Application for FCC Certificate On Behalf of

TTE Technology, Inc.

LCD TV

Model Number: 32S321

Additional Model: 32S325, 32S323, 32S325-MX, 32S325-CA

FCC ID: W8U32S321

Prepared for:	TTE Technology, Inc.			
	2455 Anselmo Drive Suite 101 Corona California United States			
Prepared By:	EST Technology Co., Ltd.			
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China			
Tel: 86-769-83081888-808				

Report Number:	ESTE-F1806007
Date of Test:	May 30~Jun. 04, 2018
Date of Report:	Jun. 04, 2018

TABLE OF CONTENTS

rest k	Report Declaration	Page
1. G	ENERAL PRODUCT INFORMATION	4
1.1.	Product Function	4
1.2.	Description of Device (EUT)	4
1.3.	Difference between Model Numbers	4
1.4.	Independent Operation Modes	4
2. T	EST SITES	6
2.1.	Description of Standards and Results	6
2.2.	Test Facilities	
2.3.	List of Test and Measurement Instruments	8
3. T	EST SET-UP AND OPERATION MODES	9
3.1.	Principle of Configuration Selection	9
3.2.	Block Diagram of Test Set-up	9
3.3.	Test Operation Mode and Test Software	10
3.4.	Special Accessories and Auxiliary Equipment	
3.5.	Countermeasures to Achieve EMC Compliance	11
4. E	MISSION TEST RESULTS	12
4.1.	Conducted Emission at the Mains Terminals Test	12
4.2.	Radiated Emission Test	15
5. P	HOTOGRAPHS OF TEST SET-UP	21
5.1.	Set-up for conducted emission at the mains terminals test	21
5.2.	Set-up for radiated emission test (30-1000MHz)	
5.3.	Set-up for radiated emission test (Above 1GHz)	
6 P	HOTOCRAPHS OF THE FUT	24



EST Technology Co., Ltd.

Applicant:

TTE Technology, Inc.

Address:

2455 Anselmo Drive Suite 101 Corona California United States

Manufacturer

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

Address:

Section19, Zhong Kai New and High-tech Industries Development

Zone, Huizhou. Guangdong, P.R. China

E.U.T:

LCD TV

Model Number:

32S321

Additional Model:

32S325, 32S323, 32S325-MX, 32S325-CA

(They are identical except model name only.)

Trade Name:

TCL

Serial No.:

200 MW 400 MW 400

Date of Receipt:

May 30, 2018

Date of Test:

May 30~Jun. 04, 2018

Test Specification:

FCC Rules and Regulations Part 15 Subpart B:2017

ANSI C63.4:2014

Test Result:

The device described above is tested by EST Technology Co., Ltd..

The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and

Regulations Part 15 Subpart B requirements.

This report applies to above tested sample only and shall not be reproduced in part without

written approval of EST Technology Co., Ltd.

Issue Date: Jun. 04, 2018

Prepared by:

Reviewed by:

Iceman Hul/Manage

Ring / Assistant

Tony / Engineer

Other Aspects:

None.

Abbreviations: OK/P=passed

fail/F=failed

n.aN=not applicable

E.U.T=equipment under tested



1. GENERAL PRODUCT INFORMATION

1.1. Product Function

Refer to Technical Construction Form and User Manual.

1.2. Description of Device (EUT)

Description : LCD TV Model No. : 32S321 Screen No. A05-8

System Input Voltage : AC 120V/60Hz

Power : 45W

1.3. Difference between Model Numbers

Note: The Product only different model number, But the PCB board inside are identical.

1.4. Independent Operation Modes

1.4.1. Conducted Modes

1	ATSC (CH2/34/69)					
2	NTSC (CH2/14/125)					
3	USB Play					
4	AV IN	Worst case				
5	5 HDMI (1920*1080/1600*900/800*600)					
Note: The worst case will be recorded in this report.						

EST Technology Co., Ltd. Report No. ESTE-F1806007 Page 4 of 30

1.4.2. Radiated Modes

	30MHz~1GHz					
1	ATSC (CH2/34/69)					
2	NTSC (CH2/14/125)					
3	USB Play	Worst case				
4	AV IN					
5	HDMI (1920*1080/1600*900/800*600)					
	Above 1GHz					
1	ATSC (CH2/34/69)					
2	NTSC (CH2/14/125)					
3	USB Play					
4	AV IN	Worst case				
5	HDMI (1920*1080/1600*900/800*600)					
No	Note: The worst case will be recorded in this report.					

2. TEST SITES

2.1. 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					
	FCC Rules and	15.107(a) Class B	PASS					
Conducted disturbance at mains terminals	Regulations Part 15 Subpart B:2017 ANSI C63.4:2014	Minimum passing margin is 7.42dB at 7.69MHz						
		15.109(a) Class B	PASS					
		Minimum passing margin is						
	FCC Rules and Regulations Part 15	6.60dB at 147.370MHz for						
Radiated Emission Test	Subpart B:2017	30-1000MHz;						
	ANSI C63.4:2014	Minimum passing margin is						
		10.06dB at 2690MHz for						
		above 1GHZ;						

EST Technology Co., Ltd. Report No. ESTE-F1806007 Page 6 of 30

2.2. Test Facilities

EMC Lab : Certificated by CNAS, CHINA

Registration No.: L5288

Date of registration: November 13, 2017

Certificated by A2LA, USA Registration No.: 4366.01

Date of registration: November 07, 2017

Certificated by FCC, USA Designation Number: CN1215 Registration No.: 722932

Date of registration: November 21, 2017

Certificated by Industry Canada

Registration No.: 9405A

Date of registration: December 03, 2015

Certificated by VCCI, Japan

Registration No.: R-13663; C-14103 Date of registration: July 25, 2017

This Certificate is valid until: July 24, 2020

Certificated by TUV Rheinland, Germany Registration No.: UA 50195514 0001 Date of registration: February 07, 2015

Certificated by TUV/PS, Shenzhen

Registration No.: SCN1017

Date of registration: January 27, 2011

Certificated by Intertek ETL SEMKO Registration No.: 2011-RTL-L2-64 Date of registration: April 28, 2011

Certificated by Nemko, Hong Kong

Registration No.: 175193

Date of registration: May 4, 2011

Name of Firm : EST Technology Co., Ltd.

Site Location : Chilingxiang, Qishantou, Santun, Houjie, Dongguan,

Guangdong, China



2.3. List of Test and Measurement Instruments

2.3.1. For conducted emission at the mains terminals test (844 Room)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	832354	June 17,17	1 Year
Artificial Mains Network	Rohde & Schwarz	ENV216	101260	June 17,17	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	101100	June 17,17	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A

2.3.2. For radiated emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	101780	June 17,17	1 Year
Bilog Antenna	Teseq	CBL 6111D	37062	June 08,17	1 Year
Horn Antenna	SCHWARZBECK	BBHA9120D	8128-290	June 08,17	3 Year
Signal Amplifier	SCHWARZBECK	BBV9718	9718-212	June 08,17	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A

Note: All calibration reports of the equipment were provided by CEPREI calibration and Test Center

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EST Technology Co., Ltd. Report No. ESTE-F1806007 Page 8 of 30

3. TEST SET-UP AND OPERATION MODES

3.1. Principle of Configuration Selection

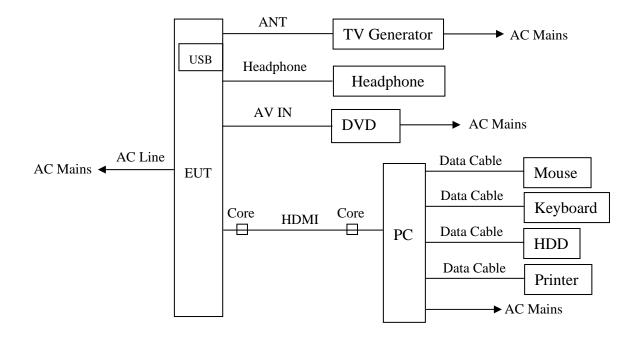
Emission: The equipment under test (EUT) was configured to measure its highest possible

radiation level. The test modes were adapted accordingly in reference to the

Operating Instructions.

3.2. Block Diagram of Test Set-up

System Diagram of Connections between EUT and Simulators



(EUT: LCD TV)

A	AC Line	Unshielded, Undetachable 1.5m
В	AV IN	Unshielded, Detachable 1.2m
С	Headphone	Shielded, Detachable 1.2m
D	HDMI	Shielded, Detachable 1.2m

EST

3.3. Test Operation Mode and Test Software

Refer to Test Setup in clause 4.

3.4. Special Accessories and Auxiliary Equipment

3.4.1. DELL PC (4K)

M/N : Precision Tower 3620

S / N : 23TH6H2 Manufacturer : DELL

3.4.2. Keyboard

M/N : L100

S / N : CN-0RH656-65890-01M-070T

Manufacturer : Dell

Data Cable : Shielded, Undetachable, 1.8m

3.4.3. Mouse

M/N : L100

S / N : CN-0RH656-65890-01M-070T

Manufacturer : Dell

Data Cable : Shielded, Undetachable, 1.8m

3.4.4. Printer

M/N : HP LaserJet 1020 Plus

Manufacturer : HP

AC Line : Unshielded, Detachable 1.2m USB Line : Unshielded, Detachable 1.2m

3.4.5. iPod

M/N : A1238

S/N: 8K044D2Z9ZU

Manufacturer : Apple

3.4.6. U Disc

M / N : SDCZ7-4096 S / N : BH0701AGOB

Manufacturer : SanDisk

3.4.7. TV Generator

M / N : SFE S / N : 121120 Manufacturer : R&S

Data Cable : Shielded, Detachable, 1.6m



3.4.8. Headphone

M/N : K800

S / N : K6325HP-C

Manufacturer : HP

Data Cable : Shielded, Detachable, 1.2m

3.5. Countermeasures to Achieve EMC Compliance

None.

EST Technology Co., Ltd. Report No. ESTE-F1806007 Page 11 of 30

4. EMISSION TEST RESULTS

4.1. Conducted Emission at the Mains Terminals Test

RESULT : Pass

Test Procedure : ANSI C63.4:2014
Frequency Range : 0.15 to 30MHz
Test Site : Shielded Room

Limits : FCC Part 15:2017 Class B

Test Setup

Date of Test : May 28, 2018

M/N : 32S321

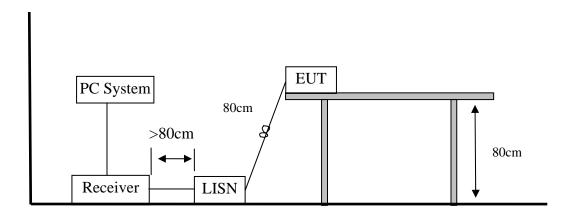
Input Voltage : AC 120V/60Hz

Operation Mode : HDMI

The frequency range from 150 kHz to 30 MHz was investigated.

The bandwidth of the test receiver was set at 9 kHz.

The test data of the worst case condition(s) was reported on the following page.



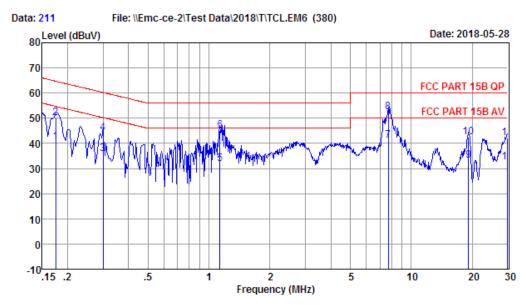
Note: Measurement Uncertainty: ± 3.48 dB at a level of confidence of 95%.

EST Technology Co., Ltd. Report No. ESTE-F1806007 Page 12 of 30

Test Data

EST Technology

Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China Tel:+86-769-83081888 Fax:+86-769-83081878



Site no : 2# Conduction Shield Room Data no. : 211 Env. / Ins. : Temp:25.1 $^{\circ}$ C Humi:51% Press:101.50kPa LINE Phase : LINE

Limit : FCC PART 15B QP

Engineer : Bible
EUT : LCD TV
Power : AC 120V/60Hz
M/N : 32S321
Test Mode : AV IN

Screen NO:A05-F

	Freq.	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.17	9.67	0.04	30.81	40.52	54.72	14.20	Average
2	0.17	9.67	0.04	40.42	50.13	64.72	14.59	QP
3	0.30	9.71	0.04	26.11	35.86	50.24	14.38	Average
4	0.30	9.71	0.04	34.25	44.00	60.24	16.24	QP
5	1.14	9.80	0.06	22.01	31.87	46.00	14.13	Average
6	1.14	9.80	0.06	35.31	45.17	56.00	10.83	QP
7	7.69	9.88	0.08	31.12	41.08	50.00	8.92	Average
8	7.69	9.88	0.08	42.62	52.58	60.00	7.42	QP
9	19.22	9.94	0.09	23.12	33.15	50.00	16.85	Average
10	19.22	9.94	0.09	32.43	42.46	60.00	17.54	QP
11	30.00	9.94	0.09	22.42	32.45	50.00	17.55	Average
12	30.00	9.94	0.09	31.99	42.02	60.00	17.98	QP

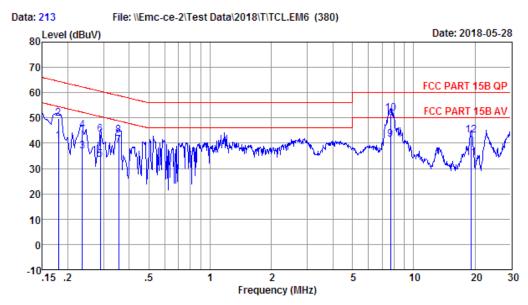
Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.

- 2. Margin= Limit Emission Level.
- 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.



${\operatorname{EST}}$ ${\operatorname{Technology}}$

Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China Tel:+86-769-83081888 Fax:+86-769-83081878



Site no : 2# Conduction Shield Room Data no. : 213 Env. / Ins. : Temp:25.1°C Humi:51% Press:101.50kPa LINE Phase : NEUTRAL

Limit : FCC PART 15B QP

Engineer : Bible
EUT : LCD TV
Power : AC 120V/60Hz
M/N : 32S321
Test Mode : AV IN

Screen NO:A05-F

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.18	9.66	0.04	31.03	40.73	54.50	13.77	Average
2	0.18	9.66	0.04	40.16	49.86	64.50	14.64	QP
3	0.24	9.68	0.04	26.97	36.69	52.26	15.57	Average
4	0.24	9.68	0.04	35.46	45.18	62.26	17.08	QP
5	0.29	9.68	0.04	23.74	33.46	50.54	17.08	Average
6	0.29	9.68	0.04	33.61	43.33	60.54	17.21	QP
7	0.36	9.72	0.05	29.45	39.22	48.83	9.61	Average
8	0.36	9.72	0.05	33.53	43.30	58.83	15.53	QP
9	7.69	9.95	0.08	31.52	41.55	50.00	8.45	Average
10	7.69	9.95	0.08	41.88	51.91	60.00	8.09	QP
11	19.22	10.13	0.09	23.82	34.04	50.00	15.96	Average
12	19.22	10.13	0.09	33.03	43.25	60.00	16.75	QP

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

- 2. Margin= Limit Emission Level.
- 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.



4.2. Radiated Emission Test

RESULT : Pass

Test Procedure : ANSI C63.4:2014

Frequency Range : 30-1000 MHz;1-6 GHz

Test Site : 966 Chamber

Limits : FCC Part 15:2017 Class B

Test Setup

Date of Test : May 28, 2018

M/N : 32S321

Input Voltage : AC 120V/60Hz

Operation Mode : HDMI

The EUT was placed on a turn table which was 0.8 m above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 m away from the receiving antenna which was mounted on an antenna tower. The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 m to 4 m for both horizontal and vertical polarizations.

The EUT was tested in the Chamber Site. It was pre-scanned with a Peak detector from the spectrum, and all the final readings from the test receiver were measured with the Quasi-Peak detector.

The bandwidth setting on the test receiver was 120 kHz.

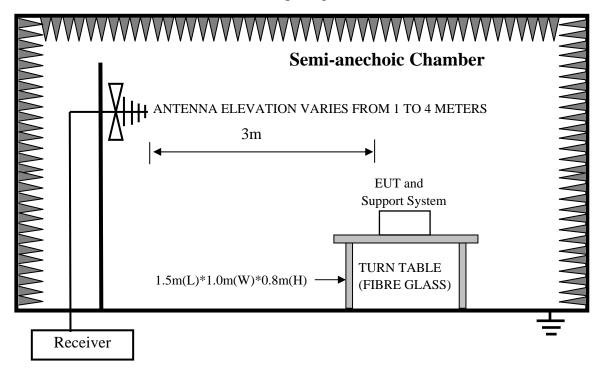
The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

The test data of the worst case condition(s) was reported on the following page.

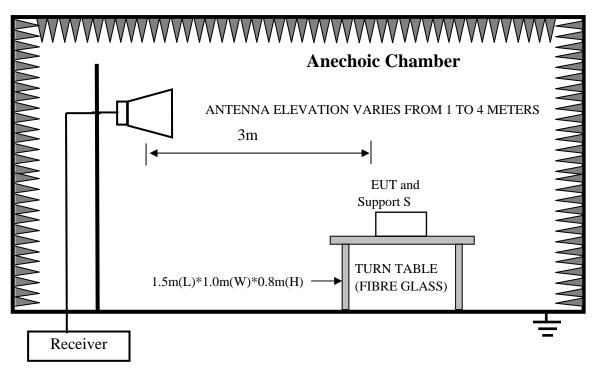


EST Technology Co., Ltd. Report No. ESTE-F1806007

1. In Semi-anechoic Chamber Test Setup Diagram for 30MHz~1000MHz



2. In Anechoic Chamber Test Setup Diagram for 1-6GHz

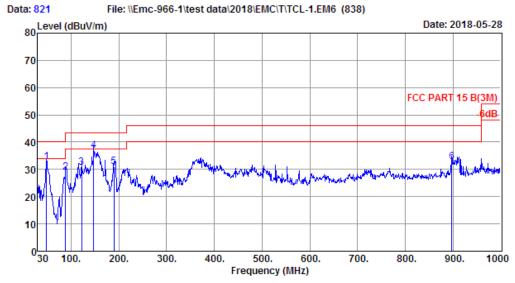


Note: Test uncertainty: ± 4.6 dB (H); ± 4.68 dB (V) at a level of confidence of 95%(30MHz ~ 1GHz); Test uncertainty: ± 4.96 dB at a level of confidence of 95%(Above 1GHz).

Test Data 30MHz-1GHz

EST Technology

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Limit : FCC PART 15 B(3M)

Env. / Ins. : Temp:26.2'; Humi:54.1%; Press:101.52kPa

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	48.43	9.10	0.46	23.17	32.73	40.00	7.27	QP
2	88.20	8.56	1.02	19.36	28.94	43.50	14.56	QP
3	122.15	11.68	1.13	17.86	30.67	43.50	12.83	QP
4	147.37	11.72	1.29	23.89	36.90	43.50	6.60	QP
5	190.05	8.60	1.43	20.94	30.97	43.50	12.53	QP
6	897.18	23.84	4.06	5.01	32.91	46.00	13.09	QP

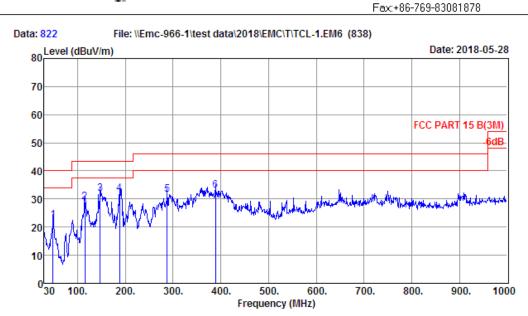
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

- 2. Margin= Limit Emission Level.
- 3. The emission levels that are 20dB below the official limit are not reported.



EST Technology

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Data no. : 822 : 1# 966 Chamber Site no. Dis. / Ant. : 3m 37062 Limit : FCC PART 15 B(3M) Ant. pol. : HORIZONTAL

Env. / Ins. : Temp:26.2'; Humi:54.1%; Press:101.52kPa

: Bible Engineer EUT : LCD TV Power : AC 120V/60Hz M/N : 325321 Test Mode : USB Play Screen No:A05-F

	Freq.	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	48.43	9.10	0.46	13.01	22.57	40.00	17.43	QP
2	115.36	11.30	1.12	16.51	28.93	43.50	14.57	QP
3	147.37	11.72	1.29	18.91	31.92	43.50	11.58	QP
4	188.11	8.76	1.47	21.61	31.84	43.50	11.66	QP
5	288.02	13.18	2.02	16.40	31.60	46.00	14.40	QP
6	388.90	15.77	2.34	15.03	33.14	46.00	12.86	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading. 2. Margin= Limit - Emission Level.

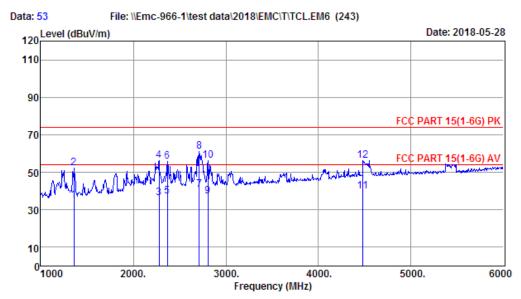
3. The emission levels that are 20dB below the official limit are not reported.



Above 1GHz

EST Technology

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Site no. : 1# 966 Chamber Data no. : 53
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL

Limit : FCC PART 15(1-6G) PK

Env. / Ins. : Temp:26.4'; Humi:52.4%; Press:101.52kPa

Engineer : Bible
EUT : LCD TV
Power : AC 120V/60Hz
M/N : 32S321
Test Mode : AV IN

	Freq.	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1360.00	25.32	2.40	7.32	35.04	54.00	18.96	Average
2	1360.00	25.32	2.40	24.36	52.08	74.00	21.92	Peak
3	2280.00	27.06	3.10	6.26	36.42	54.00	17.58	Average
4	2280.00	27.06	3.10	25.91	56.07	74.00	17.93	Peak
5	2370.00	27.31	3.20	6.83	37.34	54.00	16.66	Average
6	2370.00	27.31	3.20	25.13	55.64	74.00	18.36	Peak
7	2710.00	27.95	3.46	9.12	40.53	54.00	13.47	Average
8	2710.00	27.95	3.46	29.70	61.11	74.00	12.89	Peak
9	2805.00	28.08	3.53	5.64	37.25	54.00	16.75	Average
10	2805.00	28.08	3.53	24.52	56.13	74.00	17.87	Peak
11	4480.00	31.46	4.68	3.80	39.94	54.00	14.06	Average
12	4480.00	31.46	4.68	20.08	56.22	74.00	17.78	Peak

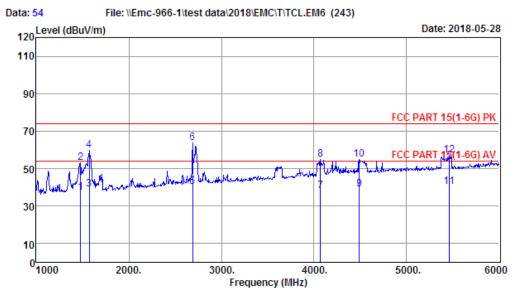
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

- 2. Margin= Limit Emission Level.
- 3. The emission levels that are 20dB below the official limit are not reported.



EST Technology

Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China Tel:+86-769-83081888 Fax:+86-769-83081878



: 1# 966 Chamber Site no. Data no. : 54 Dis. / Ant. : 3m ANT9120D 1-18G Limit : FCC PART 15(1-6G) PK Ant. pol. : VERTICAL

Env. / Ins. : Temp:26.4'; Humi:52.4%; Press:101.52kPa

: Bible Engineer EUT : LCD TV Power : AC 120V/60Hz M/N : 325321 : AV IN Test Mode

	Freq.	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1480.00	25.57	2.50	9.25	37.32	54.00	16.68	Average
2	1480.00	25.57	2.50	25.04	53.11	74.00	20.89	Peak
3	1575.00	25.73	2.55	10.67	38.95	54.00	15.05	Average
4	1575.00	25.73	2.55	31.31	59.59	74.00	14.41	Peak
5	2690.00	27.89	3.44	8.98	40.31	54.00	13.69	Average
6	2690.00	27.89	3.44	32.61	63.94	74.00	10.06	Peak
7	4070.00	30.50	4.30	3.33	38.13	54.00	15.87	Average
8	4070.00	30.50	4.30	20.00	54.80	74.00	19.20	Peak
9	4490.00	31.46	4.68	2.98	39.12	54.00	14.88	Average
10	4490.00	31.46	4.68	18.66	54.80	74.00	19.20	Peak
11	5460.00	32.94	5.09	2.43	40.46	54.00	13.54	Average
12	5460.00	32.94	5.09	19.22	57.25	74.00	16.75	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading. 2. Margin= Limit - Emission Level.

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



5. PHOTOGRAPHS OF TEST SET-UP

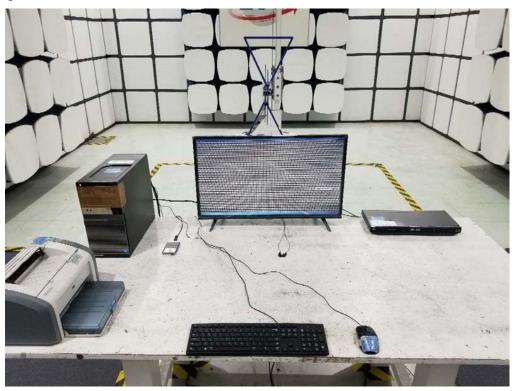
5.1. Set-up for conducted emission at the mains terminals test

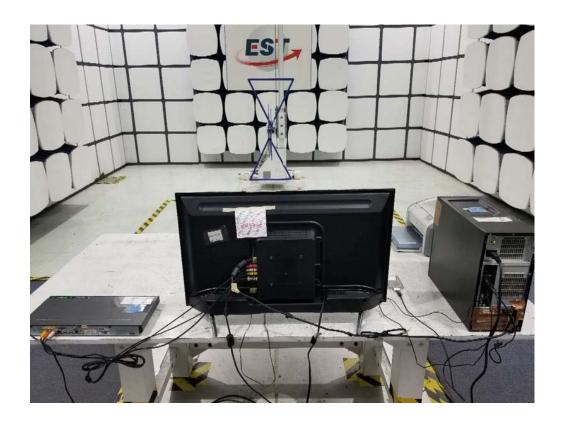






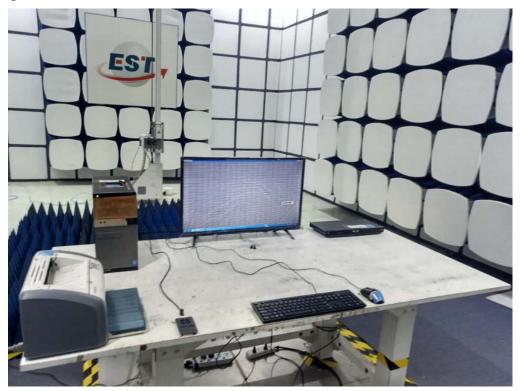
5.2. Set-up for radiated emission test (30-1000MHz)

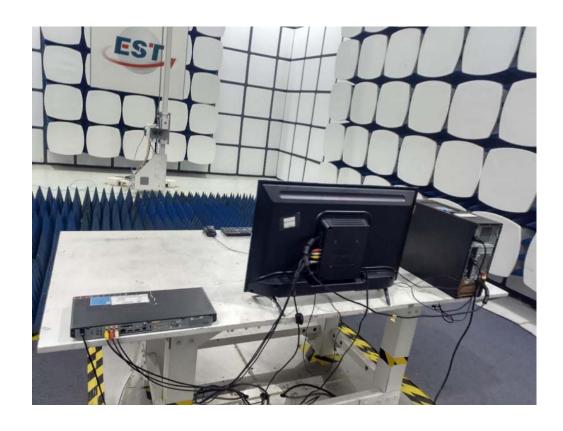






5.3. Set-up for radiated emission test (Above 1GHz)







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6. PHOTOGRAPHS OF THE EUT

External Photos M/N: 32S321





External Photos





External Photos





External Photos







Internal Photos

M/N: 32S321







Internal Photos M/N: 32S321



