



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.	: W2453SQV
FCC ID	: BEJW2453SQV
Trade Name	: LG

Laboratory accreditation



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- The test report must not be used by the clients to claim product certification approval by **TAF, NVLAP, NIST** or any agency of the Government.



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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 Mar. 06, 2009 at **CerpPASS Technology Corp.**

Signature

Alex Chiu/ Supervisor



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 :	W2453SQV
	Serial No :	N/A
	Rating :	AC 100-240 ~ 50/60 Hz, 1.2A
VGA Cable	Shielded, 1.8m, with two ferrite cores bonded	
VGA Cable	Shielded, 1.8m	
Power Supply	Non-shielded, 1.8m	
Note : The VGA cable is 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, Modem, USB Keyboard, USB Mouse and EUT, the remote workstation included Program-Control Telephone Exchange and Notebook 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", at the remote, make the modem connect the notebook by the Program-Control Telephone Exchange, then make the EUT in the Mode 1,2,3 and it is normal operation, and then test.
- d. The following test includes three pre-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)
- e. Select the worst case of the pre-test modes as the final test mode:
 - Mode 2: Full system (VGA 1024* 768@75Hz)



2.3. Description of Test System

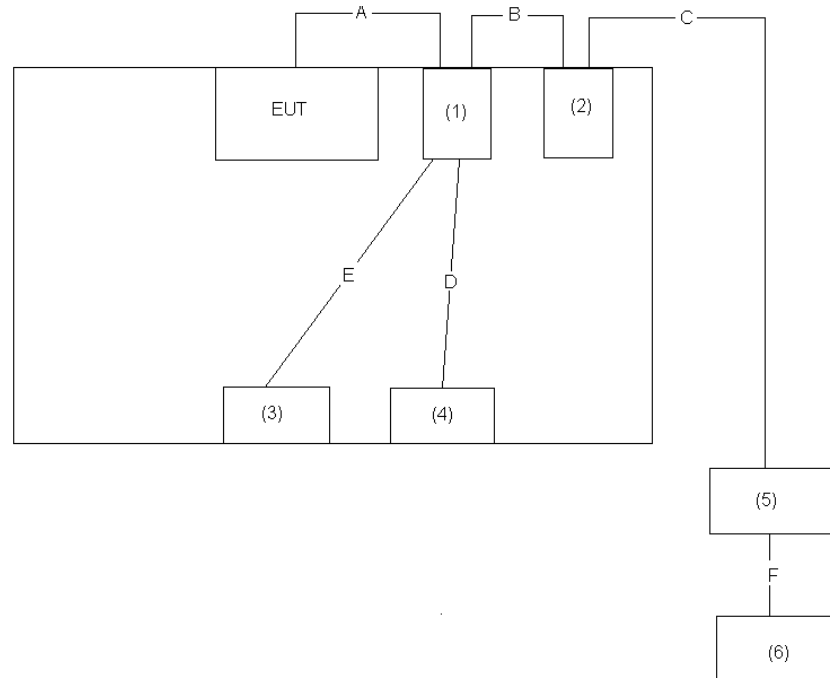
EMI

Device	Manufacturer	Model No.	Description
PC	DELL	DCTA	N/A
Modem	KINGNET	KN-JT568	Power by adapter
USB Keyboard	DELL	SK-8115	N/A
USB Mouse	DELL	G0K02XZQ	0CJ339
Program-Control Telephone Exchange	DLT	TC-108H	Power by adapter
Notebook	ASUS	W6A	Power by adapter

EMI use cable		
Cable	Quantity	Description
Serial Cable	1	Shielded, 1.0m
Telecom Cable	1	Non-Shielded,>10m
VGA Cable	1	Shielded, 1.8m
USB Cable	1	Shielded, 2.1m with one ferrite core bonded
USB Cable	1	Shielded, 1.85m with one ferrite core bonded
Telecom Cable	1	Non-Shielded,>3m



2.4. Connection Diagram of Test System



- A. The VGA Cable is connected from PC to the EUT.
- B. The Serial Cable is connected from PC to Modem.
- C. The Telecom Cable is connected from Modem to Program-Control Telephone Exchange.
- D. The USB Cable is connected from PC to the USB Mouse.
- E. The USB Cable is connected from PC to the USB Keyboard.
- F. The Telecom Cable is connected from Program-Control Telephone Exchange to the notebook.



2.5. General Information of Test

Test Site :	Cerpass Technology Corp.
Test Site Location	No.66, Tangzhuang Road, Suzhou Industrial park, Jiangsu 215006, China.
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-1902 for Radiated emission test (Taipei)
	T-343 for Telecommunication Test (Suzhou) C-2919 for Conducted emission test (Suzhou) R-2670 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

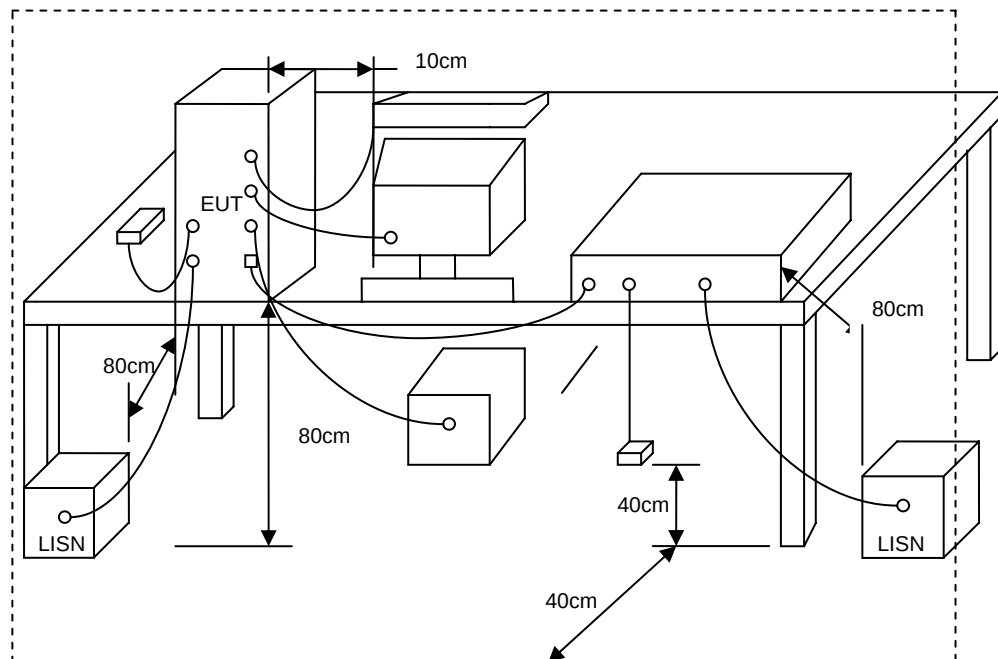
Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown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



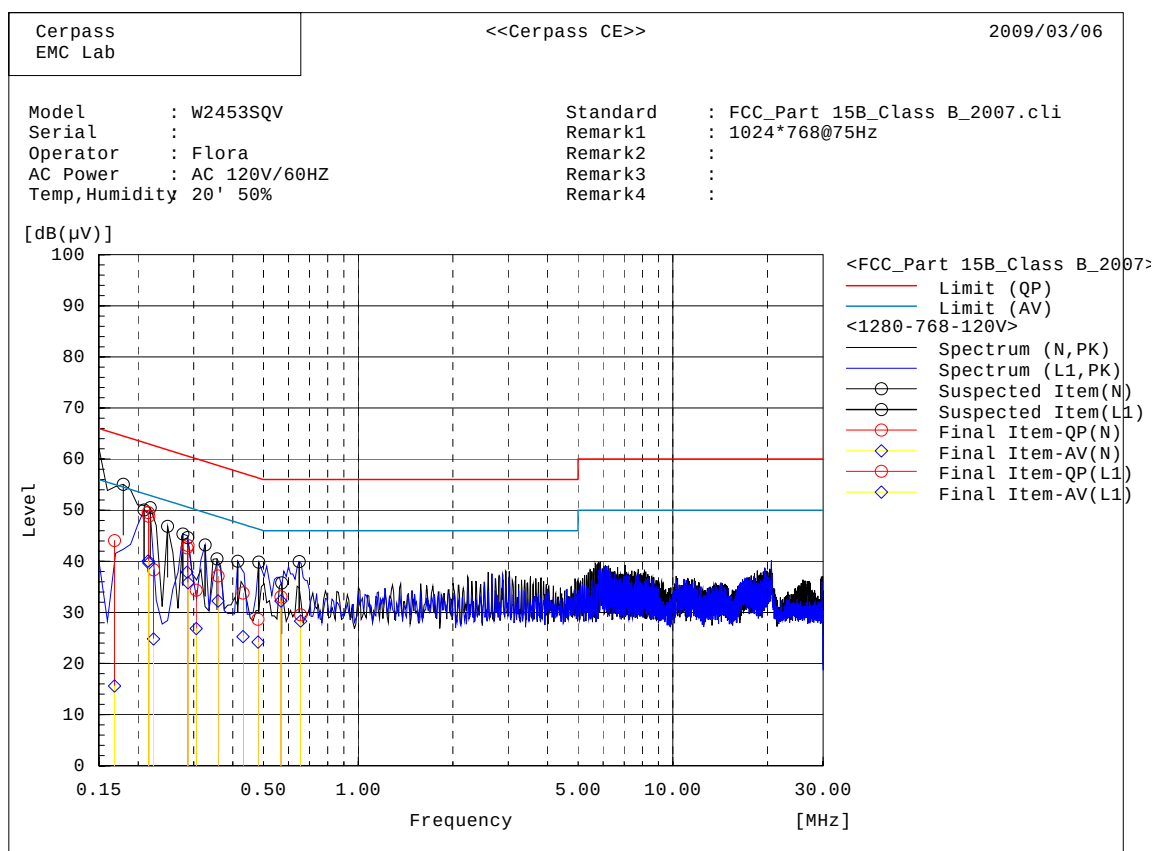
3.4. Measurement equipment

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	: 2009/03/06
Model	: W2453SQV	Serial	:
Operator	: Flora	AC Power	: AC 120V/60HZ
Temp	: 20'	Humidity	: 50%
Remark	: Mode 2: Full system (VGA 1024* 768@75Hz)		





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
0.21538	L1	39.9	30.5	9.6	49.5	40.1	63.0	53.0	13.5	12.9	Pass
0.28803	L1	33.5	26.2	9.6	43.1	35.8	60.6	50.6	17.5	14.8	Pass
0.30588	L1	24.7	17.2	9.6	34.3	26.8	60.1	50.1	25.8	23.3	Pass
0.43101	L1	24.1	15.6	9.7	33.8	25.3	57.2	47.2	23.4	21.9	Pass
0.48067	L1	19.0	14.5	9.7	28.7	24.2	56.3	46.3	27.6	22.1	Pass
0.65634	L1	19.8	18.6	9.7	29.5	28.3	56.0	46.0	26.5	17.7	Pass
0.16814	N	34.7	6.2	9.4	44.1	15.6	65.1	55.1	21.0	39.5	Pass
0.21625	N	38.9	29.8	9.9	48.8	39.7	63.0	53.0	14.2	13.3	Pass
0.22372	N	28.4	14.9	9.9	38.3	24.8	62.7	52.7	24.4	27.9	Pass
0.2859	N	32.8	28.1	9.8	42.6	37.9	60.6	50.6	18.0	12.7	Pass
0.35904	N	27.3	22.5	9.8	37.1	32.3	58.8	48.8	21.7	16.5	Pass
0.56846	N	23.4	22.5	9.7	33.1	32.2	56.0	46.0	22.9	13.8	Pass

Test engineer: Flora wang



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

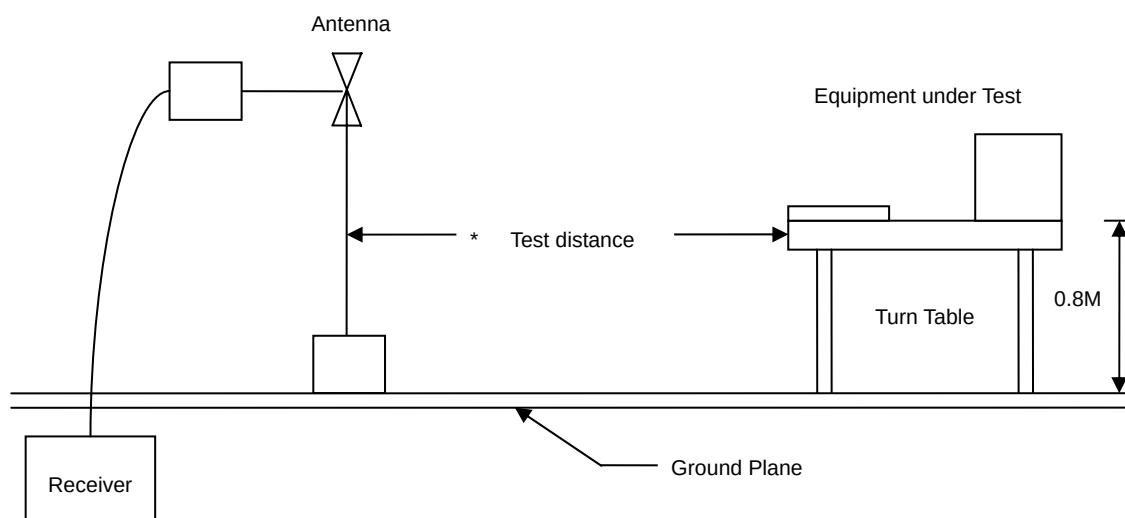


4.2. Test Procedures

- 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

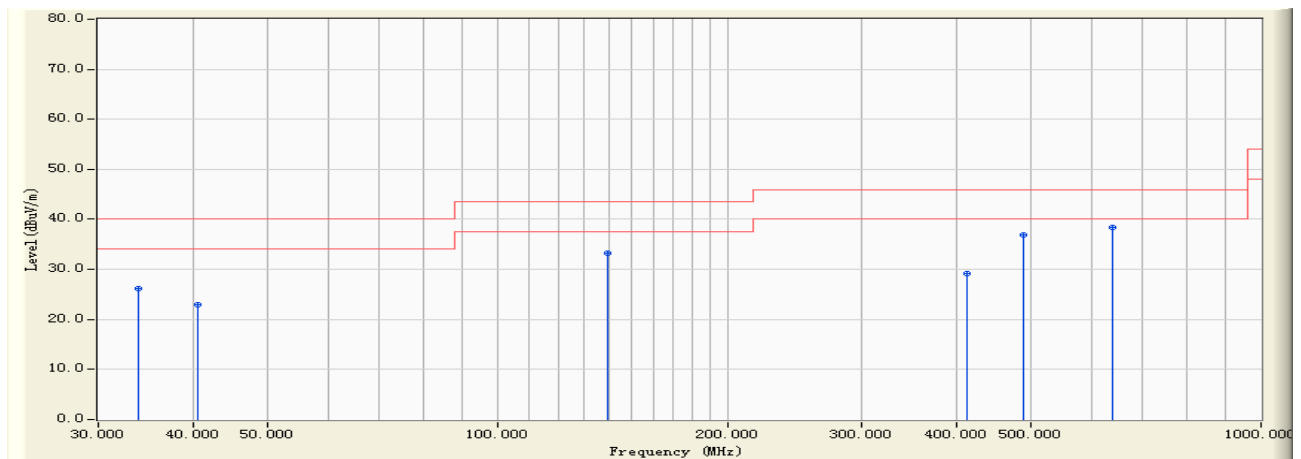
Instrument	Model No.	Manufacturer	Serial No.	Calibration Date
EMI Test Receiver	R&S	ESCI	100564	2008.06.30
Preamplifier	Agilent	87405B	My39500554	2008.11.04
Preamplifier	R&S	PR-AMP26	1248791	2008.06.30
Ultra Broadband Antenna	R&S	HL562	100362	2008.11.04
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	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 : 2009/03/08 - 12:53
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 1024* 768@75Hz)



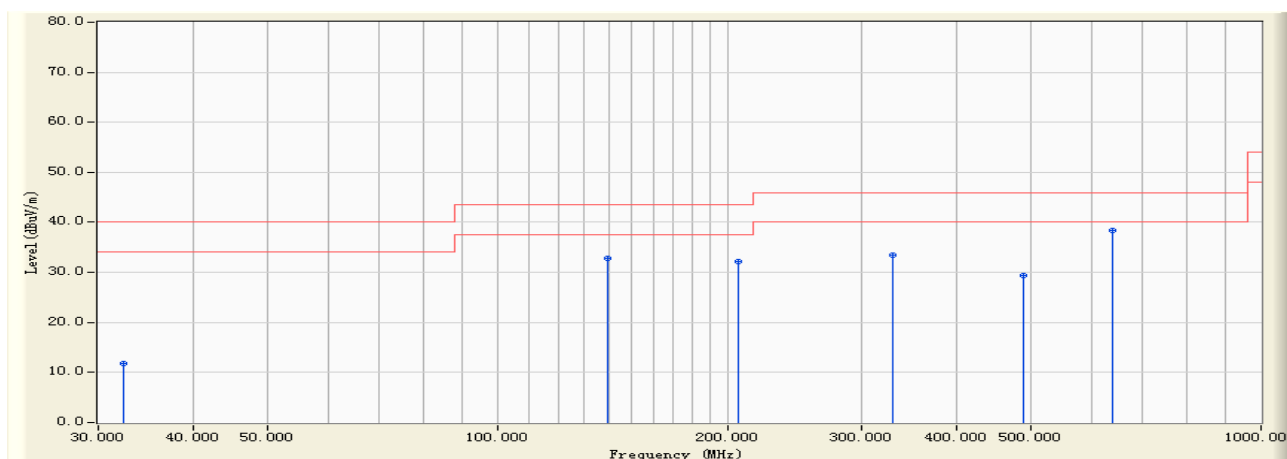
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		33.800	-7.207	33.300	26.093	-13.907	40.000	QUASIPeAK
2		40.420	-10.652	33.600	22.948	-17.052	40.000	QUASIPeAK
3		139.520	-14.952	48.300	33.348	-10.152	43.500	QUASIPeAK
4		412.600	-7.271	36.500	29.229	-16.771	46.000	QUASIPeAK
5		488.820	-5.041	41.900	36.859	-9.141	46.000	QUASIPeAK
6	*	640.000	-1.739	40.200	38.461	-7.539	46.000	QUASIPeAK

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 : 2009/03/08 - 13:14
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 1024* 768@75Hz)



	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	32.400	-6.437	18.200	11.763	-28.237	40.000	QUASIPeAK	120.000	80.000
2	139.100	-14.927	47.700	32.773	-10.727	43.500	QUASIPeAK	140.000	240.000
3	206.400	-15.043	47.300	32.256	-11.244	43.500	QUASIPeAK	160.000	70.000
4	329.500	-10.062	43.600	33.538	-12.462	46.000	QUASIPeAK	160.000	150.000
5	488.800	-5.041	34.500	29.459	-16.541	46.000	QUASIPeAK	100.000	290.000
6	640.000	-1.739	40.100	38.361	-7.639	46.000	QUASIPeAK	230.000	300.000

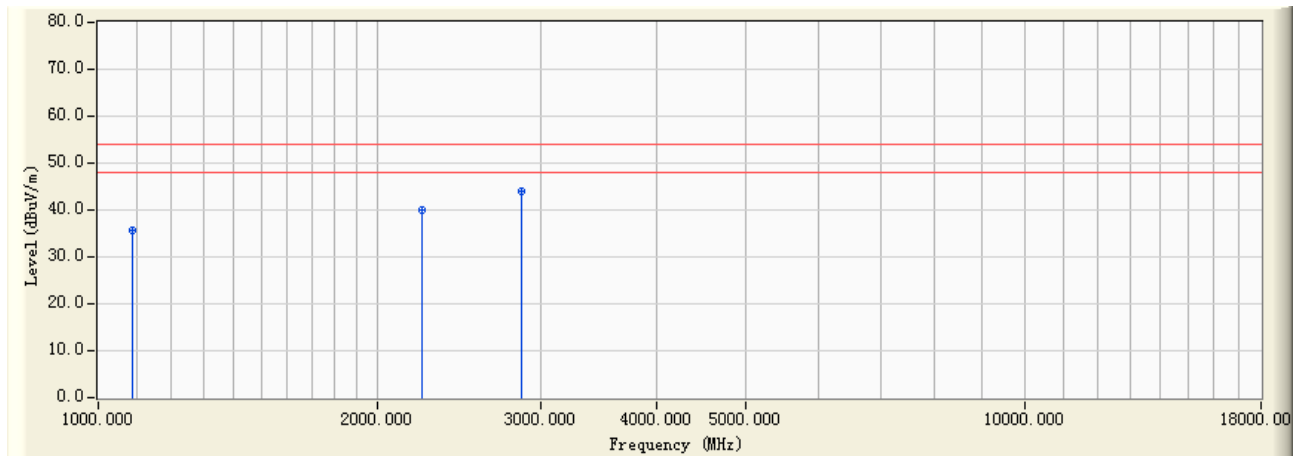
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3. Measurement Level = Reading Level + Correct Factor



Above 1G:

Site : EMC Lab AC 102	Time : 2009/03/08 - 14:17
Limit : FCC 15_03M_AV	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 2: Full system (VGA 1024* 768@75Hz)



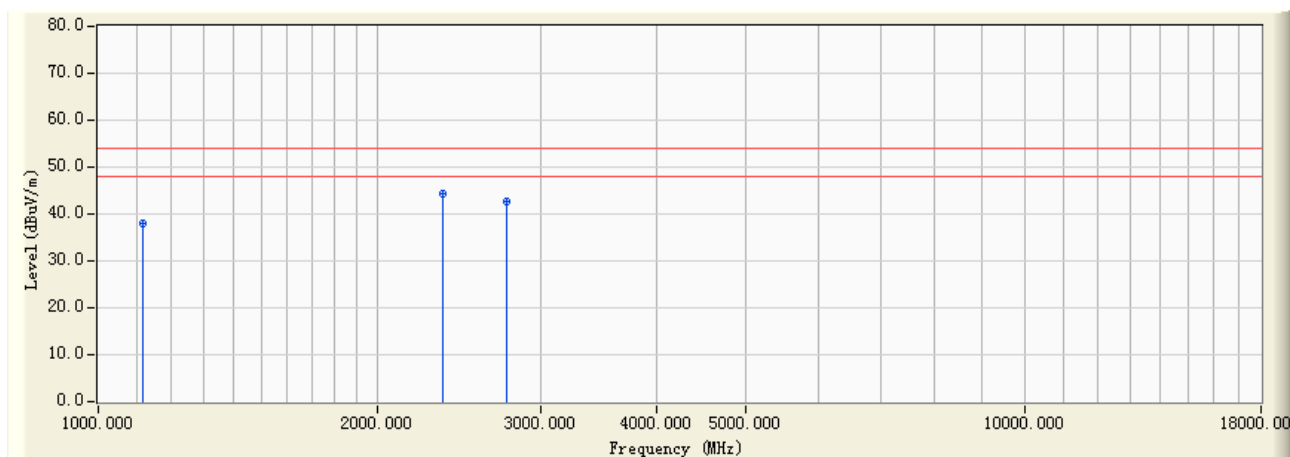
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1087.200	-12.513	48.200	35.687	-18.313	54.000	AVERAGE
2		2235.600	-7.371	47.500	40.129	-13.871	54.000	AVERAGE
3	*	2865.400	-5.453	49.300	43.847	-10.153	54.000	AVERAGE

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 : 2009/03/08 - 14:18
Limit : FCC_15_03M_AV	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 2: Full system (VGA 1024* 768@75Hz)



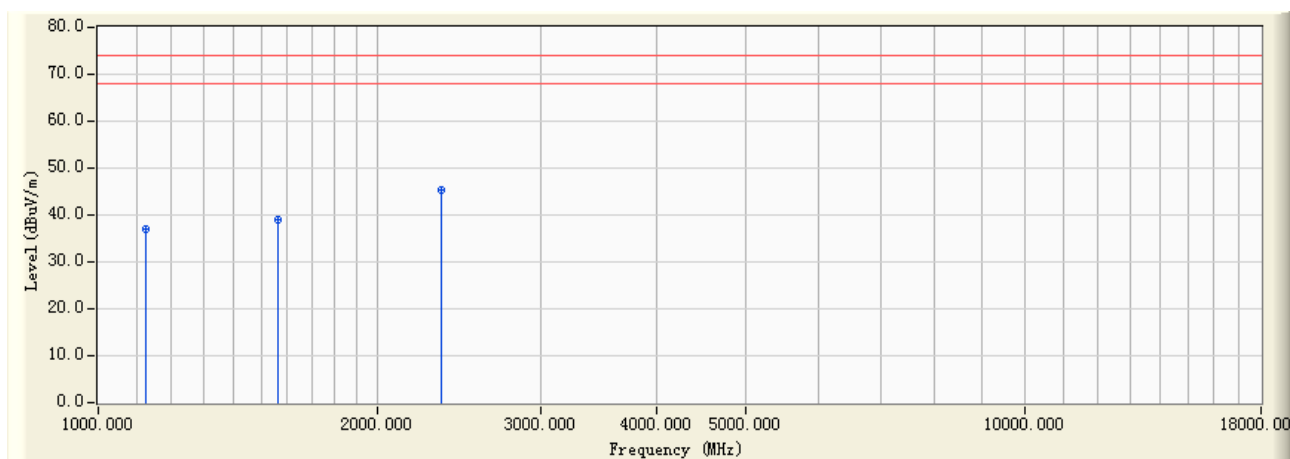
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1118.300	-12.307	50.300	37.994	-16.006	54.000	AVERAGE
2	*	2356.200	-7.089	51.300	44.211	-9.789	54.000	AVERAGE
3		2763.500	-5.606	48.200	42.594	-11.406	54.000	AVERAGE

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 : 2009/03/08 - 14:20
Limit : FCC 15_03M_PK	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - HORIZONTAL
Power : AC120V/60Hz	Note : Mode 2: Full system (VGA 1024* 768@75Hz)



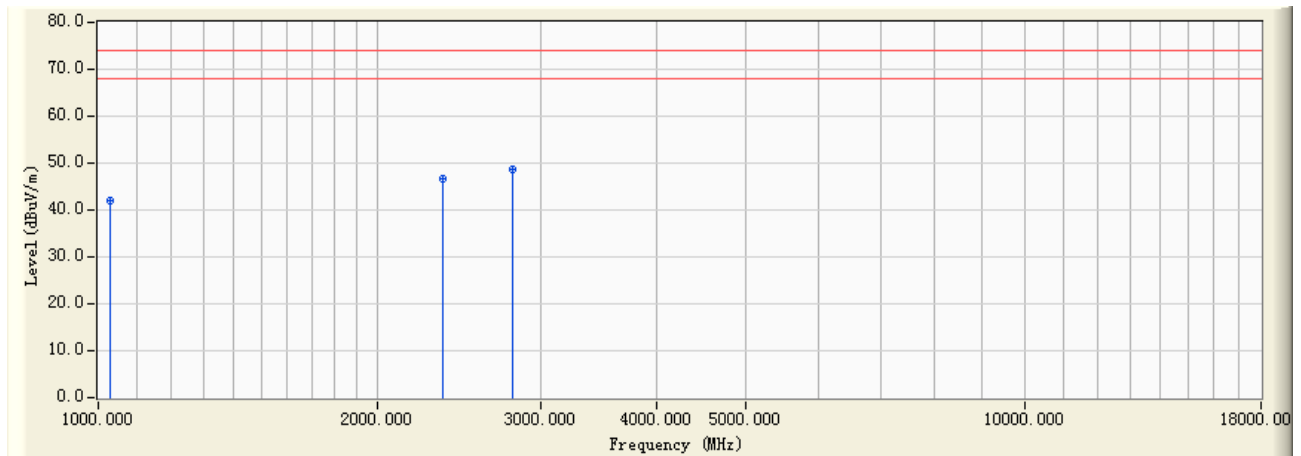
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1125.300	-12.257	49.200	36.943	-37.057	74.000	AVERAGE
2		1564.500	-11.320	50.200	38.880	-35.120	74.000	AVERAGE
3	*	2348.900	-7.116	52.300	45.184	-28.816	74.000	AVERAGE

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 : 2009/03/08 - 14:22
Limit : FCC 15_03M_PK	Margin : 6
EUT : LCD Monitor	Probe : BBHA9120D(1-18GHz) - VERTICAL
Power : AC120V/60Hz	Note : Mode 2: Full system (VGA 1024* 768@75Hz)



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1029.500	-12.748	54.600	41.852	-32.148	74.000	PEAK
2		2356.800	-7.086	53.600	46.514	-27.486	74.000	PEAK
3	*	2796.800	-5.455	54.200	48.746	-25.254	74.000	PEAK

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

Flora wang

Test engineer: _____