FCC TEST REPORT

For

15.6" LCD TV with DVD Player

MODEL No.: HLTC15DC, LCD156D1-D, LCD156D2-D, LCD156DF2-D

Trademark: HuiDi, HEC

FCC ID: XHJHUIDI675

REPORT NO: HD10030010-2

ISSUE DATE: March 23, 2010

Prepared for

GUANGZHOU HD ELECTRONICS TECHNOLOGY CO., LTD No. 1, Jiaochanggang, Shiji Town, Panyu District, Guangzhou, China

Prepared by **DONGGUAN EMTEK CO., LTD**

No. 281, Guantai Road, Nancheng District, Dongguan, Guangdong, China TEL: +86-769-22807078

FAX: +86-769-22807079

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TEST REPOTR DESCRIPTION

Applicant : GUANGZHOU HD ELECTRONICS TECHNOLOGY

CO., LTD

Manufacturer : GUANGZHOU HD ELECTRONICS TECHNOLOGY

CO., LTD

EUT : 15.6" LCD TV with DVD Player

FCC ID No. : XHJHUIDI675

Test Voltage : 120V/60Hz

File Number : ED10030010-2

Date of Test : March 01, 2010 to March 23, 2010

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B Class B October 2009 & FCC / ANSI C63.4-2003

The device described above is tested by Dongguan EMTEK Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Dongguan EMTEK Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Dongguan EMTEK Co., Ltd.

Approved By

DONGGUAN EMTEK CO., LTD.

Nicol Lee / Q.A. Manager

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT : 15.6" LCD TV with DVD Player

Model Number : HLTC15DC, LCD156D1-D, LCD156D2-D, LCD156DF2-D

(Note: Those models are the same except appearance,

we prepare LCD156D1-D for EMC test, all models use the same

FCC ID Number.)

FCC ID Number : XHJHUIDU675

Trade Mark : HuiDi, HEC

Power Supply : 100~240V 50/60Hz

ADAPTER : M/N: GP008CX

Input: AC 100~240V 50/60Hz

Output: DC 12V 4A
Output line: Unshielded line

Applicant : GUANGZHOU HD ELECTRONICS TECHNOLOGY

CO., LTD

Address : No.1, Jiaochanggang, Shiji Town, Panyu District,

Guangzhou, China

Manufacturer : GUANGZHOU HD ELECTRONICS TECHNOLOGY

CO., LTD

Address : No.1, Jiaochanggang, Shiji Town, Panyu District,

Guangzhou, China

Date of sample receiver: March 01, 2010

Date of Test : March 01, 2010 to March 23, 2010

1.2. Description of Support Device

PC : Manufacturer: Dell Inc.

M/N: DCSM S/N: CXBMMZX FCC ID: DoC

USB Mouse : Manufacturer: Dell Inc.

M/N: M-UAK DEL7

P/N: XN966 FCC ID: DoC

USB Keyboard : Manufacturer: Dell Inc.

M/N: L30U S/N:D1C FCC ID: DoC

Printer : Manufacturer: HP

M/N:HP LaserJet 1020 S/N: CNCK512065 P/N: Q5911A FCC ID: DoC

Cables

VGA Cable : Shielded, Detachabled, 1.7m (With two cores)

1.3 Test Facility

Site Description

EMC Lab. : Accredited by CNAS, 2007.07.27

The certificate is valid until 2012.07.26

The Laboratory has been assessed and proved to be in

compliance with CNAS/CL01:2005

The Certificate Registration Number is L3150

Accredited by TUV Rheinland Shenzhen 2008.5

The certificate is valid until 2009.12

The Laboratory has been assessed according to the

requirements ISO/IEC 17025

Accredited by FCC, Nov. 05, 2008 The Certificate Number is 247565.

Accredited by Industry Canada, May 24, 2008 The Certificate Registration Number. is 46405-4480

Name of Firm : Dongguan EMTEK Co., Ltd.

Site Location : No.281, Guantai Road, Nancheng District, Dongguan,

Guangdong, China.

1.4 Measurement Uncertainty

Conducted Emission Uncertainty : Ur = 3.3

Radiated Emission Uncertainty : Uc = 2.8

Disturbance Power Uncertainty : Uc = 2.6

2. POWER LINE CONDUCTED MEASUREMENT

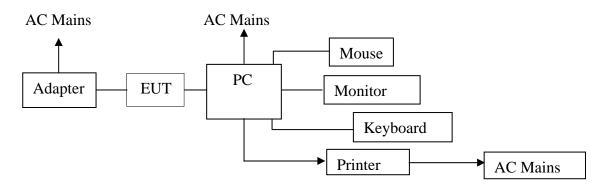
2.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.
						Interval
1	EMI Test Receiver	ROHDE&SCHWA	ESCS30	828985/018	May 29, 2009	1 Year
		RZ				
2	LISN	ROHDE&SCHWA	ENV216	100017	May 29, 2009	1Year
		RZ				
3	Conical Housing	EMTEK	N/A	N/A	May 29, 2009	N/A
4	Voltage Probe	SCHWARZBECK	EZ-17	100213	May 29, 2009	1Year
5	50 Ω Coaxial	ANRITSU CORP	MP59B	6100175589	May 29, 2009	1Year
	Switch					

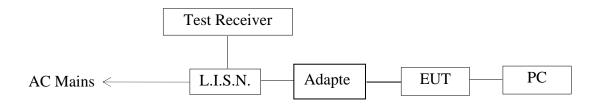
2.2. Block Diagram of Test Setup

2.2.1 Block diagram of connection between the EUT and simulators



(EUT: 15.6" LCD TV with DVD Player)

2.2.2 Block diagram of test setup



(EUT: 15.6" LCD TV with DVD Player)

2.3. Power Line Conducted Emission Measurement Limits

Conducted Emission Limits is as following.

Frequency	Limits	$dB(\mu V)$
MHz	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

2.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

EUT : 15.6" LCD TV with DVD Player

Model Number : LCD156D1-D

Manufacturer : GUANGZHOU HD ELECTRONICS TECHNOLOGY

CO., LTD

2.5. Operating Condition of EUT

- 2.5.1. Setup the EUT and simulator as shown as Section 2.2.
- 2.5.2. Turn on the power of all equipment.
- 2.5.3. Let the EUT work in test model (Running "H" Pattern 800*600/60Hz, Running "H" Pattern 1280*768/60Hz, Running "H" Pattern 1360*768/60Hz) and measure it.

2.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2003 on Conducted Emission Measurement.

The bandwidth of test receiver (R&S ESCS30) is set at 9KHz. The frequency range from 150KHz to 30MHz is checked.

2.7.Power Line Conducted Emission Measurement Results PASS

The frequency range from 150KHz to 30 MHz is investigated.

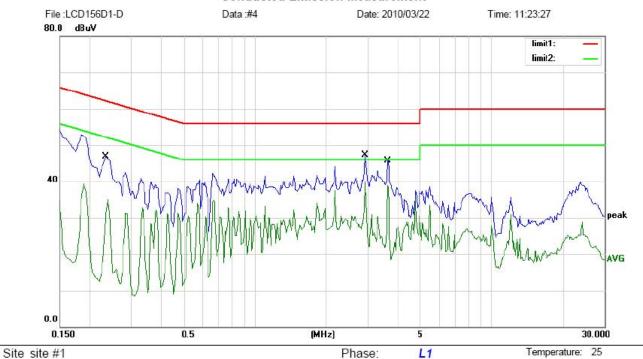
The scanning waveforms refer to the following pages:



Humidity:

50 %

Conducted Emission Measurement



Power: AC 120V/60Hz

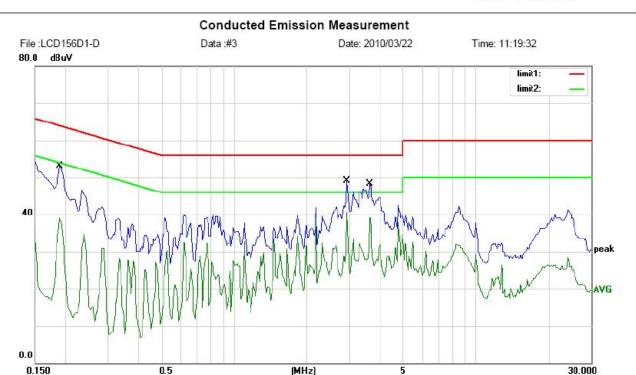
Limit: (CE)FCC PART 15 class B_QP

EUT: 15.6"LCD TV with DVD Player

M/N: LCD156D1-D Mode: Connect to PC Note: 800*600 60Hz

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.2350	46.93	0.00	46.93	62.27	-15.34	QP	
2	0.2350	35.15	0.00	35.15	52.27	-17.12	AVG	
3	2.9300	47.26	0.00	47.26	56.00	-8.74	QP	
4 *	2.9300	39.94	0.00	39.94	46.00	-6.06	AVG	
5	3.6600	45.62	0.00	45.62	56.00	-10.38	QP	
6	3.6600	38.86	0.00	38.86	46.00	-7.14	AVG	





Site site #1 Phase: N Temperature: 25
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 50 %

EUT: 15.6"LCD TV with DVD Player

M/N: LCD156D1-D Mode: Connect to PC Note: 800*600 60Hz

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	0.1900	53.11	0.00	53.11	64.04	-10.93	QP		
2	0.1900	39.06	0.00	39.06	54.04	-14.98	AVG		
3	2.9300	49.13	0.00	49.13	56.00	-6.87	QP		
4 *	2.9300	40.70	0.00	40.70	46.00	-5.30	AVG		
5	3.6600	48.36	0.00	48.36	56.00	-7.64	QP		
6	3.6600	39.18	0.00	39.18	46.00	-6.82	AVG		

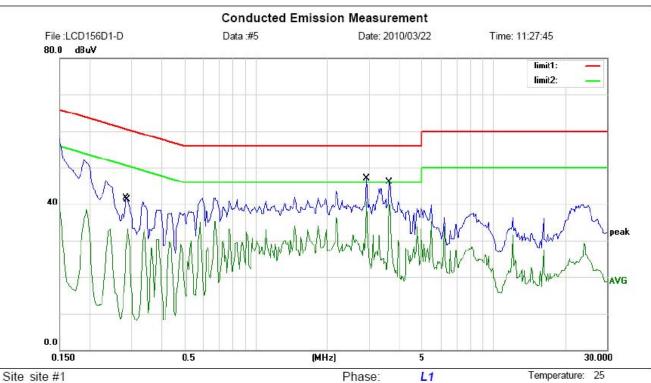
Dongguan EMTEK Co., Ltd.



Humidity:

50 %

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Power: AC 120V/60Hz

Limit: (CE)FCC PART 15 class B_QP

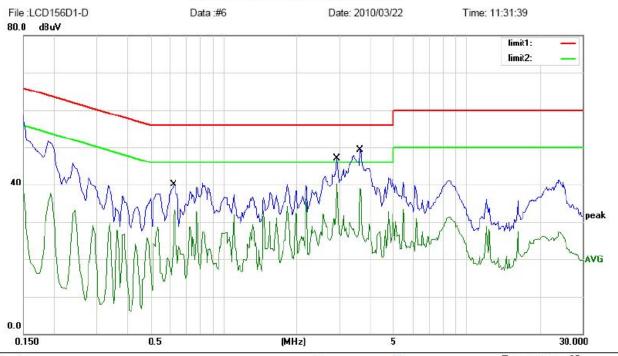
EUT: 15.6"LCD TV with DVD Player

M/N: LCD156D1-D Mode: Connect to PC Note: 1280*768 60Hz

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	0.2850	41.72	0.00	41.72	60.67	-18.95	QP		
2	0.2900	33.15	0.00	33.15	50.52	-17.37	AVG		
3	2.9300	47.07	0.00	47.07	56.00	-8.93	QP		
4 *	2.9300	40.74	0.00	40.74	46.00	-5.26	AVG		
5	3.6600	46.07	0.00	46.07	56.00	-9.93	QP		
6	3.6600	39.87	0.00	39.87	46.00	-6.13	AVG		



Conducted Emission Measurement



Site site #1 Phase: N Temperature: 25
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 50 %

EUT: 15.6"LCD TV with DVD Player

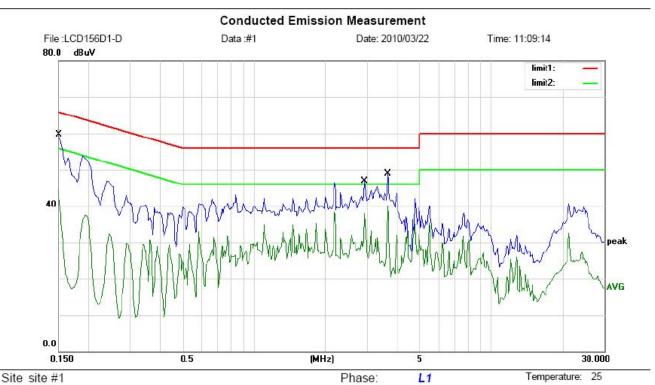
M/N: LCD156D1-D Mode: Connect to PC Note: 1280*768 60Hz

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	0.6250	40.08	0.00	40.08	56.00	-15.92	QP		
2	0.6250	33.06	0.00	33.06	46.00	-12.94	AVG		
3	2.9300	47.18	0.00	47.18	56.00	-8.82	QP		
4 *	2.9300	40.24	0.00	40.24	46.00	-5.76	AVG		
5	3.6600	49.33	0.00	49.33	56.00	-6.67	QP		
6	3.6600	38.91	0.00	38.91	46.00	-7.09	AVG		



Humidity:

50 %



Power: AC 120V/60Hz

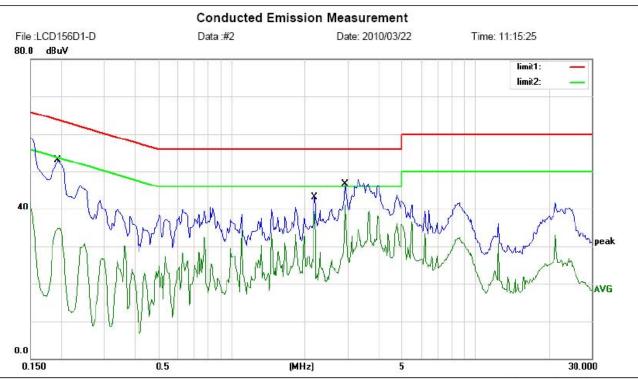
Limit: (CE)FCC PART 15 class B_QP

EUT: 15.6"LCD TV with DVD Player

M/N: LCD156D1-D Mode: Connect to PC Note: 1360*768 60Hz

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	0.1500	59.62	0.00	59.62	66.00	-6.38	QP		
2	0.1500	44.41	0.00	44.41	56.00	-11.59	AVG		
3	2.9300	46.95	0.00	46.95	56.00	-9.05	QP		
4	2.9300	37.94	0.00	37.94	46.00	-8.06	AVG		
5	3.6700	48.82	0.00	48.82	56.00	-7.18	QP		
6 *	3.6700	40.10	0.00	40.10	46.00	-5.90	AVG		





Site site #1 Phase: N Temperature: 25
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 50 %

EUT: 15.6"LCD TV with DVD Player

M/N: LCD156D1-D Mode: Connect to PC Note: 1360*768 60Hz

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBu∀	dB	Detector	Comment	
1	0.1950	53.12	0.00	53.12	63.82	-10.70	QP		
2	0.1950	34.96	0.00	34.96	53.82	-18.86	AVG		
3	2.2000	43.20	0.00	43.20	56.00	-12.80	QP		
4	2.2000	39.31	0.00	39.31	46.00	-6.69	AVG		
5	2.9300	46.73	0.00	46.73	56.00	-9.27	QP		
6 *	2.9300	41.14	0.00	41.14	46.00	-4.86	AVG		

3. RADIATED EMISSION MEASUREMENT

3.1.Test Equipment

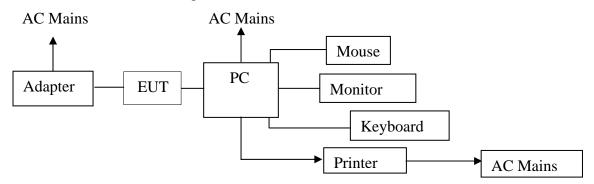
The following test equipments are used during the radiated emission measurement:

3.1.1. For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Rohde & Schwarz	ESCI	100137	May 29, 2009	1 Year
2.	Test Receiver	Rohde & Schwarz	ESCI	100137	May 29, 2009	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	143	May 29, 2009	1 Year
4.	Power Amplifier	HP	8447F	OPT H64	May 29, 2009	1 Year
5.	Positioning Controller	C&C LAB	CC-C-IF	N/A	May 29, 2009	1 Year
6.	Color Monitor	SUNSPO	SP-140A	N/A	May 29, 2009	1 Year
7.	Single Line Filter	JIANLI	XL-3	N/A	May 29, 2009	1 Year
8.	Single Phase Power Line Filter	JIANLI	DL-2X100B	N/A	May 29, 2009	1 Year
9.	3 Phase Power Line Filter	JIANLI	DL-4X100B	N/A	May 29, 2009	1 Year
10.	DC Power Filter	JIANLI	DL-2X50B	N/A	May 29, 2009	1 Year
11.	Cable	Schwarzbeck	PLF-100	N/A	May 29, 2009	1 Year
12.	Cable	Rosenberger	CIL02	A0783566	May 29, 2009	1 Year
13.	Cable	Rosenberger	AK9513	AC RX1	May 29, 2009	1 Year

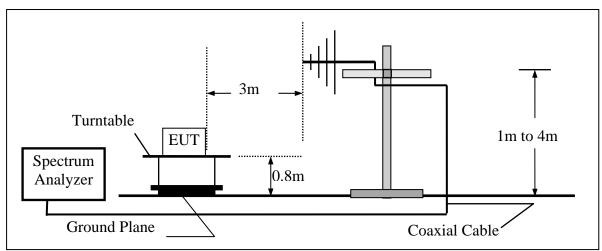
3.2.Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators



(EUT: 15.6" LCD TV with DVD Player)

3.2.2. Anechoic Chamber Test Setup Diagram



(EUT: 15.6" LCD TV with DVD Player)

3.3. Radiated Emission Limit

Radiated Emission Limits is as following.

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMIT
MHz	Meters	dB(µV)/m
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0
>1000	3	74.0 dB(µV)/m (peak)
		54.0 dB(µV)/m (Average)

Remark : (1) Emission level (dB) μ V = 20 log Emission level μ V/m

- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4.EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

15.6" LCD TV with DVD Player(EUT)

Model Number : LCD156D1-D

3.5. Operating Condition of EUT

- 3.5.1 Setup the EUT as shown in Section 3.2.
- 3.5.2 Turn on the power of all equipment.
- 3.5.3 Let the EUT work in test mode (Running "H" Pattern 800*600/60Hz, Running "H" Pattern 1280*768/60Hz, Running "H" Pattern 1360*768/60Hz) and measure it.

3.6.Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2003 on radiated emission measurement.

The bandwidth of the EMI test receiver (R&S ESCI) is set at 120KHz/1MHz.

The frequency range from 30MHz to 1000MHz is checked.

3.7. Radiated Emission Noise Measurement Results

PASS.

Test data refer to following pages.

Temperature:

Humidity:

26

55 %

Dongguan EMTEK Co., Ltd. No.281, Guantai Road, Nancheng District, Dongguan, Guangdong 523077 P.R. China www.emtek.com.cn Tel:+86-769-2280 7078 Fax:+86-769-2280 7079



Radiated Emission Measurement File:LCD156D1-D Data:#3 Date: 2010/03/22 Time: 19:14:47 80.0 dBuV/m limit1: Margin: 70 60 50 40 30 20 10 0.0 30.000 40 50 70 80 (MHz) 400 600 700 1000.000

Site Chamber #1 Limit: (RE)FCC PART 15 class B 3m

EUT: 15.6" LCD TV with DVD Player

M/N: LCD156D1-D Mode: Connect to PC Note: 800*600/60Hz

No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	;	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		174.5300	50.41	-17.92	32.49	43.50	-11.01	QP			
2	-	380.1700	49.37	-9.65	39.72	46.00	-6.28	QP			
3	*	807.9400	43.68	-3.27	40.41	46.00	-5.59	QP			

Polarization:

Power: AC 120V/60Hz

Horizontal

Humidity:

55 %

Dongguan EMTEK Co.,Ltd.
No.281,Guantai Road, Nancheng District,Dongguan,Guangdong 523077 P.R. China
www.emtek.com.cn Tel:+86-769-2280 7078 Fax:+86-769-2280 7079



Radiated Emission Measurement



Limit: (RE)FCC PART 15 class B 3m

EUT: 15.6" LCD TV with DVD Player

M/N: LCD156D1-D Mode:Connect to PC Note: 800*600/60Hz

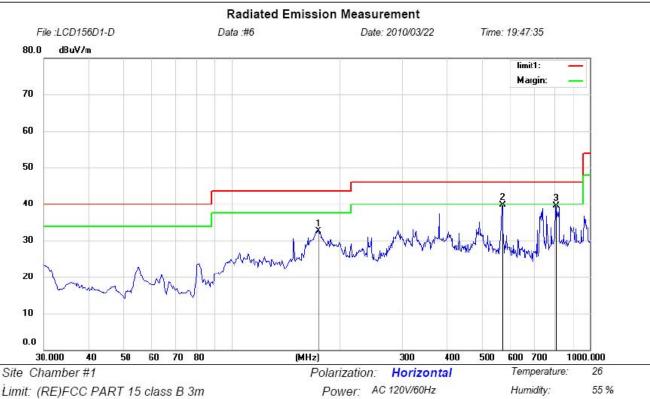
No.	Mk.	. Freq.	Reading Level	Correct Factor dB	Measure- ment		Over dB	-	Antenna Height	Table Degree	
		MHz	dBuV		dBuV/m			Detector	cm	degree	Comment
1		109.5400	49.92	-17.16	32.76	43.50	-10.74	QP			
2	- 3	380.1700	47.10	-9.65	37.45	46.00	-8.55	QP			
3	*	822.4900	42.08	-3.14	38.94	46.00	-7.06	QP			

Power: AC 120V/60Hz



Humidity:

55 %



Limit: (RE)FCC PART 15 class B 3m

EUT: 15.6" LCD TV with DVD Player

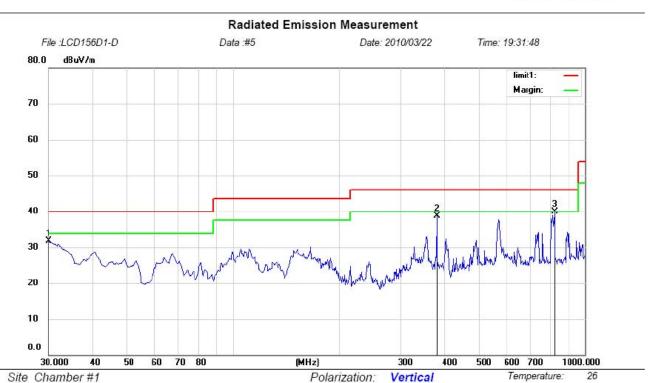
M/N: LCD156D1-D Mode: Connect to PC Note: 1280*768/60Hz

No.	М	c. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dΒ	Detector	cm	degree	Comment
1		174.5300	50.42	-17.92	32.50	43.50	-11.00	QP			
2	*	570.2900	46.22	-6.52	39.70	46.00	-6.30	QP			
3		806.9700	42.82	-3.27	39.55	46.00	-6.45	QP			



Humidity:

55 %



Limit: (RE)FCC PART 15 class B 3m

EUT: 15.6" LCD TV with DVD Player

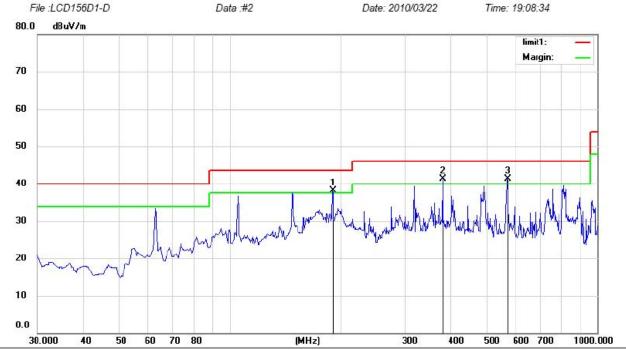
M/N: LCD156D1-D Mode: Connect to PC Note: 1280*768/60Hz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			enna Table eight Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dΒ	Detector	cm	degree	Comment
1		30.0000	48.76	-17.15	31.61	40.00	-8.39	QP			
2	į.	380.1700	48.37	-9.65	38.72	46.00	-7.28	QP			
3	*	822.4900	42.97	-3.14	39.83	46.00	-6.17	QP			

Power: AC 120V/60Hz



Radiated Emission Measurement Data:#2 Date: 2010/03/22



Site Chamber #1 Polarization: Horizontal Temperature: 26
Limit: (RE)FCC PART 15 class B 3m Power: AC 120V/60Hz Humidity: 55 %

EUT: 15.6" LCD TV with DVD Player

M/N: LCD156D1-D Mode:Connect to PC Note: 1360*768/60Hz

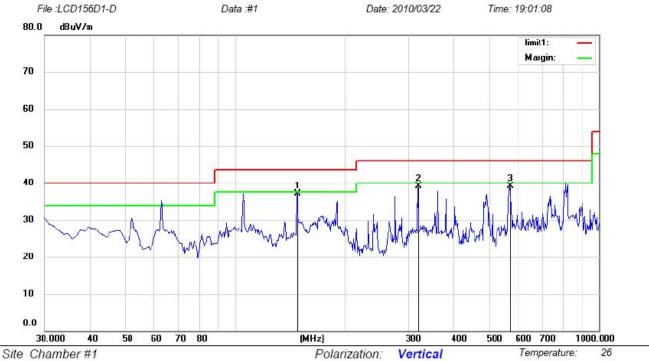
No.	М	c. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dΒ	Detector	cm	degree	Comment
1	!	191.0200	53.69	-15.52	38.17	43.50	-5.33	QP			
2	*	380.1700	51.05	-9.65	41.40	46.00	-4.60	QP			
3	!	570.2900	47.85	-6.52	41.33	46.00	-4.67	QP			



Humidity:

55 %

Radiated Emission Measurement



Polarization:

Power: AC 120V/60Hz

Limit: (RE)FCC PART 15 class B 3m

EUT: 15.6" LCD TV with DVD Player

M/N: LCD156D1-D Mode: Connect to PC Note: 1360*768/60Hz

No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	148.3400	57.93	-20.75	37.18	43.50	-6.32	QP			
2		319.0600	50.47	-11.39	39.08	46.00	-6.92	QP			
3		570.2900	45.64	-6.52	39.12	46.00	-6.88	QP			

4. PHOTOGRAPHS

4.1 Photo of Power Line Conducted Emission Measurement





4.2 Photo of Radiated Emission Measurement





4.3 Photos of EUT

General Appearance of EUT



General Appearance of EUT







