

FCC TEST REPORT

For

22’’ NTSC/ATSC LCD TV

**MODEL No.: LCD220F1, LCD220F2, LCD220F3,
LCD220F5, HLD-22HCB**

Trademark: HuiDi, HCT

FCC ID: XHJHUIDI888

REPORT NO: E0906628F

ISSUE DATE: June 22, 2009

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

TABLE OF CONTENTS

1. GENERAL INFORMATION	4
1.1. Description of Device (EUT).....	4
1.2. Description of Support Device	5
1.3 Test Facility	6
1.4 Measurement Uncertainty	6
2. POWER LINE CONDUCTED MEASUREMENT	7
2.1. Test Equipment.....	7
2.2. Block Diagram of Test Setup.....	7
2.3. Power Line Conducted Emission Measurement Limits.....	8
2.4. Configuration of EUT on Measurement	8
2.5. Operating Condition of EUT	8
2.6. Test Procedure	8
2.7. Power Line Conducted Emission Measurement Results	9
3. RADIATED EMISSION MEASUREMENT	18
3.1. Test Equipment.....	18
3.2. Block Diagram of Test Setup.....	19
3.3. Radiated Emission Limit	19
3.4. EUT Configuration on Measurement	20
3.5. Operating Condition of EUT	20
3.6. Test Procedure	20
3.7. Radiated Emission Noise Measurement Results.....	20

TEST REPORT DESCRIPTION

Applicant : GUANGZHOU HD ELECTRONICS TECHNOLOGY CO., LTD
Manufacturer : GUANGZHOU HD ELECTRONICS TECHNOLOGY CO., LTD
EUT : 22" NTSC/ATSC LCD TV
FCC ID No. : XHJHUIDI888
Test Voltage : 120V/60Hz
File Number : E0906628F
Date of Test : June 19, 2009 to June 22, 2009

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B Class B July 2008 & 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



Nicol Lee / Q.A. Manager
DONGGUAN EMTEK CO., LTD.

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	: 22'' NTSC/ATSC LCD TV
Model Number	: LCD220F1, LCD220F2, LCD220F3, LCD220F5, HLD-22HCB (Note: Those models are the same except appearance, we prepare LCD220F3 for EMC test, all models use the same FCC
FCC ID Number	: XHJHUIDU888
Trade Mark	: HuiDi, HCT
Power Supply	: 100~240V 50/60Hz
ADAPTER	: M/N: GP009CX Input: AC 100~240V 50/60Hz Output: DC 12V 5A 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	: June 19, 2009
Date of Test	: June 19, 2009 to June 22, 2009

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, Detachable, 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 : $U_r = 3.3$

Radiated Emission Uncertainty : $U_c = 2.8$

Disturbance Power Uncertainty : $U_c = 2.6$

2. POWER LINE CONDUCTED MEASUREMENT

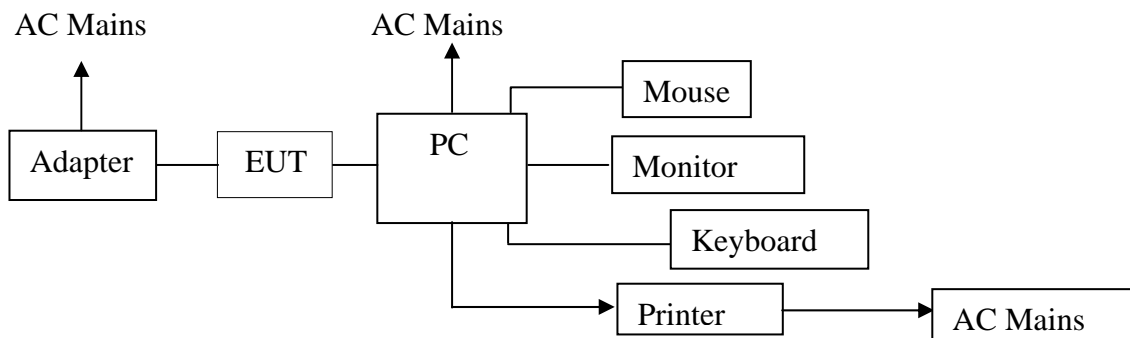
2.1. Test Equipment

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&SCHWARZ	ESCS30	828985/018	May 29, 2009	1 Year
2	LISN	ROHDE&SCHWARZ	ENV216	100017	May 29, 2009	1Year
3	Conical Housing	EMTEK	N/A	N/A	May 29, 2009	N/A
4	Voltage Probe	SCHWARZBECK	EZ-17	100213	May 29, 2008	1Year
5	50 Ω Coaxial Switch	ANRITSU CORP	MP59B	6100175589	May 29, 2009	1Year

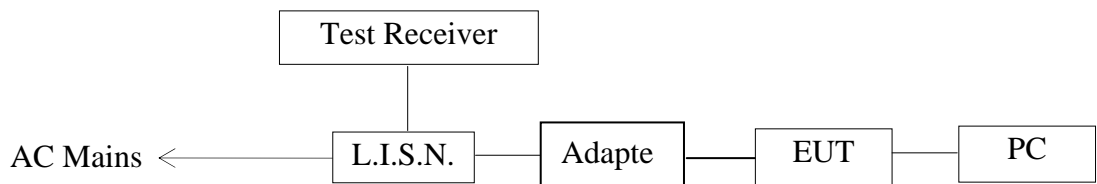
2.2. Block Diagram of Test Setup

2.2.1 Block diagram of connection between the EUT and simulators



(EUT: 22'' NTSC/ATSC LCD TV)

2.2.2 Block diagram of test setup



(EUT: 22'' NTSC/ATSC LCD TV)

2.3. Power Line Conducted Emission Measurement Limits

Conducted Emission Limits is as following.

Frequency MHz	Limits dB(μ V)	
	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 : 22'' NTSC/ATSC LCD TV
Model Number : LCD220F3
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 640*480/60Hz, Running "H" Pattern 1024*768/60Hz, Running "H" Pattern 1680*1050/60Hz, Running "H" Pattern 1920*1080/60Hz) 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:

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



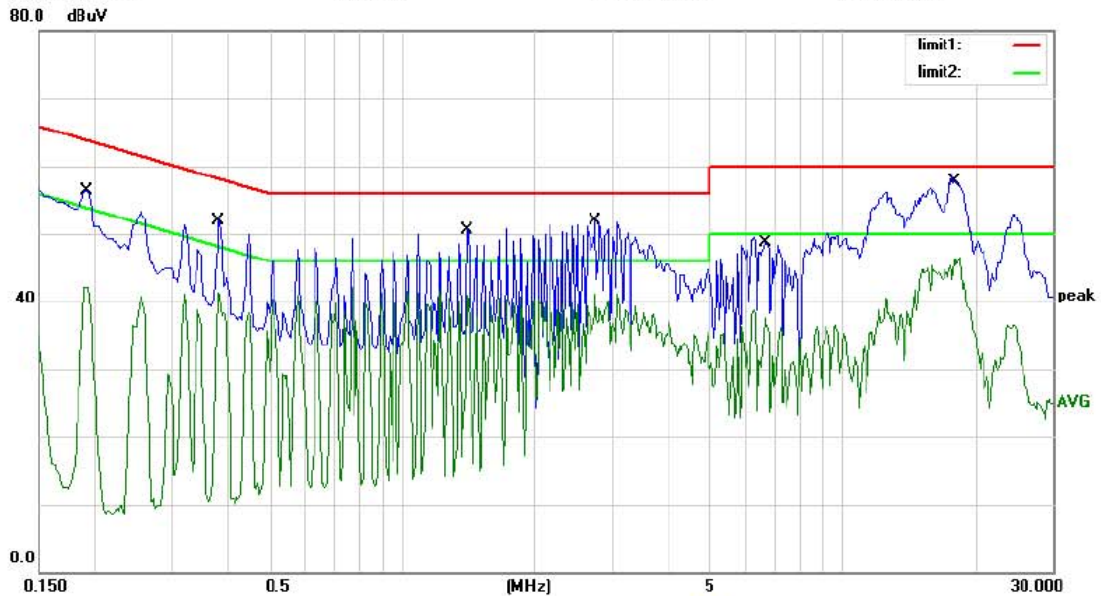
Conducted Emission Measurement

File: LCD220F3

Data: #1

Date: 09/06/20/

Time: 9/16/47



Site site #1

Phase: L1

Temperature: 25

Limit: (CE)FCC Part 15 B_QP

Power: AC 120V/60Hz

Humidity: 50 %

EUT: 22" NTSC/ATSC LCD TV

M/N: LCD220F3

Mode: Runing "H" Pattern

Note: 640*480/60Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1900	56.36	0.00	56.36	64.04	-7.68	QP	
2		0.1900	42.18	0.00	42.18	54.04	-11.86	AVG	
3		0.3850	51.65	0.00	51.65	58.17	-6.52	QP	
4		0.3850	41.40	0.00	41.40	48.17	-6.77	AVG	
5		1.4100	48.16	0.00	48.16	56.00	-7.84	QP	
6		1.4100	40.99	0.00	40.99	46.00	-5.01	AVG	
7		2.7600	49.02	0.00	49.02	56.00	-6.98	QP	
8	*	2.7600	41.10	0.00	41.10	46.00	-4.90	AVG	
9		6.6750	48.75	0.00	48.75	60.00	-11.25	QP	
10		6.6750	37.45	0.00	37.45	50.00	-12.55	AVG	
11		18.0250	54.39	0.00	54.39	60.00	-5.61	QP	
12		18.0250	44.14	0.00	44.14	50.00	-5.86	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator:

File: LCD220F3\Data: #1

Page: 1

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



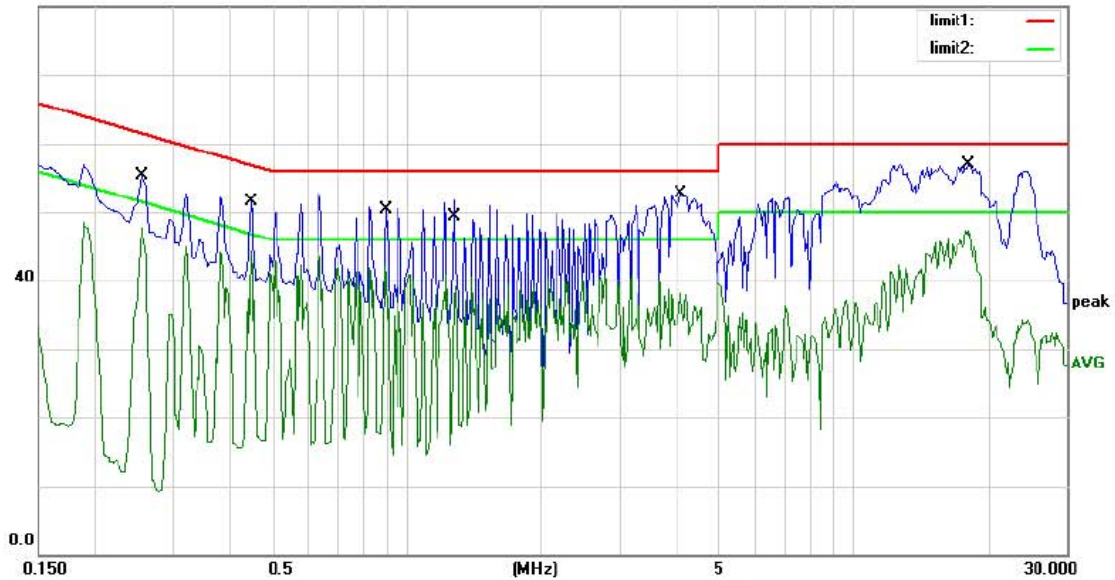
Conducted Emission Measurement

File :LCD220F3
80.0 dBuV

Data :#2

Date: 09/06/20/

Time: 9/22/05



Site site #1

Phase: **N**

Temperature: 25

Limit: (CE)FCC Part 15 B_QP

Power: AC 120V/60Hz

Humidity: 50 %

EUT: 22" NTSC/ATSC LCD TV

M/N: LCD220F3

Mode: Runing "H" Pattern

Note: 640*480/60Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2550	53.49	0.00	53.49	61.59	-8.10	QP	
2		0.2550	47.69	0.00	47.69	51.59	-3.90	AVG	
3		0.4500	52.78	0.00	52.78	56.88	-4.10	QP	
4	*	0.4500	44.25	0.00	44.25	46.88	-2.63	AVG	
5		0.8900	50.36	0.00	50.36	56.00	-5.64	QP	
6		0.8900	42.07	0.00	42.07	46.00	-3.93	AVG	
7		1.2900	49.15	0.00	49.15	56.00	-6.85	QP	
8		1.2900	39.15	0.00	39.15	46.00	-6.85	AVG	
9		4.1000	49.67	0.00	49.67	56.00	-6.33	QP	
10		4.1000	38.10	0.00	38.10	46.00	-7.90	AVG	
11		18.2000	54.31	0.00	54.31	60.00	-5.69	QP	
12		18.2000	47.30	0.00	47.30	50.00	-2.70	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator:

File :LCD220F3\Data :#2

Page: 1

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



Conducted Emission Measurement

File :LCD220F3
80.0 dBuV

Data :#4

Date: 09/06/20/

Time: 9/34/58



Site site #1

Phase: **L1**

Temperature: 25

Limit: (CE)FCC Part 15 B_QP

Power: AC 120V/60Hz

Humidity: 50 %

EUT: 22" NTSC/ATSC LCD TV

M/N: LCD220F3

Mode: Runing "H" Pattern

Note: 1024*768/60Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2508	50.28	0.00	50.28	61.73	-11.45	QP	
2		0.2508	44.99	0.00	44.99	51.73	-6.74	AVG	
3		0.3200	50.95	0.00	50.95	59.71	-8.76	QP	
4		0.3200	45.62	0.00	45.62	49.71	-4.09	AVG	
5		0.7700	47.65	0.00	47.65	56.00	-8.35	QP	
6	*	0.7700	42.53	0.00	42.53	46.00	-3.47	AVG	
7		2.0500	48.33	0.00	48.33	56.00	-7.67	QP	
8		2.0500	40.63	0.00	40.63	46.00	-5.37	AVG	
9		2.8800	51.83	0.00	51.83	56.00	-4.17	QP	
10		2.8800	41.76	0.00	41.76	46.00	-4.24	AVG	
11		17.9250	56.44	0.00	56.44	60.00	-3.56	QP	
12		17.9250	46.53	0.00	46.53	50.00	-3.47	AVG	

*:Maximum data x:Over limit l:over margin Comment: Factor build in receiver. Operator:

File :LCD220F3\Data :#4

Page: 1

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



Conducted Emission Measurement

File :LCD220F3
80.0 dBuV

Data :#3

Date: 09/06/20/

Time: 9/31/38



Site site #1

Phase: **N**

Temperature: 25

Limit: (CE)FCC Part 15 B_QP

Power: AC 120V/60Hz

Humidity: 50 %

EUT: 22" NTSC/ATSC LCD TV

M/N: LCD220F3

Mode: Runing "H" Pattern

Note: 1024*768/60Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.3200	50.35	0.00	50.35	59.71	-9.36	QP	
2		0.3200	43.28	0.00	43.28	49.71	-6.43	AVG	
3		0.4500	48.37	0.00	48.37	56.88	-8.51	QP	
4		0.4500	43.18	0.00	43.18	46.88	-3.70	AVG	
5		0.6400	51.68	0.00	51.68	56.00	-4.32	QP	
6	*	0.6400	43.44	0.00	43.44	46.00	-2.56	AVG	
7		1.2800	49.30	0.00	49.30	56.00	-6.70	QP	
8		1.2800	37.65	0.00	37.65	46.00	-8.35	AVG	
9		4.1600	52.69	0.00	52.69	56.00	-3.31	QP	
10		4.1600	41.74	0.00	41.74	46.00	-4.26	AVG	
11		17.7545	55.28	0.00	55.28	60.00	-4.72	QP	
12		17.7545	47.22	0.00	47.22	50.00	-2.78	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator:

File :LCD220F3\Data :#3

Page: 1

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



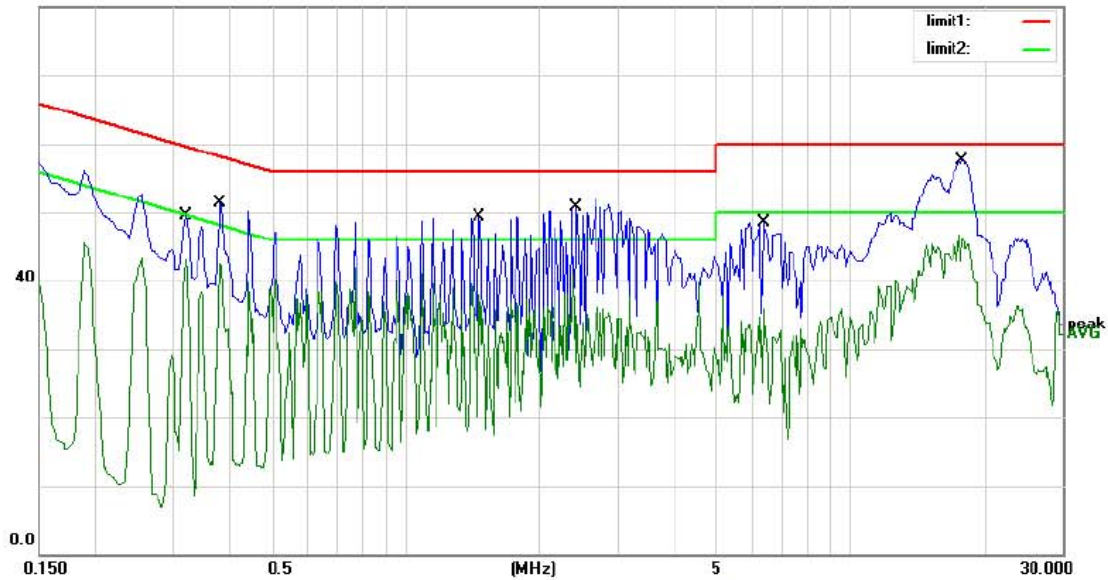
Conducted Emission Measurement

File :LCD220F3
80.0 dBuV

Data :#5

Date: 09/06/20/

Time: 9/40/31



Site site #1

Phase: L1

Temperature: 25

Limit: (CE)FCC Part 15 B_QP

Power: AC 120V/60Hz

Humidity: 50 %

EUT: 22" NTSC/ATSC LCD TV

M/N: LCD220F3

Mode: Runing "H" Pattern

Note: 1680*1050/60Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.3200	51.31	0.00	51.31	59.71	-8.40	QP	
2		0.3200	43.12	0.00	43.12	49.71	-6.59	AVG	
3		0.3850	49.17	0.00	49.17	58.17	-9.00	QP	
4		0.3850	42.58	0.00	42.58	48.17	-5.59	AVG	
5		1.4700	47.52	0.00	47.52	56.00	-8.48	QP	
6		1.4700	37.98	0.00	37.98	46.00	-8.02	AVG	
7		2.3900	51.83	0.00	51.83	56.00	-4.17	QP	
8	*	2.3900	43.31	0.00	43.31	46.00	-2.69	AVG	
9		6.4000	46.30	0.00	46.30	60.00	-13.70	QP	
10		6.4000	35.94	0.00	35.94	50.00	-14.06	AVG	
11		17.9250	55.87	0.00	55.87	60.00	-4.13	QP	
12		17.9250	46.19	0.00	46.19	50.00	-3.81	AVG	

*:Maximum data x:Over limit l:over margin Comment: Factor build in receiver. Operator:

File :LCD220F3\Data :#5

Page: 1

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



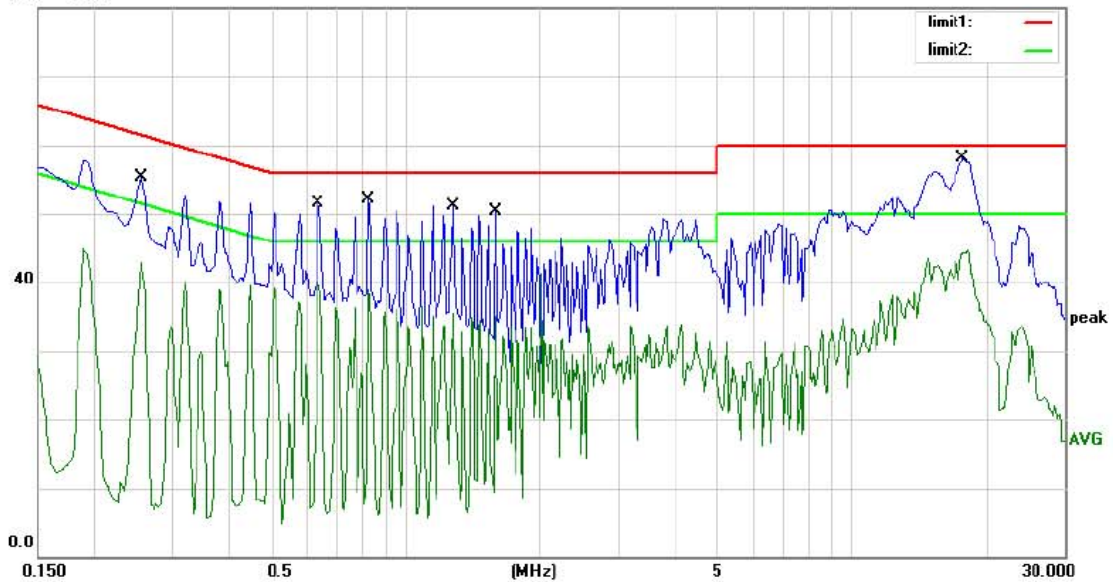
Conducted Emission Measurement

File :LCD220F3
80.0 dBuV

Data :#6

Date: 09/06/20/

Time: 9/43/13



Site site #1

Phase: **N**

Temperature: 25

Limit: (CE)FCC Part 15 B_QP

Power: AC 120V/60Hz

Humidity: 50 %

EUT: 22" NTSC/ATSC LCD TV

M/N: LCD220F3

Mode: Runing "H" Pattern

Note: 1680*1050/60Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2550	53.24	0.00	53.24	61.59	-8.35	QP	
2		0.2550	42.88	0.00	42.88	51.59	-8.71	AVG	
3		0.6400	52.06	0.00	52.06	56.00	-3.94	QP	
4		0.6400	40.01	0.00	40.01	46.00	-5.99	AVG	
5		0.8300	50.22	0.00	50.22	56.00	-5.78	QP	
6		0.8300	38.85	0.00	38.85	46.00	-7.15	AVG	
7		1.2800	49.81	0.00	49.81	56.00	-6.19	QP	
8		1.2800	35.58	0.00	35.58	46.00	-10.42	AVG	
9		1.6000	46.95	0.00	46.95	56.00	-9.05	QP	
10		1.6000	35.06	0.00	35.06	46.00	-10.94	AVG	
11	*	17.9440	56.07	0.00	56.07	60.00	-3.93	QP	
12		17.9440	44.73	0.00	44.73	50.00	-5.27	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator:

File :LCD220F3\Data :#6

Page: 1

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



Conducted Emission Measurement

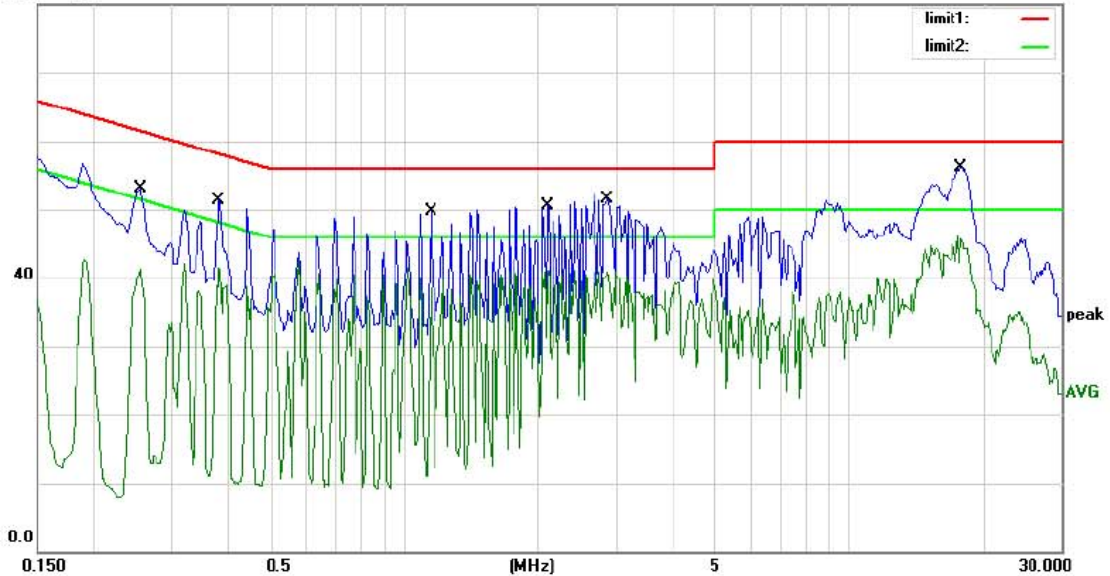
File : LCD220F3

Data : #8

Date: 09/06/20/

Time: 9/52/31

80.0 dBuV



Site site #1

Phase: L1

Temperature: 25

Limit: (CE)FCC Part 15 B_QP

Power: AC 120V/60Hz

Humidity: 50 %

EUT: 22" NTSC/ATSC LCD TV

M/N: LCD220F3

Mode: Runing "H" Pattern

Note: 1920*1080/60Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2550	51.69	0.00	51.69	61.59	-9.90	QP	
2		0.2550	41.21	0.00	41.21	51.59	-10.38	AVG	
3		0.3850	49.37	0.00	49.37	58.17	-8.80	QP	
4		0.3850	41.58	0.00	41.58	48.17	-6.59	AVG	
5		1.1500	47.21	0.00	47.21	56.00	-8.79	QP	
6		1.1500	38.50	0.00	38.50	46.00	-7.50	AVG	
7	*	2.1100	52.33	0.00	52.33	56.00	-3.67	QP	
8		2.1100	41.08	0.00	41.08	46.00	-4.92	AVG	
9		2.8800	48.66	0.00	48.66	56.00	-7.34	QP	
10		2.8800	40.83	0.00	40.83	46.00	-5.17	AVG	
11		17.9250	55.35	0.00	55.35	60.00	-4.65	QP	
12		17.9250	46.20	0.00	46.20	50.00	-3.80	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator:

File : LCD220F3\Data :#8

Page: 1

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



Conducted Emission Measurement

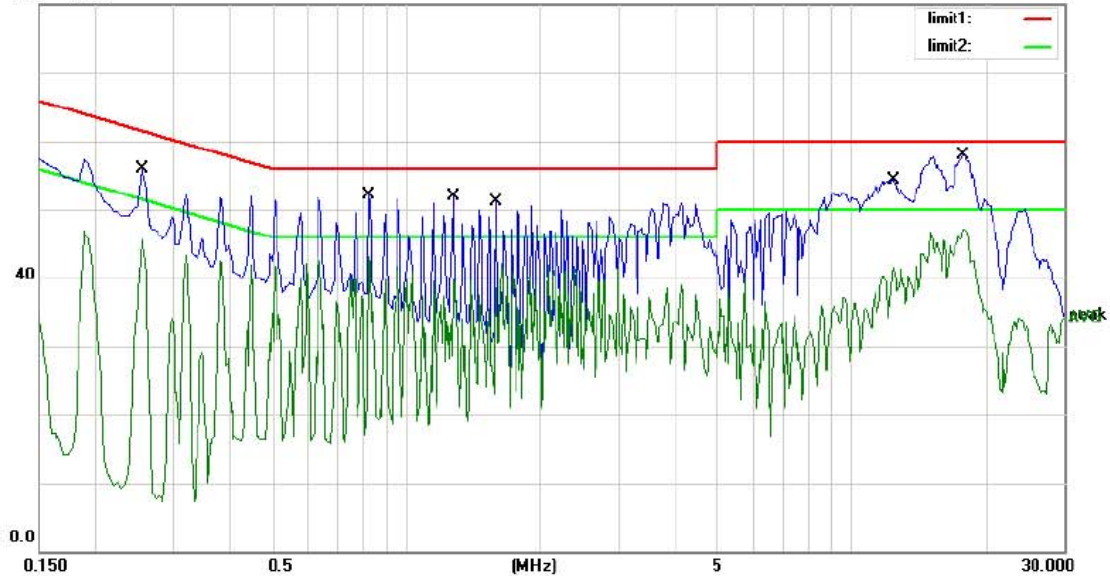
File: LCD220F3

Data: #7

Date: 09/06/20/

Time: 9/47/39

80.0 dBuV



Site site #1

Phase: N

Temperature: 25

Limit: (CE)FCC Part 15 B_QP

Power: AC 120V/60Hz

Humidity: 50 %

EUT: 22" NTSC/ATSC LCD TV

M/N: LCD220F3

Mode: Runing "H" Pattern

Note: 1920*1080/60Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2550	53.90	0.00	53.90	61.59	-7.69	QP	
2		0.2550	45.45	0.00	45.45	51.59	-6.14	AVG	
3		0.8300	52.02	0.00	52.02	56.00	-3.98	QP	
4		0.8300	43.05	0.00	43.05	46.00	-2.95	AVG	
5		1.2800	49.09	0.00	49.09	56.00	-6.91	QP	
6		1.2800	39.65	0.00	39.65	46.00	-6.35	AVG	
7		1.6000	48.43	0.00	48.43	56.00	-7.57	QP	
8		1.6000	42.16	0.00	42.16	46.00	-3.84	AVG	
9		12.4750	52.67	0.00	52.67	60.00	-7.33	QP	
10		12.4750	41.44	0.00	41.44	50.00	-8.56	AVG	
11		17.9250	55.14	0.00	55.14	60.00	-4.86	QP	
12	*	17.9250	47.07	0.00	47.07	50.00	-2.93	AVG	

*:Maximum data x:Over limit l:over margin Comment: Factor build in receiver. Operator:

File: LCD220F3\Data: #7

Page: 1

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

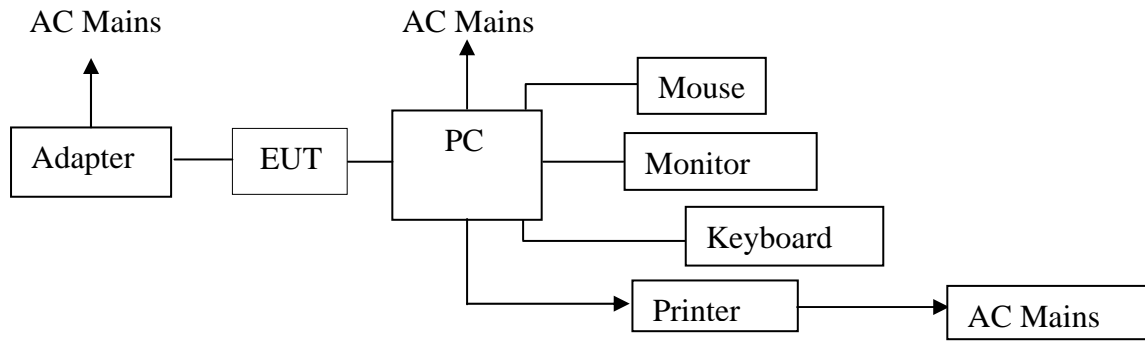
The following test equipments are used during the radiated emission measurement:

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 20, 2009	1 Year
2.	Test Receiver	Rohde & Schwarz	ESCI	100137	May 20, 2009	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	143	May 20, 2009	1 Year
4.	Power Amplifier	HP	8447F	OPT H64	May 20, 2009	1 Year
5.	Positioning Controller	C&C LAB	CC-C-IF	N/A	May 20, 2009	1 Year
6.	Color Monitor	SUNSPO	SP-140A	N/A	May 20, 2009	1 Year
7.	Single Line Filter	JIANLI	XL-3	N/A	May 20, 2009	1 Year
8.	Single Phase Power Line Filter	JIANLI	DL-2X100B	N/A	May 20, 2009	1 Year
9.	3 Phase Power Line Filter	JIANLI	DL-4X100B	N/A	May 20, 2009	1 Year
10.	DC Power Filter	JIANLI	DL-2X50B	N/A	May 20, 2009	1 Year
11.	Cable	Schwarzbeck	PLF-100	N/A	May 20, 2009	1 Year
12.	Cable	Rosenberger	CIL02	A0783566	May 20, 2009	1 Year
13.	Cable	Rosenberger	AK9513	AC RX1	May 20, 2009	1 Year

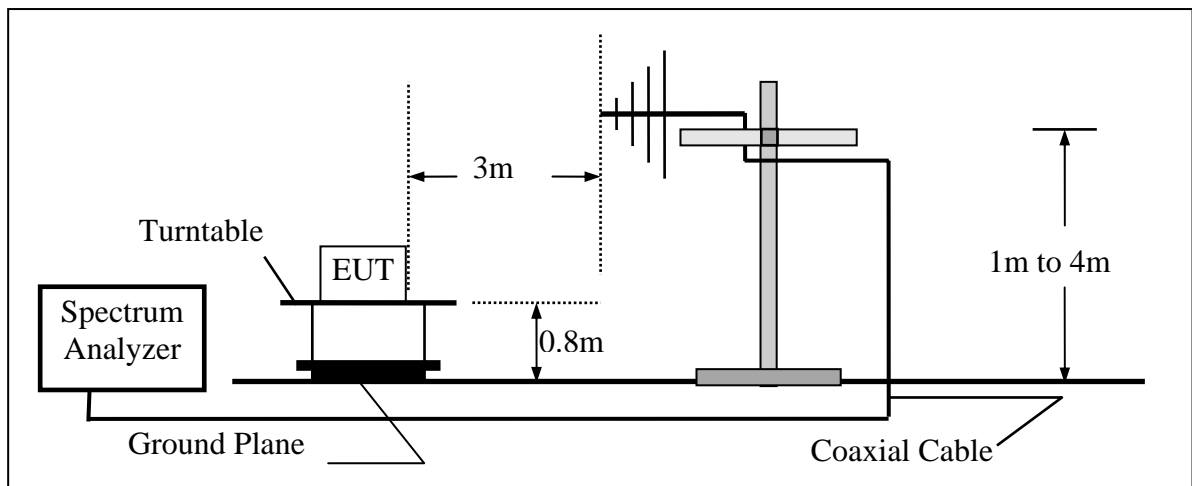
3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators



(EUT: 22'' NTSC/ATSC LCD TV)

3.2.2. Anechoic Chamber Test Setup Diagram



(EUT: 22'' NTSC/ATSC LCD TV)

3.3. Radiated Emission Limit

Radiated Emission Limits is as following.

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT
		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)μV = 20 log Emission level μV/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.

22'' NTSC/ATSC LCD TV (EUT)

Model Number : LCD220F3

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 640*480/60Hz, Running "H" Pattern 1024*768/60Hz, Running "H" Pattern 1680*1050/60Hz, Running "H" Pattern 1920*1080/60Hz) 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 2000MHz is checked.

3.7.Radiated Emission Noise Measurement Results

PASS.

Test data refer to following pages.

- Test data : June 20, 2009
-
- Resolution Bandwidth : 120KHz
-
- Frequency Range : 30MHz~1000MHz
-
- Measurement Distance : 3m
-
- Operating Condition : Running “H” Pattern 640*480/60Hz
-
-

Frequency (MHz)	Measurement (Level)			Limit dB(μV)/m	Margin dB	Polarization (H/V)
	Reading dB(μV)	Correct Factor	Test Result dB(μV)/m			
62.9800	47.69	-16.10	31.59	40.00	8.41	V
366.5900	50.37	-9.56	40.81	46.00	5.19	V
445.1600	48.62	-8.19	40.43	46.00	5.57	V
725.4900	41.69	-4.06	37.63	46.00	8.37	V
890.3900	39.63	-2.18	37.45	46.00	8.55	V
227.8800	50.39	-12.67	37.72	46.00	8.28	H
274.4400	51.43	-11.50	39.93	46.00	6.07	H
321.0000	49.66	-10.54	39.12	46.00	6.88	H
366.5900	47.80	-9.56	38.24	46.00	7.76	H
445.1600	50.33	-8.19	42.14	46.00	3.86	H
733.2500	43.82	-3.76	40.06	46.00	5.94	H

- Test data : June 20, 2009
-
- Resolution Bandwidth : 120KHz
-
- Frequency Range : 30MHz~1000MHz
-
- Measurement Distance : 3m
-
- Operating Condition : Running “H” Pattern 1024*768/60Hz
-
-

Frequency (MHz)	Measurement (Level)			Limit dB(μV)/m	Margin dB	Polarization (H/V)
	Reading dB(μV)	Correct Factor	Test Result dB(μV)/m			
183.2600	48.13	-15.31	32.82	43.50	10.68	V
366.5900	49.64	-9.56	40.08	4600	5.92	V
445.1600	45.39	-8.19	37.20	4600	8.80	V
649.8300	43.74	-5.03	38.71	4600	7.29	V
733.2500	40.52	-3.76	36.76	4600	9.24	V
890.3900	43.87	-2.18	41.71	4600	4.29	V
183.2600	52.03	-15.31	36.72	43.50	6.78	H
225.9400	50.14	-12.77	37.37	4600	8.63	H
252.1300	49.60	-11.93	37.67	4600	8.33	H
324.8800	46.72	-10.40	36.32	4600	9.68	H
445.1600	39.44	-8.19	31.25	4600	14.75	H
773.2500	43.88	-3.76	40.12	4600	5.88	H

- Test data : June 20, 2009
-
- Resolution Bandwidth : 120KHz
-
- Frequency Range : 30MHz~1000MHz
-
- Measurement Distance : 3m
-
- Operating Condition : Running “H” Pattern 1680*1050/60Hz
-
-

Frequency (MHz)	Measurement (Level)			Limit dB(μV)/m	Margin dB	Polarization (H/V)
	Reading dB(μV)	Correct Factor	Test Result dB(μV)/m			
62.9800	47.65	-16.10	31.55	40.00	8.45	V
366.5900	50.31	-9.56	40.74	46.00	5.26	V
445.1600	47.91	-8.19	39.72	46.00	6.28	V
733.2500	46.52	-3.76	42.76	46.00	3.24	V
890.3900	44.40	-2.18	42.22	46.00	3.78	V
252.1300	51.92	-11.93	39.99	46.00	6.01	H
324.8800	49.37	-10.40	38.97	46.00	7.03	H
366.5900	48.28	-9.56	38.72	46.00	7.28	H
445.1600	46.74	-8.19	38.55	46.00	7.45	H
733.2500	44.13	-3.76	40.37	46.00	5.63	H

- Test data : June 20, 2009
-
- Resolution Bandwidth : 120KHz
-
- Frequency Range : 30MHz~1000MHz
-
- Measurement Distance : 3m
-
- Operating Condition : Running “H” Pattern 1920*1080/60Hz
-
-

Frequency (MHz)	Measurement (Level)			Limit dB(μV)/m	Margin dB	Polarization (H/V)
	Reading dB(μV)	Correct Factor	Test Result dB(μV)/m			
163.8600	57.68	-17.46	40.22	43.50	3.28	V
177.4400	53.65	-16.06	37.59	43.50	5.91	V
273.4700	51.43	-11.54	39.89	46.00	6.11	V
366.5900	49.89	-9.56	40.33	46.00	5.67	V
683.7800	44.30	-4.76	39.54	46.00	6.46	V
820.5500	42.93	-3.16	39.77	46.00	6.23	V
161.8740	56.39	-17.47	38.92	43.50	4.58	H
275.3680	53.48	-16.07	37.41	46.00	8.59	H
372.4360	50.15	-9.55	40.60	46.00	5.40	H
410.2400	50.22	-8.70	41.52	46.00	4.48	H
733.2500	40.71	-3.76	36.95	46.00	9.05	H
822.6700	45.67	-3.16	42.51	46.00	3.49	H

- Test data : June 20, 2009
-
- Resolution Bandwidth : 1MHz
-
- Frequency Range : 1000MHz~2000MHz
-
- Measurement Distance : 3m
-
- Operating Condition : Running “H” Pattern 640*480/60Hz
-
-

Frequency (MHz)	Measurement (Level)			Limit dB(μV)/m (Peak)	Margin dB (Peak)	Polarization (H/V)
	Reading dB(μV)	Correct Factor	Test Result dB(μV)/m			
1035.000	37.69	3.97	41.66	74.00	32.34	V
1142.000	39.47	4.18	43.65	74.00	30.35	V
1239.000	42.31	4.38	46.69	74.00	27.31	V
1336.000	40.64	4.57	45.21	74.00	28.79	V
1473.000	41.52	4.85	46.37	74.00	27.63	V
1560.000	39.66	5.02	44.68	74.00	29.32	V
1069.000	35.76	4.04	39.80	74.00	34.20	H
1168.000	39.27	4.24	43.51	74.00	30.49	H
1284.000	42.40	4.47	46.87	74.00	27.13	H
1406.000	40.61	4.71	45.32	74.00	28.68	H
1565.000	41.55	5.03	46.58	74.00	27.42	H
1709.000	40.87	5.32	46.19	74.00	27.81	H
All the PK emissions were comply with average limit, So the average level were deemed to comply with average limit						

- Test data : June 20, 2009
-
- Resolution Bandwidth : 1MHz
-
- Frequency Range : 1000MHz~2000MHz
-
- Measurement Distance : 3m
-
- Operating Condition : Running “H” Pattern 1024*768/60Hz
-
-

Frequency (MHz)	Measurement (Level)			Limit dB(μV)/m (Peak)	Margin dB (Peak)	Polarization (H/V)
	Reading dB(μV)	Correct Factor	Test Result dB(μV)/m			
1015.000	41.53	3.93	45.46	74.00	28.54	V
1050.000	40.89	4.00	44.89	74.00	29.11	V
1077.000	40.52	4.05	44.57	74.00	29.43	V
1127.000	43.86	4.15	48.01	74.00	25.99	V
1473.000	40.91	4.85	45.76	74.00	28.24	V
1565.000	41.27	5.03	46.30	74.00	27.70	V
1050.000	41.59	4.00	45.59	74.00	28.41	H
1142.000	40.37	4.18	44.55	74.00	29.45	H
1270.000	39.82	4.44	44.26	74.00	29.74	H
1420.000	44.09	4.74	48.83	74.00	25.17	H
1622.000	43.57	5.14	48.71	74.00	25.29	H
1908.000	40.22	5.72	45.94	74.00	28.06	H
All the PK emissions were comply with average limit, So the average level were deemed to comply with average limit						

- Test data : June 20, 2009
-
- Resolution Bandwidth : 1MHz
-
- Frequency Range : 1000MHz~2000MHz
-
- Measurement Distance : 3m
-
- Operating Condition : Running “H” Pattern 1680*1050/60Hz
-
-

Frequency (MHz)	Measurement (Level)			Limit dB(μV)/m (Peak)	Margin dB (Peak)	Polarization (H/V)
	Reading dB(μV)	Correct Factor	Test Result dB(μV)/m			
1035.000	40.89	3.97	44.86	74.00	29.14	V
1154.000	41.26	4.21	45.47	74.00	8.53	V
1280.000	40.16	4.46	44.62	74.00	29.38	V
1454.000	42.55	4.81	47.36	74.00	26.64	V
1622.000	45.08	5.14	50.22	74.00	23.78	V
1814.000	40.92	5.53	46.45	74.00	27.55	V
1030.000	41.25	3.96	45.21	74.00	28.79	H
1127.000	41.97	4.15	46.12	74.00	27.88	H
1226.000	40.36	4.35	44.71	74.00	29.29	H
1307.000	43.87	4.51	48.38	74.00	25.62	H
1406.000	42.71	4.71	47.42	74.00	26.58	H
1565.000	44.26	5.03	49.29	74.00	24.71	H
All the PK emissions were comply with average limit, So the average level were deemed to comply with average limit						

- Test data : June 20, 2009
-
- Resolution Bandwidth : 1MHz
-
- Frequency Range : 1000MHz~2000MHz
-
- Measurement Distance : 3m
-
- Operating Condition : Running “H” Pattern 1920*1080/60Hz
-
-

Frequency (MHz)	Measurement (Level)			Limit dB(μV)/m (Peak)	Margin dB (Peak)	Polarization (H/V)
	Reading dB(μV)	Correct Factor	Test Result dB(μV)/m			
1030.000	44.73	3.96	48.69	74.00	25.31	V
1197.000	43.59	4.29	47.88	74.00	26.12	V
1406.000	45.04	4.71	49.75	74.00	24.25	V
1584.000	45.69	5.07	50.76	74.00	23.24	V
1730.000	42.64	5.36	48.00	74.00	26.00	V
1938.000	44.08	5.78	49.86	74.00	24.14	V
1026.000	43.77	3.95	47.72	74.00	26.28	H
1178.000	43.12	4.26	47.38	74.00	26.62	H
1336.000	45.09	4.57	49.66	74.00	24.34	H
1490.000	43.28	4.88	48.16	74.00	25.84	H
1560.000	44.10	5.02	49.12	74.00	24.88	H
1591.000	44.36	5.08	49.44	74.00	24.56	H
All the PK emissions were comply with average limit, So the average level were deemed to comply with average limit						