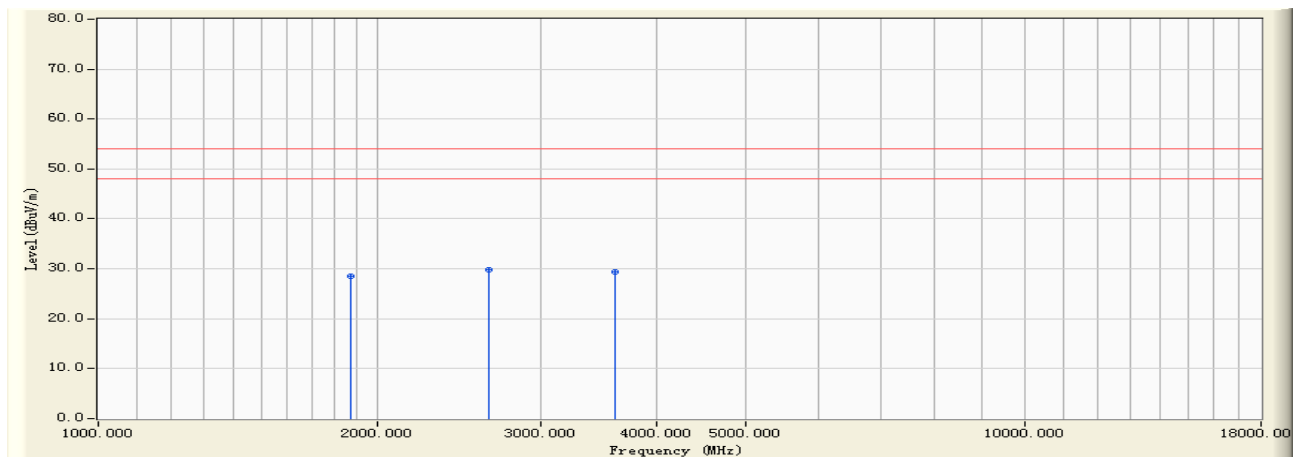
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1	*	1875.130	-3.614	54.010	50.397	-23.603	74.000	PEAK	125.600	300.700
2		2637.180	0.719	49.230	49.949	-24.051	74.000	PEAK	145.600	320.700
3		3616.250	3.128	46.020	49.148	-24.852	74.000	PEAK	100.000	200.600

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 : 2010/03/08 - 12:54
Limit : FCC_15_03M_AV	Margin : 6
EUT : LCD Monitor	Probe : (1-18GHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 4: Full system (VGA mode 1920*1080@60Hz) with Adapter #2



		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		1875.130	-3.614	32.050	28.437	-25.563	54.000	AVERAGE	125.600	300.700
2	*	2637.180	0.719	29.160	29.879	-24.121	54.000	AVERAGE	145.600	320.700
3		3616.250	3.128	26.180	29.308	-24.692	54.000	AVERAGE	100.000	200.600

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:_____