

EMC TEST REPORT
For
HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.
Dry Bath Incubator
Test Model: IB-10HL

Prepared for	:	HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.
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Date of receipt of test sample	:	April 27, 2021
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	April 27, 2021 ~ April 30, 2021
Date of Report	:	May 07, 2021



EMC TEST REPORT**EN 61326-1: 2013**

Electrical equipment for measurement, control and laboratory use EMC requirements Part 1:
General requirements

Report Reference No.: LCS210426044AE

Date Of Issue: May 07, 2021

Testing Laboratory Name: Shenzhen LCS Compliance Testing Laboratory Ltd.

Address: Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao' an District, Shenzhen, Guangdong, China

Testing Location/ Procedure ..: Full application of Harmonised standards Partial application of Harmonised standards Other standard testing method

Applicant's Name: HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.

Address: Building 9 No.7of Zhubantang Science and Technology Economic Zone, Xihu District, Hangzhou City, Zhejiang 310024, China.

Test Specification:

Standard: EN 61326-1: 2013

Test Report Form No.: LCSEMC-1.0

TRF Originator: Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF: Dated 2011-03

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Test Item Description.....: Dry Bath Incubator

Trade Mark.....: N/A

Test Model: IB-10HL

Ratings.....: Please Refer To Page 9

Result: Positive

Compiled by:

Coco Song

Coco Song / File administrators

Supervised by:

Tom Wang

Tom Wang /Technique principal

Approved by:



Gavin Liang/ Manager

EMC -- TEST REPORT

Test Report No. : LCS210426044AE	May 07, 2021 Date of issue
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Test Model..... : IB-10HL

EUT..... : Dry Bath Incubator

Applicant..... : HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.

Address..... : Building 9 No.7of Zhubantang Science and Technology Economic Zone, Xihu District, Hangzhou City, Zhejiang 310024, China.

Telephone..... : /

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Manufacturer..... : HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.

Address..... : Building 9 No.7of Zhubantang Science and Technology Economic Zone, Xihu District, Hangzhou City, Zhejiang 310024, China.

Telephone..... : /

Fax..... : /

Factory..... : HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.

Address..... : Building 9 No.7of Zhubantang Science and Technology Economic Zone, Xihu District, Hangzhou City, Zhejiang 310024, China.

Telephone..... : /

Fax..... : /

Test Result according to the standards on page 7: **Positive**

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.

Revision History

Revision	Issue Date	Revisions	Revised By
000	May 07, 2021	Initial Issue	Gavin Liang

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1. TEST STANDARDS

The tests were performed according to following standards:

EN 61326-1: 2013 Electrical equipment for measurement, control and laboratory use
EMC requirements Part 1: General requirements

2. SUMMARY OF STANDARDS AND RESULTS

2.1. Description of Standards and Results

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

EMISSION (EN 61326-1: 2013)			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	CISPR 11: 2016	Class B	PASS
Conducted disturbance at telecommunication port	CISPR 11: 2016	Class B	N/A
Radiated disturbance	CISPR 11: 2016	Class B	PASS
Harmonic current emissions	EN IEC 61000-3-2: 2019	Class A	N/A
Voltage fluctuations & flicker	EN 61000-3-3: 2013+A1:2019	-----	PASS
IMMUNITY (EN 61326-1: 2013)			
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+A2: 2010	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4: 2012	B	PASS
Surge (Input a.c. power ports)	EN 61000-4-5: 2014+A1: 2017	B	PASS
Surge (Telecommunication ports)		B	N/A
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6: 2014	A	PASS
Power frequency magnetic field	EN 61000-4-8: 2010	A	PASS
Voltage dips, >95% reduction	EN 61000-4-11: 2004+A1: 2017	B	PASS
Voltage dips, 30% reduction		C	PASS
Voltage interruptions		C	PASS
N/A is an abbreviation for Not Applicable.			

Test mode:		
Mode 1	Working	Record

2.2. 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.

2.2.1. 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 manufacturer 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 derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

2.2.2. 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 app.

lication of the phenomena below a performance level specified by the manufacturer, 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 derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

2.2.3. 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 manufacturer's instructions.

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

3. GENERAL INFORMATION

3.1. Description of Device (EUT)

EUT : Dry Bath Incubator

Trade Mark : N/A

Test Model : IB-10HL

Model Lists : N/A

Model Declaration : N/A

Power Supply : Input: DC 24V, 6A, 120W

3.2. Description of Support Device

Manufacturer	Description	Model	Serial Number
--	--	--	--

3.3. Description of Test Facility

Site Description

EMC Lab. : NVLAP Accreditation Code is 600167-0.
FCC Designation Number is CN5024.
CAB identifier is CN0071.
CNAS Registration Number is L4595.

3.4. 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 LCS 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.

3.5.Measurement Uncertainty

Test Item	Frequency Range	Expanded uncertainty (U _{lab})	Expanded uncertainty (U _{CISPR})
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 2.63 dB ± 2.35 dB	± 3.8 dB ± 3.4dB
Power disturbance	Level accuracy (30MHz to 300MHz)	± 2.90dB	± 4.5 dB
Electromagnetic Radiated Emission (3-loop)	Level accuracy (9kHz to 30MHz)	± 3.60 dB	± 3.3 dB
Radiated Emission	Level accuracy (9kHz to 30MHz)	± 3.68 dB	N/A
Radiated Emission	Level accuracy (30MHz to 1000MHz)	± 3.48 dB	± 5.3 dB
Radiated Emission	Level accuracy (above 1000MHz)	± 3.90 dB	± 5.2 dB
<p>(1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.</p> <p>(2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.</p>			

4. MEASURING DEVICE AND TEST EQUIPMENT

LINE CONDUCTED EMISSION

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	EZ	EZ-EMC	/	N/A	N/A
2	EMI Test Receiver	R&S	ESPI	101840	2020-06-22	2021-06-21
3	Artificial Mains	R&S	ENV216	101288	2020-06-22	2021-06-21
4	10dB Attenuator	SCHWARZBECK	MTS-IMP-136	261115-001-0032	2020-06-22	2021-06-21
5	Impedance Stabilization Network	TESEQ	ISN T800	45130	2020-12-02	2021-12-01

RADIATED DISTURBANCE

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	E3	E3-EMC	/	N/A	N/A
2	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2018-07-26	2021-07-25
3	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2018-07-02	2021-07-01
4	EMI Test Receiver	R&S	ESR 7	101181	2020-06-22	2021-06-21
5	Broadband Preamplifier	/	BP-01M18G	P190501	2020-06-22	2021-06-21

VOLTAGE FLUCTUATION AND FLICKER/HARMONIC CURRENT EMISSIONS

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Power Analyzer Test System	Voltech	PM6000	200006700523	2020-06-22	2021-06-21

RF ELECTROMAGNETIC FIELD

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	ESG Vector Signal Generator	Agilent	E4438C	MY4208139	2020-11-17	2021-11-16
2	RF POWER AMPLIFIER	OPHIR	5225R	1052	NCR	NCR
3	RF POWER AMPLIFIER	OPHIR	5273F	1019	NCR	NCR
4	Stacked Broadband Log Periodic	SCHWARZBECK	STLP 9128	9128ES-145	NCR	NCR
5	Stacked Mikrowellen Log.-Per	SCHWARZBECK	STLP 9149	9149-484	NCR	NCR
6	Electric field probe	Narda S.TS./PMM	EP601	611WX80208	2021-03-25	2022-03-24

ELECTROSTATIC DISCHARGE

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	ESD Simulator	SCHLODER	SESD 230	604035	2020-07-21	2021-07-20

ELECTRICAL FAST TRANSIENT IMMUNITY

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Immunity Simulative Generator	EM TEST	UCS500 M4	0101-34	2020-06-22	2021-06-21

RF COMMON MODE

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Simulator	FRANKONIA	CIT-10/75	A126A1195	2020-06-22	2021-06-21
2	CDN	FRANKONIA	CDN-M2+M3	A2210177	2020-06-22	2021-06-21
3	6dB Attenuator	FRANKONIA	DAM25W	1172040	2020-06-22	2021-06-21

SURGES, LINE TO LINE AND LINE TO GROUND

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Immunity Simulative Generator	EM TEST	UCS500 M4	0101-34	2020-06-22	2021-06-21

MAGNETIC FIELD SUSCEPTIBILITY TEST

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Power frequency mag-field generator System	EVERFINE	EMS61000-8K	906003	2020-06-22	2021-06-21

VOLTAGE DIPS/INTERRUPTIONS IMMUNITY TEST

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2020-06-22	2021-06-21

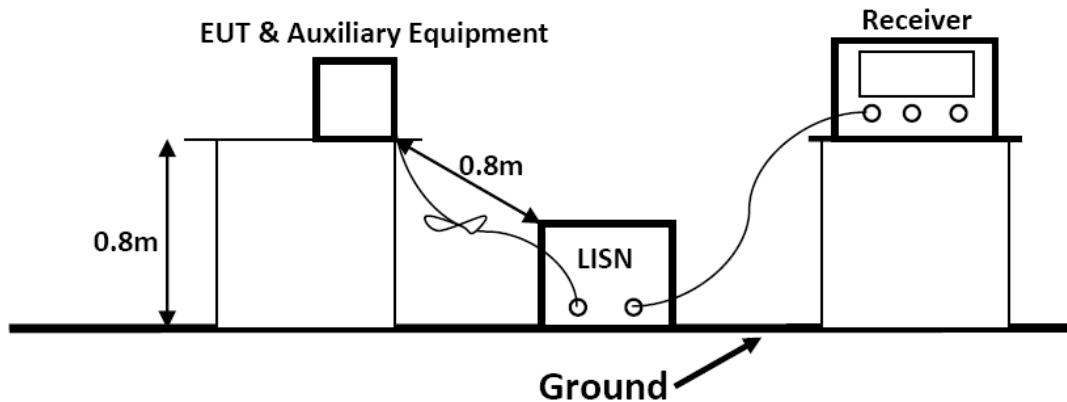
Note: All equipment is calibrated through GUANGZHOU LISAI CALIBRATION AND TEST CO., LTD.

NCR --- No calibration requirement.

5. TEST RESULTS

5.1. POWER LINE CONDUCTED EMISSION MEASUREMENT

5.1.1. Block Diagram of Test Setup



5.1.2. Test Standard

EN 61326-1: 2013 (CISPR 11 : 2016)

Power Line Conducted Emission Limits (Class B)

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66-56	56-46
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

NOTE1-The lower limit shall apply at the transition frequencies.
 NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

5.1.3. EUT Configuration on Test

The following equipments are installed on Conducted Emission Measurement to see.

CISPR 11 requirements and operating in a manner which tends to maximize its emission characteristics in normal application.

5.1.4. Operating Condition of EUT

5.1.4.1. Setup the EUT as shown on Section 5.1.1.

5.1.4.2. Turn on the power of all equipments.

5.1.4.3. Let the EUT work in measuring mode (1) and measure it.

5.1.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided 50-ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the CISPR 11 regulations during conducted emission measurement.

The bandwidth of the field strength meter is set at 9kHz in 150kHz~30MHz.

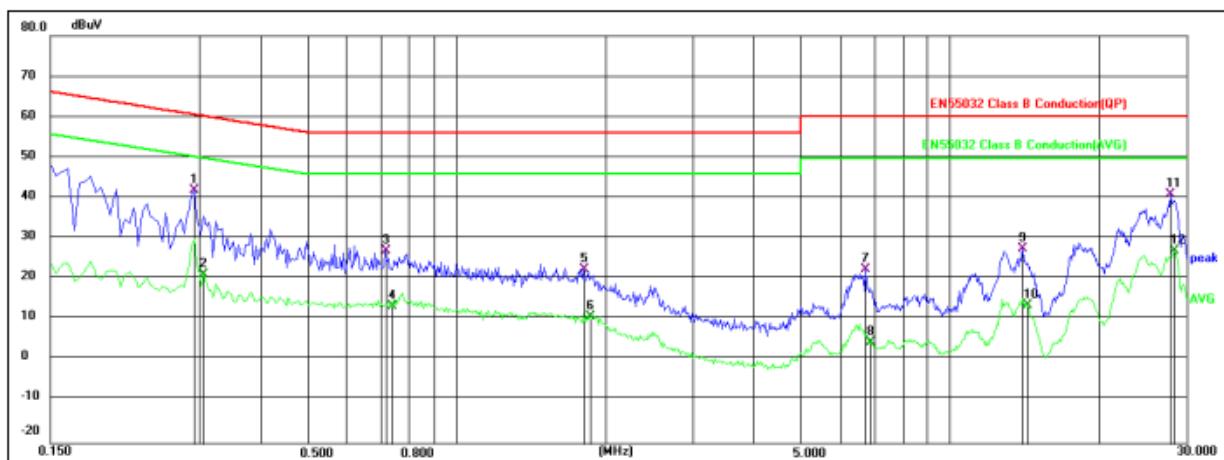
The frequency range from 150kHz to 30MHz is investigated

5.1.6. Test Results

PASS.

The test result please refer to the next page.

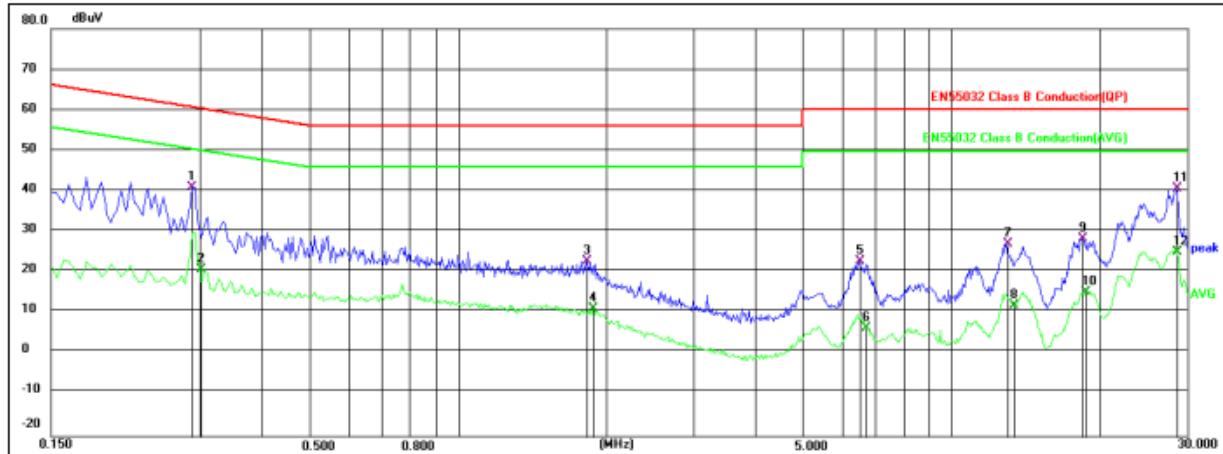
Environmental Conditions:	23.3°C, 53.7% RH
Test Voltage:	AC 230V/50Hz
Test Model:	IB-10HL
Test Mode:	Mode 1
Test Engineer:	ZQ PANG
Pol:	Line
Detailed results are shown below	



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2941	25.63	16.57	42.20	60.41	-18.21	QP
2	0.3076	5.02	16.47	21.49	50.04	-28.55	AVG
3	0.7171	11.05	16.25	27.30	56.00	-28.70	QP
4	0.7352	-2.67	16.37	13.70	46.00	-32.30	AVG
5	1.8061	7.58	15.18	22.76	56.00	-33.24	QP
6	1.8601	-4.06	15.19	11.13	46.00	-34.87	AVG
7	6.7381	9.80	12.94	22.74	60.00	-37.26	QP
8	6.8776	-8.54	13.34	4.80	50.00	-45.20	AVG
9	14.0371	16.17	11.60	27.77	60.00	-32.23	QP
10	14.3566	2.12	11.81	13.93	50.00	-36.07	AVG
11	27.9691	33.69	7.35	41.04	60.00	-18.96	QP
12	28.5046	19.70	7.41	27.11	50.00	-22.89	AVG

Environmental Conditions:	23.3°C, 53.7% RH
Test Voltage:	AC 230V/50Hz
Test Model:	IB-10HL
Test Mode:	Mode 1
Test Engineer:	ZQ PANG
Pol:	Neutral

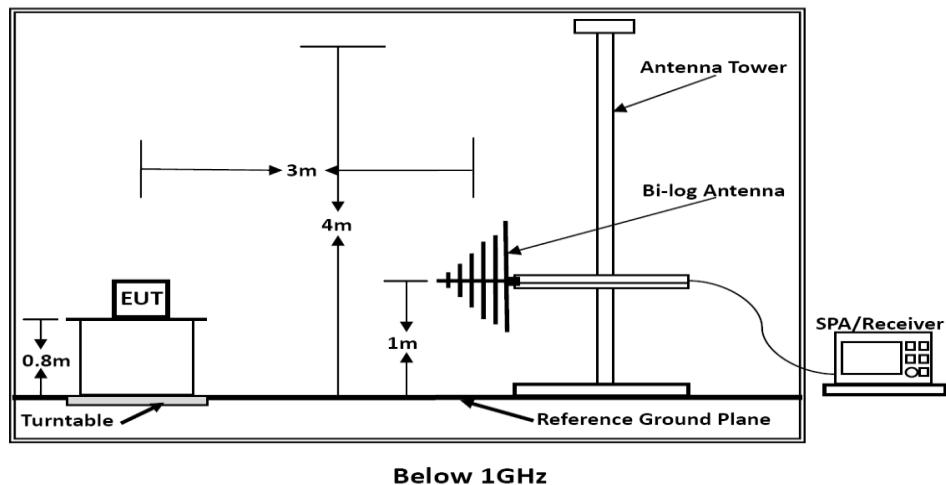
Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2893	24.48	16.61	41.09	60.54	-19.45	QP
2	0.3003	4.50	16.53	21.03	50.23	-29.20	AVG
3	1.8192	7.90	15.17	23.07	56.00	-32.93	QP
4	1.8779	-3.81	15.18	11.37	46.00	-34.63	AVG
5	6.4882	10.73	12.23	22.96	60.00	-37.04	QP
6	6.7333	-6.39	12.92	6.53	50.00	-43.47	AVG
7	12.9199	13.91	13.22	27.13	60.00	-32.87	QP
8	13.4080	-0.41	12.49	12.08	50.00	-37.92	AVG
9	18.4258	18.27	10.12	28.39	60.00	-31.61	QP
10	18.7210	5.22	10.14	15.36	50.00	-34.64	AVG
11	28.4519	33.46	7.41	40.87	60.00	-19.13	QP
12	28.6030	17.66	7.43	25.09	50.00	-24.91	AVG

5.2. RADIATED EMISSION MEASUREMENT

5.2.1. Block Diagram of Test Setup



5.2.2. Measuring Standard

EN 61326-1: 2013 (CISPR 11 : 2016)

5.2.3. Radiated Emission Limits

CISPR 11 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 (dB μ V/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.

5.2.4. EUT Configuration on Test

The CISPR 11 regulations test method must be used to find the maximum emission during radiated emission measurement.

5.2.5. Operating Condition of EUT

5.2.5.1. Turn on the power.

5.2.5.2. After that, let the EUT work in test mode (1) and measure it.

5.2.6. 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.

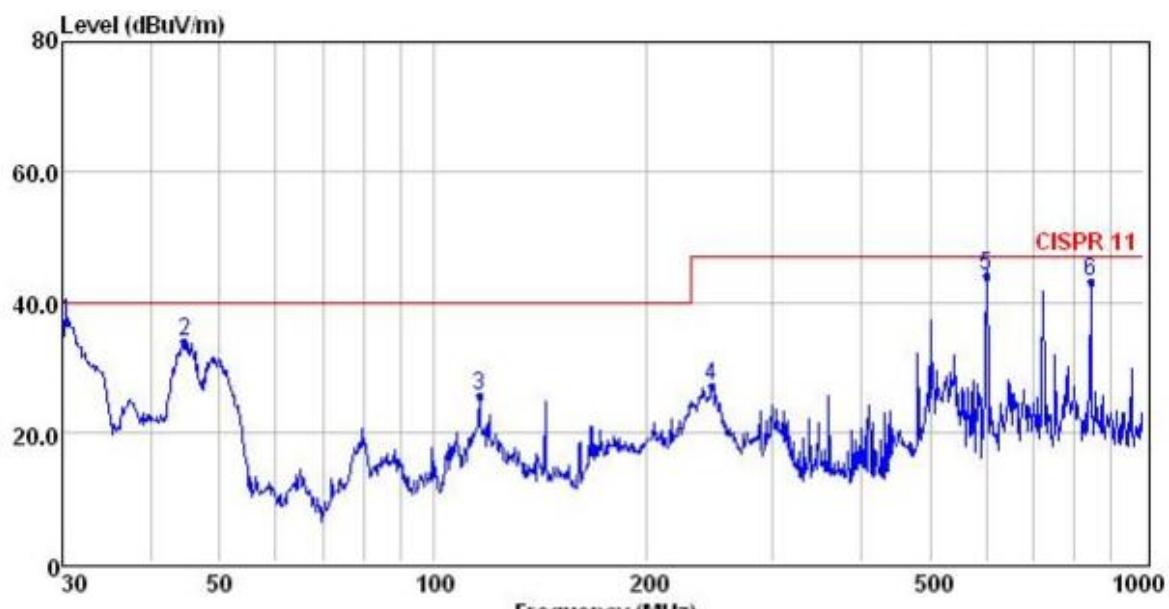
The frequency range from 30MHz to 1000MHz is investigated.

5.2.7. Test Results

PASS.

The test result please refer to the next page.

Environmental Conditions:	22.1 °C, 53.2% RH
Test Voltage:	AC 230V,50Hz
Test Model:	IB-10HL
Test Mode:	Mode 1
Test Engineer:	ZQ PANG
Pol:	Vertical
Detailed results are shown below	

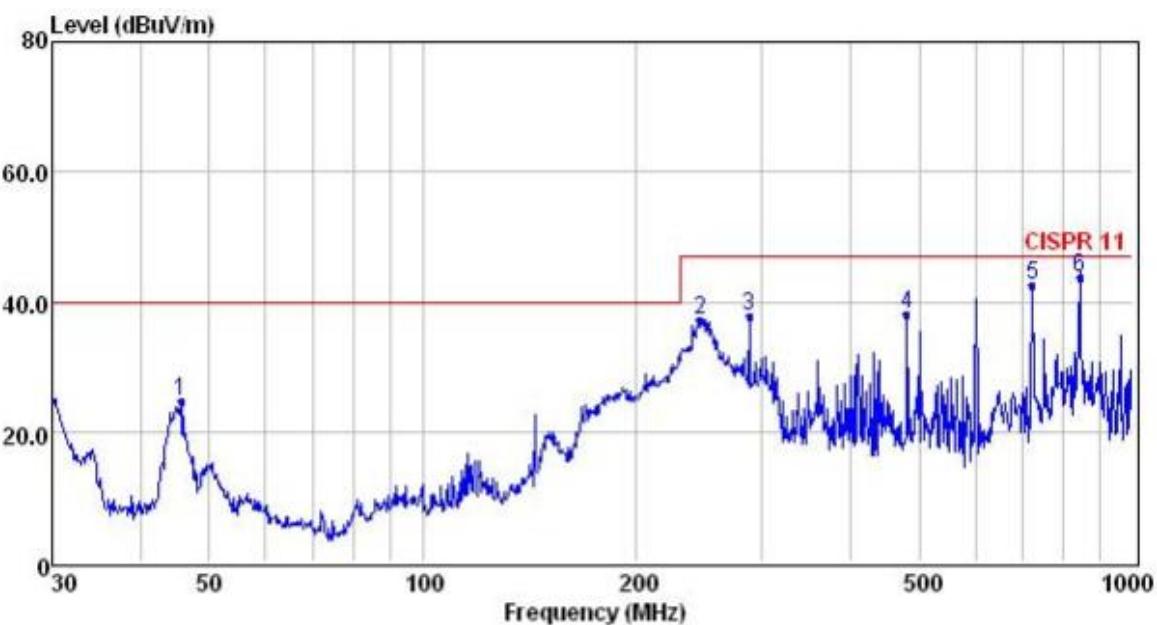


Freq	Reading	CabLoss	Antfac	Measured		Limit	Over	Remark
				MHz	dBuV	dB	dB/m	dBuV/m
1	30.42	53.97	0.39	12.33	36.74	40.00	-3.26	QP
2	44.59	49.97	0.41	13.55	33.94	40.00	-6.06	QP
3	116.13	43.99	0.68	11.16	25.68	40.00	-14.32	QP
4	246.81	44.42	0.97	12.08	27.04	47.00	-19.96	QP
5	601.43	55.12	1.43	18.46	43.91	47.00	-3.09	QP
6	842.13	51.93	1.88	20.49	43.11	47.00	-3.89	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20db below the official limit are not reported

Environmental Conditions:	22.1°C, 53.2% RH
Test Voltage:	AC 230V,50Hz
Test Model:	IB-10HL
Test Mode:	Mode 1
Test Engineer:	ZQ PANG
Pol:	Horizontal

Detailed results are shown below

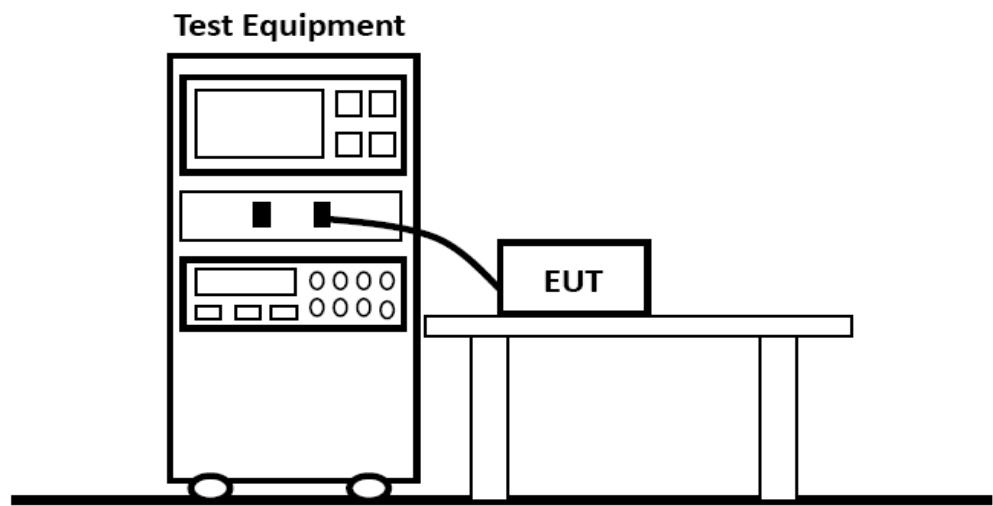


Freq	Reading	CabLos	Antfac	Measured		Limit	Over	Remark
				MHz	dBuV	dB	dB/m	dBuV/m
1	45.53	40.60	0.41	13.52	24.54	40.00	-15.46	QP
2	245.95	54.62	0.97	12.08	37.24	47.00	-9.76	QP
3	287.99	54.48	1.05	12.83	37.87	47.00	-9.13	QP
4	480.53	51.72	1.31	16.08	38.06	47.00	-8.94	QP
5	721.73	53.05	1.63	19.08	42.66	47.00	-4.34	QP
6	842.13	52.65	1.88	20.49	43.83	47.00	-3.17	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20db below the official limit are not reported

5.3. HARMONIC CURRENT EMISSION MEASUREMENT

5.3.1. Block Diagram of Test Setup



5.3.2. Test Standard

EN IEC 61000-3-2: 2019

5.3.3. Operation Condition of EUT

Same as Section 4, except the test setup replaced as Section 5.3.1.

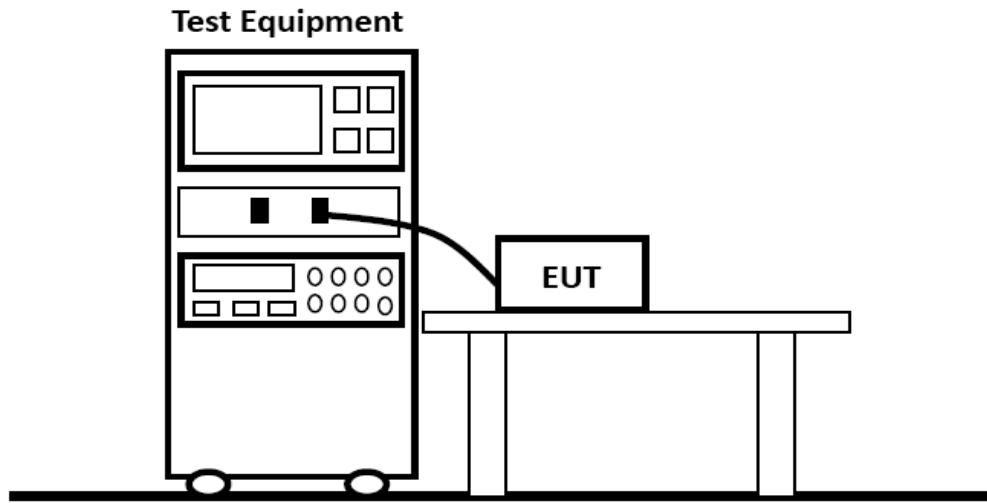
5.3.4. Test Results

PASS.

Because power of EUT less than 75W, According standard EN 61000-3-2, Harmonic current unnecessary to test.

5.4. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

5.4.1. Block Diagram of Test Setup



5.4.2. Measuring Standard

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

5.4.3. Operation Condition of EUT

Same as Section 4, except the test setup replaced as Section 5.4.1.

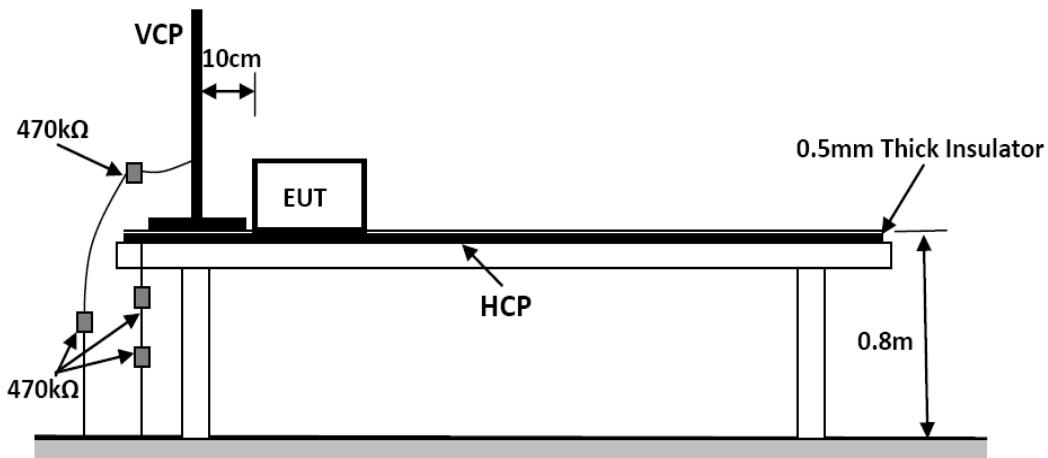
5.4.4. Test Results

PASS.

Test Model	IB-10HL	Test Engineer	ZQ PANG
Overall Result: PASS	Notes: Measurement method - Voltage		
Limit	Pst 1.000	dc (%) 3.300	dmax (%) 4.000
Reading 1	0.091	0.012	Tmax(> 3.3%)(ms) 500 0

5.5. ELECTROSTATIC DISCHARGE IMMUNITY TEST

5.5.1. Block Diagram of Test Setup



5.5.2. Test Standard

EN 61326-1: 2013 (EN 61000-4-2: 2009, Severity Level: 3 / Air Discharge: $\pm 8\text{KV}$, Level: 2 / Contact Discharge: $\pm 4\text{KV}$)

5.5.3. Severity Levels and Performance Criterion

5.5.3.1. 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

5.5.3.2. Performance Criterion: B

5.5.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.

5.5.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 5.1.1, Except the test set up replaced by Section 5.5.1.

5.5.6. Test Procedure

5.5.6.1. 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

5.5.6.2. Contact Discharge

All the procedure shall be same as Section 8.6.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

5.5.6.3. 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.

5.5.6.4. 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.

5.5.7. Test Results

PASS.

Please refer to the following pages

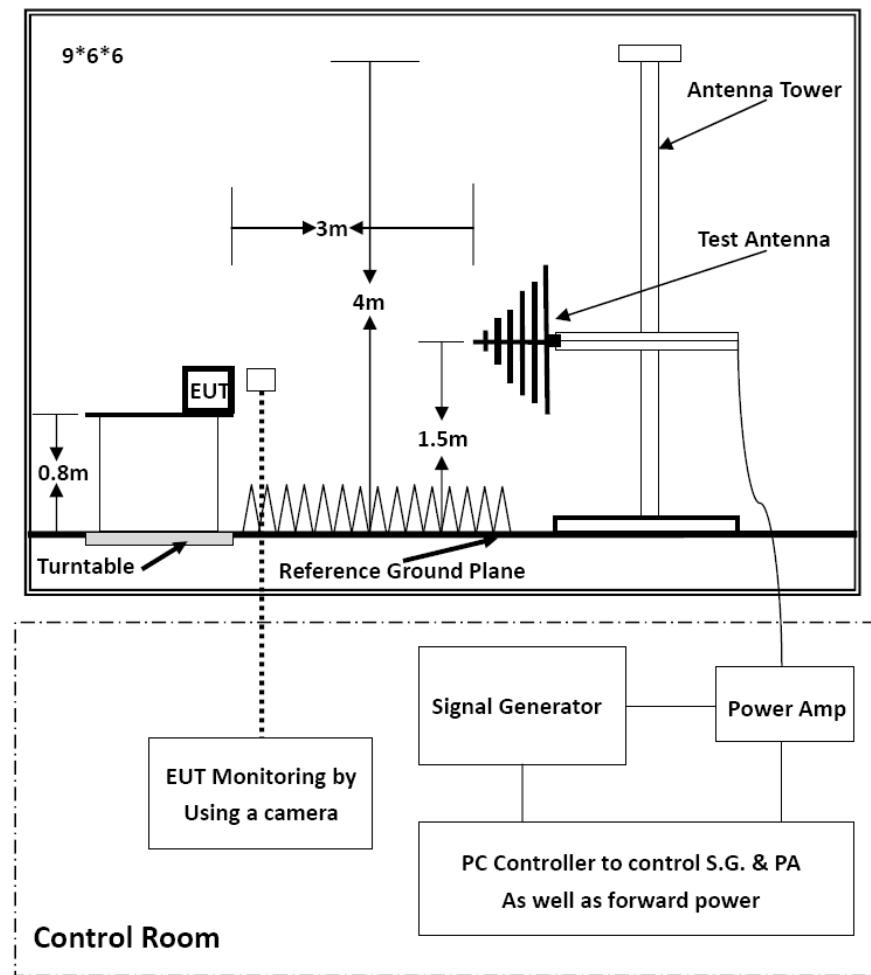
Electrostatic Discharge Test Results

Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.		
EUT	Dry Bath Incubator	Temperature	24.4 °C
M/N	IB-10HL	Humidity	53.7%
Criterion	B	Pressure	1021mbar
Test Mode	Mode 1	Test Engineer	ZQ PANG

Air Discharge						
Test Points	Test Levels			Results		
	± 2kV	± 4kV	± 8kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Contact Discharge						
Test Points	Test Levels		Results			
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion	
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Discharge To Horizontal Coupling Plane						
Side of EUT	Test Levels		Results			
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion	
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Discharge To Vertical Coupling Plane						
Side of EUT	Test Levels		Results			
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion	
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B

5.6. RF FIELD STRENGTH SUSCEPTIBILITY TEST

5.6.1. Block Diagram of Test



5.6.2. Test Standard

EN 61326-1: 2013

(EN 61000-4-3: 2006+A2: 2010 Severity Level 2: 3V / m; Level 2: 3V/m;
Level 1: 1V/m)

5.6.3. Severity Levels and Performance Criterion

5.6.3.1. Severity Levels

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

5.6.3.2. Performance Criterion: A

5.6.4. EUT Configuration on Test

The configuration of the EUT is same as Section 4.

5.6.5.Operating Condition of EUT

Same as radiated emission measurement, which is listed in Section 5.2.1, except the test setup replaced as Section 5.6.1.

5.6.6.Test Procedure

The EUT are placed on a table, which is 0.8 meter high 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 is set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually.

In order to judge the EUT performance, a CCD Recording is used to monitor its screen.

All the scanning conditions are as following:

Condition of Test	Remark
1. Fielded Strength	3V/m (Severity Level 2)
2. Radiated Signal	Unmodulated
3. Scanning Frequency	80-1GHz
4. Sweep time of radiated	0.0015 Decade/s
5. Dwell Time	3 Sec.
6. Fielded Strength	3V/m (Severity Level 2)
7. Radiated Signal	Unmodulated
8. Scanning Frequency	1.4-2.0GHz
9. Sweep time of radiated	0.0015 Decade/s
Dwell Time	3 Sec.
10. Fielded Strength	1V/m (Severity Level 1)
11. Radiated Signal	Unmodulated
12. Scanning Frequency	2.0-2.7GHz
13. Sweep time of radiated	0.0015 Decade/s
14. Dwell Time	3 Sec.

5.6.7.Test Results

PASS.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

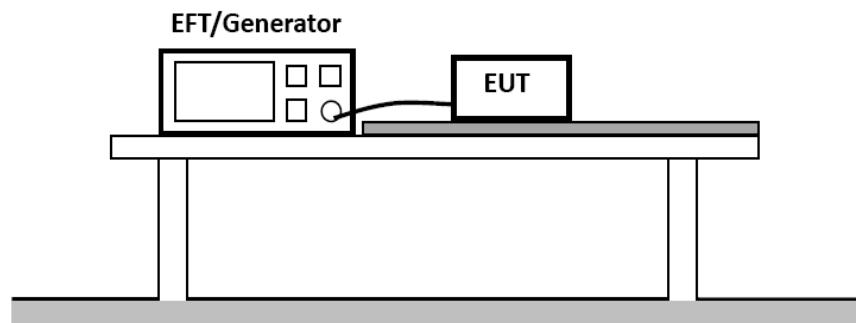
Standard	<input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3		
Applicant	HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.		
EUT	Dry Bath Incubator	Temperature	23.6°C
M/N	IB-10HL	Humidity	53.2%
Test Mode	Mode 1	Criterion	A
Field Strength	3V/m	Frequency Range	80 MHz to 1.0 GHz
	3 V/m		1.4 GHz to 2.0 GHz
	1 V/m		2.0 GHz to 2.7 GHz
Test Engineer	ZQ PANG		
Modulation	<input type="checkbox"/> None <input type="checkbox"/> Pulse	<input checked="" type="checkbox"/> AM 1KHz 80%	
Steps	1%		

	Horizontal	Vertical
Front	PASS	PASS
Right	PASS	PASS
Rear	PASS	PASS
Left	PASS	PASS

Note:

5.7. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

5.7.1. Block Diagram of Test Setup



5.7.2. Test Standard

EN 61326-1: 2013

(EN 61000-4-4: 2012, Severity Level, Level 3: 2KV)

5.7.3. Severity Levels and Performance Criterion

5.7.3.1. 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

5.7.3.2. Performance Criterion: B

5.7.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.

5.7.5. Operating Condition of EUT

5.7.5.1. Setup the EUT as shown in Section 5.7.1.

5.7.5.2. Turn on the power of all equipments.

5.7.5.3. Let the EUT work in test mode (1) and measure it.

5.7.6. 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 EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

5.7.6.1. 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.

5.7.6.2. For signal lines and control lines ports: No I/O ports. It's unnecessary to test.

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

5.7.7. Test Results

PASS.

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

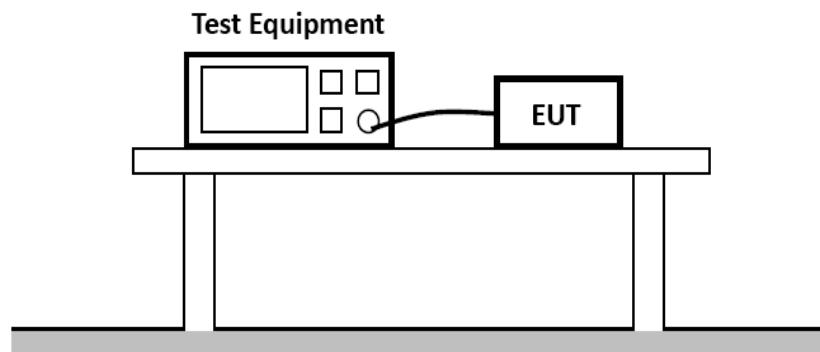
Standard	<input type="checkbox"/> IEC 61000-4-4 <input checked="" type="checkbox"/> EN 61000-4-4		
Applicant	HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.		
EUT	Dry Bath Incubator	Temperature	23.9 °C
M/N	IB-10HL	Humidity	53.7%
Test Mode	Mode 1	Criterion	B
Test Engineer	ZQ PANG		

Line	Test Voltage	Result (+)	Result (-)
L	1KV	PASS	PASS
N	1KV	PASS	PASS
PE			
L-N	1KV	PASS	PASS
L-PE			
N-PE			
L-N-PE			
Signal Line			
I/O Cable			

Note:

5.8. SURGE IMMUNITY TEST

5.8.1. Block Diagram of Test Setup



5.8.2. Test Standard

EN 61326-1: 2013

(EN 61000-4-5: 2014+A1: 2017, Severity Level: Line to Line: Level 2, 1.0KV, Line to Earth: Level 3, 2.0KV)

5.8.3. Severity Levels and Performance Criterion

5.8.3.1. Severity level

Severity Level	Open-Circuit Test Voltage (KV)
1	5
2	0
3	0
4	4.0
*	Special

5.8.3.2. Performance Criterion: B

5.8.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.

5.8.5. Operating Condition of EUT

5.8.5.1. Setup the EUT as shown in Section 5.8.1.

5.8.5.2. Turn on the power of all equipments.

5.8.5.3. Let the EUT work in test mode (1) and measure it.

5.8.6. Test Procedure

- 5.8.6.1. Set up the EUT and test generator as shown on Section 5.8.1.
- 5.8.6.2. For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 5.8.6.3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 5.8.6.4. Different phase angles are done individually.
- 5.8.6.5. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

5.8.7. Test Results

PASS.

Please refer to the following page.

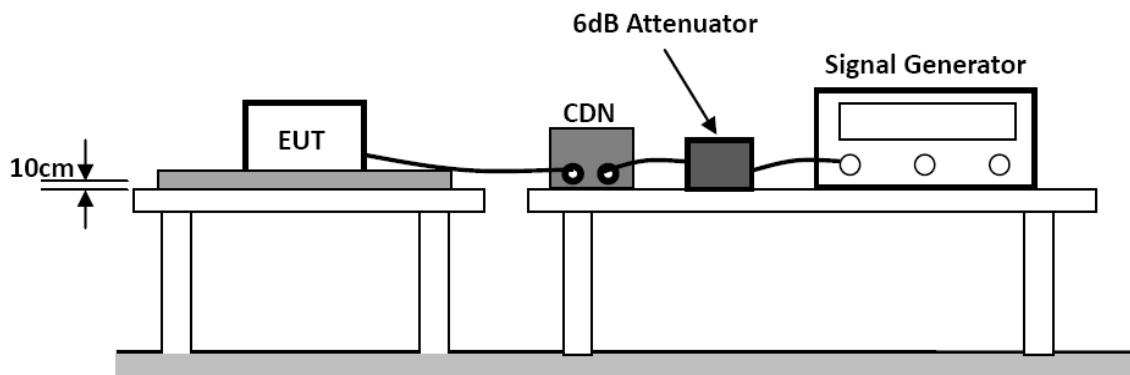
Surge Immunity Test Result

Standard	<input type="checkbox"/> IEC 61000-4-5 <input checked="" type="checkbox"/> EN 61000-4-5		
Applicant	HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.		
EUT	Dry Bath Incubator	Temperature	23.5 °C
M/N	IB-10HL	Humidity	53.8%
Test Mode	Mode 1	Criterion	B
Test Engineer	ZQ PANG		

Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Result
L-N	+	0°	5	0.5	PASS
	+	90°	5	0.5	PASS
	+	180°	5	0.5	PASS
	+	270°	5	0.5	PASS
	-	0°	5	0.5	PASS
	-	90°	5	0.5	PASS
	-	180°	5	0.5	PASS
	-	270°	5	0.5	PASS
L-PE					
N-PE					
Signal Line					
Note					

5.9. INJECTED CURRENTS SUSCEPTIBILITY TEST

5.9.1. Block Diagram of Test Setup



5.9.2. Test Standard

EN 61326-1: 2013

(EN 61000-4-6: 2014, Severity Level: Level 2, 3V (rms), (0.15MHz ~ 80MHz))

5.9.3. Severity Levels and Performance Criterion

5.9.3.1. Severity level

Level	Field Strength (V)
1	1
2	3
3	10
X	Special

5.9.3.2. Performance Criterion: A

5.9.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.

5.9.5.Operating Condition of EUT

5.9.5.1.Setup the EUT as shown in Section 5.9.1.

5.9.5.2.Turn on the power of all equipments.

5.9.5.3.Let the EUT work in test mode (1) and measure it.

5.9.6.Test Procedure

5.9.6.1.Set up the EUT, CDN and test generators as shown on Section 5.9.1.

5.9.6.2.Let the EUT work in test mode and measure it.

5.9.6.3.The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

5.9.6.4.The disturbance signal described below is injected to EUT through CDN.

5.9.6.5.The EUT operates within its operational mode(s) under intended climatic conditions after power on.

5.9.6.6.The frequency range is swept from 150kHz to80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

5.9.6.7.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.

5.9.6.8.Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

5.9.7.Test Results

PASS.

Please refer to the following page.

Injected Currents Susceptibility Test Results

Standard	<input type="checkbox"/> IEC 61000-4-6 <input checked="" type="checkbox"/> EN 61000-4-6			
Applicant	HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.			
EUT	Dry Bath Incubator	Temperature	23.4 °C	
M/N	IB-10HL	Humidity	54.1%	
Test Mode	Mode 1	Criterion	A	
Test Engineer	ZQ PANG			
Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Criterion	Result
0.15 ~ 80	AC Mains	3V	A	PASS

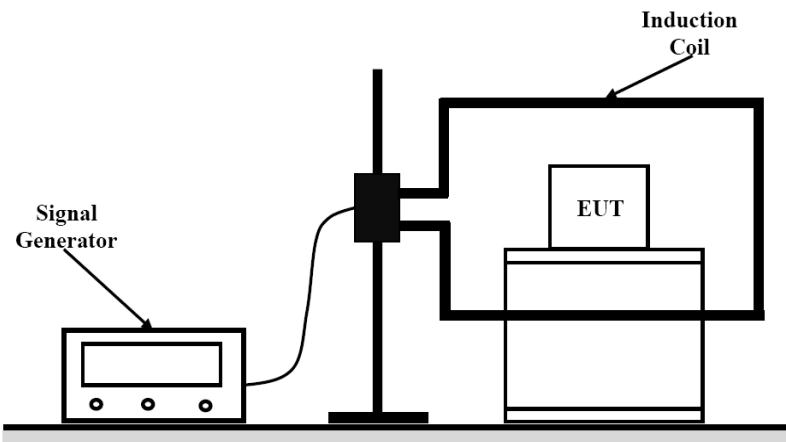
Remark:

1. Modulation Signal: 1kHz 80% AM
2. Measurement Equipment :
 - Simulator: CIT-10 (FRANKONIA)
 - CDN : CDN-M2 (FRANKONIA)
 - CDN-M3 (FRANKONIA)

Note:

5.10. MAGNETIC FIELD SUSCEPTIBILITY TEST

5.10.1. Block Diagram of Test Setup



5.10.2. Test Standard

EN 61326-1: 2013 (EN 61000-4-8: 2010, Severity Level: Level 1, 1A / m)

5.10.3. Severity Levels and Performance Criterion

5.10.3.1. Severity Levels

Level	Field Strength (A/m)
1	1
2	3
3	10
4	30
5	100
X	Special

5.10.3.2. Performance Criterion: A

5.10.4. EUT Configuration on Test

The configuration of the EUT is same as Section 4.

5.10.5. Test Procedure

The EUT is placed in the middle of a induction coil (1*1m), under which is a 1*1*0.1m (high) table, this small table is also placed on a larger table, 0.8 m above the ground. Both horizontal and vertical polarization of the induction coil is set on test, so that each side of the EUT is affected by the magnetic field. Also can reach the same aim by change the position of the EUT.

5.10.6. Test Results

PASS.

Please refer to the following page.

Magnetic Field Immunity Test Result

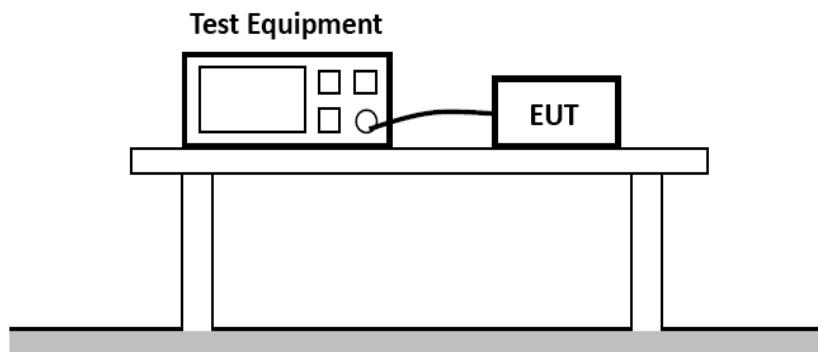
Standard	<input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> EN 61000-4-8		
Applicant	HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.		
EUT	Dry Bath Incubator	Temperature	23.2°C
M/N	IB-10HL	Humidity	53.4%
Test Mode	Mode 1	Criterion	A
Test Engineer	ZQ PANG	Test Voltage	AC 230V/50Hz

Test Level (A/M)	Testing Duration	Coil Orientation	Criterion	Result
1	5 mins	X	A	PASS
1	5 mins	Y	A	PASS
1	5 mins	Z	A	PASS

Note:

5.11. VOLTAGE DIPS AND INTERRUPTIONS TEST

5.11.1. Block Diagram of Test Setup



5.11.2. Test Standard

EN 61326-1: 2013 (EN 61000-4-11: 2004+A1: 2017)

5.11.3. Severity Levels and Performance Criterion

5.11.3.1. Severity level

Test Level %UT	Voltage dip and short interruptions %UT	Duration (in period)
0	100	0.5
0	100	1
70	30	25
Short interruptions		
0	100	250

5.11.3.2. Performance Criterion: B&C

5.11.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.

5.11.5. Operating Condition of EUT

5.11.5.1. Setup the EUT as shown in Section 5.11.1.

5.11.5.2. Turn on the power of all equipments.

5.11.5.3. Let the EUT work in test mode (1) and measure it.

5.11.6. Test Procedure

5.11.6.1. Set up the EUT and test generator as shown on Section 5.11.1.

5.11.6.2. The interruptions are introduced at selected phase angles with specified duration.

5.11.6.3. Record any degradation of performance.

5.11.7. Test Results

PASS.

Please refer to the following page.

Voltage Dips And Interruptions Test Results

Standard	<input type="checkbox"/> IEC 61000-4-11 <input checked="" type="checkbox"/> EN 61000-4-11		
Applicant	HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.		
EUT	Dry Bath Incubator	Temperature	23.2°C
M/N	IB-10HL	Humidity	53.4%
Test Mode	Mode 1	Criterion	B&C
Test Engineer	ZQ PANG		

Test Level % UT	Voltage Dips & Short Interruptions % UT	Duration (in periods)	Criterion	Result
0	100	0.5P	B	PASS
0	100	1P	B	PASS
70	30	25P	C	PASS

Short interruptions

0	100	250P	C	PASS
---	-----	------	---	------

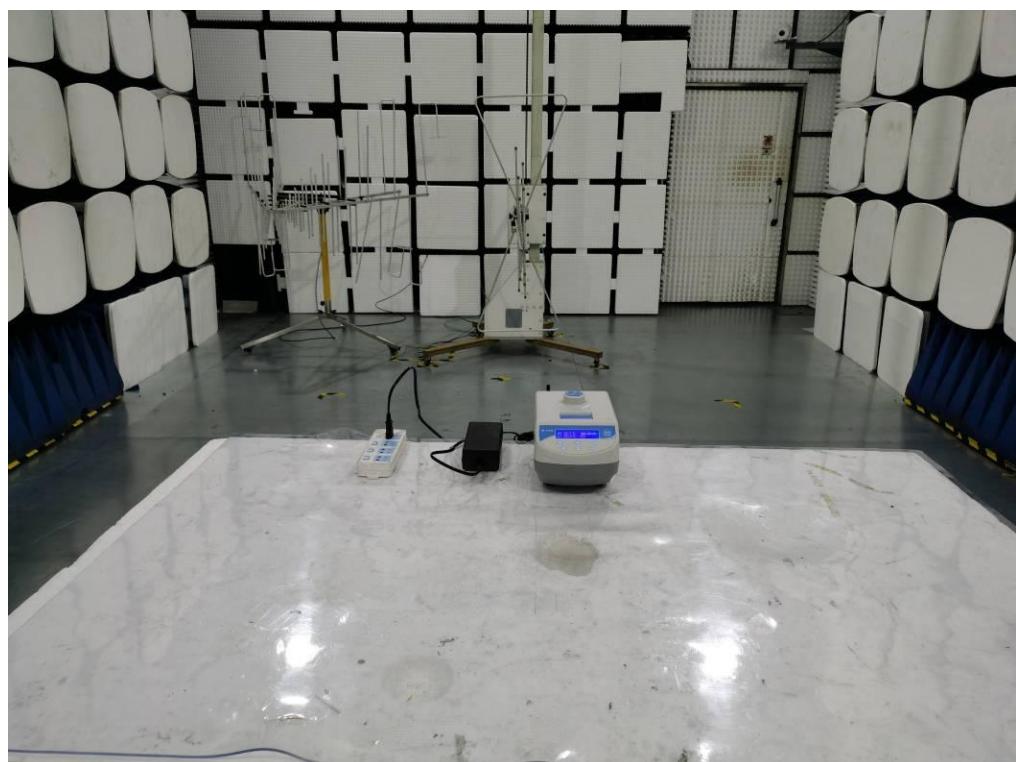
Note:

6. PHOTOGRAPH

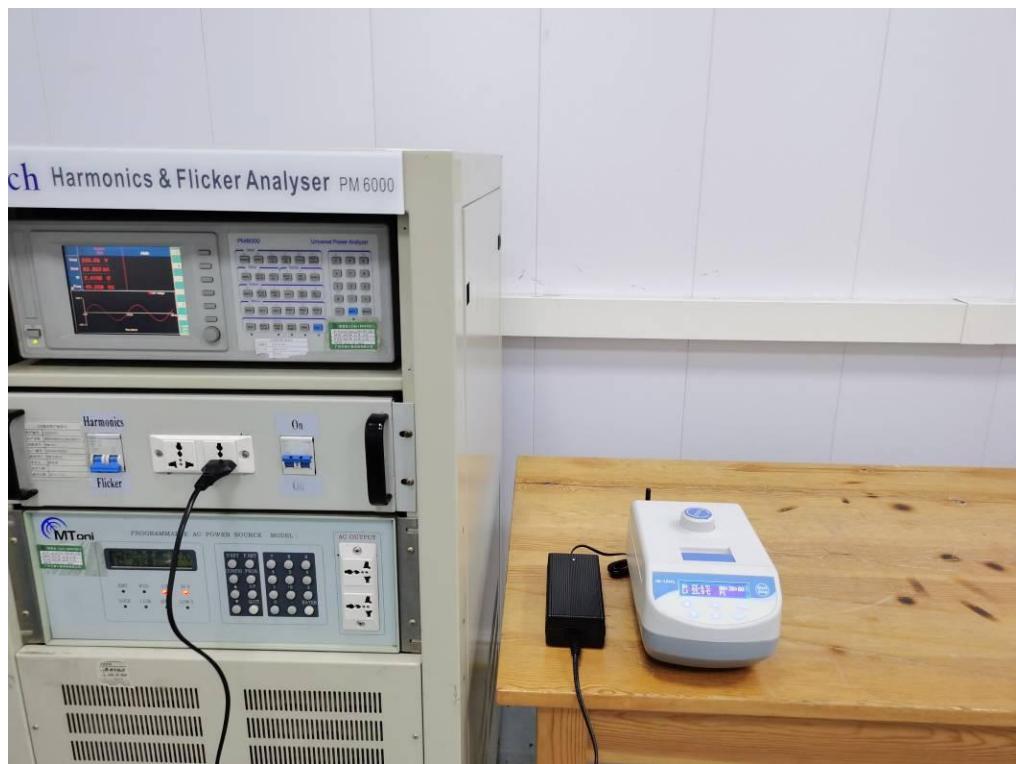
6.1. Photo of Power Line Conducted Measurement



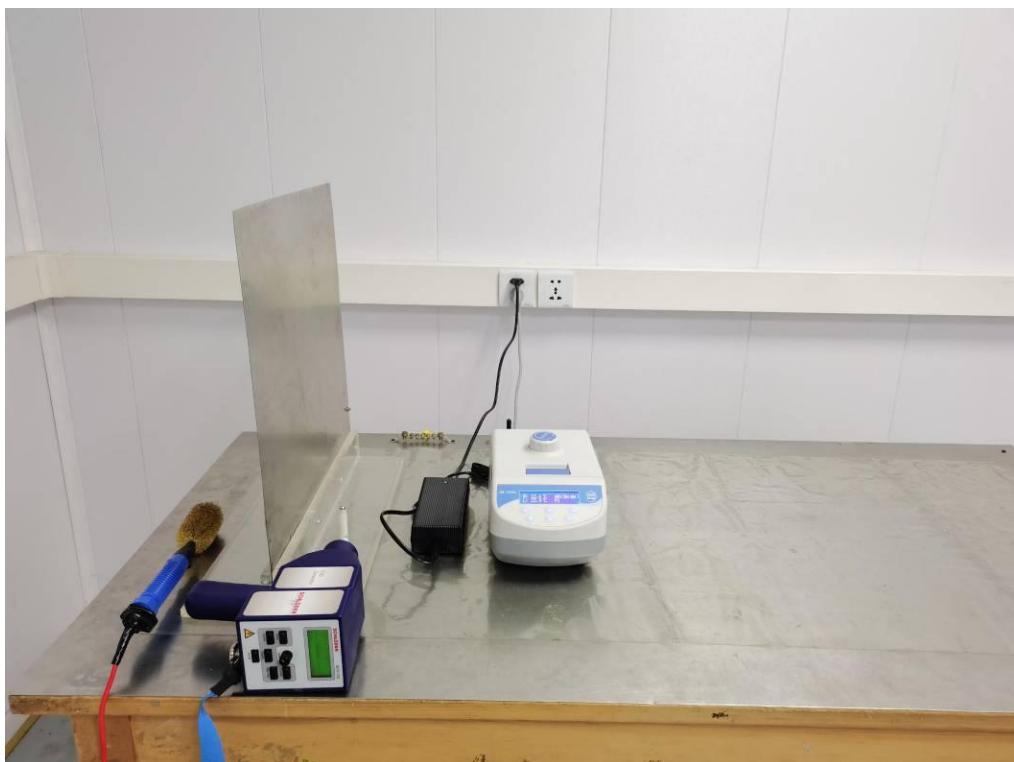
6.2. Photo of Radiated Measurement



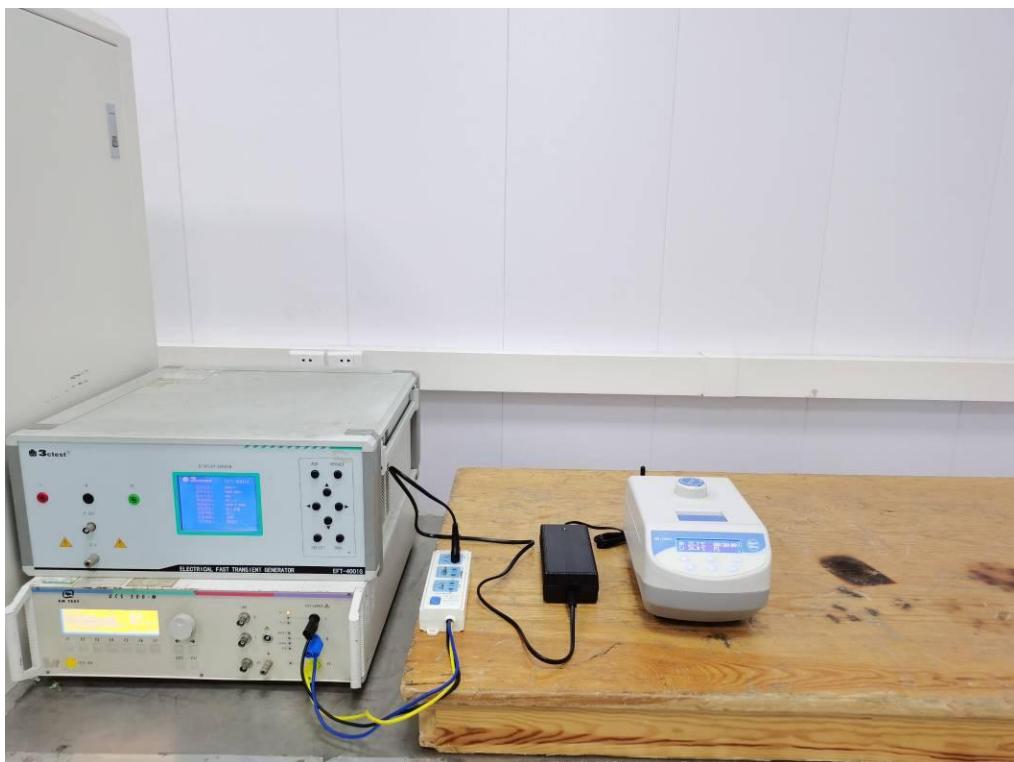
6.3. Photo of Harmonic & Flicker Measurement



6.4. Photo of Electrostatic Discharge Test



6.5. Photo of Electrical Fast Transient/Burst Test & Surge Immunity Test



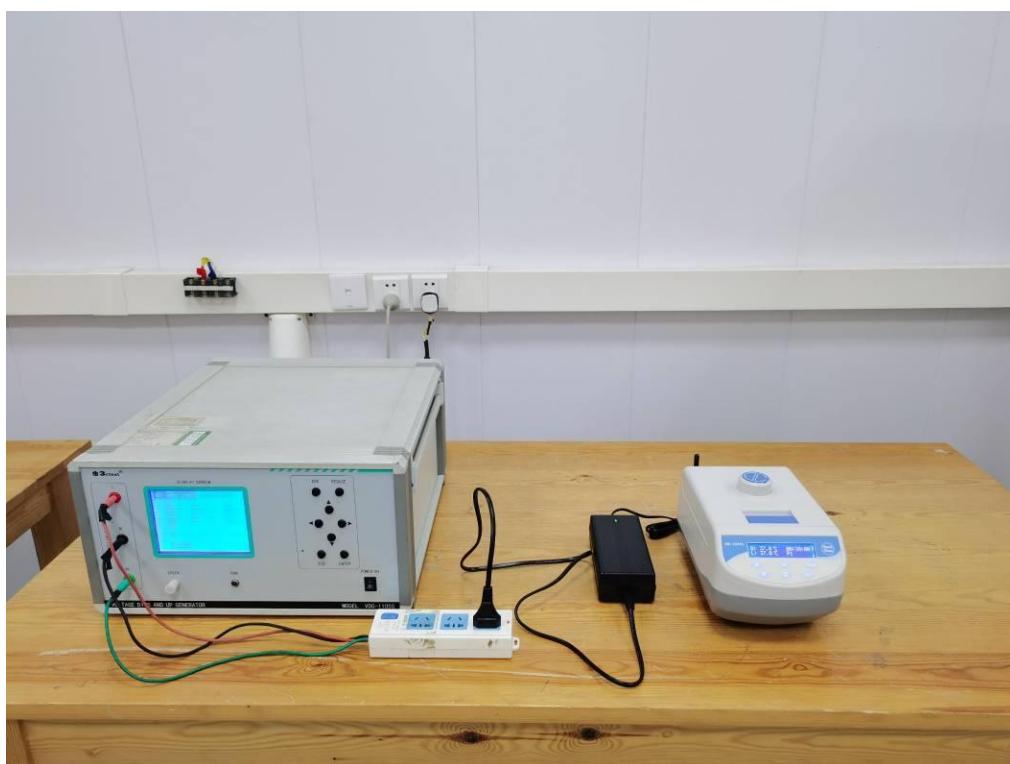
6.6. Photo of Injected Currents Susceptibility Test



6.7. Photo of Magnetic Field Immunity Test



6.8. Photo of Voltage Dips and Short Interruptions Immunity Test



7. EXTERNAL AND INTERNAL PHOTOS OF THE EUT



Fig. 1

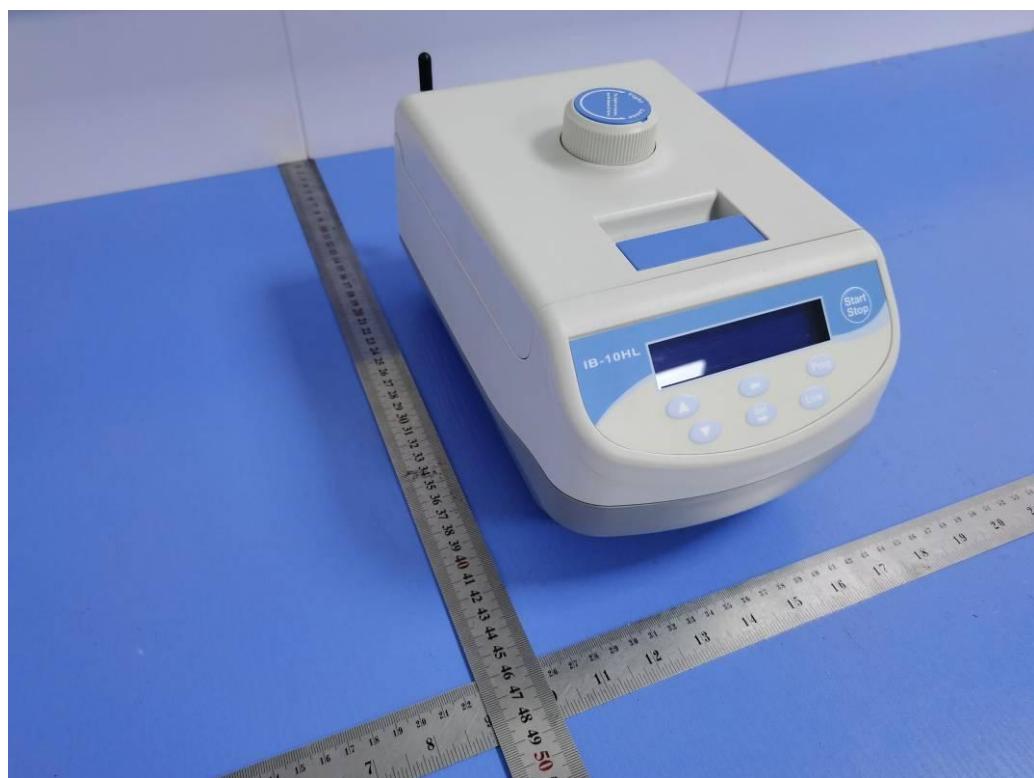


Fig. 2

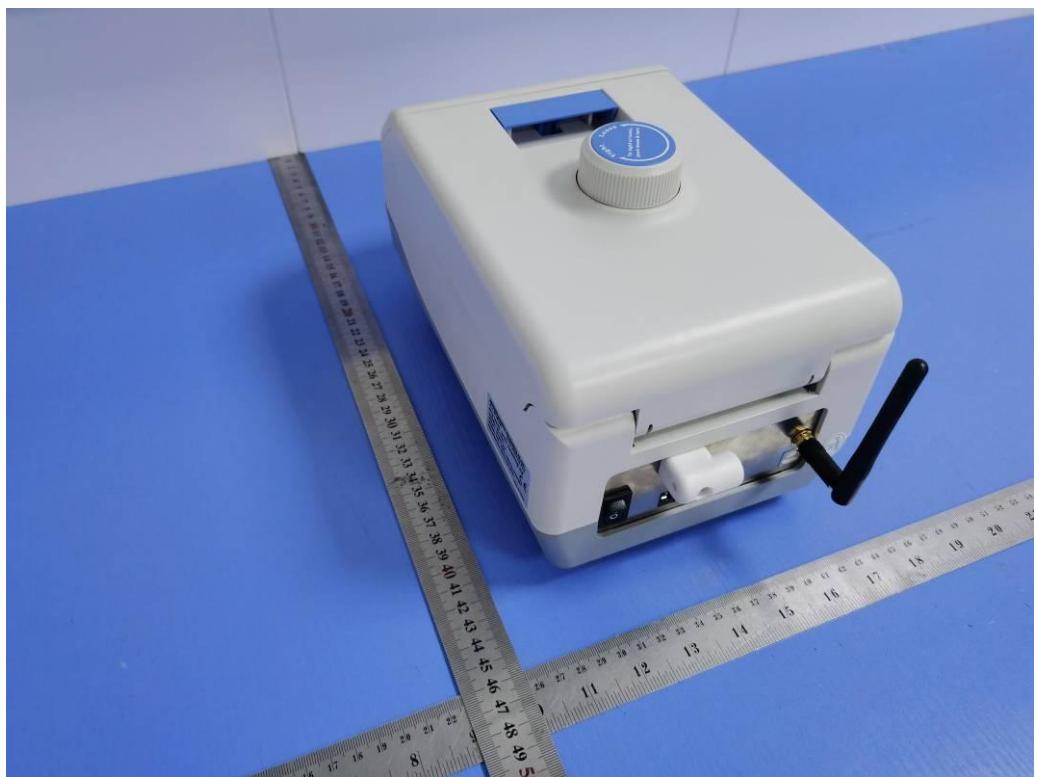


Fig. 3

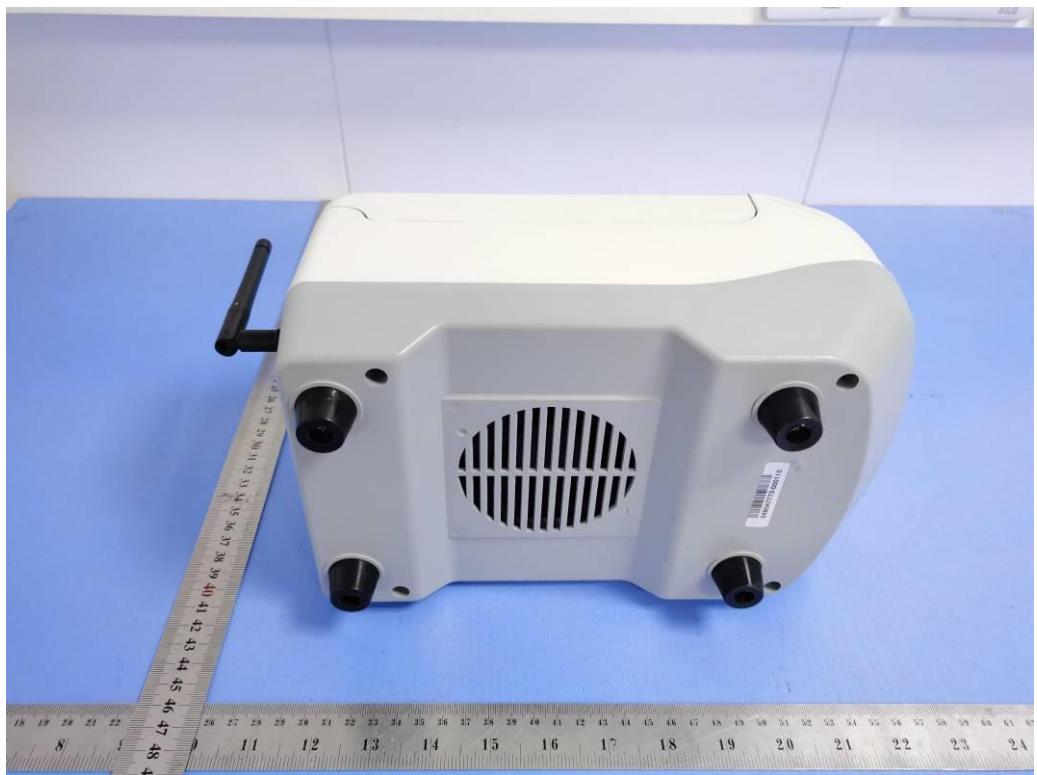


Fig. 4

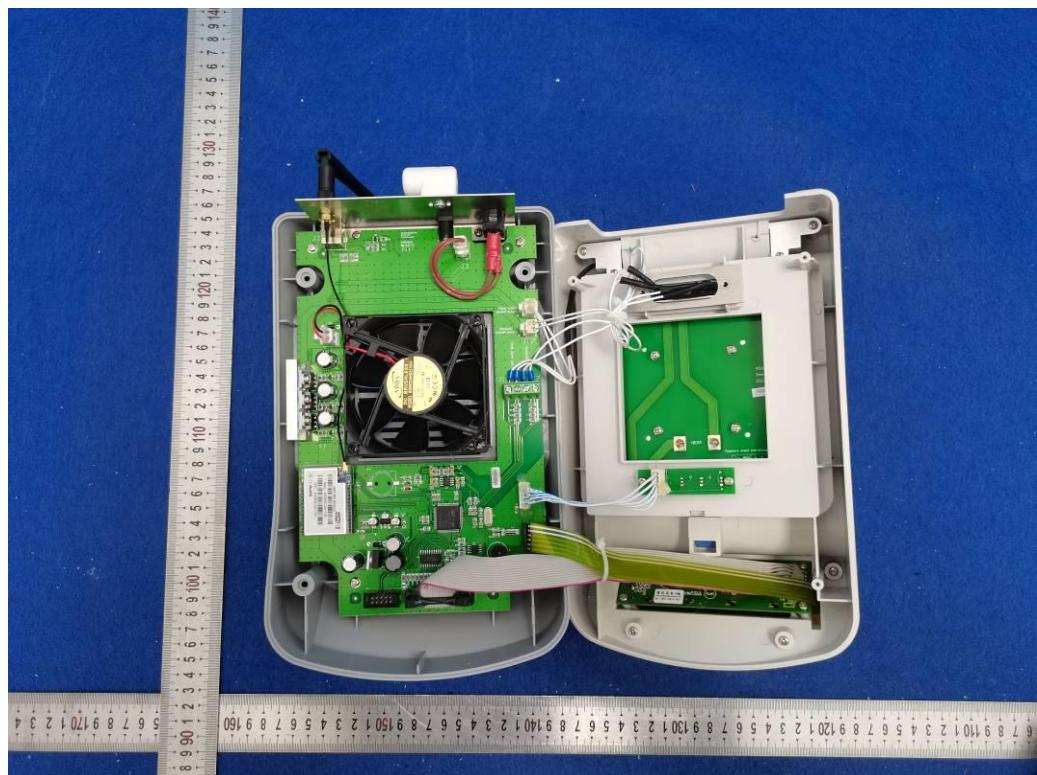


Fig. 5

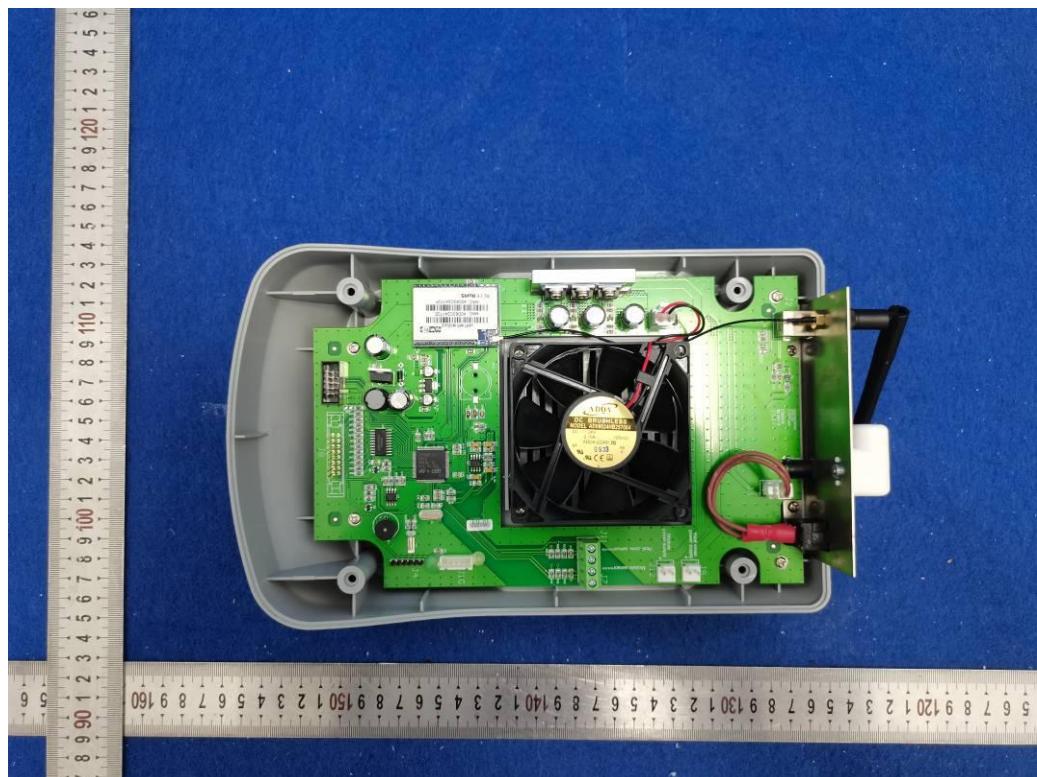


Fig. 6

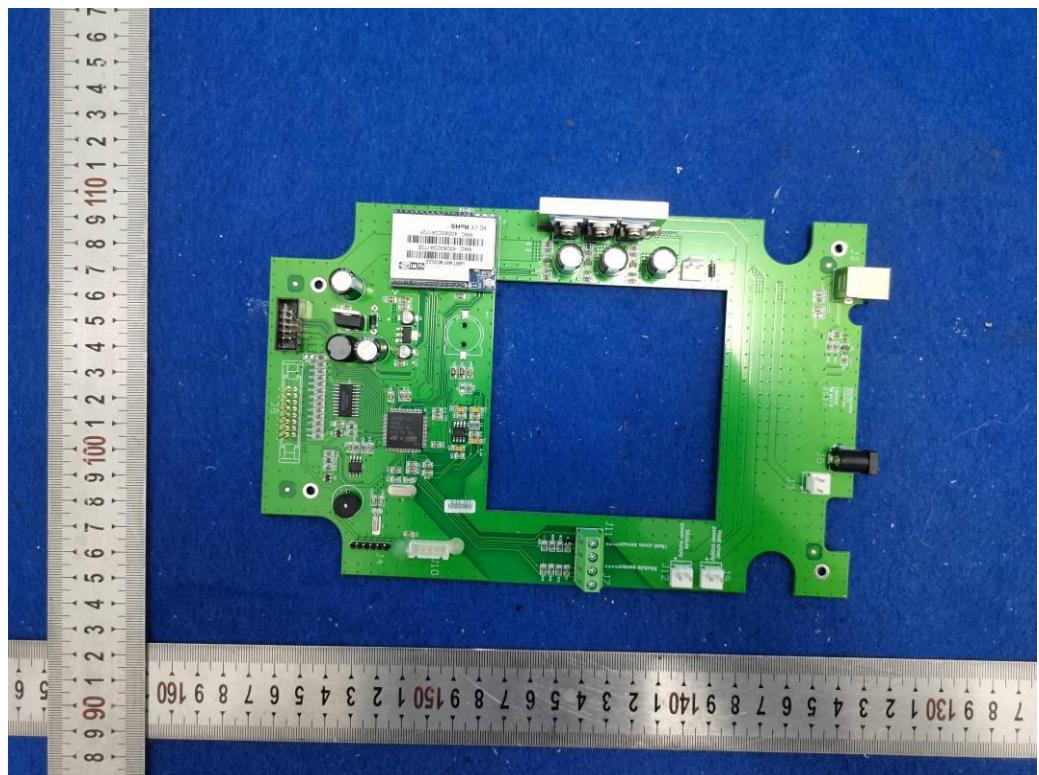


Fig. 7

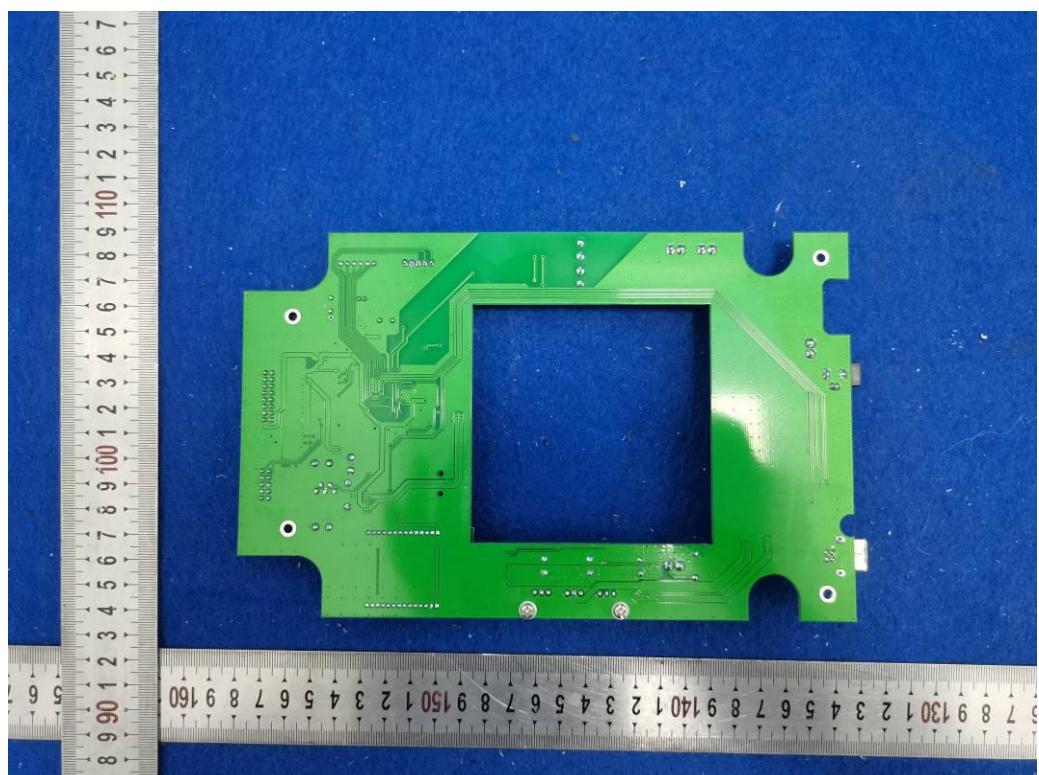


Fig. 8

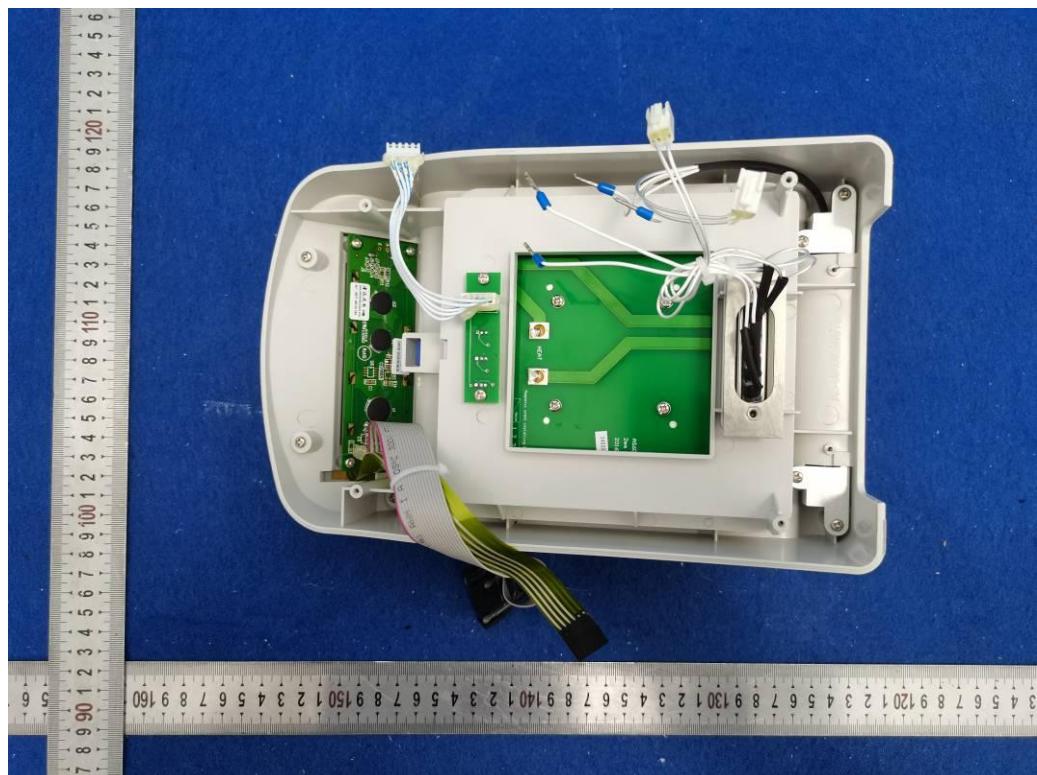


Fig. 9

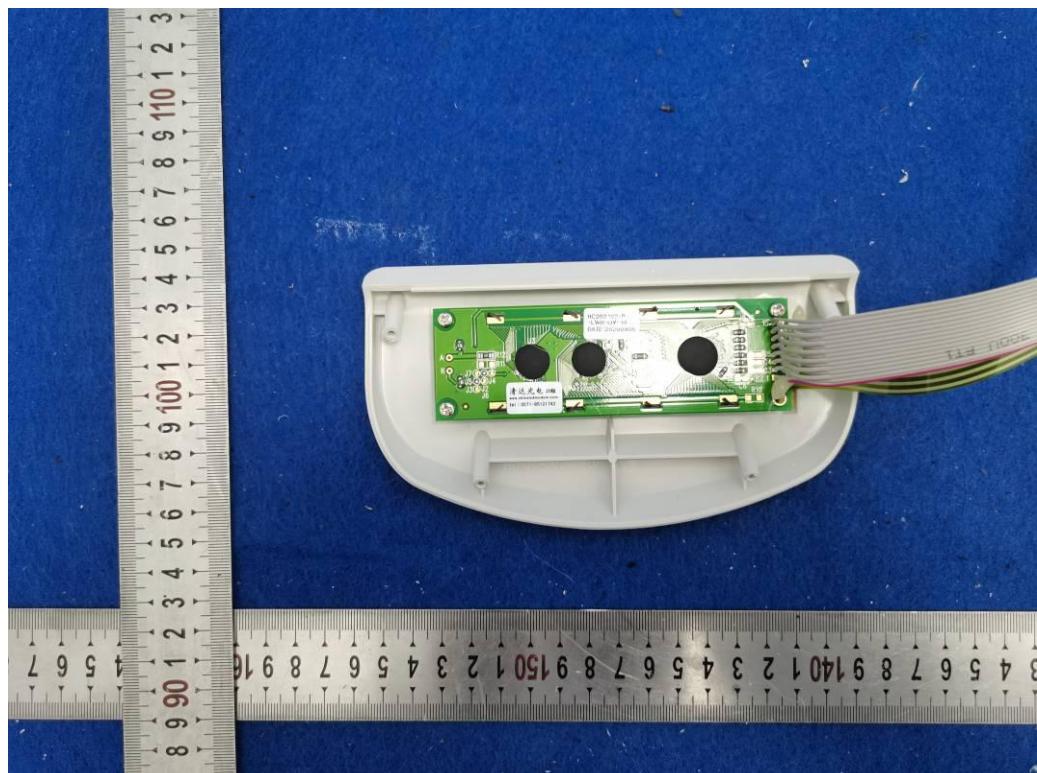


Fig. 10

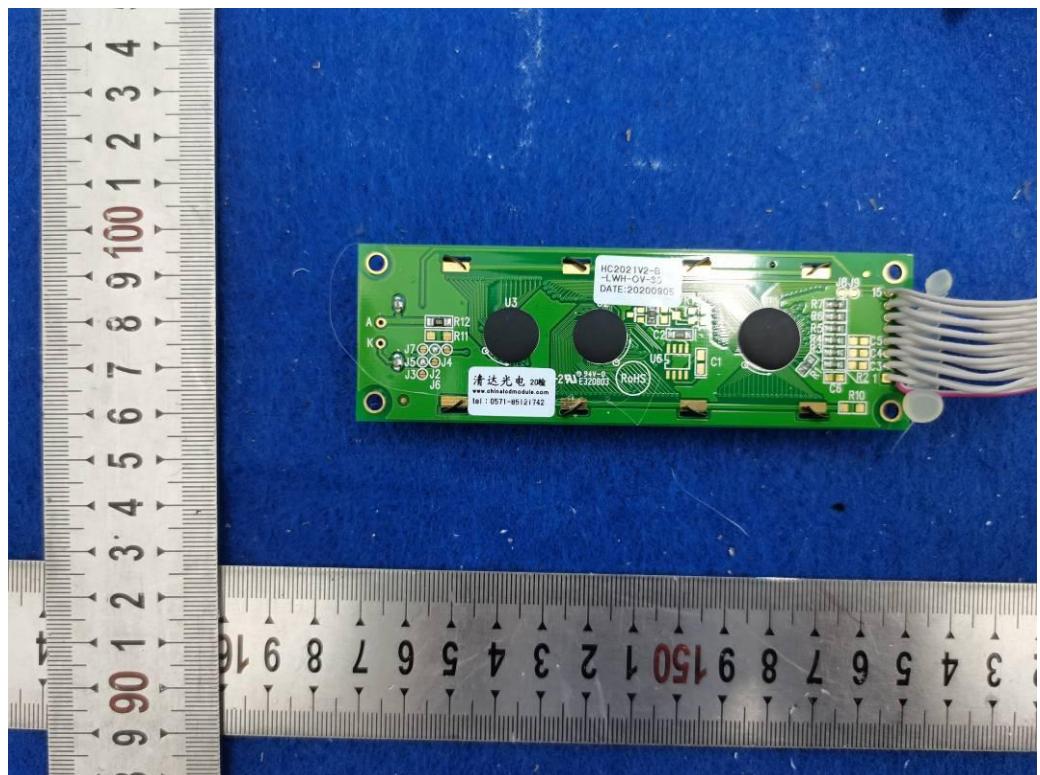


Fig. 11

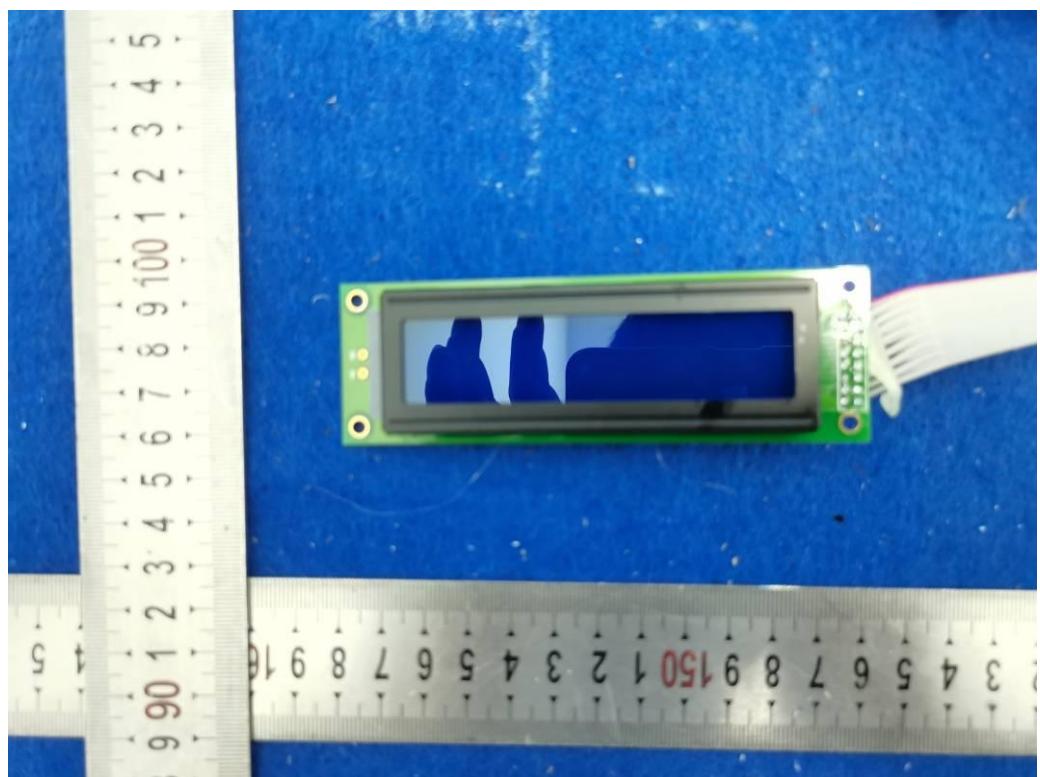


Fig. 12

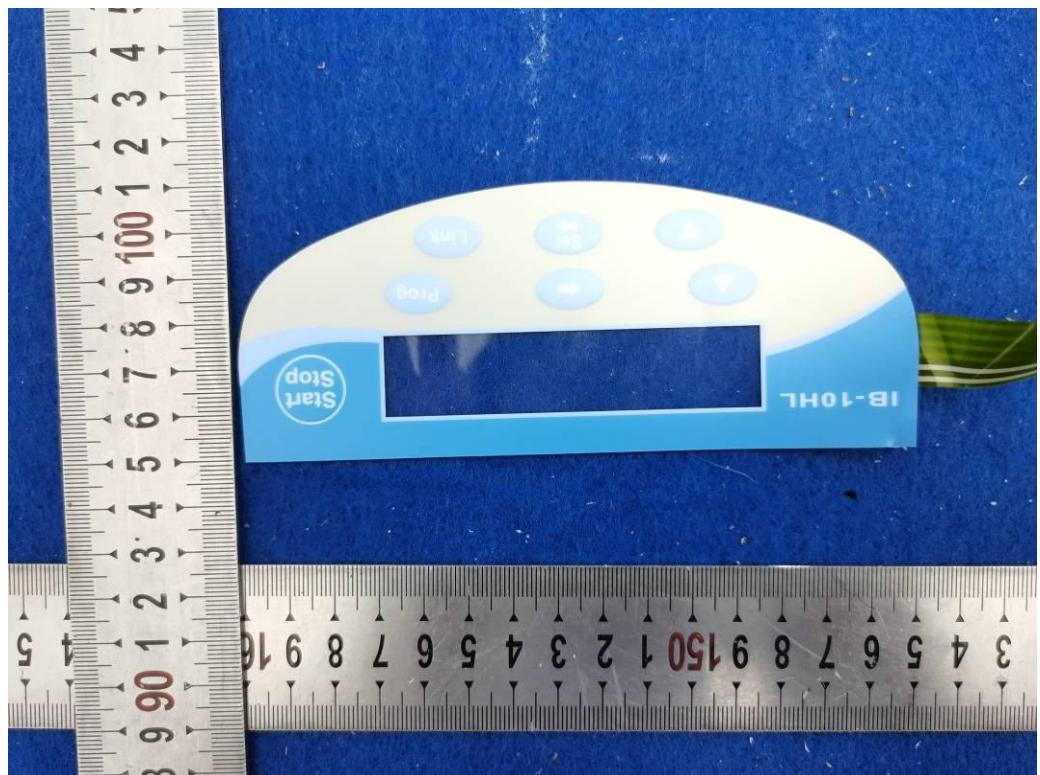


Fig. 13

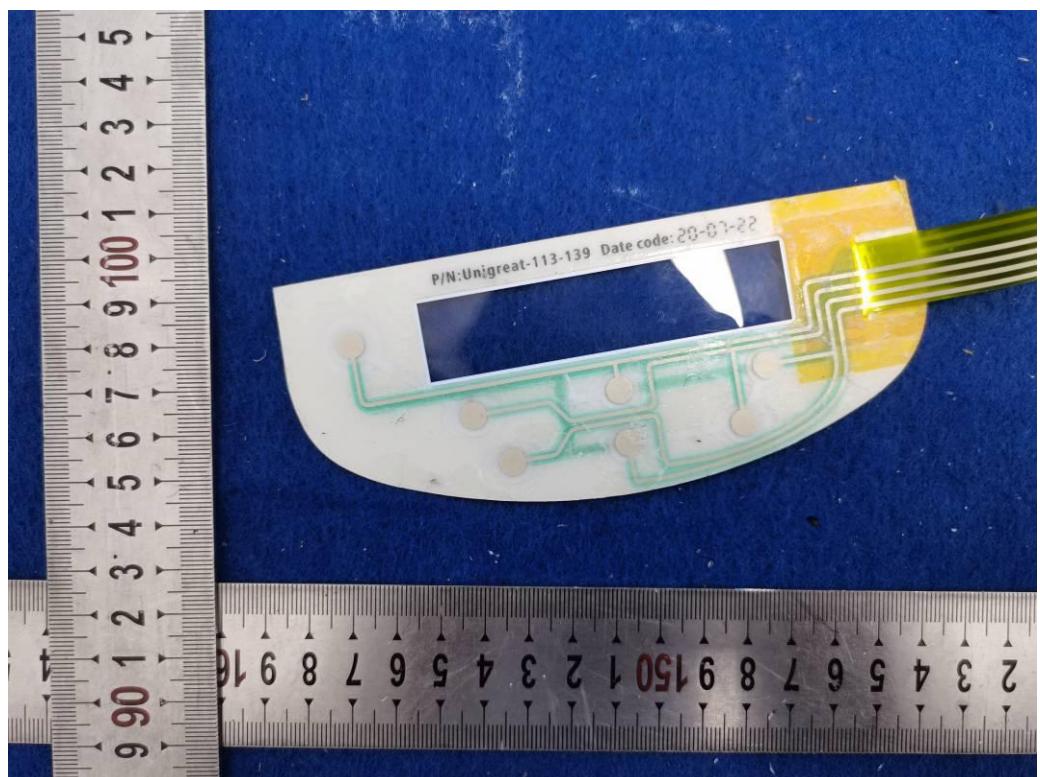


Fig. 14

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