EMC TEST REPORT
For

Wenzhou Heyi Light Industrial Products Co., Ltd.

Usb lighter

Model No.: HY-6028

Additional Model No.: HY-6028, HY-6007, HY-6025 , HY-6013, HY-6022 ,HY-6017, HY-1313A, HY-1313，HY-1314, HY-1314A, HY-1315, HY-1315A，HY-1316，HY-1318, HY-1406, HY-1332, HY-1324, HY-1400, HY-1400A, HY-1403, HY-1404, HY-1405, HY-1504, HY-1505

Prepared for	:	Wenzhou Heyi Light Industrial Products Co., Ltd.
Address	:	2/F, Room 201, Research and Development Workshop, Wenzhou Zhonggang Science and Technology Park, No.22 Binhai 3rd Road, Yongxing Street, Longwan District, Wenzhou City, Zhejiang Province, China
Prepared by	:	Shenzhen AOCE Electronic Technology Service Co., Ltd.
Address	:	Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Tel	:	(+86)755-85277785
Fax	:	(+86)755-23705230
Web	:	www.aoc-cert.com
Mail	:	postmaster@aoc-cert.com
Date of receipt of test sample	:	June 09,2020
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	June 09,2020 ~ June 11,2020
Date of Report	:	June 11,2020

CE

EMC TEST REPORT
EN 55014-1: 2017
Requirements for household appliances, electric tools and similar apparatus -- Part 1: Emission
EN 55014-2: 2015
Requirements for household appliances, electric tools and similar apparatus -- Part 2: Immunity - Product family standard

Report Reference No. ..... :	**AOC200611101E**
Date Of Issue..... :	June 11,2020
Testing Laboratory Name.....:	**Shenzhen AOCE Electronic Technology Service Co., Ltd.**
Address..... :	Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Testing Location/ Procedure ..... :	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name ..... :	**Wenzhou Heyi Light Industrial Products Co., Ltd.**
Address..... :	2/F, Room 201, Research and Development Workshop, Wenzhou Zhonggang Science and Technology Park, No.22 Binhai 3rd Road, Yongxing Street, Longwan District, Wenzhou City, Zhejiang Province, China
Test Specification:	
Standard..... :	EN 55014-1: 2017 EN 55014-2: 2015
Test Report Form No..... :	AOCEMC-1.0
TRF Originator..... :	Shenzhen AOCE Electronic Technology Service Co., Ltd.
Master TRF ..... :	Dated 2011-03

Test Item Description. ..... :	Usb lighter
Trade Mark..... :	DAE
Model/ Type Reference ..... :	HY-6028
Ratings ..... :	DC 5V, 220mA, 8W
Result ..... :	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
David Liu/ File administrators	Kevin Huang/ Technique principal	Jackson Wang/ Manager

EMC -- TEST REPORT

Test Report No. : AOC200611101E	June 11,2020 Date of issue

Type / Model.....	:	HY-6028
EUT.....	:	Usb lighter
Applicant.....	**:**	**Wenzhou Heyi Light Industrial Products Co., Ltd.**
Address.....	:	2/F, Room 201, Research and Development Workshop, Wenzhou Zhonggang Science and Technology Park, No.22 Binhai 3rd Road, Yongxing Street, Longwan District, Wenzhou City, Zhejiang Province, China
Telephone.....	:	/
Fax.....	:	/
Manufacturer.....	**:**	**Wenzhou Heyi Light Industrial Products Co., Ltd.**
Address.....	:	2/F, Room 201, Research and Development Workshop, Wenzhou Zhonggang Science and Technology Park, No.22 Binhai 3rd Road, Yongxing Street, Longwan District, Wenzhou City, Zhejiang Province, China
Telephone.....	:	/
Fax.....	:	/
Factory.....	**:**	**Wenzhou Heyi Light Industrial Products Co., Ltd.**
Address.....	:	2/F, Room 201, Research and Development Workshop, Wenzhou Zhonggang Science and Technology Park, No.22 Binhai 3rd Road, Yongxing Street, Longwan District, Wenzhou City, Zhejiang Province, China
Telephone.....	:	/
Fax.....	:	/

Test Result according to the standards on page 5: **Pass**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

TABLE OF CONTENT

1. SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION (EN 55014-1: 2017)			
Description of Test Item	**Standard**	**Limits**	**Results**
Conducted disturbance at mains terminals	EN 55014-1: 2017	--------	N/A
Clicks	EN 55014-1: 2017	--------	N/A
Radiated disturbance	EN 55014-1: 2017	--------	PASS
Harmonic current emissions	EN 61000-3-2: 2014	Class A	N/A
Voltage fluctuations & flicker	EN 61000-3-3: 2013	--------	N/A

IMMUNITY(EN 55014-2: 2015)			
Description of Test Item	**Basic Standard**	**Performance Criteria**	**Results**
Electrostatic discharge (ESD)	EN 61000-4-2: 2009	B	PASS
Radio-frequency, Continuous radiated disturbance	EN 61000-4-3: 2006+A1: 2010	A	N/A
Electrical fast transient (EFT)	EN 61000-4-4: 2012	B	N/A
Surge (Input a.c. power ports)	EN 61000-4-5: 2014+A1: 2017	B	N/A
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6: 2014+A1: 2015	A	N/A
Power frequency magnetic field	EN 61000-4-8: 2010	A	N/A
Voltage dips, 60% reduction	EN 61000-4-11: 2004+A1: 2017	C	N/A
Voltage dips, 30% reduction		C	N/A
Voltage interruptions		C	N/A
N/A is an abbreviation for Not Applicable.			

1.2.Description of Performance Criteria

General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

— essential operational modes and states;
— tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
— quality of software execution;
— quality of data display and transmission;
— quality of speech transmission.

1.2.1.Performance 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 manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deriver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.2.Performance 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 manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be deriver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.3.Performance 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 manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be loss.

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

EUT : Usb lighter

Model Number : HY-6028

Power Supply : DC 5V, 220mA, 8W

EUT Clock Frequency : ≤ 108MHz

2.2.Description of Test Facility

Site Description
EMC Lab.

2.3.Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the AOC quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.4.Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	30MHz~200MHz	±2.96dB	(1)
		200MHz~1000MHz	±3.10dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	±1.63dB	(1)
Power disturbance	:	30MHz~300MHz	±1.60dB	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1.Radiated Disturbance (Electric Field)

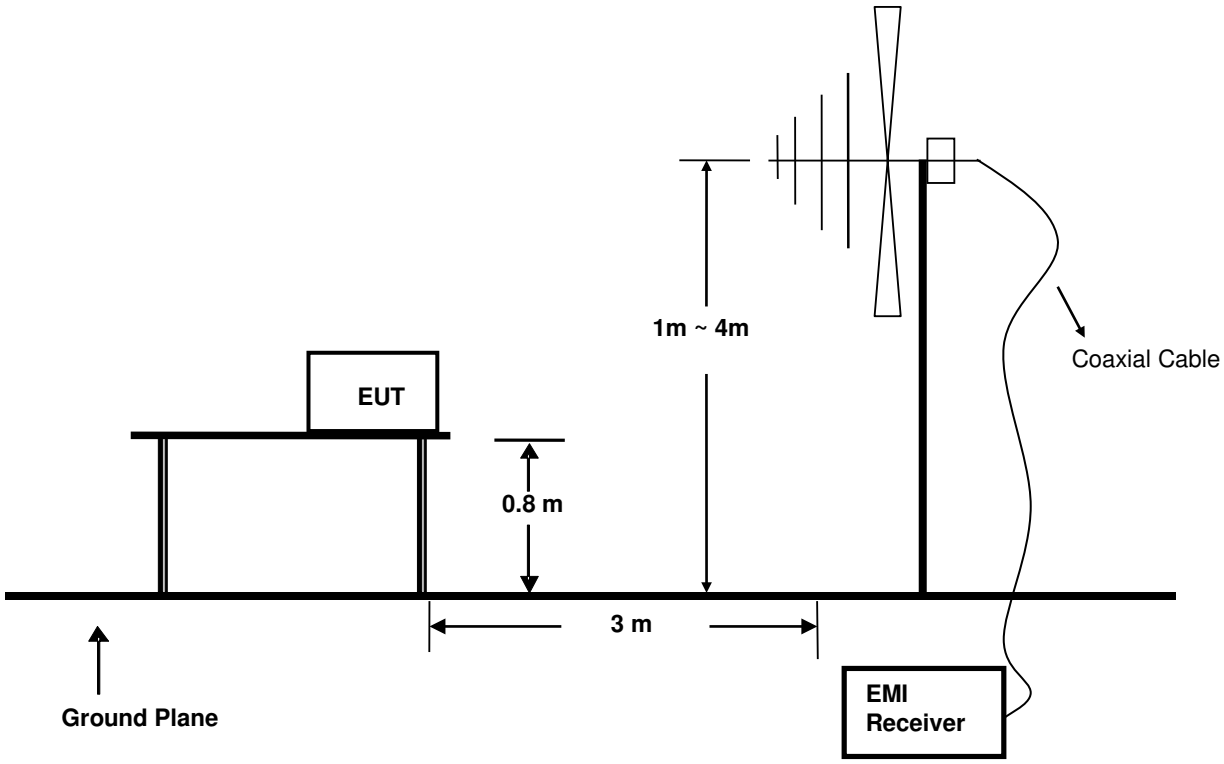
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2019/06/18
2	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2019/06/18
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2019/06/18
4	Amplifier	Compliance Direction	PAP-0102	21001	2019/06/18
5	EMI Test Software	AUDIX	E3	N/A	2019/06/18

3.2.Electrostatic Discharge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ESD Simulator	KIKUSUI	KC001311	KES4021	2019/06/18

4. RADIATED EMISSION MEASUREMENT

4.1.Block Diagram of Test Setup



4.2.Measuring Standard

EN 55014-1: 2017

4.3.Radiated Emission Limits

EN 55032: 2015 Limits:

All emanations from a class B device 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 LIMIT (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.

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

4.4.EUT Configuration on Test

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

4.5.Operating Condition of EUT

4.5.1 Turn on the power.

4.5.2 After that, let the EUT work in test mode (ON) and measure it.

4.6.Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable 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 be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

The bandwidth of the Receiver is set at 120kHz.

The frequency range from 30MHz to 1000MHz is investigated.

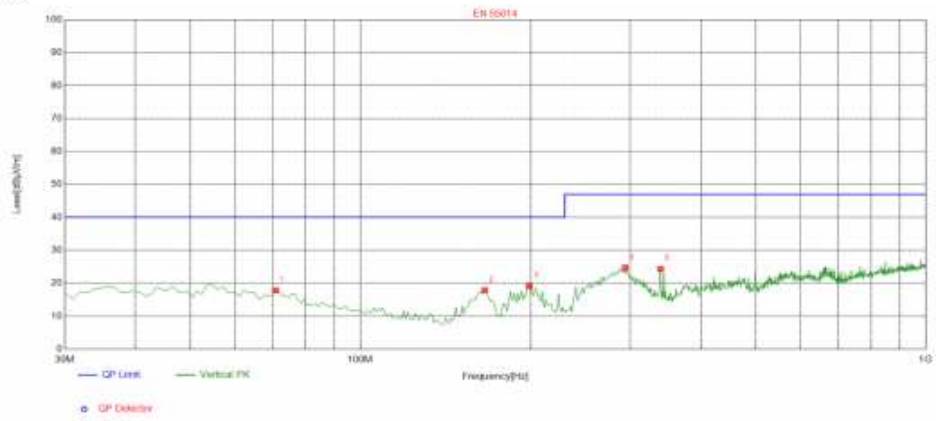
4.7.Test Results

PASS.

The test result please refer to the next page.

Model No.	HY-6028	**Test Date**	June 11,2020
Environmental Conditions	24℃/ 56% RH	**Test Mode**	On
Pol	Vertical	**Detector Function**	Quasi-peak
Test Engineer	Andy	**Distance**	3m

Test Graph

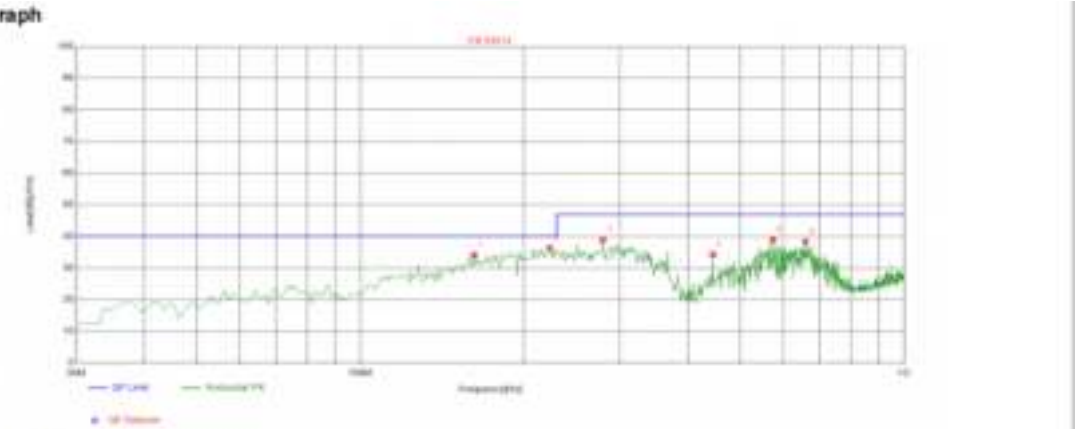


Suspected List

Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	70.7808	-17.81	35.58	17.77	40.00	22.23	100	239	Vertical
2	165.9359	-17.67	35.53	17.86	40.00	22.14	100	12	Vertical
3	198.9489	-15.16	34.37	19.21	40.00	20.79	100	191	Vertical
4	294.1041	-12.80	37.55	24.75	47.00	22.25	100	12	Vertical
5	339.7397	-11.64	35.95	24.31	47.00	22.69	100	111	Vertical

Model No.	HY-6028	**Test Date**	June 11,2020
Environmental Conditions	24℃/ 56% RH	**Test Mode**	Charging
Pol	Horizontal	**Detector Function**	Quasi-peak
Test Engineer	Andy	**Distance**	3m

Test Graph

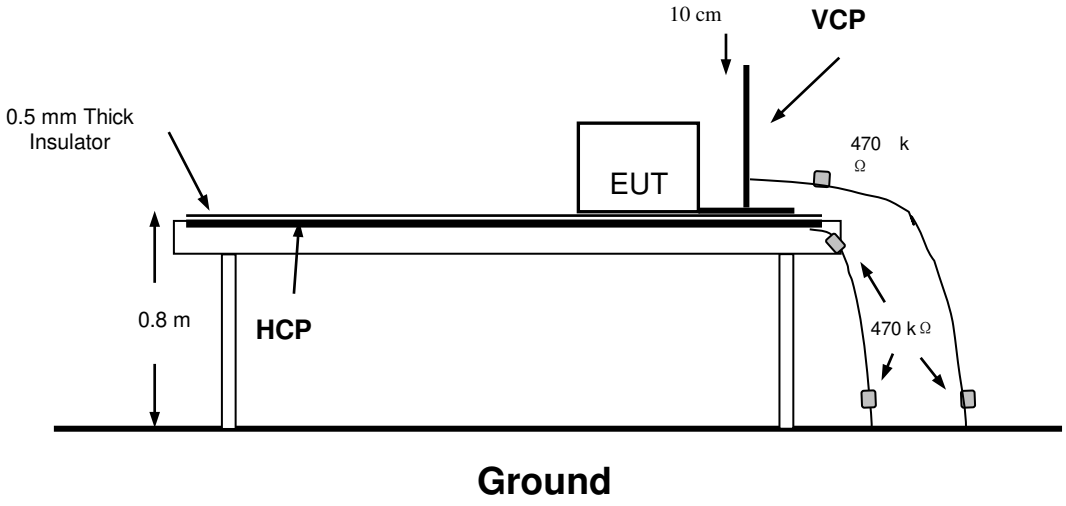


Suspected List

Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	162.0521	-18.03	52.17	34.14	40.00	5.86	100	105	Horizontal
2	223.2232	-14.48	50.79	36.31	40.00	3.69	100	105	Horizontal
3	279.5395	-13.27	52.11	38.84	47.00	8.16	100	348	Horizontal
4	445.5756	-9.18	43.52	34.34	47.00	12.66	100	2	Horizontal
5	574.7147	-6.49	45.45	38.96	47.00	8.04	100	105	Horizontal
6	659.1892	-5.24	43.55	38.31	47.00	8.69	100	105	Horizontal

5. ELECTROSTATIC DISCHARGE IMMUNITY TEST

5.1.Block Diagram of Test Setup



5.2.Test Standard

EN 55014-2: 2015,

Severity Level: 3 / Air Discharge: ±8KV, Level: 2 / Contact Discharge: ±4KV)

5.3.Severity Levels and Performance Criterion

5.3.1.Severity level

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

5.3.2.Performance Criterion: **B**

5.4.EUT Configuration on Test

The configuration of EUT is listed in Section 3.2.

5.5.Operating Condition of EUT

5.4.1.Setup the EUT as shown on Section 5.1.
5.4.2.Turn on the power of all equipments.
5.4.3.Let the EUT work in measuring mode (ON) and measure it.

5.6.Test Procedure

5.6.1.Air Discharge

This test is done on a non-conductive surface. 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

5.6.2.Contact Discharge

All the procedure shall be same as Section 5.6.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

5.6.3.Indirect Discharge For Horizontal Coupling Plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

5.6.4.Indirect Discharge For Vertical Coupling Plane

At least 10 single discharge (in the most sensitive 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.

5.7.Test Results

PASS.

Please refer to the following pages

Electrostatic Discharger Test Results

Standard	☐ IEC 61000-4-2 ☑ EN 61000-4-2		
Applicant	Wenzhou Youku Technology Co.,Ltd.		
EUT	Usb lighter	**Temperature**	24℃
M/N	HY-6028	**Humidity**	53%
Criterion	B	**Pressure**	1021mbar
Test Mode	ON	**Test Date**	June 11,2020
Test Engineer	Andy		

Air Discharge

Test Points	Test Levels			Results		
	± 2kV	± 4kV	± 8kV	Passed	Fail	Performance Criterion
Front	☒	☒	☒	☒	☐	☐A ☒B
Back	☒	☒	☒	☒	☐	☐A ☒B
Left	☒	☒	☒	☒	☐	☐A ☒B
Right	☒	☒	☒	☒	☐	☐A ☒B
Top	☒	☒	☒	☒	☐	☐A ☒B
Bottom	☒	☒	☒	☒	☐	☐A ☒B

Contact Discharge

Test Points	Test Levels		Results		
	± 2 kV	±4 kV	Passed	Fail	Performance Criterion
Front	☒	☒	☒	☐	☐A ☒B
Back	☒	☒	☒	☐	☐A ☒B
Left	☒	☒	☒	☐	☐A ☒B
Right	☒	☒	☒	☐	☐A ☒B
Top	☒	☒	☒	☐	☐A ☒B
Bottom	☒	☒	☒	☐	☐A ☒B

Discharge To Horizontal Coupling Plane

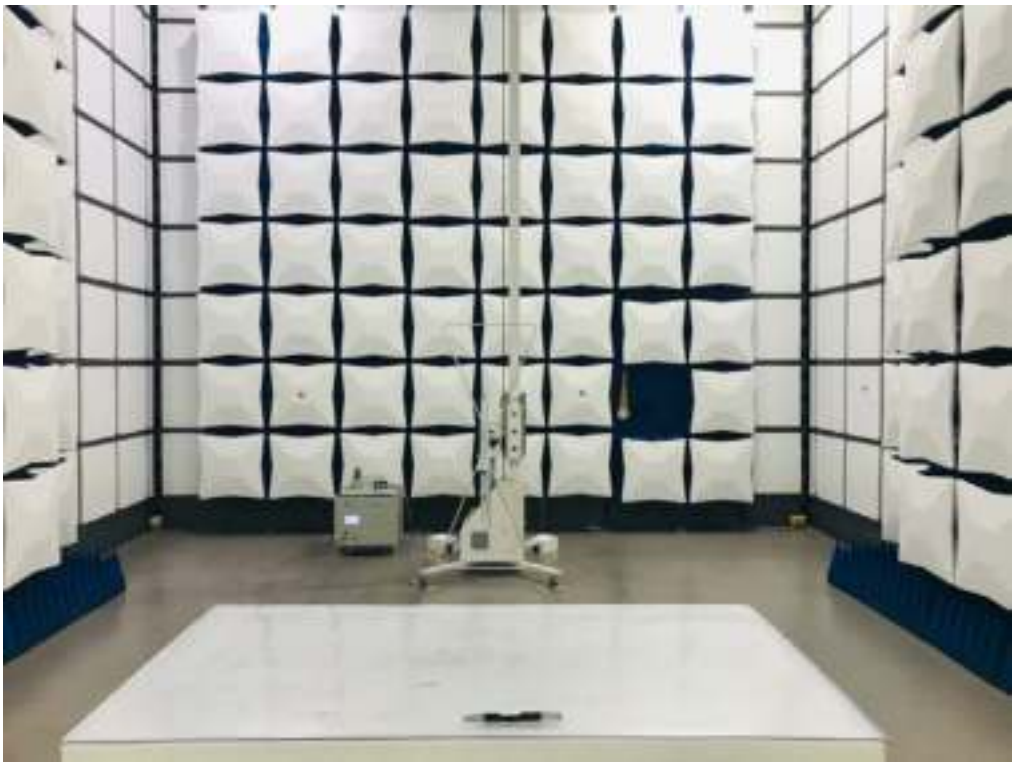
Side of EUT	Test Levels		Results		
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion
Front	☒	☒	☒	☐	☐A ☒B
Back	☒	☒	☒	☐	☐A ☒B
Left	☒	☒	☒	☐	☐A ☒B
Right	☒	☒	☒	☐	☐A ☒B

Discharge To Vertical Coupling Plane

Side of EUT	Test Levels		Results		
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion
Front	☒	☒	☒	☐	☐A ☒B
Back	☒	☒	☒	☐	☐A ☒B
Left	☒	☒	☒	☐	☐A ☒B
Right	☒	☒	☒	☐	☐A ☒B

6. Photograph

6.1.Photo of Radiated Measurement



7. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Fig.1

Fig.2

Fig.3

Fig.4

Fig.5

Fig.6

----------THE END OF REPORT----------