

#### FCC ID:W8UL32HDP60

## APPLICATION OF CERTIFICATION For

TTE Technology Inc.

### LCD TV

Brand Name	Model Number
TCL	L32HDP60

FCC ID: W8UL32HDP60

Prepared for: TTE Technology Inc.

1255 Graphite Drive, Corona, CA 92881, U.S.A.

Prepared By: Audix Technology (Shenzhen) Co., Ltd.

No. 6, Ke Feng Rd., 52 Block,

Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China

Tel: (0755) 26639496 Fax: (0755) 26632877

Report Number : ACS- F12047

Date of Test : Feb.22~Mar.01, 2012

Date of Report : Mar.20, 2012



FCC ID:W8UL32HDP60

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FCC ID: W8UL32HDP60

#### REPORT CERTIFICATION TEST

**Applicant** 

TTE Technology Inc.

Manufacturer

TCL King Electrical Appliances (Huizhou) Co., Ltd.

**EUT Description** 

LCD TV

FCC ID

W8UL32HDP60

(A) Model No. &:

Model Number **Brand Name** TCL L32HDP60

**Brand Name** 

(B) Power Supply: AC 120V/60Hz (C) Test Voltage : AC 120V/60Hz

#### Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart B Class B 2010, ANSI C63.4: 2009 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 both conducted and radiated emissions. The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed of full responsibility for the accuracy and completeness of these tests. This report contains data that are not covered by the NVLAP accreditation.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This Report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

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.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Feb.22 Mar.01, 2012 Report of date: Mar.20, 2012 Date of Test:

Prepared by: Corry He / Assistan

eviewed和技:(深圳)有限公司加工 Audix Techno Sun Zieng on Superviso

EMC部門報告專用章

Stamp only for EMC Dept. Report

Signature:

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						
<b>Description of Test Item</b>	Standard	Results	Remarks				
Power Line Conducted Emission Test	FCC Part 15: 2010 ANSI C63.4: 2009	PASS	Meets Class B Limit Minimum passing margin is 17.41dB at 0.16155MHz				
Radiated Emission Test (30-1000MHz)	FCC Part 15: 2010 ANSI C63.4: 2009	PASS	Meets Class B Limit Minimum passing margin is 2.75dB at 390.000MHz				
Radiated Emission Test (1-2GHz)	FCC Part 15: 2010 ANSI C63.4: 2009	PASS	Meets Class B Limit Minimum passing margin is 3.14dB at 1485.600MHz				



## 2. GENERAL INFORMATION

## 2.1.Description of Device (EUT)

Description : LCD TV

Model Number&: Brand Name

Brand Name	Model Number
TCL	L32HDP60

FCC ID : W8UL32HDP60

Applicant : TTE Technology Inc.

1255 Graphite Drive, Corona, CA 92881, U.S.A.

Manufacturer : TCL King Electrical Appliances (Huizhou) Co., Ltd.

Section 19, Zhongkai Development Zone for New & High-Level Tech Industries, Huizhou, Guangdong Province, China, 516006.

FREQUENCIES USED AND GENERATED WITHIN DEVICE					
X54M1 45-OSC54M-0Y1CR 54MHz					
LVDS CLOCK	81.43MHZ				
IF	44MHz				
DC-DC	U302->385KHz	U303->1MHz			
DDR	390MHz				
AMP	384KHz				

Power Cord : Unshielded, Undetachable, 2.0m

Date of Test : Feb.22~Mar.01, 2012

Date of Receipt : Feb.22, 2012

Sample Type : Prototype production

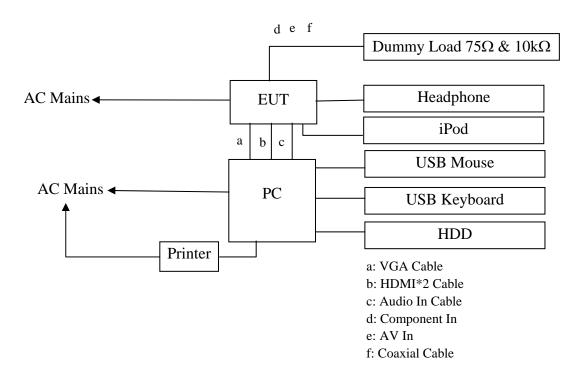


# 2.2.Tested Supporting System Details

	Description	ACS No.	Manufacturer	Model	Serial Number	Approved type		
1.	Personal Computer	Test PC M	DELL	Studio 540	224XK2X	☑FCC DoC ☑BSMI ID:R33002		
	Computer	Power Cord: Unshie Display Card: HD34						
2.	USB Keyboard	ACS-EMC- K04R	DELL	SK-8115	CN-ODJ313-7161 6-6BB-049J	☑ FCC DoC ☑BSMI ID: T3A002		
		Data Cable: shielded	l, Undetachable, 2	2.0m				
3.	Headphone	ACS-EMC-EP03	OVANN	OV880V	N/A	□FCC ID □BSMI ID		
	<b>F</b>	Cable: Shielded, Un	detachabled, 4.0m	ı				
		ACS-EMC-PT04	НР	C9079A	N/A	☑FCC DoC ☑BSMI ID: R33001		
4.	Printer	USB Cable: Shielded, Detachabled, 1.8m Power Cord: Unshielded, Detachabled, 1.8m Power Adapter: HP, M/N: 0957-2119, BSMI ID: R33030, DC Cable: Unshielded, Detachabled, 1.5m						
5.	USB Mouse	ACS-EMC-M04R	DELL	M056UO	512024282	☑ FCC DoC ☑BSMI ID: R41108		
		Data Cable: shielded	l, Undetachable, 1	.8m				
6.	iPod nano	ACS-EMC-IP03	APPLE	A1199	YM711H3LVQ5	☑FCC DoC ☑BSMI ID: R33057		
		Data Cable: Shielded	d, Detachabled, 1.	0m				
7.	HDD	ACS-EMC-HDD03	Terasys	F12-UF	A0100215-53900 30	☑FCC DoC ☑BSMI ID: 4912A022		
		USB Cable: Shielded	d, Detachable, 1.8	3m				
8.	1 ( 1 ( 1 ( 1 ( 1 ( 1 ( 1 ( 1 ( 1 ( 1 (							
9.	D-Sub Cable: Shielded, Detachable, 1.5m  9. HDMI Cable: Shielded, Detachable, 1.5m Audio Cable: Unshielded, Detachable, 1.5m							



# 2.3.Block diagram of connection between the EUT and simulators



(EUT: LCD TV)



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## 2.4.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 : Certificated by FCC, USA

Registration Number: 90454 Valid Date: Mar.31, 2012

3m & 10m Anechoic Chamber : Certificated by FCC, USA

Registration Number: 794232 Valid Date: Dec.30, 2012

EMC Lab. : Certificated by DAkkS, Germany

Registration No: D-PL-12151-01-01

Valid Date: Feb.01, 2014

Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2012

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

Test Item	Uncertainty		
Uncertainty for Conduction emission test in No. 1 Conduction	3.2 dB		
	3.6 dB(30~200MHz, Polarize: H)		
Uncertainty for Radiation Emission test	3.8 dB(30~200MHz, Polarize: V)		
in 3m chamber	4.2 dB(200M~1GHz, Polarize: H)		
	3.8 dB(200M~1GHz, Polarize: V)		
Uncertainty for Radiation Emission test in	3.1dB(Distance: 3m Polarize: V)		
3m chamber (1GHz-18GHz)	3.7 dB(Distance: 3m Polarize: H)		
Uncertainty for test site temperature	3%		
and humidity	0.6℃		

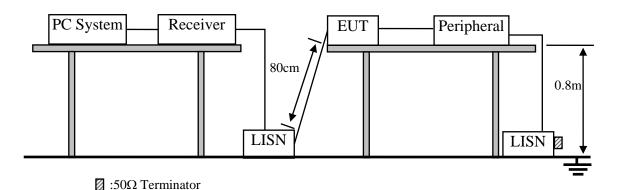


## 3. POWER LINE CONDUCTED EMISSION TEST

## 3.1.Test Equipment

		1			i	1
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Oct.31, 11	1 Year
2.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Oct.31, 11	1 Year
3.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 11	1 Year
4.	Terminator	Hubersuhner	$50\Omega$	No. 1	May.08, 11	1 Year
5.	Terminator	Hubersuhner	$50\Omega$	No. 2	May.08, 11	1 Year
6.	RF Cable	Fujikura	3D-2W	No.1	May.08, 11	1Year
7.	Coaxial Switch	Anritsu	MP59B	M50564	May.08, 11	1 Year
8.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 11	1 Year

## 3.2.Block Diagram of Test Setup



3.3. Power Line Conducted Emission Test Limits

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

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

## 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 TV (EUT)

Model Number : L32HDP60

Serial Number : N/A

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

<sup>2.</sup> The lower limit shall apply at the transition frequencies.



## 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.PC system ran the Self-test program "EMC Test. exe" by windows XP and sent "H" Character to LCD TV (EUT), the Screen of EUT displayed and filled with "H" pattern, use white letters on a blackground, set the contrast control to maximum, set the brightness control to maximum and measure it.
- 3.5.4. The PC system was running the program "1kHz signal Playing" and sending sound to EUT.
- 3.5.5. The other peripheral devices were driven and operated in turn during all testing.

#### 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. 1#). 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: 2009 on conducted Emission test.

The bandwidth of test receiver (R&S TEST RECEIVER ESHS10) 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 to read Q.P values and average values, all the test results are listed in next pages.

EUT: LCD TV Model No. : L32HDP60

Test Date: Feb.27, 2012 Temperature: 25.5°C Humidity: 55%

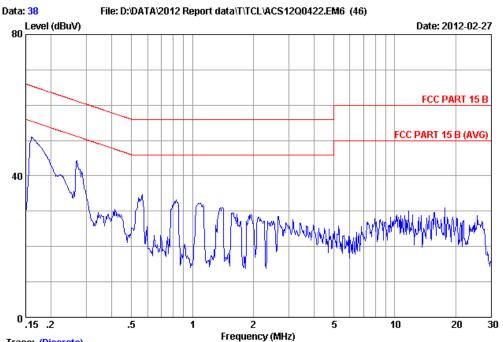
The details of test modes are as follows:

No.	Test Mode	Input Port	Resolution &	Reference Test Data No.		
			Frequency	Line	Neutral	
1.			640*480 @60Hz	#38	#37	
2.		VGA	800*600 @ 60Hz	#40	#39	
3. 💥	PC Mode		1366*768@60Hz	#42	#41	
4.		HDMI 1	1920*1080@60Hz	#44	#43	
5.		HDMI 2	1920*1080@60Hz	#46	#45	

(\* Worst test mode)



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Trace: (Discrete)

:1#conduction Site no Data No :38

Dis./Ant. : \* \* 2011 ESH2-Z5 LINE

:FCC PART 15 B Limit

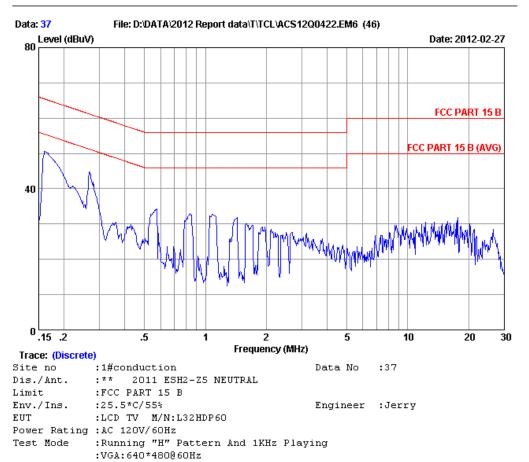
Env./Ins. :25.5\*C/55% Engineer :Jerry

:LCD TV M/N:L32HDP60 EUT

Power Rating :AC 120V/60Hz

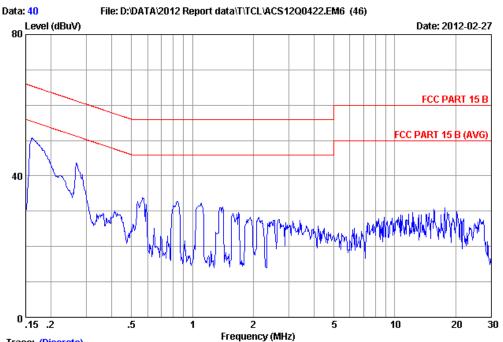
:Running "H" Pattern And 1KHz Playing

:VGA:640\*480@60Hz





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Trace: (Discrete)

:1#conduction Site no Data No :40

Dis./Ant. : \* \* 2011 ESH2-Z5 LINE

:FCC PART 15 B Limit

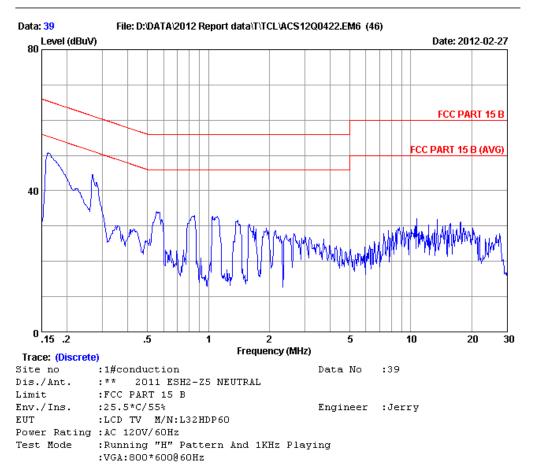
Env./Ins. :25.5\*C/55% Engineer :Jerry

:LCD TV M/N:L32HDP60 EUT

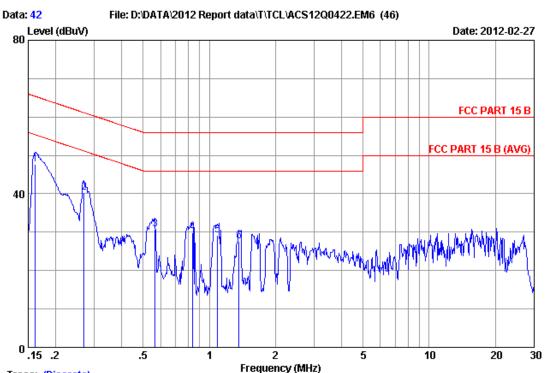
Power Rating :AC 120V/60Hz

:Running "H" Pattern And 1KHz Playing

:VGA:800\*600@60Hz







Trace: (Discrete)

Site no :1#conduction Data No :42

Dis./Ant. :\*\* 2011 ESH2-Z5 LINE

Limit :FCC PART 15 B

Env./Ins. :25.5\*C/55% Engineer :Jerry

EUT :LCD TV M/N:L32HDP60

Power Rating :AC 120V/60Hz

Test Mode :Running "H" Pattern And 1KHz Playing

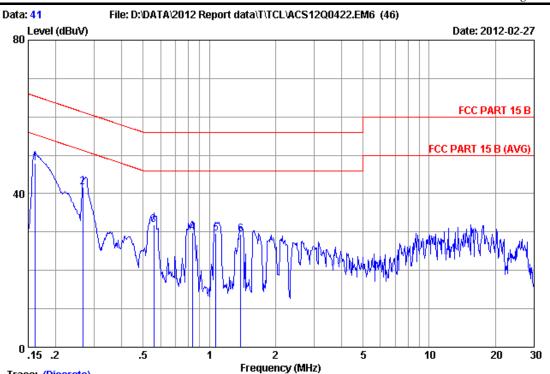
:VGA:1366\*768@60Hz

No 	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.16155	0.16	9.98	37.64	47.78	65.38	17.60	QP
2	0.26866	0.15	9.98	30.22	40.35	61.16	20.81	QP
3	0.56709	0.16	9.98	20.52	30.66	56.00	25.34	QP
4	0.83932	0.16	9.97	19.63	29.76	56.00	26.24	QP
5	1.088	0.17	9.98	19.04	29.19	56.00	26.81	QP
6	1.367	0.18	9.98	17.48	27.64	56.00	28.36	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit) +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.





Trace: (Discrete)

Site no :1#conduction Data No

:\*\* 2011 ESH2-Z5 NEUTRAL Dis./Ant.

:FCC PART 15 B Limit

Env./Ins. :25.5\*C/55% Engineer :Jerry

EUT :LCD TV M/N:L32HDP60

Power Rating :AC 120V/60Hz

Test Mode :Running "H" Pattern And 1KHz Playing

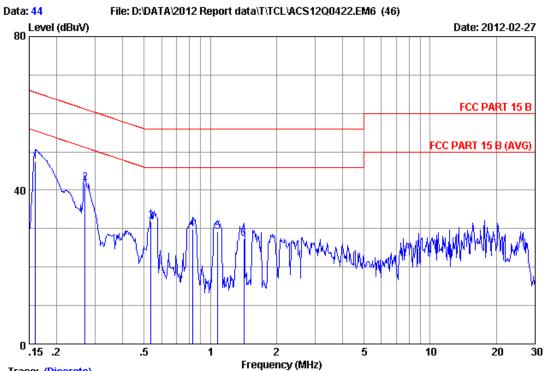
:VGA:1366\*768@60Hz

No 	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.16155	0.14	9.98	37.85	47.97	65.38	17.41	QP
2	0.26583	0.14	9.98	31.49	41.61	61.25	19.64	QP
3	0.55814	0.15	9.98	21.80	31.93	56.00	24.07	QP
4	0.83932	0.16	9.97	19.69	29.82	56.00	26.18	QP
5	1.071	0.17	9.98	19.42	29.57	56.00	26.43	QP
6	1.388	0.18	9.98	19.36	29.52	56.00	26.48	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit) +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.





Trace: (Discrete)

Site no :1#conduction Data No

:\*\* 2011 ESH2-Z5 LINE Dis./Ant.

:FCC PART 15 B Limit

Env./Ins. :25.5\*C/55% Engineer :Jerry

:LCD TV M/N:L32HDP60 EUT

Power Rating : AC 120V/60Hz

:Running "H" Pattern And 1KHz Playing

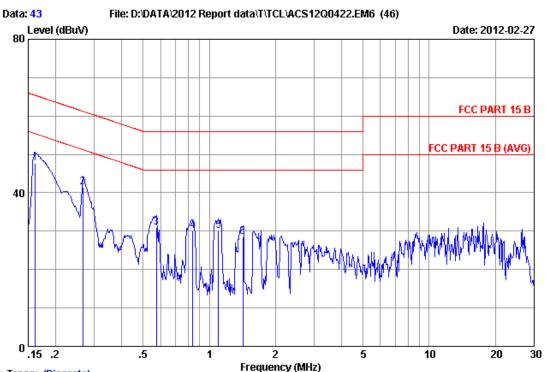
:HDMI 1:1920\*1080@60Hz

No 	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15985	0.16	9.98	37.35	47.49	65.47	17.98	QP
2	0.26866	0.15	9.98	31.79	41.92	61.16	19.24	QP
3	0.53782	0.16	9.98	21.74	31.88	56.00	24.12	QP
4	0.83047	0.16	9.97	19.81	29.94	56.00	26.06	QP
5	1.082	0.17	9.98	18.96	29.11	56.00	26.89	QP
6	1.418	0.18	9.98	17.34	27.50	56.00	28.50	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit) +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.





Trace: (Discrete)

Site no :1#conduction Data No :43

Dis./Ant. :\*\* 2011 ESH2-Z5 NEUTRAL

Limit :FCC PART 15 B

Env./Ins. :25.5\*C/55% Engineer :Jerry

EUT :LCD TV M/N:L32HDP60

Power Rating :AC 120V/60Hz

Test Mode : Running "H" Pattern And 1KHz Playing

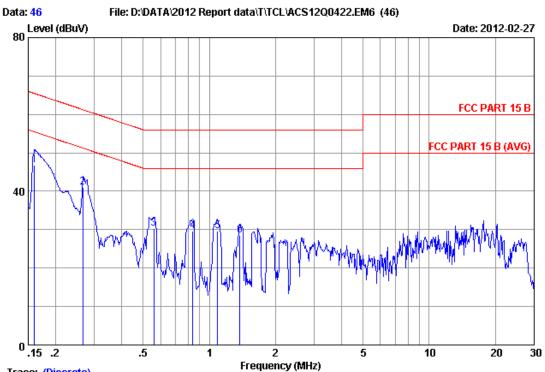
:HDMI 1:1920\*1080@60Hz

No 	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.16155	0.14	9.98	37.51	47.63	65.38	17.75	QP
2	0.26583	0.14	9.98	31.27	41.39	61.25	19.86	QP
3	0.57313	0.15	9.98	20.92	31.05	56.00	24.95	QP
4	0.83932	0.16	9.97	19.95	30.08	56.00	25.92	QP
5	1.100	0.17	9.98	20.04	30.19	56.00	25.81	QP
6	1.418	0.18	9.98	18.30	28.46	56.00	27.54	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit) +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.





Trace: (Discrete)

Site no :1#conduction Data No

Dis./Ant. :\*\* 2011 ESH2-Z5 LINE

:FCC PART 15 B Limit

Env./Ins. :25.5\*C/55% Engineer :Jerry

:LCD TV M/N:L32HDP60 EUT

Power Rating : AC 120V/60Hz

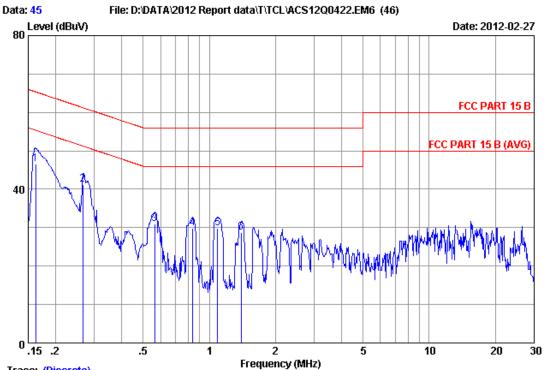
:Running "H" Pattern And 1KHz Playing

:HDMI 2:1920\*1080@60Hz

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15985	0.16	9.98	36.70	46.84	65.47	18.63	QP
2	0.26583	0.15	9.98	30.81	40.94	61.25	20.31	QP
3	0.55814	0.16	9.98	20.11	30.25	56.00	25.75	QP
4	0.83932	0.16	9.97	19.59	29.72	56.00	26.28	QP
5	1.088	0.17	9.98	19.50	29.65	56.00	26.35	QP
6	1.374	0.18	9.98	18.30	28.46	56.00	27.54	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit) +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.



Trace: (Discrete)

Site no :1#conduction Data No

Dis./Ant. :\*\* 2011 ESH2-Z5 NEUTRAL

:FCC PART 15 B Limit

Env./Ins. :25.5\*C/55% Engineer :Jerry

:LCD TV M/N:L32HDP60 EUT

Power Rating :AC 120V/60Hz

:Running "H" Pattern And 1KHz Playing

:HDMI 2:1920\*1080@60Hz

No 	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.16241	0.14	9.98	36.43	46.55	65.34	18.79	QP
2	0.26583	0.14	9.98	31.11	41.23	61.25	20.02	QP
3	0.56409	0.15	9.98	20.88	31.01	56.00	24.99	QP
4	0.83932	0.16	9.97	19.73	29.86	56.00	26.14	QP
5	1.088	0.17	9.98	19.60	29.75	56.00	26.25	QP
6	1.396	0.18	9.98	18.48	28.64	56.00	27.36	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit) +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

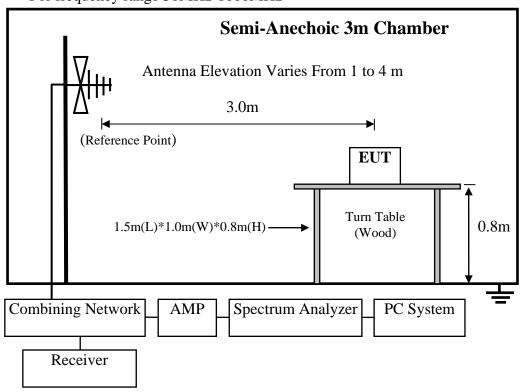
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Nov.28,11	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 11	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 11	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 11	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Oct.26, 10	1.5 Year
6	RF Cable	MIYAZAKI	CFD400-NL	3# Chamber No.1	Dec.06, 11	1/2Year
7	Coaxial Switch	Anritsu	MP59B	M74389	May.08, 11	1 Year

### 4.1.2.For frequency range 1GHz~2GHz

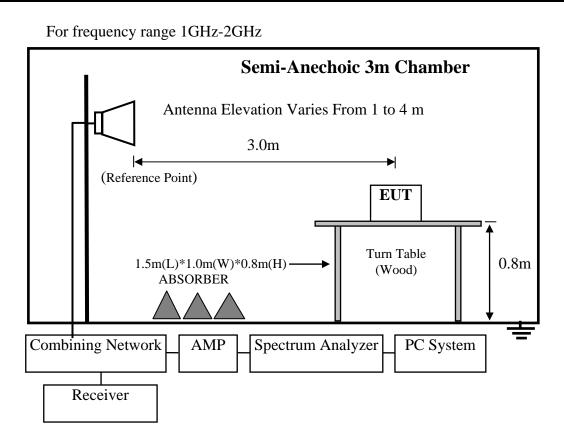
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	May.08, 11	1 Year
2	Horn Antenna	EMCO	3115	9607-4877	July.01, 11	1 Year
3	Amplifier	Agilent	8449B	3008A00863	May.08, 11	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX106	77980/6	Dec.06, 11	0.5Year
5	RF Cable	Hubersuhner	SUCOFLEX106	77977/6	Dec.06, 11	0.5Year

# 4.2.Block Diagram of Test Setup

For frequency range 30MHz-1000MHz







#### 4.3. Radiated Emission Limit

Frequency	Distance	Field Strengths Limits
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
Above 1000	3	74(Peak)54(Average)

Remark: (1) Emission level = Antenna Factor + Cable Loss + Reading Emission level = Antenna Factor - Amp Factor + Cable Loss + Reading (above 1000MHz)

- (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.

## 4.4.EUT Configuration on Test

The configurations of EUT are listed in Section 3.4

### 4.5. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.5. except the test set up replaced by Section 4.2.



#### 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 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: 2009 on Radiated Emission test.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's RBW is set at 1MHz and VBW is set at 3MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz.

#### 4.7. Radiated Disturbance Test Results

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

EUT: LCD TV Model No. : L32HDP60

### For frequency range 30MHz~1000MHz

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

Test Date: Feb.22, 2012 Temperature: 24°C Humidity: 56%

The details of test modes are as follows:

No.	Test Mode	Input Port	Resolution &	Reference Test Data No.		
			Frequency	Horizontal	Vertical	
1.			640*480 @60Hz	#41	#42	
2.		VGA	<b>VGA</b> 800*600 @ 60Hz		#39	
3.	PC Mode		1366*768@60Hz	#37	#38	
4. 💥		HDMI 1	1920*1080@60Hz	#44	#43	
5.		HDMI 2	1920*1080@60Hz	#45	#46	

(\* Worst test mode)



#53, #54

#51, #52

FCC ID: W8UL32HDP60 Page 4-4

### For frequency range 1GHz~2GHz

HDMI 2

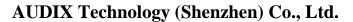
3.

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

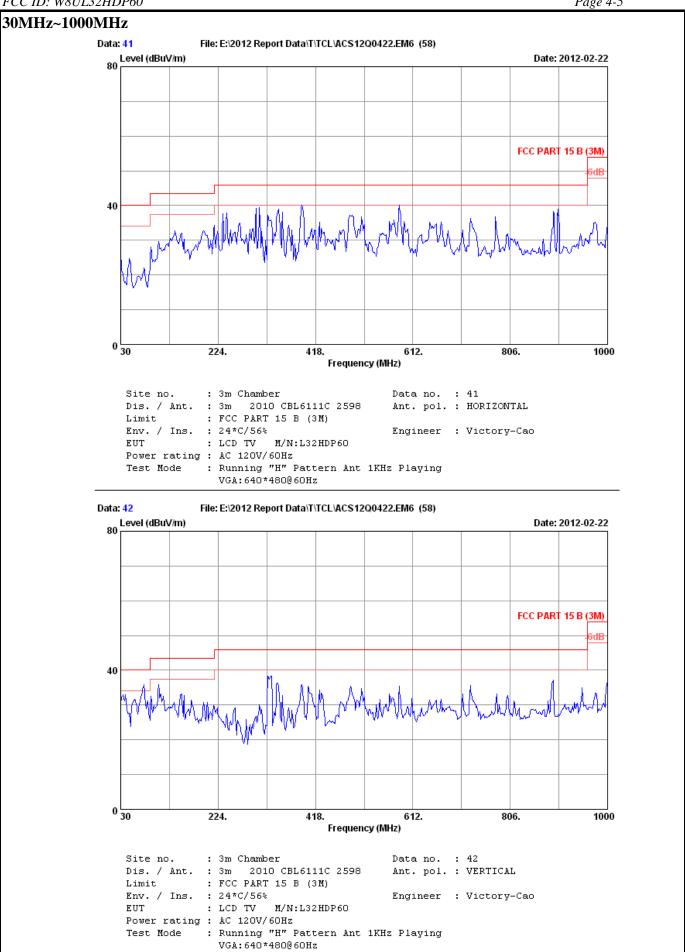
Note: For all the emissions above 1GHz, the peak measured level comply with peak limit, so the average level were deemed to comply with average limit.

Test Da	nte: Mar.01, 201	2 Temperature: 24℃	Humidity: 56%			
NO.	Test Mode	Resolution & Frequency	Reference Test Data No.			
	Test Mode	Resolution & Frequency	Horizontal	Vertical		
1.	VGA	1366*768 @60Hz	#47, #48	#49, #50		
2.	HDMI 1	1920*1080 @60Hz	#55, #56	#57, #58		

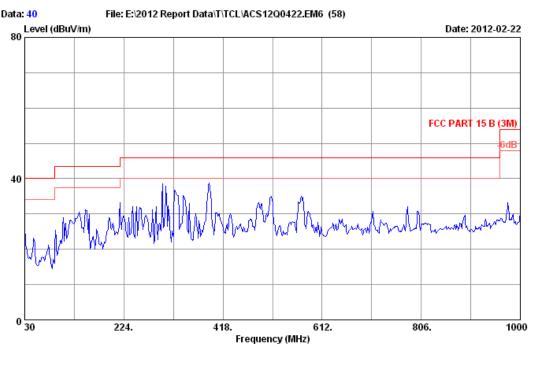
1920\*1080 @60Hz











Engineer : Victory-Cao

Site no. : 3m Chamber Data no. : 40

Dis. / Ant. : 3m 2010 CBL6111C 2598 Ant. pol. : HORIZONTAL

: FCC PART 15 B (3M) Limit

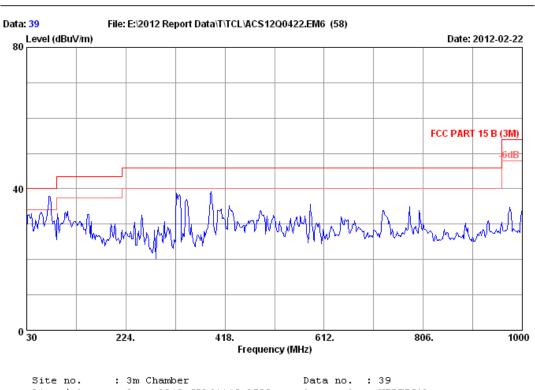
: 24\*C/56% Env. / Ins.

M/N:L32HDP60 EUT : LCD TV

Power rating : AC 120V/60Hz

: Running "H" Pattern Ant 1KHz Playing Test Mode

VGA:800\*600@60Hz



Dis. / Ant. : 3m 2010 CBL6111C 2598 Ant. pol. : VERTICAL

Limit : FCC PART 15 B (3M)

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

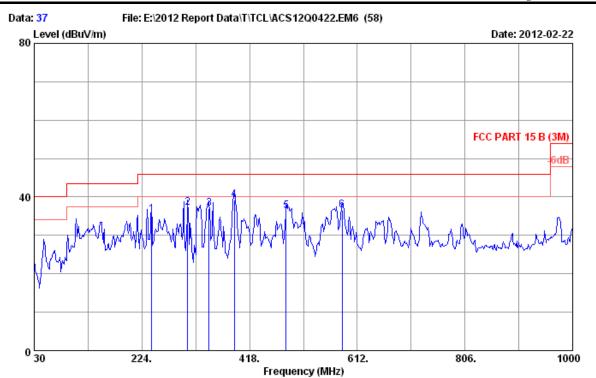
: LCD TV M/N:L32HDP60

Power rating : AC 120V/60Hz

: Running "H" Pattern Ant 1KHz Playing

VGA:800\*600@60Hz

FCC ID: W8UL32HDP60 Page 4-7



Site no. : 3m Chamber Data no. : 37

Dis. / Ant. : 3m 2010 CBL6111C 2598 Ant. pol. : HORIZONTAL

Limit : FCC PART 15 B (3M)

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

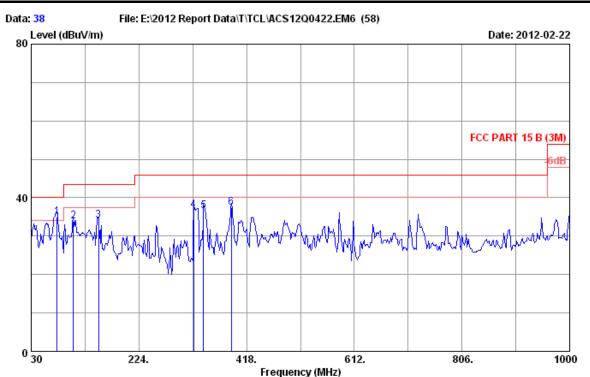
VGA:1366\*768@60Hz

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	241.460	11.93	1.11	22.41	35.45	46.00	10.55	QP
2	306.450	13.89	1.13	22.25	37.27	46.00	8.73	QP
3	345.250	14.95	1.42	20.68	37.05	46.00	8.95	QP
4	390.840	16.31	1.34	21.55	39.20	46.00	6.80	QP
5	483.960	18.14	1.50	16.65	36.29	46.00	9.71	QP
6	584.840	19.70	1.58	15.25	36.53	46.00	9.47	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

2. The emission levels that are 20dB below the official limit are not reported.





Site no. : 3m Chamber Data no. : 38
Dis. / Ant. : 3m 2010 CBL6111C 2598 Ant. pol. : VERTICAL

Limit : FCC PART 15 B (3M)

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

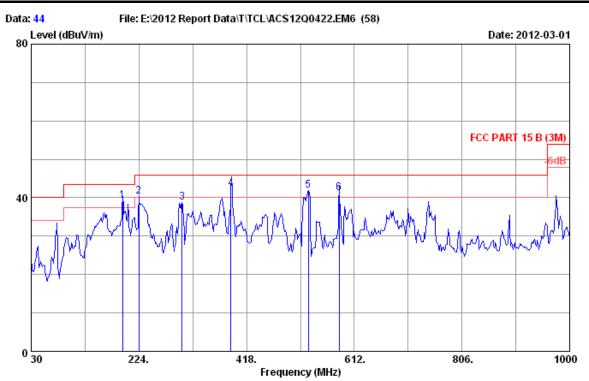
VGA:1366\*768@60Hz

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	76.560	7.47	0.56	26.92	34.95	40.00	5.05	QP
2	105.660	11.00	0.53	22.44	33.97	43.50	9.53	QP
3	151.250	11.54	0.80	21.73	34.07	43.50	9.43	QP
4	322.940	14.26	1.23	21.21	36.70	46.00	9.30	QP
5	340.400	14.80	1.40	20.36	36.56	46.00	9.44	QP
6	390.840	16.31	1.34	19.86	37.51	46.00	8.49	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

The emission levels that are 20dB below the official limit are not reported.

FCC ID: W8UL32HDP60 Page 4-9



Site no. : 3m Chamber Data no. : 44

Dis. / Ant. : 3m 2010 CBL6111C 2598 Ant. pol. : HORIZONTAL

Limit : FCC PART 15 B (3M)

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

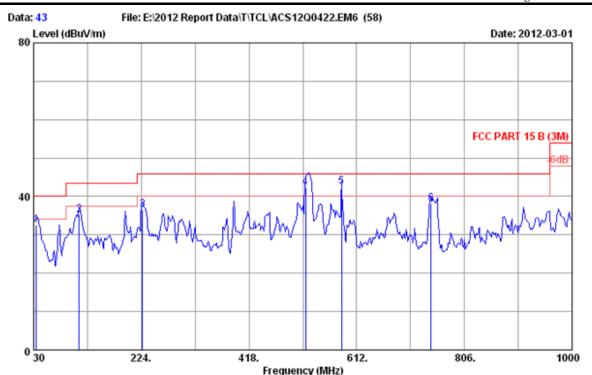
HDMI 1:1920\*1080@60Hz

_	No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
	1	194.900	9.70	0.92	28.68	39.30	43.50	4.20	QP
	2	224.000	10.52	1.10	28.61	40.23	46.00	5.77	QP
	3	301.600	13.75	1.11	23.81	38.67	46.00	7.33	QP
	4	390.000	16.30	1.35	24.80	42.45	46.00	3.55	QP
	5	529.550	18.30	1.60	22.00	41.90	46.00	4.10	QP
	6	584.840	19.70	1.58	19.96	41.24	46.00	4.76	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

FCC ID: W8UL32HDP60 Page 4-10



Site no. : 3m Chamber Data no. : 43
Dis. / Ant. : 3m 2010 CBL6111C 2598 Ant. pol. : VERTICAL

Limit : FCC PART 15 B (3M)

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power rating : AC 120V/60Hz

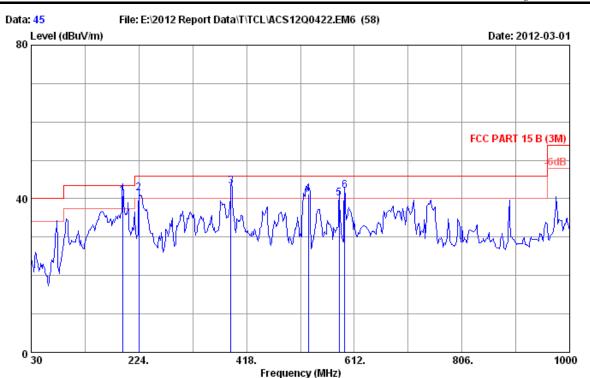
Test Mode : Running "H" Pattern Ant 1KHz Playing

HDMI 1:1920\*1080@60Hz

No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)		Limits (dBuV/m)	Margin (dB)	Remark
1	34.850	17.20	0.30	15.00	32.50	40.00	7.50	QP
2	112.450	11.55	0.56	23.02	35.13	43.50	8.37	QP
3	225.940	10.68	1.10	24.79	36.57	46.00	9.43	QP
4	520.330	18.40	1.60	22.30	42.30	46.00	3.70	QP
5	585.000	19.70	1.58	21.20	42.48	46.00	3.52	QP
6	745.860	21.92	1.96	14.27	38.15	46.00	7.85	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 45

Dis. / Ant. : 3m 2010 CBL6111C 2598 Ant. pol. : HORIZONTAL

Limit : FCC PART 15 B (3M)

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

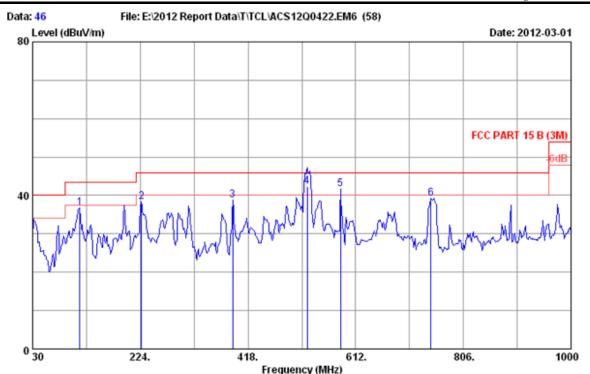
Power rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

HDMI 2:1920\*1080@60Hz

_	No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
	1	195.000	9.70	0.92	30.10	40.72	43.50	2.78	QP
	2	224.000	10.52	1.10	29.87	41.49	46.00	4.51	QP
	3	390.000	16.30	1.35	25.60	43.25	46.00	2.75	QP
	4	529.550	18.30	1.60	21.26	41.16	46.00	4.84	QP
	5	584.840	19.70	1.58	18.78	40.06	46.00	5.94	QP
	6	594.540	19.85	1.53	20.63	42.01	46.00	3.99	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.



Site no. : 3m Chamber Data no. : 46
Dis. / Ant. : 3m 2010 CBL6111C 2598 Ant. pol. : VERTICAL

Limit : FCC PART 15 B (3M)

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

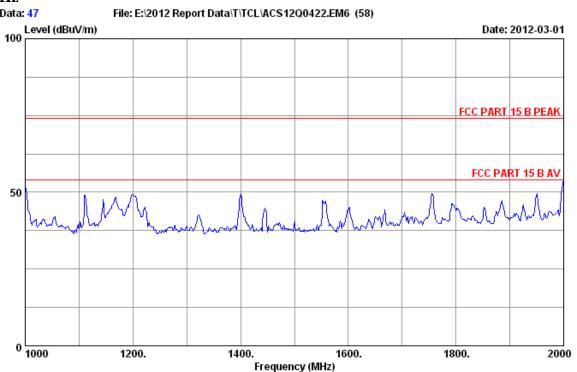
HDMI 2:1920\*1080@60Hz

No.	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	115.360	11.70	0.58	24.59	36.87	43.50	6.63	QP
2	225.940	10.68	1.10	26.51	38.29	46.00	7.71	QP
3	390.840	16.31	1.34	21.16	38.81	46.00	7.19	QP
4	524.700	18.35	1.60	22.30	42.25	46.00	3.75	QP
5	584.840	19.70	1.58	20.39	41.67	46.00	4.33	QP
6	747.800	21.96	1.98	15.34	39.28	46.00	6.72	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

The emission levels that are 20dB below the official limit are not reported.





Site no. : 3m Chamber Data no. : 47

Dis. / Ant. : 3m 2011 3115 9607-4877 Ant. pol. : HORIZONTAL

Limit : FCC PART 15 B PEAK

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

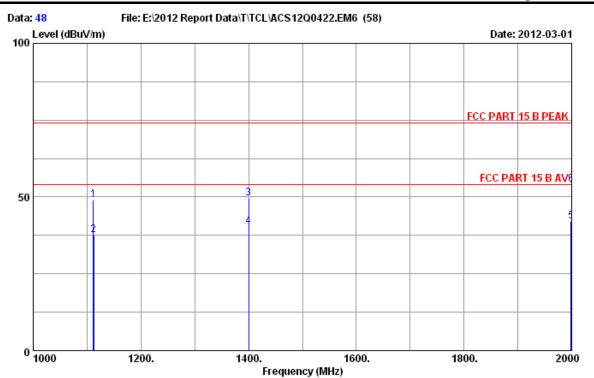
EUT : LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

VGA:1366\*768@60Hz

FCC ID: W8UL32HDP60 Page 4-14



Site no. : 3m Chamber Data no. : 48

Dis. / Ant. : 3m 2011 3115 9607-4877 Ant. pol. : HORIZONTAL

Limit : FCC PART 15 B PEAK

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

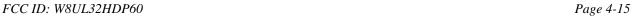
Test Mode : Running "H" Pattern Ant 1KHz Playing

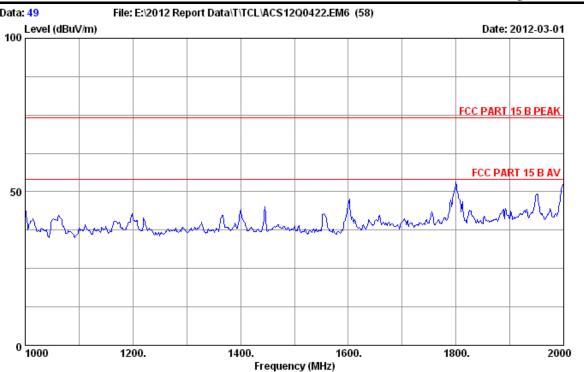
VGA:1366\*768@60Hz

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dBuV)	Reading (dBuV/m)	Emission Level (dBuV/m)	Limits (dB)	Margin (dB)	Remark
1	1112.000	23.78	0.74	35.32	59.91	49.11	74.00	24.89	Peak
2	1112.600	23.78	0.74	35.30	48.50	37.72	54.00	16.28	Average
3	1400.000	25.19	1.16	35.08	58.24	49.51	74.00	24.49	Peak
4	1400.500	25.19	1.16	35.08	48.99	40.26	54.00	13.74	Average
5	1999.000	27.50	2.05	34.60	47.00	41.95	54.00	12.05	Average
6	2000.000	27.50	2.05	34.60	59.11	54.06	74.00	19.94	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  $-{\rm Amp}$  Factor

2. The emission levels that are 20dB below the official limit are not reported.





Site no. : 3m Chamber Data no. : 49
Dis. / Ant. : 3m 2011 3115 9607-4877 Ant. pol. : VERTICAL

Limit : FCC PART 15 B PEAK

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

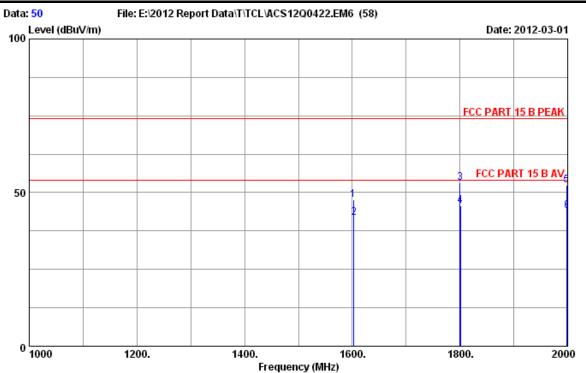
EUT : LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

VGA:1366\*768@60Hz





Site no. : 3m Chamber Data no. : 50

Dis. / Ant. : 3m 2011 3115 9607-4877 Ant. pol. : VERTICAL

Limit : FCC PART 15 B PEAK

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

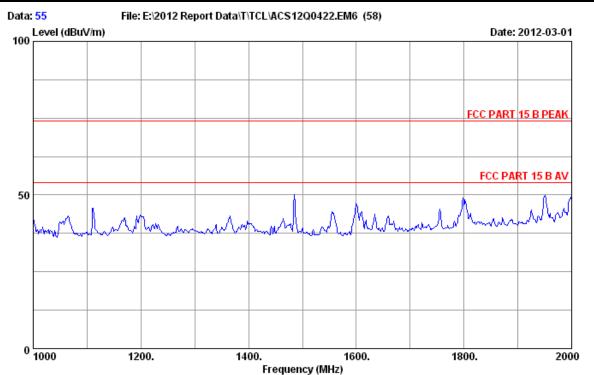
VGA:1366\*768@60Hz

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dBuV)	Reading (dBuV/m)	Emission Level (dBuV/m)	Limits (dB)	Margin (dB)	Remark
1	1602.000	25.98	1.45	34.92	55.04	47.55	74.00	26.45	Peak
2	1602.800	25.98	1.45	34.92	49.30	41.81	54.00	12.19	Average
3	1800.000	26.74	1.75	34.76	59.40	53.13	74.00	20.87	Peak
4	1800.500	26.74	1.75	34.76	52.00	45.73	54.00	8.27	Average
5	1998.000	27.50	2.05	34.60	57.54	52.49	74.00	21.51	Peak
6	1998.800	27.50	2.05	34.60	49.00	43.95	54.00	10.05	Average

-----

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  $-\mathrm{Amp}$  Factor





Site no. : 3m Chamber Data no. : 55

Dis. / Ant. : 3m 2011 3115 9607-4877 Ant. pol. : HORIZONTAL

Limit : FCC PART 15 B PEAK

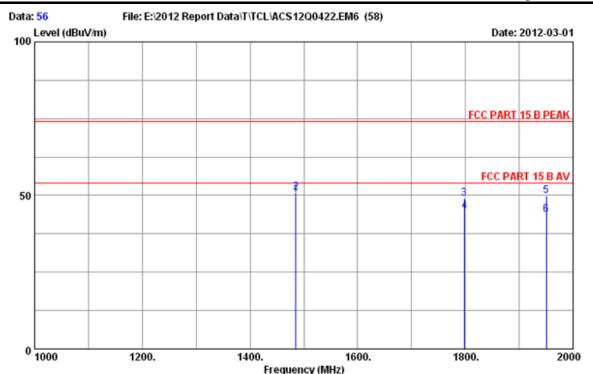
Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

HDMI 1:1920\*1080@60Hz



Site no. : 3m Chamber Data no. : 56

2011 3115 9607-4877 Dis. / Ant. : 3m Ant. pol. : HORIZONTAL

: FCC PART 15 B PEAK Limit

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

: LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

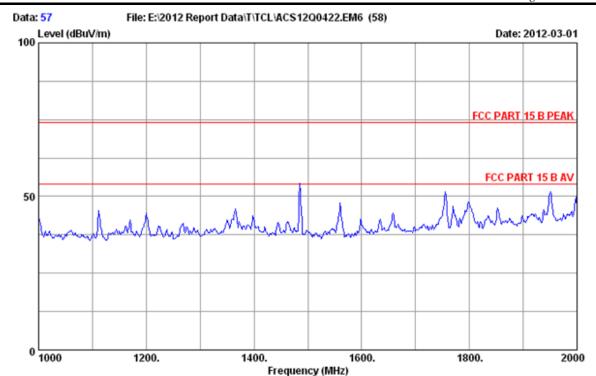
Test Mode : Running "H" Pattern Ant 1KHz Playing

HDMI 1:1920\*1080@60Hz

		Ant.	Cable	AMP		Emission			
No.	Freq. (MHz)	Factor (dB/m)	Loss (dB)	factor (dBuV)	Reading (dBuV/m)	Level (dBuV/m)	Limits (dB)	Margin (dB)	Remark
1	1485.000	25.60	1.28	35.02	58.41	50.27	74.00	23.73	Peak
2	1485.600	25.60	1.28	35.02	59.00	50.86	54.00	3.14	Average
3	1798.000	26.74	1.75	34.76	55.27	49.00	74.00	25.00	Peak
4	1798.600	26.74	1.75	34.76	51.00	44.73	54.00	9.27	Average
5	1950.000	27.31	1.99	34.64	55.14	49.80	74.00	24.20	Peak
6	1950.700	27.31	1.99	34.64	49.00	43.66	54.00	10.34	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor

2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 57
Dis. / Ant. : 3m 2011 3115 9607-4877 Ant. pol. : VERTICAL

Limit : FCC PART 15 B PEAK

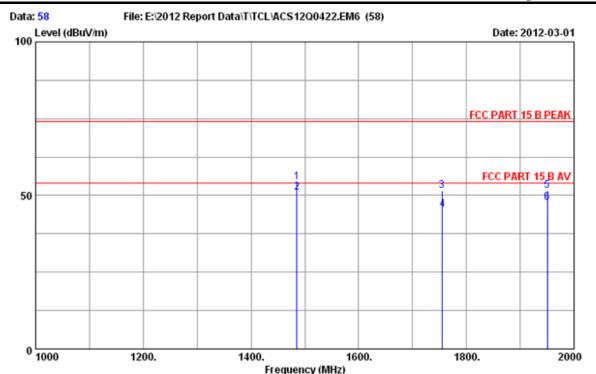
Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

HDMI 1:1920\*1080@60Hz



Site no. : 3m Chamber Data no. : 58
Dis. / Ant. : 3m 2011 3115 9607-4877 Ant. pol. : VERTICAL

Limit : FCC PART 15 B PEAK

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

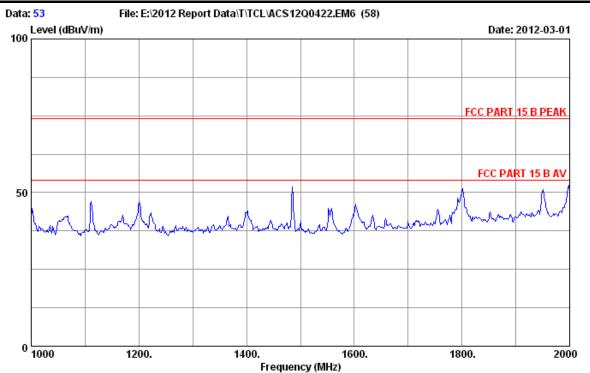
HDMI 1:1920\*1080@60Hz

		Ant.	Cable	AMP		Emission			
No.	Freq.	Factor	Loss	factor	Reading	Level	Limits		Remark
	(MHz)	(dB/m)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	
1	1485.000	25.60	1.28	35.02	62.48	54.34	74.00	19.66	Peak
-									
2	1485.600	25.60	1.28	35.02	59.00	50.86	54.00	3.14	Average
3	1755.000	26.55	1.69	34.80	58.20	51.64	74.00	22.36	Peak
4	1755.800	26.55	1.69	34.80	52.00	45.44	54.00	8.56	Average
5	1950.000	27.31	1.99	34.64	56.83	51.49	74.00	22.51	Peak
6	1950.700	27.31	1.99	34.64	53.00	47.66	54.00	6.34	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor

The emission levels that are 20dB below the official limit are not reported.





Site no. : 3m Chamber Data no. : 53

Dis. / Ant. : 3m 2011 3115 9607-4877 Ant. pol. : HORIZONTAL

Limit : FCC PART 15 B PEAK

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

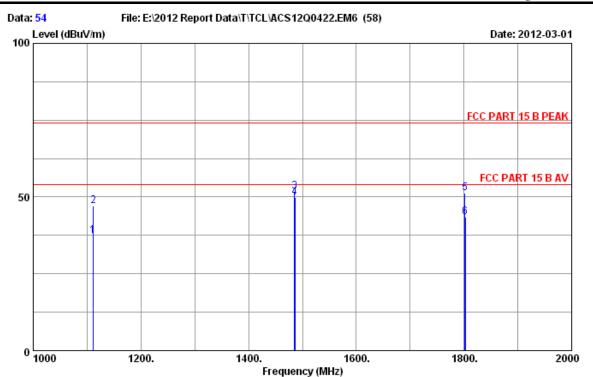
EUT : LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

HDMI 2:1920\*1080@60Hz

FCC ID: W8UL32HDP60 Page 4-22



Site no. : 3m Chamber Data no. : 54

Dis. / Ant. : 3m 2011 3115 9607-4877 Ant. pol. : HORIZONTAL

Limit : FCC PART 15 B PEAK

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

EUT : LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

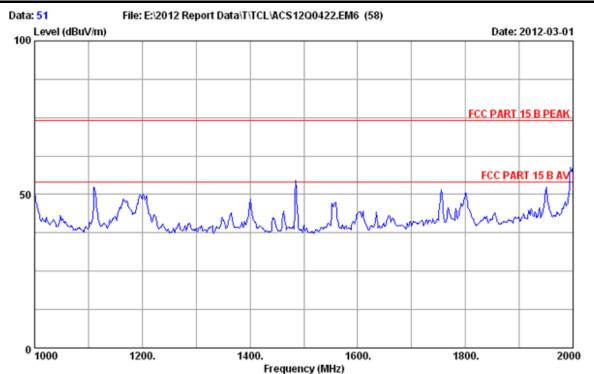
HDMI 2:1920\*1080@60Hz

	gin Remark )
1 1110.700 23.78 0.74 35.32 48.00 37.20 54.00 16. 2 1112.000 23.78 0.74 35.32 57.84 47.04 74.00 26. 3 1485.000 25.60 1.28 35.02 60.09 51.95 74.00 22.	96 Peak
4 1485.900 25.60 1.28 35.02 58.07 49.93 54.00 4. 5 1802.000 26.74 1.75 34.76 57.65 51.38 74.00 22.	07 Average 62 Peak
6 1802.600 26.74 1.75 34.76 49.60 43.33 54.00 10.	67 Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  $-{\rm Amp}$  Factor

2. The emission levels that are 20dB below the official limit are not reported.





Site no. : 3m Chamber Data no. : 51
Dis. / Ant. : 3m 2011 3115 9607-4877 Ant. pol. : VERTICAL

Limit : FCC PART 15 B PEAK

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

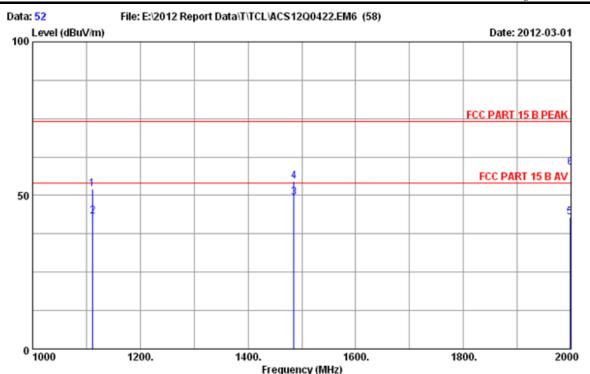
EUT : LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

Test Mode : Running "H" Pattern Ant 1KHz Playing

HDMI 2:1920\*1080@60Hz

FCC ID: W8UL32HDP60 Page 4-24



Site no. : 3m Chamber Data no. : 52

2011 3115 9607-4877 Dis. / Ant. : 3m Ant. pol. : VERTICAL

: FCC PART 15 B PEAK Limit

Env. / Ins. : 24\*C/56% Engineer : Victory-Cao

: LCD TV M/N:L32HDP60

Power Rating : AC 120V/60Hz

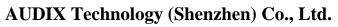
Test Mode : Running "H" Pattern Ant 1KHz Playing

HDMI 2:1920\*1080@60Hz

		Ant.	Cable	AMP		Emission			
No.	Freq. (MHz)	Factor (dB/m)	Loss (dB)	factor (dBuV)	Reading (dBuV/m)	Level (dBuV/m)	Limits (dB)	Margin (dB)	Remark
1	1111.000	23.78	0.74	35.32	62.99	52.19	74.00	21.81	Peak
2	1111.800	23.78	0.74	35.32	54.00	43.20	54.00	10.80	Average
3	1485.000	25.60	1.28	35.02	57.56	49.42	54.00	4.58	Average
4	1485.000	25.60	1.28	35.02	62.75	54.61	74.00	19.39	Peak
5	1998.380	27.50	2.05	34.60	48.00	42.95	54.00	11.05	Average
6	2000.000	27.50	2.05	34.60	64.16	59.11	74.00	14.89	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor

2. The emission levels that are 20dB below the official limit are not reported.





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5. DEVIATION TO TEST SPECIFICATIONS [NONE]