EMC TEST REPORT

for

TPV Electronics (FuJian) Co., Ltd.

LCD Monitor

Model No.: 320LM00001; U3277****, 315LM00017

Prepared for : TPV Electronics (FuJian) Co., Ltd.
Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province, P.R. China

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
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Report Number	:	ACS-E17203
Date of Test	:	Dec.19, 2014 ~ Jan.15, 2015 & Jan.22, 2017~Feb.12, 2017
Date of Report	:	Mar.07, 2017

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TEST REPORT VERIFICATION

Applicant : TPV Electronics (FuJian) Co., Ltd.

Product : LCD Monitor

(A) Model No. : 320LM00001; U3277****, 315LM00017
(B) Serial No. : N/A
(C) Power Supply : AC 100-240V, 50/60Hz
(D) Test Voltage : AC 230V/50Hz & AC 100V/50Hz

Measurement Standard Used:

EN 55032: 2012+AC: 2013 (Class B), CISPR 32: 2012 (AS/NZS CISPR 32: 2013)
EN 61000-3-2: 2014, EN 61000-3-3: 2013
EN 55024: 2010, EN 55024: 2010+A1:2015
(IEC 61000-4-2: 2008, IEC 61000-4-3: 2010, IEC 61000-4-4: 2012,
IEC 61000-4-5: 2014, IEC 61000-4-6: 2013, IEC 61000-4-8: 2009, IEC 61000-4-11: 2004)

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. 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 test. Also, this report shows that the EUT is technically compliant with the EN 55032, EN 61000-3-2, EN 61000-3-3 and EN 55024 requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd.

Date of Test : Dec.19, 2014 ~ Jan.15, 2015 & Jan.22, 2017~Feb.12, 2017

Report of date: Mar.07,2017

Prepared by : Momo Wang / Assistant

Reviewed by : Bensun Chen / Deputy 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

Approved & Authorized Signer : Signature: David Jin / 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**	**Results**	**Remark**
Conducted disturbance at mains terminals	EN 55032: 2012+AC: 2013	PASS	Meets Class B Minimum passing margin is 10.68 dB at 0.865 MHz
Conducted disturbance at telecommunication port	EN 55032: 2012+AC: 2013	N/A	N/A
Radiated disturbance (30-1000MHz)	EN 55032: 2012+AC: 2013	PASS	Meets Class B Minimum passing margin is 5.51dB at 198.78MHz
Radiated disturbance (1-6GHz)	EN 55032: 2012+AC: 2013	PASS	Meets Class B Minimum passing margin is 11.31dB at 1839.35MHz
Harmonic current emissions	EN 61000-3-2: 2014	PASS	Meets the Class D requirement
Voltage fluctuations & flicker	EN 61000-3-3: 2013	PASS	Meets the requirement

IMMUNITY				
Description of Test Item	**Basic Standard**	**Results**	**Performance Criteria**	**Observation Criteria**
Electrostatic discharge (ESD)	IEC 61000-4-2: 2008	PASS	B	A&B
Radio-frequency,Continuous radiated disturbance	IEC 61000-4-3: 2010	PASS	A	A
Electrical fast transient (EFT)	IEC 61000-4-4: 2012	PASS	B	A&B
Surge (Input a.c. power port)	IEC 61000-4-5: 2014	PASS	B	A&B
Surge(Telecommunication port)		N/A	N/A	N/A
Radio-frequency,Continuous conducted disturbance	IEC 61000-4-6: 2013	PASS	A	A
Power frequency magnetic field	IEC 61000-4-8: 2009	PASS	A	A
Voltage dips, >95% reduction	IEC 61000-4-11: 2004	PASS	B	A
Voltage dips, 30% reduction		PASS	C	A
Voltage interruptions		PASS	C	C
N/A is an abbreviation for Not Applicable.				

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product	:	LCD Monitor
Model No.	:	320LM00001; U3277****, 315LM00017 The "*" could be any alphanumeric character including blank for marketing differentiation. Different model represent different sales regional
Test Model	:	320LM00001
Applicant	:	TPV Electronics (FuJian) Co., Ltd. Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province, P.R. China
Max. Resolution	:	3840*2160@60Hz
Max. Work Frequency	:	600MHz
I/O Port	:	**Back View:** (1) One DVI Port (2) One MHL-HDMI Port (3) One DP Port (4) One VGA Port (5) One Audio in Port (6) One Audio out Port (7) One AC In Port **Side View:** (1) Two USB 2.0 Ports (2) One USB Fast Charge (3) One USB Down-stream (4) One USB UP-stream
D-Sub Cable	:	Shielded, Detachable, 1.8m/1.5m (Bond two ferrite cores)
DVI Cable	:	Shielded, Detachable, 1.8m/1.5m (Bond two ferrite cores)
DP Cable	:	Shielded, Detachable, 1.8m/1.5m
Power Cord	:	Unshielded, Detachable, 1.8m/1.5m (3 pins)
Audio Cable	:	Shielded, Detachable, 1.8m /1.5m
HDMI Cable	:	Shielded, Detachable, 1.8m/1.5m
USB 3.0 Cable	:	Shielded, Detachable, 1.8m/1.5m

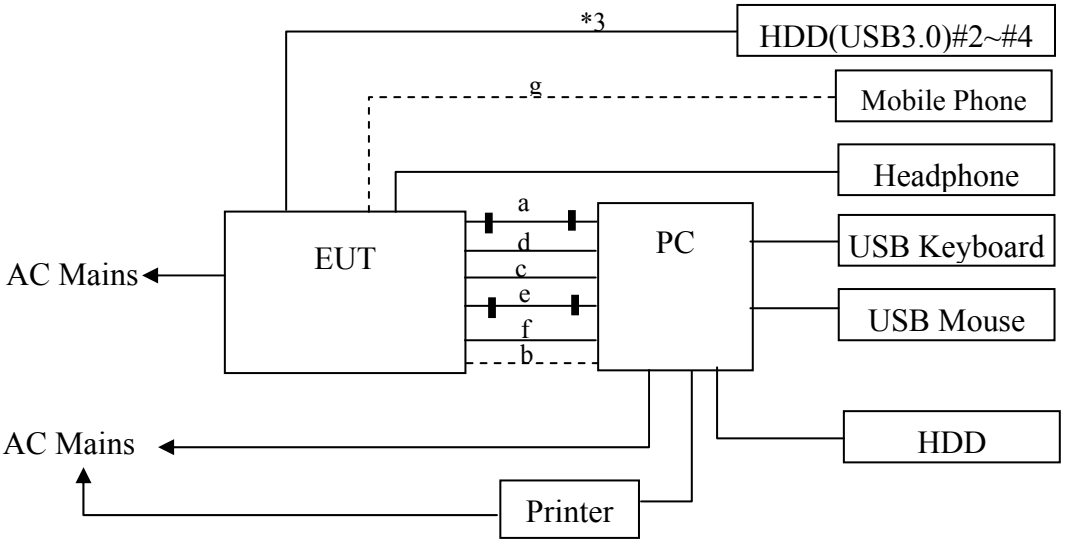
MHL Cable	:	Shielded, Detachable, 1.0m
Date of Test	:	Dec.19, 2014 ~ Jan.15, 2015 & Jan.22, 2017 ~ Feb.12, 2017
Date of Receipt	:	Dec.17, 2014 & Jan.20, 2017
Sample Type	:	Prototype production

2.2. Tested Supporting System Details

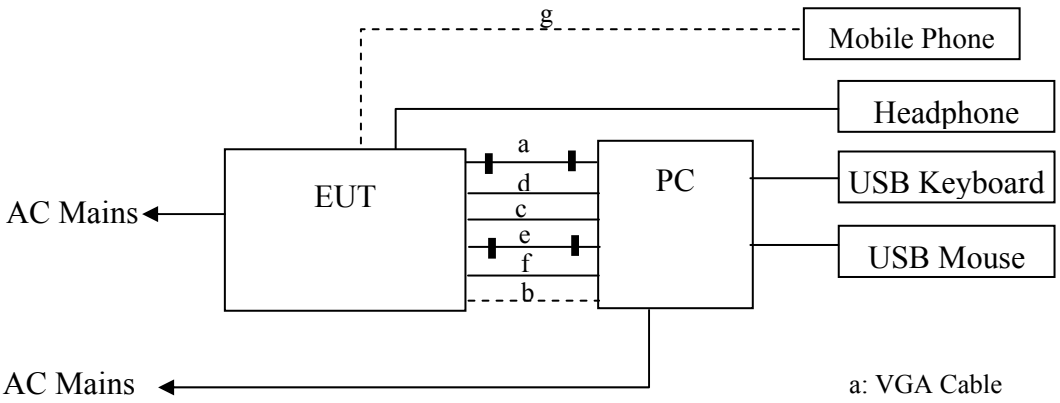
No.	Description	ACS No.	Manufacturer	Model	Serial Number
1.	Personal Computer	Test PC W	DELL	Optiplex 9020MT	27455813534
		Power Cord: Unshielded, Detachable, 1.8m Display Card: HD3450 (DVI+VGA+HDMI)			
2.	USB Keyboard	ACS-EMC- K03R	DELL	SK-8120	CN-ODJ365-71616-2BE-0DCE-A00
		USB Cable: Shielded, Detachable, 2.0m			
3.	Mouse	ACS-EMC-M03R	DELL	M0C5UO	512023253
		USB Cable: Shielded, Detachable, 1.8m			
4.	Printer	ACS-EMC-PT04	HP	C9079A	N/A
		USB Cable: Shielded, Detachable, 1.8m Power Cord: Unshielded, Detachable, 1.8m			
5.	HDD #1	ACS-EMC-HDD01	Terasys	F12-UF	A0100215-5390031
		USB Cable: Shielded, Detachable, 1.8m			
6.	Headphone	ACS-EMC-EP01	OVANN	OV880V	N/A
		Cable: Shielded, Undetachable, 4.0m			
7.	DVD Player	ACS-EMC-DVD02	PIONEER	DV-410v-G	TAXZT5
		Data Cable: Shielded, Detachable, 1.8m			
8	Mobile phone	---	SONY	Z5	---
7.	HDD(USB3.0) #2	ACS-EMC-HDD38	WD	WD Elements	WXA1E63CEME4
		Data Cable: Shielded,Detachable, 1.0m			
8.	HDD(USB3.0) #3	ACS-EMC-HDD39	WD	WD Elements	WX61A8360420
		Data Cable: Shielded,Detachable, 1.0m			
9.	HDD(USB3.0) #4	ACS-EMC-HDD40	WD	WD Elements	WXA1E63CEMWP7
		Data Cable: Shielded,Detachable, 1.0m			

2.3. Block Diagram of connection between EUT and simulators

For EMI Tests



For EMS Tests



a: VGA Cable
b: HDMI Cable
c: Audio Cable
d: Display Cable
e: DVI Cable
f: USB 3.0 Cable
g: MHL Cable
■: Core

Remark：**HDMI terminal respectively applies to PC, DVD Mode, MHL mode can't be work at the same time for these three models**.

(EUT: LCD Monitor)

2.4. Test Facility

Site Description

Name of Firm : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Kefeng Road, Science & Technology Park, Nanshan District , Shenzhen, Guangdong, China

3m Anechoic Chamber : Certificated by FCC, USA
Registration Number: 90454
Valid Date: Jul.12, 2017

10m Anechoic Chamber : Certificated by FCC, USA
Registration Number: 794232
Valid Date: Jul.12, 2017

EMC Lab. : Certificated by DAkkS, Germany
Registration No: D-PL-12151-01-00
Valid Date: Dec.07, 2021

Accredited by NVLAP, USA
NVLAP Code: 200372-0
Valid Date: Mar.31, 2018

2.5. Measurement Uncertainty

(95% confidence levels, k=2)

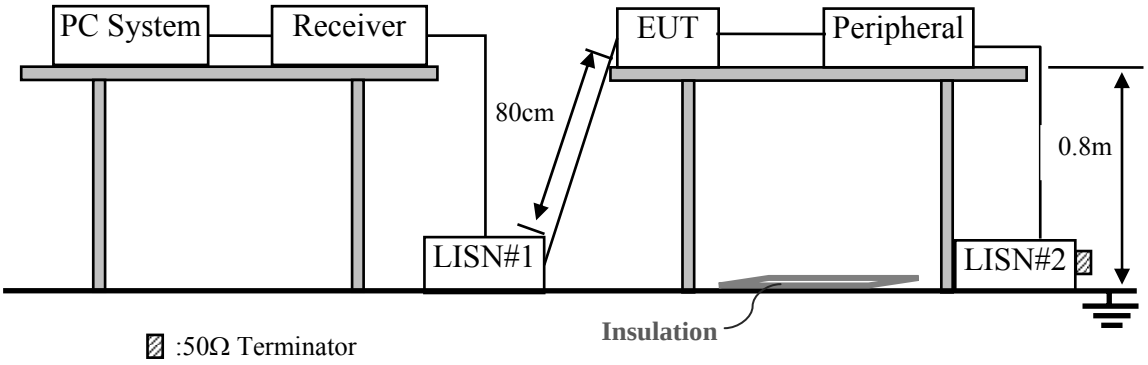
Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 2 Conduction	2.4dB (150kHz to 30MHz)
Uncertainty for Radiation Emission test in 10m chamber	3.0dB (30~200MHz, Polarization: H)
	3.0dB (30~200MHz, Polarization: V)
	3.4dB (200M~1GHz, Polarization: H)
	3.4dB (200M~1GHz, Polarization: V)
Uncertainty for Radiation Emission test in 10m chamber (1GHz-18GHz)	4.4dB (1-6GHz, Distance: 3m)
	5.4dB (6-18GHz, Distance: 3m)
Uncertainty for SVSWR in 10m Chamber	2.8dB (1-6GHz,Distance: 3m)
	2.8dB (6-18GHz,Distance: 3m)
Uncertainty for Flicker test	5.2%
Uncertainty for Harmonic test	9.4%
Uncertainty for C/S Test	1.4dB (Using CDN test)
	3.2dB (Using EM clamp test)
Uncertainty for R/S Test	1.8dB (80MHz~200MHz)
	1.8dB(200MHz~1000MHz)
Uncertainty for test site temperature and humidity	0.6℃
	3%
Pressure	1kPa

3. CONDUCTED DISTURBANCE AT MAINS TERMINALS TEST

3.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	2# Shielding Room	AUDIX	N/A	N/A	Apr.17,16	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESR3	101931	Apr.24,16	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ENV4200	100041	Apr.24,16	1 Year
4.	L.I.S.N.#2	Kyoritsu	KNW-407	8-1636-1	Apr.23,16	1 Year
5.	Terminator	Hubersuhner	50Ω	No.1	May.05,16	1 Year
6.	Terminator	Hubersuhner	50Ω	No.2	May.05,16	1 Year
7.	RF Cable	Fujikura	RG-55/U	No.1	Apr.24,16	1 Year
8.	Coaxial Switch	Anritsu	MP59B	6201397223	Apr.23,16	1 Year
9.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
Note: N/A means Not applicable.						

3.2. Block Diagram of Test Setup



3.3. Test Standard

EN 55032: 2012+AC: 2013 Class B

3.4. Power Line Conducted Disturbance at Mains Terminals Limit

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.

3.5. EUT Configuration on Test

The following equipments are installed on Conducted Emission Test to meet EN 55032 requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

3.5.1. LCD Monitor (EUT)
Model Number ：320LM00001
Serial Number ：N/A

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

3.6. Operating Condition of EUT

3.6.1. Setup the EUT and simulator as shown as Section 3.2.

3.6.2. Turned on the power of all equipment.

3.6.3. PC system sent “Color Bars with moving picture element (ITU-R BT 1729)” to LCD Monitor (EUT) through VGA / DVI / HDMI / DP card, the Screen of EUT displayed and filled with “H” pattern (character color is white, background color is black).

3.6.4. The PC system was running the program “1kHz signal playing” and sending sound to EUT.

3.6.5. DVD Mode: The DVD player played DVD Disk and sent “DVD 1kHz Signal Playing” image to the EUT

3.6.6. MHL Mode: The Mobile played Color bar video signal and sent “ 1kHz Signal Playing” image to the EUT

3.6.7. The other peripheral devices were driven and operated in turn during all testing.

3.7. 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. #2). 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 EN 55032 Class B on conducted Emission test.

The bandwidth of test receiver (R & S ESR3) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked. The test results are reported and test results for Conducted Disturbance Test on Section 3.8.

3.8. Conducted Disturbance at Mains Terminals Test Results

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

EUT: LCD Monitor Model No. : 320LM00001

Test Date: Jan.22, 2017 Temperature:21.6℃ Humidity: 51.2% Pressure: 101.5kPa

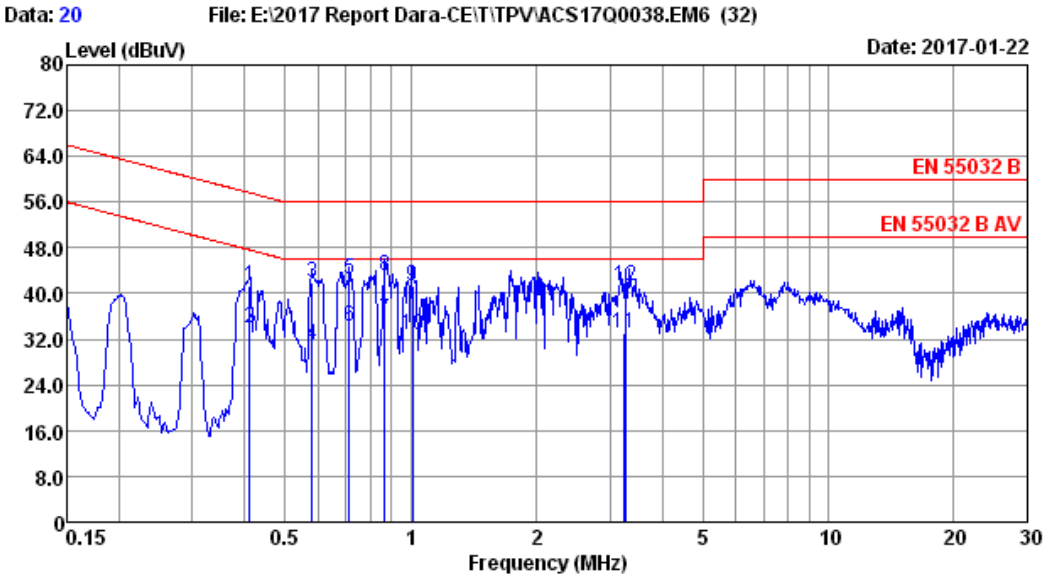
The EUT with following test modes were pre-tested:

No.	Test Voltage	Test Mode	Cable Length	Input Port	Resolution & Frequency
1.	AC 230V/50Hz	PC	1.8m	VGA	640*480@60Hz
2.					1280*1024@75Hz
3. ※					**1920*1080@60Hz**
4.				DVI	640*480@60Hz
5.					1280*1024@75Hz
6.					2560*1440@60 Hz
7.				DP	640*480@60Hz
8.					1280*1024@75Hz
9.					3840*2160@60Hz
10.				HDMI	640*480@60Hz
11.					1280*1024@75Hz
12.					3840*2160@60Hz
13.			1.5m	VGA	1920*1080@60Hz
14.		DVD	1.8m	HDMI	1080P
15.		MHL	1.0m	HDMI	1080P
16.		Standby	---	---	---
17.	AV 110V/60 Hz	PC	1.8m	VGA	1920*1080@60Hz

(※ Worst test mode)

The result of worst test mode is presented in the report as below and the test data are listed in next pages.

No.	Test Voltage	Test Mode	Cable Length	Input Port	Resolution & Frequency	Reference Test Data No.	
						Line	Neutral
1	AC 230V/50Hz	PC	1.8m	VGA	1920*1080@ 60Hz	#20	#19

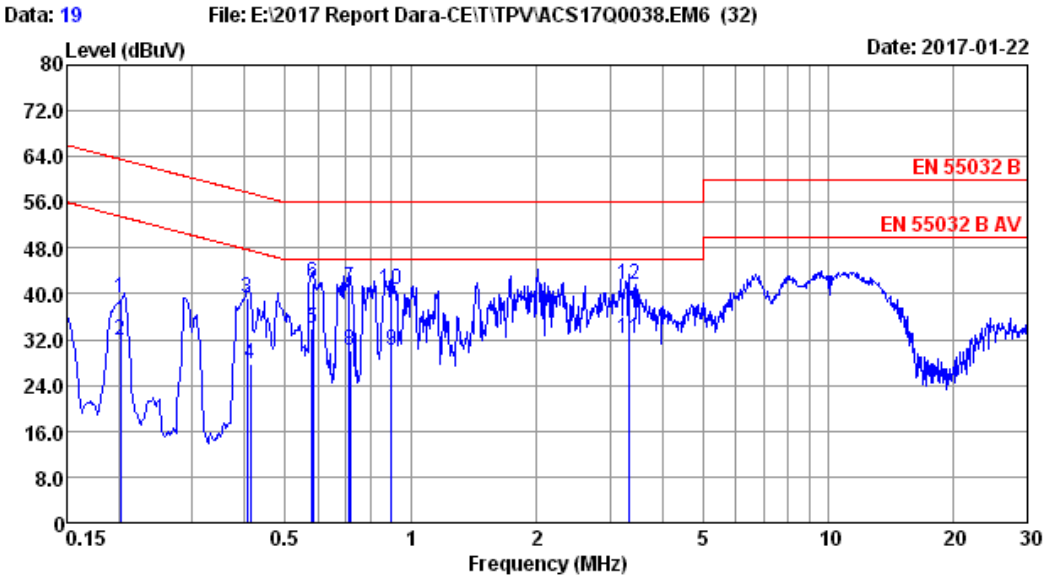


Site no :2# Conduction
Dis./Lisn :16 ENV4200 L
Limit :EN 55032 B
Env./Ins. :21.6*C/51.2%
EUT :320LM00001
Power Rating :AC 230V/50Hz
Test Mode :VGA:1920*1080@60Hz
Line:1.8m

Data No :20
LISN phase:LINE
Pre :101.5kPa
Engineer :Garry

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.410	9.21	0.02	32.15	41.38	57.64	16.26	QP
2	0.412	9.21	0.02	24.58	33.81	47.62	13.81	Average
3	0.579	9.22	0.02	32.66	41.90	56.00	14.10	QP
4	0.580	9.22	0.02	21.73	30.97	46.00	15.03	Average
5	0.712	9.23	0.02	33.32	42.57	56.00	13.43	QP
6	0.713	9.23	0.02	25.07	34.32	46.00	11.68	Average
7	0.865	9.24	0.05	26.03	35.32	46.00	10.68	Average
8	0.866	9.24	0.05	33.67	42.96	56.00	13.04	QP
9	1.010	9.25	0.12	32.10	41.47	56.00	14.53	QP
10	1.016	9.25	0.12	23.46	32.83	46.00	13.17	Average
11	3.254	9.25	0.09	23.61	32.95	46.00	13.05	Average
12	3.258	9.25	0.09	32.08	41.42	56.00	14.58	QP

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



Site no :2# Conduction
Dis./Lisn :16 ENV4200 N
Limit :EN 55032 B
Env./Ins. :21.6*C/51.2%
EUT :320LM00001
Power Rating :AC 230V/50Hz
Test Mode :VGA:1920*1080@60Hz
Line:1.8m

Data No :19
LISN phase:NEUTRAL
Pre :101.5kPa
Engineer :Garry

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.201	9.18	0.01	30.07	39.26	63.56	24.30	QP
2	0.202	9.18	0.01	22.68	31.87	53.53	21.66	Average
3	0.406	9.21	0.02	29.91	39.14	57.73	18.59	QP
4	0.413	9.21	0.02	18.49	27.72	47.58	19.86	Average
5	0.580	9.20	0.02	24.67	33.89	46.00	12.11	Average
6	0.582	9.20	0.02	32.83	42.05	56.00	13.95	QP
7	0.712	9.17	0.02	31.95	41.14	56.00	14.86	QP
8	0.714	9.17	0.02	20.83	30.02	46.00	15.98	Average
9	0.898	9.20	0.07	20.74	30.01	46.00	15.99	Average
10	0.899	9.20	0.07	31.36	40.63	56.00	15.37	QP
11	3.324	9.23	0.09	22.91	32.23	46.00	13.77	Average
12	3.328	9.23	0.09	32.22	41.54	56.00	14.46	QP

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

4. RADIATED DISTURBANCE TEST

4.1. Test Equipments

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

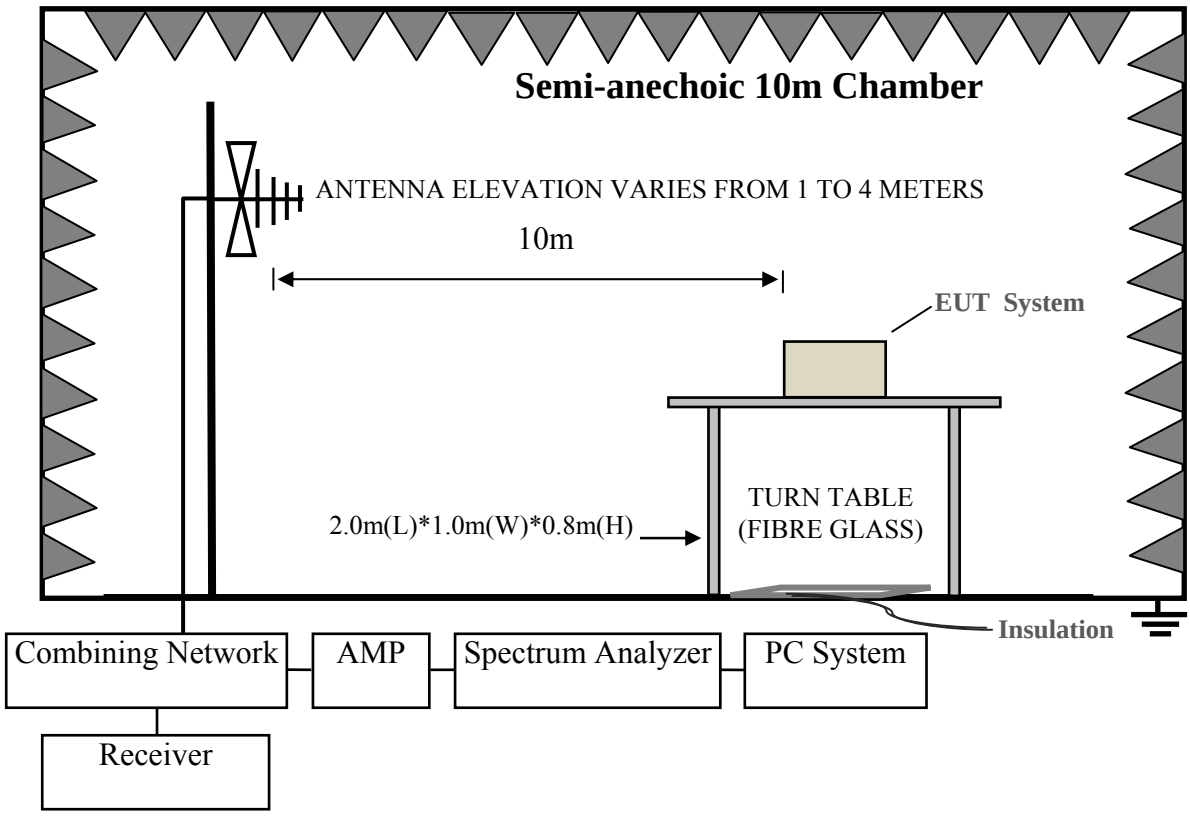
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	10m Chamber	AUDIX	N/A	N/A	Mar.01,16	1 Year
2.	Signal Analyzer	R&S	FSV30	103669	Nov.02,16	1 Year
3.	Signal Analyzer	R&S	FSV30	103670	Nov.02,16	1 Year
4.	Test Receiver	Rohde & Schwarz	ESCI	100843	Oct.15,16	1 Year
5.	Amplifier	EMCI	EMC9135	980347	Sep.26,16	1 Year
6.	Amplifier	EMCI	EMC9135	980348	Sep.26,16	1 Year
7.	Tri-log-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-493	Jun.03,16	1 Year
8.	Bi-log Antenna	TESEQ	CBL6112D	35375	Aug.03,16	1 Year
9.	RF Cable	MIYAZAKI	CFD400NL-LW	No.5	Sep.26,16	1 Year
10.	RF Cable	MIYAZAKI	CFD400-NM-NM	160727+160728	Sep.26,16	1 Year
11.	Attenuator	EMCI	EMCI-N-6-06	AT-N0649	Sep.26,16	1 Year
12.	Attenuator	EMCI	EMCI-N-6-06	AT-N0650	Sep.26,16	1 Year
13.	Coaxial Switch	Anritsu	MP59B	6201397220	Apr.23,16	1 Year
14.	Coaxial Switch	Anritsu	MP59B	6201397221	Apr.23,16	1 Year
15.	Coaxial Switch	Anritsu	MP59B	620313662	Apr.23,16	1 Year
16.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
Note: N/A means Not applicable.						

4.1.2. For frequency range 1GHz~6GHz (At Anechoic Chamber)

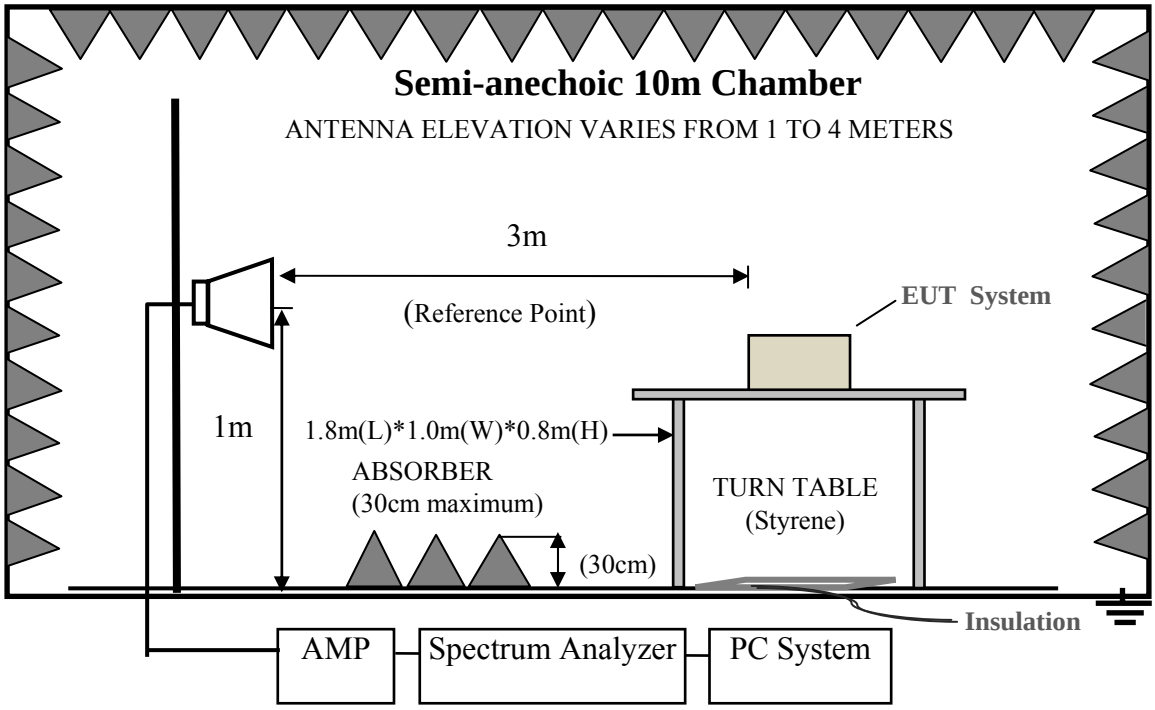
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	10m Chamber	AUDIX	N/A	N/A	Mar.21,16	1 Year
2.	Signal Analyzer	R&S	FSV30	103670	Nov.02,16	1 Year
3.	Horn Antenna	ETC	MCTD 1209	DRH15F03007	Apr.11,16	1 Year
4.	Amplifier	Agilent	83017A	MY53270085	May.17,16	1 Year
5.	RF Cable	Hubersuhner	SUCOFLEX106	505239/6	Apr.24,16	1 Year
6.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
Note: N/A means Not applicable.						

4.2. Block Diagram of Test Setup

4.2.1. In Anechoic Chamber Test Setup Diagram for 30MHz~1000MHz



4.2.2. In Anechoic (10m) Chamber Test Setup Diagram for 1-6GHz



4.3. Test Standard

EN 55032: 2012+AC: 2013 Class B

4.4. Radiated Disturbance Limit

All emanations from a Class B computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 230	10	30
230 ~ 1000	10	37
1000~3000	3	70(Peak) 50(Average)
3000~6000	3	74(Peak) 54(Average)

Note: (1) Emission level = Antenna Factor + Cable Loss + Reading
Emission level = Antenna Factor -Amp Factor +Cable Loss + Reading (above 1000MHz)
(2) The lower limit shall apply at the transition frequencies.
(3) Distance refers to the distance in meters between the test instrument antenna and the closed point of any part of the E.U.T.

4.5. EUT Configuration on Test

The configurations of EUT are listed in Section 3.5.

4.6. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 4.2.

4.7. 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 10m from the periphery of test system 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 the interface cables were changed according to EN 55032 Class B on Radiated Emission test.

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

The resolution bandwidth of the Agilent EMC Analyzer FSV30 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 6GHz was checked and all final readings of measurement were with Peak and Average detector, measurement distance was 3m at semi-anechoic chamber. The portion of the test volume that was obstructed by absorber placed on the floor (30cm maximum).

Finally, selected operating situations at Anechoic Chamber measurement, all the test results are listed in section 4.8.

4.8. Radiated Disturbance Test Results

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

EUT: LCD Monitor Model No. : 320LM00001

For frequency range 30MHz~1GHz

Test Date: Feb.12, 2017 Temperature: 26.1℃ Humidity: 51.5% Pressure: 101.3kPa

The EUT with following test modes were pre-tested:

No.	Test Voltage	Test Mode	Cable Length	Input Port	Resolution & Frequency
1.	AC 230V/50Hz	PC	1.8m	VGA	640*480@60Hz
2.					1280*1024@75Hz
3. ※					**1920*1080@60Hz**
4.				DVI	640*480@60Hz
5.					1280*1024@75Hz
6.					2560*1440@60 Hz
7.				DP	640*480@60Hz
8.					1280*1024@75Hz
9.					3840*2160@60Hz
10.				HDMI	640*480@60Hz
11.					1280*1024@75Hz
12.					3840*2160@60Hz
13.			1.5m	VGA	1920*1080@60Hz
14.		DVD	1.8m	HDMI	1080P
15.		MHL	1.0m	HDMI	1080P
16.		Standby	---	---	---
17.	AV 110V/60 Hz	PC	1.8m	VGA	1920*1080@60Hz

(※ Worst test mode)

The result of worst test mode is presented in the report as below and the test data are listed in next pages.

No.	Test Voltage	Test Mode	Cable Length	Input Port	Resolution & Frequency	Reference Test Data No.	
						Horizontal	Vertical
1	AC 230V/50Hz	PC	1.8m	VGA	1920*1080@ 60Hz	#20	#19

For frequency range 1GHz~6GHz

Test Date: Feb.02, 2017 Temperature: 23.1℃ Humidity: 51.1% Pressure: 101.5kPa

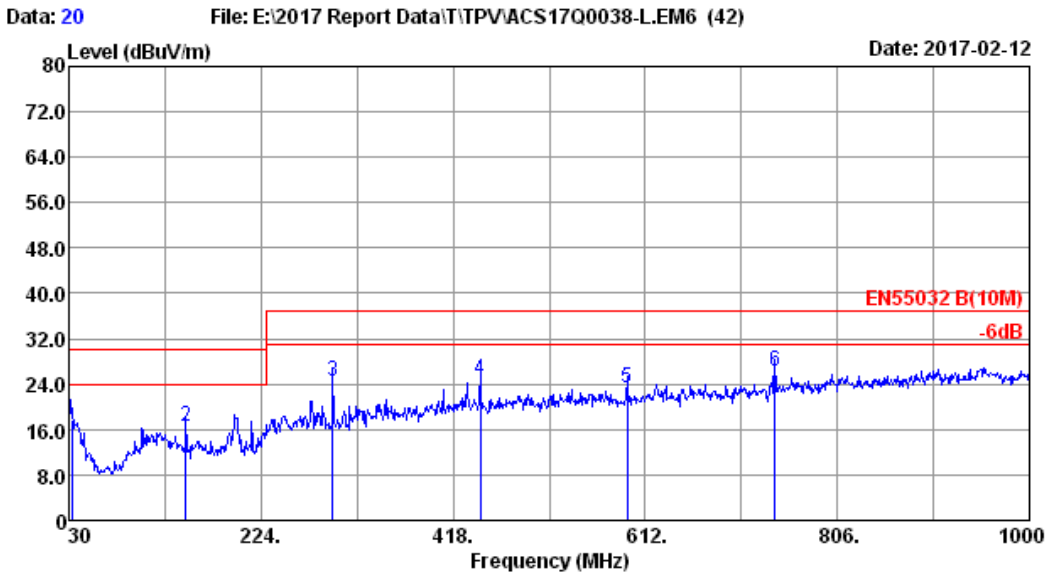
The EUT with following test modes were pre-tested:

No.	Test Voltage	Test Mode	Cable Length	Input Port	Resolution & Frequency
1.	AC 230V/50Hz	PC	1.8m	VGA	1280*1024@60Hz
2.					1920*1080@60Hz
3.				DVI	1280*1024@60Hz
4.					2560*1440@60 Hz
5.				**DP**	1280*1024@60Hz
6.					1280*1024@75Hz
7. ※					**3840*2160@60Hz**
8.				HDMI	1280*1024@60Hz
9.					3840*2160@60Hz
10.			1.5m	DP	3840*2160@60Hz
11.		DVD	1.8m	HDMI	1080P
12.		MHL	1.0m	HDMI	1080P
13.		Standby	---	---	---
14.	AV 110V/60 Hz	PC	1.8m	DP	3840*2160@60Hz

(※ Worst test mode)

The result of worst test mode is presented in the report as below and the test data are listed in next pages.

No.	Test Voltage	Test Mode	Cable Length	Input Port	Resolution & Frequency	Reference Test Data No.	
						Horizontal	Vertical
1	AC 230V/50Hz	PC	1.8m	DP	3840*2160@ 60Hz	#18	#17



Site no. : 10m Chamber
Dis. / Ant. : 10m 2016 6112D 35375
Limit : EN55032 B(10M)
Env. / Ins. : 21.6*C/51.5%
EUT : 32OLM00001
Power rating : AC 230V/50Hz
Test Mode : VGA:1920*1080@60Hz
Line:1.8m

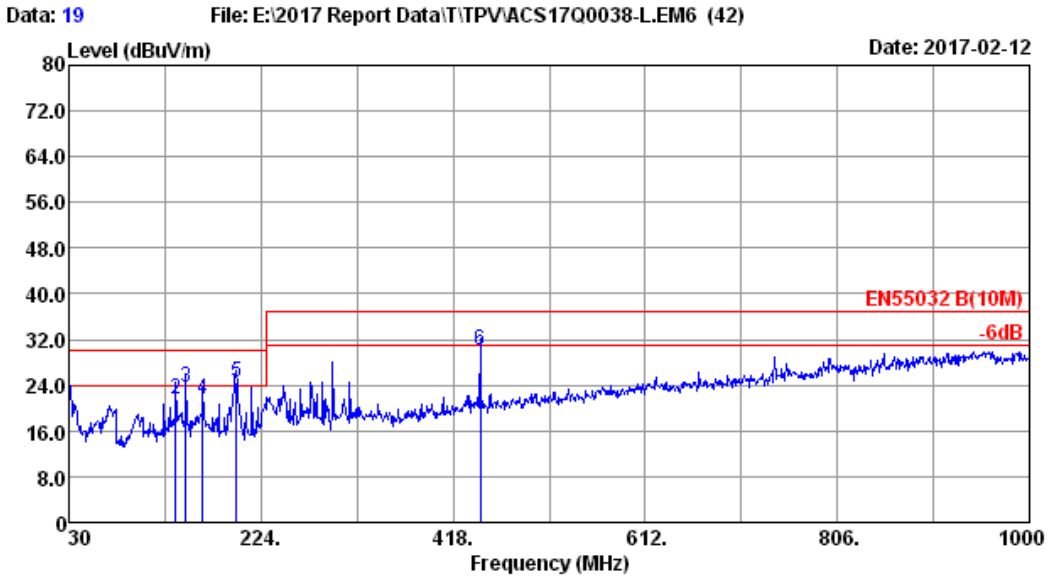
Data no. : 20
Ant. pol. : HORIZONTAL
Pre : 101.3kPa
Engineer : Saxon

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	32.91	16.97	6.22	-5.35	17.84	30.00	12.16	QP
2	148.34	10.69	6.53	-0.84	16.38	30.00	13.62	QP
3	296.75	13.35	6.84	4.37	24.56	37.00	12.44	QP
4	445.16	16.71	7.10	0.89	24.70	37.00	12.30	QP
5	593.57	18.07	7.31	-1.93	23.45	37.00	13.55	QP
6	742.95	19.71	7.50	-0.87	26.34	37.00	10.66	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 742.95 MHz with corrected signal level of 26.34 dBμV/m (Limit is 30.00dBμV/m) when the antenna was at horizontal polarization and at 1.4m high and the turn table was at 207°.

4.0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.



Site no. : 10m Chamber
Dis. / Ant. : 10m 2016 9168-493
Limit : EN55032 B(10M)
Env. / Ins. : 21.6*C/51.5%
EUT : 320LM00001
Power rating : AC 230V/50Hz
Test Mode : VGA:1920*1080@60Hz
Line:1.8m

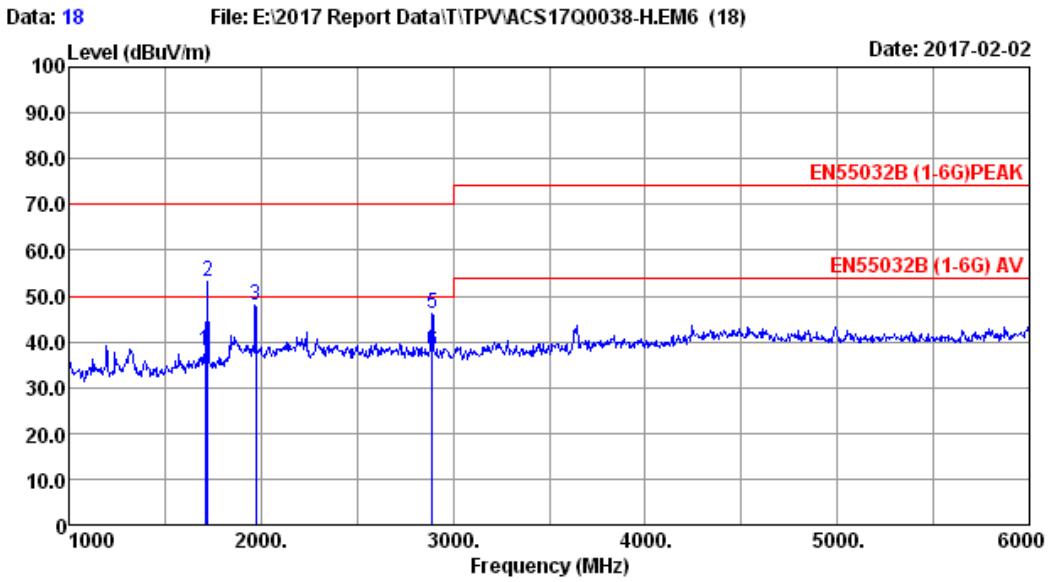
Data no. : 19
Ant. pol. : VERTICAL
Pre : 101.3kPa
Engineer : Saxon

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	30.12	12.40	6.50	4.69	23.59	30.00	6.41	QP
2	137.67	12.11	7.19	2.17	21.47	30.00	8.53	QP
3	148.34	13.28	7.25	3.18	23.71	30.00	6.29	QP
4	164.83	12.91	7.36	1.28	21.55	30.00	8.45	QP
5	198.78	10.25	7.56	6.68	24.49	30.00	5.51	QP
6	445.16	16.85	8.16	5.06	30.07	37.00	6.93	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 198.78 MHz with corrected signal level of 24.49 dBμV/m (Limit is 30.00dBμV/m) when the antenna was at vertical polarization and at 1.8m high and the turn table was at 283°.

4.0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

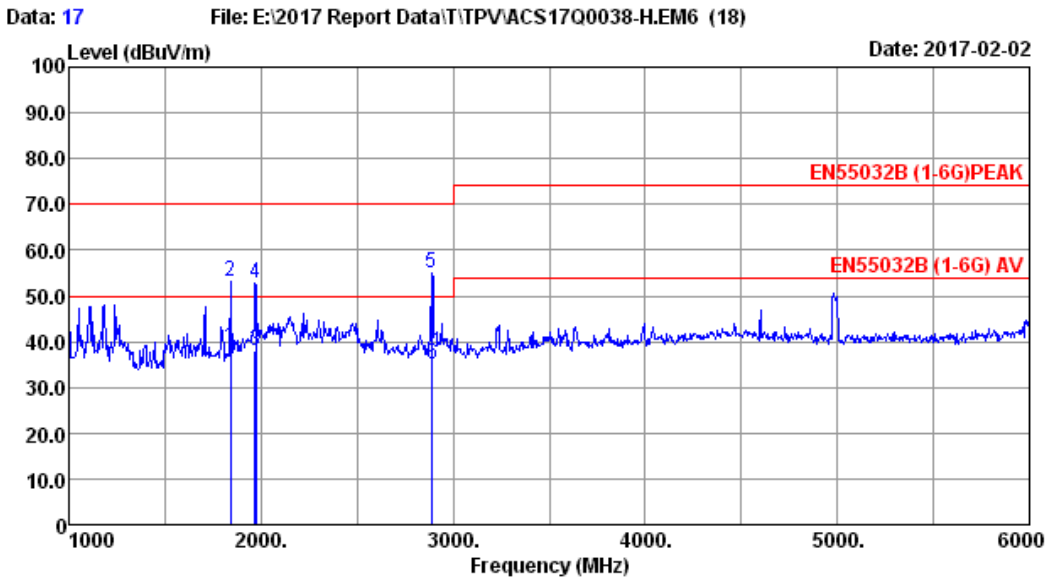


Site no. : 10m Chamber
Dis. / Ant. : 3m 2016 MCTD1209 3007
Limit : EN55032B (1-6G) PEAK
Env. / Ins. : 23.1*C/51.1%
EUT : 320LM00001
Power rating : AC 230V50Hz
Test Mode : DP:3840*2160@60Hz
Line:1.8m

Data no. : 18
Ant. pol. : HORIZONTAL
Pre : 101.5kPa
Engineer : Hogen

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1707.94	26.04	2.22	44.71	35.02	37.95	50.00	12.05	Average
2	1722.68	26.11	2.23	59.88	34.98	53.24	70.00	16.76	Peak
3	1973.33	27.37	2.43	52.37	34.27	47.90	70.00	22.10	Peak
4	1975.16	27.38	2.43	40.30	34.27	35.84	50.00	14.16	Average
5	2890.88	28.30	3.11	48.31	33.75	45.97	70.00	24.03	Peak
6	2892.32	28.30	3.11	40.20	33.75	37.86	50.00	12.14	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. : 10m Chamber
Dis. / Ant. : 3m 2016 MCTD1209 3007
Limit : EN55032B (1-6G) PEAK
Env. / Ins. : 23.1*C/51.1%
EUT : 320LM00001
Power rating : AC 230V50Hz
Test Mode : DP:3840*2160@60Hz
Line:1.8m

Data no. : 17
Ant. pol. : VERTICAL
Pre : 101.5kPa
Engineer : Hogen

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1839.35	26.70	2.32	44.32	34.65	38.69	50.00	11.31	Average
2	1840.00	26.70	2.32	58.67	34.65	53.04	70.00	16.96	Peak
3	1970.66	27.35	2.43	42.65	34.28	38.15	50.00	11.85	Average
4	1972.36	27.36	2.43	57.23	34.28	52.74	70.00	17.26	Peak
5	2885.00	28.30	3.10	57.45	33.76	55.09	70.00	14.91	Peak
6	2890.04	28.30	3.11	37.52	33.75	35.18	50.00	14.82	Average

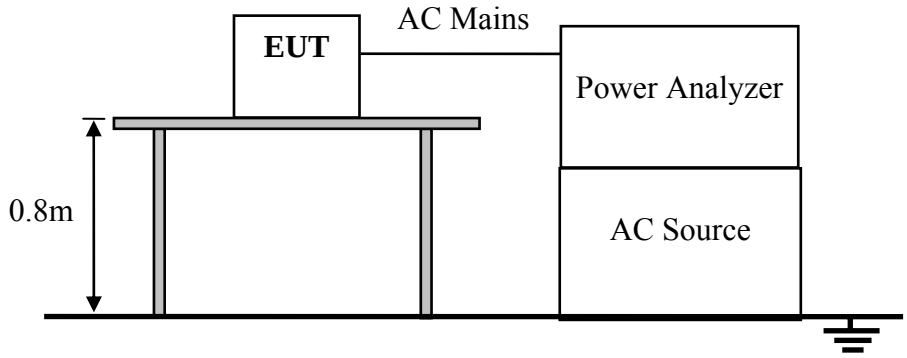
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

5. HARMONIC CURRENT TEST

5.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	AC Source	California Instruments	5001ix	58481	Oct.26, 14	1 Year
2.	Power Analyzer	California Instruments	PACS-1	72627	Oct.26, 14	1 Year

5.2. Block Diagram of Test Setup



5.3. Test Standard

EN 61000-3-2: 2014; Class D

5.4. Limits of Harmonic Current

Limits for Class D Equipment		
Harmonic order (n)	**Maximum permissible harmonic current per watt (mA/W)**	**Maximum permissible harmonic current (A)**
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
13	0.30	0.21
15≤n≤39 (odd harmonic only)	3.85/n	0.15×15/n

Remark: if the EUT Power level is below 75 Watts and therefore has no defined limits.

5.5. EUT Configuration on Test

The configurations of EUT are listed in Section 3.5.

5.6. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 5.2.

5.7. Test Procedure

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the necessary for the EUT to be exercised.

5.8. Test Results

PASS.

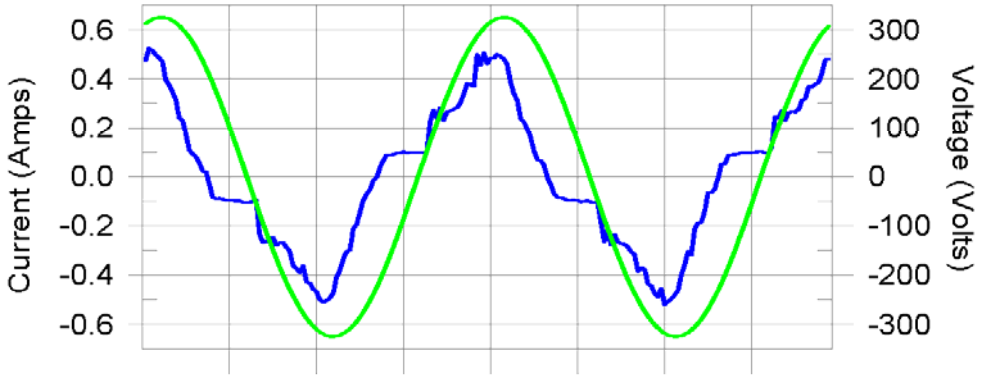
The EUT was tested and all the test results are listed in next pages.

Harmonics – Class-D per Ed. 4.0 (2014)(Run time) incl. inter-harmonics

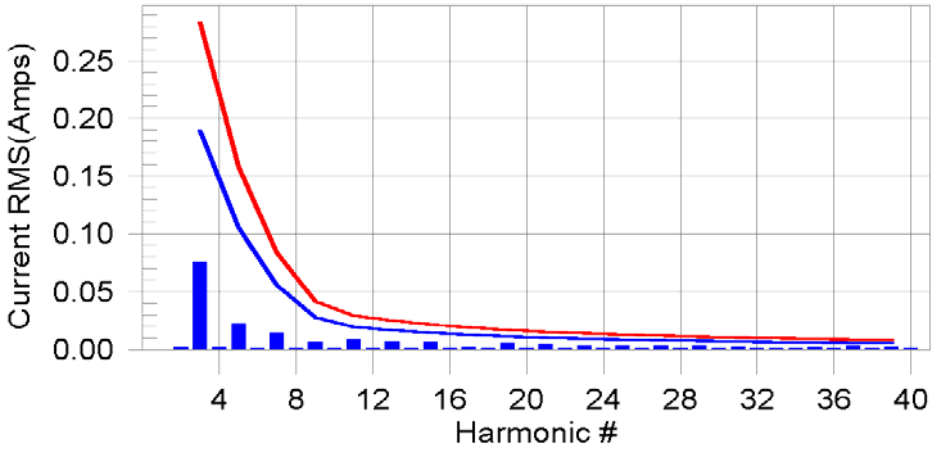
EUT: 320LM00001 Tested by: SUN
Test category: Class-D per Ed. 4.0 (2014) (European limits) Test Margin: 100
Test date: 2014-12-27 Start time: 9:45:27 End time: 9:48:18
Test duration (min): 2.5 Data file name: H-000326.cts_data
Comment: Running "H"Pattern And 1KHZ Playing
Customer: TPV

Test Result: N/L Source qualification: Normal

Current & voltage waveforms



Harmonics and Class D limit line European Limits



Test result: N/L Worst harmonic was #19 with 49.0% of the limit.

Current Test Result Summary (Run time)

EUT: 320LM00001 Tested by: SUN
Test category: Class-D per Ed. 4.0 (2014) (European limits) Test Margin: 100
Test date: 2014-12-27 Start time: 9:45:27 End time: 9:48:18
Test duration (min): 2.5 Data file name: H-000326.cts_data
Comment: Running "H"Pattern And 1KHZ Playing
Customer: TPV

Test Result: N/L Source qualification: Normal
THC(A): 0.000 I-THD(%): 0.0 POHC(A): 0.000 POHC Limit(A): 0.000
Highest parameter values during test:

V_RMS (Volts):	230.05	Frequency(Hz):	50.00
I_Peak (Amps):	0.627	I_RMS (Amps):	0.288
I_Fund (Amps):	0.275	Crest Factor:	2.192
Power (Watts):	55.6	Power Factor:	0.844

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.002	0.000	N/A	0.002	0.000	N/A	N/L
3	0.076	0.189	N/A	0.077	0.284	N/A	N/L
4	0.002	0.000	N/A	0.002	0.000	N/A	N/L
5	0.022	0.106	N/A	0.023	0.158	N/A	N/L
6	0.001	0.000	N/A	0.002	0.000	N/A	N/L
7	0.014	0.056	N/A	0.015	0.083	N/A	N/L
8	0.001	0.000	N/A	0.002	0.000	N/A	N/L
9	0.006	0.028	N/A	0.007	0.042	N/A	N/L
10	0.001	0.000	N/A	0.002	0.000	N/A	N/L
11	0.009	0.019	N/A	0.009	0.029	N/A	N/L
12	0.001	0.000	N/A	0.002	0.000	N/A	N/L
13	0.007	0.017	N/A	0.007	0.025	N/A	N/L
14	0.001	0.000	N/A	0.002	0.000	N/A	N/L
15	0.006	0.014	N/A	0.006	0.022	N/A	N/L
16	0.001	0.000	N/A	0.002	0.000	N/A	N/L
17	0.002	0.013	N/A	0.002	0.019	N/A	N/L
18	0.001	0.000	N/A	0.002	0.000	N/A	N/L
19	0.006	0.011	N/A	0.006	0.017	N/A	N/L
20	0.001	0.000	N/A	0.002	0.000	N/A	N/L
21	0.005	0.010	N/A	0.005	0.015	N/A	N/L
22	0.001	0.000	N/A	0.002	0.000	N/A	N/L
23	0.004	0.009	N/A	0.004	0.014	N/A	N/L
24	0.001	0.000	N/A	0.002	0.000	N/A	N/L
25	0.003	0.009	N/A	0.003	0.013	N/A	N/L
26	0.001	0.000	N/A	0.002	0.000	N/A	N/L
27	0.003	0.008	N/A	0.004	0.012	N/A	N/L
28	0.001	0.000	N/A	0.001	0.000	N/A	N/L
29	0.003	0.007	N/A	0.004	0.011	N/A	N/L
30	0.001	0.000	N/A	0.001	0.000	N/A	N/L
31	0.002	0.007	N/A	0.003	0.010	N/A	N/L
32	0.001	0.000	N/A	0.001	0.000	N/A	N/L
33	0.001	0.006	N/A	0.002	0.010	N/A	N/L
34	0.001	0.000	N/A	0.001	0.000	N/A	N/L
35	0.002	0.006	N/A	0.003	0.009	N/A	N/L
36	0.001	0.000	N/A	0.001	0.000	N/A	N/L
37	0.003	0.006	N/A	0.004	0.009	N/A	N/L
38	0.001	0.000	N/A	0.001	0.000	N/A	N/L
39	0.003	0.006	N/A	0.003	0.008	N/A	N/L
40	0.001	0.000	N/A	0.001	0.000	N/A	N/L

Note: The EUT power level is below 75.0 Watts and therefore has no defined limits

Voltage Source Verification Data (Run time)

EUT: 320LM00001 Tested by: SUN
Test category: Class-D per Ed. 4.0 (2014) (European limits) Test Margin: 100
Test date: 2014-12-27 Start time: 9:45:27 End time: 9:48:18
Test duration (min): 2.5 Data file name: H-000326.cts_data
Comment: Running "H"Pattern And 1KHZ Playing
Customer: TPV

Test Result: N/L Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	230.05	Frequency(Hz):	50.00
I_Peak (Amps):	0.627	I_RMS (Amps):	0.288
I_Fund (Amps):	0.275	Crest Factor:	2.192
Power (Watts):	55.6	Power Factor:	0.844

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.089	0.460	19.35	OK
3	0.452	2.070	21.81	OK
4	0.053	0.460	11.61	OK
5	0.041	0.920	4.41	OK
6	0.032	0.460	6.87	OK
7	0.049	0.690	7.16	OK
8	0.011	0.460	2.40	OK
9	0.018	0.460	3.80	OK
10	0.015	0.460	3.17	OK
11	0.012	0.230	5.01	OK
12	0.012	0.230	5.18	OK
13	0.010	0.230	4.32	OK
14	0.005	0.230	2.20	OK
15	0.009	0.230	3.80	OK
16	0.011	0.230	4.59	OK
17	0.009	0.230	3.80	OK
18	0.009	0.230	4.12	OK
19	0.010	0.230	4.15	OK
20	0.008	0.230	3.43	OK
21	0.011	0.230	4.82	OK
22	0.004	0.230	1.55	OK
23	0.006	0.230	2.82	OK
24	0.004	0.230	1.53	OK
25	0.006	0.230	2.81	OK
26	0.003	0.230	1.25	OK
27	0.009	0.230	4.02	OK
28	0.002	0.230	1.02	OK
29	0.006	0.230	2.79	OK
30	0.003	0.230	1.29	OK
31	0.006	0.230	2.39	OK
32	0.003	0.230	1.25	OK
33	0.006	0.230	2.60	OK
34	0.003	0.230	1.21	OK
35	0.007	0.230	3.07	OK
36	0.002	0.230	1.08	OK
37	0.006	0.230	2.44	OK
38	0.003	0.230	1.09	OK
39	0.008	0.230	3.33	OK
40	0.003	0.230	1.33	OK

6. VOLTAGE FLUCTUATIONS & FLICKER TEST

6.1. Test Equipment

Same as Section 5.1.

6.2. Block Diagram of Test Setup

Same as Section 5.2.

6.3. Test Standard

EN 61000-3-3: 2013

6.4. Limits of Voltage Fluctuation and Flick

Test Item	Limit	Note
P_{st}	1.0	P_{st} means Short-term flicker indicator
P_{lt}	0.65	P_{lt} means long-term flicker indicator
T_{max}	500ms	T_{max} means maximum time that d(t) exceeds 3.3%
d_{max}(%)	4%	d_{max} means maximum relative voltage change.
d_c(%)	3.3%	d_c means relative steady-state voltage change.

6.5. EUT Configuration on Test

The configurations of EUT are listed in Section 3.5.

6.6. Operating Condition of EUT

Same as Section 5.6.

6.7. Test Procedure

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal conditions During the flick measurement, the measure time shall include that part of whole operation changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

6.8. Test Results

PASS.

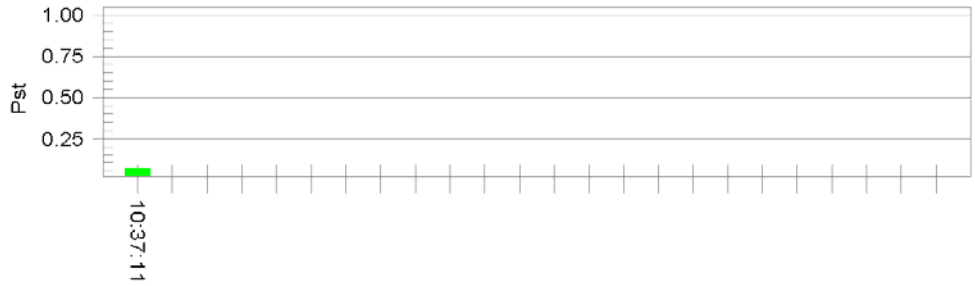
Please refer to the following page.

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

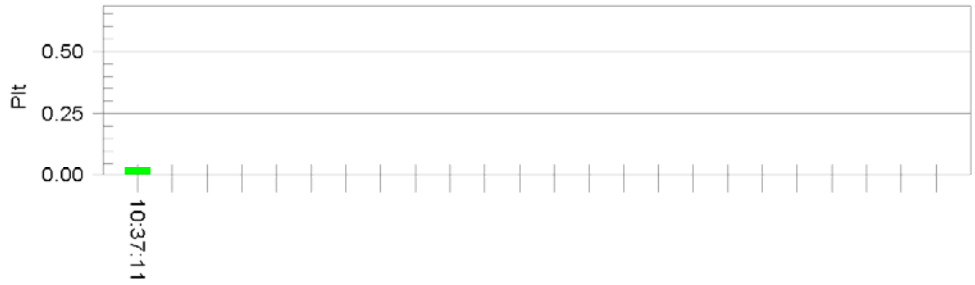
EUT: 320LM00001 Tested by: SUN
Test category: All parameters (European limits) Test Margin: 100
Test date: 2014-12-27 Start time: 10:26:41 End time: 10:37:12
Test duration (min): 10 Data file name: F-000329.cts_data
Comment: Running "H"Pattern And 1KHZ Playing
Customer: TPV

Test Result: Pass Status: Test Completed

Pst_i and limit line European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.87			
Highest dt (%):	0.00	Test limit (%):	N/A	N/A
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650	Pass

7. IMMUNITY PERFORMANCE CRITERIA

Performance Level

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level by its manufacturer or the requestor of the test, or the agreed between the manufacturer and the purchaser of the product.

Definition related to the performance level:
1. Based on the used product standard
2. Based on the declaration of the manufacturer, requestor or purchaser

Performance criterion A

When seen from the normal viewing distance, the EUT shall operate with no change beyond the manufacturer's specification, in flicker, colour, focus and jitter (except for the power frequency magnetic field test).

Power frequency magnetic field test

For CRT monitors, the following also applies:
The jitter shall be measured using a measuring microscope as specified in 6.6.14 of ISO 9241-3.

The jitter (in mm) shall not exceed the value $\frac{(\text{character height in mm} + 0{,}3) \text{ x } 2{,}5}{33{,}3}$ when the monitor is immersed in a continuous magnetic field of 1A/m (r.m.s.) at one of the power frequencies of 50Hz.

Alternatively, a field of 50A/m may be applied, and a transparent graduated mask used to assess the jitter. In that case, the jitter shall not exceed 50 times the value in the above formula.

NOTE-This test level is used to simplify the measurement of jitter. Lesser values of the test level may be used if non-linearity is experienced, due to, for example, saturation of screening material.

The EUT shall be tested in two positions, both perpendicular to the magnetic field.

Performance criterion B

Screen disturbances during the application of the test are permissible.

Performance criterion C

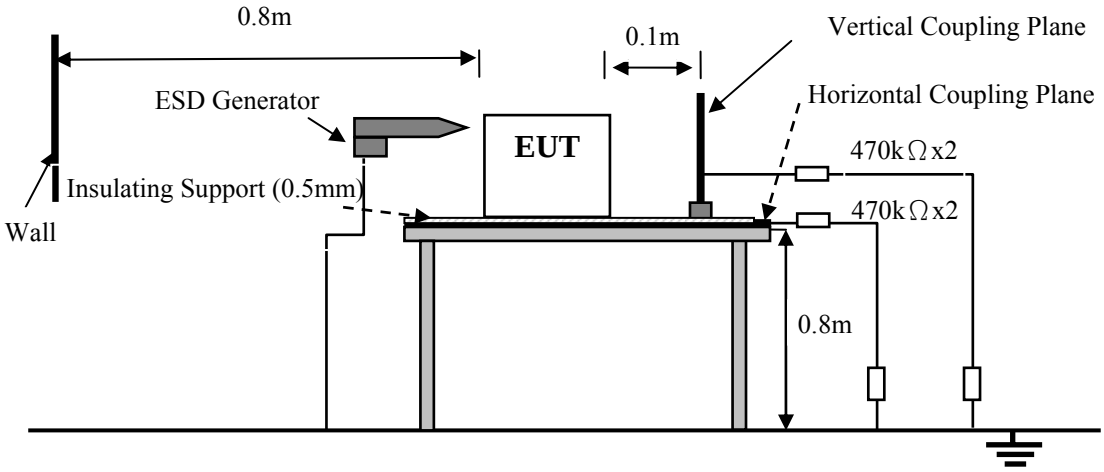
Failures which are not self-recovered after removal of the external disturbance, but which can be recovered to normal operation by reset or reboot are permissible.

8. ELECTROSTATIC DISCHARGE IMMUNITY TEST

8.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	ESD Tester	EM Test	Dito	P1349126669	Jun. 05,14	1 Year

8.2. Block Diagram of Test Setup



8.3. Test Standard

EN 55024: 2010
EN 55024: 2010+A1:2015 (IEC 61000-4-2: 2008)
(Severity Level 1 & 2 & 3 for Air Discharge at 2 kV & 4 kV & 8kV,
Severity Level 1 & 2 for Contact Discharge at 2 kV & 4kV

8.4. Severity Levels and Performance Criterion

Severity Level	Test Voltage Contact Discharge (kV)	Test Voltage Air Discharge (kV)	Performance criterion
1.	2	2	B
2.	4	4	
3.	6	8	
4.	8	15	
X	Special	Special	

8.5. EUT Configuration

The configurations of EUT are listed in Section 3.5.

8.6. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 8.2.

8.7. Test Procedure

8.7.1. Air Discharge**:**

The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 20 times for each pre-selected test point. This procedure was repeated until all the air discharge completed

8.7.2. Contact Discharge**:**

All the procedure was same as Section 8.7.1. except that the generator was re-triggered for a new single discharge and repeated 50 times for each pre-selected test point. The tip of the discharge electrode was touching the EUT before the discharge switch was operated.

8.7.3. Indirect discharge for horizontal coupling plane**:**

At least 25 single discharges were applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

8.7.4. Indirect discharge for vertical coupling plane**:**

At least 25 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, was placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

8.8. Test Results

PASS.

The EUT was tested and all the test results are listed in next page.

Electrostatic Discharge Test Results

Audix Technology (Shenzhen) Co., Ltd.

Applicant	:	TPV Electronics (FuJian) Co., Ltd.	Test Date	:	Dec.19, 2014
EUT	:	LCD Monitor	Temperature	:	23.4±0.6℃
M/N	:	320LM00001	Humidity	:	39±3%
Test Voltage	:	AC 230V/50Hz	Test Mode	:	As section 3.6
Test Engineer	:	Sun	Pressure	:	101.2±1kPa
Required Performance	:	B	Actual Performance	:	A&B*

Air Discharge: ±2kV ±4kV ±8kV # For Air Discharge each Point Positive 10 times and negative 10 times discharge.

Contact Discharge: ±2kV ±4kV # For Contact Discharge each point positive 25 times and negative 25 times discharge

For the time interval between successive single discharges an initial value of one second.

Discharge Voltage (kV)	Type of discharge	Dischargeable Points	Performance		Result
			Required	Observation	(Pass/Fail)
±2	Contact	4,5,7,8,9,11	B	A	**Pass**
±4	Contact	4,5,7,8,9,11	B	B*	**Pass**
±2	Air	1,2,3,6,7,8,9,10,11,12	B	A	**Pass**
±4	Air	1,2,3,6,7,8,9,10,11,12	B	A	**Pass**
±8	Air	1,2,3,6,7,8,9,10,11,12	B	B*	**Pass**
±2	HCP-Bottom	Edge of the HCP	B	A	**Pass**
±2	VCP-Front	Center of the VCP	B	A	**Pass**
±2	VCP-Left	Center of the VCP	B	A	**Pass**
±2	VCP-Back	Center of the VCP	B	A	**Pass**
±2	VCP-Right	Center of the VCP	B	A	**Pass**
±4	HCP-Bottom	Edge of the HCP	B	A	**Pass**
±4	VCP-Front	Center of the VCP	B	A	**Pass**
±4	VCP-Left	Center of the VCP	B	A	**Pass**
±4	VCP-Back	Center of the VCP	B	A	**Pass**
±4	VCP-Right	Center of the VCP	B	A	**Pass**

Discharge Points Description

1	Slots	7	USB Ports
2	Buttons	8	Display Port
3	Screen	9	HDMI Port
4	Screws	10	AC In Port
5	Metal	11	VGA Port
6	Audio In Port	12	Key Lock

Remark: The Class "B*" Means the monitor will twinkle and have noise during test, but recover to normal when stop test.

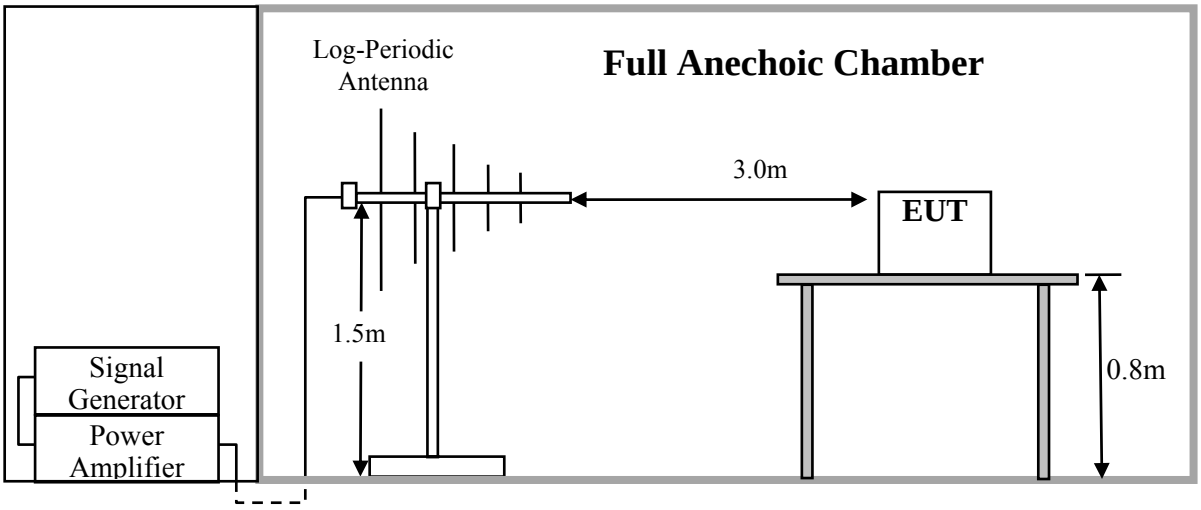
After discharge to the ungrounded part of EUT, it needs the bleeder resistor to remove the charge prior to next ESD pulse. Discharge was considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

9. RF FIELD STRENGTH SUSCEPTIBILITY TEST

9.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	2#Chamber	AUDIX	N/A	N/A	Apr. 28,14	1Year
2.	Signal Generator	Agilent	N5181A	MY49061013	Oct. 29,14	1Year
3	Amplifier	A&R	100W/1000 M1	17028	NCR	NCR
4.	Power Meter	Anritsu	ML2487A	6K00002472	Aug. 20,14	1Year
5.	Power Sensor	Anritsu	MA2491A	032516	Aug. 20,14	1Year
6.	Log-periodic Antenna	A&R	AT1080	16512	NCR	NCR
NCR: No Calibration required (Calibrated with system)						

9.2. Block Diagram of Test Setup



9.3. Test Standard

EN 55024: 2010
EN 55024: 2010+A1:2015 (IEC 61000-4-3: 2010)
(Severity Level: 2 at 3V / m)

9.4. Test Severity Level and Performance Criterion

Severity Level	Test Field Strength V/m	Performance Criteria
1.	1	**A**
2.	3	
3.	10	
X.	Special	

9.5. EUT Configuration

The configurations of EUT are listed in Section 3.5.

9.6. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 9.2.

9.7. Test Procedure

Testing was performed in a Fully anechoic chamber as recommended by IEC 61000-4-3. The EUT was placed on an 80 cm high non-conductive table located in the area of field uniformity. The radiating antenna was placed 3m in front of the EUT and Support system, and dwell time of the radiated interference was controlled by an automated, computer-controlled system. The signal source was stepped through the applicable frequency range at a rate no faster than 1% of the fundamental. The signal was amplitude modulated 80% over the frequency range 80 MHz to 1GHz at a level of 3 V/m. The dwell time was set at 3 s. Field presence was monitored during testing via a field probe placed in close proximity to the EUT. Throughout testing, the EUT was closely monitored for signs of susceptibility. The test was performed with the antennae oriented in both a horizontal and vertical polarization.

All the scanning conditions are as follows:

Test conditions	
Frequency	80MHz-1GHz
Frequency increments step	1% of momentary used
Test level	3V/m (unmodulated)
Dwell time	3s
Test signal	80% amplitude modulated by 1kHz sinusoidal audio signal

9.8. Test Results

PASS.

The EUT was tested and all the test results are listed in next page.

RF Field Strength Susceptibility Test Results

Audix Technology(Shenzhen) Co.,Ltd.

Applicant	:	TPV Electronics (FuJian) Co., Ltd.	Test Date	:	Jan.15, 2015
EUT	:	LCD Monitor	Temperature	:	24±0.6℃
M/N	:	320LM00001	Humidity	:	53±3%
Test Voltage	:	AC 230V/50Hz	Pressure	:	101.5±1KPa
Test Engineer	:	Mark	Test Mode	:	As section 3.6
Required Performance	:	A	Actual Performance	:	A

Modulation: ☑ AM ☐ Pulse ☐ none 1 kHz 80%

Frequency Range :80 MHz -1000MHz

	Horizontal		Vertical		Result
	Required	Observation	Required	Observation	(Pass / Fail)
Front	A	A	A	A	Pass
Right	A	A	A	A	Pass
Rear	A	A	A	A	Pass
Left	A	A	A	A	Pass

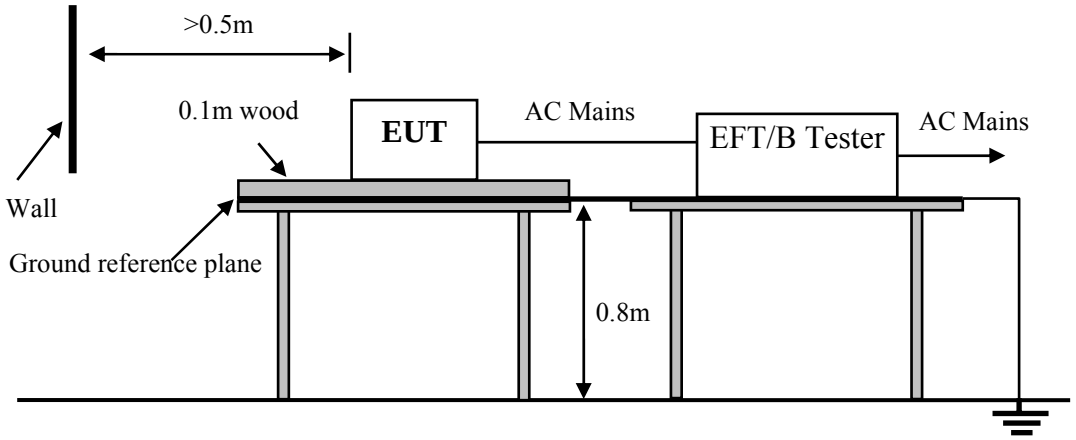
Remark:

10. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

10.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst Tester	TESEQ	NSG3025	28017	Apr. 28,14	1 Year
2.	CDN	TESEQ	CDN8014	29638	Apr. 28,14	1 Year

10.2. Block Diagram of Test Setup



10.3. Test Standard

EN 55024: 2010
EN 55024: 2010+A1:2015 (IEC 61000-4-4: 2012)
(Severity Level 1&2 at 0.5kV&1kV)

10.4. Severity Levels and Performance Criterion

Open Circuit Output Test Voltage ±10%			
Severity Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines	Performance criterion
1.	0.5 kV	0.25 kV	B
2.	1 kV	0.5 kV	
3.	2 kV	1 kV	
4.	4 kV	2 kV	
X	Special	Special	

10.5. EUT Configuration

The configurations of EUT are listed in Section 3.5.

10.6. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 10.2.

10.7. Test Procedure

The EUT and its simulators were placed on the ground reference plane and were insulated from it by a wood support 0.1m ± 0.01m thick. The ground reference plane was 1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane was project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane was more than 0.5m. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables.

10.7.1. For input and AC power ports**:**

The EUT was connected to the power mains by using a coupling device that couples the EFT interference signal to AC power lines. Both positive transients and negative transients of test voltage were applied during compliance test and the duration of the test can't less than 1min.

10.7.2. For signal lines and control lines ports**:**

It's unnecessary to test.

10.7.3. For DC input and DC output power ports**:**

It's unnecessary to test.

10.8. Test Results

PASS.

The EUT was tested and all the test results are listed in next page.

Electrical Fast Transient/Burst Test Results

Audix Technology (Shenzhen) Co., Ltd.

Applicant	:	TPV Electronics (FuJian) Co., Ltd.	Test Date	:	Dec.27, 2014
EUT	:	LCD Monitor	Temperature	:	22.1±0.6℃
M/N	:	320LM00001	Humidity	:	49±3%
Test Voltage	:	AC 230V/50Hz	Test Mode	:	As section 3.6
Test Engineer	:	Sun	Pressure	:	101.1±1kPa
Required Performance	:	B	Actual Performance	:	A & B*

Repetition Frequency : 5 kHz Burst Duration : 15ms Burst Period: 300ms

Inject Time(s): 120s Inject Method: Direct

Inject Line: ☑ AC Mains ☐ DC Supply ☐ Signal

Line	Test Voltage	Performance			Result
		Required	Observation(+)	Observation(-)	(Pass/Fail)
L	0.5kV	B	A	A	Pass
	1kV	B	B*	B*	Pass
N	0.5kV	B	A	A	Pass
	1kV	B	B*	B*	Pass
PE	0.5kV	B	A	A	Pass
	1kV	B	B*	B*	Pass
L N	0.5kV	B	A	A	Pass
	1kV	B	B*	B*	Pass
L PE	0.5kV	B	A	A	Pass
	1kV	B	B*	B*	Pass
N PE	0.5kV	B	A	A	Pass
	1kV	B	B*	B*	Pass
L N PE	0.5kV	B	A	A	Pass
	1kV	B	B*	B*	Pass
Signal Line	---	---	---	---	---

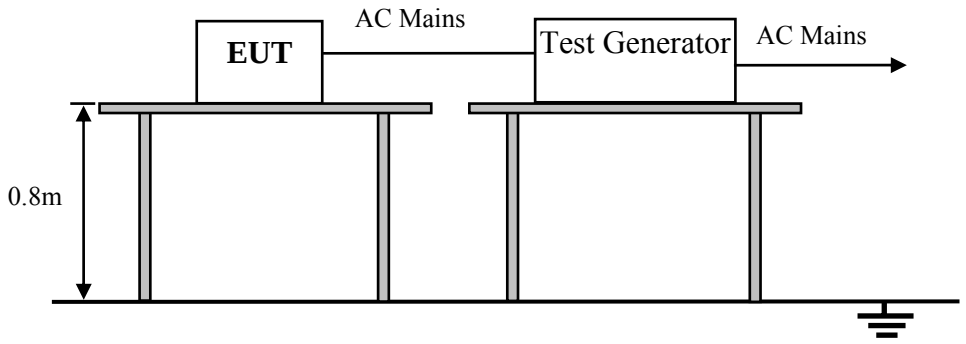
Remark: The class “B*” Means the monitor will twinkle and the data transmitting will delay during test, but it can recover to normal by self when stop test.

11. SURGE TEST

11.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Transient Test System	EMC PARTNER	TRANSIENT 2000	TRA2006 F-S-T-D-R -1500	Oct.26, 14	1 Year
2	CDN	EMC PARTNER	CDN-UTP8	CDN-UTP8-1 508	Oct.26, 14	1 Year
3	CDN	EMC PARTNER	CDN2000-06-25	CDN2000-06 -25 0111	Oct.26, 14	1 Year

11.2. Block Diagram of Test Setup



11.3. Test Standard

EN 55024: 2010
EN 55024: 2010+A1:2015 (IEC 61000-4-5: 2014)
(Severity Level**:** Line to Line was Level 1 at 0.5kV & Line to Line was Level 2 at 1kV & Line to Line was Level 3 at 2kV)

11.4. Severity Levels and Performance Criterion

Severity Level	Open-Circuit Test Voltage kV	Performance criterion
1	0.5	B
2	1.0	
3	2.0	
4	4.0	
*	Special	

11.5. EUT Configuration

The configurations of EUT are listed in Section 3.5.

11.6. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 11.2

11.7. Test Procedure

1) Set up the EUT and test generator as shown on Section 11.2.
2) For line-to-line coupling mode, provide a 1kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points, and for active line / neutral lines to ground are same except test level is 2kV.
3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are applied during test.
4) Different phase angles are done individually.
5) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

11.8. Test Results

PASS.

The EUT was tested and all the test results are listed in next page.

Surge Immunity Test Results

Audix Technology (Shenzhen) Co., Ltd.

Applicant	:	TPV Electronics (FuJian) Co., Ltd.	Test Date	:	Dec.27, 2014
EUT	:	LCD Monitor	Temperature	:	23±0.6℃
M/N	:	320LM00001	Humidity	:	41±3%
Power Supply	:	AC 230V/50Hz	Test Mode	:	As section 3.6
Test Engineer	:	Sun	Pressure	:	101.2±1kPa
Required Performance	:	B	Actual Performance	:	A & B*

No.of pluse: ±5 Interval:60 Seconds

Line : ☑ AC Mains ☐ DC Supply ☐ Signal

Location	Volt	500V			1kV			2kV			Result
	Phase	Performance			Performance			Performance			(Pass/Fail)
		Required	+	-	Required	+	-	Required	+	-	
L-N	0°	B	A	A	B	A	A	---	---	---	Pass
	90°	B	A	A	B	A	A	---	---	---	Pass
	180°	B	A	A	B	A	A	---	---	---	Pass
	270°	B	A	A	B	A	A	---	---	---	Pass
L-PE	0°	B	A	A	B	A	A	B	B*	B*	Pass
	90°	B	A	A	B	A	A	B	B*	B*	Pass
	180°	B	A	A	B	A	A	B	B*	B*	Pass
	270°	B	A	A	B	A	A	B	B*	B*	Pass
N-PE	0°	B	A	A	B	A	A	B	B*	B*	Pass
	90°	B	A	A	B	A	A	B	B*	B*	Pass
	180°	B	A	A	B	A	A	B	B*	B*	Pass
	270°	B	A	A	B	A	A	B	B*	B*	Pass
Signal Line	---	---	---	---	---	---	---	---	---	---	---

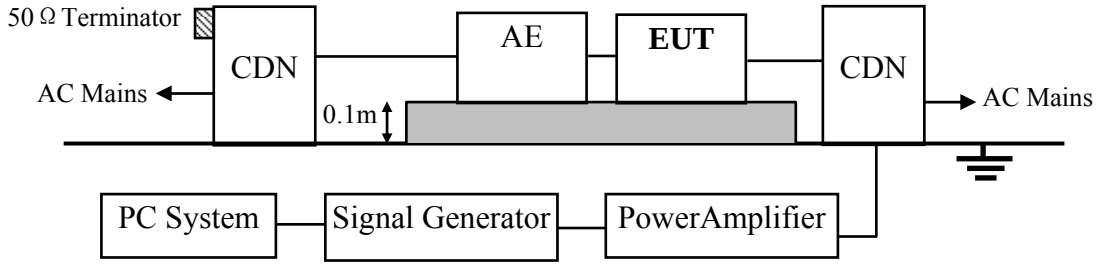
Remark: The class "B*" Means the monitor will twinkle during test, but recover to normal when stop test.

12. INJECTED CURRENTS SUSCEPTIBILITY TEST

12.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	Agilent	N5181A	MY49061013	Oct. 29, 14	1 Year
2.	Amplifier	AR	25A250A	19152	NCR	NCR
3.	Amplifier	AR	100A250	19368	NCR	NCR
4.	Power meter	HP	436A	2016A07891	Apr. 28,14	1Year
5.	Power sensor	Agilent	8482B	MY41090514	Nov. 06, 14	1Year
6.	CDN	FCC	FCC-801-M2-25	47	Apr. 28,14	1 Year
7.	CDN	FCC	FCC-801-M3-25	107	Apr. 28,14	1 Year
8.	CDN	FCC	FCC-801-M2-25	07035	Apr. 28,14	1 Year
9.	CDN	FCC	FCC-801-M3-25	07045	Apr. 28,14	1 Year
10.	PC	N/A	N/A	N/A	N/A	N/A
11.	Attenuator	Weinschel	40-6-34	LJ092	Apr. 28,14	1 Year
12.	EM Injection Clamp	FCC	F-203I-23mm	403	Apr. 28,14	1 Year
13.	RF Cable	MICABLE	A04-07-07-2M	09111340	NCR	NCR
14.	RF Cable	STORM	MFR-57500	90-195-2MTR	NCR	NCR
NCR: No Calibration required (Calibrated with system)						

12.2. Block Diagram of Test Setup



12.3. Test Standard

EN 55024: 2010
EN 55024: 2010+A1:2015 (IEC 61000-4-6: 2013)
(Severity Level 2 at 3V (r.m.s.) and frequency is from 0.15MHz to 80MHz)

12.4. Severity Levels and Performance Criterion

Severity Level	Voltage Level (e.m.f.) V	Performance criterion
1	1	A
2	3	
3	10	
X	Special	

12.5. EUT Configuration

The configurations of EUT are listed in Section 3.5.

12.6. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 12.2.

12.7. Test Procedure

1) Set up the EUT, CDN and test generators as shown on Section 12.2.
2) Let the EUT work in test mode and test it.
3) The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 10 and 30 mm (where possible).
4) The disturbance signal described below is injected to EUT through CDN.
5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
6) The frequency range is swept from 0.150MHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.
7) The rate of sweep shall not exceed $1.5*10^{-3}$decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

12.8. Test Results

PASS.

The EUT was tested and all the test results are listed in next page.

Injected Currents Susceptibility Test Results

Audix Technology (Shenzhen)Co.,Ltd.

Applicant	:	TPV Electronics (FuJian) Co., Ltd.	Test Date	:	Jan.15, 2015
EUT	:	LCD Monitor	Temperature	:	24±0.6℃
M/N	:	320LM00001	Humidity	:	53±3%
Power Supply	:	AC 230V/50Hz	Test Mode	:	As section 3.6
Test Engineer	:	Donjon	Pressure	:	101.4±1kPa
Required Performance	:	A	Actual Performance	:	A

Frequency Range (MHz)	Injected Position	Voltage Level (e.m.f.)	Required	Observation	Result (Pass / Fail)
0.15 ~ 20	AC Mains	3V	A	A	PASS
20 ~ 80	AC Mains	3V	A	A	PASS

Modulation Signal:1kHz 80% AM

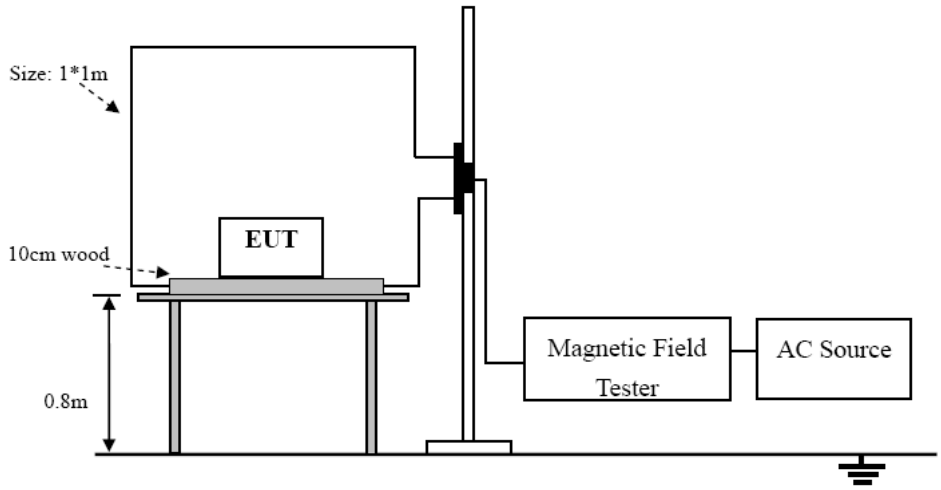
Remark:

13. MAGNETIC FIELD IMMUNITY TEST

13.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Magnetic Field Tester	HEAFELY	MAG100.1	083858-10	Apr. 28,14	1 Year

13.2. Block Diagram of Test Setup



13.3. Test Standard

EN 55024: 2010
EN 55024: 2010+A1:2015 (IEC 61000-4-8: 2009)
(Severity Level 1 at 1A/m)

13.4. Severity Levels and Performance Criterion

Severity Level	Magnetic Field Strength A/m	Performance criterion
1.	1	A
2.	3	
3.	10	
4.	30	
5.	100	
X.	Special	

13.5. EUT Configuration on Test

The configurations of EUT are listed in Section 3.5.

13.6. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 13.2.

13.7. Test Procedure

The EUT was subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 13.2. The induction coil was then rotated by 90° in order to expose the EUT to the test field with different orientations.

13.8. Test Results

PASS.

The EUT was tested and all the test results are listed in next page.

Magnetic Field Immunity Test Results

Audix Technology (Shenzhen) Co., Ltd.

Applicant	:	TPV Electronics (FuJian) Co., Ltd.	Test Date	:	Jan.15, 2015
EUT	:	LCD Monitor	Temperature	:	24±0.6℃
M/N	:	320LM00001	Humidity	:	53±3%
Test Voltage	:	AC 230V/50Hz	Test Mode	:	As section 3.6
Test Engineer	:	Donjon	Pressure	:	101.4±1kPa
Required Performance	:	A	Actual Performance	:	A

Test Level	Testing Duration	Coil Orientation	Required	Observation	Result (Pass/Fail)
1A/m	5 min / coil	X	A	A	PASS
1A/m	5 min / coil	Y	A	A	PASS
1A/m	5 min / coil	Z	A	A	PASS

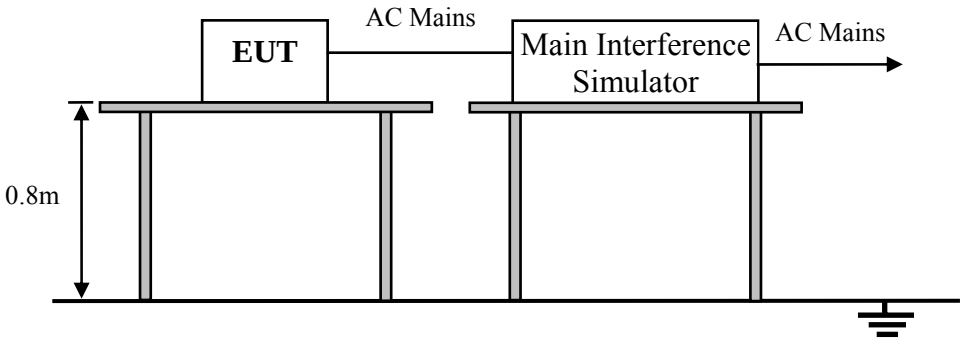
Remark:

14. VOLTAGE DIPS AND INTERRUPTIONS TEST

14.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Main Interference Simulator	HAEFELY	PLINE 1610	083690-05	Apr. 28,14	1 Year

14.2. Block Diagram of Test Setup



14.3. Test Standard

EN 55024: 2010
EN 55024: 2010+A1:2015 (IEC 61000-4-11: 2004)

14.4. Severity Levels and Performance Criterion

Test Level %U_T	Voltage dip and short interruptions %U_T	Duration (in period)	Performance Criterion
0	100	250	C
0	100	0.5	B
70	30	25	C

14.5. EUT Configuration

The configurations of EUT are listed in Section 3.5.

14.6. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 14.2.

14.7. Test Procedure

1) The EUT and test generator were setup as shown on Section 14.2.
2) The interruption is introduced at selected phase angles with specified duration.
3) Record any degradation of performance.

14.8. Test Results

PASS.

The EUT was tested and all the test results are listed in next page.

Voltage Dips And Interruptions Test Results

Audix Technology (Shenzhen) Co., Ltd.

Applicant	:	TPV Electronics (FuJian) Co., Ltd.	Test Date	:	Jan.15, 2015
EUT	:	LCD Monitor	Temperature	:	24±0.6℃
M/N	:	320LM00001	Humidity	:	53±3%
Power Supply	:	AC 230V/50Hz & AC 100V/50Hz	Test Mode	:	As section 3.6
Test Engineer	:	Donjon	Pressure	:	101.4±1kPa
Required Performance	:	B & C	Actual Performance	:	A & C*

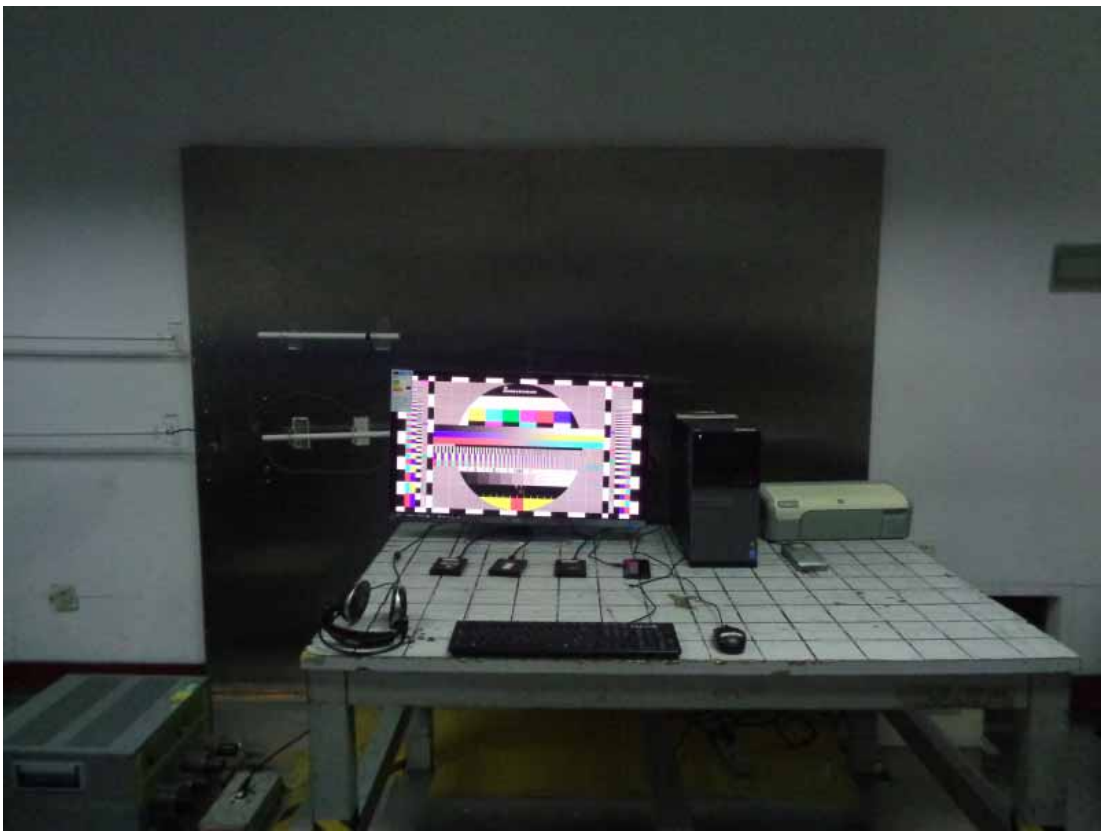
Test Level % U_T	Voltage Dips & Short Interruptions % U_T	Duration (in period)	Phase Angle	Required	Observation	Result (Pass / Fail)
0	100	0.5P	0°,90°,180°,270°	B	A	PASS
70	30	25P	0°,90°,180°,270°	C	A	PASS
0	100	250P	0°,90°,180°,270°	C	C*	PASS

Note 1: U_T is the rated voltage for the equipment.
Note 2:The frequency of the test voltage shall be within ±2% of the rated frequency, the output voltage shall be within ±5% of the rated voltage.

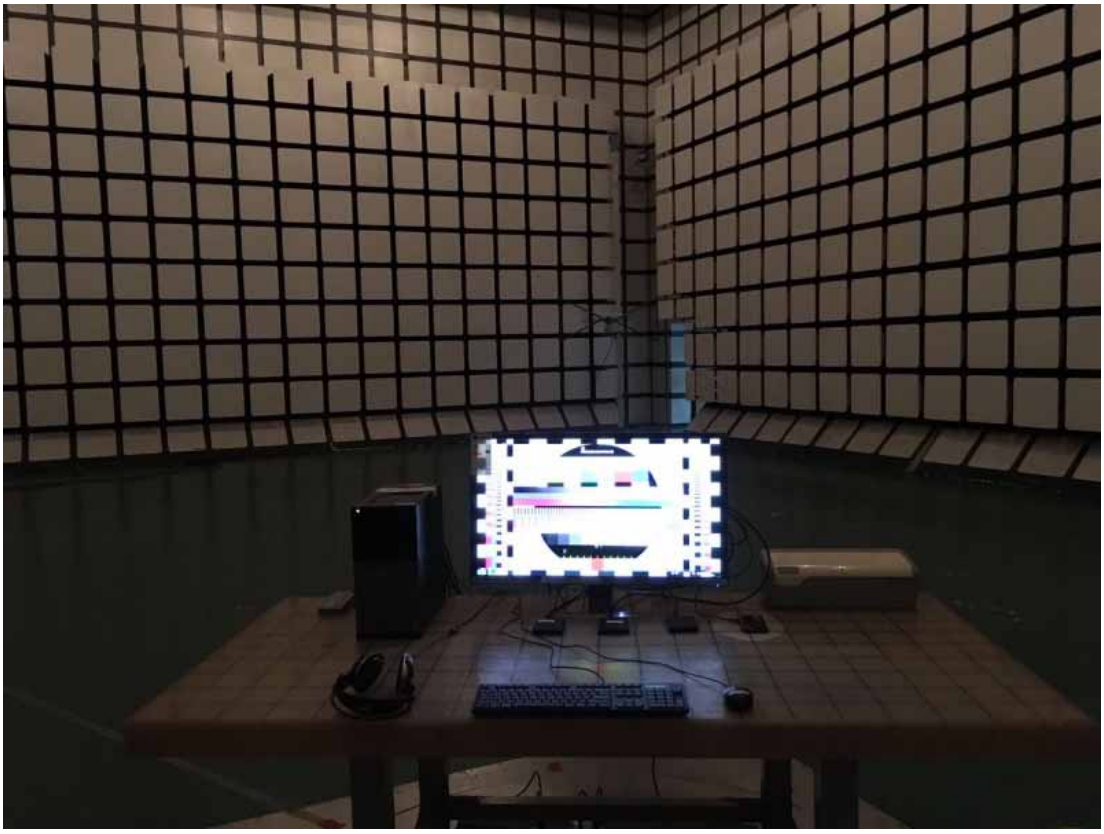
Remark: The class "C*" means the EUT will restart, and the data transmitting will interrupt during test, it need to recover by manual.

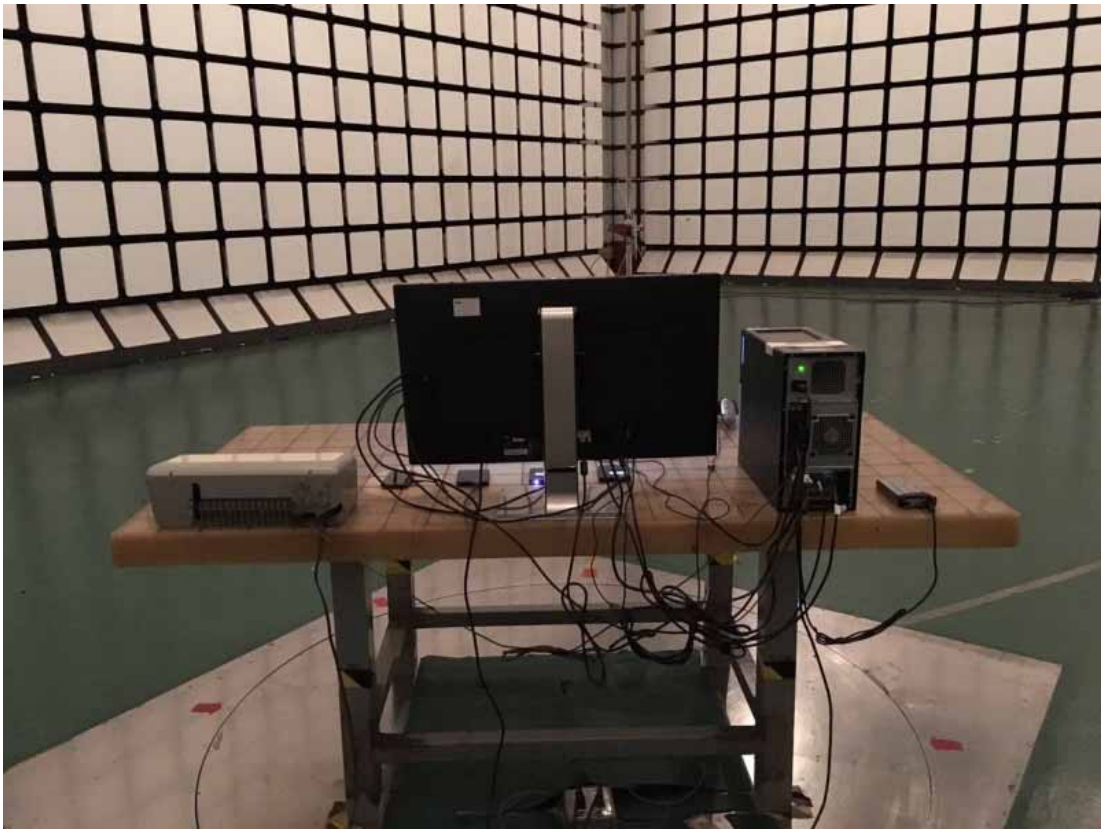
15. PHOTOGRAPHS

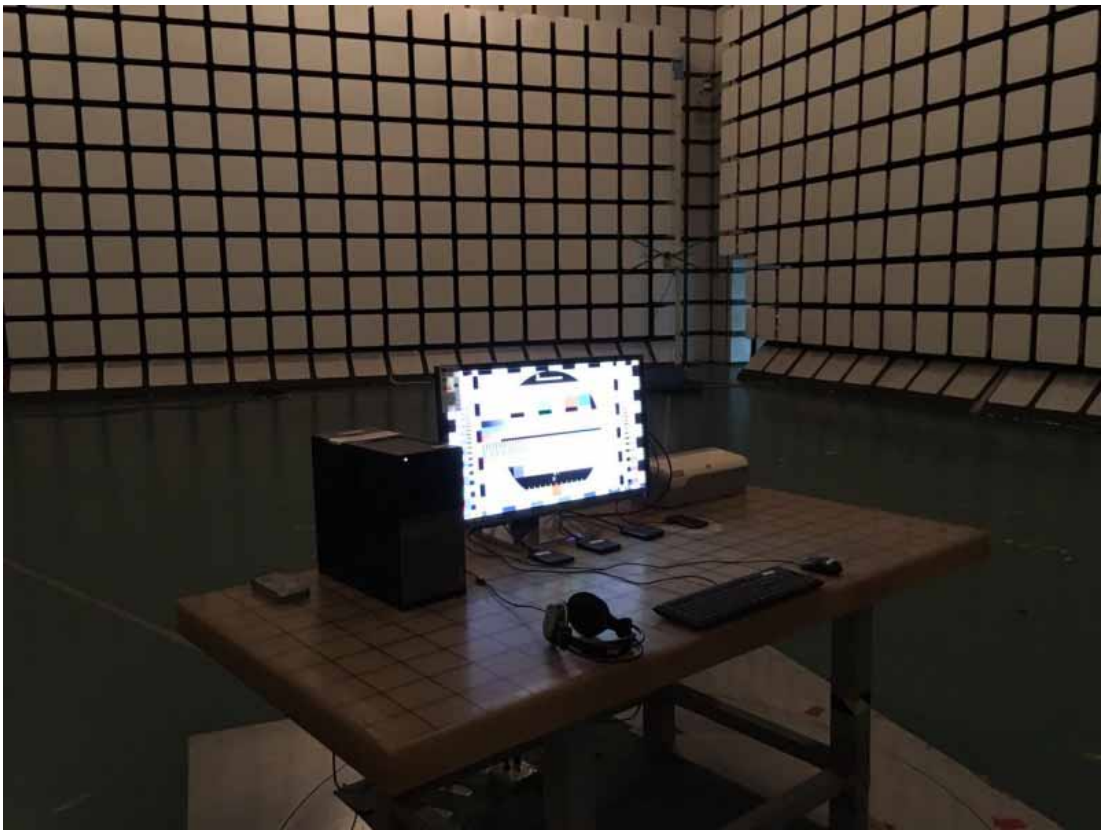
15.1. Photos of Power Line Conducted Emission Test

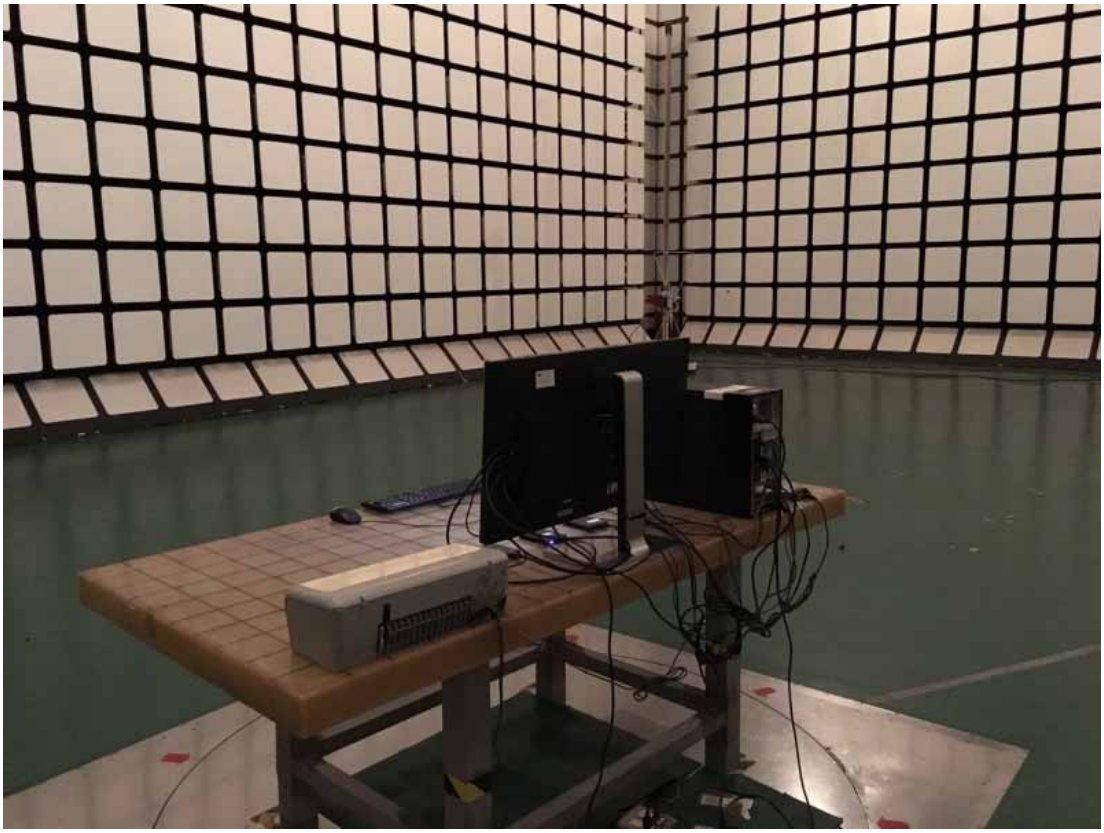


15.2. Photos of Radiated Emission Test (In Anechoic Chamber)

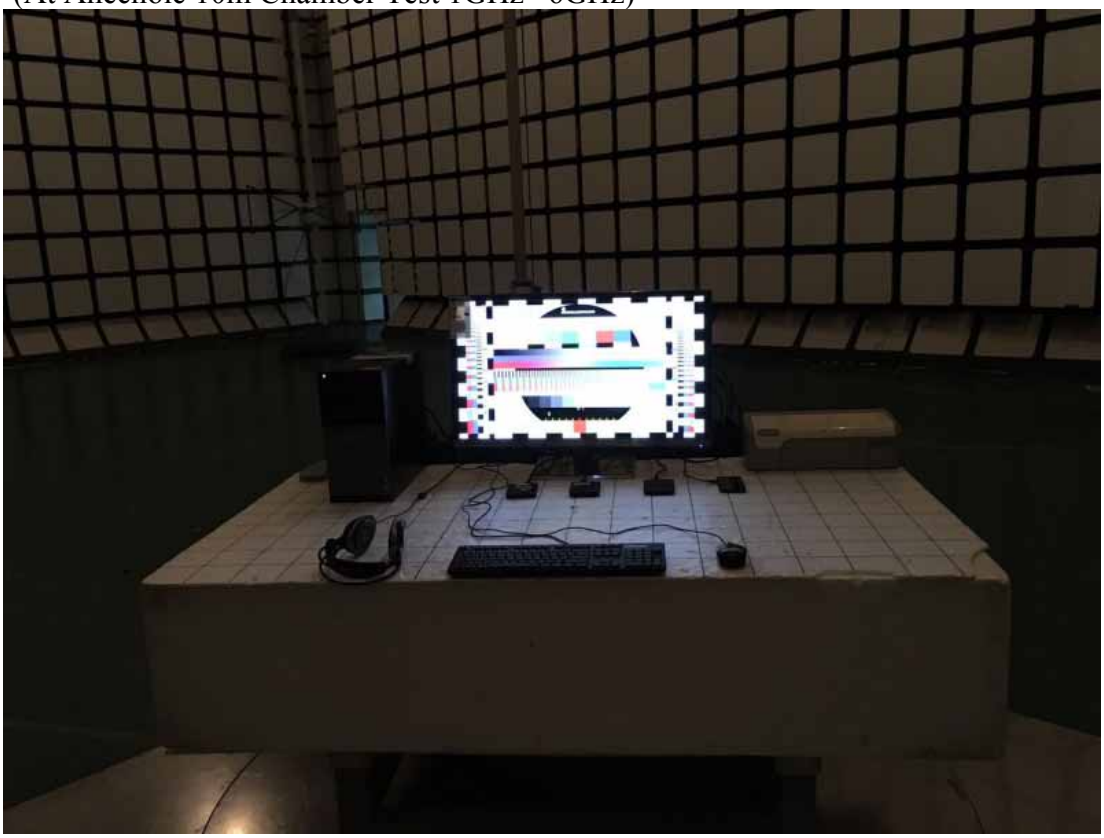




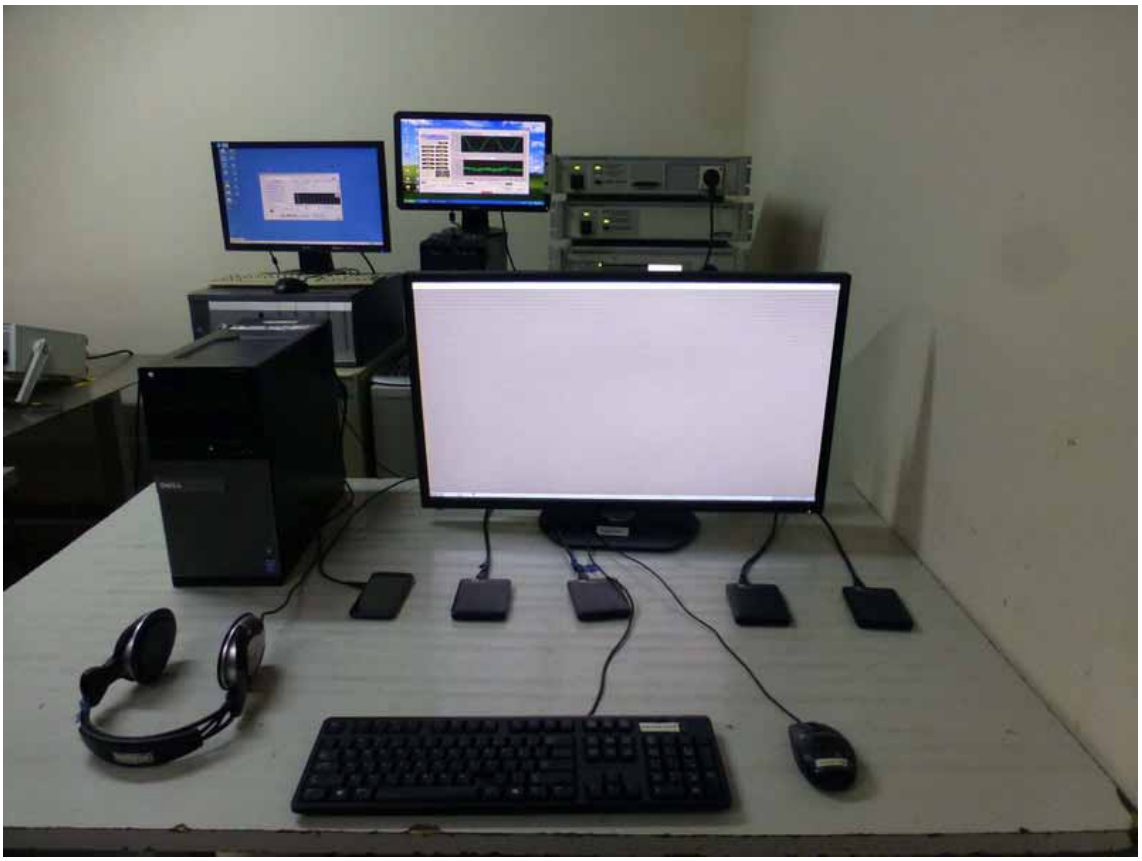




(At Anechoic 10m Chamber Test 1GHz –6GHz)



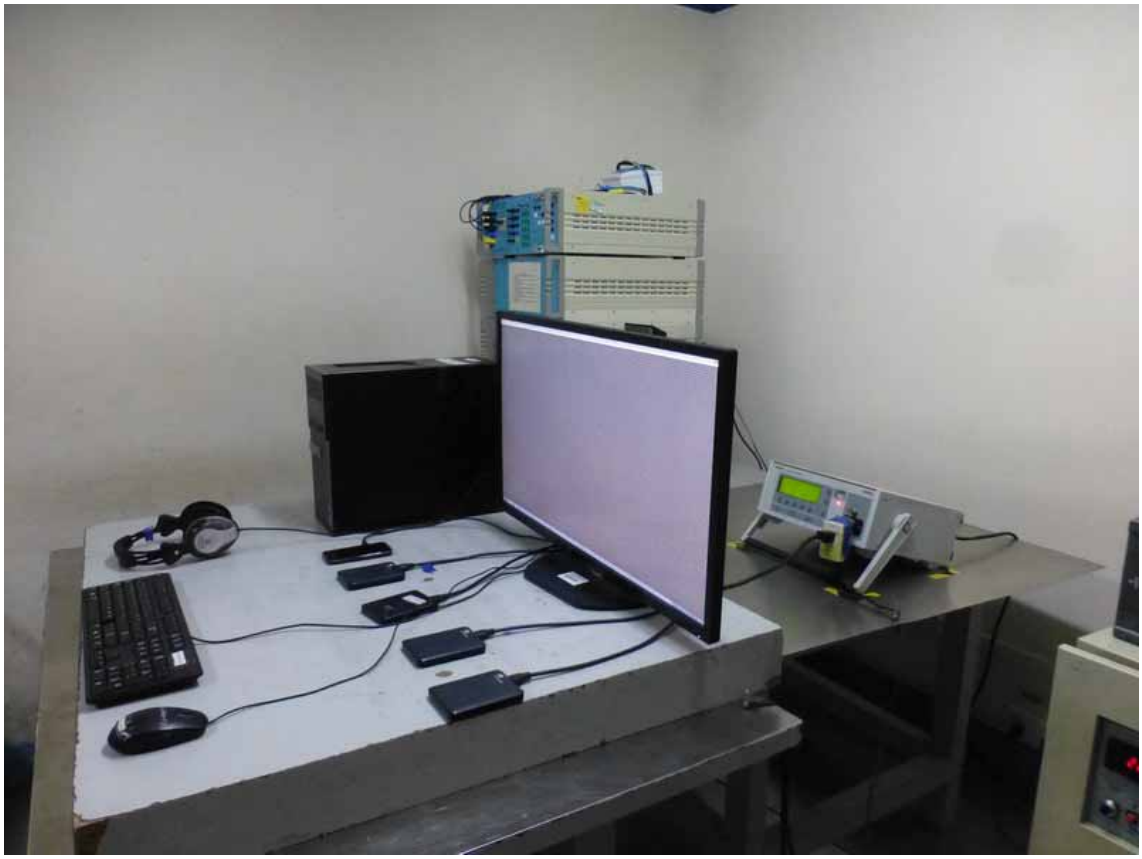
15.3. Photo of Harmonic / Flicker Test



15.4. Photos of Electrostatic Discharge Immunity Test

15.5. Photo of RF Strength Susceptibility Test

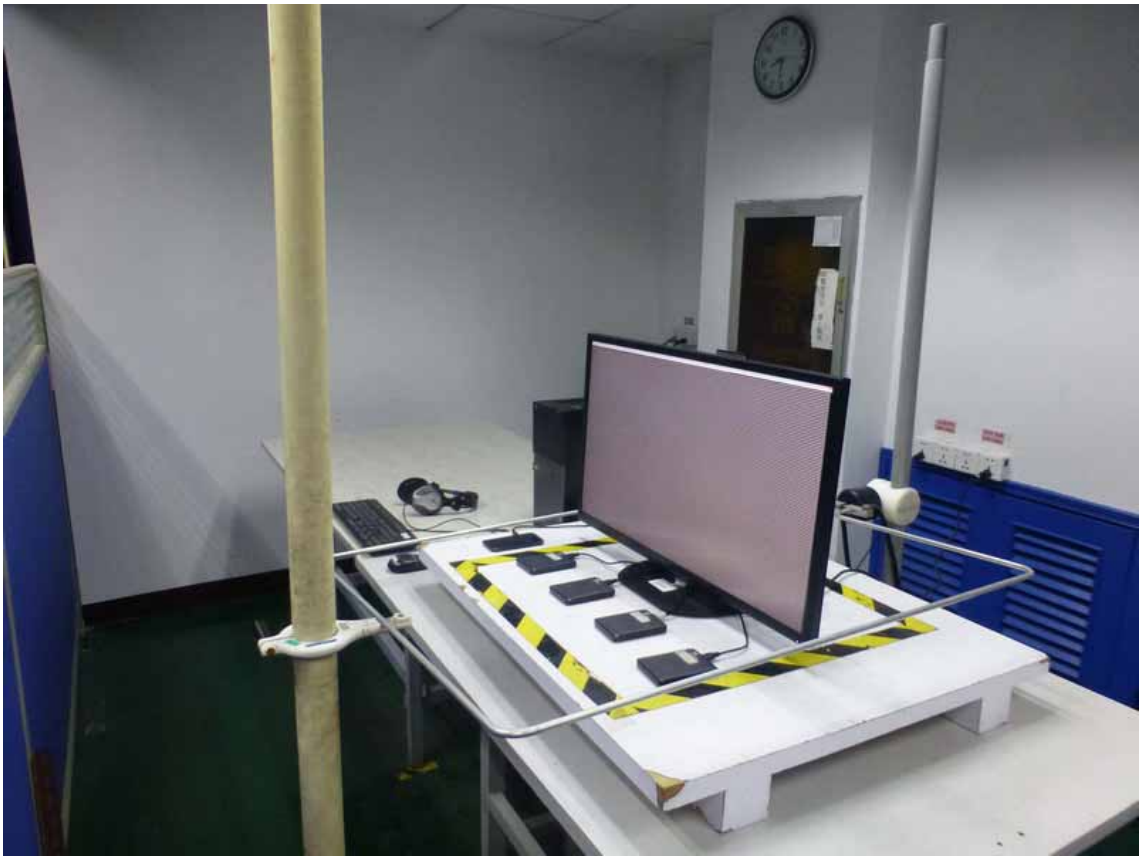
15.6. Photo of Electrical Fast Transient/Burst Immunity Test



15.7. Photo of Surge Test

15.8. Photo of Injected Currents Susceptibility Test

15.9. Photo of Magnetic Field Test



15.10. Photo of Voltage Dips and interruptions test