



EMC REPORT

Applicant	Shenzhen Brighter Led Technology Co., Ltd.
Address	Floor 1st-6th, building C9, Zhuao the second industrial zone, Xixiang street, Bao'an district, Shenzhen, China
Manufacturer	Shenzhen Brighter Led Technology Co., Ltd.
Address	Floor 1st-6th, building C9, Zhuao the second industrial zone, Xixiang street, Bao'an district, Shenzhen, China
Product Name	LED Display
Trademark	SHENZHEN BRIGHTER
Model Number	P3.91
Additional Models	P1.53, P1.86, P2, P2.604, P2.976, P3, P8, P4, P4.81, P5, P6, P10.
Test Laboratory	Shenzhen Circle Testing Certification Co., Ltd.
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**TEST REPORT DECLARATION**

Applicant	Shenzhen Brighter Led Technology Co., Ltd.
Address	Floor 1st-6th, building C9, Zhuao the second industrial zone, Xixiang street, Bao'an district, Shenzhen, China
EUT Description	LED Display
Model Number	P3.91

Test Standards:

EN 55032:2015+A1:2020+A11:2020

EN 55035:2017+A11:2020

EN IEC 61000-3-2:2019+A1:2021

EN 61000-3-3:2013+A1:2019+A2:2021

The EUT described above is tested by Shenzhen Circle Testing Certification Co., Ltd.(CTC) EMC Laboratory to determine the maximum emissions from the EUT and ensure the EUT to be compliance with the immunity requirements of the EUT. CTC EMC Laboratory is assumed full responsibility for the accuracy of the test results. Also, this report shows that the EUT technically complies with the 2014/30/EU directive and its amendment requirements.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Tested by :

I r i s

Test Engineer

Approved & Authorized Signer :





1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Power Line Conducted Emission Test	PASS
Radiated Emission	PASS
Harmonic Current Emission Test	PASS
Voltage Fluctuations & Flicker Test	PASS
Electrostatic Discharge Test	PASS
RF Field Strength Susceptibility Test	PASS
Electrical Fast Transient/Burst Test	PASS
Surge Test	PASS
Injected Currents Susceptibility Test	PASS
Voltage Dips And Interruptions Test	PASS

2. GENERAL INFORMATION

2.1. Report information

2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that CTC approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that CTC in any way guarantees the later performance of the product/equipment.

2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, CTC therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through CTC, unless the applicant has authorized CTC in writing to do so.

2.2. Measurement Uncertainty

(95% confidence levels, $k=2$)

Test Item	Uncertainty
Uncertainty for Radiation emission test (30MHz to 1GHz)	4.5dB
Uncertainty for Conduction emission test	3.42dB



3. PRODUCT DESCRIPTION

3.1. EUT Description

EUT Description	LED Display
Applicant	Shenzhen Brighter Led Technology Co., Ltd.
Address	Floor 1st-6th, building C9, Zhuao the second industrial zone, Xixiang street, Bao'an district, Shenzhen, China
Manufacturer	Shenzhen Brighter Led Technology Co., Ltd.
Address	Floor 1st-6th, building C9, Zhuao the second industrial zone, Xixiang street, Bao'an district, Shenzhen, China
Model Number	P3.91
Rating(s)	Input: AC200-240V, 50/60Hz, 3.5A MAX.

3.2. Block Diagram of EUT Configuration



3.3. Operating Condition of EUT

Test mode : White screen, maximum brightness

3.4. Test Conditions

Temperature: 22-26℃
Relative Humidity: 50-60%
Atmospheric pressure: 101kPa

3.5. Modifications

No modification was made.

3.6. Abbreviations

AC	Alternating Current
AMN	Artificial Mains Network
DC	Direct Current
EM	ElectroMagnetic



EMC	ElectroMagnetic Compatibility
EUT	Equipment Under Test
IF	Intermediate Frequency
RF	Radio Frequency
rms	root mean square
EMI	Electromagnetic Interference
EMS	Electromagnetic Susceptibility

3.7. Performance Criterion

Criterion A: The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

Criterion B: After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended.

Criterion C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

4. TEST EQUIPMENT USED

4.1. For Conducted Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	E087	2026-02-16	1 Year
2.	Coaxial Cable	CTC	10B	E159	2026-02-16	1 Year
3.	L.I.S.N.	Rohde & Schwarz	ENV 216	E089	2026-05-29	1 Year
4.	Shielding Room	CTC	CTC443	E099	2026-02-16	2 Year

4.2. For Magnetic Test (In Shielding Room)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS20	836600/006	2026-06-04	1 Year
2.	Triple-loop Antenna	Rohde & Schwarz	HM020	843885/002	2026-06-05	1 Year
3.	RF Cable	MIYAZAKI	5D-2W	Tri-loop Cable	2026-03-28	1/2 Year
4.	Coaxial Switch	Anritsu	MP59B	M73989	2026-06-04	1/2 Year

4.3. For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	E087	2026-02-16	1 Year
2.	Test Receiver	Rohde & Schwarz	ESPI	E155	2026-02-16	1 Year
3.	Broadband Trilog Antenna	Schwarzbeck	VULB 9162	E088	2026-06-03	1 Year
4.	OPT H64 Preamplifier	HP	8447F	E164	2026-02-16	1 Year
5.	Cable	CTC	3B	E139	2026-02-16	1 Year
6.	Cable	CTC	3C	E140	2026-02-16	1 Year
7.	Cable	CTC	3D	E141	2026-02-16	1 Year



8.	Cable	CTC	10A	E158	2026-02-16	1 Year
9.	Horn Antenna	Schwarzbeck	BBHA 9120D	E161	2026-02-16	1 Year
10.	Broadband Preamplifier	Schwarzbeck	BBV9718	E162	2026-02-16	1 Year

4.4. For Harmonic / Flicker Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Harmonic and Flicker Test System	EVERFINE	HFM-3000-V200	E207	2026-10-14	1 Year
2.	AC Power Source	EVERFINE	HFS-4000-V200	E208	2026-10-14	1 Year

4.5. For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	SCHLODER	SESD 216	E085	2026-07-13	1 Year

4.6. For RF Strength Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	HP	8648A	3633A02081	2026-05-03	1 Year
2.	Amplifier	A&R	500A100	17034	NCR	NCR
3.	Amplifier	A&R	100W/1000M1	17028	NCR	NCR
4.	Isotropic Field Monitor	A&R	FM2000	16829	NCR	NCR
5.	Isotropic Field Probe	A&R	FLW220100	16755	2026-05-03	1 Year
6.	Biconic Antenna	EMCO	3108	9507-2534	NCR	NCR
7.	Log-periodic Antenna	A&R	AT1080	16812	NCR	NCR
8.	PC	N/A	486DX2	N/A	N/A	N/A

4.7. For Electrical Fast Transient/Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst/Surge/Dip Tester	HTEC	HCOMPACT 5	E084	2026-06-30	1 Year
2.	Capacitive Coupling Clamp	HTEC	N/A	E111	2026-02-16	1 Year

4.8. For Surge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst/Surge/Dip Tester	HTEC	HCOMPACT 5	E084	2026-06-30	1 Year

4.9. For Injected Currents Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Simulator	EMTEST	CWS 500C	0900-12	2026-05-03	1 Year
2.	CDN	EMTEST	CDN-M2	510010010010	2026-05-03	1 Year
3.	VDN	EMTEST	CDN-M3	0900-11	2026-05-03	1 Year
4.	Injection Clamp	EMTEST	F-2031-23MM	368	2026-05-03	1 Year
5.	Attenuator	EMTEST	ATT6	0010222a	2026-05-03	1 Year

4.10. For Magnetic Field Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Magnetic Field Tester	HEAFELY	MAG100.1	083858-10	2026-06-01	1 Year



4.11. For Voltage Dips and Interruptions Test

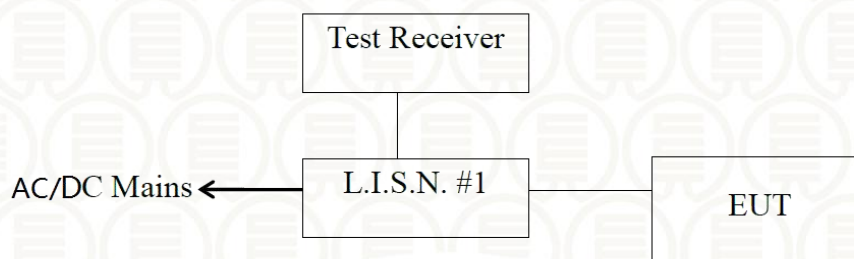
Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Until	Cal. Interval
1.	Burst/Surge/Dip Tester	HTEC	HCOMPACT 5	E084	2026-06-30	1 Year
2.	Voltage sag coupler	HTEC	HV1P16T	E083	2026-06-30	1 Year





5. POWER LINE CONDUCTED EMISSION TEST

5.1. Block Diagram of Test Setup



5.2. Test Standard

EN 55032:2015+A1:2020+A11:2020 Class A

5.3. Conducted Emission Limit

Frequency		Limits dB(uV)
MHz	Quasi-peak Level	Average Level
0.15-0.50	79	66
0.50-30	73	60

Notes: 1.Decreasing linearly with logarithm of frequency.

2.The lower limit shall apply at the transition frequencies.

5.4. EUT Configuration on Test

The following equipment 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.

5.5. Operating Condition of EUT

5.5.1.Setup the EUT and simulators as shown in Section 5.1.

5.5.2.Turn on the power of all equipment.

5.5.3.Let the EUT work in test modes (White screen, maximum brightness) and test it.

5.6. Test Procedure

The EUT is put on the ground and connected to the AC/DC mains through a Artificial Mains Network (AMN). This provided 50ohm-coupling impedance for the tested equipment. Both sides of AC/DC line are checked to find out the maximum conducted emission levels according to the EN 55032 regulations during conducted emission test.

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



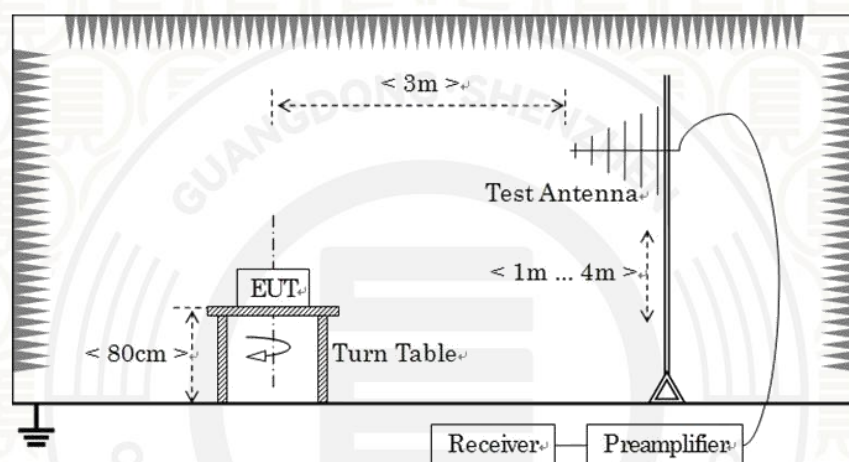
The frequency range from 150 kHz to 30 MHz is investigated. and all the scanning waveform is put in **Appendix I.**

5.7. Test Result

PASS.

6. RADIATED EMISSION TEST

6.1 Semi-Anechoic Chamber Setup Diagram



6.2 Test Standard

EN 55032:2015+A1:2020+A11:2020 Class A

6.3 Radiated Emission Limit

All emanations from a Class A 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 (dBuV/m)
30-230	3	50
230-1000	3	57

Note: 1. The tighter limit shall apply at the edge between two frequency bands.

2. Distance refers to the distance in meters between the measuring instruments antenna and the closed point of any part of the EUT.

6.4 EUT Configuration on Test

The EN 55032 Class A regulations test method must be used to find the maximum emission during radiated emission test.



6.5 Operating Condition of EUT

6.5.1. Setup the EUT as shown on Section 6.1.

6.5.2. Turn on the power of all equipment.

6.5.3. Let the EUT work in test modes (White screen, maximum brightness) and measure it.

6.6 Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on test. The bandwidth setting on the test receiver is 120 kHz.

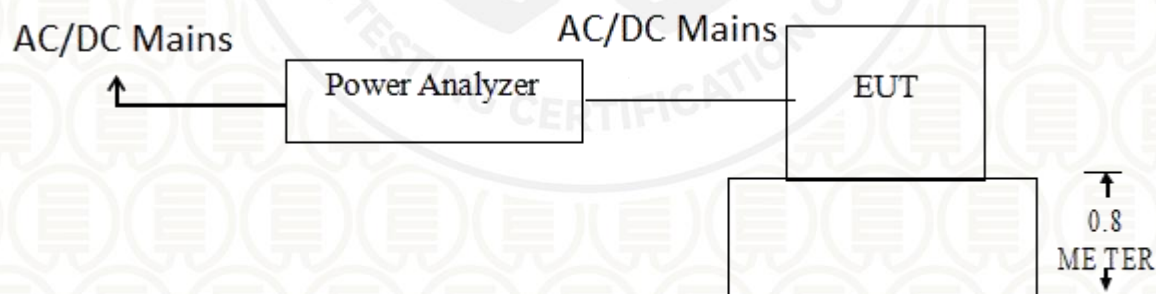
The EUT is tested in Semi-Anechoic Chamber. and all the scanning waveform (worst test mode) is put in **Appendix II**.

6.7 Test Results

PASS.

7. HARMONIC CURRENT EMISSION TEST

7.1 Block Diagram of Test Setup



7.2 Test Standard

EN IEC 61000-3-2:2019+A1:2021 Class A

7.3 Operating Condition of EUT

7.3.1. Setup the EUT as shown in Section 7.1.

7.3.2. Turn on the power of all equipments.

7.3.3. Let the EUT work in test mode (White screen, maximum brightness) and test it.



7.4 Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the Power of the EUT and use the test system to test the harmonic current level.

7.5 Test Results

PASS. (Data are shown in **Appendix III**)

8. VOLTAGE FLUCTUATIONS & FLICKER TEST

8.1 Block Diagram of Test Setup

Same as Section 7.1.

8.2 Test Standard

EN 61000-3-3:2013+A1:2019+A2:2021

8.3 Operating Condition of EUT

Same as Section 7.3. The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test.

Flicker Test Limit

Test items	Limits
Pst	1.0
dc	3.3%
dmax	4.0%
dt	Not exceed 3.3% for 500ms

8.4 Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the Power of the EUT and use the test system to test the flickers .

White screen, maximum brightness		
Items	Reading	Limit
dmax	0.01	4.0%
dc	0.03	3.3%
dt	0.05	Not exceed 3.3% for 500ms
Pst	0.001	1.0

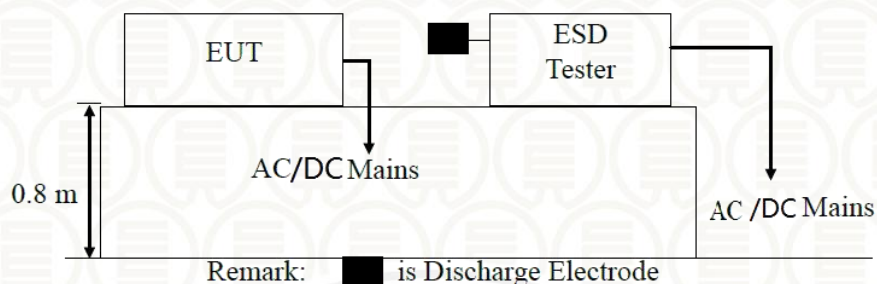
8.5 Test Results

PASS. (Data are shown in **Appendix IV**)



9. ELECTROSTATIC DISCHARGE TEST

9.1. Block Diagram of ESD Test Setup



Remark:  is Discharge Electrode

9.2. Test Standard

EN 55035:2017+A11:2020

Severity Level 3 for Air Discharge at 8kV

Severity Level 2 for Contact Discharge at 4kV

9.3. Severity Levels and Performance Criterion

9.3.1. Severity level

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

9.3.2. Performance criterion: B

9.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

9.5. Operating Condition of EUT

9.5.1. Setup the EUT as shown in Section 9.1.

9.5.2. Turn on the power of all equipment.

9.5.3. Let the EUT work in test mode (White screen, maximum brightness) and test it.

9.6. Test Procedure

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9.6.1. 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 discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

9.6.2. Contact Discharge:

All the procedure shall be same as Section 9.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

9.6.3. Indirect discharge for horizontal coupling plane

At least 20 single discharges shall be 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.

9.6.4. Indirect discharge for vertical coupling plane

At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m × 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.

9.7. Test Results

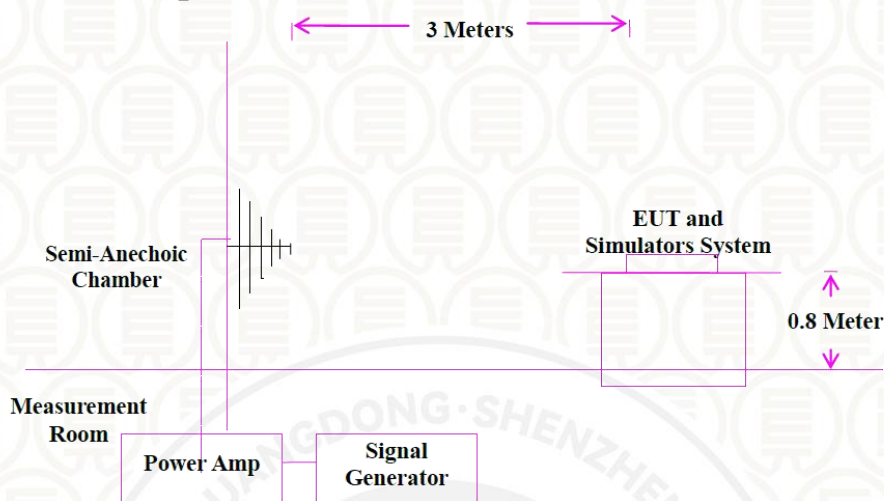
Temperature:	23℃	Humidity:	55%
Air Discharge: ±8kV For each point positive 25 times and negative 25 times discharge.			
Contact Discharge: ±4kV			
Location	Kind A-Air Discharge C-Contact Discharge	Result	
HCP	C	PASS	
VCP	C	PASS	
Metal	C	PASS	
Gap	A	PASS	
Power line	A	PASS	
Button	A	PASS	
Plastics	A	PASS	

Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).



10.RF FIELD STRENGTH SUSCEPTIBILITY TEST

10.1.R/S Test Setup



10.2.Test Standard

EN 55035:2017+A11:2020

10.3.Severity Levels and Performance Criterion

10.3.1.Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X.	Special

10.3.2.Performance criterion : A

10.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2

10.5.Operating Condition of EUT

Setup the EUT as shown in Section 10.1. The operating condition of EUT are listed in section 3.3.

10.6.Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an



antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor the EUT. All the scanning conditions are as follows :

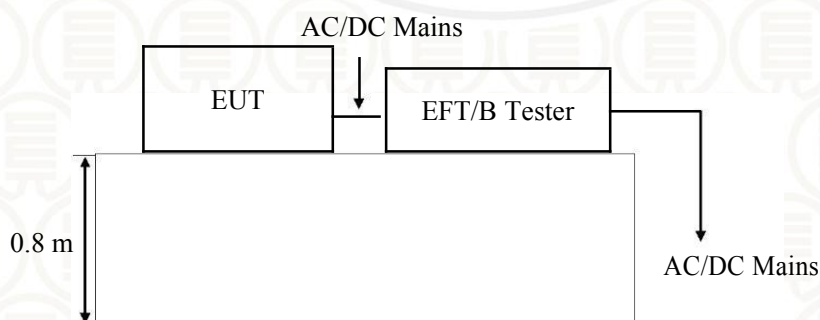
	Condition of Test	Remarks
1.	Fielded Strength	3V/m (Severity Level 2)
2.	Radiated Signal	Modulated
3.	Scanning Frequency	80M-1000 MHz, 1.8GHz,2.6GHz,3.5GHz,5GHz
4.	Sweeping time of radiated	0.0015 decade/s
5.	Dwell Time	1 Sec.

10.7.Test Results

Temperature	24.2℃	Humidity	57%
Modulation: ☒ AM ☐ Pulse ☐ none ☒ 1kHz 80%			
Criterion : A			
Frequency Range : 80M-1000 MHz, 1.8GHz, 2.6GHz, 3.5GHz, 5GHz			
Steps: 1%			
	Horizontal	Vertical	
Front	PASS	PASS	
Right	PASS	PASS	
Rear	PASS	PASS	
Left	PASS	PASS	

11.ELECTRICAL FAST TRANSIENT/BURST TEST

11.1.EFT Test Setup





11.2. Test Standard

EN 55035:2017+A11:2020
Severity Level 2 at 1kV

11.3. Severity Levels and Performance Criterion

11.3.1. Severity level

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

11.3.2. Performance criterion : B

11.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

11.5. Operating Condition of EUT

Setup the EUT as shown in Section 11.1. The operating condition of EUT are listed in section 3.3.

11.6. Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between the EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

11.6.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

11.6.2. For signal lines and control lines ports:

The EUT is connected to the signal lines and control lines ports by using a coupling device which couples the EFT interference signal to these lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

11.6.3. For DC output line ports: It's unnecessary to test.

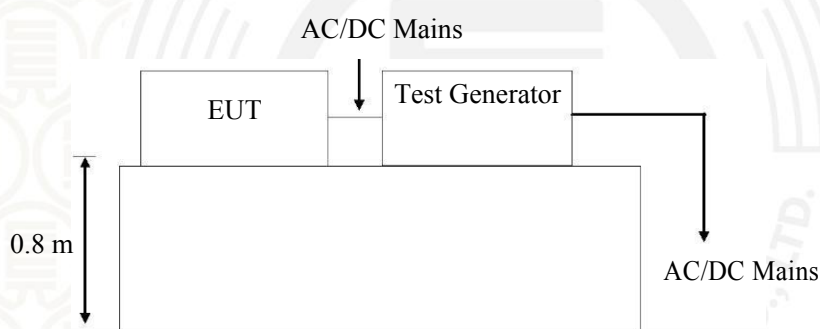


11.7. Test Results

Temperature	24.2℃				Humidity	57%			
Power Supply	AC 230V/50Hz				Test Mode	White screen, maximum brightness			
Inject Place : AC Mains									
Inject Line	Voltage kV	Inject Time(s)	Inject Method	Results	Inject Line	Voltage kV	Inject Time(s)	Inject Method	Results
L	±1	120	Direct	PASS					
N	±1	120	Direct	PASS					
L+N	±1	120	Direct	PASS					
PE	±1	120	Direct	PASS					
L+N-PE	±1	120	Direct	PASS					
L+PE	±1	120	Direct	PASS					
N+PE	±1	120	Direct	PASS					

12. SURGE TEST

12.1. Surge Test Setup



12.2. Test Standard

EN 55035:2017+A11:2020

Severity Level 2 for Line and Line at 1.0kV

Severity Level 3 for Line to earth(ground) at 2.0kV

12.3. Severity Levels and Performance Criterion

12.3.1. Severity level

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

Performance criterion : **B**



12.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

12.5.Operating Condition of EUT

12.5.1.Setup the EUT as shown in Section 12.1.

12.5.2.Turn on the power of all equipment.

12.5.3.Let the EUT work in test mode (White screen, maximum brightness) and test it.

12.6.Test Procedure

1. Setup the EUT and test generator as shown on Section 12.1.
2. For line to line coupling mode, provide a 1.0kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted 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.

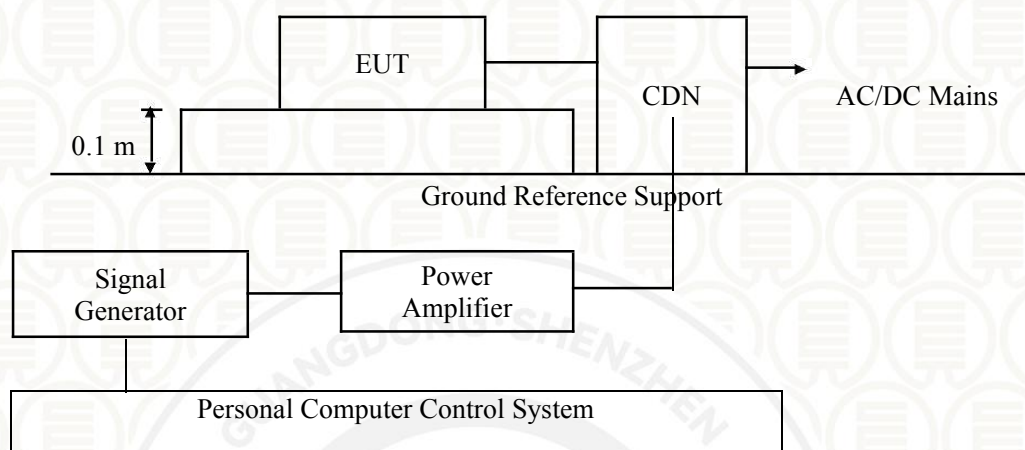
12.7.Test Results

Temperature	24.2℃		Humidity	57%	
Location	Polarity	Phase Angle	No of Pulse	Pulse Voltage (kV)	Result
L-N	+/-	90/270	5	1.0	PASS
L-PE	+/-	90/270	5	2.0	PASS
N-PE	+/-	90/270	5	2.0	PASS



13. INJECTED CURRENTS SUSCEPTIBILITY TEST

13.1. Block Diagram of Test AC Mains Setup



13.2. Test Standard

EN 55035:2017+A11:2020

Severity Level 2 at 3 V (rms), 0.15MHz ~ 30MHz

Severity Level 1 at 1V (rms), 30MHz ~ 80MHz

13.3. Severity Levels and Performance Criterion

13.3.1. Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

13.3.2. Performance criterion: A

13.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2

13.5. Operating Condition of EUT

Setup the EUT as shown in Section 13.1. The operating condition of EUT are listed in section 3.3



13.6. Test Procedure

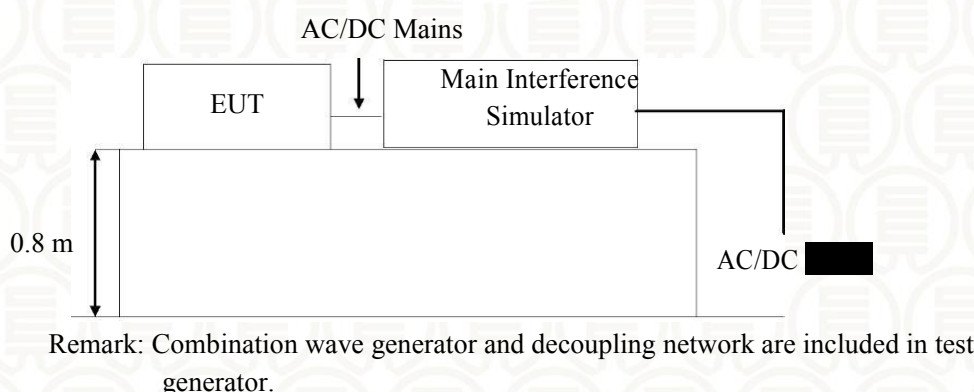
1. Set up the EUT, CDN and test generators as shown on Section 13.1.
2. Let the EUT work in test mode and test it.
3. The EUT are placed on an insulating support 0.8m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 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 150kHz 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.

13.7. Test Results

Temperature	24.2℃	Humidity	57%	
Frequency Range (MHz)	Injected Position	Strength	Criterion	Result
0.15 ~ 30	AC Line	3V(rms), Unmodulated	A	PASS
30 ~ 80	AC Line	1V(rms), Unmodulated	A	PASS

14. VOLTAGE DIPS AND INTERRUPTIONS TEST

14.1. Voltage Dips and Interruptions Test Setup



14.2. Test Standard

EN 55035:2017+A11:2020



14.3. Severity Levels and Performance Criterion

14.3.1. Severity level

Test Level %U _T	Voltage dip and short interruptions %U _T	Duration (in period)	Duration Times
0	100	0.5p	10ms
70	30	25p	500ms
0	100	250p	5000ms

14.3.2. Performance criterion : C & B

14.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

14.5. Operating Condition of EUT

14.5.1. Setup the EUT as shown in Section 14.1.

14.5.2. Turn on the power of all equipment.

14.5.3. Let the EUT work in test mode (White screen, maximum brightness) and test it.

14.6. Test Procedure

1. Set up the EUT and test generator as shown on Section 14.1.
2. The interruptions is introduced at selected phase angles with specified duration.
3. Record any degradation of performance.

14.7. Test Result

Temperature	24.2℃		Humidity	57%	
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in period)	Phase Angle	Criterion	Result
0	100	0.5P	0°, 90°, 270°	A	PASS
30	70	25P	0°, 90°, 270°	A	PASS
0	100	250P	0°, 90°, 270°	C	PASS
*During the test, Screen off. However, it recovered by operator after test.					

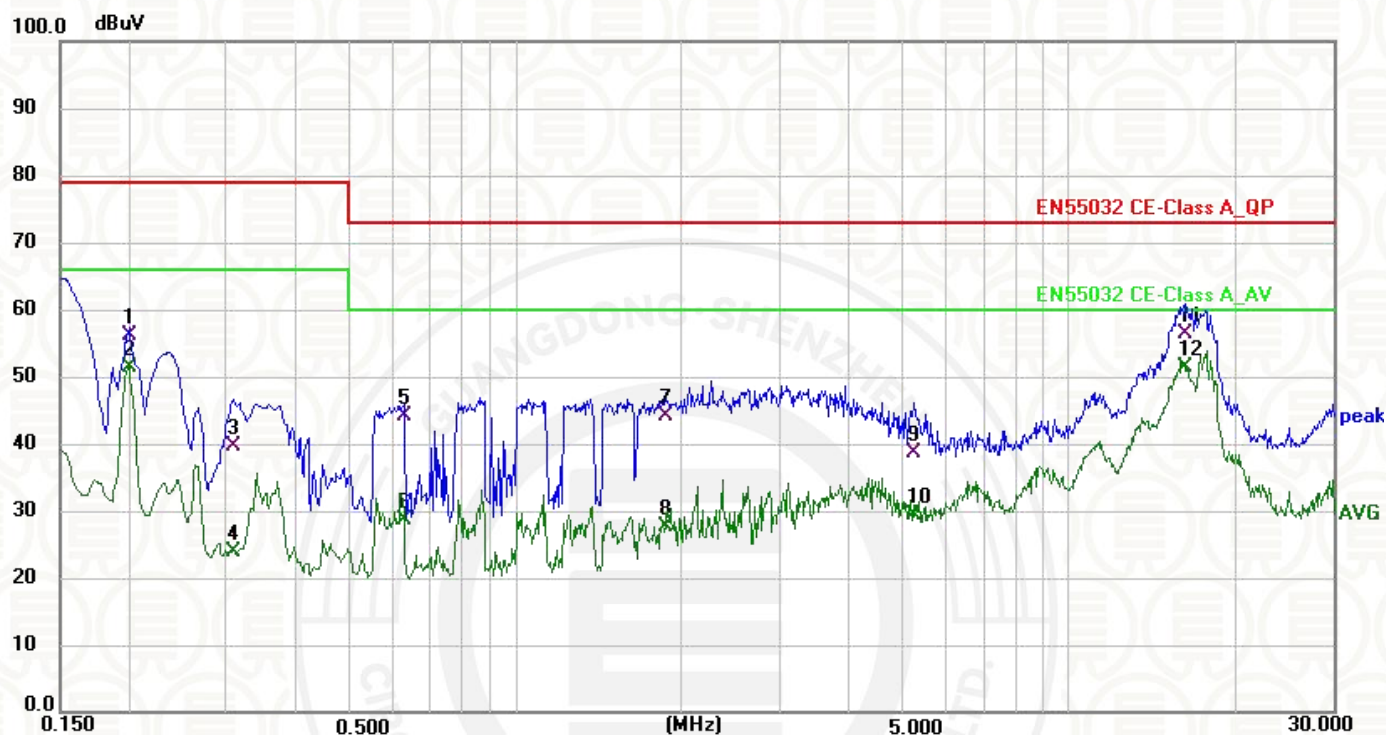


APPENDIX I : Conducted Emission Data

Operation Mode : AC230V/50Hz White screen, maximum brightness

Phase : L (150kHz – 30MHz)

Test Graph

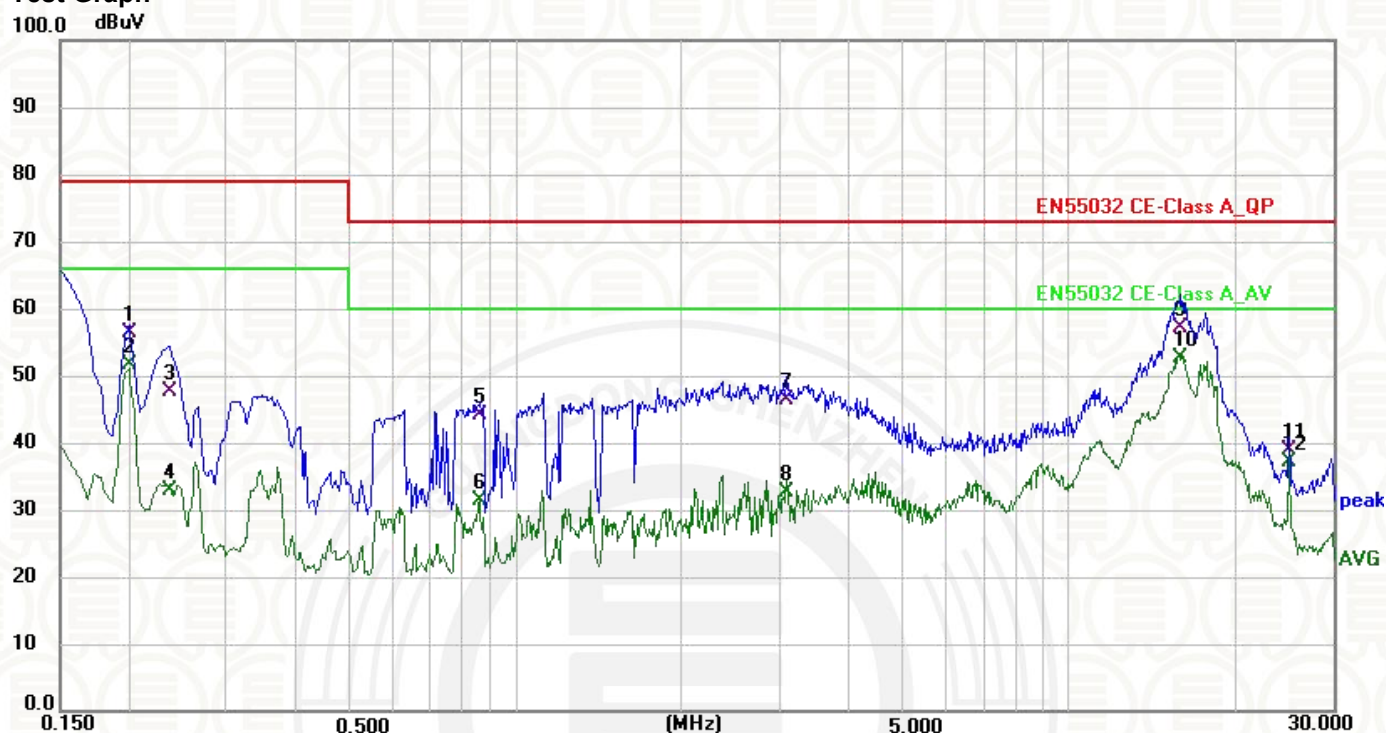


No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measurement(dBuV)	Limit (dBuV)	Margin (dB)	Detector	Comment
1	0.1995	45.03	11.01	56.04	79.00	-22.96	QP	
2	0.1995	40.46	11.01	51.47	66.00	-14.53	AVG	
3	0.3075	28.69	11.01	39.70	79.00	-39.30	QP	
4	0.3075	12.83	11.01	23.84	66.00	-42.16	AVG	
5	0.6270	33.20	11.01	44.21	73.00	-28.79	QP	
6	0.6270	17.62	11.01	28.63	60.00	-31.37	AVG	
7	1.8735	33.13	11.02	44.15	73.00	-28.85	QP	
8	1.8735	16.63	11.02	27.65	60.00	-32.35	AVG	
9	5.2530	27.67	11.03	38.70	73.00	-34.30	QP	
10	5.2530	18.34	11.03	29.37	60.00	-30.63	AVG	
11	16.1430	45.42	11.06	56.48	73.00	-16.52	QP	
12	16.1430	40.25	11.06	51.31	60.00	-8.69	AVG	



Operation Mode : AC230V/50Hz White screen, maximum brightness
Phase : N (150kHz – 30MHz)

Test Graph



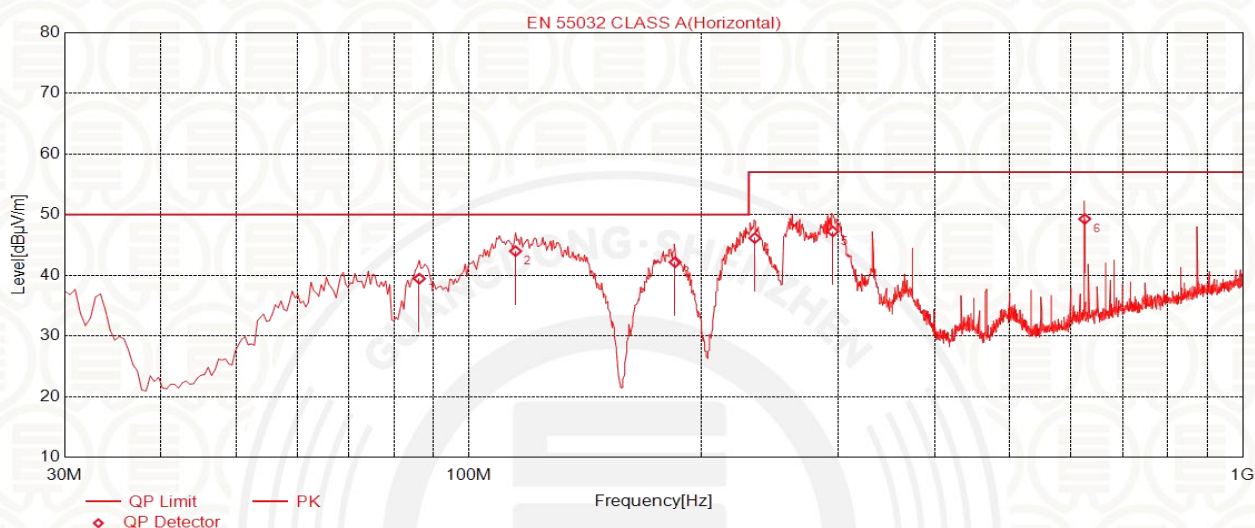
No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measurement(dBuV)	Limit (dBuV)	Margin (dB)	Detector	Comment
1	0.1995	45.49	11.01	56.50	79.00	-22.50	QP	
2	0.1995	40.74	11.01	51.75	66.00	-14.25	AVG	
3	0.2355	36.52	11.01	47.53	79.00	-31.47	QP	
4	0.2355	21.92	11.01	32.93	66.00	-33.07	AVG	
5	0.8655	33.16	11.01	44.17	73.00	-28.83	QP	
6	0.8655	20.43	11.01	31.44	60.00	-28.56	AVG	
7	3.1020	35.42	11.02	46.44	73.00	-26.56	QP	
8	3.1020	21.70	11.02	32.72	60.00	-27.28	AVG	
9	15.9675	45.99	11.06	57.05	73.00	-15.95	QP	
10	15.9675	41.54	11.06	52.60	60.00	-7.40	AVG	
11	24.9990	27.92	11.08	39.00	73.00	-34.00	QP	
12	24.9990	26.09	11.08	37.17	60.00	-22.83	AVG	



APPENDIX II : Radiated Emission Test data

Polarization : Horizontal
Operation Mode : AC230V/50Hz White screen, maximum brightness

Test Graph



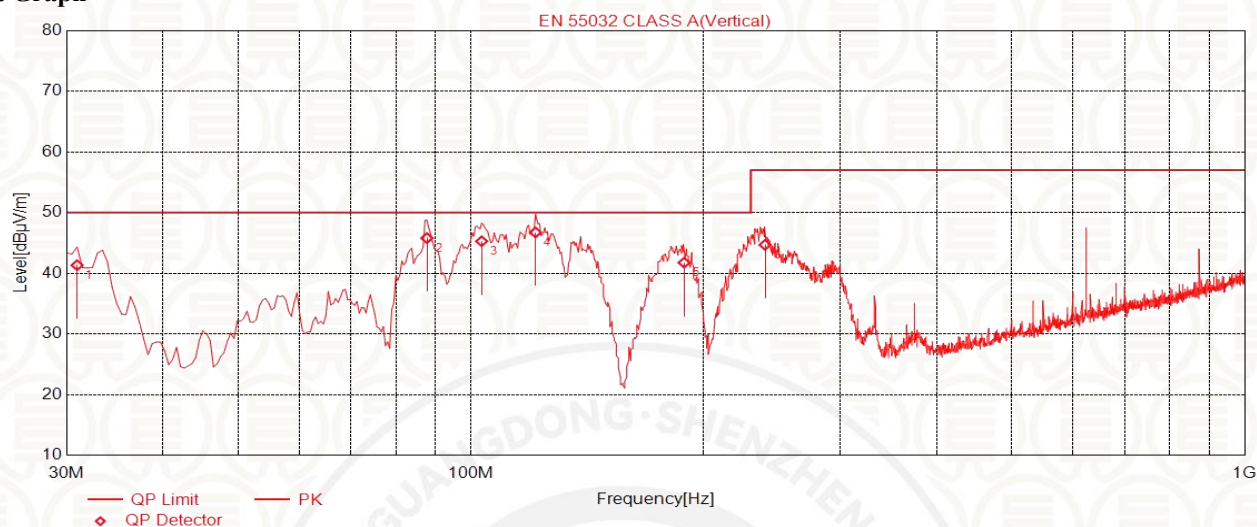
Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	86.2600	-9.25	39.45	50.00	10.55	100	199	Horizontal
2	114.8750	-7.69	43.98	50.00	6.02	100	34	Horizontal
3	184.7150	-6.56	42.16	50.00	7.84	100	146	Horizontal
4	234.1850	-4.06	46.13	57.00	10.87	100	45	Horizontal
5	295.2950	-1.98	47.23	57.00	9.77	100	142	Horizontal
6	625.0950	5.92	49.29	57.00	7.71	100	260	Horizontal



Polarization : Vertical
Operation Mode : AC230V/50Hz White screen, maximum brightness

Test Graph



Final Data List

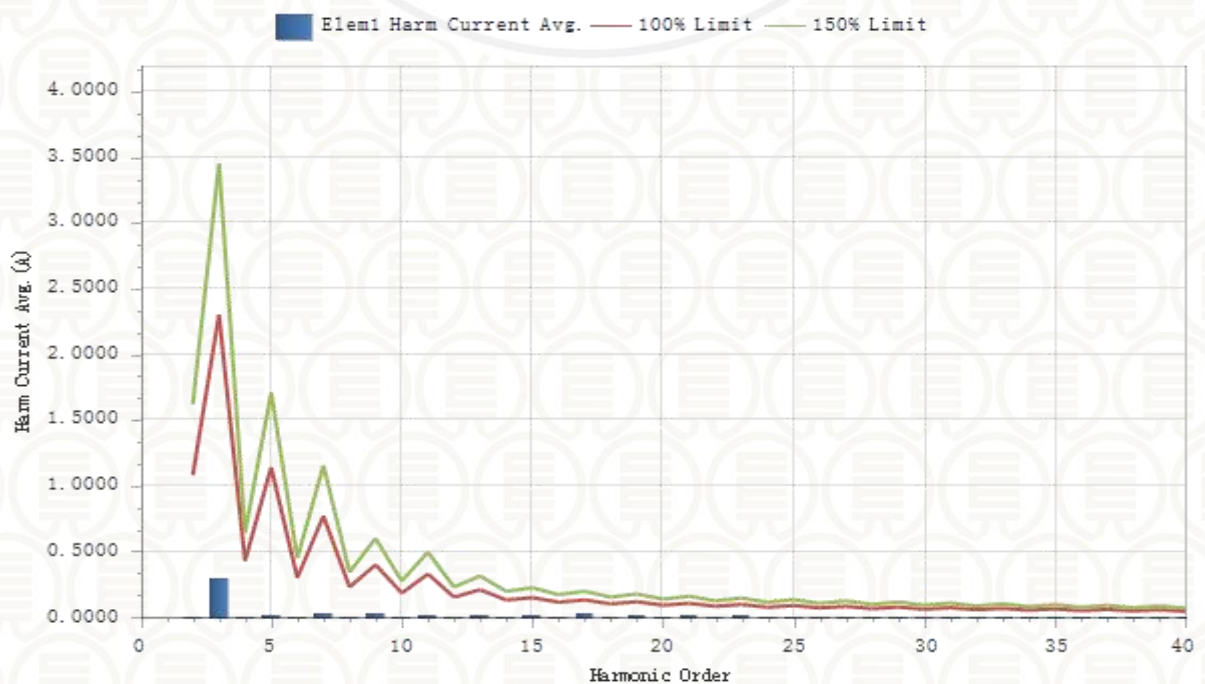
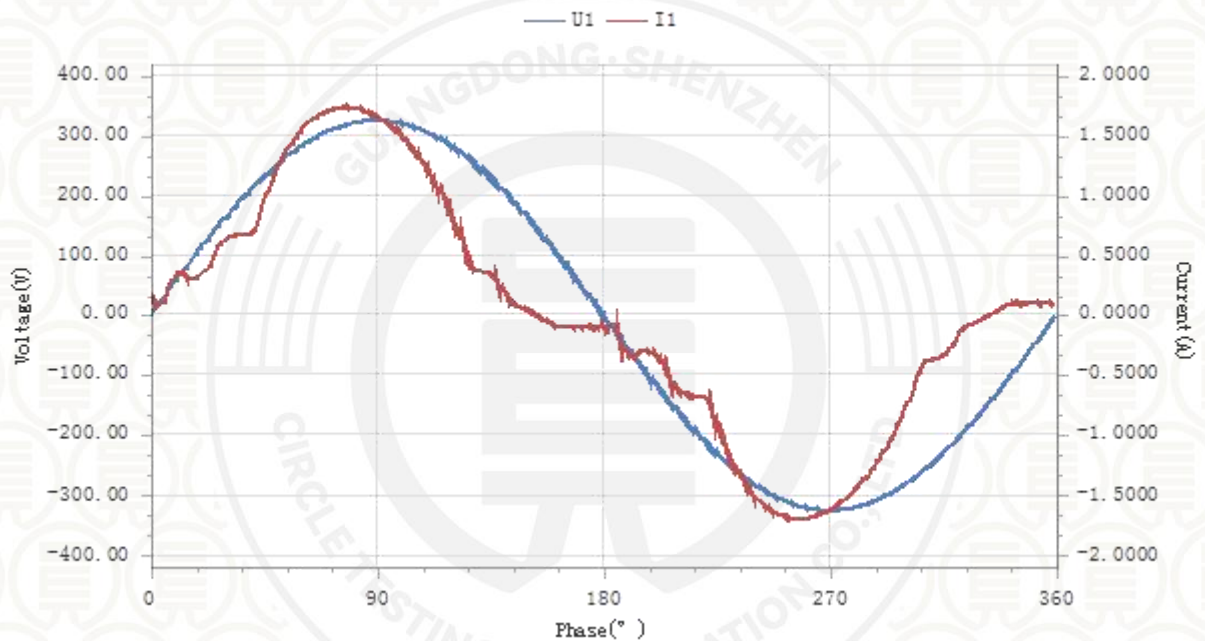
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	30.9700	-7.37	41.33	50.00	8.67	100	296	Vertical
2	87.7150	-8.95	45.80	50.00	4.20	100	304	Vertical
3	103.2350	-6.86	45.28	50.00	4.72	100	322	Vertical
4	121.1800	-8.20	46.74	50.00	3.26	100	94	Vertical
5	188.5950	-6.17	41.75	50.00	8.25	100	117	Vertical
6	240.0050	-3.84	44.69	57.00	12.31	100	132	Vertical



APPENDIX III: Harmonic Emission Test data

Harmonics Test Report_IEC 61000-3-2 Ed. 5.2 (2024)

Tester	Iris				
Equipment Under Test	LED Display	Product Model	P3.91	Operating Mode	White screen, maximum brightness
Test Type	Class A_IEC 61000-3-2 Ed. 5.2 (2024)			Pre-Heat Time	900 s
Test Date	2025-12-31	Start Time	14:16:53	End Time	14:19:23
Temperature	25.0℃	Humidity	55.0%	Test Voltage	230.00V
Comments					
Customer	Shenzhen Brighter Led Technology Co., Ltd.			Result	Pass



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Current Test Record

Tester : Iris

Equipment Under Test : LED Display Product Model : P3.91 Operating Mode : White screen, maximum brightness

Test Type : Class A_IEC 61000-3-2 Ed. 5.2 (2024) Pre-Heat Time : 900 s

Test Date : 2025-12-31 Start Time : 14:16:53 End Time : 14:19:23

Temperature : 25.0°C Humidity : 55.0% Test Voltage : 230.00V

Comments :

Customer : Shenzhen Brighter Led Technology Co., Ltd. Result : Pass

Total Current Harmonic and Some Odd Harmonic Parameters

THC(A)	0.2962	THD(%)	31.09	POHC(A)	0.0195	POHC Limit(A)	0.2514
--------	--------	--------	-------	---------	--------	---------------	--------

Maximum Value of Relevant Parameter During Test Period

Urms(V)	230.29	Freq(Hz)	50.000
Irms(A)	0.9977	Ipeak(A)	1.7681
I1(A)	0.9527	ICF	1.7773
P(W)	213.29	λ	0.9291

Individual Harmonics and Limit Judgment

Order(n)	Harmonics Current Avg.(A)	100% Limit(A)	Limit Percent(%)	Harmonics Current Max.(A)	150% Limit(A)	Limit Percent(%)	Result
2	0.0057	1.0800	N/A	0.0058	1.6200	N/A	Pass
3	0.2889	2.3000	12.56	0.2912	3.4500	8.44	Pass
4	0.0014	0.4300	N/A	0.0015	0.6450	N/A	Pass
5	0.0102	1.1400	0.89	0.0106	1.7100	0.62	Pass
6	0.0012	0.3000	N/A	0.0013	0.4500	N/A	Pass
7	0.0267	0.7700	3.47	0.0268	1.1550	2.32	Pass
8	0.0012	0.2300	N/A	0.0012	0.3450	N/A	Pass
9	0.0280	0.4000	6.99	0.0280	0.6000	4.67	Pass
10	0.0018	0.1840	N/A	0.0018	0.2760	N/A	Pass
11	0.0076	0.3300	2.32	0.0078	0.4950	1.57	Pass
12	0.0015	0.1533	N/A	0.0015	0.2300	N/A	Pass
13	0.0155	0.2100	7.37	0.0156	0.3150	4.96	Pass
14	0.0015	0.1314	N/A	0.0015	0.1971	N/A	Pass
15	0.0094	0.1500	6.26	0.0096	0.2250	4.27	Pass
16	0.0012	0.1150	N/A	0.0012	0.1725	N/A	Pass
17	0.0228	0.1324	17.20	0.0229	0.1985	11.51	Pass
18	0.0011	0.1022	N/A	0.0011	0.1533	N/A	Pass
19	0.0080	0.1184	6.77	0.0081	0.1776	4.55	Pass
20	0.0009	0.0920	N/A	0.0010	0.1380	N/A	Pass
21	0.0145	0.1071	13.51	0.0146	0.1607	9.10	Pass
22	0.0010	0.0836	N/A	0.0011	0.1255	N/A	Pass
23	0.0091	0.0978	9.29	0.0091	0.1467	6.23	Pass
24	0.0006	0.0767	N/A	0.0007	0.1150	N/A	Pass
25	0.0031	0.0900	N/A	0.0032	0.1350	N/A	Pass
26	0.0009	0.0708	N/A	0.0009	0.1062	N/A	Pass
27	0.0024	0.0833	N/A	0.0024	0.1250	N/A	Pass
28	0.0003	0.0657	N/A	0.0003	0.0986	N/A	Pass
29	0.0063	0.0776	8.12	0.0063	0.1164	5.43	Pass
30	0.0006	0.0613	N/A	0.0006	0.0920	N/A	Pass
31	0.0024	0.0726	N/A	0.0025	0.1089	N/A	Pass
32	0.0005	0.0575	N/A	0.0006	0.0863	N/A	Pass
33	0.0018	0.0682	N/A	0.0018	0.1023	N/A	Pass
34	0.0006	0.0541	N/A	0.0007	0.0812	N/A	Pass
35	0.0016	0.0643	N/A	0.0018	0.0964	N/A	Pass
36	0.0007	0.0511	N/A	0.0007	0.0767	N/A	Pass
37	0.0028	0.0608	N/A	0.0029	0.0912	N/A	Pass
38	0.0006	0.0484	N/A	0.0007	0.0726	N/A	Pass
39	0.0037	0.0577	N/A	0.0038	0.0865	N/A	Pass
40	0.0006	0.0460	N/A	0.0006	0.0690	N/A	Pass

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Voltage Test Record

Tester : Iris

Equipment Under Test : LED Display

Product Model : P3.91

Operating Mode : White screen, maximum brightness

Test Type : Class A_IEC 61000-3-2 Ed. 5.2 (2024)

Pre-Heat Time : 900 s

Test Date : 2025-12-31

Start Time : 14:16:53

End Time : 14:19:23

Temperature : 25.0℃

Humidity : 55.0%

Test Voltage : 230.00V

Comments :

Customer : Shenzhen Brighter Led Technology Co., Ltd.

Result : Pass

Voltage Relevant Parameter During Test Period and Judgment

Item	Nominal Value	Measured Value	Error Value	Allowable Error Value	Result
Urms(V)	230.00	230.29	0.29	±2.0%	Pass
Frequency(Hz)	50.000	50.000	0.000	±0.5%	Pass

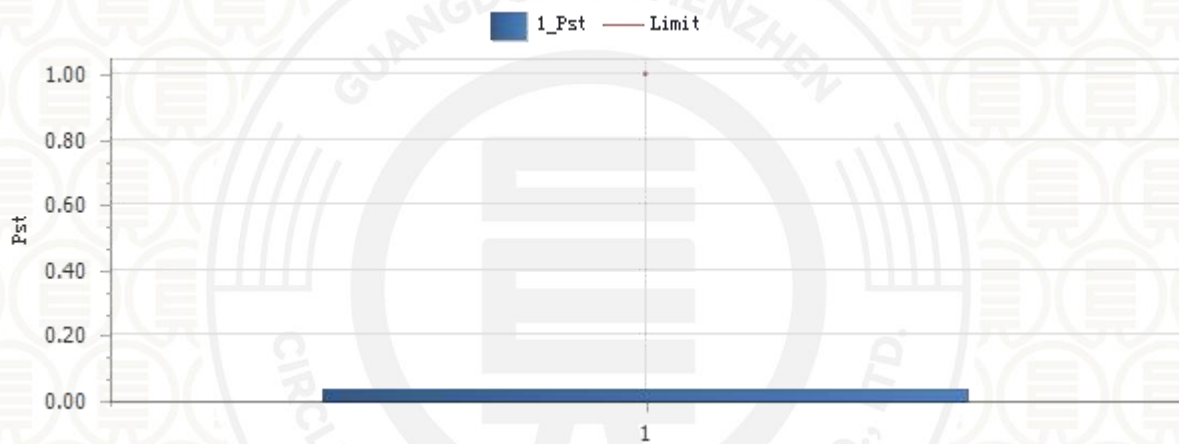
Individual Harmonics Voltage and Limit Judgment

Order(n)	U[k](V)	U _{hdf} (%)	Limit(%)	Result
1	230.282	99.999	---	Pass
2	0.006	0.003	0.200	Pass
3	0.049	0.021	0.900	Pass
4	0.005	0.002	0.200	Pass
5	0.002	0.001	0.400	Pass
6	0.006	0.003	0.200	Pass
7	0.004	0.002	0.300	Pass
8	0.009	0.004	0.200	Pass
9	0.012	0.005	0.200	Pass
10	0.020	0.009	0.200	Pass
11	0.005	0.002	0.100	Pass
12	0.019	0.008	0.100	Pass
13	0.017	0.007	0.100	Pass
14	0.010	0.004	0.100	Pass
15	0.013	0.006	0.100	Pass
16	0.004	0.002	0.100	Pass
17	0.004	0.002	0.100	Pass
18	0.002	0.001	0.100	Pass
19	0.012	0.005	0.100	Pass
20	0.002	0.001	0.100	Pass
21	0.023	0.010	0.100	Pass
22	0.002	0.001	0.100	Pass
23	0.023	0.010	0.100	Pass
24	0.002	0.001	0.100	Pass
25	0.020	0.008	0.100	Pass
26	0.002	0.001	0.100	Pass
27	0.023	0.010	0.100	Pass
28	0.002	0.001	0.100	Pass
29	0.023	0.010	0.100	Pass
30	0.002	0.001	0.100	Pass
31	0.020	0.009	0.100	Pass
32	0.002	0.001	0.100	Pass
33	0.020	0.009	0.100	Pass
34	0.003	0.001	0.100	Pass
35	0.018	0.008	0.100	Pass
36	0.003	0.001	0.100	Pass
37	0.019	0.008	0.100	Pass
38	0.003	0.001	0.100	Pass
39	0.020	0.009	0.100	Pass
40	0.003	0.001	0.100	Pass

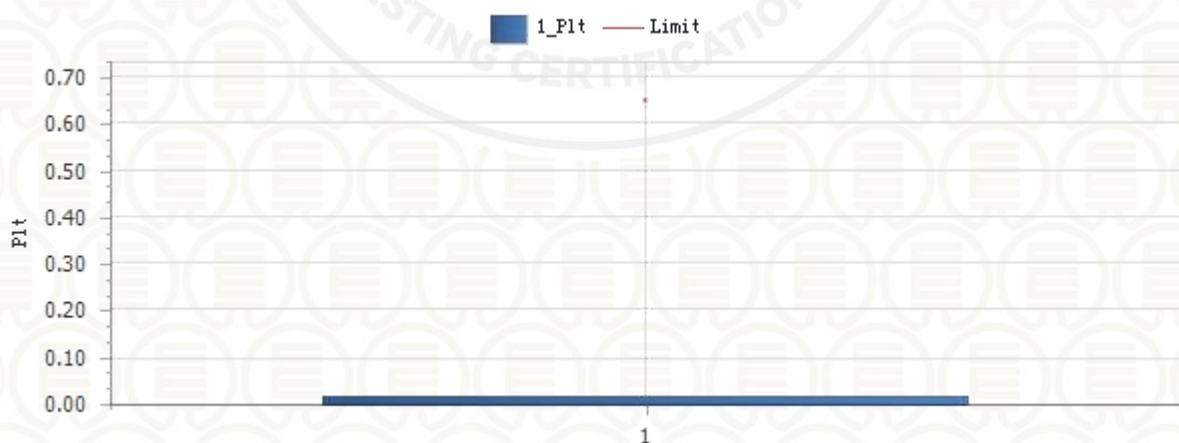
**APPENDIX IV: Flicker Test data****Flicker Test Report IEC 61000-3-3 Ed. 3.2(2021)**

Tester	: Iris			
Equipment Under Test	: LED Display	Product Model	: P3.91	Operating Mode: White screen, maximum
Test Type	: All Parameters			
Test Date	: 2025-12-31	Start Time	: 14:21:18	End Time : 14:31:18
Temperature	: 25.0°C	Humidity	: 55.0%	Test Voltage : 230.00V
Comments	:			
Customer	: Shenzhen Brighter Led Technology Co., Ltd.	Result	:	Pass

Pst and Limit



Plt and Limit





Relevant Parameter and Judgment During Test Period

Voltage at end of test	230.006V		
Voltage Fluctuation and Flicker	Test Value	Test Limit	Result
Tmax	0ms	500ms	Pass
dc	0.00%	3.30%	Pass
dmax	0.00%	4.00%	Pass
Pst	0.035	1.000	Pass
Plt	0.015	0.650	Pass

Elem1 Test Parameters

Count	dc(%)	dmax(%)	Tmax(ms)	Pst	Plt
1	0.00	0.00	0.00	0.035	0.015



APPENDIX V: Test Setup Photo and EUT Photo

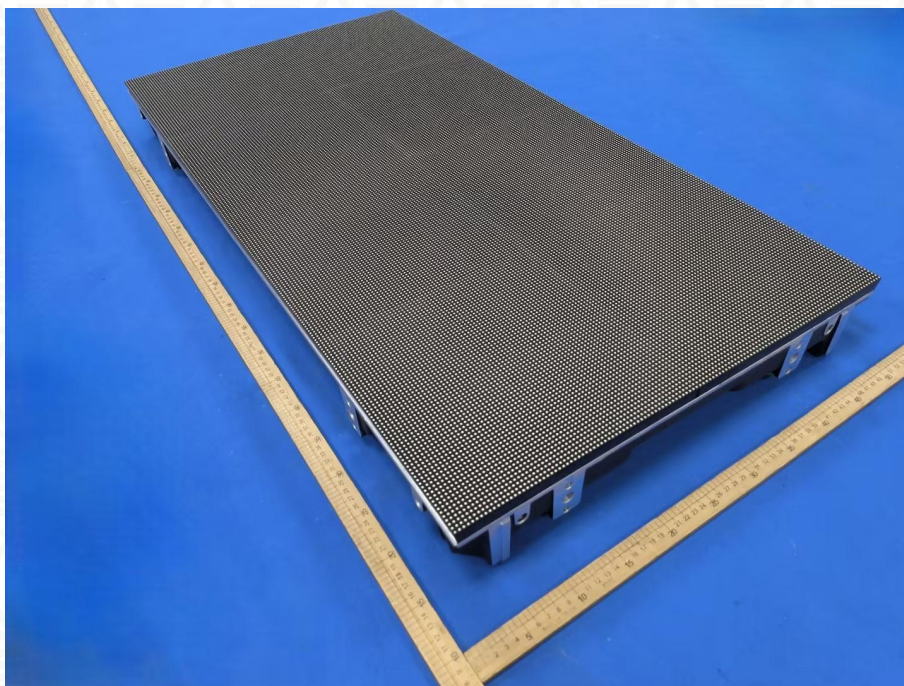


Figure 1: EUT Front-Side



Figure 2: EUT Back-Side

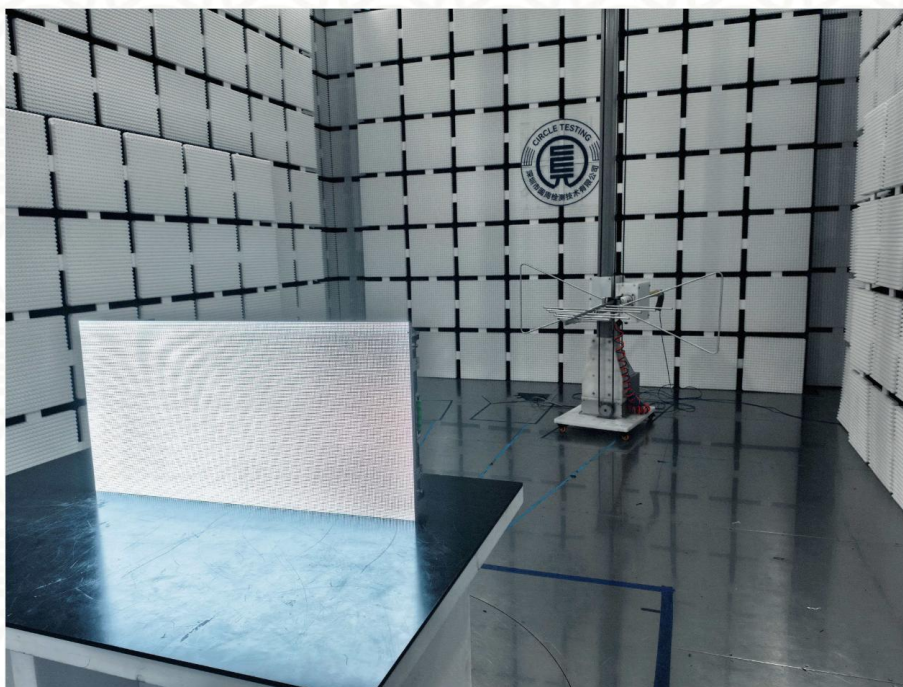


Figure 3: Radiated Emission Test Setup



Figure 4 Conducted Emission Test Setup



Figure 5: Harmonic / Flicker Test Setup



Figure 6: Electrostatic Discharge Test Setup



Figure 7: EFT/Surge/Dips Test Setup

***** End of Report *****