TEST REPORT

Product: LCD Monitor
Model: (1)270LM00040 (2)PDS271***
Brand: AOC

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

Prepared by:
AUDIX Technology Corporation, EMC Department
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New Taipei City 244, Taiwan

TESTING
NVLAP LAB CODE 200077-0

File No.	:	C1M1703395
Report No.	:	EM-E170467
Date of Report	:	2017. 04. 25

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.
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.

Test Report

Applicant	:	TPV Electronics (FuJian) Co., Ltd
EUT Description		
(1) Product	:	LCD Monitor
(2) Model	:	(1)270LM00040 (2)PDS271***
(3) Brand	:	AOC
(4) Power Supply	:	AC 100-240V, 50/60Hz

Applicable Standards:
EN 55032:2012 +AC:2013 (CISPR 32:2012)
AS/NZS CISPR 32:2013 (CISPR 32:2012)
EN 61000-3-2:2014 and EN 61000-3-3:2013
EN 55024:2010
(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 was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device, its ensured severity levels, and performance criterion. This test report contains the measurement results, and AUDIX Technology Corporation assumes full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is technically compliance with the requirements of EN 55032、EN 61000-3-2, -3 and EN 55024 standards.

This report applies to above tested sample only and shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Report: 2017. 04. 25

Reviewed by: (Kitty Ni/Section Manager)

Approved by: (Alex Deng/Deputy Manager)

Table of Content

1. Revision of Test Report 6
2. Summary of Test Result 7
2.1. Test Result 7
2.2. Description of Performance Criteria 9
2.3. Description of Test Firm 10
3. General Information 11
3.1. Description of Application 11
3.2. Description of the EUT 11
3.3. List of Key Components of EUT 12
3.4. Highest Frequency within EUT 12
3.5. Determination of Worse Case Operating Modes 13
3.6. Final Test Configuration 15
4. Measurement Arrangement 16
4.1. Equipment and cables arrangement 16
4.2. Method of Exercising EUT 17
4.3. List of Supported Units under Test 18
4.4. List of Used Cables under Test 18
5. Measurement of Conducted Emissions 19
5.1. List of Test Instruments 19
5.2. Test Setup 20
5.3. Applicable Limits 21
5.4. Measurement Procedure 22
5.5. Measurement Result 26
6. Measurement of Radiated Emissions 28
6.1. List of Test Instruments 28
6.2. Test Setup 29
6.3. Applicable Limits 30
6.4. Measurement Procedure 31
6.5. Measurement Result 32
7. Measurement of Harmonics Current Emissions 36
7.1. List of Test Instruments 36
7.2. Test Setup 36
7.3. Applicable Standard and Limits 37
7.4. Measurement Procedure 37
7.5. Measurement Result 38
8. Measurement of Voltage Fluctuations and Flicker Emissions 40
8.1. List of Test Instruments 40
8.2. Test Setup 40
8.3. Applicable Standard and Limits 41
8.4. Measurement Procedure 41

8.5. Measurement Result 42
9. Electrostatic Discharge Immunity Test 43
9.1. List of Test Instruments 43
9.2. Test Setup 43
9.3. Applicable Standard and Test Specification 43
9.4. Measurement Procedure 44
9.5. Test Result 45
10. Radiated, Radio-frequency, Electromagnetic Field Immunity Test 46
10.1. List of Test Instruments 46
10.2. Test Setup 46
10.3. Applicable Standard and Test Specification 47
10.4. Measurement Procedure 47
10.5. Test Result 48
11. Electrical fast transient/burst Immunity Test 49
11.1. List of Test Instruments 49
11.2. Test Setup 49
11.3. Applicable Standard and Test Specification 49
11.4. Measurement Procedure 50
11.5. Test Result 51
12. Surge Immunity Test 52
12.1. List of Test Instruments 52
12.2. Test Setup 52
12.3. Applicable Standard and Test Specification 53
12.4. Measurement Procedure 53
12.5. Test Result 54
13. Immunity to Conducted Disturbances, Induced by Radio-Frequency Field Immunity Test 55
13.1. List of Test Instruments 55
13.2. Test Setup 55
13.3. Applicable Standard and Test Specification 56
13.4. Measurement Procedure 56
13.5. Test Result 57
14. Power Frequency Magnetic Field Immunity Test 58
14.1. List of Test Instruments 58
14.2. Test Setup 58
14.3. Applicable Standard and Test Specification 58
14.4. Measurement Procedure 59
14.5. Test Result 60
15. Voltage Dips and Interruptions Immunity Test 61
15.1. List of Test Instruments 61
15.2. Test Setup 61
15.3. Applicable Standard and Test Specification 61
15.4. Measurement Procedure 62
15.5. Test Result 63

16. Measurement Uncertainty List 64
17. Photographs 67
17.1. Conducted Emissions Measurement 67
17.2. Radiated Emissions Measurement 68
17.3. Harmonics Current Measurement 70
17.4. Voltage Fluctuation and Flicks Measurement 70
17.5. Electrostatic Discharge Immunity Test 71
17.6. Radiated, Radio-Frequency, Electromagnetic Field Immunity Test 81
17.7. Electrical Fast Transient/Burst Immunity Test 82
17.8. Surge Immunity Test 82
17.9. Immunity to Conducted Disturbances Induced by RF Fields 83
17.10. Power Frequency Magnetic Field Immunity Test 83
17.11. Voltage Dips and Interruptions Immunity Test 84

1. Revision of Test Report

Issued Date	Revision Summary	Report Number
2017. 04. 25	Original Report.	EM-E170467

2. Summary of Test Result

2.1. Test Result

Emissions			
Test Item	Referred Standard	Limit	Result
Conducted emissions at AC mains power port	EN 55032:2012 +AC:2013 (CISPR 32:2012)	Class B	**Pass** Margin 5.88dB at 4.745MHz
Asymmetric mode conducted emissions at wired network port	EN 55032:2012 +AC:2013 (CISPR 32:2012)	Class B	**N/A**
Asymmetric mode conducted emissions at broadcast receiver tuner port	EN 55032:2012 +AC:2013 (CISPR 32:2012)	Class B	**N/A**
Conducted differential voltage emissions at broadcast receiver tuner port	EN 55032:2012 +AC:2013 (CISPR 32:2012)	Class B	**N/A**
Radiated emissions (30 – 1000MHz)	EN 55032:2012 +AC:2013 (CISPR 32:2012)	Class B	**Pass** Margin 2.15dB at 742.505MHz
Radiated emissions (1 – 6GHz)	EN 55032:2012 +AC:2013 (CISPR 32:2012)	Class B	**Pass** Margin 10.90dB at 1031.16MHz
Harmonic current emissions	EN 61000-3-2:2014	Class D	**Pass**
Voltage fluctuations & flicker	EN 61000-3-3:2013	Section 5	**Pass**

Note :

1. N/A is an abbreviation for Not Applicable.
2. Special measures
   None
3. Decision and justification not to measure
   None

Immunity				
Test Item	Basic Standard	Standard Criteria	EUT Criteria	Result
Electrostatic discharge	IEC 61000-4-2:2008	B	A	**Pass**
Radiated, Radio-frequency, electromagnetic field	IEC 61000-4-3:2010	A	A	**Pass**
Electrical fast transient/burst	IEC 61000-4-4:2012	B	A	**Pass**
Surge at AC power port	IEC 61000-4-5:2014	B	A	**Pass**
Surge at Telecommunication port	IEC 61000-4-5:2014	C	N/A	**N/A**
Immunity to conducted disturbances, induced by radio-frequency fields	IEC 61000-4-6:2013	A	A	**Pass**
Power frequency magnetic field	IEC 61000-4-8:2009	A	A	**Pass**
Voltage dips, >95% reduction	IEC 61000-4-11:2004	B	A	**Pass**
Voltage dips, 30% reduction		C	A	**Pass**
Voltage interruptions, >95% reduction		C	B	**Pass**

Note :

1. N/A is an abbreviation for Not Applicable
2. Special measures: None
3. Decision and justification not to measure: None

2.2. Description of Performance Criteria

Performance criterion A

During the test, 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 when the CRT monitor is immersed in a continuous magnetic field of 1 A/m (r.m.s.) at one of the power frequencies of 50 Hz or 60 Hz.

For displays with pixels having continuous luminance distributions only, jitter may be measured using a measuring microscope of at least 20 power. The movement is determined by visual alignment of the microscope cursor or comparator reticle with the extreme positions of the centroid or edge of a character or test object during the observation period.

For any display type, a special display-measuring device may be used. This device shall determine, on a scan-by-scan basis, the relative location of a character or test object. If a device is used that determines movement along the horizontal and vertical axes only, the extent of the jitter shall be defined as the square root of the sum of the squares of the maximum horizontal and vertical differences.

Observations shall extend for periods of at least 4 s. Measuring devices that sample scans shall accumulate a number of scans equivalent to at least 4 s of continuous observation.

The maximum jitter permitted is given by:

$$J \leq \frac{(C + 0{,}3) \times 2{,}5}{33{,}3}$$

where

J is the jitter (in mm);

C is the character height (in mm).

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

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 if they self-recover after removal of the external disturbance.

Performance criterion C

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

2.3. Description of Test Firm

Name of Test Firm	Audix Technology Corporation / EMC Department No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan Tel: +886-2-26092133 Fax: +886-2-26099301 Website : www.audixtech.com Contact e-mail: sales@audixtech.com
Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2005 (1) NVLAP(USA) NVLAP Lab Code 200077-0 (2) TAF(Taiwan) No. 1724
Test Facilities	(1) No. 5 Shielding Room (2) No. 3 Open Area Test Site (3) No. 2 3m Semi-Anechoic Chamber (4) No. 2 EMS Test Room (5) No. 3 EMS Test Room

3. General Information

3.1. Description of Application

Applicant	TPV Electronics (FuJian) Co., Ltd Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province, P.R. China
Product	LCD Monitor
Brand	AOC
Model	(1)270LM00040 (2)PDS271*** (The "*" could be any alphanumeric character including blank for marketing differentiation.) The difference of above models is in sales marketing

3.2. Description of the EUT

Test Model	270LM00040
Serial Number	N/A
Power Rating	AC 100-240V, 50/60Hz
Firmware Version	N/A
Sample Status	Production
Date of Receipt	2017. 03. 23
Data of Test	2017. 04. 14 ~ 20
I/O Ports List	**View of Monitor** • One Connection Port • One Earphone Port **View of External Power** • One Connection Port • One HDMI Port • One AC Port
Accessories	• HDMI Cable*1 (1.8m) • Connection Cable*3 (0.5m) (0.7m) (1.0m) • AC Power Cord (2C)*3 (1.2m) (1.5m) (1.8m)

3.3. List of Key Components of EUT

None

3.4. Highest Frequency within EUT

The highest frequency is 170MHz of EUT.

3.5. Determination of Worse Case Operating Modes

According to the specification, the EUT was estimated to determine the highest emissions by following configurations:

Test Item	Test Voltage	Input Port	Connection Cable	Power Cord	Resolution & Frequency
Conducted emissions at AC mains power port	230V/50Hz	Connection (HDMI)	1.0m	1.8m	640*480/60Hz
					1280*1024/75Hz
					1920*1080/60Hz
	110V/60Hz				1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.5m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.2m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.7m	1.8m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.5m	1.8m	1920*1080/60Hz
Radiated emission (30 – 1000MHz)	230V/50Hz	Connection (HDMI)	1.0m	1.8m	640*480/60Hz
					1280*1024/75Hz
					1920*1080/60Hz
	110V/60Hz				1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.5m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.2m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.7m	1.8m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.5m	1.8m	1920*1080/60Hz
Radiated emission (1 – 6GHz)	230V/50Hz	Connection (HDMI)	1.0m	1.8m	1280*1024/75Hz
					1920*1080/60Hz
	110V/60Hz				1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.5m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.2m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.7m	1.8m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.5m	1.8m	1920*1080/60Hz
Harmonics current emission	230V/50Hz	Connection (HDMI)	1.0m	1.8m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.5m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.2m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.7m	1.8m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.5m	1.8m	1920*1080/60Hz

Voltage fluctuations & flicker	230V/50Hz	Connection (HDMI)	1.0m	1.8m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.5m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.2m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.7m	1.8m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.5m	1.8m	1920*1080/60Hz
All Immunity tests	230V/50Hz	Connection (HDMI)	1.0m	1.8m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.5m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	1.0m	1.2m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.7m	1.8m	1920*1080/60Hz
	230V/50Hz	Connection (HDMI)	0.5m	1.8m	1920*1080/60Hz

3.6. Final Test Configuration

The worst showed as following configuration was tested and recorded in the report.

Test Item	Test Voltage	Input Port	Connection Cable	Power Cord	Resolution & Frequency
Conducted emissions at AC mains power port	230V/50Hz	Connection (HDMI)	1.0m	1.8m	1920*1080/60Hz
Radiated emission (30 – 1000MHz)	230V/50Hz	Connection (HDMI)	1.0m	1.8m	1920*1080/60Hz
Radiated emission (1 – 6GHz)	230V/50Hz	Connection (HDMI)	1.0m	1.8m	1920*1080/60Hz
Harmonics current emission	230V/50Hz	Connection (HDMI)	1.0m	1.8m	1920*1080/60Hz
Voltage fluctuations & flicker	230V/50Hz	Connection (HDMI)	1.0m	1.8m	1920*1080/60Hz
All Immunity tests	230V/50Hz	Connection (HDMI)	1.0m	1.8m	1920*1080/60Hz

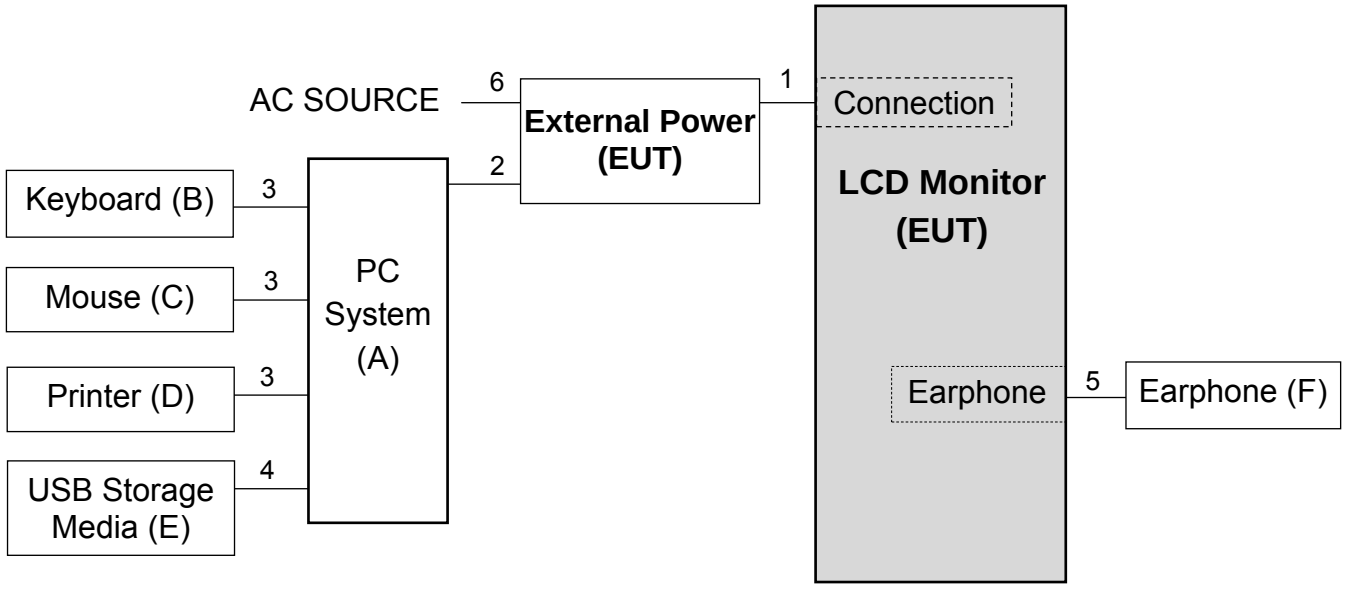
4. Measurement Arrangement

4.1. Equipment and cables arrangement

- Connection Diagram of EUT and Peripheral Devices

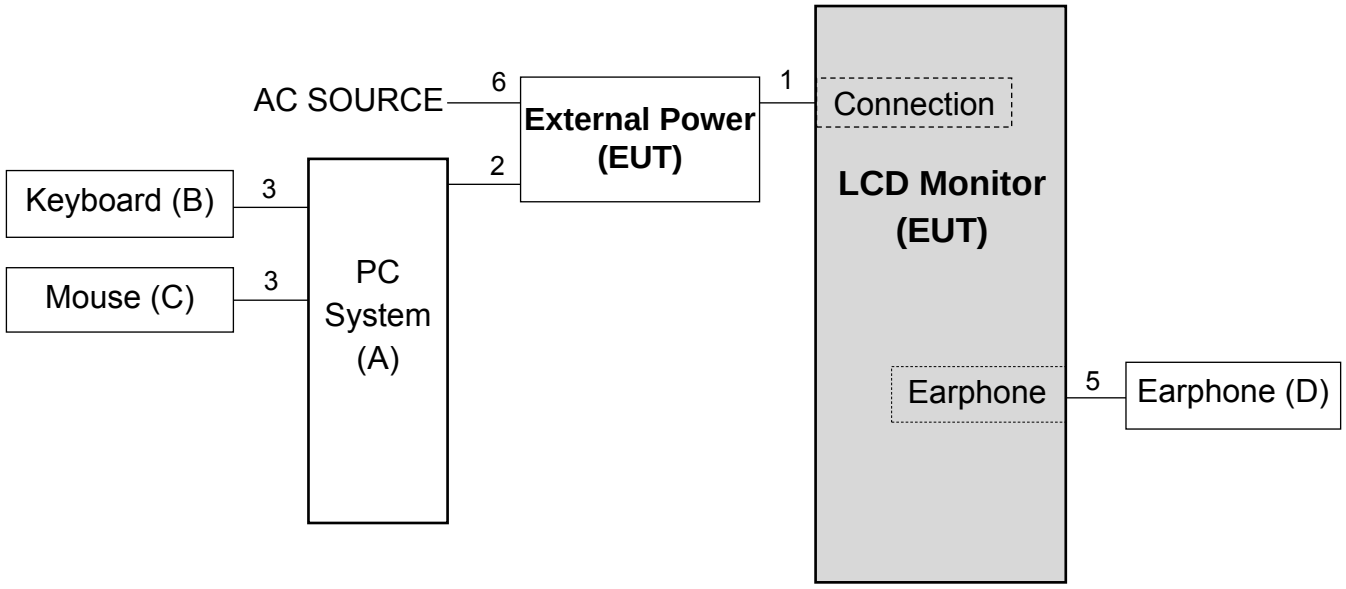
  For conducted and radiated test

  The EUT and peripherals were arranged as the requirement of CISPR 32 Annex D.



- Connection Diagram of EUT and Peripheral Devices

  For harmonics, flicker and immunity test



4.2. Method of Exercising EUT

The methods for exercising the EUT during the measurement specified in EN 55032 (CISPR 32) Annex B were used.

Operating System	Windows 7 of PC system
Test Program	“ITU-R BT 1729”, “Windows Media Player”
Video Signal (Display Image)	Standard Color bars with moving picture element
Audio controller	Play 1kHz audio signal
Other	Other peripheral devices were driven and operated in turn

The methods for exercising the EUT during the measurement specified in EN 55024 were used.

Operating System	Windows 7 of PC system
Test Program	“Win FCC”, “Windows Media Player”
Video Signal (Display Image)	Scrolling H characters
Audio controller	Play 1kHz audio signal
Other	Other peripheral devices were driven and operated in turn

Display and video parameters

Function	Setting
Hardware acceleration	Maximum
Screen settings	High/Middle/Low effective resolution (including the settings for pixel and frame rate)
Colour quality	Highest colour bit depth
Brightness, contrast, colour saturation	Use either the factory default settings
Other	Adjusted to obtain a typical picture using settings giving the highest performance

4.3. List of Supported Units under Test

Item	Product	Brand	Model No.	Serial No.	Approval
For conducted and radiated test					
A	PC System	HP	SHNGC-M0 03MT	SGH014R6GN	By DoC
B	Keyboard	HP	KB-0316	N/A	By DoC
C	Mouse	HP	M-S48a	LZE20501531	FCC ID: JNZ201213
D	Laser Printer	SAMSUNG	ML-1630	4561B1CP600023X	FCC ID: A3LML1630
E	USB Storage Media	pqi	U172p	95110880023240	By DoC
F	Earphone	LGITON	FS-99	N/A	N/A
For harmonic、flicker and immunity test					
A	PC System	Lenovo	RK4	PBFK921	By DoC
B	Keyboard	Lenovo	KU-0225	N/A	By DoC
C	Mouse	Lenovo	45J4886	N/A	By DoC
D	Earphone	LGITON	FS-99	N/A	N/A

4.4. List of Used Cables under Test

Item	Type	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remark
1	Connection Cable	1	0.5	Y	0	Accessory of EUT
		1	0.7	Y	0	Accessory of EUT
		1	1.0	Y	0	Accessory of EUT
2	HDMI Cable	1	1.8	Y	2	Accessory of EUT
3	USB Cable	3	1.8	Y	0	Provided by LAB
4	USB Cable	1	1.5	Y	0	Provided by LAB
5	Earphone Cable	1	1.1	N	0	Provided by LAB
6	AC Power Cord (2C)	1	1.2	N	0	Accessory of EUT
		1	1.5	N	0	Accessory of EUT
		1	1.8	N	0	Accessory of EUT
7	AC Power Cord	2	1.8	N	0	Provided by LAB for above sup-ported units

5. Measurement of Conducted Emissions

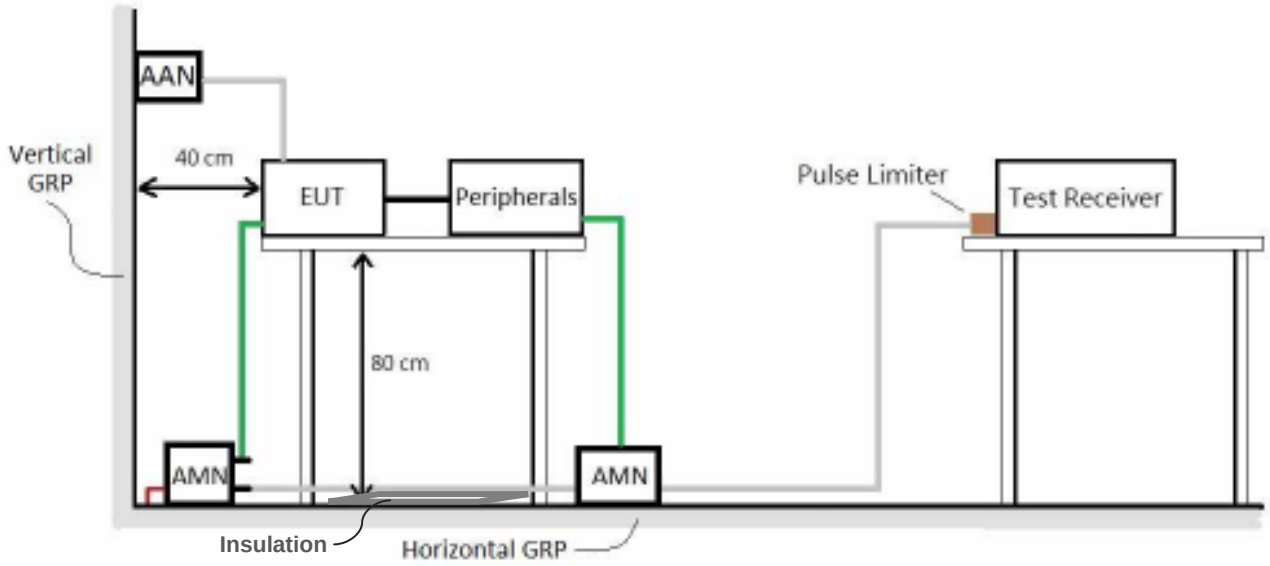
5.1. List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Test Receiver	R & S	ESR3	101773	2017. 02. 16	1 Year
2	A.M.N.	R & S	ENV4200	100003	2016. 06. 07	1 Year
3	L.I.S.N.	Kyoritsu	KNW-407	8-1539-2	2016. 12. 28	1 Year
4	Pulse Limiter	R & S	ESH3-Z2	100355	2017. 01. 16	1 Year
5	Signal Cable	MIYAZAKI	5D2W	CE-04	2017. 02. 15	1 Year
6	Test Software	Audix	e3	V.120703a	N.C.R.	N.C.R.

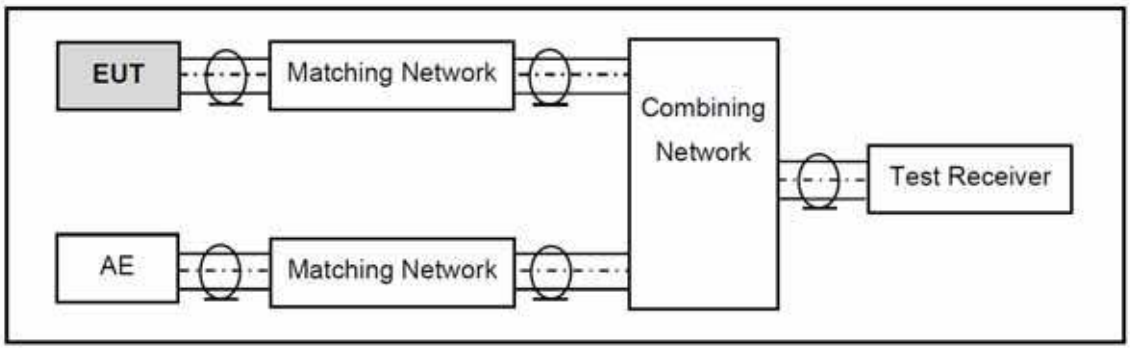
5.2. Test Setup

The EUT and test equipment were configured in accordance with the requirement of EN 55032 (CISPR 32) Annex C, D:

- For AC mains power port
- For wired network port
- For TV broadcast receiver tuner port, asymmetric mode
- EUT, local AE and associated cabling; and metal surfaces other than the RGP≧80cm



- For TV broadcast receiver tuner port, differential voltage



5.3. Applicable Limits

- For conducted emissions from the AC mains power ports (Class B)

Frequency Range (MHz)	Quasi Peak dB(μV)	Average dB(μV)
0.15 – 0.50	66 – 56	56 – 46
0.50 – 5.0	56	46
5.0 – 30	60	50

- For asymmetric mode conducted emissions (Class B)

  Applicable to:
  (1) Wired network ports
  (2) Optical fibre ports with metallic shield or tension members
  (3) Broadcast receiver tuner ports
  (4) Antenna ports

Frequency Range (MHz)	Voltage limits Quasi Peak dB(μV)	Voltage limits Average dB(μV)
0.15 – 0.50	84 – 74	74 – 64
0.50 – 30	74	64

- For conducted differential voltage emissions (Class B)

  Applicable to:
  (1) TV broadcast receiver tuner ports with an accessible connector
  (2) RF modulator output ports
  (3) FM broadcast receiver tuner ports with an accessible connector

Frequency Range (MHz)	Limits, dB(μV) 75Ω		
	Other	Local Oscillator Fundamental	Local Oscillator Harmonics
30 – 950	46	46	46
950 – 2150	46	54	54

Note:
- The measurement shall cover the entire frequency range.
- Testing is required at only one EUT supply voltage and frequency.
- Applicable to ports listed above and intended to connect to cables longer than 3 m (for asymmetric mode conducted emissions).

5.4. Measurement Procedure

For AC mains power port

The measurement procedure specified in EN 55032 (CISPR 32) clause 6.3 was used.

- Setup the EUT and associated equipment described as clause 4.1, and they were located 40cm from the vertical conducting plane.
- Connect the EUT power cord to the main A.M.N and associated equipment to the second A.M.N. All ports of the A.M.N not connecting to the measuring equipment was terminated into 50 ohm resistive load.
- Connect receiver tuner port to an AAN that is bonded to the RGP.
- Setup the resolution bandwidth of the test receiver at 9kHz (while testing within 0.15 to 30MHz).
- Operate the EUT system as described in clause 4.2.
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on each of the EUT power cord with the peak detector by each of the EUT operation over the specified frequency range and record it, and then
- For final measurement, select the EUT operation mode that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it. All of the current-carrying conductors of each of the EUT power cords, except the ground conductor, must be measured over the specified frequency range.
- The measurement result was calculated by following formula：
- Emission Level = Reading (Receiver) + Factor (A.M.N) + Insertion Loss (Pulse Limiter) + Cable Loss
- If the average limit is met when using a Quasi-Peak detector receiver, the EUT is deemed to meet both limits and measurement with the average detector is unnecessary.

For Wired network port

The method of EN 55032 (CISPR 32) Annex C 4.1.6.2 was used.

- Setup the EUT and associated equipment described as clause 4.1, and they were located 40cm from the vertical conducting plane.
- Connect wired network port between EUT and AE through the AAN.
- Setup the resolution bandwidth of the test receiver at 9kHz (while testing within 0.15 to 30MHz).
- Operate the EUT system as described in clause 4.2.
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on each of the EUT LAN port with the peak detector by each of the transmission rate over the specified frequency range and record it, and then
- For final measurement, select the worst network port that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it. All of the transmission rates must be measured over the specified frequency range.
- The measurement result was calculated by following formula：
- Emission Level = Reading (Receiver) + Factor (AAN) + Insertion Loss (Pulse Limiter) + Cable Loss
- If the average limit is met when using a Quasi-Peak detector receiver, the EUT is deemed to meet both limits and measurement with the average detector is unnecessary.

For TV broadcast receiver tuner port, Asymmetric mode

The method of EN 55032 (CISPR 32) Annex C 4.1.6.2 was used.

- Setup the EUT and associated equipment described as clause 4.1, and they were located 40cm from the vertical conducting plane.
- Connect TV broadcast receiver tuner port between EUT and S.G. through the AAN.
- Setup the resolution bandwidth of the test receiver at 9kHz (while testing within 0.15 to 30MHz).
- Operate the EUT system as described in clause 4.2.
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on TV broadcast receiver tuner port with the peak detector by the TV channel over the specified frequency range and record it, and then
- For final measurement, the TV channel that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it. All of the transmission rates must be measured over the specified frequency range.
- The measurement result was calculated by following formula:
  Emission Level =
  Reading (Receiver) + Factor (AAN) + Insertion Loss (Pulse Limiter) + Cable Loss
- If the average limit is met when using a Quasi-Peak detector receiver, the EUT is deemed to meet both limits and measurement with the average detector is unnecessary.

For TV broadcast receiver tuner port, Differential voltage

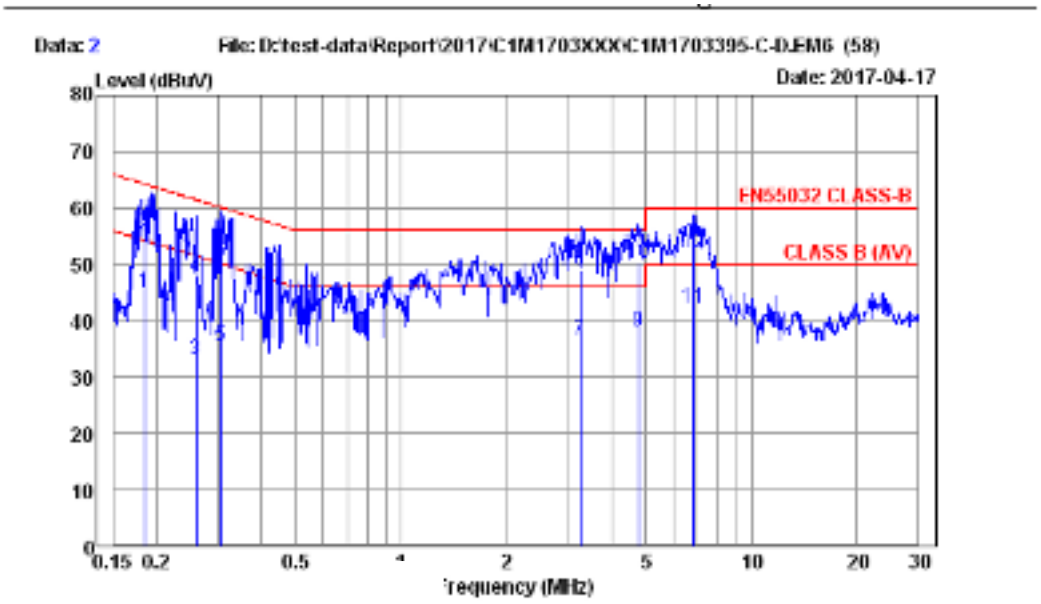
The method of EN 55032 (CISPR 32) Annex C 4.1.6.2 was used.

- The EUT and test equipment was set-up as section 4.1 and 5.2.
- The resolution bandwidth of the test receiver was at 120kHz (Quasi Peak) for frequencies below 1GHz or 1MHz (Peak) for frequencies above 1GHz.
- The antenna input terminal of EUT was connected to the test receiver via 75-50 ohm matching pad and T-Pad. The EUT and TV Pattern Generator or DVB-T signal card (inside PC system) were set to one of the same frequency (channel) specified in following test channel and frequency list, measuring both radiated frequency and disturbance voltage present at antenna input terminal over the frequency range from 30MHz up to at last the second harmonic of the highest local oscillator frequency (2150MHz).
- Record the final readings from test receiver with Quasi-Peak detector.
- The measurement result was calculated by following formula:
  Measurement Level =
  Factor (Matching Pad Loss + Cable Loss) + Test Receiver Reading

5.5. Measurement Result

- Result for AC Mains Power Port

Test Date	2017. 04. 17	Environment	26ºC, 58%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Eason Hsu

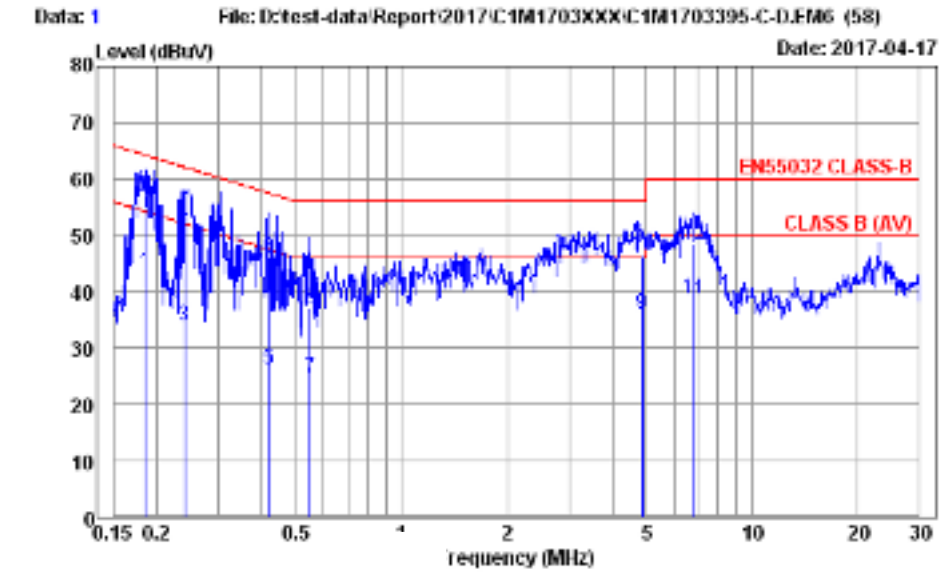


Site no. : No.5 Shielded Room Data no. : 2
Condition : ENV4200 100003 LISN Phase : NEUTRAL
Limit : EN55032 CLASS-B
Env. / Ins. : 26°C / 58% ESR3 (101773) Engineer : Eason
EUT : 270LM00040
Power Rating : 230Vac / 50Hz
Test Mode : 1920*1080/60Hz HDMI
Power Cord 1.8m
HDMI Cable 1m

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.185	10.15	0.02	9.86	24.93	44.96	54.27	9.31	Average
2	0.185	10.15	0.02	9.86	35.29	55.32	64.27	8.95	QP
3	0.259	10.10	0.02	9.86	13.06	33.04	51.47	18.43	Average
4	0.259	10.10	0.02	9.86	27.86	47.84	61.47	13.63	QP
5	0.305	10.07	0.02	9.86	15.48	35.43	50.10	14.67	Average
6	0.305	10.07	0.02	9.86	30.49	50.44	60.10	9.66	QP
7	3.241	10.08	0.04	9.86	16.38	36.36	46.00	9.64	Average
8	3.241	10.08	0.04	9.86	28.96	48.94	56.00	7.06	QP
9	4.745	10.24	0.05	9.87	18.07	38.23	46.00	7.77	Average
10	4.745	10.24	0.05	9.87	29.96	50.12	56.00	5.88	QP
11	6.805	10.50	0.06	9.87	21.73	42.16	50.00	7.84	Average
12	6.805	10.50	0.06	9.87	31.62	52.05	60.00	7.95	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + 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.

Test Date	2017. 04. 17	Environment	26ºC, 58%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Eason Hsu



Site no. : No.5 Shielded Room Data no. : 1
Condition : ENV4200 100003 LISN Phase : LINE
Limit : EN55032 CLASS-B
Env. / Ins. : 26°C / 58% ESR3 (101773) Engineer : Eason
EUT : 270LM00040
Power Rating : 230Vac / 50Hz
Test Mode : 1920*1080/60Hz HDMI
Power Cord 1.8m
HDMI Cable 1m

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Emission Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.185	10.18	0.02	9.86	23.29	43.35	54.24	10.89	Average
2	0.185	10.18	0.02	9.86	37.02	57.08	64.24	7.16	QP
3	0.240	10.13	0.02	9.86	13.82	33.83	52.08	18.25	Average
4	0.240	10.13	0.02	9.86	31.87	51.88	62.08	10.20	QP
5	0.418	10.06	0.02	9.86	6.31	26.25	47.49	21.24	Average
6	0.418	10.06	0.02	9.86	26.09	46.03	57.49	11.46	QP
7	0.548	10.04	0.02	9.86	4.98	24.90	46.00	21.10	Average
8	0.548	10.04	0.02	9.86	17.39	37.31	56.00	18.69	QP
9	4.845	10.43	0.05	9.87	15.72	36.07	46.00	9.93	Average
10	4.845	10.43	0.05	9.87	25.93	46.28	56.00	9.72	QP
11	6.839	10.76	0.06	9.87	18.06	38.75	50.00	11.25	Average
12	6.839	10.76	0.06	9.87	27.67	48.36	60.00	11.64	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + 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.

6. Measurement of Radiated Emissions

6.1. List of Test Instruments

- For measurement of 30 to 1000MHz frequency range

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9010A-503	MY51120074	2016. 10. 24	1 Year
2	Test Receiver	R&S	ESCS 30	100039	2016. 06. 05	1 Year
3	Amplifier	HP	8447D	2443A03938	N.C.R.	N.C.R.
4	Bilog Antenna	CHASE	UPA6109	1031	2017. 02. 25	1 Year
5	Bilog Antenna	CHASE	VBA6106A	1227	2017. 02. 25	1 Year
6	Signal Cable	HUBER + SUHNER	RG217U	RE-05	2017. 02. 15	1 Year
7	Test Software	Audix	e3	V.5.04507	N.C.R.	N.C.R.

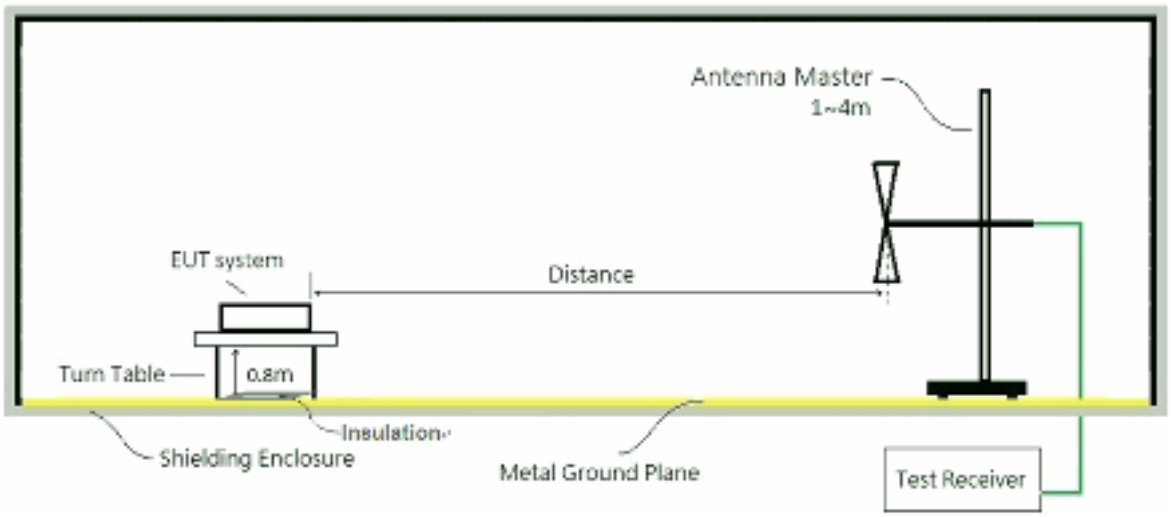
- For measurement of above 1GHz frequency range

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9010A-526	MY48031076	2016. 09. 30	1 Year
2	Amplifier	Agilent	8449B	3008A02596	2016. 12. 27	1 Year
3	Horn Antenna	EMCO	3115	9112-3775	2016. 05. 13	1 Year
4	Signal Cable	HUBER + SUHNER	RG214	RE-13	2017. 02. 15	1 Year
5	Test Software	Audix	e3	V.6.2009-10 -22	N.C.R.	N.C.R.

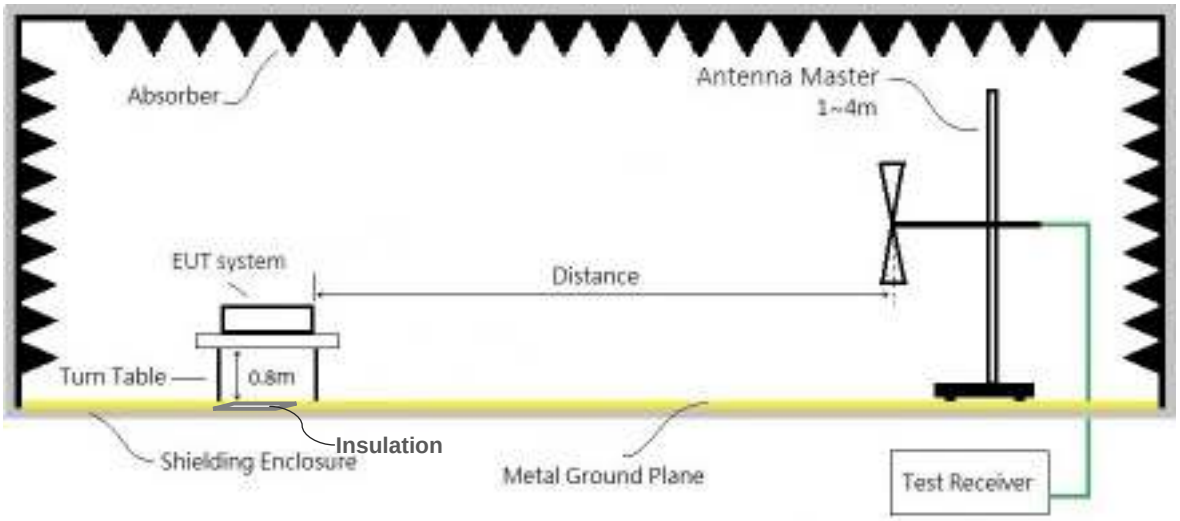
6.2. Test Setup

- For frequency range 30 to 1000MHz

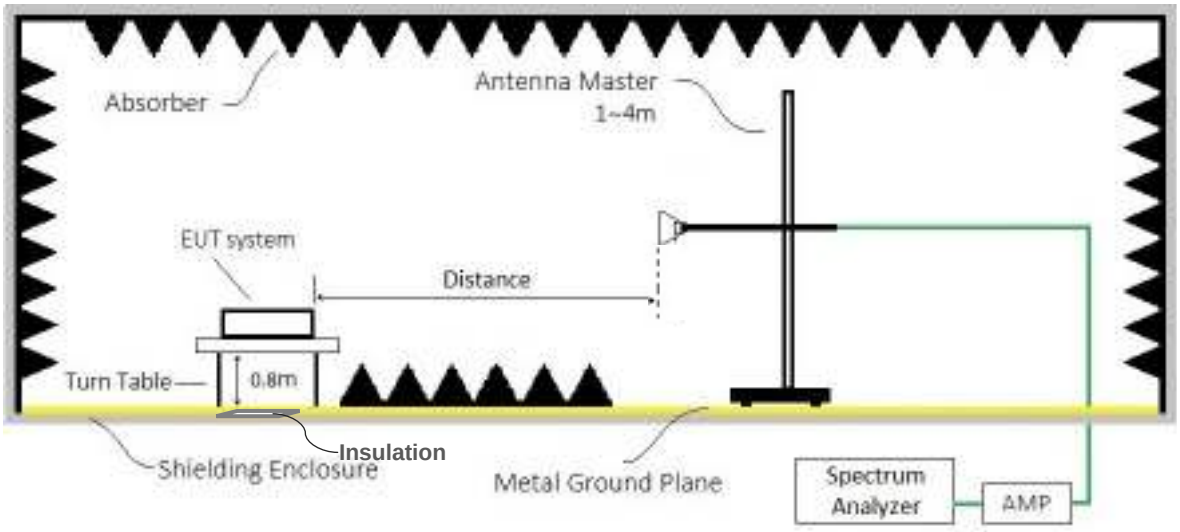
  Open Area Test Site



  At Semi-Anechoic Chamber



- For frequency range 1 to 6GHz



6.3. Applicable Limits

- For radiated emissions at frequencies up to 1GHz (Class B)

Frequency Range (MHz)	Distance (meter)	Quasi-Peak [dB(μV/m)] (OATS/SAC)
30 – 230	10	30
230 – 1000		37
30 – 230	3	40
230 – 1000		47

- For radiated emissions at frequencies above 1GHz (Class B)

Frequency Range (MHz)	Distance (meter)	Peak [dB(μV/m)] (FSOATS)	Average [dB(μV/m)] (FSOATS)
1000 – 3000	3	70	50
3000 – 6000		74	54

- For radiated emissions at frequencies from FM receivers (Class B)

Frequency Range (MHz)	Distance (meter)	Fundamental Quasi-Peak [dB(μV/m)] (FSOATS)	Harmonics Quasi-Peak [dB(μV/m)] (FSOATS)
30 – 230	10	50	42
230 – 300			42
300 – 1000			46
30 – 230	3	60	52
230 – 300			52
300 – 1000			56

Required highest frequency for radiated measurement

Highest frequency generated or used in the EUT or on which the EUT operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	Up to 5 times of the highest frequency or 6GHz, whichever is less

- For FM and TV broadcast receivers, Fx is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.
- For outdoor units of home satellite receiving systems highest measured frequency shall be 18 GHz.

6.4. Measurement Procedure

The measurement procedure specified in EN 55032 (CISPR 32) clause was performed.

- The EUT and peripherals were placed on the rotatable non-conduction table, which is 0.8meters above the ground reference plane at the semi-anechoic chamber as described in section 4.1 and 6.2.
- The measurement distance is set as specified in section 6.3. The specified distance is between the horizontal projection onto the ground plane of the closest periphery of the EUT and the projection onto the ground plane of the center of the axis of the elements of the receiving antenna.
- The resolution bandwidth of the test receiver was at 120kHz (testing from 30 to 1000MHz) or 1MHz (testing above 1000MHz).
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on each of antenna polarization with the peak detector by each of the EUT operations over the specified frequency range and record it, and then
- For final measurement, select the EUT operation mode that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it.
- In order to determine the maximum emission level, must rotate the table in 360 degree and move the receiving antenna between 1~4m height above the ground reference plane.
- Both polarizations of receiving antenna were determined.
- The measurement result was calculated by following formulas:

  (30 – 1000MHz)

  Emission Level = Reading (Receiver) + Cable Loss + Antenna Factor– Pre-Amp Factor

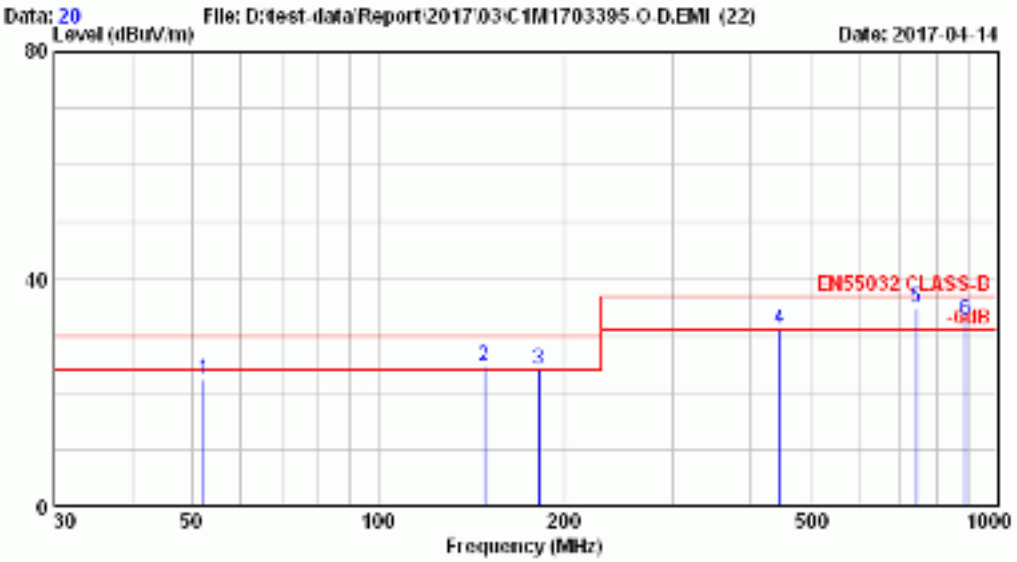
  (Above 1GHz)

  Emission Level = Reading (Spectrum) + Cable Loss + Antenna Factor – Pre-Amp Factor
- The 3dB bandwidth of the horn antenna is minimum 34 degree (or w=1.83m at 3m distance) for 1~6 GHz.

6.5. Measurement Result

- For frequency range 30 – 1000MHz

Test Date	2017. 04. 14	Environment	22ºC, 58%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Ghost Chang

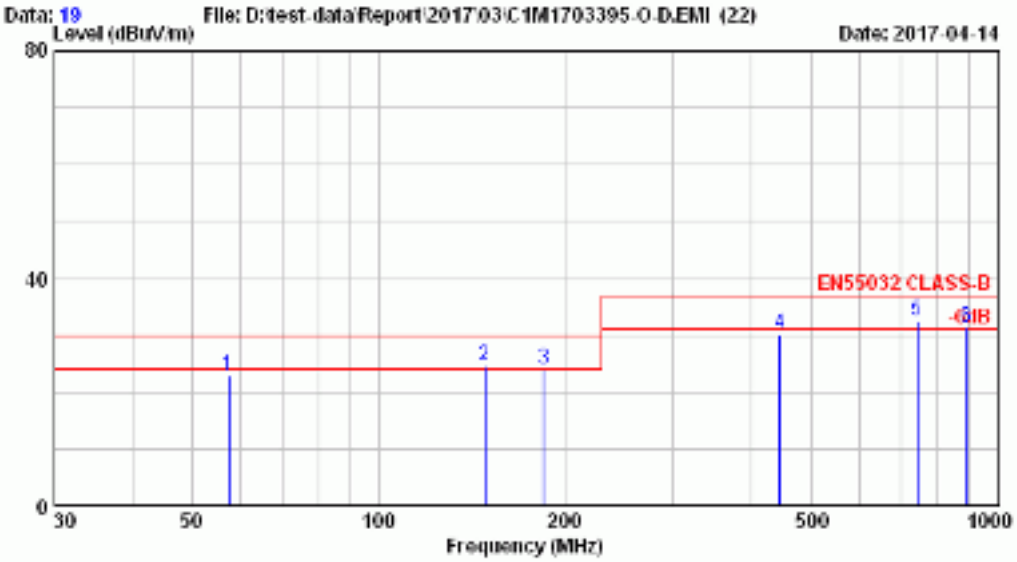



```
Site no.      : OATS NO.3                    Data no.   : 20
Dis. / Ant.   : 10m  VBA6106A/UPA6109        Ant. pol.  : HORIZONTAL
Limit         : EN55032 CLASS-B
Env. / Ins.   : 22°C / 58% ESCS 30 (039)     Engineer   : Ghost
EUT           : 270LM00040
Power Rating  : 230Vac / 50Hz
Test Mode     : 1920*1080/60Hz HDMI 1m
                Power 1.8m
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	52.366	17.06	0.85	4.25	22.17	30.00	7.83	QP
2	148.508	21.67	1.56	1.24	24.47	30.00	5.53	QP
3	182.290	22.58	1.81	-0.28	24.11	30.00	5.89	QP
4	445.507	17.58	3.07	10.33	30.98	37.00	6.02	QP
5	742.505	22.00	4.02	7.95	34.05	37.00	2.15	QP
6	891.006	24.44	4.44	3.88	32.75	37.00	4.25	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emissions not reported are 20 dB lower than the specified limit.

Test Date	2017. 04. 14	Environment	22ºC, 58%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Ghost Chang



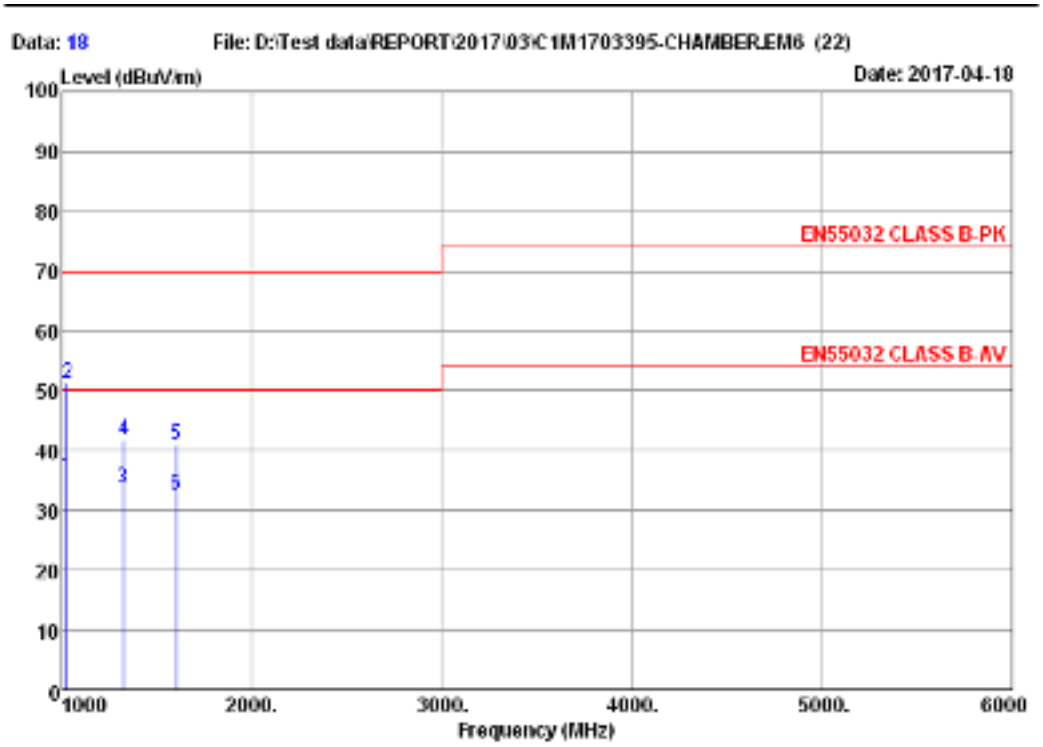
Site no. : OATS NO.3 Data no. : 19
Dis. / Ant. : 10m VBA6106A/UPA6109 Ant. pol. : VERTICAL
Limit : EN55032 CLASS-B
Env. / Ins. : 22°C / 58% ESCS 30 (039) Engineer : Ghost
EUT : 270LM00040
Power Rating : 230Vac / 50Hz
Test Mode : 1920*1080/60Hz HDMI in
Power 1.8m

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	57.327	15.34	0.89	6.55	22.70	30.00	7.22	QP
2	148.505	21.67	1.56	1.24	24.47	30.00	5.53	QP
3	194.926	22.60	1.83	-0.46	23.97	30.00	6.03	QP
4	445.504	17.58	3.07	9.66	30.31	37.00	6.69	QP
5	742.511	22.88	4.02	5.70	32.60	37.00	4.40	QP
6	891.016	24.44	4.44	2.49	31.36	37.00	5.64	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emissions not reported are 20 dB lower than the specified limit.

- For frequency range 1 – 6 GHz

Test Date	2017. 04. 18	Environment	24ºC, 62%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Bruce Zeng



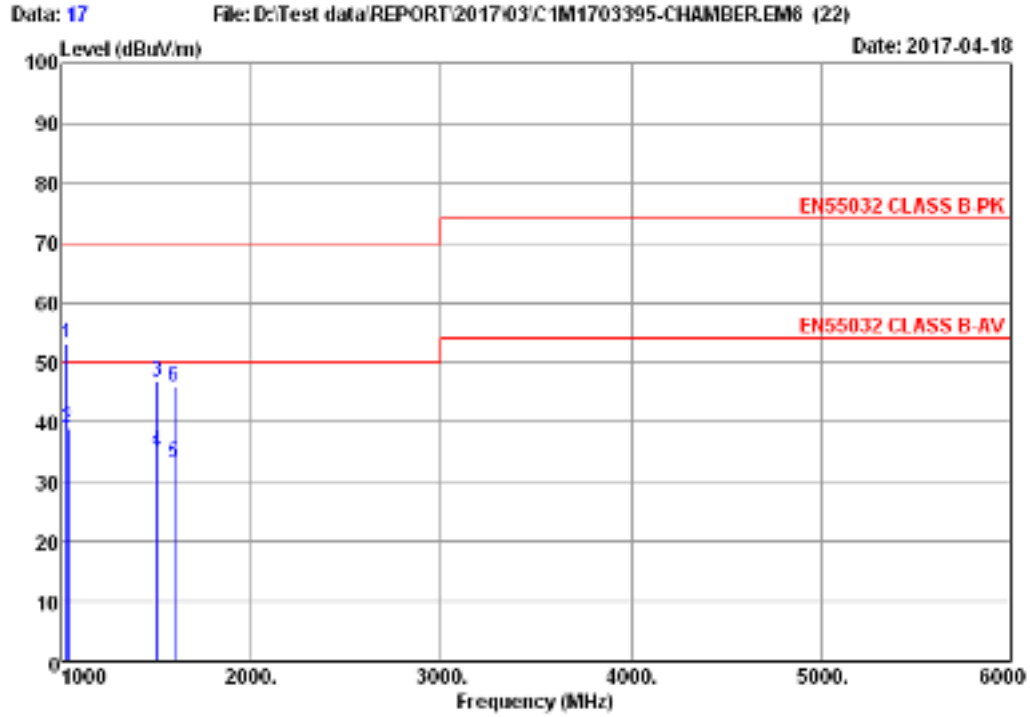
Site no. : Audix No.2 Chamber
Dis. / Ant. : 3m HORN3115-3775
Limit : EN55032 CLASS B-PK
Env. / Ins. : 24°C / 62% H90104 (076)
EUT : 270LN00040
Power Rating : 230Vac/50Hz
Test Mode : 1920*1080/60Hz HDMI 1m
Power 1.8m

Data no. : 18
Ant. pol. : HORIZONTAL
Engineer : Bruce

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	
1	1029.21	24.76	4.34	36.83	43.31	35.58	50.00	14.42	Average
2	1030.00	24.76	4.34	36.83	58.87	51.14	70.00	18.86	Peak
3	1321.69	25.29	4.98	36.18	39.51	33.60	50.00	16.40	Average
4	1325.00	25.29	4.98	36.17	47.63	41.73	70.00	28.27	Peak
5	1600.00	26.10	5.41	35.73	45.27	41.05	70.00	28.95	Peak
6	1602.79	26.10	5.41	35.72	36.85	32.64	50.00	17.36	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
2. The emissions not reported are 20 dB lower than the specified limit.

Test Date	2017. 04. 18	Environment	24ºC, 62%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Bruce Zeng



Site no. : Audix No.2 Chamber
Dis. / Ant. : 3m HORN3115-3775
Limit : EN55032 CLASS B-PK
Env. / Ins. : 24°C / 62% N9010A (076)
EUT : 270LN00040
Power Rating : 230Vac/50Hz
Test Mode : 1920*1080/60Hz HDMI 1m
Power 1.8m

Data no. : 17
Ant. pol. : VERTICAL
Engineer : Bruce

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	
1	1030.00	24.76	4.34	36.83	61.05	53.32	70.00	16.68	Peak
2	1031.16	24.76	4.35	36.83	46.82	39.10	50.00	10.90	Average
3	1500.00	25.60	5.41	35.84	51.49	46.66	70.00	23.34	Peak
4	1501.63	25.60	5.41	35.84	39.85	35.02	50.00	14.98	Average
5	1594.37	26.10	5.41	35.74	37.51	33.28	50.00	16.72	Average
6	1595.00	26.10	5.41	35.74	50.28	46.05	70.00	23.95	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
2. The emissions not reported are 20 dB lower than the specified limit.

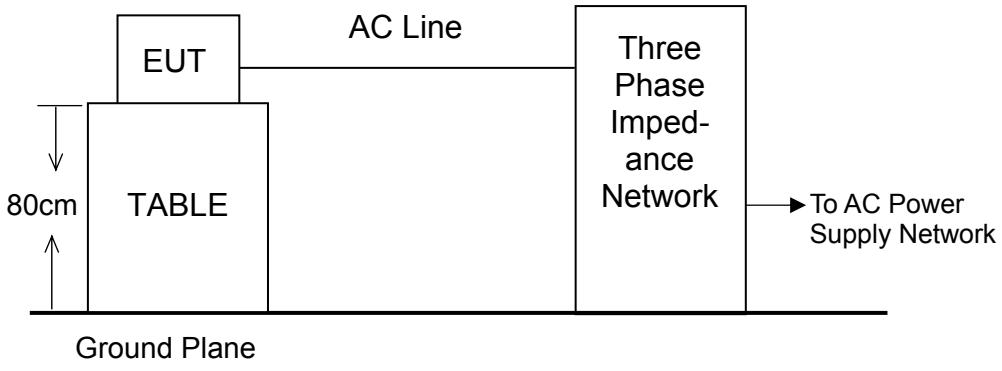
7. Measurement of Harmonics Current Emissions

7.1. List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	AC Power Source	TESEQ	NSG 1007-45	1248A04038	2016. 01. 29	2 Years
2	Signal Condition-ing Unit	TESEQ	CCN 1000-3	1234A03680	2016. 01. 29	2 Years
3	Three Phase Im-pedance Network	TESEQ	INA 2197	1234A03681	2016. 01. 29	2 Years
4	Profline AC Switching Unit	TESEQ	NSG 2200-3	EK 22713	2016. 07. 01	2 Years

7.2. Test Setup

The EUT and test equipment were configured in accordance with the requirement of EN 61000-3-2.



7.3. Applicable Standard and Limits

Limits for Class D Equipment

Class D is classified according to section 5 of EN 61000-3-2

Harmonic order n	Maximum permissible harmonic current per watt mA/W	Maximum permissible harmonic current A
Odd Harmonics Only		
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	3.85/n	0.15x15/n

Note:

According to section 7 of EN 61000-3-2, the above limits for all equipment except for lighting equipment having an active input power > 75 W and no limits apply for equipment with an active input power up to and including 75 W.

7.4. Measurement Procedure

The measurement procedure specified in EN 61000-3-2 clause 6.2 was used.

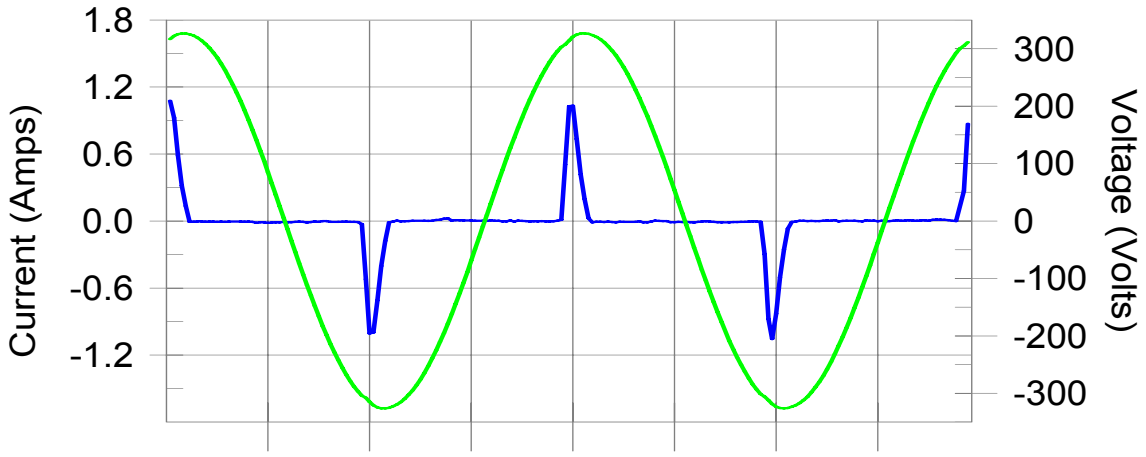
- Setup the EUT and associated equipment described as clause 4.1.
- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- Apply a 230V/50Hz rated test voltage which shall be maintained within ±2.0% and the frequency within ±0.5% of the nominal value to EUT.
- Let EUT work as stated and through three phase impedance network to measure the EUT to get the harmonic current for Odd & Even harmonics up to 40th.

7.5. Measurement Result

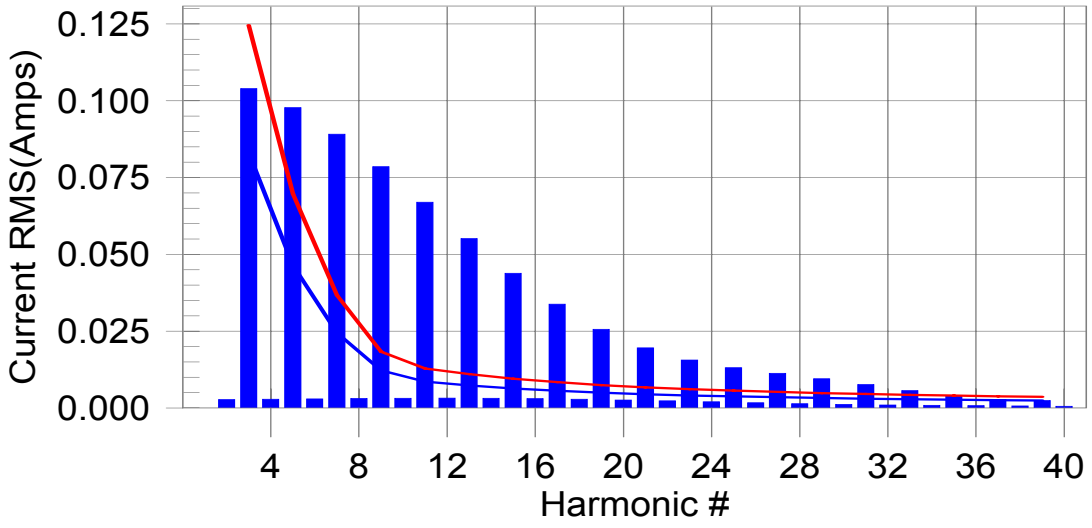
Test Date	2017. 04. 20	Environment	23ºC, 50%
Input Power	AC 230V, 50Hz	Result	Pass (Class D)
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Jason Chou

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 #11 with 526.5% of the limit.

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):	**230.262**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**1.103**	**I_RMS (Amps):**	**0.243**
I_Fund (Amps):	**0.108**	**Crest Factor:**	**4.543**
Power (Watts):	**24.4**	**Power Factor:**	**0.441**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.003	0.000	N/A	0.003	0.000	N/A	Pass
3	0.104	0.083	N/A	0.104	0.125	N/A	Pass
4	0.003	0.000	N/A	0.003	0.000	N/A	Pass
5	0.098	0.046	N/A	0.098	0.070	N/A	Pass
6	0.003	0.000	N/A	0.003	0.000	N/A	Pass
7	0.089	0.024	N/A	0.089	0.037	N/A	Pass
8	0.003	0.000	N/A	0.003	0.000	N/A	Pass
9	0.079	0.012	N/A	0.079	0.018	N/A	Pass
10	0.003	0.000	N/A	0.003	0.000	N/A	Pass
11	0.067	0.009	N/A	0.068	0.013	N/A	Pass
12	0.003	0.000	N/A	0.003	0.000	N/A	Pass
13	0.055	0.007	N/A	0.056	0.011	N/A	Pass
14	0.003	0.000	N/A	0.003	0.000	N/A	Pass
15	0.044	0.006	N/A	0.045	0.010	N/A	Pass
16	0.003	0.000	N/A	0.003	0.000	N/A	Pass
17	0.034	0.006	N/A	0.035	0.008	N/A	Pass
18	0.003	0.000	N/A	0.003	0.000	N/A	Pass
19	0.026	0.005	N/A	0.026	0.007	N/A	Pass
20	0.003	0.000	N/A	0.003	0.000	N/A	Pass
21	0.020	0.004	N/A	0.020	0.007	N/A	Pass
22	0.002	0.000	N/A	0.002	0.000	N/A	Pass
23	0.016	0.004	N/A	0.016	0.006	N/A	Pass
24	0.002	0.000	N/A	0.002	0.000	N/A	Pass
25	0.013	0.004	N/A	0.013	0.006	N/A	Pass
26	0.002	0.000	N/A	0.002	0.000	N/A	Pass
27	0.011	0.003	N/A	0.011	0.005	N/A	Pass
28	0.001	0.000	N/A	0.002	0.000	N/A	Pass
29	0.010	0.003	N/A	0.010	0.005	N/A	Pass
30	0.001	0.000	N/A	0.001	0.000	N/A	Pass
31	0.008	0.003	N/A	0.008	0.005	N/A	Pass
32	0.001	0.000	N/A	0.001	0.000	N/A	Pass
33	0.006	0.003	N/A	0.006	0.004	N/A	Pass
34	0.001	0.000	N/A	0.001	0.000	N/A	Pass
35	0.004	0.003	N/A	0.004	0.004	N/A	Pass
36	0.001	0.000	N/A	0.001	0.000	N/A	Pass
37	0.003	0.003	N/A	0.003	0.004	N/A	Pass
38	0.001	0.000	N/A	0.001	0.000	N/A	Pass
39	0.002	0.002	N/A	0.002	0.004	N/A	Pass
40	0.001	0.000	N/A	0.001	0.000	N/A	Pass

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

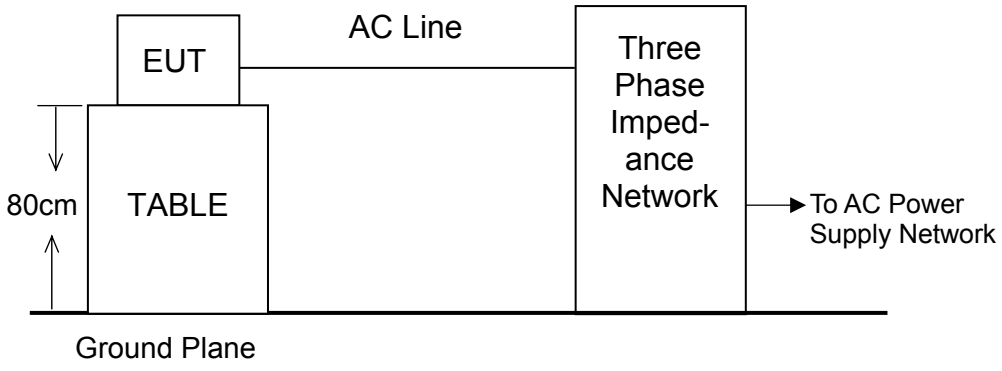
8. Measurement of Voltage Fluctuations and Flicker Emissions

8.1. List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	AC Power Source	TESEQ	NSG 1007-45	1248A04038	2016. 01. 29	2 Years
2	Signal Condition-ing Unit	TESEQ	CCN 1000-3	1234A03680	2016. 01. 29	2 Years
3	Three Phase Im-pedance Network	TESEQ	INA 2197	1234A03681	2016. 01. 29	2 Years
4	Profline AC Switching Unit	TESEQ	NSG 2200-3	EK 22713	2016. 07. 01	2 Years

8.2. Test Setup

The EUT and test equipment were configured in accordance with the requirement of EN 61000-3-3.



8.3. Applicable Standard and Limits

(1) Limits is according to section 5 of EN 61000-3-3

Tested Items	Description	Limit
P_{st}	Short-term Flicker Indicator	≤ 1.0
P_{lt}	Long-term Flicker Indicator	≤ 0.65
$d_{(t)}$	Voltage change more than 500ms	≤ 3.3%
T_{max}	Maximum time duration during the observation period that the voltage deviation $d_{(t)}$ exceeds the limit for d_c	500ms
d_c	Relative steady-state voltage change	≤ 3.3%
d_{max}	Maximum relative voltage change	≤ 4%
	Maximum relative voltage change	≤ 6%
	Maximum relative voltage change	≤ 7%

8.4. Measurement Procedure

The measurement procedure specified in EN 61000-3-3 clause 6 was used.

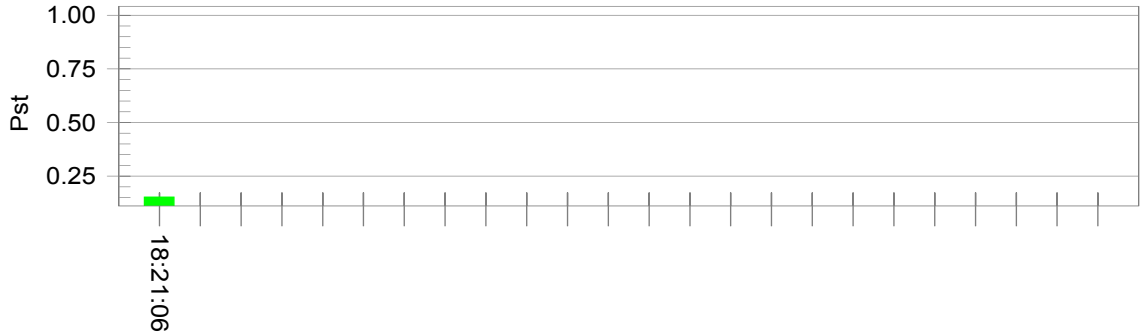
- Setup the EUT and associated equipment described as clause 4.1.
- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.
- The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.
- Apply a 230V/50Hz rated test voltage which shall be maintained within ±2.0% and the frequency within ±0.5% of the nominal value to EUT.

8.5. Measurement Result

Test Date	2017. 04. 20	Environment	23ºC, 50%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Jason Chou

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):	**230.20**			
Highest dt (%):	**0.00**	**Test limit (%):**	**N/A**	**N/A**
T-max (mS):	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.04**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.153**	**Test limit:**	**1.000**	**Pass**

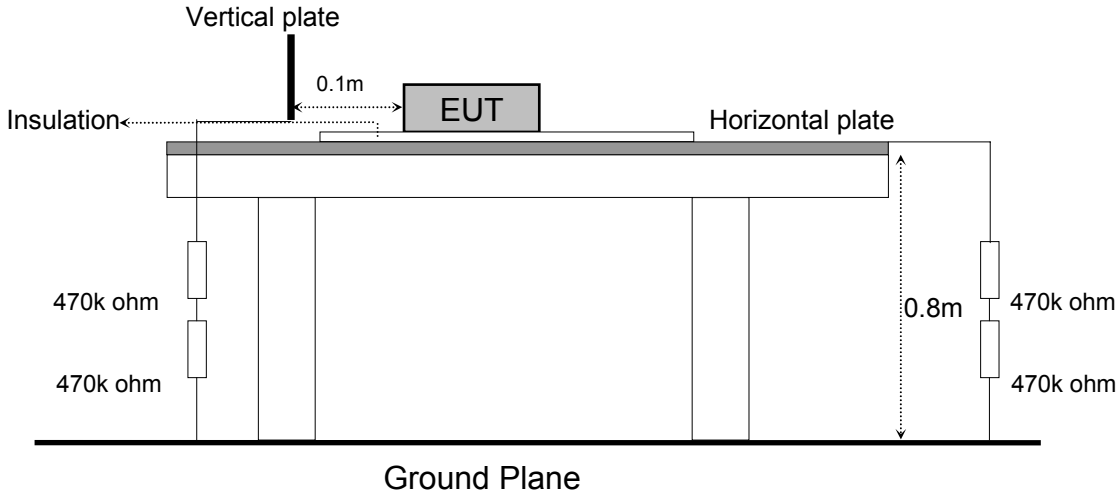
9. Electrostatic Discharge Immunity Test

9.1. List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	ESD Simulator	TESEQ	NSG 438	1497	2016. 11. 18	1 Year

9.2. Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-2.



9.3. Applicable Standard and Test Specification

Immunity requirement is in accordance with EN 55024 clause 4.2.1
Test specification is in accordance with EN 55024 Table 1.3
Basic standard is in accordance with IEC 61000-4-2

Test Specification		Performance Criterion
Contact Discharge Voltage	±2kV and ±4kV	B
Air Discharge Voltage	±2kV, ±4kV and ±8kV	

9.4. Measurement Procedure

The measurement procedure specified in IEC 61000-4-2 clause 8.3.1 and A.5 was used.

- Setup the EUT and associated equipment described as clause 4.1.
- Air Discharge

  This test is done on a non-conductive surfaces. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the ESD generator discharge electrode shall be removed from the EUT. The generator is then retrigged for a new single discharge and repeated 10 discharges each at positive and negative polarity for each preselected test point. This procedure shall be repeated until all the air discharge completed.
- Contact Discharge

  All the procedure shall be same as above (3) except that the tip of the discharge electrode shall touch the EUT conductive surfaces & repeated 25 discharges each discharges each at positive and negative polarity for each test point before the discharge switch is operated.
- Indirect discharge for horizontal coupling plane

  At least 25 discharges each at positive and negative polarity shall be applied to the horizontal coupling plane, at points on each side of the EUT. The ESD generator positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.
- Indirect discharge for vertical coupling plane

  At least 25 discharges each at positive and negative polarity shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.
- For above tests, the voltage was increased from the minimum to the selected test level.

9.5. Test Result

Test Date	2017. 04. 20	Environment	21ºC, 41%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Fans Lee

Air Discharge	**Voltage Level kV / Discharge per polarity 10 / Observation Criterion**										
Test Location	+2	-2	+4	-4	+8	-8					Comments
Screen*4(1~4)	ND	ND	ND	ND	A	A					
LED*1 (5)	ND	ND	ND	ND	A	A					
Seam*6(6~11)	ND	ND	ND	ND	A	A					
Audio*1 (12)	ND	ND	ND	ND	A	A					
HDMI*1 (13)	ND	ND	ND	ND	A	A					
AC IN*1 (14)	ND	ND	ND	ND	ND	ND					
Connection*1 (15)	ND	ND	ND	ND	A	ND					
Button*1 (19)	ND	ND	ND	ND	ND	ND					
Hole*1 (20)	ND	ND	ND	ND	ND	ND					
Contact Discharge	**Voltage Level kV / Discharge per polarity 25 / Observation Criterion**										
Test Location	+2	-2	+4	-4							Comments
Metal*3 (16~18)	A	A	A	A							
Indirect Contact	**Voltage kV Level / Discharge per polarity 25 / Observation Criterion**										
Test Location	+2	-2	+4	-4							Comments
VCP Front	A	A	A	A							
VCP Right	A	A	A	A							
VCP Left	A	A	A	A							
VCP Back	A	A	A	A							
HCP Bottom	A	A	A	A							
Additional Notes											
Measurement Points	**Please refer to the Photos of ESD Test Points**										

ND=No Discharge; Meets criteria but unable to obtain an electrostatic discharge (ESD) at this test point.

Connection Cable: 1.0m

Power Cord: 1.8m

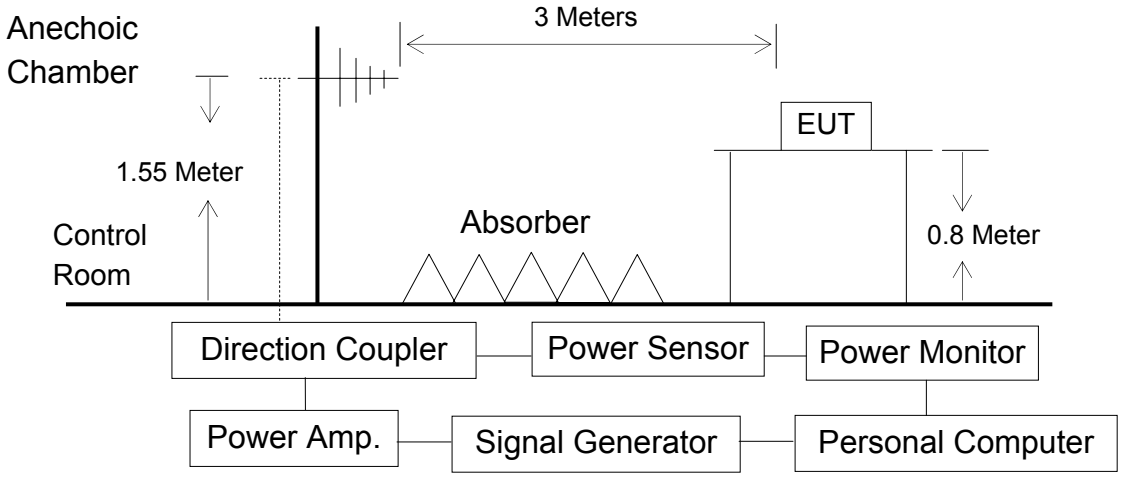
10. Radiated, Radio-frequency, Electromagnetic Field Immunity Test

10.1.List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Signal Generator	R&S	SML03	103251	2016. 12. 27	1 Year
2	Power Amplifier	A/R	250W1000A	0329092	NCR	NCR
3	Power Sensor	Keysight	E9327A	MY56140003	2016. 10. 27	1 Year
4	Power Monitor	Agilent	E4417A	GB41291797	2017. 01. 13	1 Year
5	Power Antenna	A/R	AT1080	13002	NCR	NCR
6	Direction Coupler	A/R	DC6180	19323	2016. 04. 24	1 Year

10.2.Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-3.



10.3.Applicable Standard and Test Specification

Immunity requirement is in accordance with EN 55024 clause 4.2.3 and 4.2.3.2
Test specification is in accordance with EN 55024 Table 1.2
Basic standard is in accordance with IEC 61000-4-3

Test Specification		Performance Criterion
Frequency Range	80-1000MHz	A
Field Strength	3V/m (unmodulated, r.m.s)	
Amplitude Modulated	80%, 1kHz AM	

10.4.Measurement Procedure

The measurement procedure specified in IEC 61000-4-3 clause 8 was used.

- Setup the EUT and associated equipment described as clause 4.1.
- The EUT was placed on a non-conductive table 0.8 meter above the ground, the EUT and its simulators on the turn table and keep them 3 meters away from the transmitting antenna which is mounted on an antenna tower and fixes at 1.55 meter height.
- The test was performed with the EUT exposed to both horizontally and vertically polarized fields on each of the four sides.
- All the scanning conditions are as follows:

Field Strength:	3 V/m (r.m.s, Unmodulated)
Scanning Frequency:	80-1000MHz
Amplitude Modulated:	AM 1kHz, 80%
Step Size:	1% increments
The Rate of Sweep:	0.0015 decade/s
Dwell Time:	3 sec.
Test Position Angle:	0°, 90°, 180° and 270°
Polarity of Antenna:	H: Horizontal, V: Vertical

10.5.Test Result

Test Date	2017. 04. 20	Environment	25ºC, 49%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	MinXaing Yang

Frequency Range (MHz)	Position Angle (°)	Polarity (H or V)	Field Strength (V/m)	Observation Criterion
80 - 1000	0	H	3V/m +Modulated	A
80 - 1000	90	H	3V/m +Modulated	A
80 - 1000	180	H	3V/m +Modulated	A
80 - 1000	270	H	3V/m +Modulated	A
80 - 1000	0	V	3V/m +Modulated	A
80 - 1000	90	V	3V/m +Modulated	A
80 - 1000	180	V	3V/m +Modulated	A
80 - 1000	270	V	3V/m +Modulated	A

Remark 1: Modulation Signal: 1kHz 80% AM.
Remark 2: No error occurred.
Connection Cable: 1.0m
Power Cord: 1.8m

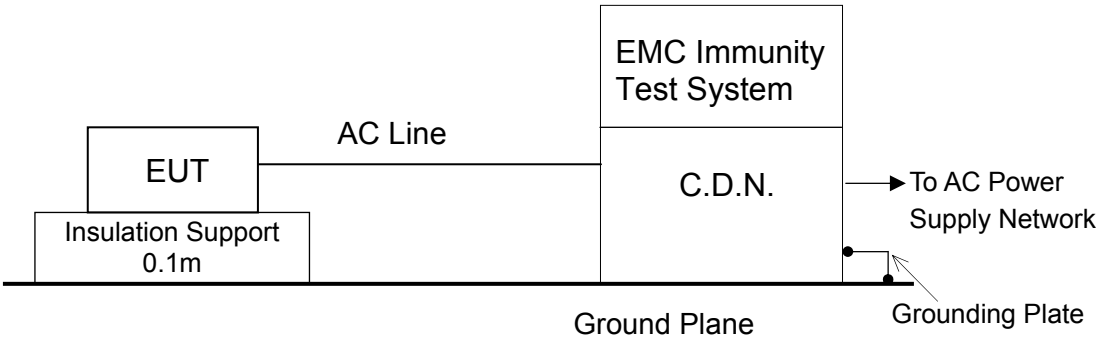
11. Electrical fast transient/burst Immunity Test

11.1.List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	EMS Immunity Test System	TESEQ	NSG 3060	1519	2016. 07. 26	1 Year
2	3Phase Burst Coupler	TESEQ	CDN 3063	2074	2016. 07. 26	1 Year

11.2.Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-4.



11.3.Applicable Standard and Test Specification

Immunity requirement is in accordance with EN 55024 clause 4.2.2
Test specification is in accordance with EN 55024 Table 2.3 and 4.3
Basic standard is in accordance with IEC 61000-4-4

Test Specification		Performance Criterion
Signal and Telecommunication Ports, Voltage Peak	±0.5kV	B
Input AC Power Ports, Voltage Peak	±1kV	
Wave Shape of Pulse	5/50 Tr/Th ns	
Repetition Frequency	5kHz	

11.4.Measurement Procedure

The measurement procedure specified in IEC 61000-4-4 clause 8 was used.

- Setup the EUT and associated equipment described as clause 4.1.
- The EUT and its simulators was placed 0.1m high above the ground reference plane which was a min. 1m*1m metallic sheet with 0.65mm minimum thickness.
- This reference ground plane is 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 beneath the EUT, shall be more than 0.5m.
- For input and output AC power ports

  The EUT was connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines, and the length of the power line between the coupling device and the EUT shall be 0.5m or less. Both polarities of the test voltage should be applied during compliance test and the duration of the test can‘t less than 1min.
- For signal lines and control lines ports

  The interface cables‘ length is less than 3m, therefore, it’s unnecessary to measure.
- For DC input and DC output power ports

  No DC ports. It‘s unnecessary to measure.

11.5.Test Result

Test Date	2017. 04. 20	Environment	23ºC, 54%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Rex Wang

Input AC Power Port					
Inject Line	**Polarity (+/-)**	**Test Voltage Peak (kV)**	**Inject Time (s)**	**Inject Method**	**Observation Criterion**
L	+	0.5, 1	60	Direct	A
L	-	0.5, 1	60	Direct	A
N	+	0.5, 1	60	Direct	A
N	-	0.5, 1	60	Direct	A
L, N	+	0.5, 1	60	Direct	A
L, N	-	0.5, 1	60	Direct	A

Remark: No error occurred.
Connection Cable: 1.0m
Power Cord: 1.8m

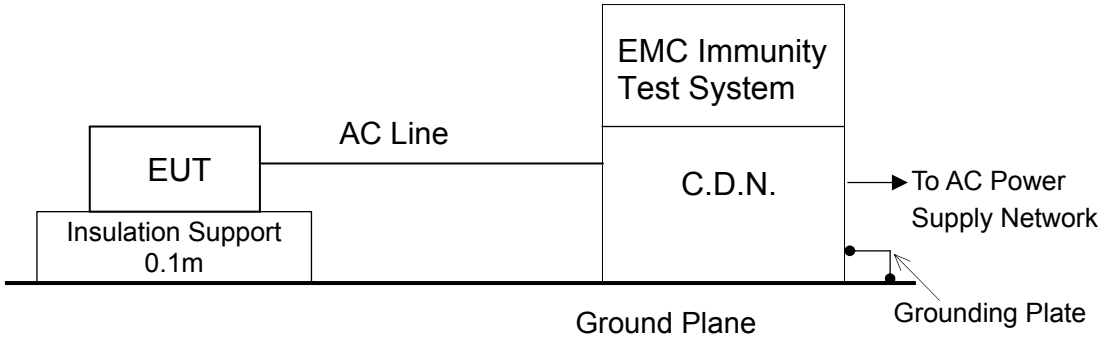
12. Surge Immunity Test

12.1.List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	EMS Immunity Test System	TESEQ	NSG 3060	1519	2016. 07. 26	1 Year
2	3Phase Burst Coupler	TESEQ	CDN 3063	2074	2016. 07. 26	1 Year

12.2.Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-5.



12.3.Applicable Standard and Test Specification

Immunity requirement is in accordance with EN 55024 clause 4.2.5
Test specification is in accordance with EN 55024 Table 2.2 and 4.4
Basic standard is in accordance with IEC 61000-4-5

Test Specification		Performance Criterion
Signal and Telecom-munication Ports, Open Circuit Voltage	Voltage Peak: ±1kV Voltage Peak (primary protection): ±4kV	B
	Waveform: 10/700 Tr/Th μs	
Input AC Power Ports, Open Circuit Voltage	Voltage Peak (line to line): ±1kV Voltage Peak (line to earth or groud): ±2kV	
	Waveform: 1.2/50 (8/20) Tr/Th μs	

12.4.Measurement Procedure

The measurement procedure specified in IEC 61000-4-5 clause 8 was used.

- Setup the EUT and associated equipment described as clause 4.1.
- For line to line coupling mode, provided a 0.5/1kV 1.2/50 μs current surge (at open-circuit condition) and 8/20 μs current surge to EUT selected points.
- At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate.
- Different phase angles (at 0º, 90º, 180º and 270º) were done individually.
- Repeat above procedure except the open-circuit test voltages 0.5kV/1kV/2kV for line to earth coupling mode test.

12.5.Test Result

Test Date	2017. 04. 20	Environment	23ºC, 54%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Rex Wang

Input AC Power Port, Open Circuit Voltage					
Location	**Polarity (+/-)**	**Phase Angle (º)**	**Test Voltage Peak (kV)**	**No of Pulse**	**Observation Criterion**
L-N	+	0	0.5, 1	5	A
	+	90	0.5, 1	5	A
	+	180	0.5, 1	5	A
	+	270	0.5, 1	5	A
	-	0	0.5, 1	5	A
	-	90	0.5, 1	5	A
	-	180	0.5, 1	5	A
	-	270	0.5, 1	5	A
Remark: No error occurred. Connection Cable: 1.0m Power Cord: 1.8m					

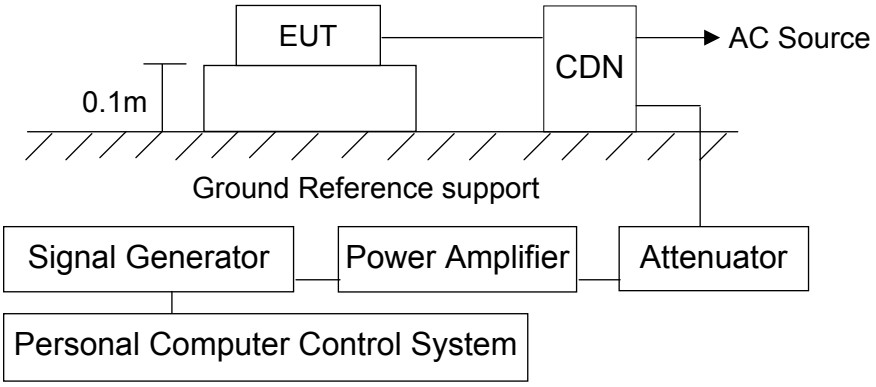
13. Immunity to Conducted Disturbances, Induced by Radio-Frequency Field Immunity Test

13.1.List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Signal Generator	R & S	SMC100A	101402	2016. 05. 04	1 Year
2	Power Amplifier	A / R	100A250A	0330351	N.C.R.	N.C.R.
3	Power Meter	Agilent	N1913A	MY52070009	2017. 01. 18	1 Year
4	Power Sensor	HP	8482B	3318A05483	N.C.R.	N.C.R.
5	Attenuator	Weinschel	40-6-34	NB538	2016. 04. 24	1 Year
6	CDN-M3	Fischer	FCC-801-M2 -25A	2010	2017. 03. 15	1 Year

13.2.Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-6.



13.3.Applicable Standard and Test Specification

Immunity requirement is in accordance with EN 55024 clause 4.2.3 and 4.2.3.3
Test specification is in accordance with EN 55024 Table 2.1 and 4.1
Basic standard is in accordance with IEC 61000-4-6

Test Specification		Performance Criterion
Signal and Telecommunication Ports and Input AC Power Port		
Frequency Range	0.15-80MHz	A
Voltage Level	3V (unmoulated, r.m.s)	
Amplitude Modulated	80%, 1kHz AM	

13.4.Measurement Procedure

The measurement procedure specified in IEC 61000-4-6 clause 8 was used.

- Setup the EUTs and associated equipment described as clause 4.1.
- The EUT and supporting equipment were placed on an insulating support 0.1m high. above a ground reference plane. CDN (coupling and decoupling device) was placed on the ground plane making direct contact with it at about 0.1-0.3m from EUT. Cables between CDN and EUT were as short as possible.
- The disturbance signal described below was injected to EUT through CDN.
- One CDN shall be connected to the port intended to be tested and one CDN with 50 Ω termination shall be connected to another port. Decoupling networks shall be installed on all other ports to which cables are attached.
- The frequency range is swept from 150 kHz to 80 MHz, using the signal level established during the setting process and with a disturbance signal of 80 % amplitude. The signal is modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. Where the frequency is swept incrementally, the step size shall not exceed 1 % of the preceding frequency value.
- The dwell time of the amplitude modulated carrier at each frequency shall not be less than the time necessary for the EUT to be exercised and torespond, but shall in no case be less than 0,5 s. The sensitive frequencies (e.g. clock frequencies) shall be analyzed separately.
- Attempts should be made to fully exercise the EUT during testing, and to fully interrogate all exercise modes selected for susceptibility.

13.5.Test Result

Test Date	2017. 04. 20	Environment	21ºC, 41%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Fans Lee

Frequency Range (MHz)	Injected Position	Voltage Level	Observation Criterion
0.15 - 80MHz	Main (Input AC Power Line)	3V(rms) + Modulated	A
Remark 1: Modulation Signal: 1kHz 80% AM. Remark 2: No error occurred. Connection Cable: 1.0m Power Cord: 1.8m			

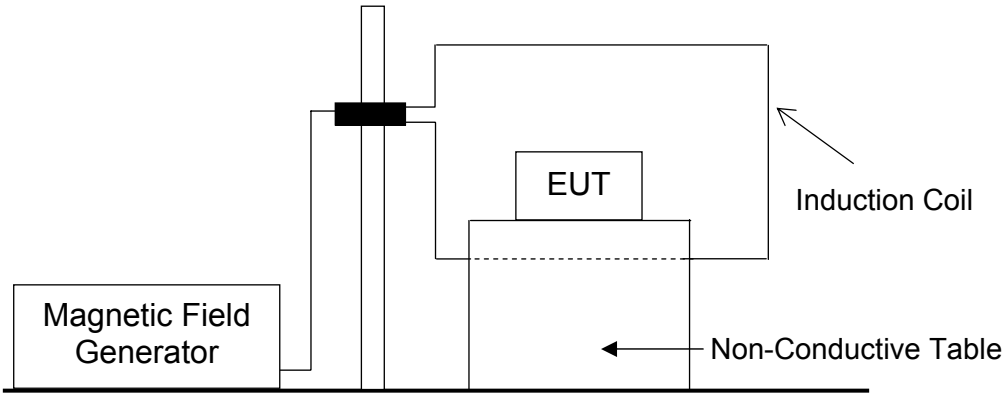
14. Power Frequency Magnetic Field Immunity Test

14.1.List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Magnetic Field Generator	NARDA	PMM1008	0100X30101	2016. 11. 18	1 Year

14.2.Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-8.



14.3.Applicable Standard and Test Specification

Immunity requirement is in accordance with EN 55024 clause 4.2.4
Test specification is in accordance with EN 55024 Table 1.1
Basic standard is in accordance with IEC 61000-4-8

Test Specification		Performance Criterion
Power Frequency	50Hz or 60Hz	A
Magnetic Field Strength	1A/m (rms)	

14.4.Measurement Procedure

The measurement procedure specified in IEC 61000-4-8 clause 8 was used.

- Setup the EUT and associated equipment described as clause 4.1.
- The equipment cabinets which can be earthed shall be connected to the safety earth directly on the GRP or via the earth terminal to PE.
- The EUT was placed on 0.8m high table, and subjected to the test magnetic field by using the induction coil of standard dimensions (1m x 2.6m).
- The induction coil rotated by 90 degrees in order to expose the EUT to the test field with different orientations (at X-axis, Y-axis and X-axis).
- The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.
- All cables of EUT exposed to magnetic field for 1m of their length.
- The preferential range of test levels, respectively for continuous of the magnetic field, applicable to distribution networks at 50 Hz or 60 Hz.

14.5.Test Result

Test Date	2017. 04. 20	Environment	23ºC, 50%
Input Power	AC 230V, 50Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Sam Yan

Power Frequency	Magnetic Field Strength	Coil Orientation	Testing Duration	Observation Criterion
50Hz	1A/m	X-axis	1 Min	A
50Hz	1A/m	Y-axis	1 Min	A
50Hz	1A/m	Z-axis	1 Min	A
Remark: No error occurred. Connection Cable: 1.0m Power Cord: 1.8m				

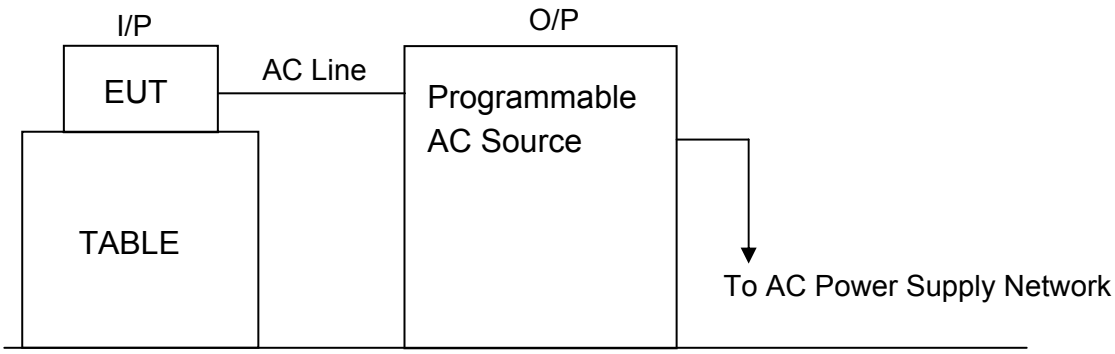
15. Voltage Dips and Interruptions Immunity Test

15.1.List of Test Instruments

Item	Equipment	Manufacture	Model No.	Serial No.	Cal. Date	Cal. Interval
1	AC Power Source	TESEQ	NSG 1007-45	1248A04038	2016. 01. 29	2 Years

15.2.Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-11.



15.3.Applicable Standard and Test Specification

Immunity requirement is in accordance with EN 55024 clause 4.2.6
Test specification is in accordance with EN 55024 Table 4.2 and 4.3
Basic standard is in accordance with IEC 61000-4-11

Test Specification		Performance Criterion
Voltage Dips	>95% reduction, 0.5period	B
Voltage Dips	30% reduction , 25period	C
Voltage Interruptions	>95% reduction , 250period	C

15.4.Measurement Procedure

The measurement procedure specified in IEC 61000-4-11 clause 8 was used.

- Setup the EUT and associated equipment described as clause 4.1.
- During the tests, the mains voltage for testing shall be monitored within an accuracy of 2 %.
- The EUT shall be tested for each selected combination of test level and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested.
- For voltage dips, changes in supply voltage shall occur at zero crossings of the voltage, and at additional angles considered critical by product committees or individual product specifications preferably selected from 45°, 90°, 135°, 180°, 225°, 270° and 315° on each phase.
- For short interruptions, the angle shall be defined by the product committee as the worst case. In the absence of definition, it is recommended to use 0° for one of the phases.
- For each test, any degradation of performance shall be recorded. The monitoring equipment should be capable of displaying the status of the operational mode of the EUT during and after the tests. After each group of tests, a full functional check shall be performed.

15.5.Test Result

Test Date	2017. 04. 20	Environment	23ºC, 50%
Input Power	AC 100-240V, 50/60Hz	Result	Pass
Test Mode	Connection(HDMI), 1920*1080/60Hz	Tested By	Sam Yan

Type of Test	Test Voltage	Phase Angle (º)	Voltage Reduction (%)	Duration (Period)	Observation Criterion
Voltage Interruptions	100V 240V	0	> 95	250	B (Note)
		45	> 95	250	B (Note)
		90	> 95	250	B (Note)
		135	> 95	250	B (Note)
		180	> 95	250	B (Note)
		225	> 95	250	B (Note)
		270	> 95	250	B (Note)
		315	> 95	250	B (Note)
Voltage Dips	100V 240V	0	30	25	A
		45	30	25	A
		90	30	25	A
		135	30	25	A
		180	30	25	A
		225	30	25	A
		270	30	25	A
		315	30	25	A
		0	> 95	0.5	A
		45	> 95	0.5	A
		90	> 95	0.5	A
		135	> 95	0.5	A
		180	> 95	0.5	A
		225	> 95	0.5	A
		270	> 95	0.5	A
		315	> 95	0.5	A

Note: Criterion B: The EUT was stopped operating during the test, but it's self-recoverable after test.

Connection Cable: 1.0m
Power Cord: 1.8m

16. Measurement Uncertainty List

The measurement uncertainty was estimated for test on the EUT according to CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage of K=2.

The uncertainties value is not used in determining the PASS/FAIL results.

Test Items/Facilities	Frequency/Equipment/Unit	Uncertainty
Conducted emissions at AC mains power port	9kHz-150kHz	±3.7dB
	150kHz-30MHz	±3.5dB
Conducted emissions at wired network port	150kHz-30MHz	±3.5dB
Conducted emissions at broadcast receiver tuner port	150kHz-30MHz	±3.5dB
Conducted emissions Power Clamp	30MHz-300MHz	±4.4dB
Radiated electromagnetic	9kHz-30MHz	±0.5dB
Radiated emissions (10m Chamber)	30MHz-200MHz, 3m, Horizontal	±4.3dB
	200MHz-1000MHz, 3m, Horizontal	±4.3dB
	30MHz-200MHz, 3m, Vertical	±4.4dB
	200MHz-1000MHz, 3m, Vertical	±3.9dB
	30MHz-200MHz, 10m, Horizontal	±4.3dB
	200MHz-1000MHz, 10m, Horizontal	±4.1dB
	30MHz-200MHz, 10m, Vertical	±4.3dB
	200MHz-1000MHz, 10m, Vertical	±3.8dB
	1GHz-6GHz, 3m	±5.5dB
	6GHz-18GHz, 3m	±4.8dB
Radiated emissions (No.1 3m Chamber)	30MHz-200MHz, 3m, Horizontal	±3.9dB
	200MHz-1000MHz, 3m, Horizontal	±4.3dB
	30MHz-200MHz, 3m, Vertical	±4.5dB
	200MHz-1000MHz, 3m, Vertical	±4.1dB
	1GHz-6GHz, 3m	±5.1dB
	6GHz-18GHz, 3m	±5.5dB
Radiated emissions (No.2 3m Chamber)	30MHz-200MHz, 3m, Horizontal	±4.3dB
	200MHz-1000MHz, 3m, Horizontal	±4.3dB
	30MHz-200MHz, 3m, Vertical	±4.4dB
	200MHz-1000MHz, 3m, Vertical	±3.9dB
	1GHz-6GHz, 3m	±5.2dB
	6GHz-18GHz, 3m	±5.2dB
Radiated emissions (No.3 3m Chamber)	30MHz-200MHz, 3m, Horizontal	±4.7dB
	200MHz-1000MHz, 3m, Horizontal	±4.5dB
	30MHz-200MHz, 3m, Vertical	±4.3dB
	200MHz-1000MHz, 3m, Vertical	±4.1dB

Test Items/Facilities	Frequency/Equipment/Unit	Uncertainty
Radiated emissions (No.3 OATS)	30MHz-200MHz, 3m, Horizontal	±4.5dB
	200MHz-1000MHz, 3m, Horizontal	±4.4dB
	30MHz-200MHz, 3m, Vertical	±4.4dB
	200MHz-1000MHz, 3m, Vertical	±4.0dB
	30MHz-200MHz, 10m, Horizontal	±4.5dB
	200MHz-1000MHz, 10m, Horizontal	±4.2dB
	30MHz-200MHz, 10m, Vertical	±4.3dB
	200MHz-1000MHz, 10m, Vertical	±4.0dB
Radiated emissions (No.5 OATS)	30MHz-200MHz, 3m, Horizontal	±4.2dB
	200MHz-1000MHz, 3m, Horizontal	±4.7dB
	30MHz-200MHz, 3m, Vertical	±4.4dB
	200MHz-1000MHz, 3m, Vertical	±4.4dB
	30MHz-200MHz, 10m, Horizontal	±4.2dB
	200MHz-1000MHz, 10m, Horizontal	±4.6dB
	30MHz-200MHz, 10m, Vertical	±4.4dB
	200MHz-1000MHz, 10m, Vertical	±4.4dB
Radiated emissions (No.6 OATS)	30MHz-200MHz, 3m, Horizontal	±4.3dB
	200MHz-1000MHz, 3m, Horizontal	±4.4dB
	30MHz-200MHz, 3m, Vertical	±4.5dB
	200MHz-1000MHz, 3m, Vertical	±4.1dB
	30MHz-200MHz, 10m, Horizontal	±4.3dB
	200MHz-1000MHz, 10m, Horizontal	±4.2dB
	30MHz-200MHz, 10m, Vertical	±4.4dB
	200MHz-1000MHz, 10m, Vertical	±4.1dB
Radiated emissions (No.7 OATS)	30MHz-200MHz, 3m, Horizontal	±3.9dB
	200MHz-1000MHz, 3m, Horizontal	±4.5dB
	30MHz-200MHz, 3m, Vertical	±4.6dB
	200MHz-1000MHz, 3m, Vertical	±4.5dB
	30MHz-200MHz, 10m, Horizontal	±3.9dB
	200MHz-1000MHz, 10m, Horizontal	±4.3dB
	30MHz-200MHz, 10m, Vertical	±4.6dB
	200MHz-1000MHz, 10m, Vertical	±4.5dB
Radiated emissions (No.8 OATS)	30MHz-200MHz, 3m, Horizontal	±4.5dB
	200MHz-1000MHz, 3m, Horizontal	±4.3dB
	30MHz-200MHz, 3m, Vertical	±4.6dB
	200MHz-1000MHz, 3m, Vertical	±4.1dB
	30MHz-200MHz, 10m, Horizontal	±4.7dB
	200MHz-1000MHz, 10m, Horizontal	±4.2dB
	30MHz-200MHz, 10m, Vertical	±4.6dB
	200MHz-1000MHz, 10m, Vertical	±4.0dB

Test Items/Facilities	Frequency/Equipment/Unit	Uncertainty
Harmonic current	NSG 1007-45	±0.7%
Voltage fluctuations & flicker	NSG 1007-45	±0.2%
Electrostatic discharge (ESD)	NSG 437	Ucurrent= 7.3% Uvoltage= 1.0% Utime = 9.0%
	Ditto	Ucurrent = 4.0% Uvoltage = 2.0% Utime = 3.0%
	MZ-15/EC	Ucurrent = 10.0% Uvoltage = 1.8% Utime = 20.0%
Radio-frequency electromagnetic field, Continuous radiated disturbances (RS)	80MHz-200MHz	±1.7dB
	200MHz-1000MHz	±1.8dB
	1GHz-6GHz	±1.7dB
Electrical fast transient/burst (EFT)	AC power port	Uvoltage = 1.0% Utime = 4.0%
	Signal port	Uvoltage = 4.0% Utime = 3.0%
Surge	Open-circuit output voltage 0.5kV-6kV (1.2us/50us)	Uvoltage = 4.0%
	Open-circuit output voltage 0.5kV-6kV (10us/700us)	Uvoltage = 4.0%
	Rise time (30%-90%) x 1.67: 0.5kV-6kV (1.2us/50us)	Utime = 3.0%
	Rise time (30%-90%) x 1.67: 0.5kV-6kV (10us/700us)	Utime = 3.0%
	Duration time: 0.5kV-6kV (1.2us/50us)	Utime = 3.0%
	Duration time: 0.5kV-6kV (10us/700us)	Utime = 3.0%
	Short-circuit output current 0.25KA-3KA (8us / 20us)	Ucurrent = 3.0%
	Rise time (10%-90%) x 1.25: (8us/20us)	Utime = 3.0%
	Duration time: (8us/20us)	Utime = 3.0%
Radio-frequency, continuous conducted disturbances (CS)	CDN (AC power port)	1.5 dB
	EM-Clamp (Signal port)	3.3 dB
Power-frequency magnetic field (PFMF)	MAG100.1	4%
	PMM1008	2%
Voltage dips	TESEQ	Uvoltage = 0.1% Ucurrent = 0.2%

17. Photographs

17.1.Conducted Emissions Measurement

Front View of Conducted Measurement

Back View of Conducted Measurement

17.2.Radiated Emissions Measurement

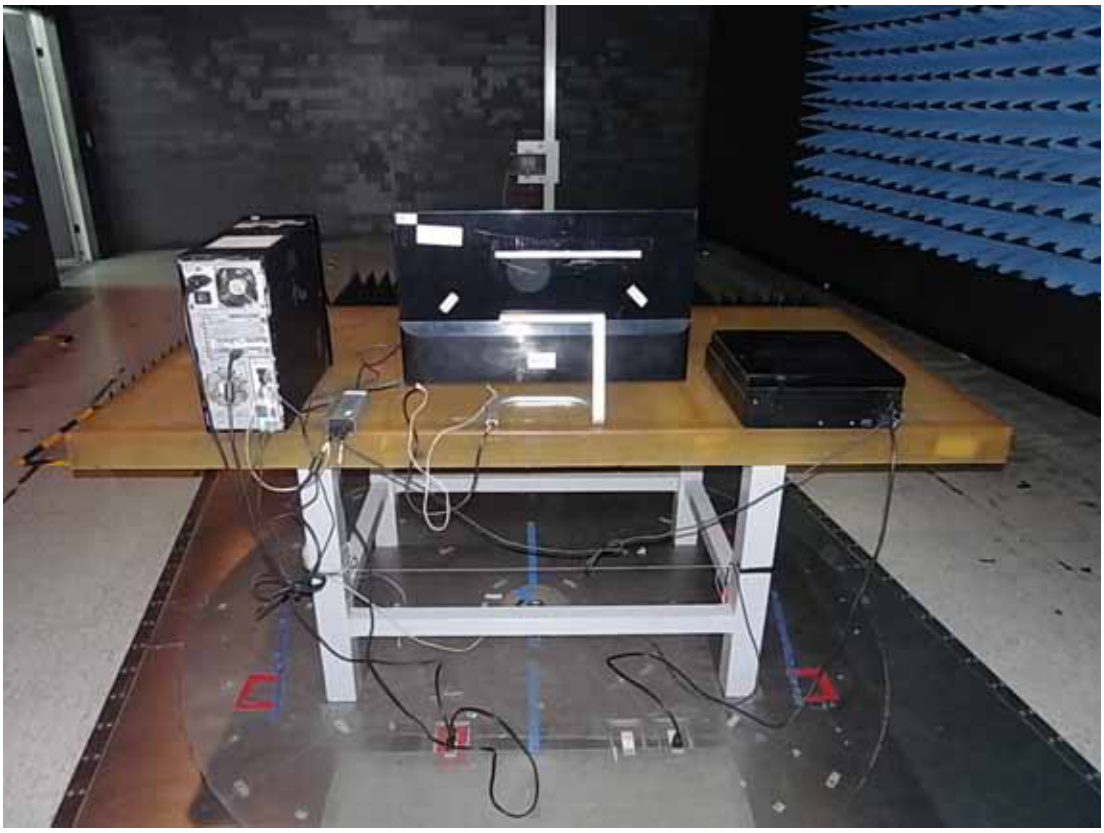
- For Frequency Range 30 – 1000MHz

Front View of Radiated Measurement

Back View of Radiated Measurement

- For Frequency Rang 1 – 6GHz

Front View of Radiated Measurement



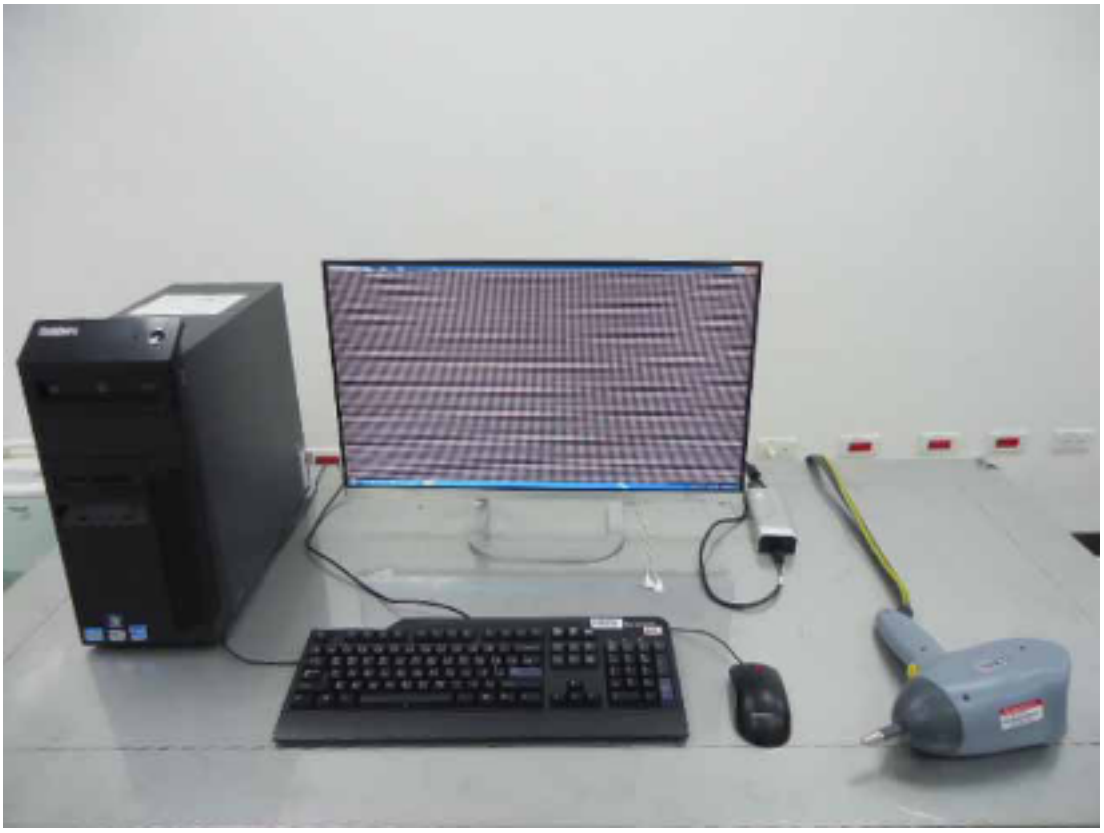
Back View of Radiated Measurement

17.3.Harmonics Current Measurement

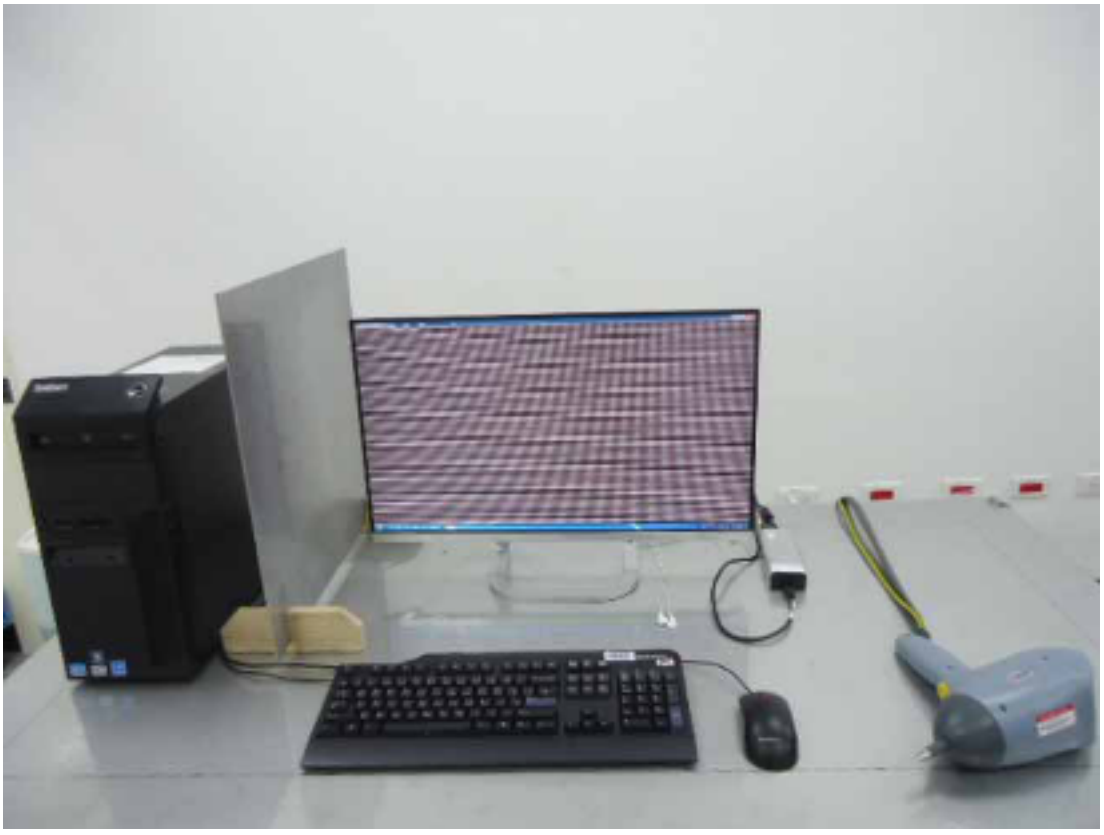
17.4.Voltage Fluctuation and Flicks Measurement

17.5.Electrostatic Discharge Immunity Test

- Air & Contact Discharge



- HCP & VCP



- ESD Test Points

- ESD Test Points

- ESD Test Points

- ESD Test Points

- ESD Test Points

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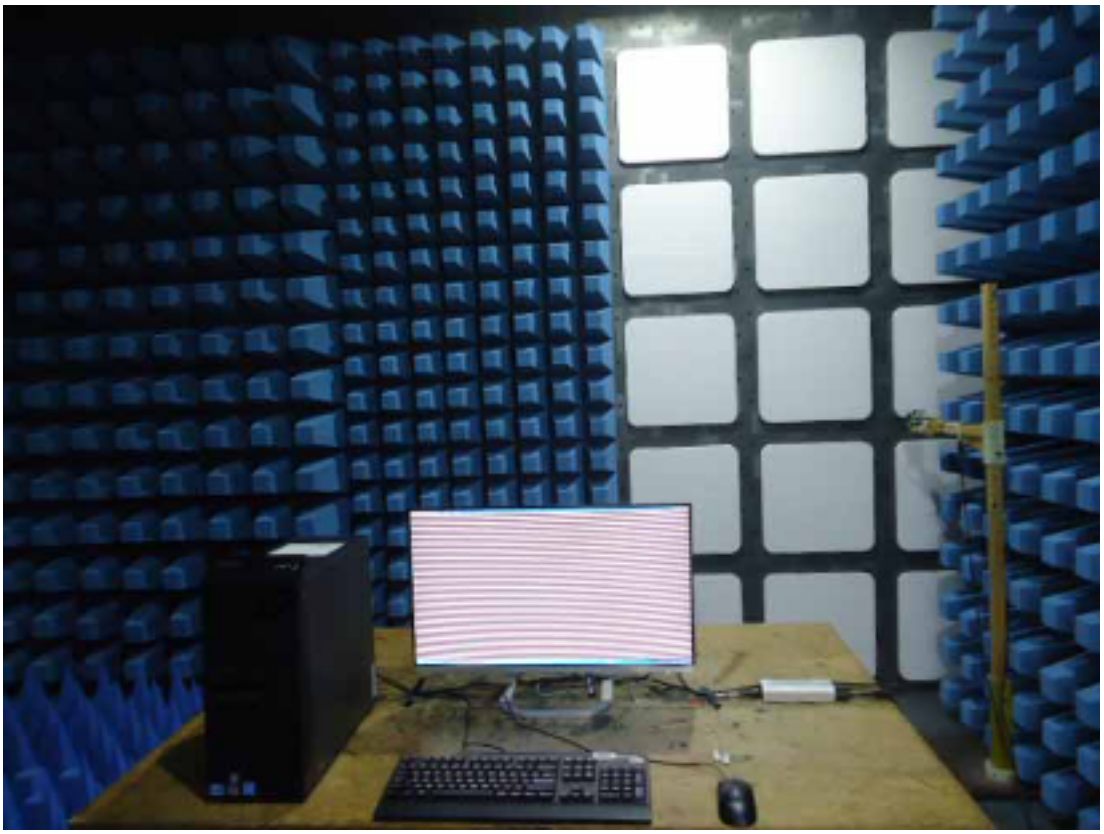
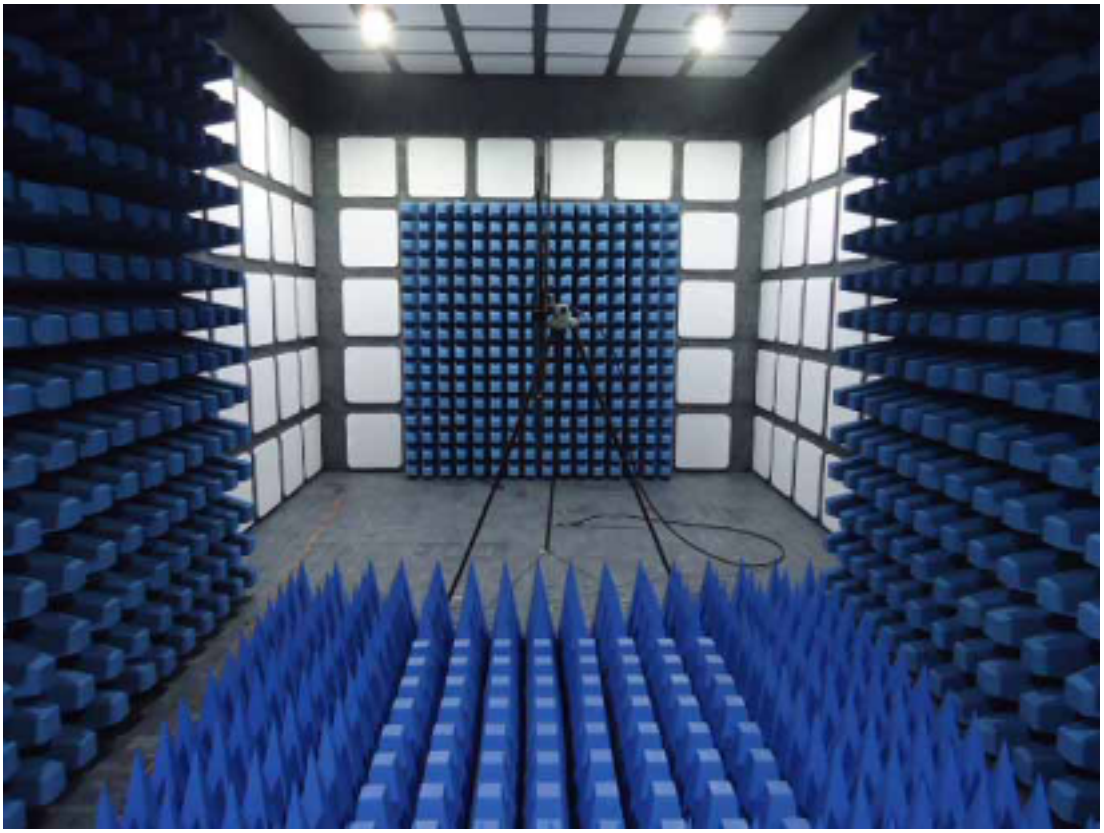
- ESD Test Points

- ESD Test Points

- ESD Test Points

17.6.Radiated, Radio-Frequency, Electromagnetic Field Immunity Test





17.7.Electrical Fast Transient/Burst Immunity Test

17.8.Surge Immunity Test

17.9.Immunity to Conducted Disturbances Induced by RF Fields

17.10.Power Frequency Magnetic Field Immunity Test

17.11.Voltage Dips and Interruptions Immunity Test