

EMC TEST REPORT

For

Oscar Science & Technology Co., Ltd.

solar air heater

Test Model: OS22

Additional Model No.: Please Refer To Page 9

Prepared for : Oscar Science & Technology Co., Ltd.
Address : No.5 Xing da 3rd Road, Yongkang, Zhejiang, China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : Sept. 14, 2020
Number of tested samples : 1
Serial number : Prototype
Date of Test : Sept. 14, 2020 ~ Sept. 16, 2020
Date of Report : Sept. 17, 2020



EMC TEST REPORT**EN 61000-6-3: 2007+A1: 2011**

Electromagnetic Compatibility (EMC) - Part 6 - 3 : Generic Standards – Emission standard for residential, commercial and light – industrial environments

EN 61000-6-1: 2016

Electromagnetic Compatibility (EMC) - Part 6 - 1: Generic Standards- Immunity for resident, commercial and light- industrial environments

Report Reference No. : **LCS200914026AE**

Date of Issue : Sept. 17, 2020

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 : **Oscar Science & Technology Co., Ltd.**

Address : No.5 Xing da 3rd Road, Yongkang, Zhejiang, China

Test Specification

Standard : EN 61000-6-3: 2007+A1: 2011
 EN 61000-6-1: 2016

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 : **solar air heater**

Trade Mark : N/A

Test Model : OS22

Ratings : DC 18V, 11W

Result : **Positive**

Compiled by:

Emma Wang

Supervised by:

Jason Deng

Approved by:



Emma Wang/ File administrators

Jason Deng/ Technique Principal

Gavin Liang / Manager

EMC -- TEST REPORT**Test Report No. : LCS200914026AE**Sept. 17, 2020
Date of issue

Test Model..... : OS22

EUT..... : solar air heater

Applicant..... : Oscar Science & Technology Co., Ltd.

Address..... : No.5 Xing da 3rd Road, Yongkang, Zhejiang, China

Telephone..... : /

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Manufacturer..... : Oscar Science & Technology Co., Ltd.

Address..... : No.5 Xing da 3rd Road, Yongkang, Zhejiang, China

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Fax..... : /

Factory..... : Oscar Science & Technology Co., Ltd.

Address..... : No.5 Xing da 3rd Road, Yongkang, Zhejiang, China

Telephone..... : /

Fax..... : /

Test Result**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	Sept. 17, 2020	Initial Issue	Gavin Liang

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1. TEST STANDARDS

The tests were performed according to following standards:

EN 61000-6-3: 2007+A1: 2011 Electromagnetic Compatibility (EMC) - Part 6 - 3: Generic Standards – Emission standard for residential, commercial and light – industrial environments.

EN 61000-6-1: 2016 Electromagnetic Compatibility (EMC) - Part 6 - 1: Generic Standards- Immunity for resident, commercial and light- industrial environments.

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 61000-6-3: 2007+A1: 2011)			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN 55032: 2015	Class B	N/A
Conducted disturbance at telecommunication port	EN 55032: 2015	Class B	N/A
Radiated disturbance	EN 55032: 2015	Class B	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 61000-6-1: 2016)			
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	N/A
Surge (Input a.c. Power Ports)	EN 61000-4-5: 2014+A1: 2017	B	N/A
Surge (Telecommunication Ports)		B	N/A
Radio-frequency, Continuous Conducted Disturbance	EN 61000-4-6: 2014	A	N/A
Power Frequency Magnetic Field	EN 61000-4-8: 2010	A	PASS
Voltage Dips, >95% Reduction	EN 61000-4-11: 2004+A1: 2017	B	N/A
Voltage Dips, 30% Reduction		C	N/A
Voltage Interruptions		C	N/A
***Note: N/A is an abbreviation for Not Applicable.			

Test mode:

Mode 1	Working	Record
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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 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 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 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 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 manufacture'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 : solar air heater

Trade Mark : N/A

Test Model : OS22

Additional Model : OS10, OS10H, OS20, OS30, OS32, OS40, OS42

Model declaration : PCB board, structure and internal of these model(s) are the same, So no additional models were tested.

Power Supply : DC 18V, 11W

Highest internal frequency (Fx)	Highest measured frequency
Fx ≤ 108 MHz	1 GHz
108 MHz < Fx ≤ 500 MHz	2 GHz
500 MHz < Fx ≤ 1 GHz	5 GHz
Fx > 1 GHz	5 × Fx up to a maximum of 6 GHz

NOTE 1 For FM and TV broadcast receivers, Fx is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.
Where Fx is unknown, the radiated emission measurements shall be performed up to 6 GHz.

3.2. Support Equipment List

Name	Manufacturers	M/N	S/N
--	--	--	--

3.3. Description of Test Facility

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	Parameters	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 ± 3.4 dB
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
Mains Harmonic	Voltage	$\pm 0.510\%$	N/A
Voltage Fluctuations & Flicker	Voltage	$\pm 0.510\%$	N/A
EMF	/	$\pm 21.59\%$	N/A

1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

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%.

4. MEASURING DEVICES AND TEST EQUIPMENT

Test Item: Radiated Disturbance (Electric Field)					
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Software	EZ	EZ-EMC	/	N/A
2	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2020-06-22
3	Positioning Controller	MF	MF7082	MF78020803	2020-06-22
4	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2018-07-26
5	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2018-07-02
6	EMI Test Receiver	R&S	ESR 7	101181	2020-06-22
7	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2019-11-22
8	Broadband Preamplifier	/	BP-01M18G	P190501	2020-06-22
9	RF Cable-R03m	Jye Bao	RG142	CB021	2020-06-22
10	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2020-06-22

Test Item: Electrostatic Discharge					
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ESD Simulator	SCHLODER	SESD 230	604035	2020-07-21

Test Item: RF Field Strength Susceptibility					
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	RS Test Software	Tonscend	/	/	N/A
2	ESG Vector Signal Generator	Agilent	E4438C	MY42081396	2019-11-22
3	3m Full Anechoic Chamber	MRDIANZI	FAC-3M	MR009	2019-09-27
4	RF POWER AMPLIFIER	OPHIR	5225R	1052	NCR
5	RF POWER AMPLIFIER	OPHIR	5273F	1019	NCR
6	RF POWER AMPLIFIER	SKET	HAP_0306G-50 W	/	NCR
7	Stacked Broadband Log Periodic Antenna	SCHWARZBECK	STLP 9128	9128ES-145	NCR
8	Stacked Mikrowellen Log.-Per Antenna	SCHWARZBECK	STLP 9149	9149-484	NCR
9	Electric field probe	Narda S.TS./PMM	EP601	611WX80208	2020-03-26

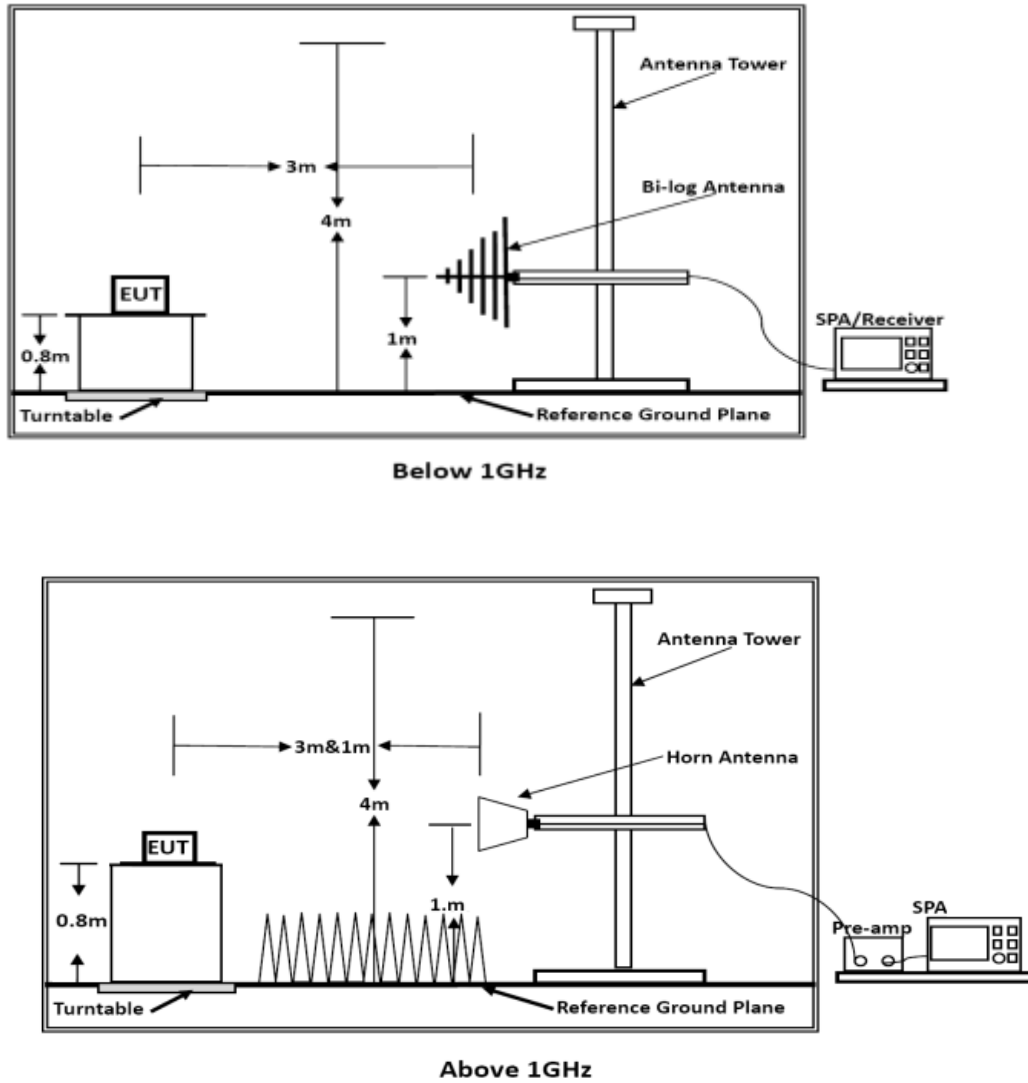
Note: NCR means no calibration requirement

Test Item: Power Frequency Magnetic Field Susceptibility					
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power frequency mag-field generator System	EVERFINE	EMS61000-8K	906003	2020-06-22

5. TEST RESULTS

5.1. RADIATED EMISSION MEASUREMENT

5.1.1. Block Diagram of Test Setup



5.1.2. Test Standard

EN 61000-6-3: 2007+A1: 2011(EN 55032: 2015)

5.1.3. Radiated Emission Limits

EN 55032 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:

Limits for Radiated Emission Below 1GHz			
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.			
Limits for Radiated Emission Above 1GHz			
Frequency (MHz)	Distance (Meters)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)
1000 ~ 3000	3	70	50
3000 ~ 6000	3	74	54
***Note: The lower limit applies at the transition frequency.			

5.1.4. EUT Configuration on Test

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

5.1.5. Operating Condition of EUT

5.1.5.1. Turn on the power.

5.1.5.2. Let the EUT work in the test Mode 1 and measure it.

5.1.6. 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 an 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 EMI test receiver is set at RBW/VBW=120kHz/300kHz.

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

The bandwidth of the Spectrum analyzer is set at RBW/VBW=1MHz/3MHz.

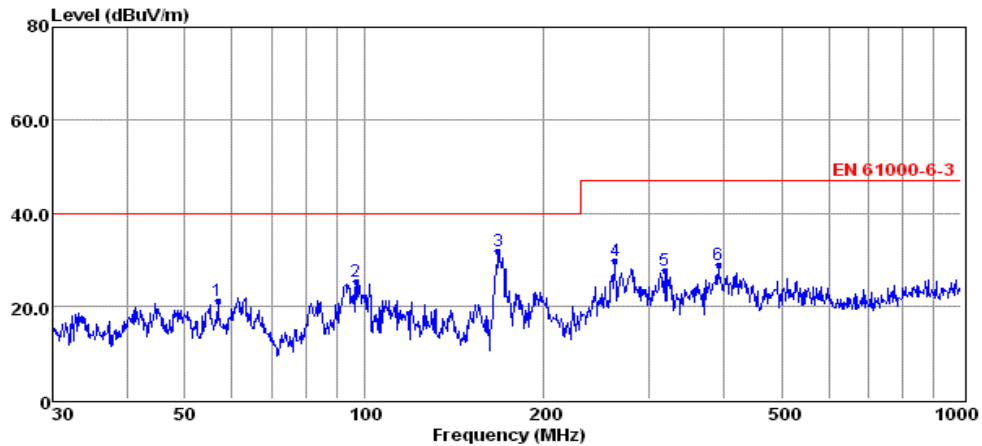
The frequency range from 1GHz to the frequency which about 5th carrier harmonic or 6GHz is checked.

5.1.7. Test Results

PASS.

The test result please refer to the next page.

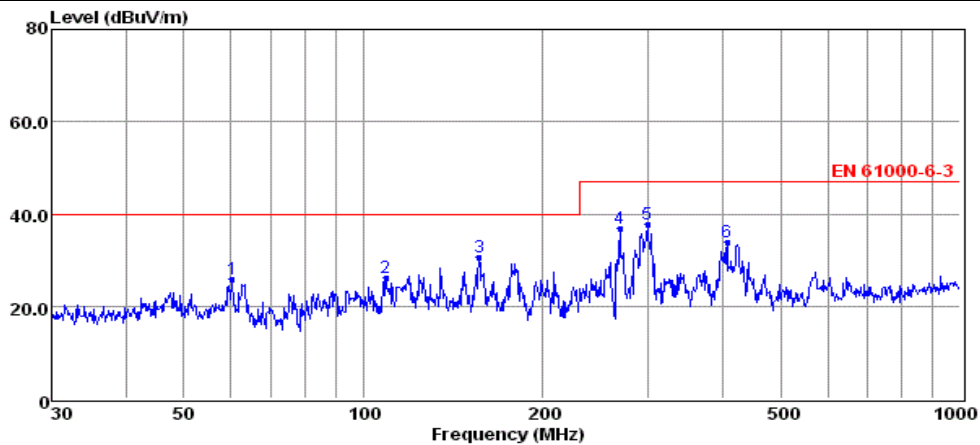
Test Model	OS22	Test Mode	Mode 1
Environmental Conditions	22.1°C, 53.3% RH	Detector Function	Quasi-peak
Pol.	Vertical	Distance	3m
Test Engineer	Daiwei Dai	Test Voltage	DC 18V



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	56.79	7.78	0.47	12.90	21.15	40.00	-18.85	QP
2	96.77	11.61	0.58	12.95	25.14	40.00	-14.86	QP
3	167.82	22.23	0.77	8.90	31.90	40.00	-8.10	QP
4	262.90	16.76	0.96	12.14	29.86	47.00	-17.14	QP
5	318.82	13.41	1.01	13.31	27.73	47.00	-19.27	QP
6	392.10	12.77	1.20	14.87	28.84	47.00	-18.16	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

Test Model	OS22	Test Mode	Mode 1
Environmental Conditions	22.1°C, 53.3% RH	Detector Function	Quasi-peak
Pol.	Horizontal	Distance	3m
Test Engineer	Daiwei Dai	Test Voltage	DC 18V



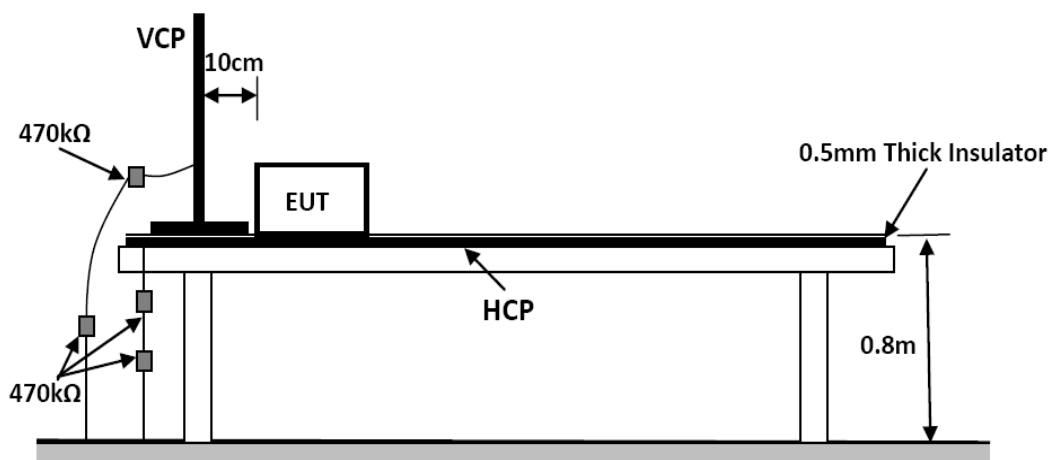
	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	60.28	12.73	0.49	12.58	25.80	40.00	-14.20	QP
2	109.03	13.26	0.61	12.34	26.21	40.00	-13.79	QP
3	156.46	21.39	0.83	8.52	30.74	40.00	-9.26	QP
4	269.43	23.51	0.99	12.34	36.84	47.00	-10.16	QP
5	299.32	23.67	1.13	13.05	37.85	47.00	-9.15	QP
6	407.51	17.53	1.17	15.21	33.91	47.00	-13.09	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

Remark: Pre-San all mode, Thus record worse case mode result in this report

5.2. ELECTROSTATIC DISCHARGE IMMUNITY TEST

5.2.1. Block Diagram of Test Setup



5.2.2. Test Standard

EN 61000-6-1: 2016 (EN 61000-4-2: 2009, Severity Level: 3 / Air Discharge: $\pm 8\text{KV}$, Level: 2 / Contact Discharge: $\pm 4\text{KV}$)

5.2.3. Severity Levels and Performance Criterion

5.2.3.1. 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

5.2.3.2. Performance Criterion

Performance Criterion: B

5.2.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.

5.2.5. Operating Condition of EUT

Same as radiated emission measurement, which is listed in Section 5.1.4. Except the test set up replaced by Section 5.2.1.

5.2.6. Test Procedure

5.2.6.1. 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

5.2.6.2. Contact Discharge

All the procedure shall be same as Section 5.2.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

5.2.6.3. 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.

5.2.6.4. 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.

5.2.7. Test Results

PASS.

The test result please refer to the next page.

Electrostatic Discharge Test Results

Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	Oscar Science & Technology Co., Ltd.		
EUT	solar air heater	Temperature	23.5°C
M/N	OS22	Humidity	52.5%
Criterion	B	Pressure	1021mbar
Test Mode	Mode 1	Test Engineer	Daiwei Dai

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

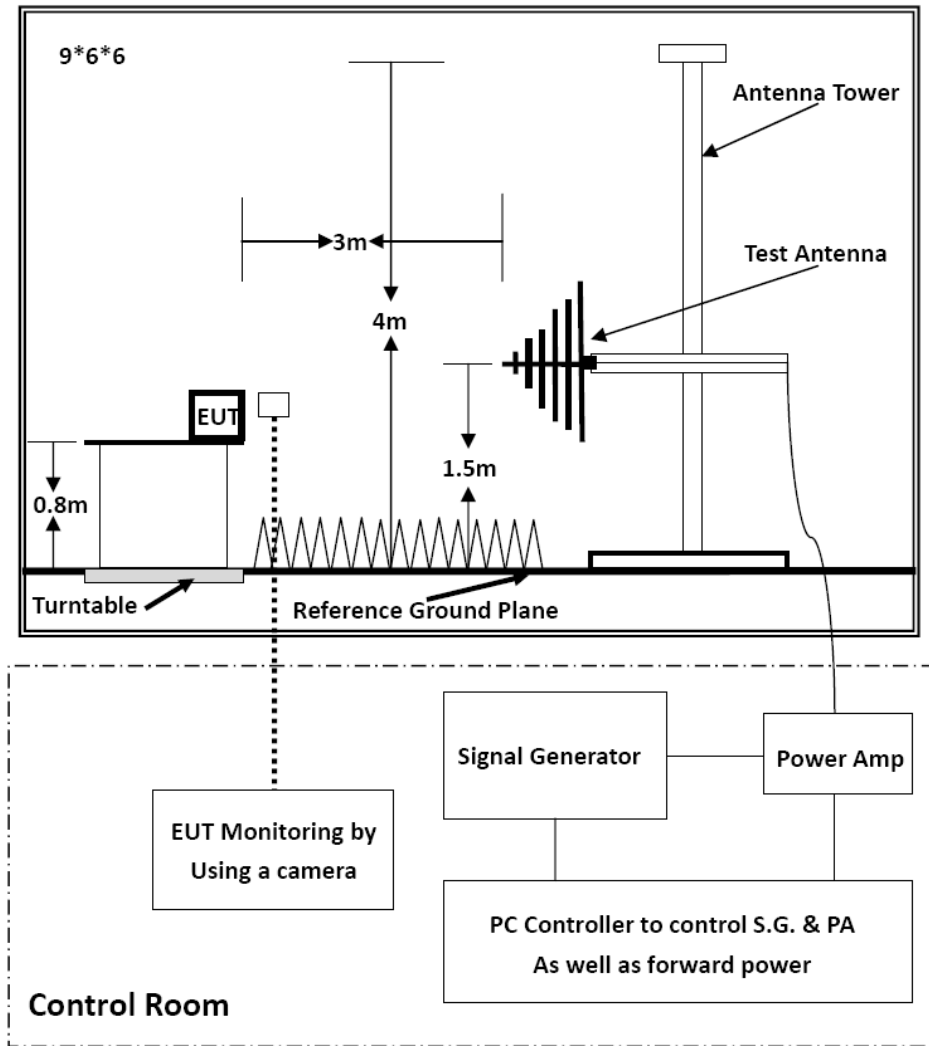
Contact Discharge						
Test Points	Test Levels		Results			
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion	
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> 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	

5.3. RF FIELD STRENGTH SUSCEPTIBILITY TEST

5.3.1. Block Diagram of Test Setup



5.3.2. Test Standard

EN 61000-6-1: 2016 (EN 61000-4-3: 2006+A2: 2010 Severity Level 2: 3V/ m; Level 2: 3V/m; Level 1: 1V/m)

5.3.3. Severity Levels and Performance Criterion

5.3.3.1. Severity level

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

5.3.3.2. Performance Criterion: A

5.3.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.

5.3.5. Operating Condition of EUT

Same as radiated emission measurement, which is listed in Section 5.1.4, except the test setup replaced as Section 5.3.1.

5.3.6. 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.

5.3.7. Test Results

PASS.

The test result please refer to the next page.

RF Field Strength Susceptibility Test Results

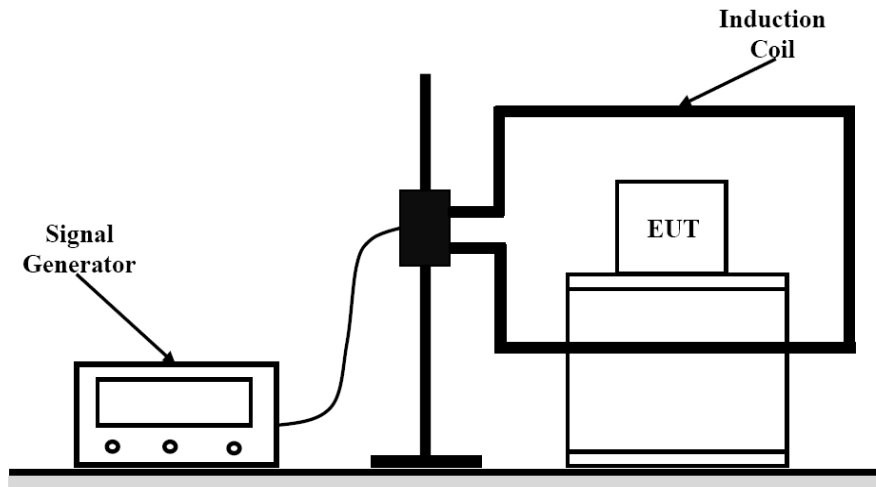
Standard	<input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3		
Applicant	Oscar Science & Technology Co., Ltd.		
EUT	solar air heater	Temperature	22.5°C
M/N	OS22	Humidity	53.6%
Field Strength	3 V/m	Criterion	A
Test Mode	Mode 1	Test Engineer	Daiwei Dai
Field Strength	3V/m	Test Frequency	80 MHz to1.0 GHz
	3 V/m		1.4 GHz to2.0 GHz
	1 V/m		2.0 GHz to2.7 GHz
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:

5.4. MAGNETIC FIELD SUSCEPTIBILITY TEST

5.4.1. Block Diagram of Test Setup



5.4.2. Test Standard

EN 61000-6-1: 2016 (EN 61000-4-8: 2010, Severity Level: Level 2, 3A/m)

5.4.3. Severity Levels and Performance Criterion

5.4.3.1. Severity level

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

5.4.3.2. Performance Criterion

Performance Criterion: A

5.4.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.

5.4.5. 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.

5.4.6. Test Results

PASS.

The test result please refer to the next page.

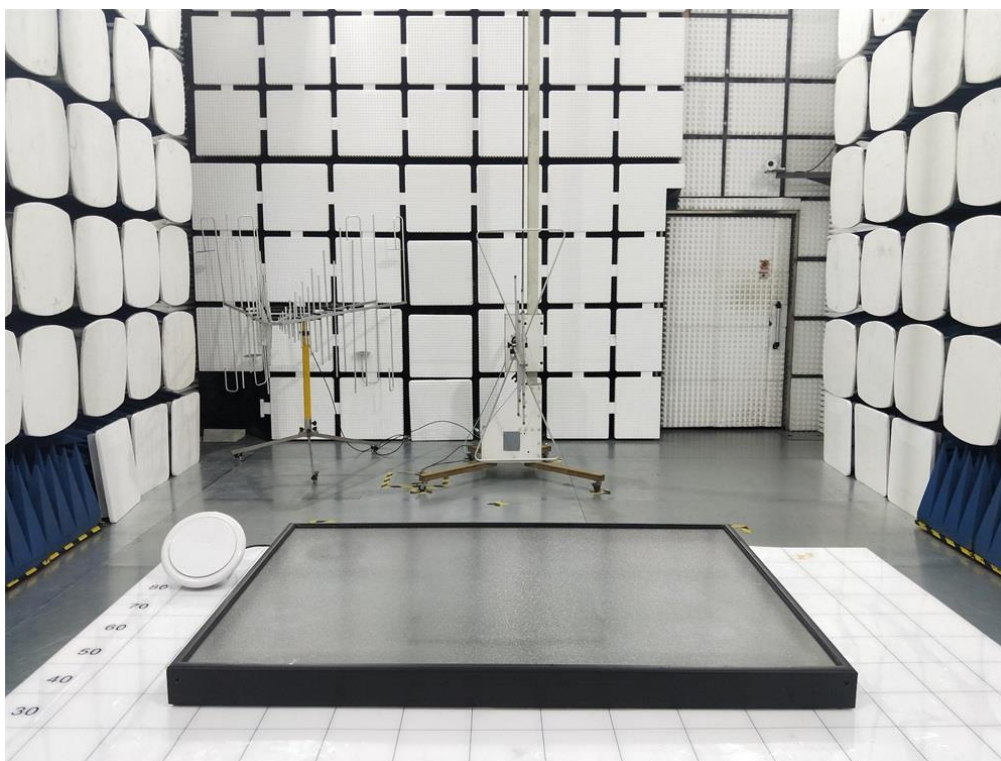
Magnetic Field Immunity Test Result

Standard	<input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> EN 61000-4-8		
Applicant	Oscar Science & Technology Co., Ltd.		
EUT	solar air heater	Temperature	24.4°C
M/N	OS22	Humidity	54.5%
Test Mode	Mode 1	Criterion	A
Test Engineer	Daiwei Dai		

Test Level (A/M)	Testing Duration	Coil Orientation	Criterion	Result
3	5 mins	X	A	PASS
3	5 mins	Y	A	PASS
3	5 mins	Z	A	PASS

Note:

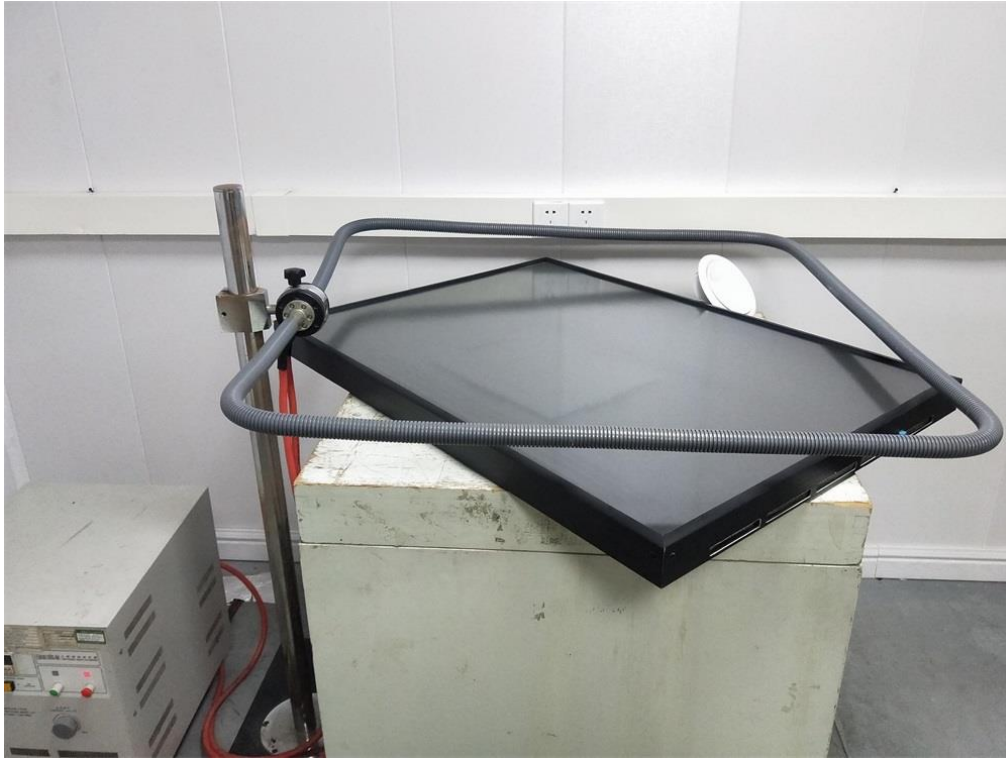
6. PHOTOGRAPHS OF TEST SETUP



Test Setup Photo of Radiated Measurement (30MHz~1GHz)



Test Setup Photo of Electrostatic Discharge Test



Test Setup Photo of Magnetic Field Immunity Test

7. PHOTOGRAPHS OF THE EUT



Fig. 1



Fig. 2

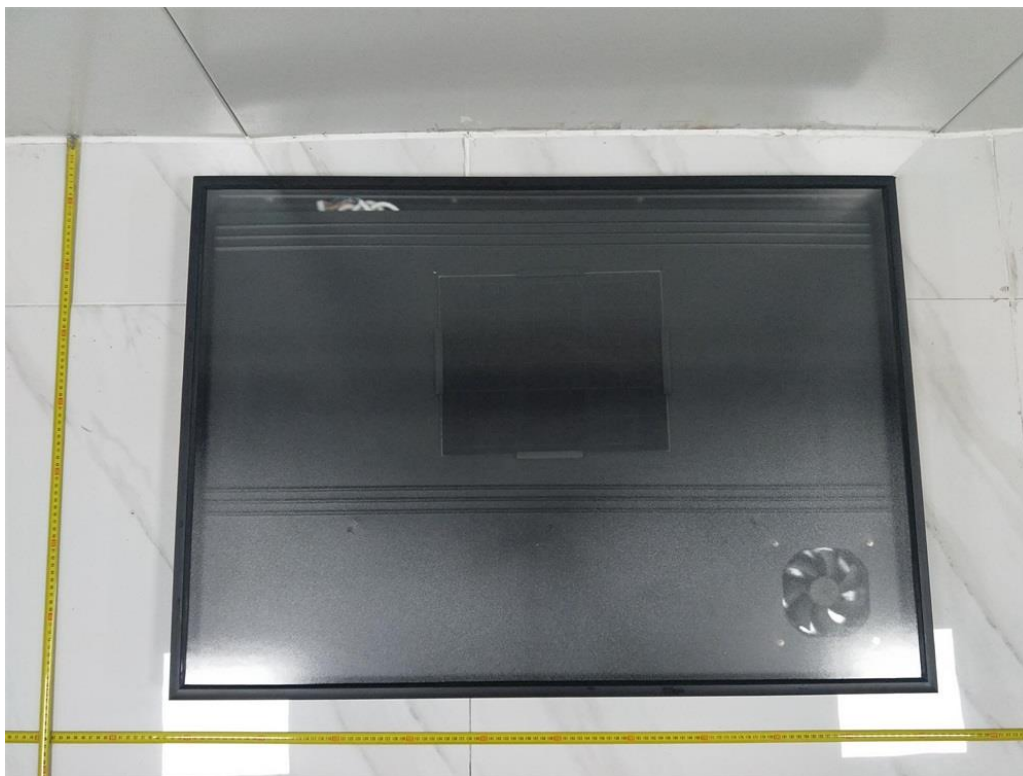


Fig. 3

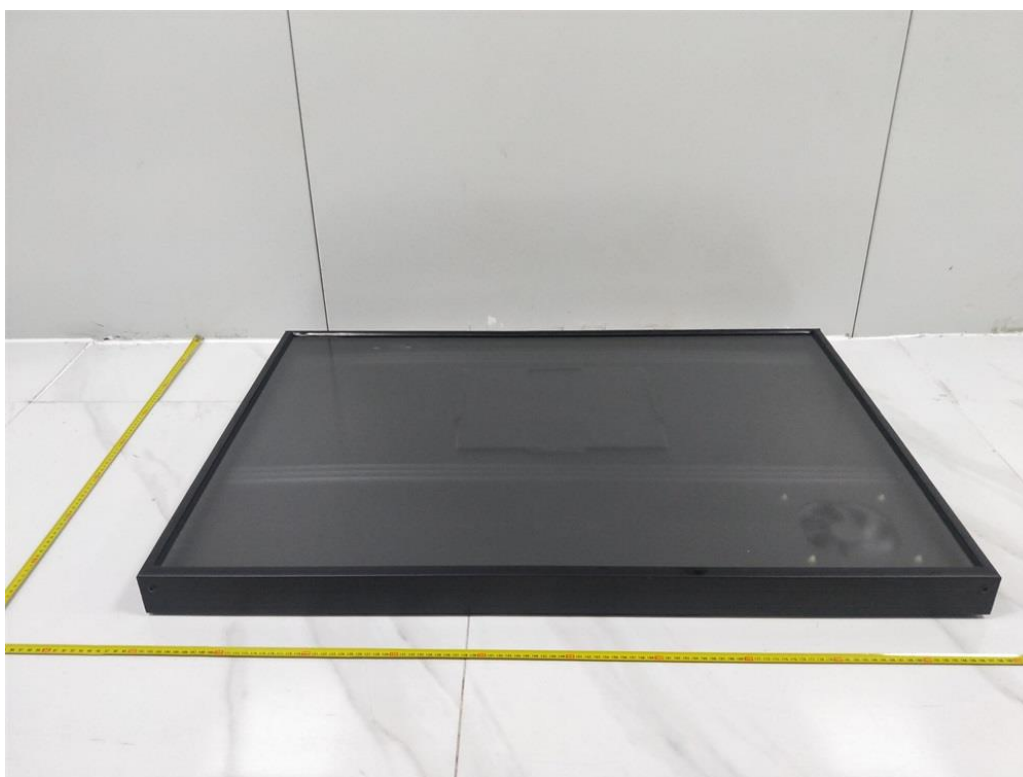


Fig. 4

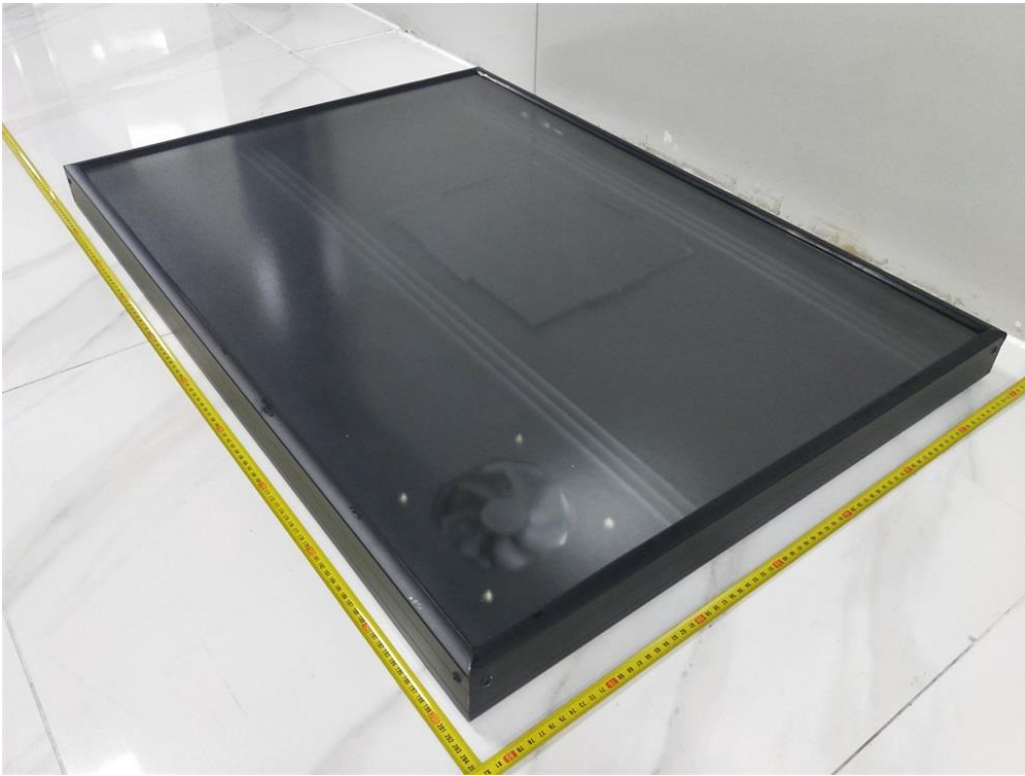


Fig. 5

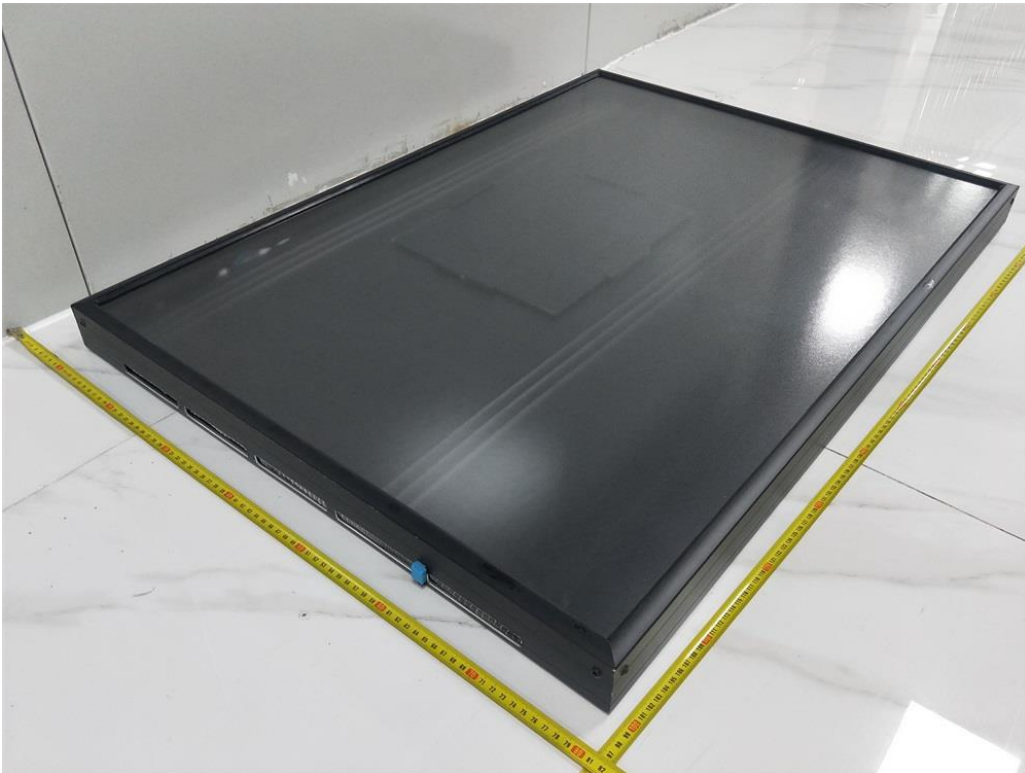


Fig. 6



Fig. 7

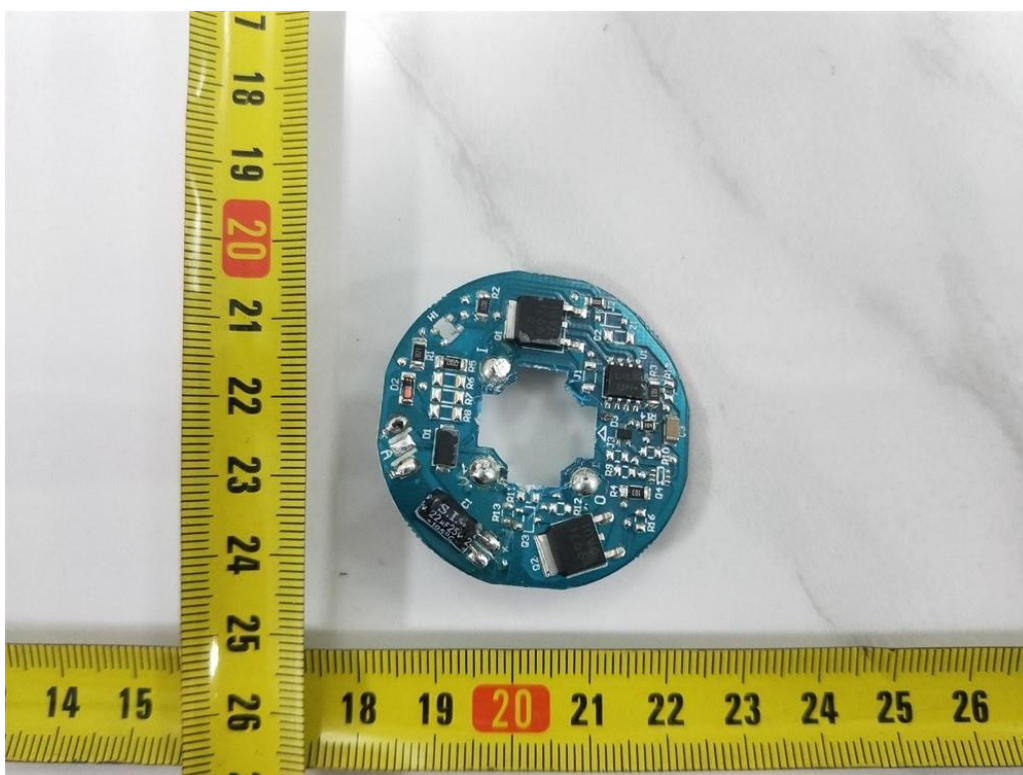


Fig. 8

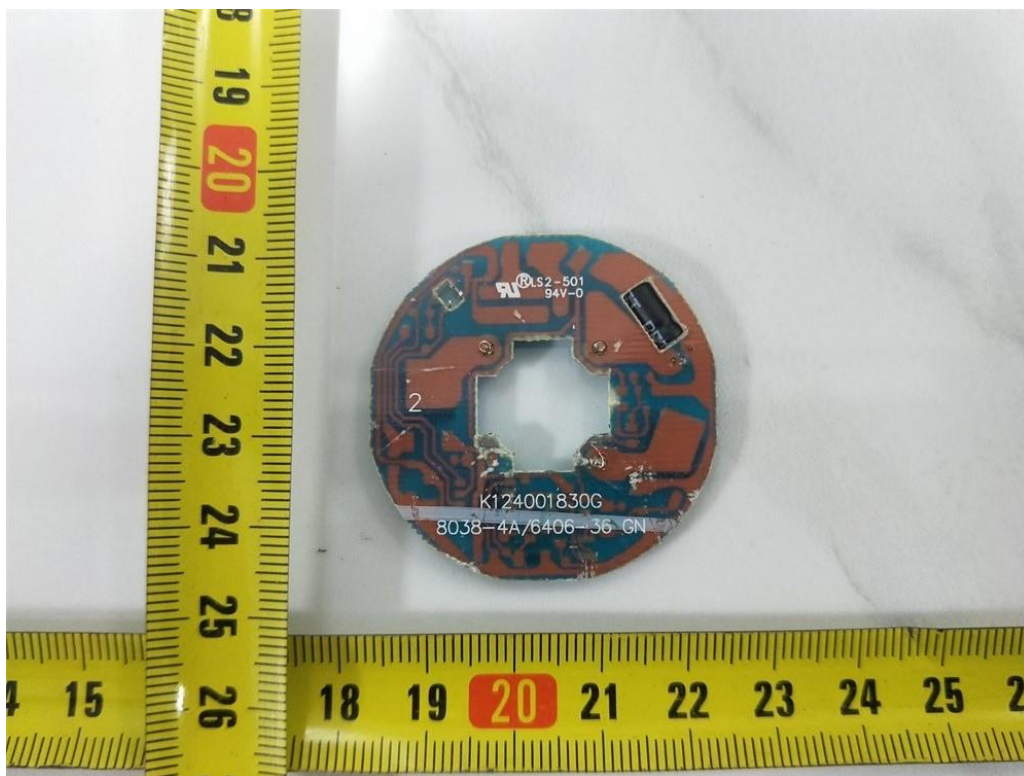


Fig. 9

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