APPLICATION OF CERTIFICATION
For

TCL CORPORATION

LCD Monitor

Brand Name	Model Number
TCL	ML19; ML19A; ML19B; ML19C; ML19F; ML19H; ML19S; ML19T; ML19W; ML19X; ML19SA; ML19SB; ML19SC; ML19SF; ML19SH; ML19SS; ML19ST; ML19SW; ML19SX

FCC ID: X5EML19XX

Prepared for : TCL CORPORATION
Section 19, Zhongkai Development Zone for New and High-Level Tech Industries, Huizhou, Guangdong 516006, P.R.China.

Prepared By: Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block,
Shenzhen Science & Industrial Park,
Nantou, Shenzhen, Guangdong, China

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Report Number : ACS-F10028
Date of Test : Dec.28, 2009~Jan.09, 2010
Date of Report : Feb.03, 2010

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Description **Page**

TEST REPORT CERTIFICATION

Applicant : TCL CORPORATION
Manufacturer : TCL CORPORATION
EUT Description : LCD Monitor
FCC ID : X5EML19XX

(A) Model No. :

Brand Name	Model Number
TCL	ML19; ML19A; ML19B; ML19C; ML19F; ML19H; ML19S; ML19T; ML19W; ML19X; ML19SA; ML19SB; ML19SC; ML19SF; ML19SH; ML19SS; ML19ST; ML19SW; ML19SX

(B) Serial No. : N/A
(C) Power Supply : AC 100V~240V; 50/60Hz
(D) Test Voltage : AC 120V/60Hz

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart B Class B 2008, ANSI C63.4-2003
ICES-003 Issue 4 February 2004.

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits for radiated and conducted emissions. The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of tests. Also, this report shows that EUT is technically compliant with FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Date of Test: Dec.28, 2009~Jan.09, 2010

Prepared by: Daisy Ye / Assistant

Reviewer: Richzhy Zhong / Assistant Manager

AUDIX ®信華科技(深圳)有限公司 Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report
Signature: Ken Lu 3/5/10

Approved & Authorized Signer: Ken Lu / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	**Standard**	**Limits**	**Results**
Power Line Conducted Emission Test	FCC Part 15: 2008 ANSI C63.4: 2003	Class B	PASS
Radiated Emission Test	FCC Part 15: 2008 ANSI C63.4: 2003	Class B	PASS

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

Description : LCD Monitor

Model Number :

Brand Name	Model Number
TCL	ML19; ML19A; ML19B; ML19C; ML19F; ML19H; ML19S; ML19T; ML19W; ML19X; ML19SA; ML19SB; ML19SC; ML19SF; ML19SH; ML19SS; ML19ST; ML19SW; ML19SX

Test model: ML19
The model name is different only.

FREQUENCIES USED AND GENERATED WITHIN DEVICE	
X300	45-OSC14M-3Y2
RESOLUTION	1280X1024
LVDS CLOCK	68.4MHz
DC-DC	U805->385KHz
DDR	200MHz
INVERTER BD	52KHz

FCC ID : X5EML19XX

Applicant : TCL CORPORATION
Section 19, Zhongkai Development Zone for New and High-Level Tech Industries, Huizhou, Guangdong 516006, P.R.China.

Manufacturer : TCL CORPORATION
Section 19, Zhongkai Development Zone for New and High-Level Tech Industries, Huizhou, Guangdong 516006, P.R.China.

Power Cord : Unshielded, Detachable, 1.7m

Date of Test : Dec.28, 2009~Jan.09, 2010

Date of Receipt : Dec.27, 2009

Sample Type : Prototype production

2.2. Tested Supporting System Details

2.2.1. PC

EMC CODE	:	Test PC P
M/N	:	Studio 540
S/N	:	124XK2X
Manufacturer	:	DELL
Power cord	:	Unshielded, Detachabled, 1.8m
FCC ID	:	By DoC
BSMI ID	:	R33002
Display Card	:	HD3450(VGA+DVI+HDMI)

2.2.2. USB Keyboard

EMC CODE	:	ACS-EMC-K01R
M/N	:	SK-8115
S/N	:	CN-ODJ313-71616-711-0J73
Manufacturer	:	DELL
Data Cable	:	Shielded, Undetachabled, 2.0m
FCC ID	:	By DoC
BSMI ID	:	T3A002

2.2.3. PRINTER

EMC CODE	:	ACS-EMC-PT04
M/N	:	C9079A
Manufacturer	:	HP
USB Cable	:	Shielded, Detachabled, 1.8m
Power Cord	:	Unshielded, Detachabled, 1.8m
FCC ID	:	By DoC
BSMI ID	:	R33001
Power Adaptor	:	Manufacturer: HP M/N: 0957-2119 BSMI ID: R33030 DC Cable: Unshielded, Detachabled, 1.5m

2.2.4. USB MOUSE

EMC CODE	:	ACS-EMC-M01R
M/N	:	M056UO
S/N	:	512022645
Manufacturer	:	Dell
Data Cable	:	Shielded, Undetachabled, 1.8m
FCC ID	:	By DoC
BSMI ID	:	R41108

2.2.5. HDD

EMC CODE	:	ACS-EMC-HDD03
M/N	:	F12-UF
S/N	:	A0100215-5390031
Manufacturer	:	Terasys
Data Cable	:	Shielded, Detachabled, 1.8m
FCC ID	:	By DoC
BSMI ID	:	4912A022

2.2.6. DVD Player

EMC CODE	:	ACS-EMC-DVD02
M/N	:	DV-410v-G
S/N	:	TAXZT5
Manufacturer	:	PIONEER
Data Cable	:	N/A
Power cord	:	Unshielded, Detachabled , 1.5m

2.2.7. Cables

S-Video Cable	:	Shielded, Detachabled, 1.6m
AV Cable	:	Unshielded, Detachabled, 1.4m (Dummy Load 75Ω&10kΩ)
VGA Cable	:	Shielded, Detachabled, 1.4m With two cores

2.3.Test Facility

Site Description

Name of Firm : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park,Nantou, Shenzhen, Guangdong, China

3m Anechoic Chamber : Mar. 31, 2009 File on Federal Communication Commission
Registration Number: 90454

3m & 10m Anechoic Chamber : Dec.30, 2009 File on Federal Communication Commission
Registration Number: 794232

EMC Lab. : Accredited by DATech, German
Registration Number: DAT-P-091/99-01
Feb. 02, 2009

Accredited by NVLAP, USA
NVLAP Code: 200372-0
Apr. 01, 2009

2.4.Measurement Uncertainty（95% confidence levels, k=2）

Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	2.40dB
Uncertainty for Radiation Emission test in 3m chamber	3.82 dB (Polarize: V)
	4.32 dB (Polarize: H)
Uncertainty for Radiation Emission test in 10m chamber	4.04 dB (Distance: 10m Polarize: V)
	4.02 dB (Distance: 10m Polarize: H)
Uncertainty for Radiation Emission test in 10m chamber (1GHz-18GHz)	3.56 dB (Distance: 3m Polarize: V)
	3.84 dB (Distance: 3m Polarize: H)
Uncertainty for SVSWR in 10m Chamber	4.5 dB (Distance: 3m Polarize: V)
	4.4 dB (Distance: 3m Polarize: H)
Uncertainty for test site temperature and humidity	0.6℃
	3%

3. POWER LINE CONDUCTED EMISSION TEST

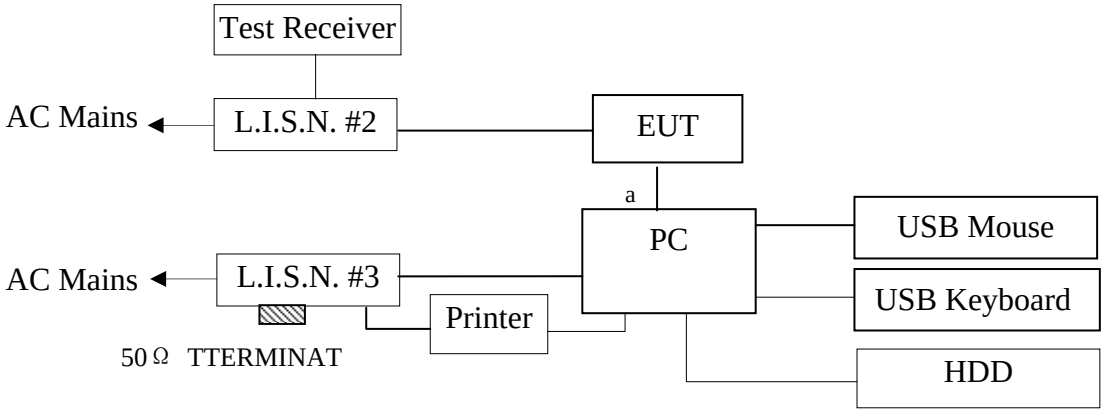
3.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS20	836600/006	May.08, 09	1 Year
2.	L.I.S.N.#2	Kyoritsu	KNW-407	8-1636-1	May.08, 09	1 Year
3.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 09	1 Year
4.	Terminator	Hubersuhner	50Ω	No. 1	May.08, 09	1 Year
5.	RF Cable	Fujikura	3D-2W	LISN Cable 1#	May.08, 09	1Year
6.	Coaxial Switch	Anritsu	MP59B	M55367	May.08, 09	1 Year
7.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 09	1 Year

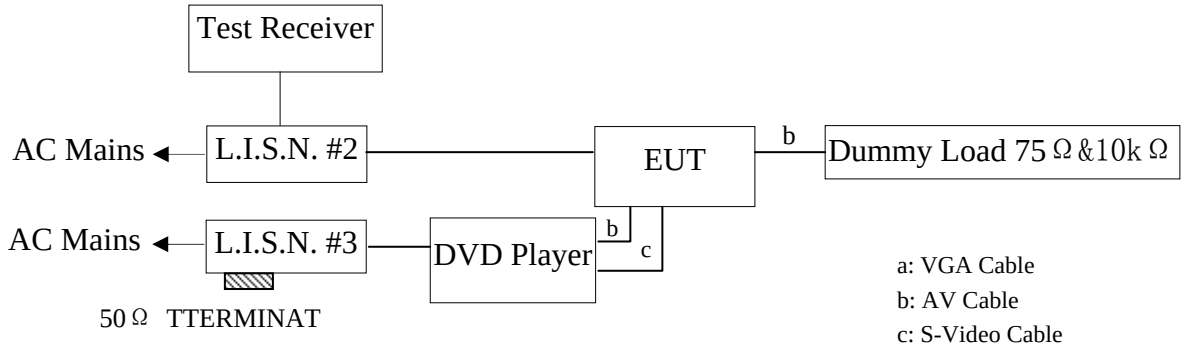
3.2.Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators

PC Mode



AV Mode / S-Video Mode



(EUT: LCD Monitor)

3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

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

3.4.1. LCD Monitor (EUT)

Model Number : ML19
Serial Number : N/A

3.4.2. Support Equipment : As Tested Supporting System Detail, in Section 2.2.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as 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 800*600 75Hz / Running “H” Pattern 1280*1024 75Hz/ AV In/ S-Video In), Adjust the brightness & contrast to maximum and measure it.

3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 2#). This provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#3). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2003 on conducted Emission test.

The bandwidth of test receiver (R&S TEST RECEIVER ESHS20) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked. The test result are reported on Section 3.7.

3.7. Conducted Disturbance at Mains Terminals Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

The EUT with the following test modes were tested and selected (mode 3~5) to read Q.P values and Average values, all the test results are listed in next pages.

EUT: LCD Monitor Model No. : ML19

Test Date: Dec.28, 2009 Temperature: 23℃ Humidity: 54%

The details of test modes are as follows：

NO.	Test Mode	Resolution & Frequency	Reference Test Data No.	
			VA	VB
1.	Running “H” Pattern	640*480 60Hz	#19	#20
2.		800*600 75Hz	#18	#17
3. ※		**1280*1024 75Hz**	**#15**	**#16**
4.	**AV In**	**--**	**#3**	**#4**
5.	**S-Video In**	**--**	**#2**	**#1**

(※ Worst test mode)

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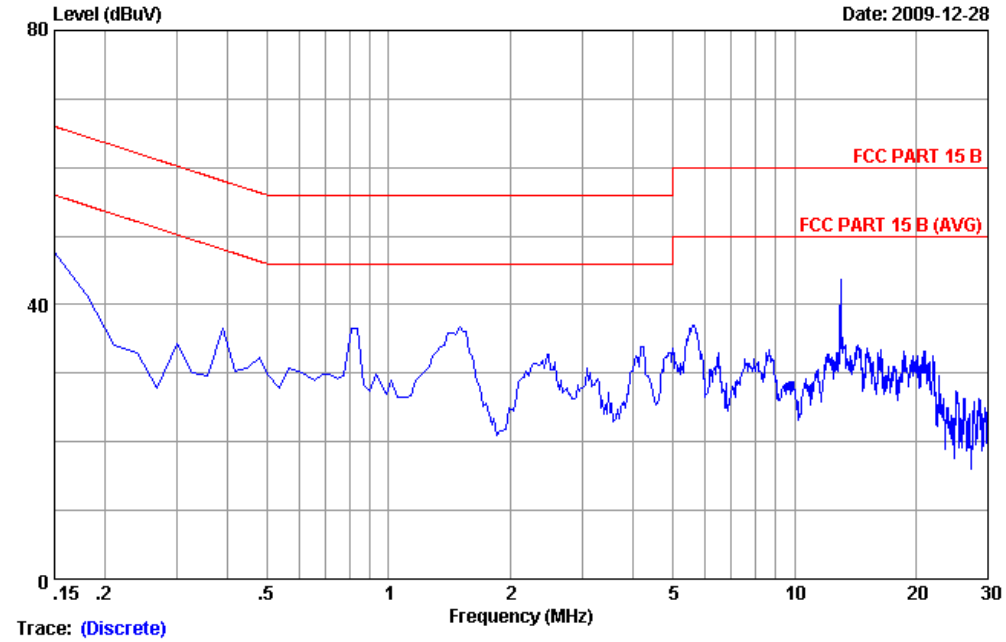

Trace: (Discrete)

Site no	:Audix No.1 Conduction	Data no	:19
Dis./Ant.	:** 2009 KNW407 VA		
Limit	:FCC PART 15 B		
Env./Ins.	:Temp:23'C Humi:54%	Engineer	:Leo_Li
EUT	:LCD Monitor M/N:ML19		
Power Rating	:AC 120V/60Hz		
Test Mode	:Running "H" Pattern 640*480@60Hz		

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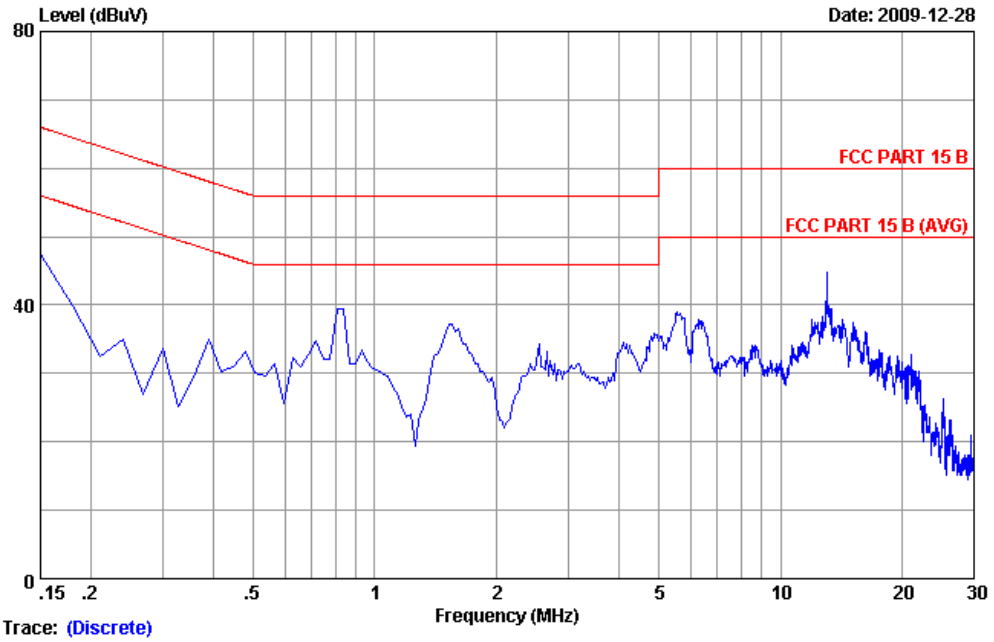

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Dis./Ant.	:** 2009 KNW407 VB		
Limit	:FCC PART 15 B		
Env./Ins.	:Temp:23'C Humi:54%	Engineer	:Leo_Li
EUT	:LCD Monitor M/N:ML19		
Power Rating	:AC 120V/60Hz		
Test Mode	:Running "H" Pattern 640*480@60Hz		

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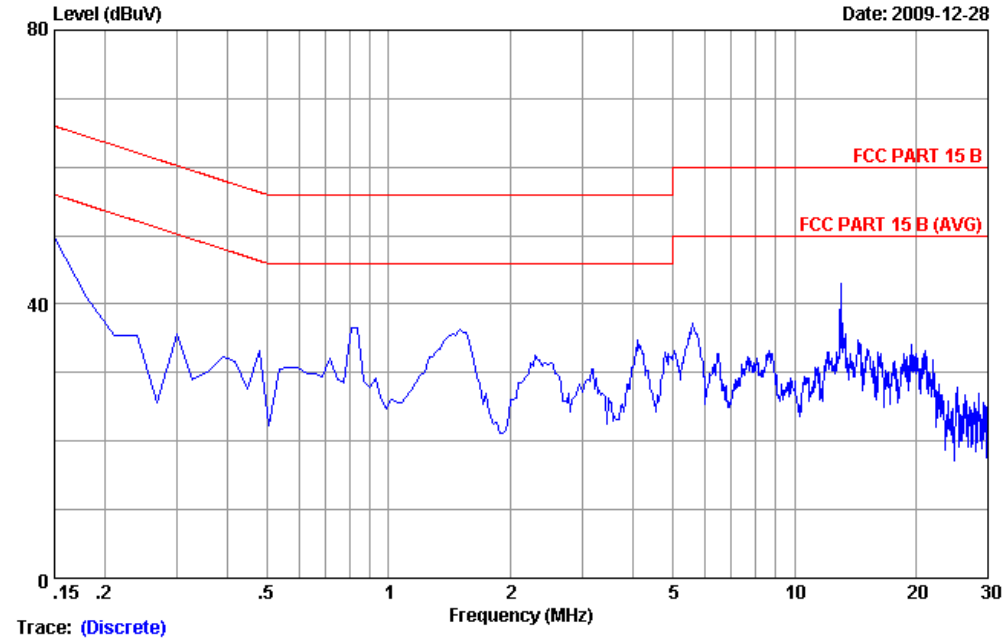

Trace: (Discrete)

Site no	:Audix No.1 Conduction	Data no	:18
Dis./Ant.	:** 2009 KNW407 VA		
Limit	:FCC PART 15 B		
Env./Ins.	:Temp:23'C Humi:54%	Engineer	:Leo_Li
EUT	:LCD Monitor M/N:ML19		
Power Rating	:AC 120V/60Hz		
Test Mode	:Running "H" Pattern 800*600@75Hz		

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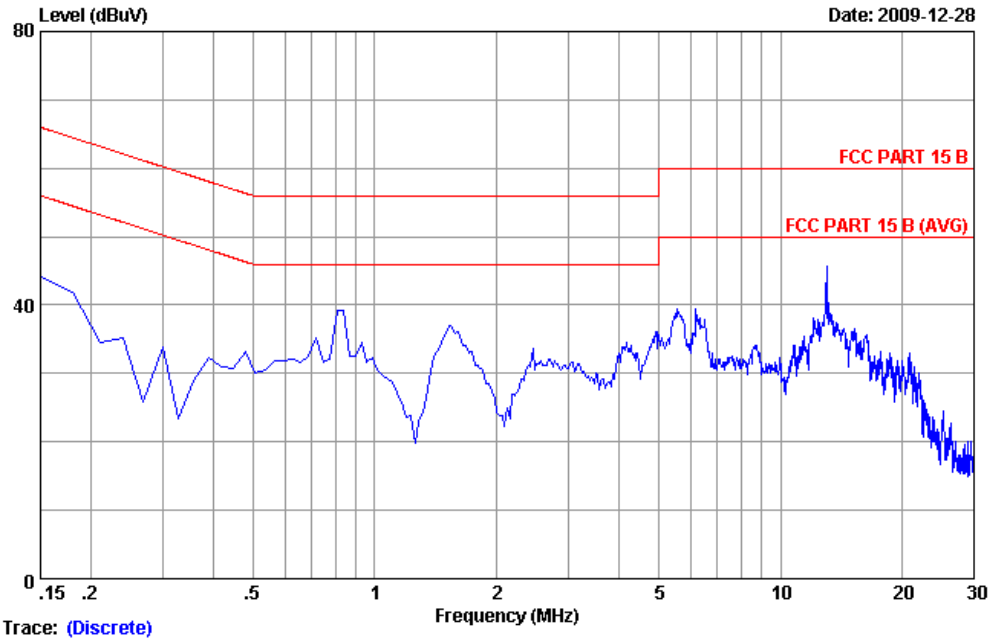

Trace: (Discrete)

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Dis./Ant.	:** 2009 KNW407 VB		
Limit	:FCC PART 15 B		
Env./Ins.	:Temp:23'C Humi:54%	Engineer	:Leo_Li
EUT	:LCD Monitor M/N:ML19		
Power Rating	:AC 120V/60Hz		
Test Mode	:Running "H" Pattern 800*600@75Hz		

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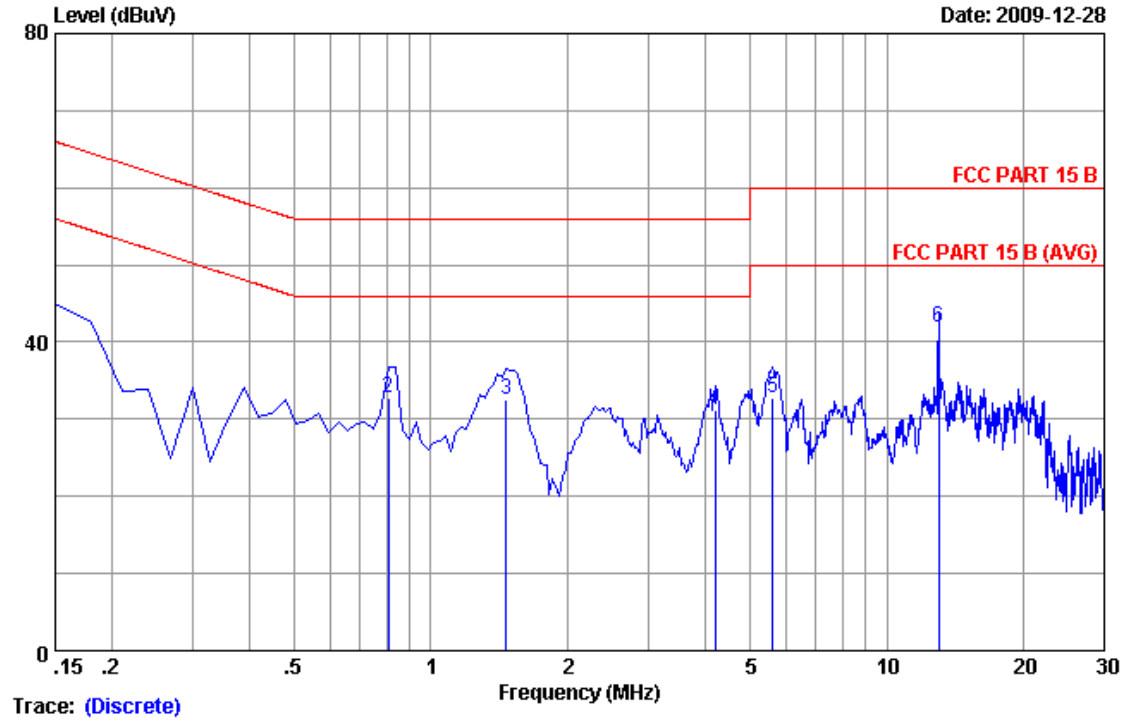

Trace: (Discrete)

Site no :Audix No.1 Conduction
Dis./Ant. :** 2009 KNW407 VA
Limit :FCC PART 15 B
Env./Ins. :Temp:23'C Humi:54%
EUT :LCD Monitor M/N:ML19
Power Rating :AC 120V/60Hz
Test Mode :Running "H" Pattern
1280*1024@75Hz

Data no :15
Engineer :Leo_Li

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.47	9.88	30.61	40.96	66.00	25.04	QP
2	0.80670	0.35	9.89	22.58	32.82	56.00	23.18	QP
3	1.463	0.35	9.89	22.38	32.62	56.00	23.38	QP
4	4.210	0.38	9.91	20.95	31.24	56.00	24.76	QP
5	5.613	0.39	9.91	22.43	32.73	60.00	27.27	QP
6	13.015	0.47	9.96	31.57	42.00	60.00	18.00	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when useing a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

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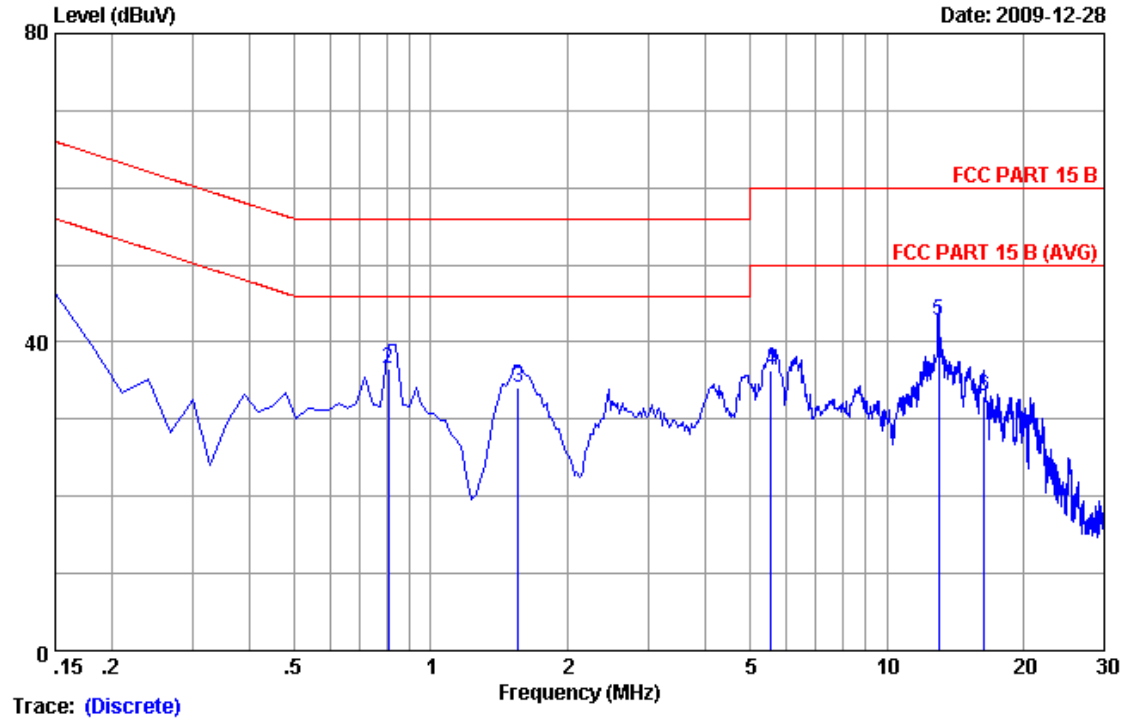

Trace: (Discrete)

Site no :Audix No.1 Conduction
Dis./Ant. :** 2009 KNW407 VB
Limit :FCC PART 15 B
Env./Ins. :Temp:23'C Humi:54%
EUT :LCD Monitor M/N:ML19
Power Rating :AC 120V/60Hz
Test Mode :Running "H" Pattern
1280*1024@75Hz

Data no :16
Engineer :Leo_Li

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.49	9.88	30.91	41.28	66.00	24.72	QP
2	0.80670	0.35	9.89	26.40	36.64	56.00	19.36	QP
3	1.553	0.36	9.89	23.83	34.08	56.00	21.92	QP
4	5.583	0.38	9.91	25.94	36.23	60.00	23.77	QP
5	13.015	0.47	9.96	32.42	42.85	60.00	17.15	QP
6	16.359	0.50	9.98	22.42	32.90	60.00	27.10	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when useing a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

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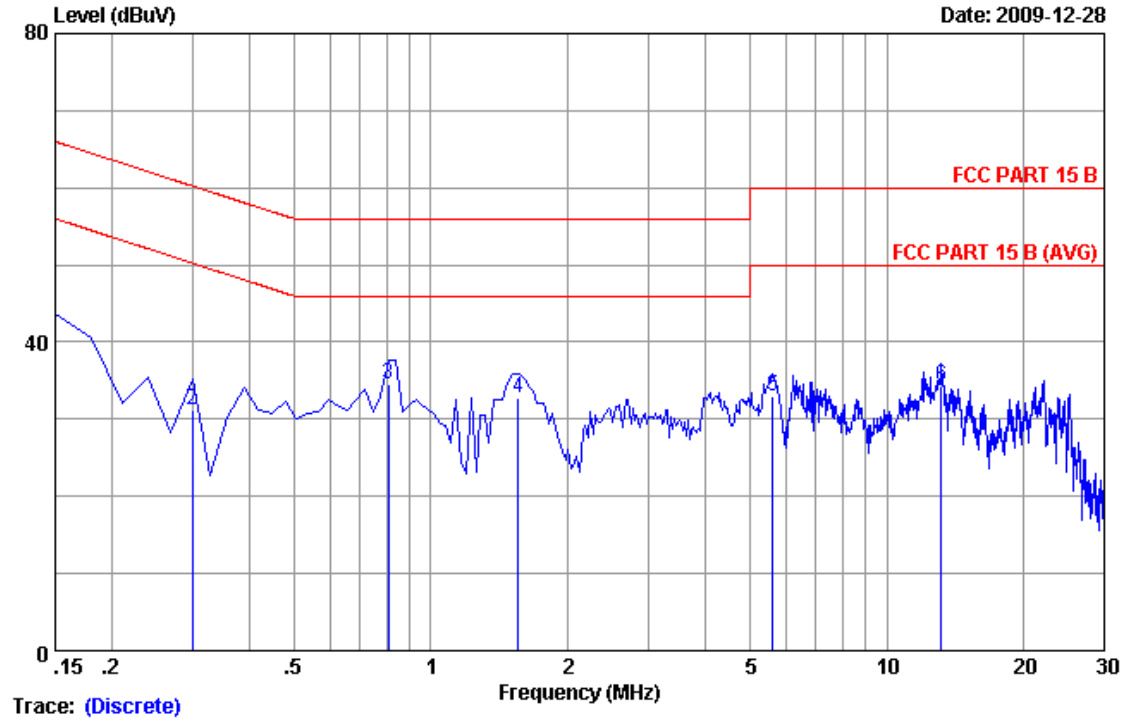

Trace: (Discrete)

Site no :Audix No.1 Conduction
Dis./Ant. :** 2009 KNW407 VA
Limit :FCC PART 15 B
Env./Ins. :Temp:23'C Humi:54%
EUT :LCD Monitor M/N:ML19
Power Rating :AC 120V/60Hz
Test Mode :AV In

Data no :3
Engineer :Leo_Li

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.47	9.88	29.24	39.59	66.00	26.41	QP
2	0.29925	0.39	9.88	20.96	31.23	60.26	29.03	QP
3	0.80670	0.35	9.89	24.33	34.57	56.00	21.43	QP
4	1.553	0.35	9.89	22.58	32.82	56.00	23.18	QP
5	5.613	0.39	9.91	22.61	32.91	60.00	27.09	QP
6	13.194	0.47	9.96	23.80	34.23	60.00	25.77	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when useing a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

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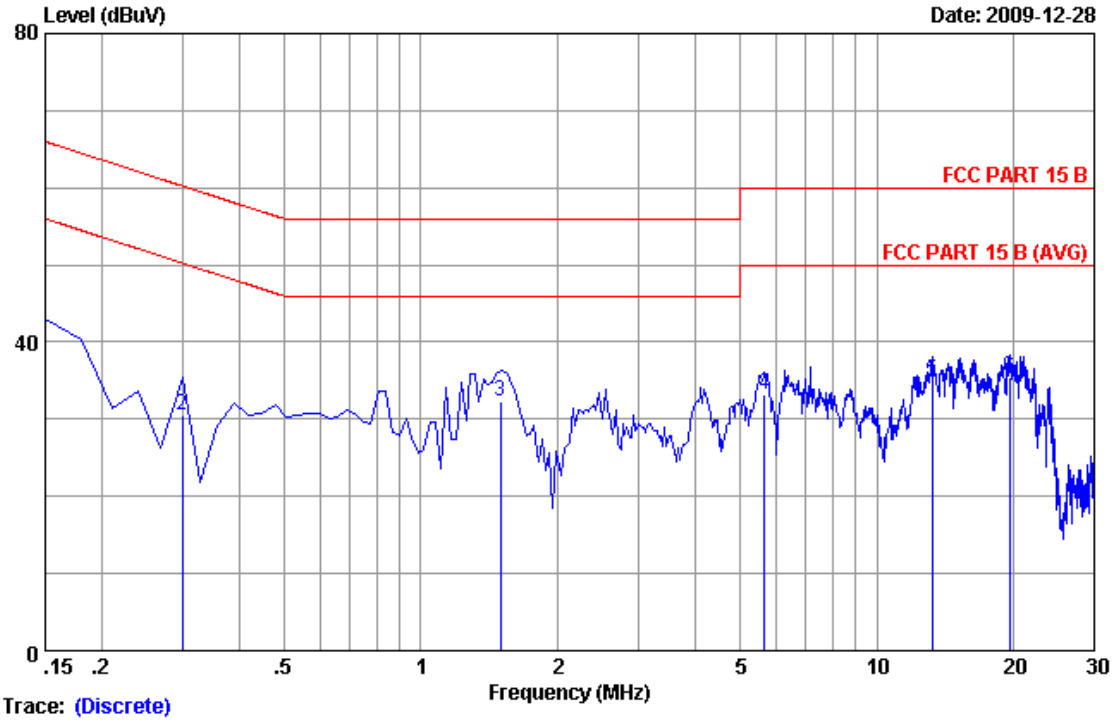

Trace: (Discrete)

Site no :Audix No.1 Conduction Data no :4
Dis./Ant. :** 2009 KNW407 VB
Limit :FCC PART 15 B
Env./Ins. :Temp:23'C Humi:54% Engineer :Leo_Li
EUT :LCD Monitor M/N:ML19
Power Rating :AC 120V/60Hz
Test Mode :AV In

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.49	9.88	28.72	39.09	66.00	26.91	QP
2	0.29925	0.41	9.88	20.23	30.52	60.26	29.74	QP
3	1.493	0.36	9.89	22.08	32.33	56.00	23.67	QP
4	5.672	0.38	9.91	22.85	33.14	60.00	26.86	QP
5	13.224	0.47	9.96	24.64	35.07	60.00	24.93	QP
6	19.523	0.57	10.01	24.85	35.43	60.00	24.57	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when useing a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

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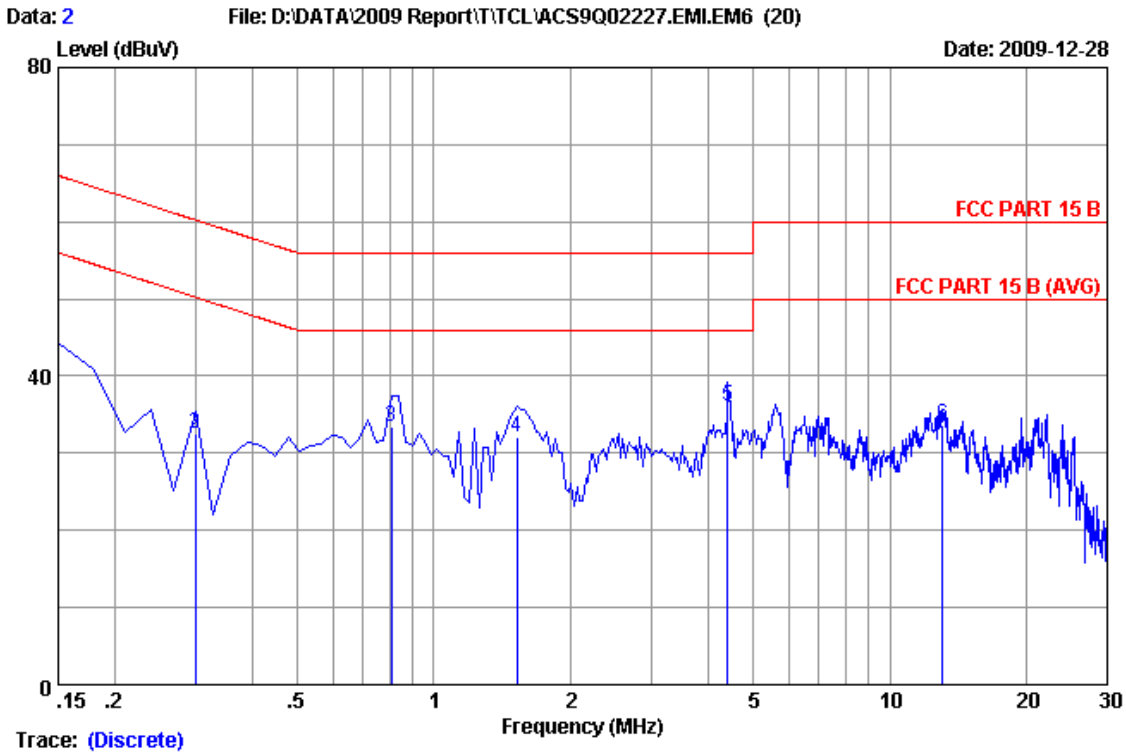

Site no :Audix No.1 Conduction
Dis./Ant. :** 2009 KNW407 VA
Limit :FCC PART 15 B
Env./Ins. :Temp:23'C Humi:54%
EUT :LCD Monitor M/N:ML19
Power Rating :AC 120V/60Hz
Test Mode :S-Video in

Data no :2
Engineer :Leo_Li

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.47	9.88	29.89	40.24	66.00	25.76	QP
2	0.29925	0.39	9.88	22.17	32.44	60.26	27.82	QP
3	0.80670	0.35	9.89	23.27	33.51	56.00	22.49	QP
4	1.523	0.35	9.89	21.83	32.07	56.00	23.93	QP
5	4.419	0.39	9.91	25.83	36.13	56.00	19.87	QP
6	13.075	0.47	9.96	23.31	33.74	60.00	26.26	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when useing a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

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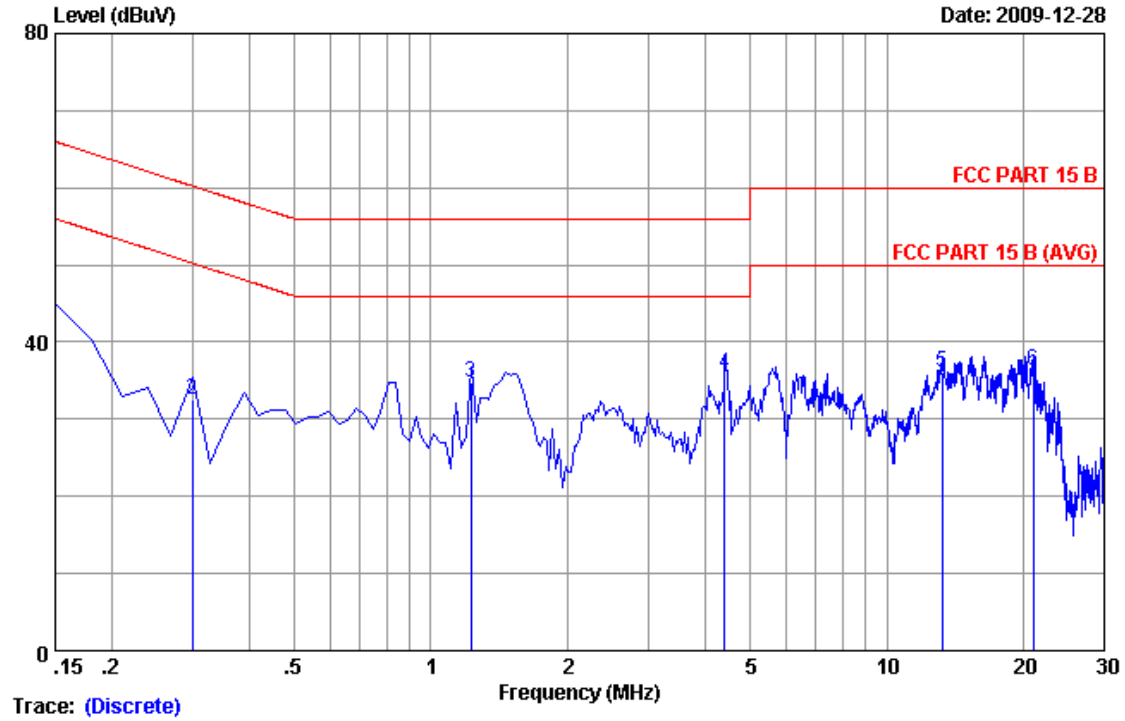


Trace: (Discrete)

Site no :Audix No.1 Conduction
Dis./Ant. :** 2009 KNW407 VB
Limit :FCC PART 15 B
Env./Ins. :Temp:23'C Humi:54%
EUT :LCD Monitor M/N:ML19
Power Rating :AC 120V/60Hz
Test Mode :S-Video in

Data no :1
Engineer :Leo_Li

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.49	9.88	31.59	41.96	66.00	24.04	QP
2	0.29925	0.41	9.88	22.23	32.52	60.26	27.74	QP
3	1.225	0.35	9.89	24.46	34.70	56.00	21.30	QP
4	4.419	0.37	9.91	25.58	35.86	56.00	20.14	QP
5	13.224	0.47	9.96	25.62	36.05	60.00	23.95	QP
6	20.985	0.57	10.02	25.68	36.27	60.00	23.73	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when useing a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1.Test Equipment

4.1.1.For frequency range 30MHz~1000MHz (At Anechoic 10m Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	10m Chamber	AUDIX	N/A	N/A	Dec.05,09	1 Year
2	EMC Analyzer	Agilent	E7405A	MY42000131	May.08, 09	1 Year
3	EMC Analyzer	Agilent	E7405A	MY45116588	Oct.20,09	1 Year
4	Test Receiver	Rohde & Schwarz	ESCI	100842	Oct 20, 09	1 Year
5	Amplifier	Agilent	8447D	2944A10684	May.08, 09	1Year
6	Amplifier	Agilent	8447D	2944A11140	May.08, 09	1 Year
7	Bilog Antenna	Schaffner	CBL6112D	25238	Feb.12, 09	1 Year
8	Bilog Antenna	Schaffner	CBL6112D	25237	Feb.12, 09	1 Year
9	RF Cable	MIYAZAKI	8D-FB	10m Chamber No.1	May.08, 09	1 Year
10	RF Cable	MIYAZAKI	8D-FB	10m Chamber No.2	May.08, 09	1 Year
11	Coaxial Switch	Anritsu	MP59B	6200766906	May.08, 09	1 Year
12	Coaxial Switch	Anritsu	MP59B	6200766907	May.08, 09	1 Year
13	Coaxial Switch	Anritsu	MP59B	6200313662	May.08, 09	1 Year

4.1.2.For frequency range 30MHz~1000MHz (At Anechoic 3m Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Dec.05,09	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 09	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 09	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 09	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 09	1 Year
6	RF Cable	MIYAZAKI	8D-FB	3# Chamber No.1	May.08, 09	1 Year
7	Coaxial Switch	Anritsu	MP59B	M73989	May.08, 09	1 Year

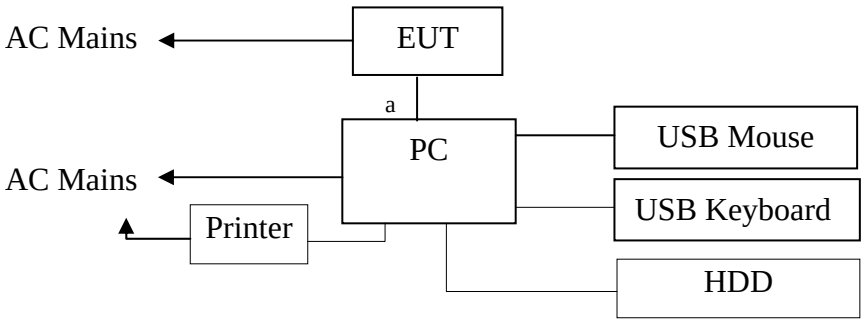
4.1.3.For frequency range 1GHz~2GHz (At Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E7405A	MY45116588	Oct.20, 09	1 Year
2	Horn Antenna	EMCO	3115	9607-4877	Nov.25, 09	1.5 Year
3	Amplifier	Agilent	8449B	3008A00863	May.08, 09	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	Nov.28, 09	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX102	29091/2	Nov.28, 09	1 Year

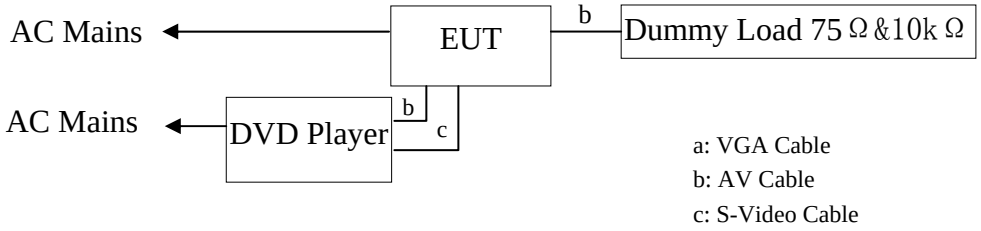
4.2. Block Diagram of Test Setup

4.2.1. Block diagram of connection between the EUT and simulators

PC Mode



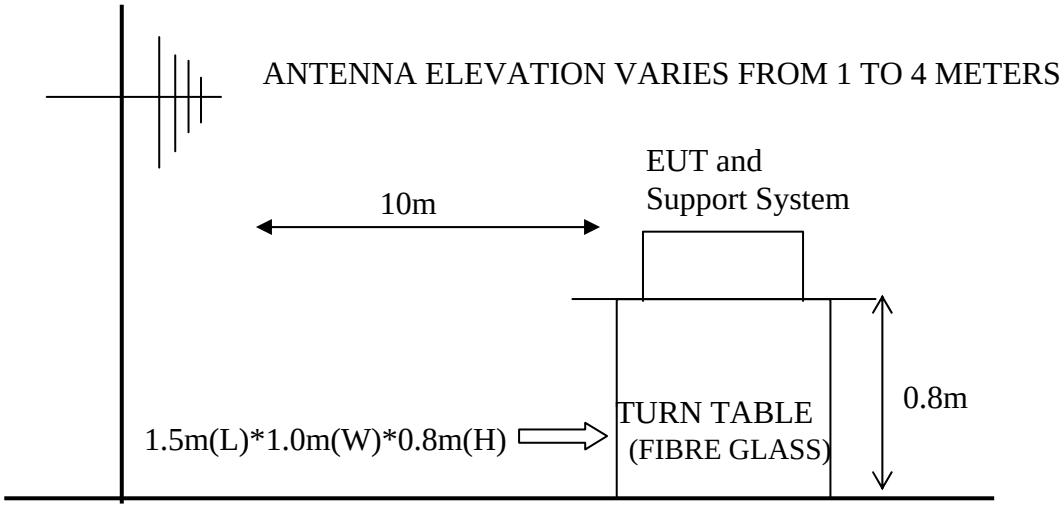
AV Mode / S-Video Mode



(EUT: LCD Monitor)

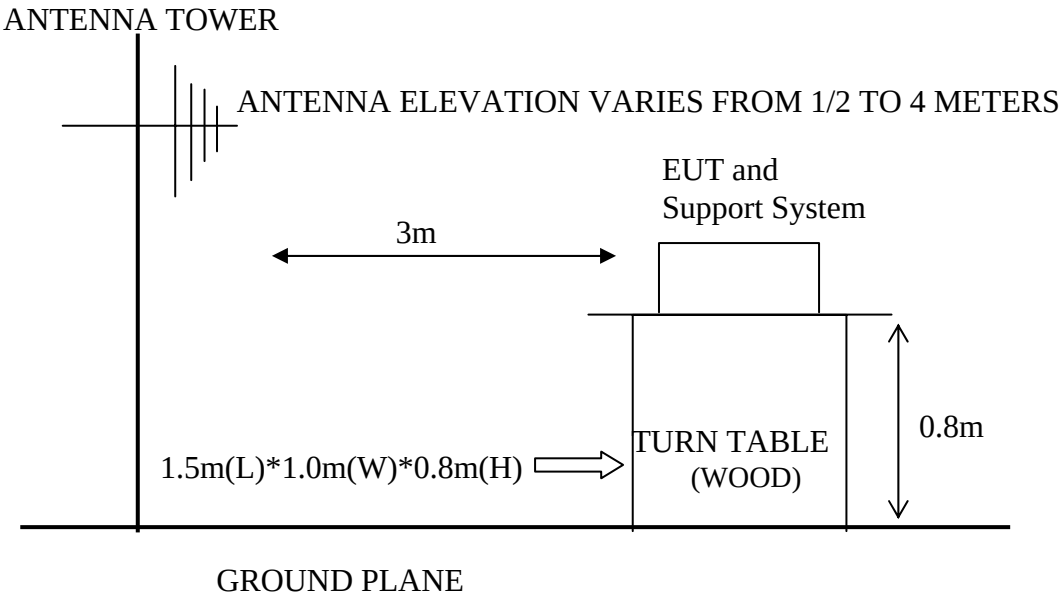
4.2.2. In Anechoic (10m) Chamber Test Setup Diagram for 30MHz~1000MHz

ANTENNA TOWER

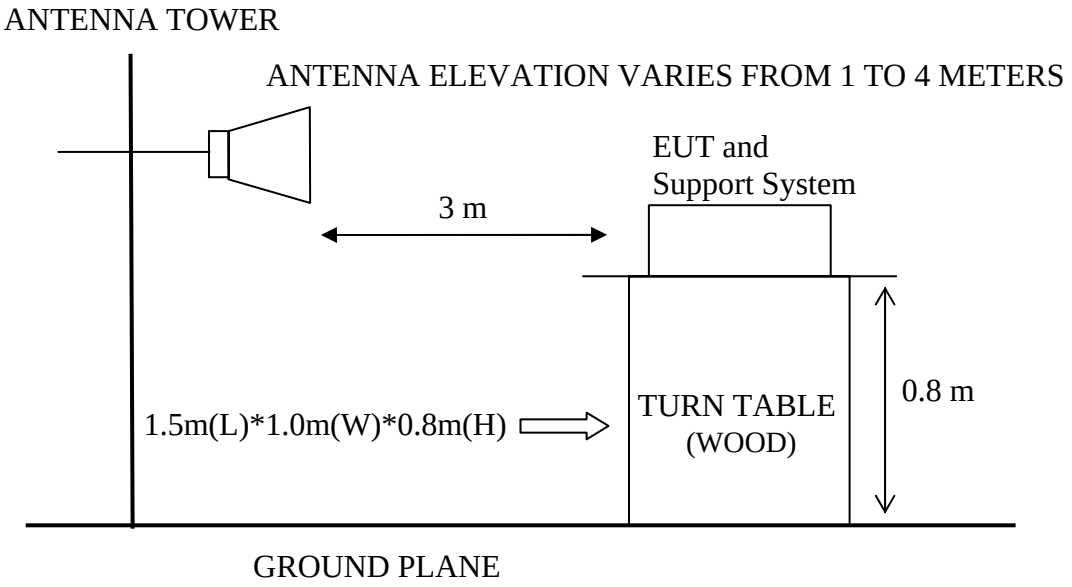


GROUND PLANE

4.2.3.In Anechoic (3m) Chamber Test Setup Diagram for 30-1000MHz



4.2.4.In Anechoic (10m) Chamber Test Setup Diagram for 1-2GHz



4.3. Radiated Emission Limit

Frequency MHz	Distance (Meters)	Field Strengths Limits dB(μV)/m
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0
30 ~ 230	10	30
230 ~ 1000	10	37
Above ~ 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)

Remark： (1) Emission level dBμV = 20 log Emission level μV/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) The emissions above 1GHz should comply with average limit and peak limit.

4.4. EUT Configuration on Test

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

4.4.1. LCD Monitor (EUT)

Model Number : ML19
Serial Number : N/A

4.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown in Section 4.2.

4.5.2. Turn on the power of all equipment.

4.5.3. Let the EUT work in test mode (Running “H” Pattern 640*480 60Hz/ Running “H” Pattern 800*600 75Hz / Running “H” Pattern 1280*1024 75Hz/ AV In/ S-Video In), Adjust the brightness & contrast to maximum and measure it.

4.6. Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m & 10m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2003 on Radiated Emission test.

The bandwidth setting on the test receiver (R&S TEST RECEIVER ESCI & ESVS10) is 120 kHz.

The resolution bandwidth of the Agilent Spectrum Analyzer E7405A was set at 1MHz. (For above 1GHz)

The frequency range from 30MHz to 1000MHz was pre-scanned with a peak detector and all final readings of measurement from Test Receiver are Quasi-Peak values.

The frequency range from 1GHz to 2GHz was checked with peak and average detector, measurement distance is 3m in 10m chamber.

Finally, selected operating situations at Anechoic Chamber measurement, all the test results are listed in section 4.7.

4.7. Radiated Disturbance Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

For frequency range 30MHz~1000MHz

The EUT with the following test modes were tested and selected (mode 3~5) to read Q.P values, all the test results are listed in next pages.

EUT: LCD Monitor Model No. : ML19

Test Date: Jan.09, 2010 Temperature: 24℃ Humidity: 56%

The details of test modes are as follows：

NO.	Test Mode	Resolution & Frequency	Reference Test Data No.	
			Horizontal	Vertical
1.	Running “H” Pattern	640*480 60Hz	#12	#11
2.		800*600 75Hz	#10	#9
3. ※		**1280*1024 75Hz**	**#8**	**#7**
4.	**AV In**	**--**	**#1**	**#2**
5.	**S-Video In**	**--**	**#4**	**#3**

(※ Worst test mode)

For frequency range 1GHz~2GHz

The EUT with below test mode 1 was measured within Anechoic Chamber and the test results listed in next pages.

All the PK emissions were comply with average limit, so the average level were deemed to comply with average limit

Test Date: Jan. 09, 2010 Temperature: 24℃ Humidity: 56%

No.	Test Mode	Reference Test Data No.	
		Horizontal	Vertical
1.	Running “H” Pattern 1280*1024 75Hz	#13, #14	#15, #16

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Postcode:518057

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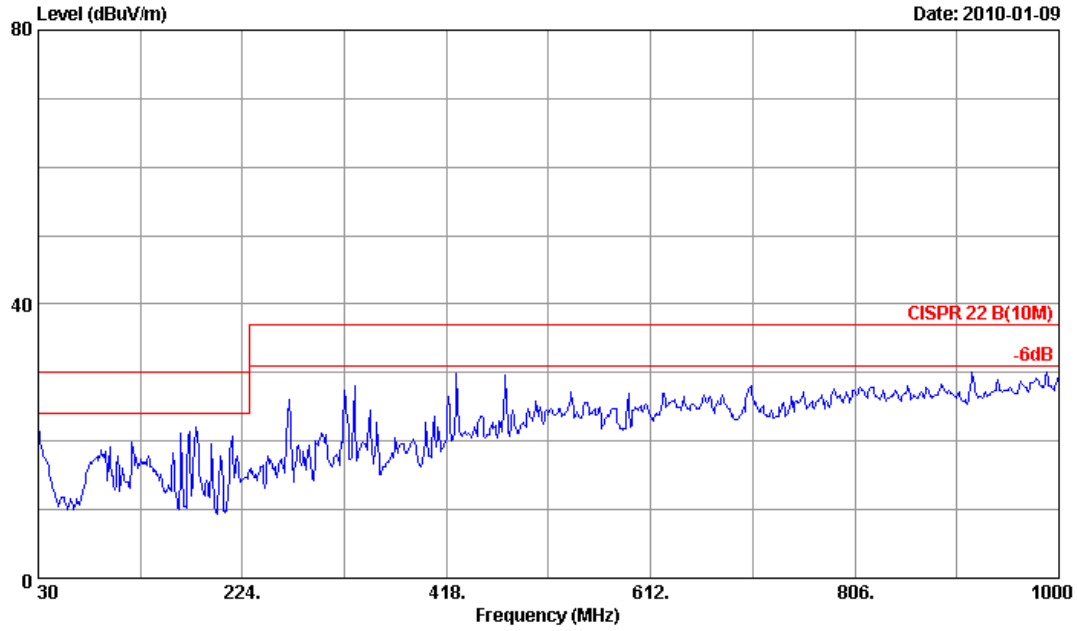
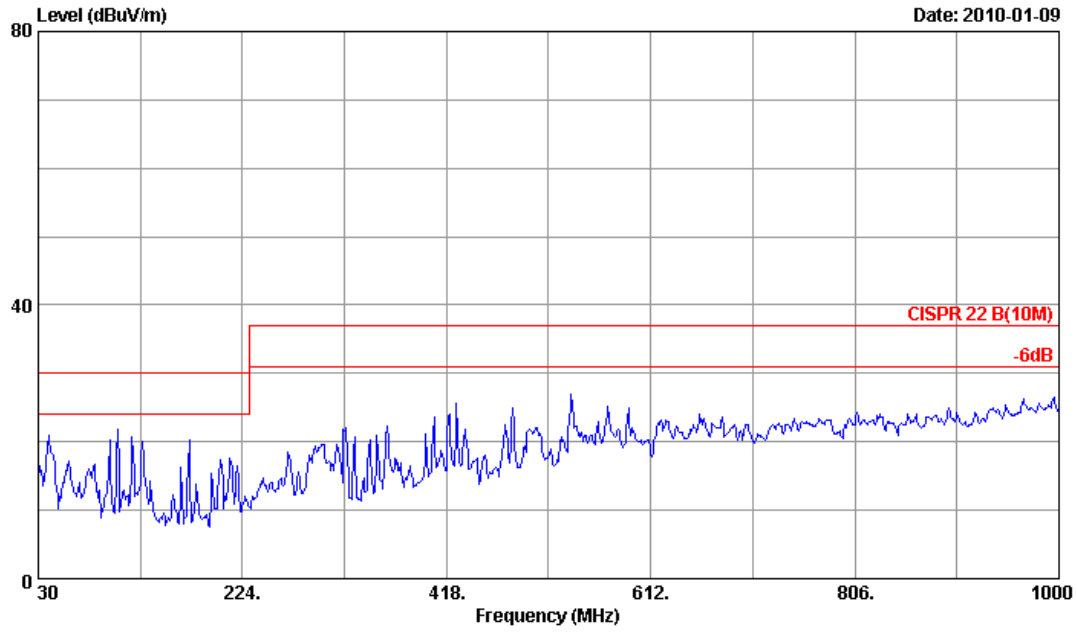


Site no. : 10m Chamber Test Site Data No. : 12
Dis. / Ant. : 10m 2009 CBL6112D 25237 Ant. pol. : HORIZONTAL
Limit : CISPR 22 B(10M)
Env. / Ins. : 24*C/56% Engineer : Cain
EUT : LCD Monitor M/N:ML19
Power Rating : AC 120V/60Hz
Test Mode : Running ''H'' Pattern
640*480@60Hz

Data: 11 File: D:\2009 Report Data\T\TCL\ACS9Q2227.EM6 (20)



Site no. : 10m Chamber Test Site Data No. : 11
Dis. / Ant. : 10m 2009 CBL6112D 25238 Ant. pol. : VERTICAL
Limit : CISPR 22 B(10M)
Env. / Ins. : 24*C/56% Engineer : Cain
EUT : LCD Monitor M/N:ML19
Power Rating : AC 120V/60Hz
Test Mode : Running ''H'' Pattern
640*480@60Hz

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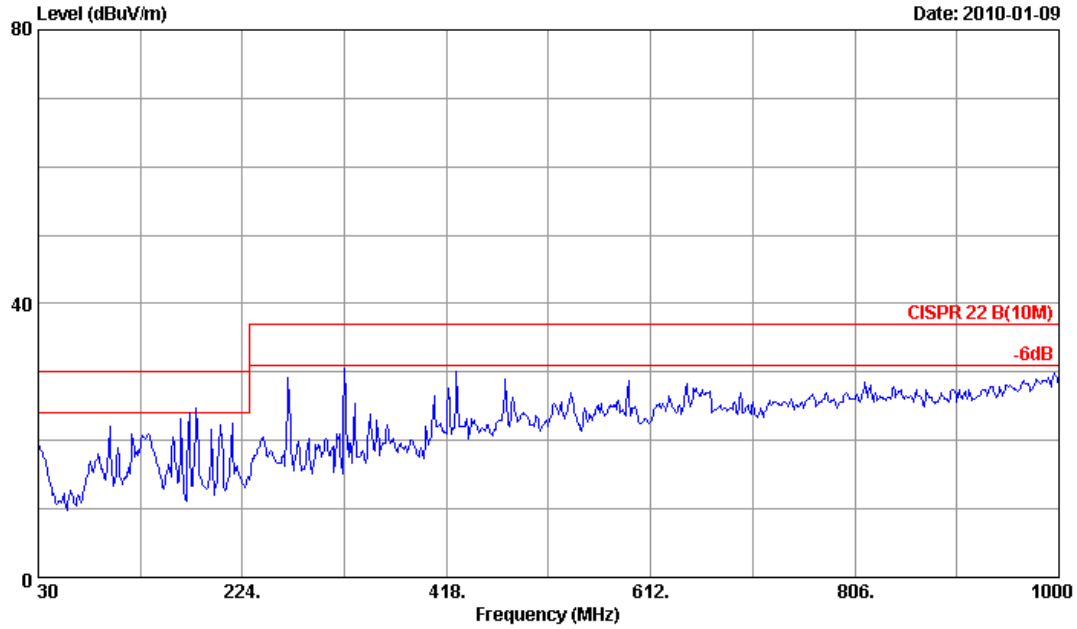


```
Site no.      : 10m  Chamber Test Site      Data No.   : 10
Dis. / Ant.   : 10m  2009 CBL6112D 25237    Ant. pol.  : HORIZONTAL
Limit         : CISPR 22 B(10M)
Env. / Ins.   : 24*C/56%                   Engineer   : Cain
EUT           : LCD Monitor  M/N:ML19
Power Rating  : AC 120V/60Hz
Test Mode     : Running ''H'' Pattern
                800*600@75Hz
```

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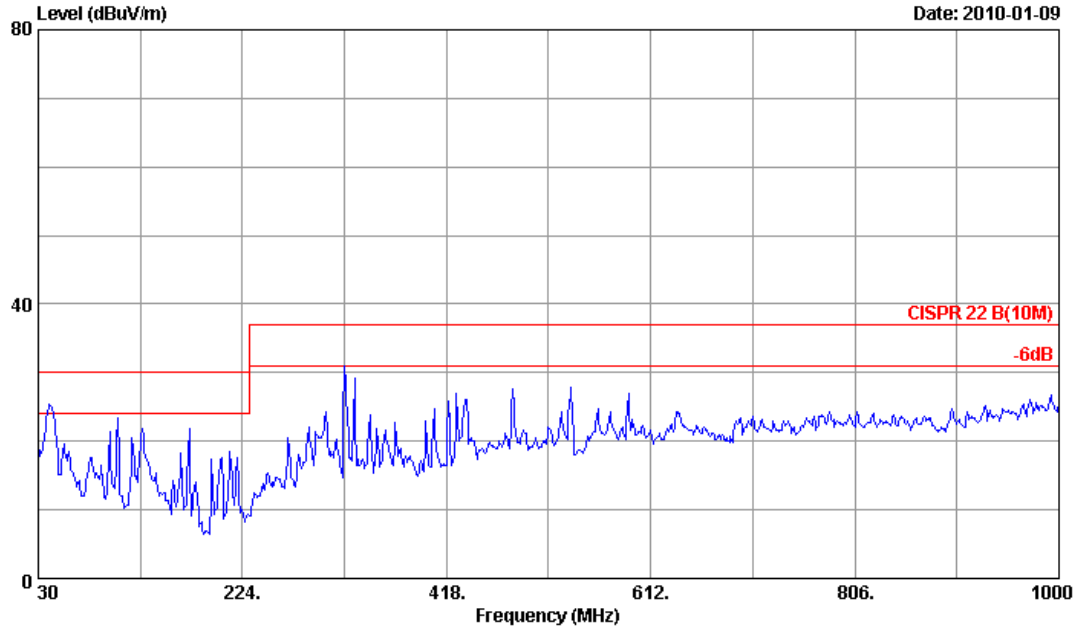


```
Site no.      : 10m  Chamber Test Site      Data No.   : 9
Dis. / Ant.   : 10m  2009 CBL6112D 25238    Ant. pol.  : VERTICAL
Limit         : CISPR 22 B(10M)
Env. / Ins.   : 24*C/56%                   Engineer   : Cain
EUT           : LCD Monitor  M/N:ML19
Power Rating  : AC 120V/60Hz
Test Mode     : Running ''H'' Pattern
                800*600@75Hz
```

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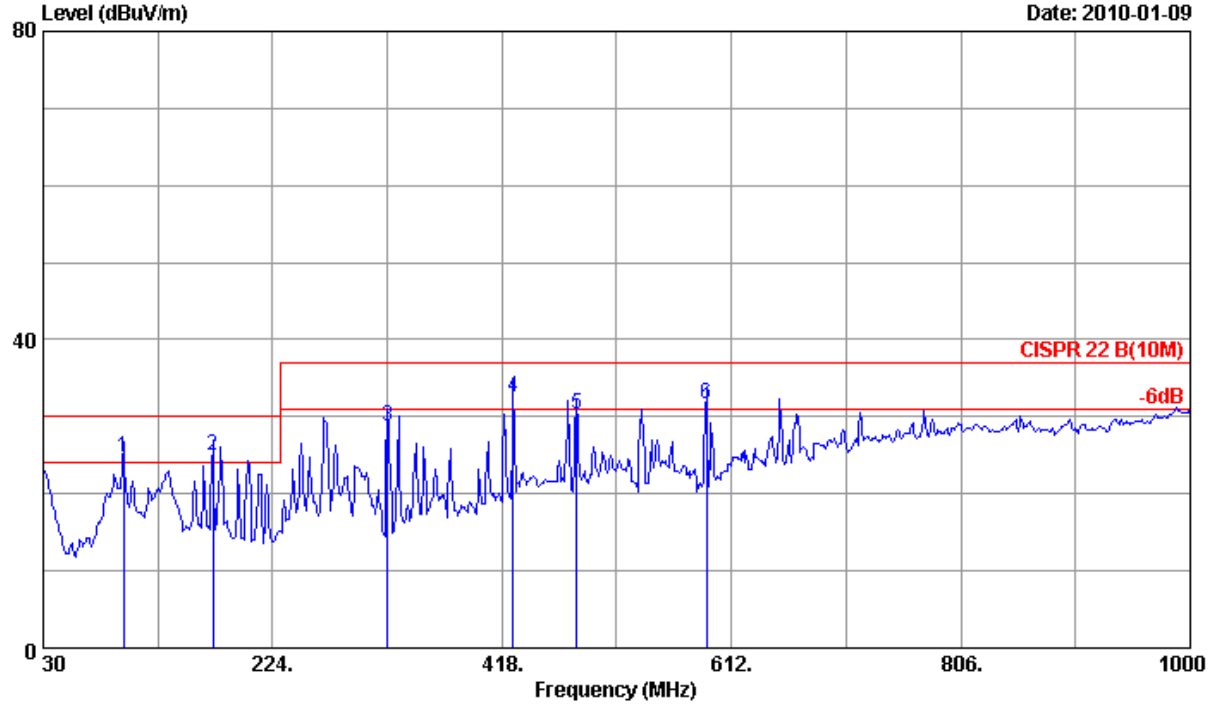

Site no. : 10m Chamber Test Site
Dis. / Ant. : 10m 09 CBL6112D 25238
Limit : CISPR 22 B(10M)
Env. / Ins. : 24*C/56%
EUT : LCD Monitor M/N:ML19
Power Rating : AC 120V/60Hz
Test Mode : Running ''H'' Pattern
1280*1024@75Hz

Data No. : 8
Ant. pol. : HORIZONTAL
Engineer : Cain

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level dBuV/m)	Limits (dBuV/m)	Magin (dB)	Remark
1	97.900	10.00	1.47	13.18	24.65	30.00	5.35	QP
2	173.560	9.14	2.02	13.82	24.98	30.00	5.02	QP
3	321.000	13.42	2.90	12.50	28.82	37.00	8.18	QP
4	427.700	16.20	3.48	12.86	32.54	37.00	4.46	QP
5	481.050	17.11	3.74	9.43	30.28	37.00	6.72	QP
6	590.660	17.90	4.27	9.55	31.72	37.00	5.28	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. **The worst emission was detected at 427.70MHz with corrected signal level of 32.54dBμV/m (Limit is 37.00dBμV/m) when the antenna was at horizontal polarization and at 2.0m high and the turn table was at 55°.**
4. **0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.**

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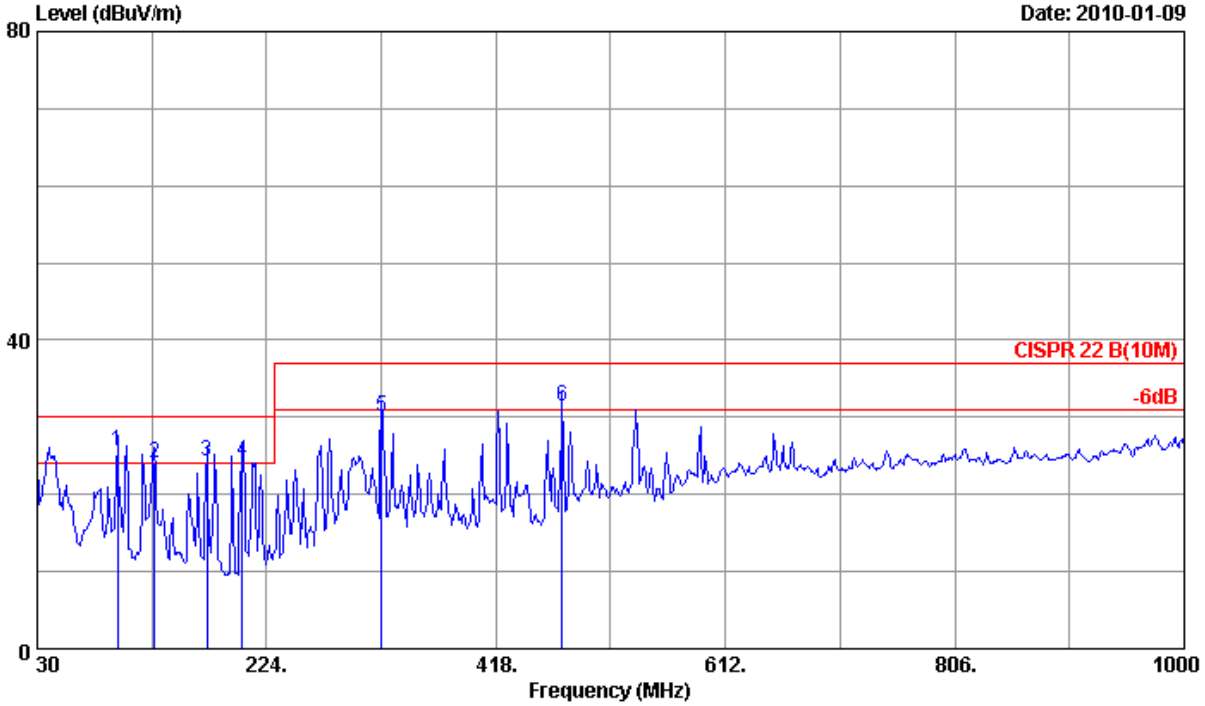

Site no. : 10m Chamber Test Site
Dis. / Ant. : 10m 09 CBL6112D 25238
Limit : CISPR 22 B(10M)
Env. / Ins. : 24*C/56%
EUT : LCD Monitor M/N:ML19
Power Rating : AC 120V/60Hz
Test Mode : Running ''H'' Pattern
1280*1024@75Hz

Data No. : 7
Ant. pol. : VERTICAL
Engineer : Cain

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level dBuV/m)	Limits (dBuV/m)	Magin (dB)	Remark
1	97.900	10.00	1.08	14.49	25.57	30.00	4.43	QP
2	128.940	11.68	1.24	11.11	24.03	30.00	5.97	QP
3	173.560	9.14	1.47	13.73	24.34	30.00	5.66	QP
4	203.630	8.92	1.62	13.81	24.35	30.00	5.65	QP
5	321.000	13.42	2.25	14.45	30.12	37.00	6.88	QP
6	474.260	16.98	2.89	11.51	31.38	37.00	5.62	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.
3. **The worst emission was detected at 97.90MHz with corrected signal level of 25.57dBμV/m (Limit is 30.00dBμV/m) when the antenna was at vertical polarization and at 2.0m high and the turn table was at 310°.**
4. **0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.**

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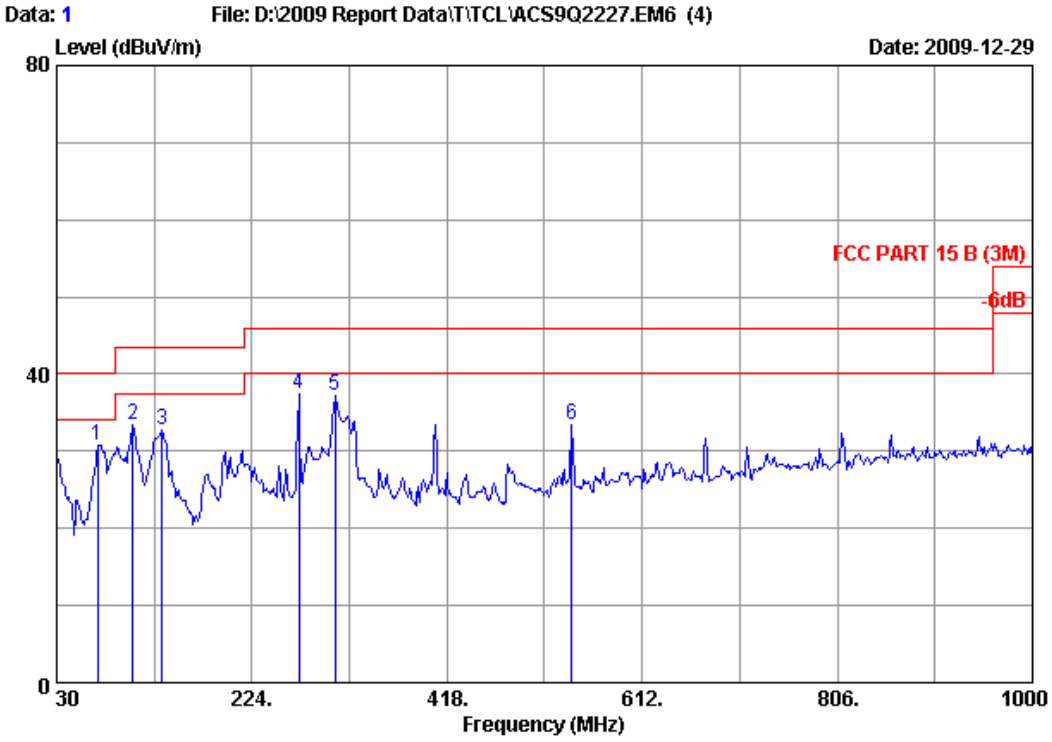

Site no. : 3m chamber
Dis. / Ant. : 3m CBL6111C
Limit : FCC PART 15 B (3M)
Env. / Ins. : 24*C/56%
EUT : LCD Monitor M/N:ML19
Power Rating : AC 120V/60Hz
Test Mode : AV In

Data no. : 1
Ant. pol. : HORIZONTAL
Engineer : Victory

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	70.740	6.69	0.77	23.27	30.73	40.00	9.27	QP
2	105.660	10.85	0.92	21.68	33.45	43.50	10.05	QP
3	134.760	12.05	1.03	19.74	32.82	43.50	10.68	QP
4	270.560	13.16	1.68	22.49	37.33	46.00	8.67	QP
5	306.450	13.70	1.74	21.82	37.26	46.00	8.74	QP
6	542.160	18.32	2.35	12.86	33.53	46.00	12.47	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

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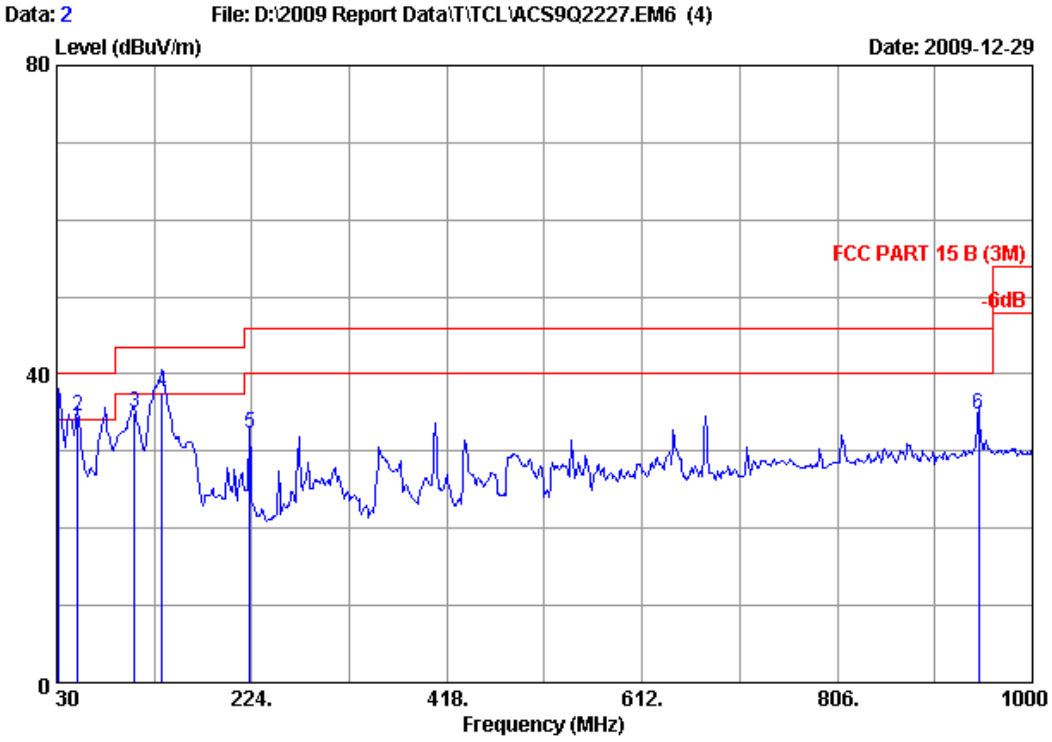

Site no. : 3m chamber
Dis. / Ant. : 3m CBL6111C
Limit : FCC PART 15 B (3M)
Env. / Ins. : 24*C/56%
EUT : LCD Monitor M/N:ML19
Power Rating : AC 120V/60Hz
Test Mode : AV In

Data no. : 2
Ant. pol. : VERTICAL
Engineer : Victory

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	31.940	18.73	0.53	15.77	35.03	40.00	4.97	QP
2	51.340	8.71	0.66	25.24	34.61	40.00	5.39	QP
3	107.600	11.04	0.93	23.00	34.97	43.50	8.53	QP
4	134.760	12.05	1.03	24.53	37.61	43.50	5.89	QP
5	222.060	10.26	1.45	20.49	32.20	46.00	13.80	QP
6	946.650	23.73	3.34	7.71	34.78	46.00	11.22	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

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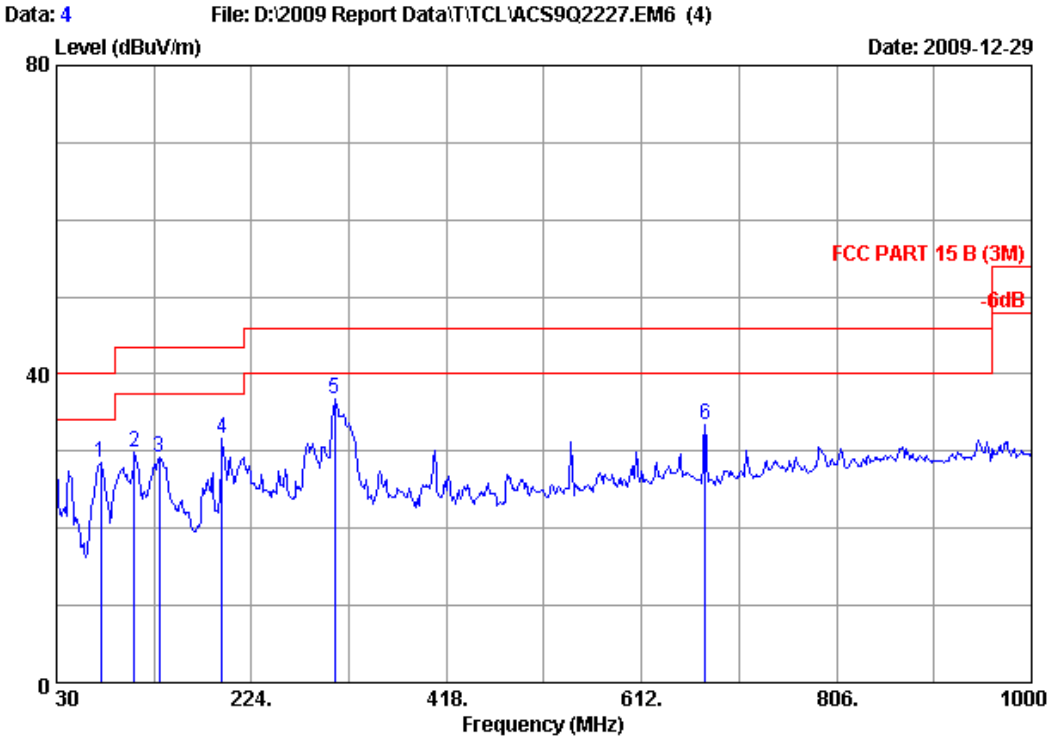

Site no. : 3m chamber
Dis. / Ant. : 3m CBL6111C
Limit : FCC PART 15 B (3M)
Env. / Ins. : 24*C/56%
EUT : LCD Monitor M/N:ML19
Power Rating : AC 230V/50Hz
Test Mode : S-Video In

Data no. : 4
Ant. pol. : HORIZONTAL
Engineer : Victory

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	73.650	7.07	0.78	20.64	28.49	40.00	11.51	QP
2	107.600	11.04	0.93	17.81	29.78	43.50	13.72	QP
3	131.850	12.07	1.02	16.16	29.25	43.50	14.25	QP
4	194.900	9.75	1.29	20.50	31.54	43.50	11.96	QP
5	306.450	13.70	1.74	21.32	36.76	46.00	9.24	QP
6	675.050	20.28	2.72	10.39	33.39	46.00	12.61	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

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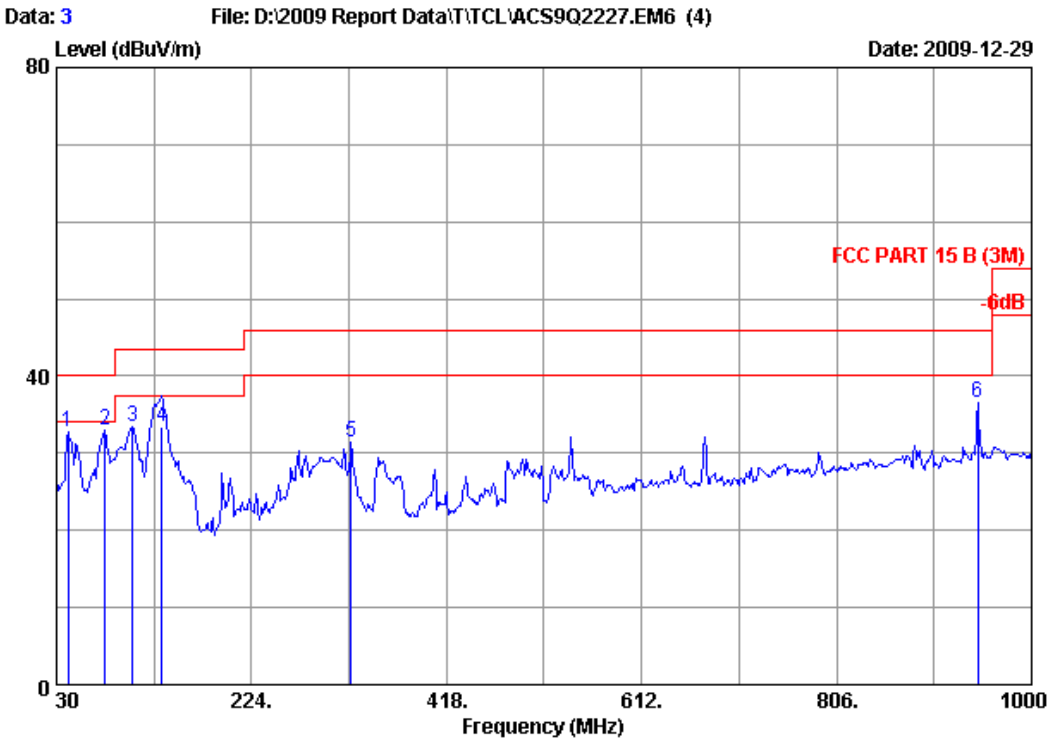
Postcode:518057



Site no. : 3m chamber
Dis. / Ant. : 3m CBL6111C
Limit : FCC PART 15 B (3M)
Env. / Ins. : 24*C/56%
EUT : LCD Monitor M/N:ML19
Power Rating : AC 230V/50Hz
Test Mode : S-Video In

Data no. : 3
Ant. pol. : VERTICAL
Engineer : Victory

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	41.640	13.33	0.60	18.77	32.70	40.00	7.30	QP
2	78.500	7.56	0.80	24.70	33.06	40.00	6.94	QP
3	105.660	10.85	0.92	21.74	33.51	43.50	9.99	QP
4	134.760	12.05	1.03	20.30	33.38	43.50	10.12	QP
5	322.940	14.06	1.78	15.63	31.47	46.00	14.53	QP
6	946.650	23.73	3.34	9.54	36.61	46.00	9.39	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

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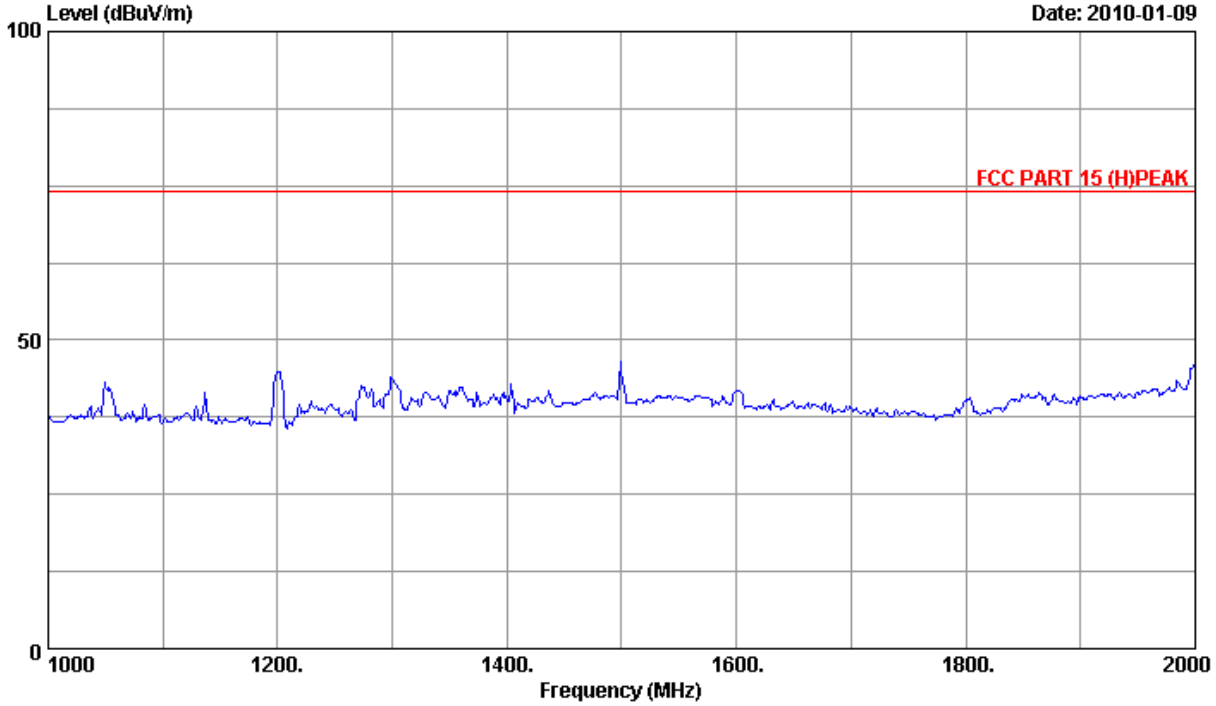
Postcode:518057

Data: 13 File: D:\2009 Report Data\T\TCL\ACS9Q2227.EM6 (20)



Site no.	: 10m Chamber Test Site	Data No.	: 13
Dis. / Ant.	: 3m 2009 3115 ANT	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15 (H)PEAK		
Env. / Ins.	: 24*C/56%	Engineer	: Cain
EUT	: LCD Monitor M/N:ML19		
Power Rating	: AC 120V/60Hz		
Test Mode	: Running ''H'' Pattern 1280*1024@75Hz		

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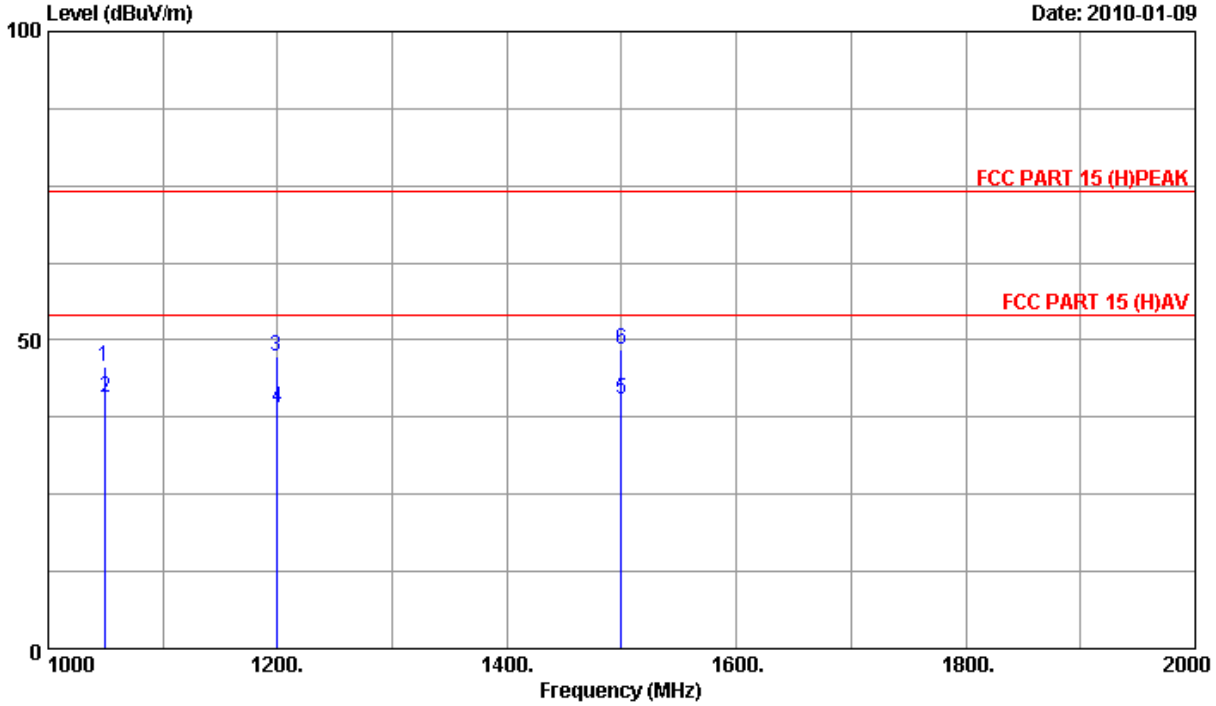
Postcode:518057

Data: 14 File: D:\2009 Report Data\T\TCL\ACS9Q2227.EM6 (20)



Site no. : 10m Chamber Test Site
Dis. / Ant. : 3m 2009 3115 ANT
Limit : FCC PART 15 (H)PEAK
Env. / Ins. : 24*C/56%
EUT : LCD Monitor M/N:ML19
Power Rating : AC 120V/60Hz
Test Mode : Running ''H'' Pattern
1280*1024@75Hz

Data No. : 14
Ant. pol. : HORIZONTAL
Engineer : Cain

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1049.265	25.38	3.80	34.94	51.50	45.74	74.00	28.26	Peak
2	1049.654	25.38	3.80	34.94	46.50	40.74	54.00	13.26	Average
3	1199.165	25.32	4.03	34.75	52.67	47.27	74.00	26.73	Peak
4	1199.654	25.32	4.03	34.75	44.29	38.89	54.00	15.11	Average
5	1499.897	25.20	4.47	34.38	45.16	40.45	54.00	13.55	Average
6	1499.940	25.20	4.47	34.38	53.27	48.56	74.00	25.44	Peak

Remarks: 1. Emission Level=Antenna Factor+Cable Loss-Amp Factor+Reading.
2. The emission levels that are 20dB below the official limit are not reported.

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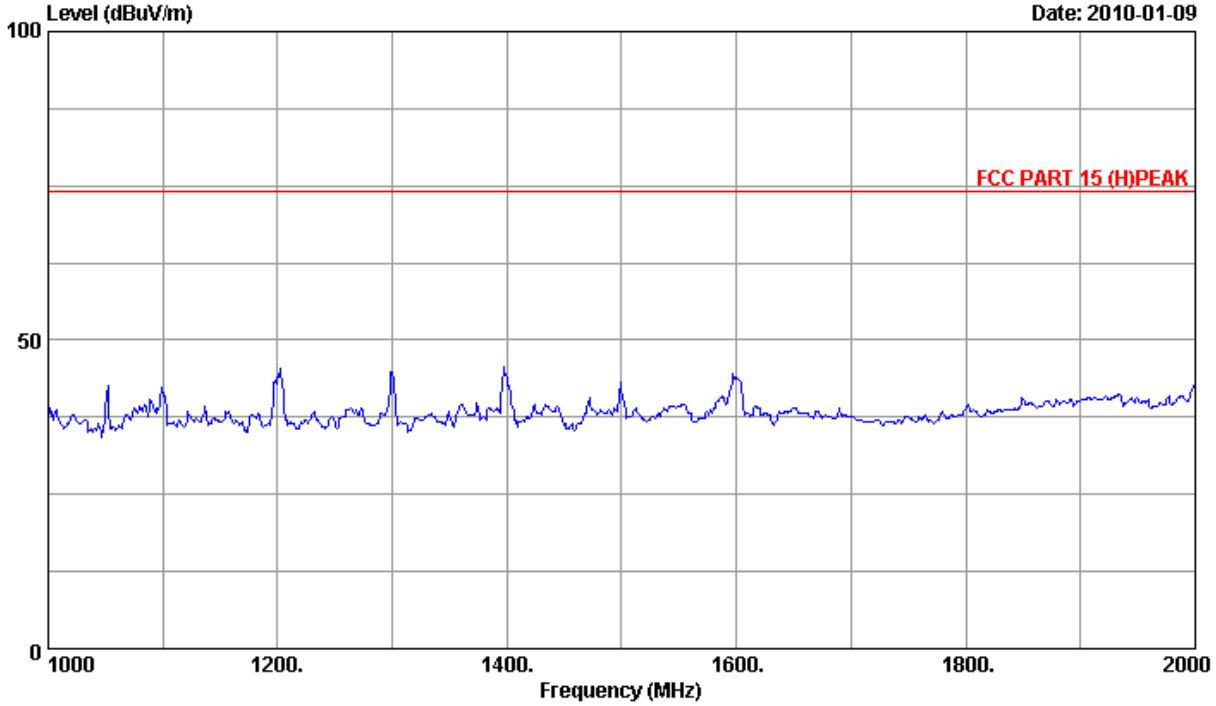
Postcode:518057

Data: 15 File: D:\2009 Report Data\T\TCL\ACS9Q2227.EM6 (20)



Site no.	: 10m Chamber Test Site	Data No.	: 15
Dis. / Ant.	: 3m 2009 3115 ANT	Ant. pol.	: VERTICAL
Limit	: FCC PART 15 (H)PEAK		
Env. / Ins.	: 24*C/56%	Engineer	: Cain
EUT	: LCD Monitor M/N:ML19		
Power Rating	: AC 120V/60Hz		
Test Mode	: Running ''H'' Pattern 1280*1024@75Hz		

No.6 Ke Feng Road,B1;ck 52,
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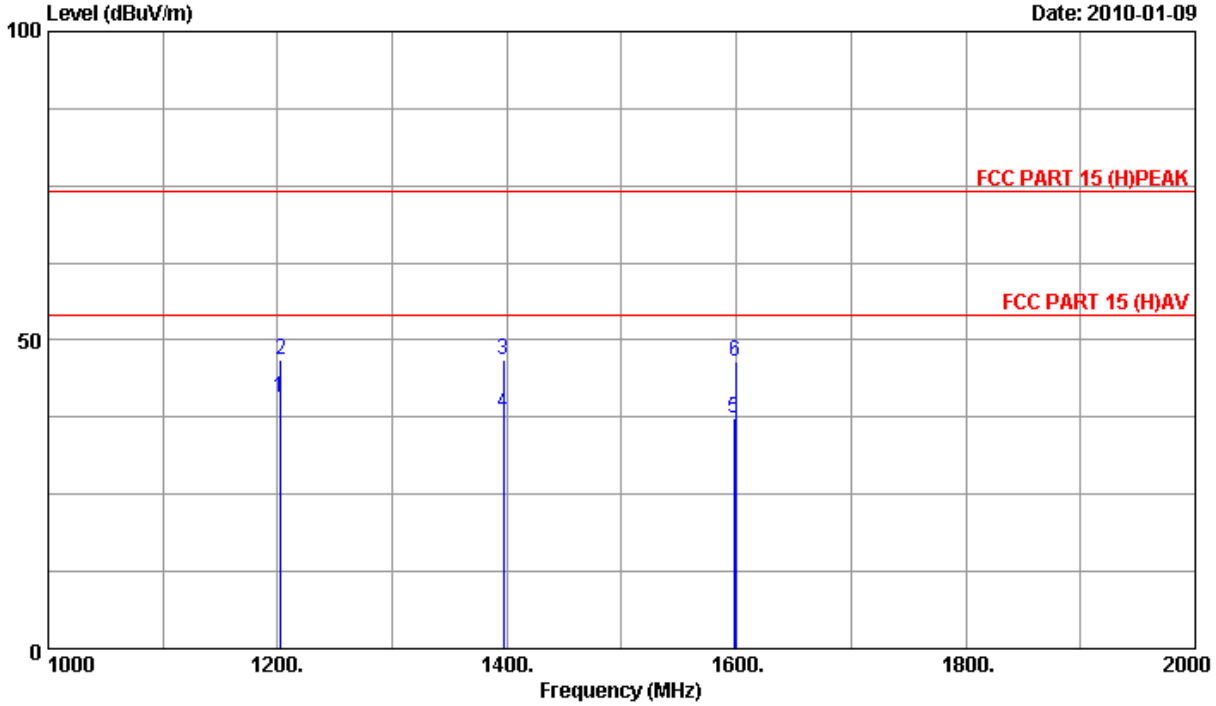
Postcode:518057

Data: 16 File: D:\2009 Report Data\T\TCL\ACS9Q2227.EM6 (20)



Site no. : 10m Chamber Test Site
Data No. : 16
Dis. / Ant. : 3m 2009 3115 ANT
Ant. pol. : VERTICAL
Limit : FCC PART 15 (H)PEAK
Env. / Ins. : 24*C/56%
Engineer : Cain
EUT : LCD Monitor M/N:ML19
Power Rating : AC 120V/60Hz
Test Mode : Running ''H'' Pattern
1280*1024@75Hz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1202.156	25.32	4.03	34.75	45.99	40.59	54.00	13.41	Average
2	1202.540	25.32	4.03	34.75	52.29	46.89	74.00	27.11	Peak
3	1397.062	25.24	4.31	34.51	51.82	46.86	74.00	27.14	Peak
4	1397.203	25.24	4.31	34.51	43.02	38.06	54.00	15.94	Average
5	1598.022	25.42	4.63	34.29	41.55	37.31	54.00	16.69	Average
6	1599.651	25.42	4.63	34.26	50.81	46.60	74.00	27.40	Peak

Remarks: 1. Emission Level=Antenna Factor+Cable Loss-Amp Factor+Reading.
2. The emission levels that are 20dB below the official limit are not reported.

5. DEVIATION TO TEST SPECIFICATIONS

[NONE]

6. PHOTOGRAPH

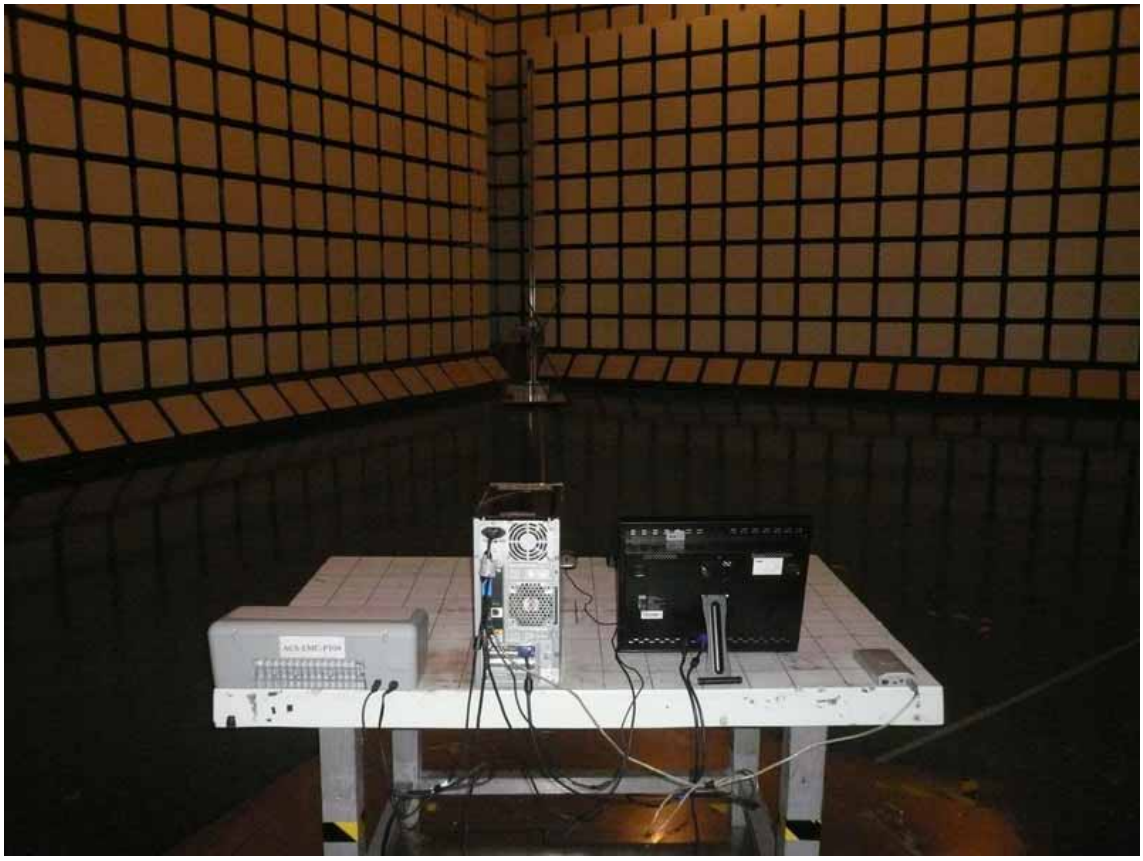
6.1.Photos of Power Line Conducted Emission Test

PC Mode

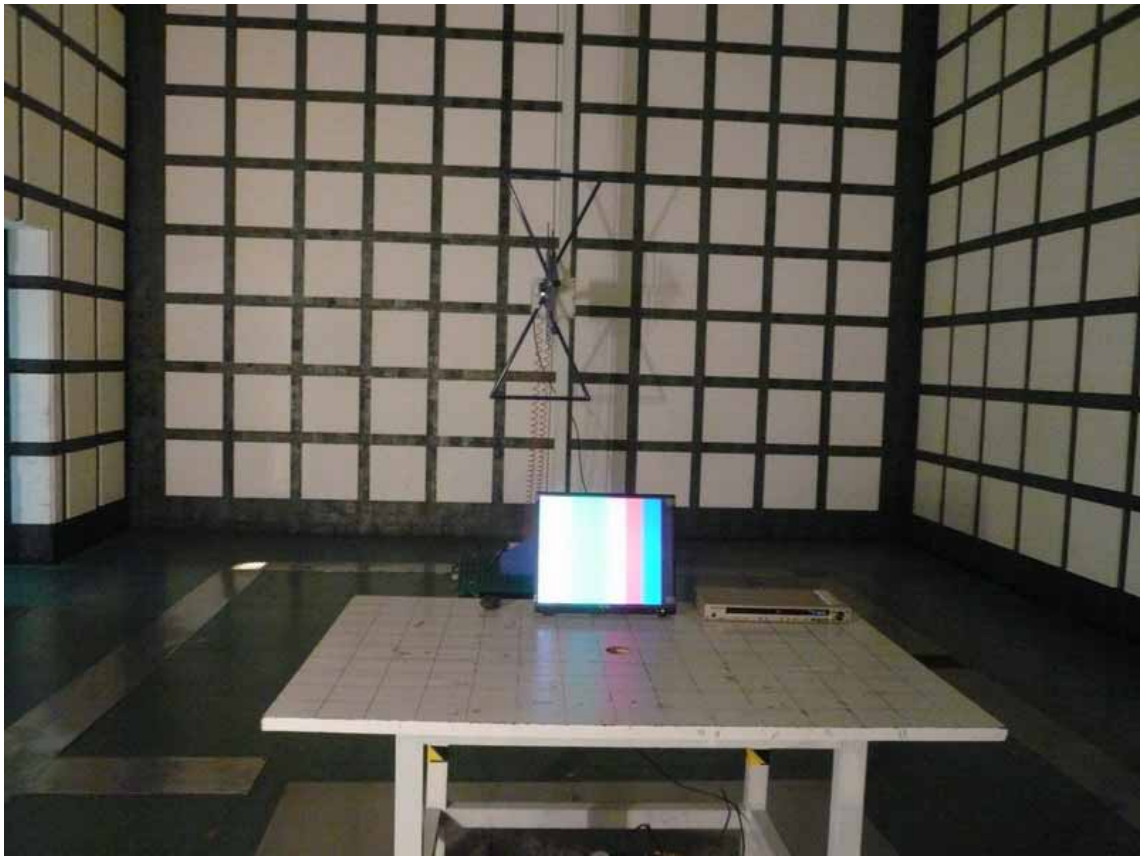
AV Mode & S-Video In Mode

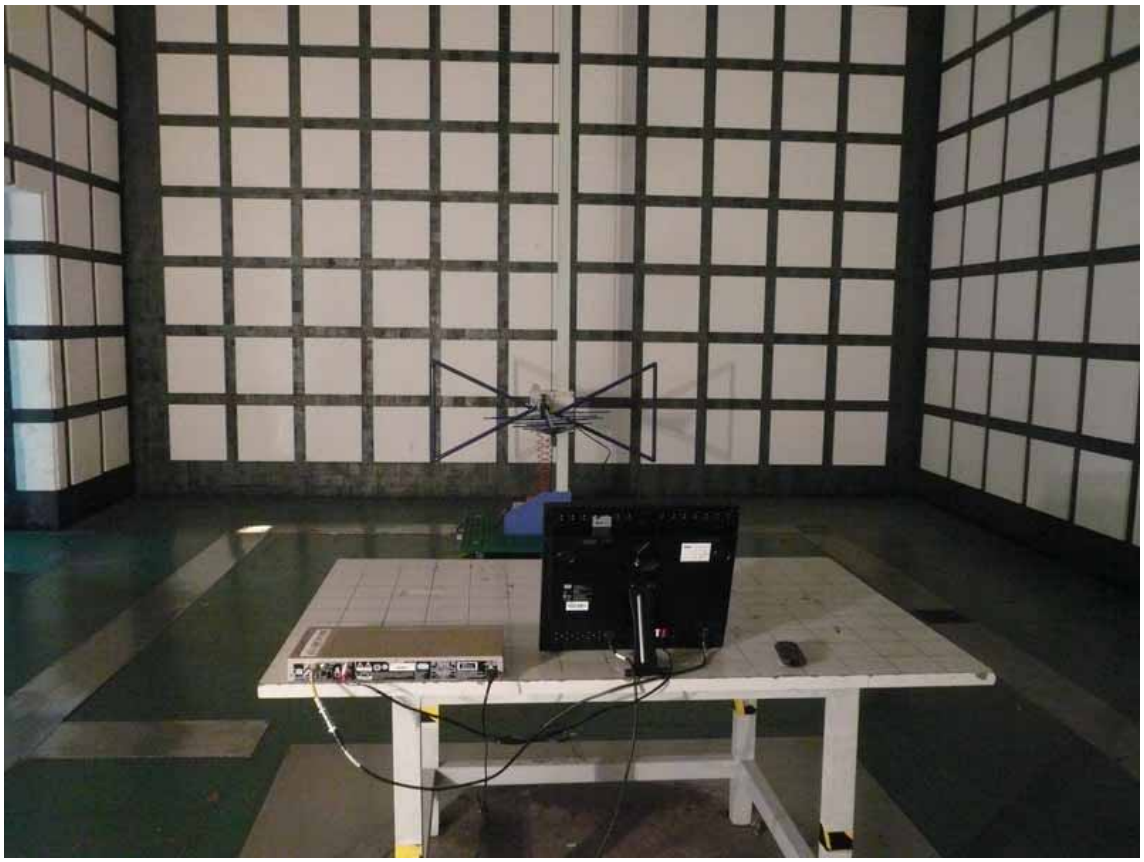
6.2.Photos of Radiated Emission Test (In Anechoic Chamber)

PC Mode

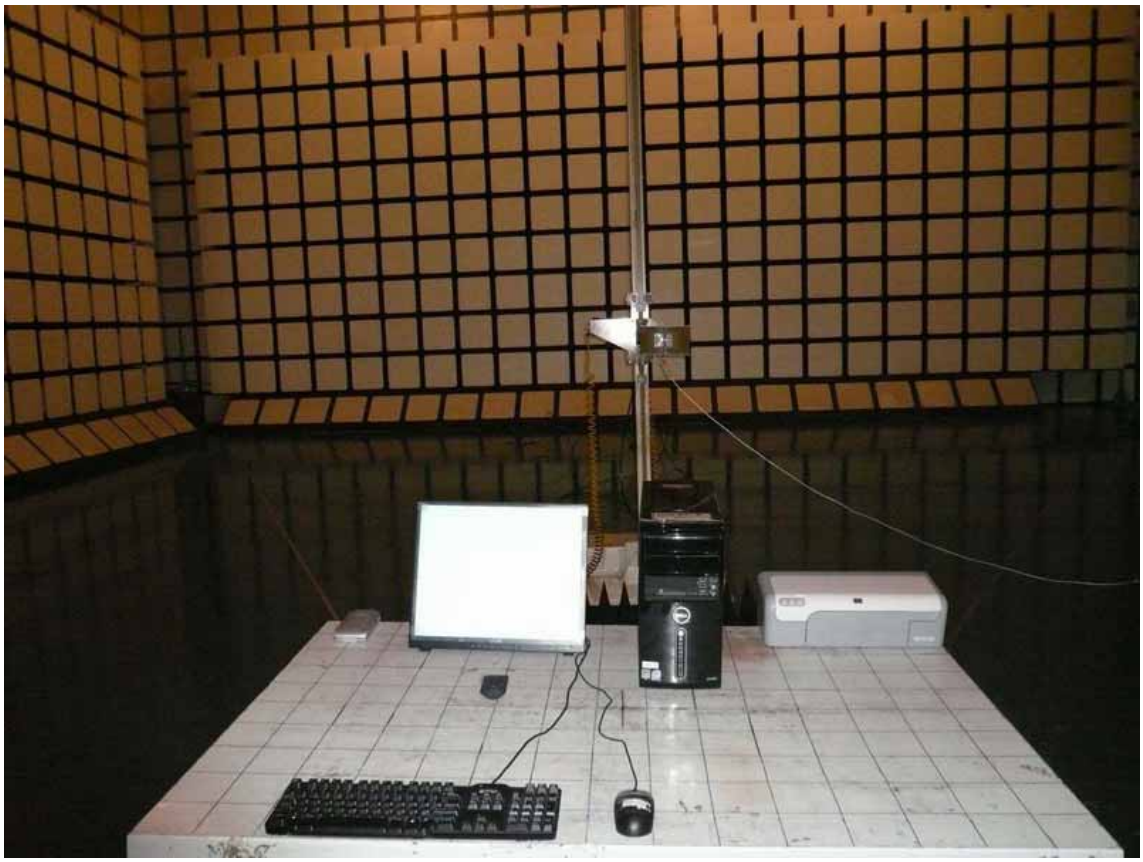


AV Mode & S-Video In Mode





1GHz~2GHz



7. PHOTOS OF THE EUT

Figure 1
General Appearance of the EUT

Figure 2
General Appearance of the EUT

Figure 3
General Appearance of the EUT

Figure 4
General Appearance of the EUT

Figure 5
Inside of the EUT

Figure 6
Inside of the EUT

Figure 7
Inside of the EUT

Figure 8
Inside of the EUT

Figure 9
Inside of the EUT

Figure 10
Inside of the EUT

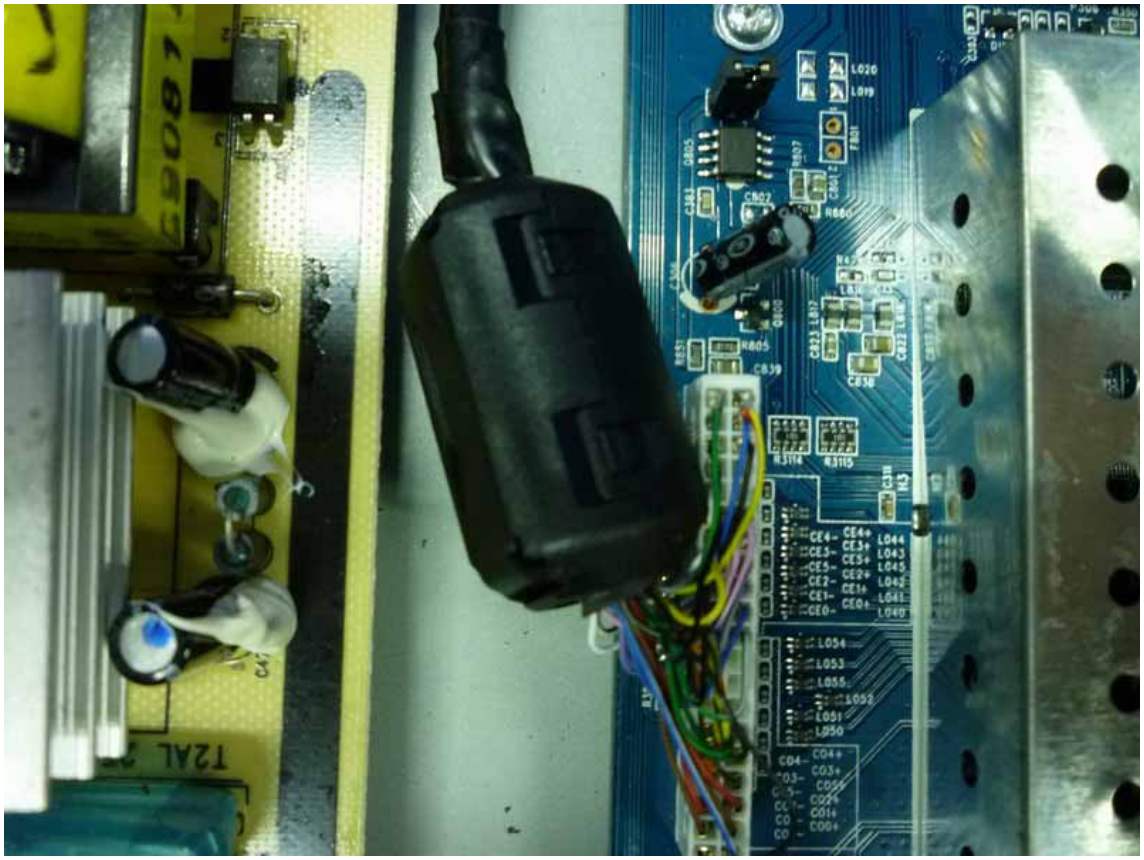


Figure 11
Inside of the EUT

Figure 12
Speaker of the EUT

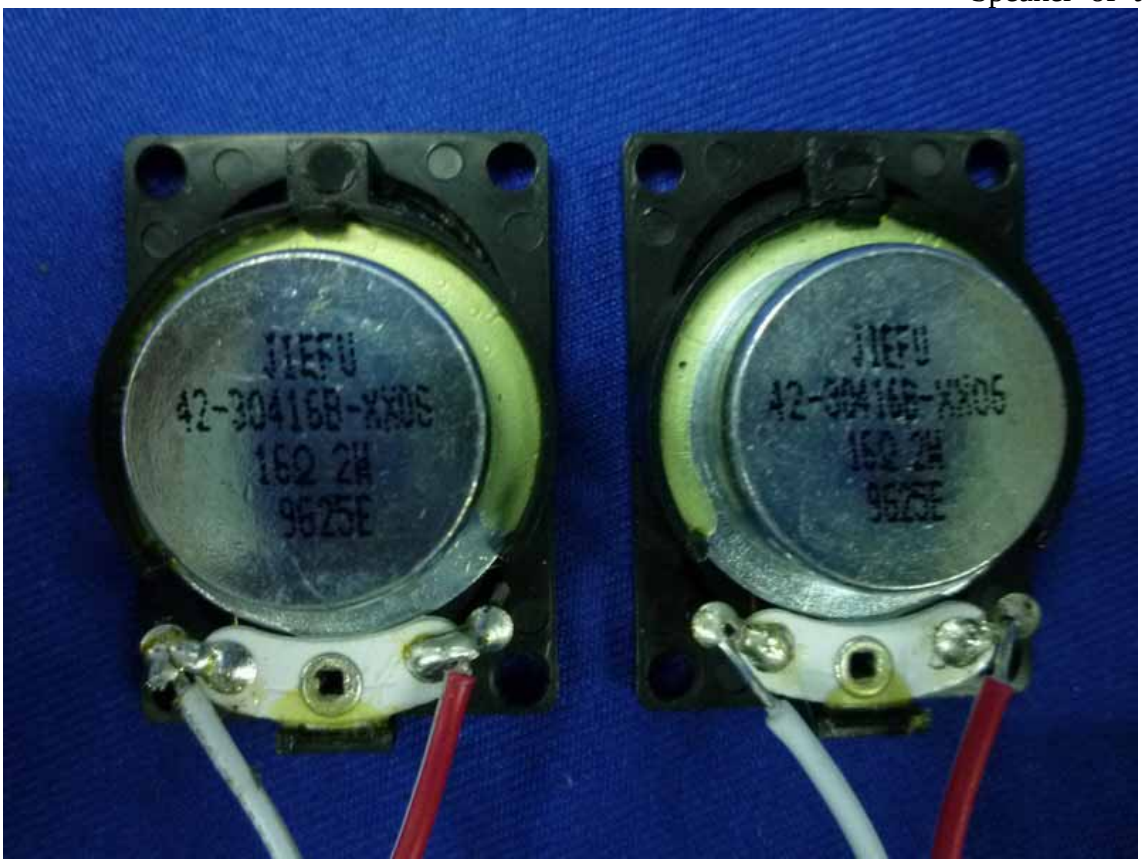


Figure 13
Speaker of the EUT

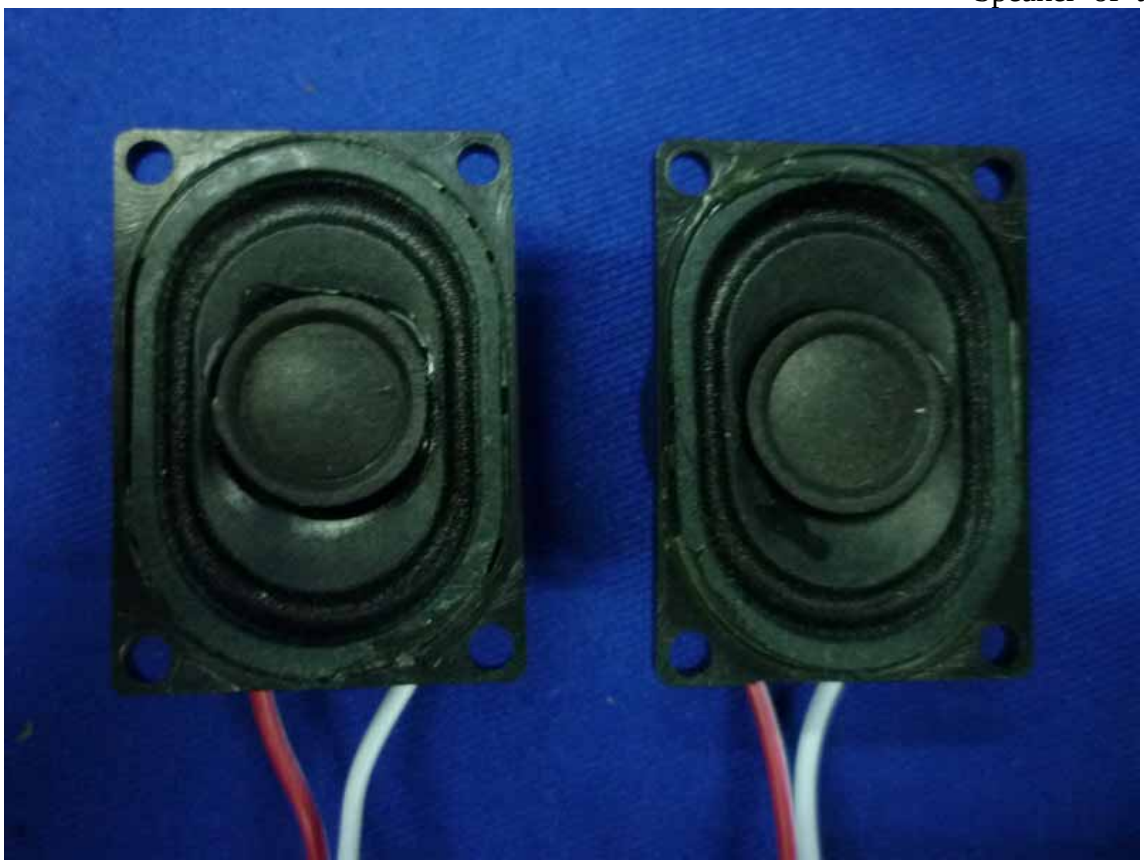


Figure 14
Fan of the EUT

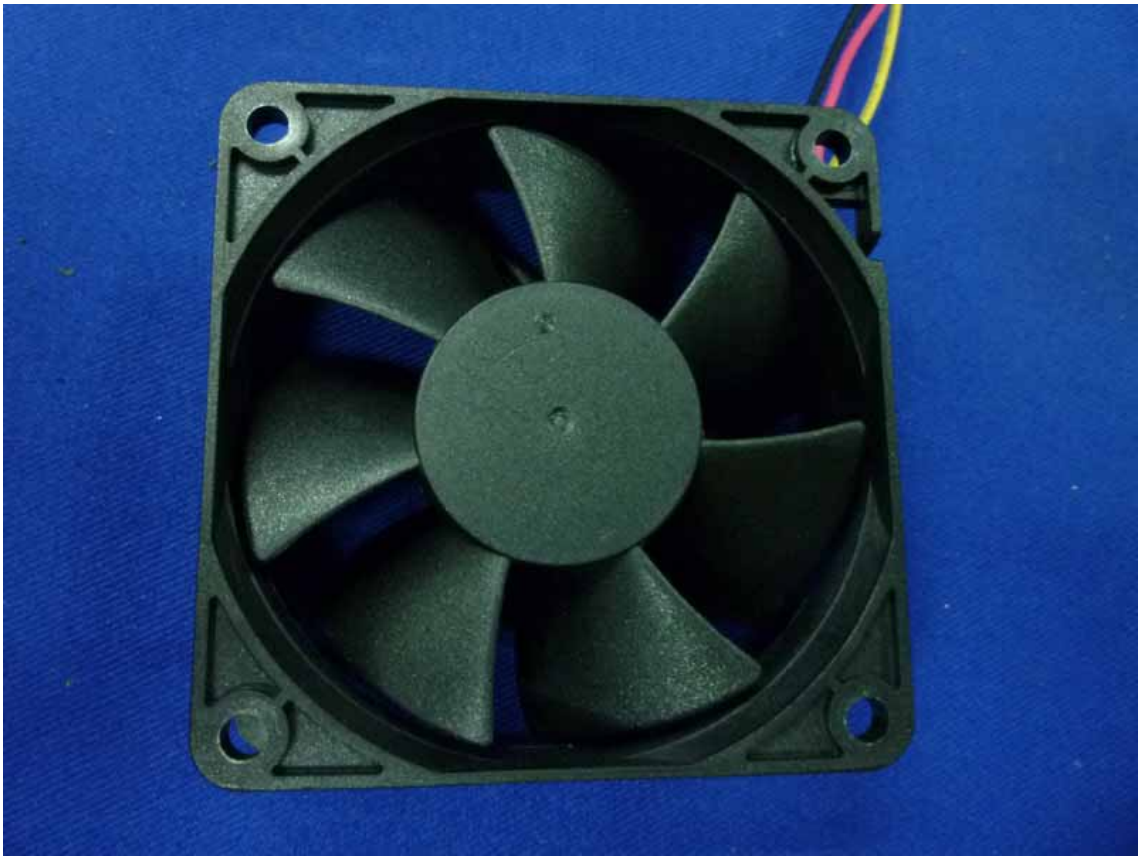


Figure 15
Fan of the EUT

Figure 16
Component side of the PCB

Figure 17
Component side of the PCB

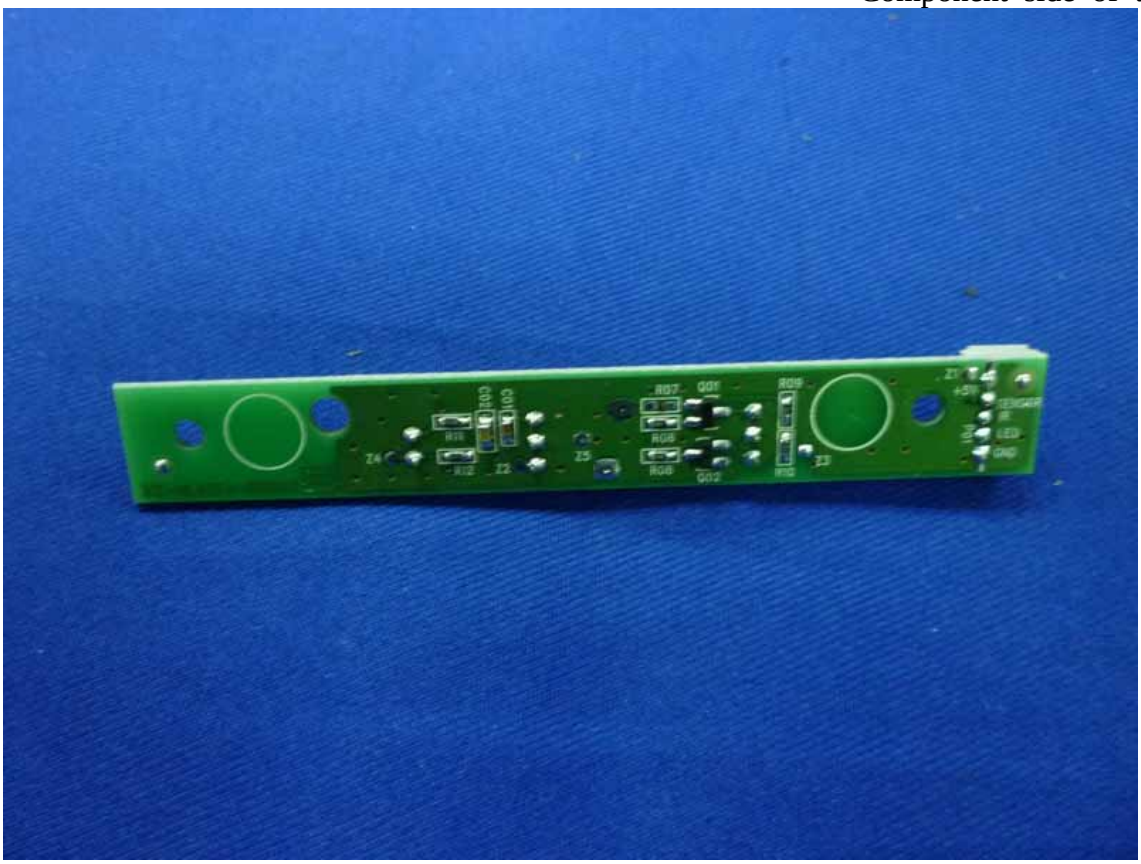


Figure 18
Component side of the PCB

Figure 19
Component side of the PCB

Figure 20
Component side of the PCB

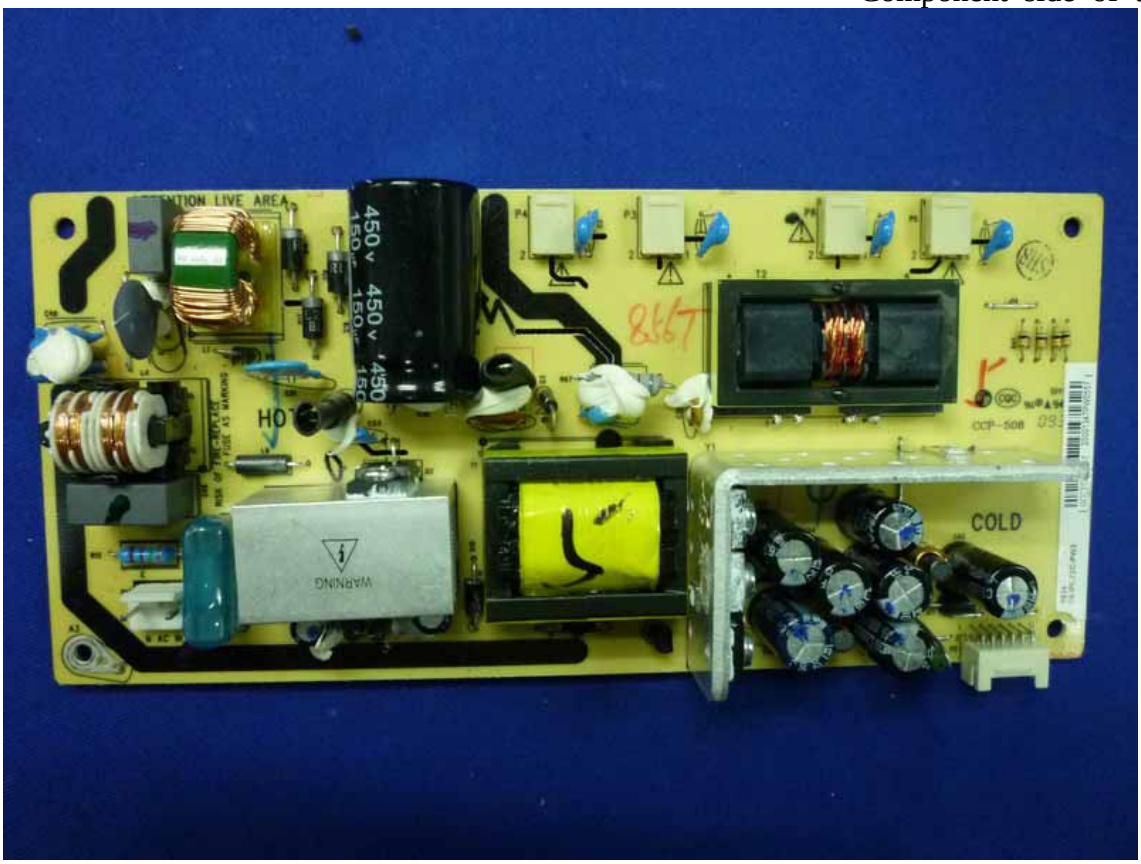


Figure 21
Component side of the PCB

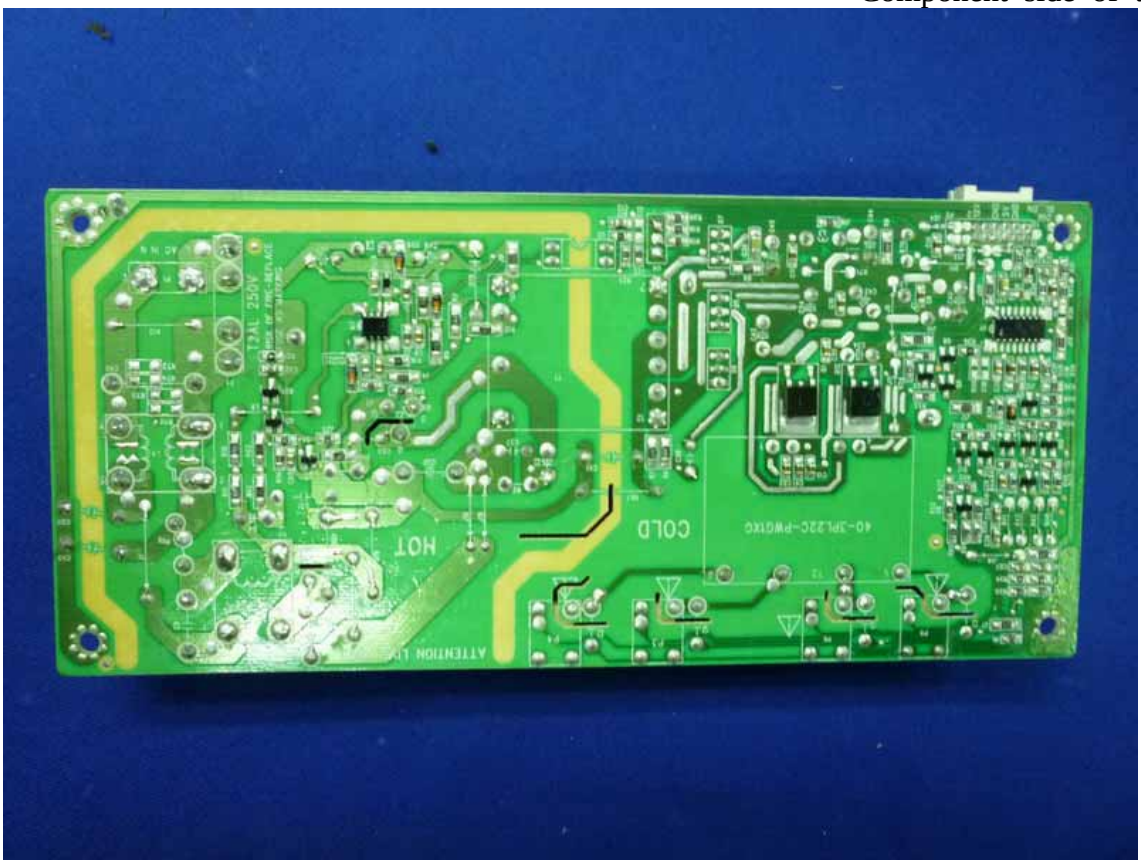


Figure 22
Component side of the PCB

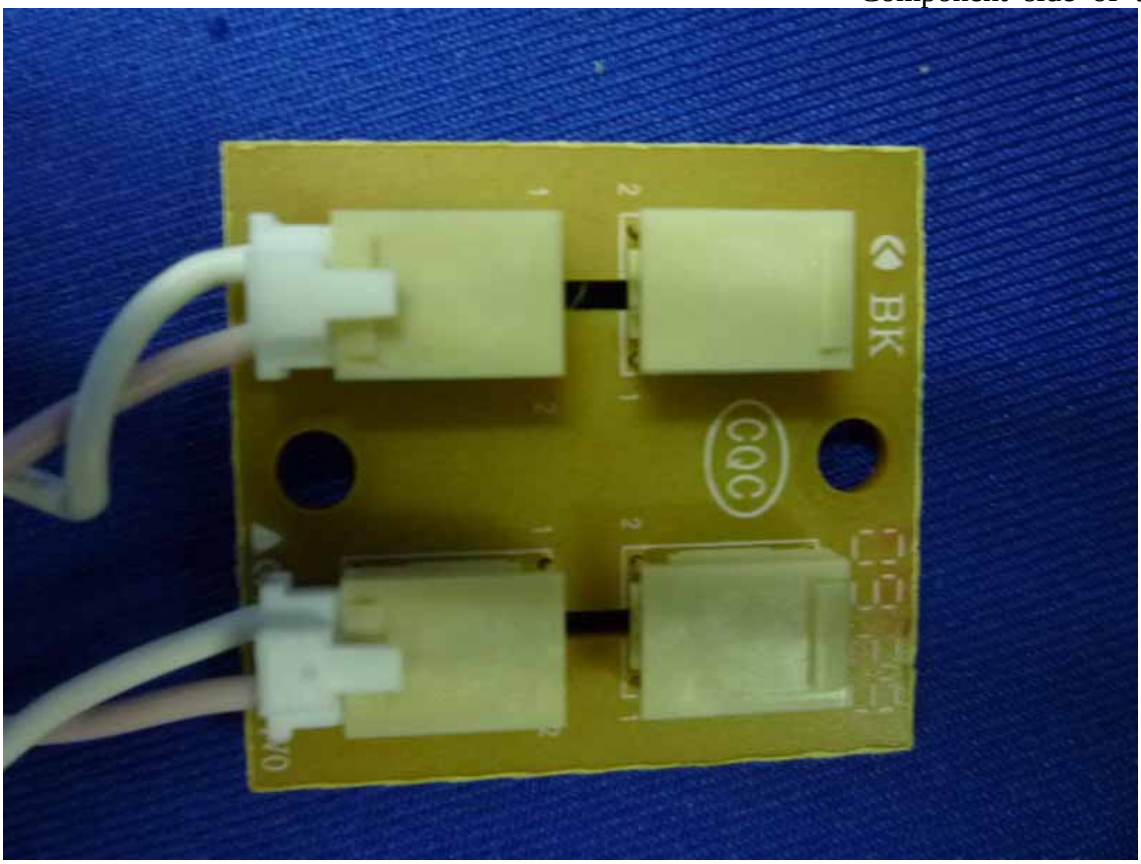


Figure 23
Component side of the PCB

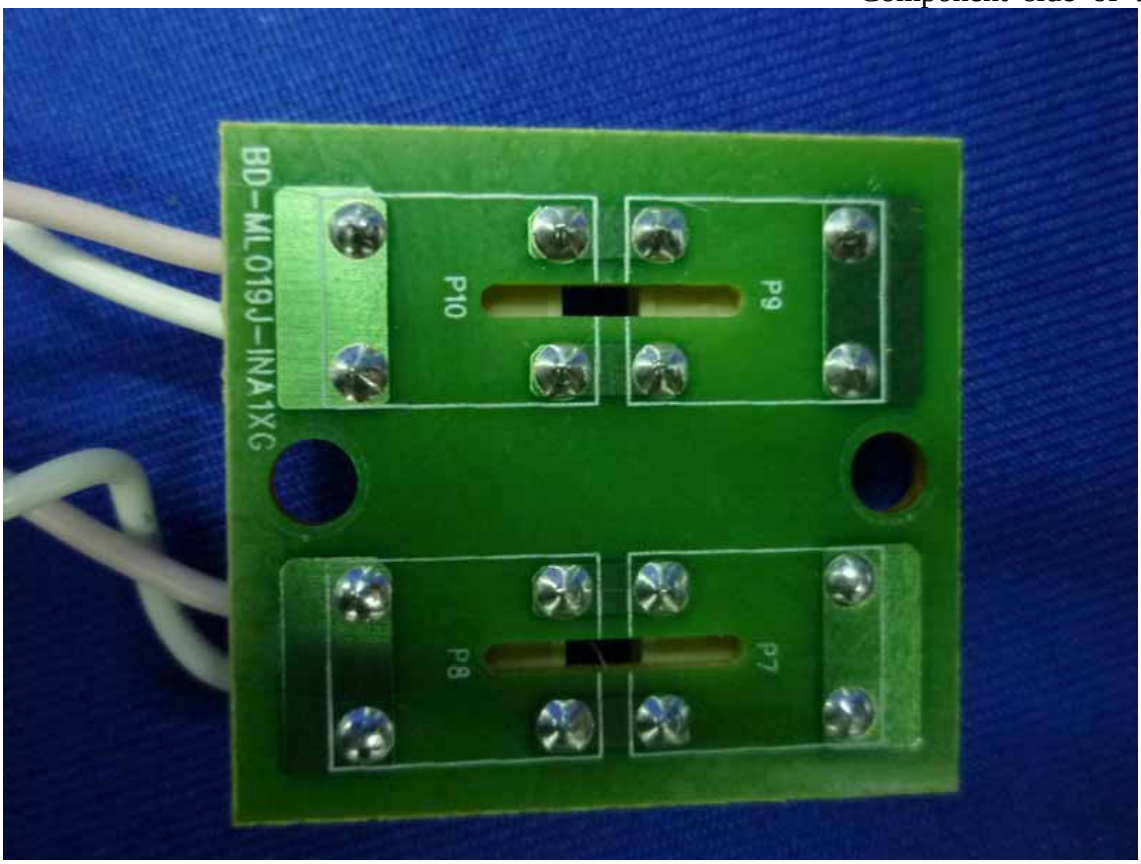


Figure 24
Component side of the PCB

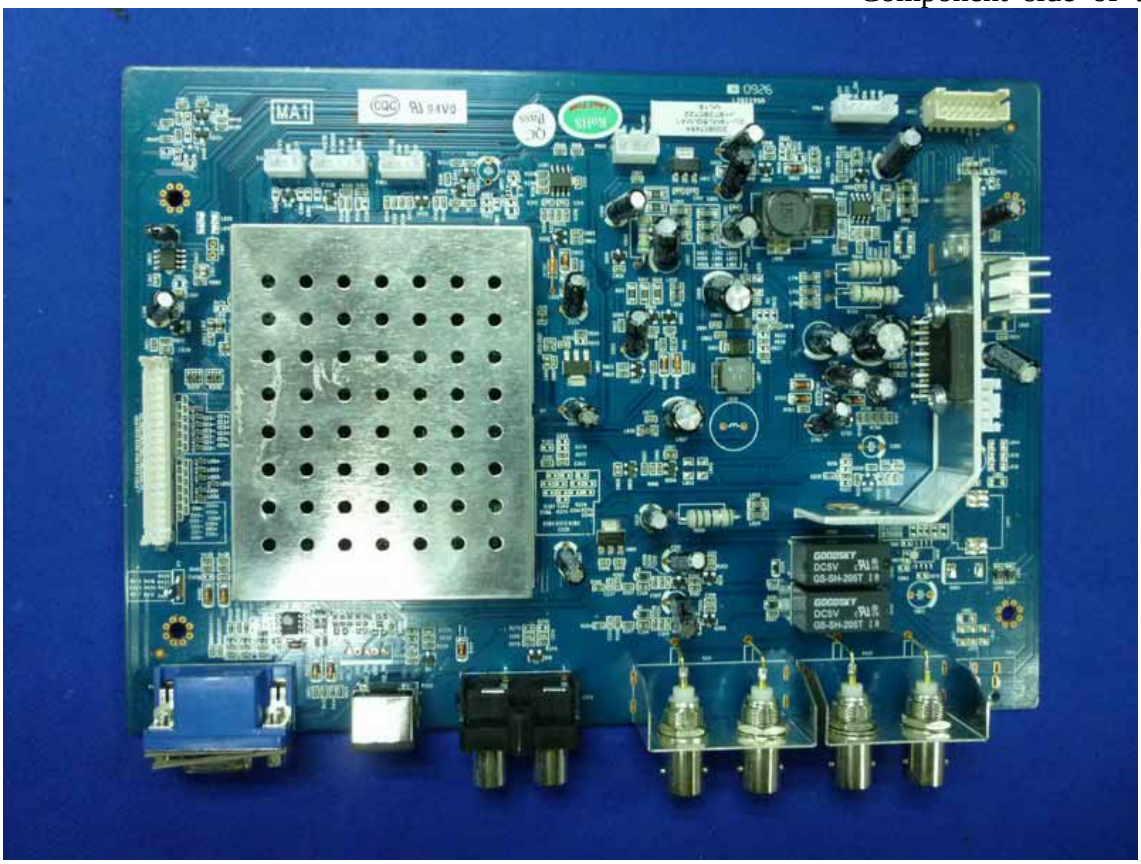


Figure 25
Component side of the PCB

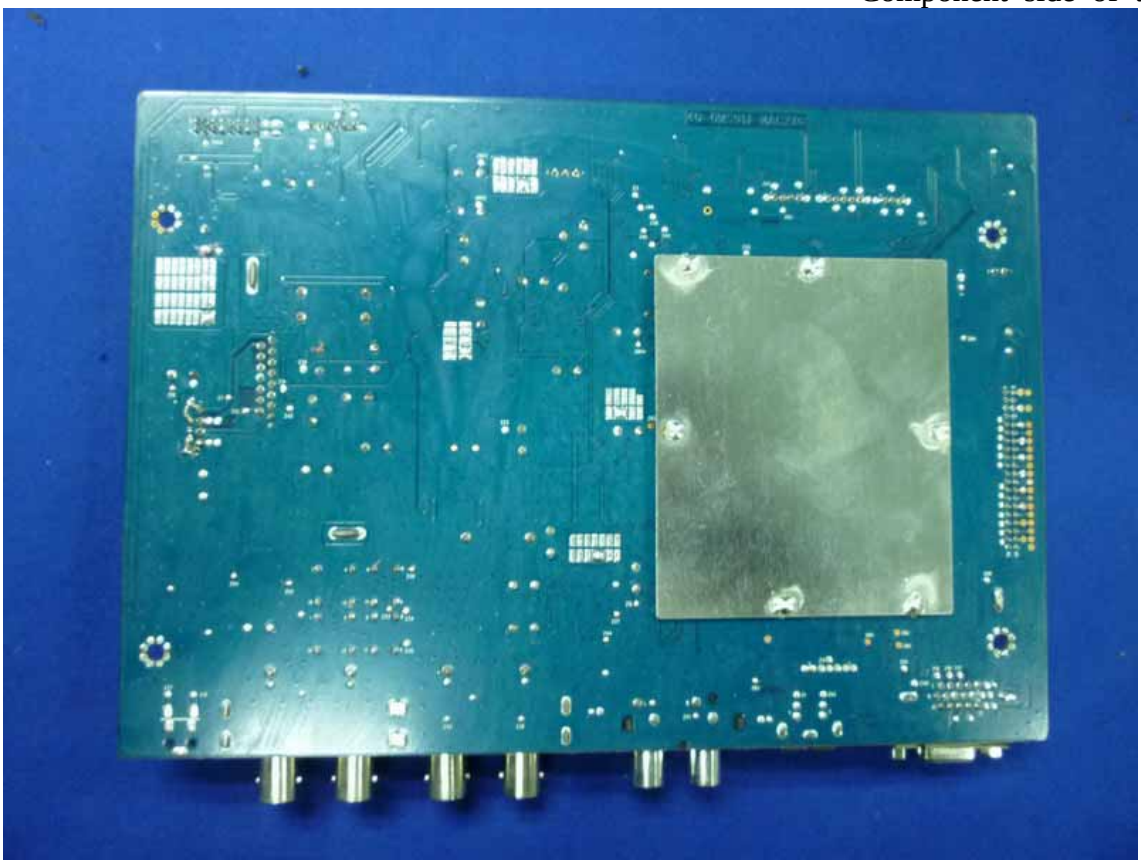


Figure 26
Component side of the PCB

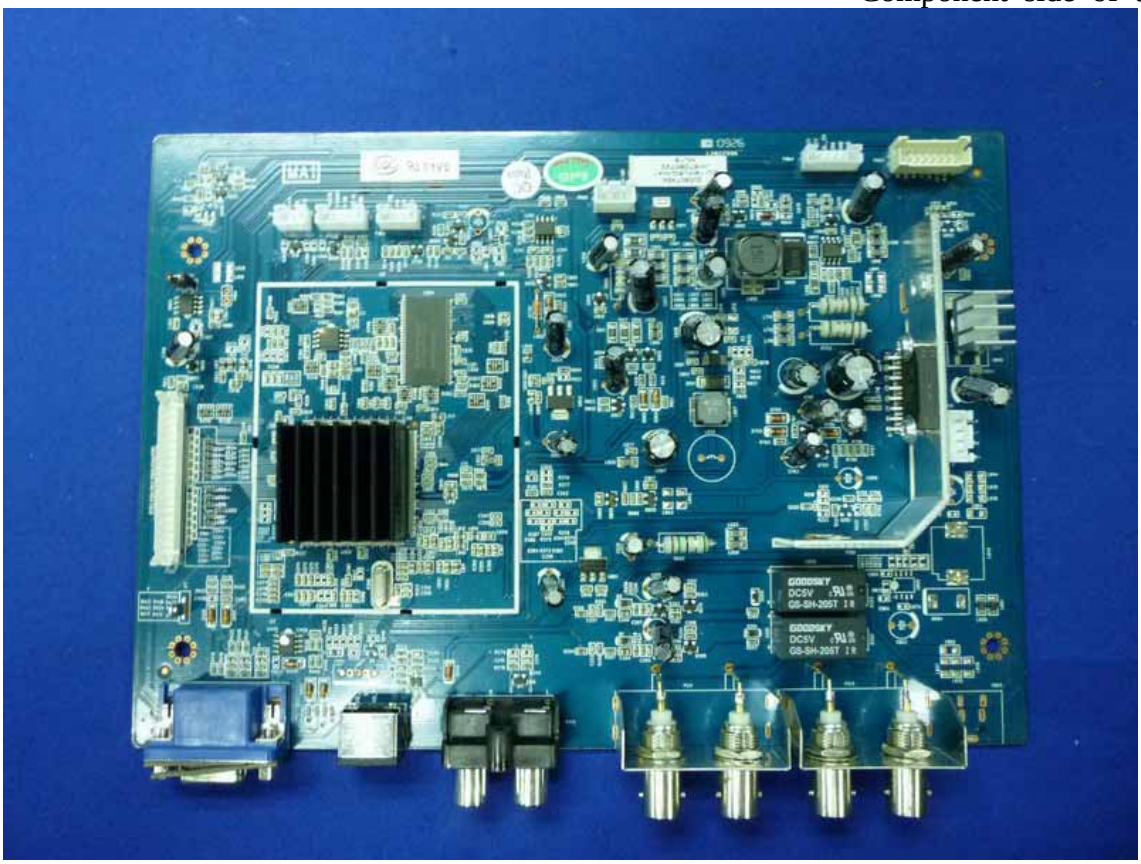


Figure 27
Component side of the PCB