



EMC TEST REPORT

For

SRNE Solar Co.,Ltd

DC & Solar Charge Controller

Test Model: MD1250N05

Additional Model No.: MD1230N05

Prepared for : SRNE Solar Co.,Ltd
Address : 4-5F, Building13A, Taihua Wutong Industrial Park, Gushu
Devetopment Zone, Hangcheng Street, Baoan, Shenzhen,
China PR

Prepared by : 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

Tel : (+86)755-82591330
Fax : (+86)755-82591332
Web : www.LCS-cert.com
Mail : webmaster@LCS-cert.com

Date of receipt of test sample : May 19, 2022
Number of tested samples : 1
Sample No. : A051922067
Date of Test : May 19, 2022 ~ May 24, 2022
Date of Report : May 25, 2022



**EMC TEST REPORT****EN IEC 61000-6-3:2021**

Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for equipment in residential environments

EN IEC 61000-6-1:2019

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

Report Reference No. : LCSEA051922067E

Date of Issue..... : May 25, 2022

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..... : SRNE Solar Co.,Ltd

Address..... : 4-5F, Building13A, Taihua Wutong Industrial Park, Gushu Development Zone, Hangcheng Street, Baoan, Shenzhen, China PR

Test Specification

**Standard : EN IEC 61000-6-3:2021
EN IEC 61000-6-1:2019**

Test Report Form No..... : LCSEMC-1.0


TRF Originator : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF : Dated 2011-03

Shenzhen LCS Compliance Testing Laboratory Ltd. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen LCS Compliance Testing Laboratory Ltd. is acknowledged as copyright owner and source of the material. Shenzhen LCS Compliance Testing Laboratory Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Test Item Description..... : DC & Solar Charge Controller

Trade Mark..... : 

Test Model : MD1250N05

Ratings : Please refer to page 9

Result : Pass

Compiled by:*Coco Song***Supervised by:***Baron Wen***Approved by:***Gavin Liang*

Coco Song / File administrators

Baron Wen/Technique principal

Gavin Liang/ Manager



Shenzhen LCS Compliance Testing Laboratory Ltd.

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

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



EMC -- TEST REPORT

Test Report No. : LCSA051922067E	<u>May 25, 2022</u> Date of issue
---	--------------------------------------

Test Model.....	: MD1250N05
EUT.....	: DC & Solar Charge Controller
Applicant.....	: SRNE Solar Co.,Ltd
Address.....	: 4-5F, Building13A, Taihua Wutong Industrial Park, Gushu Devetopment Zone, Hangcheng Street, Baoan, Shenzhen, China PR
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: SRNE Solar Co.,Ltd
Address.....	: 4-5F, Building13A, Taihua Wutong Industrial Park, Gushu Devetopment Zone, Hangcheng Street, Baoan, Shenzhen, China PR
Telephone.....	: /
Fax.....	: /
Factory.....	: SRNE Solar Co.,Ltd Dongguan Branch
Address.....	: Room 301, Building 5th, Fuxing Rd No.36, Chang'an Town, Dongguan City, Guangdong Province, China PR
Telephone.....	: /
Fax.....	: /

Test Result	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.





Revision History

Revision	Issue Date	Revisions Content	Revised By
000	May 25, 2022	Initial Issue	--





TABLE OF CONTENTS

Test Report Description	Page
1. TEST STANDARDS	6
2.SUMMARY OF STANDARDS AND RESULTS	7
2.1. DESCRIPTION OF STANDARDS AND RESULTS.....	7
2.2. DESCRIPTION OF PERFORMANCE CRITERIA	8
3. GENERAL INFORMATION.....	9
3.1. DESCRIPTION OF DEVICE (EUT).....	9
3.2. DESCRIPTION OF SUPPORT DEVICE	9
3.3. DESCRIPTION OF TEST FACILITY.....	10
3.4. STATEMENT OF THE MEASUREMENT UNCERTAINTY	10
3.5. MEASUREMENT UNCERTAINTY.....	10
4. MEASURING DEVICES AND TEST EQUIPMENT	11
5.TEST RESULTS.....	12
5.1. RADIATED EMISSION MEASUREMENT	12
5.2. ELECTROSTATIC DISCHARGE IMMUNITY TEST	14
5.3. RF FIELD STRENGTH SUSCEPTIBILITY TEST	16
5.4. MAGNETIC FIELD SUSCEPTIBILITY TEST	18
ANNEX A	19
ANNEX B	21
ANNEX C	26





1. TEST STANDARDS

The tests were performed according to following standards:

EN IEC 61000-6-3:2021 Electromagnetic Compatibility (EMC) - Part 6 - 3: Generic Standards – Emission standard for residential, commercial and light – industrial environments.

EN IEC 61000-6-1:2019 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 IEC 61000-6-3:2021)			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN IEC 61000-6-3:2021	Class B	N/A
Conducted disturbance at telecommunication port	EN IEC 61000-6-3:2021	Class B	N/A
Radiated disturbance	EN IEC 61000-6-3:2021	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	-----	N/A
Immunity (EN IEC 61000-6-1:2019)			
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 IEC 61000-4-3:2020	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+AC:2015	A	N/A
Power Frequency Magnetic Field	EN 61000-4-8: 2010	A	PASS
Voltage Dips, >95% Reduction	EN IEC 61000-4-11:2020	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	Working	Record
***Note: All test modes were tested, but we only recorded the worst case in this report.		





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;

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 : DC & Solar Charge Controller

Trade Mark : 

Test Model : MD1250N05

Model Lists : MD1230N05

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

Power Supply : Dual Input:
PV Input
Solar maximum input voltage: <50V
Solar maximum input power: 700W
Maximum input current: 45A
DC Input
Maximum input voltage: <32V
Maximum input power: 700W
Maximum input current: 60A
System battery voltage: 12V
Rated charging current: 50A

Highest internal freq. : $F_x \leq 108\text{MHz}$

Highest internal frequency (Fx)	Highest measured frequency
$F_x \leq 108\text{ MHz}$ $108\text{ MHz} < F_x \leq 500\text{ MHz}$ $500\text{ MHz} < F_x \leq 1\text{ GHz}$ $F_x > 1\text{ GHz}$	1 GHz 2 GHz 5 GHz $5 \times F_x$ up to a maximum of 6 GHz
NOTE 1 For FM and TV broadcast receivers, F_x is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies. Where F_x is unknown, the radiated emission measurements shall be performed up to 6 GHz.	

3.2. Description of Support Device

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 (Ulab)	Expanded Uncertainty (Ucisp)
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
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

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	2021-09-12	2024-09-11
3	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
4	EMI Test Receiver	R&S	ESR3	102311	2021-08-19	2022-08-18
5	Broadband Preamplifier	/	BP-01M18G	P190501	2021-06-21	2022-06-20

ELECTROSTATIC DISCHARGE

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	ESD Simulator	SCHLODER	SESD 230	604035	2021-07-28	2022-07-27

RF ELECTROMAGNETIC FIELD

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	ESG Vector Signal Generator	Agilent	E4438C	MY42081396	2021-06-11	2022-06-10
2	RF POWER AMPLIFIER	OPHIR	5225R	1052	NCR	NCR
3	RF POWER AMPLIFIER	OPHIR	5273F	1019	NCR	NCR
4	Stacked Broadband Log Periodic Antenna	SCHWARZBECK	STLP 9128	9128ES-145	NCR	NCR
5	Stacked Mikrowellen Log.-Per Antenna	SCHWARZBECK	STLP 9149	9149-484	NCR	NCR
6	Electric field probe	Narda S.TS./PMM	EP601	611WX80208	2021-06-29	2022-06-28

Note: NCR means no calibration requirement

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	2021-06-21	2022-06-20

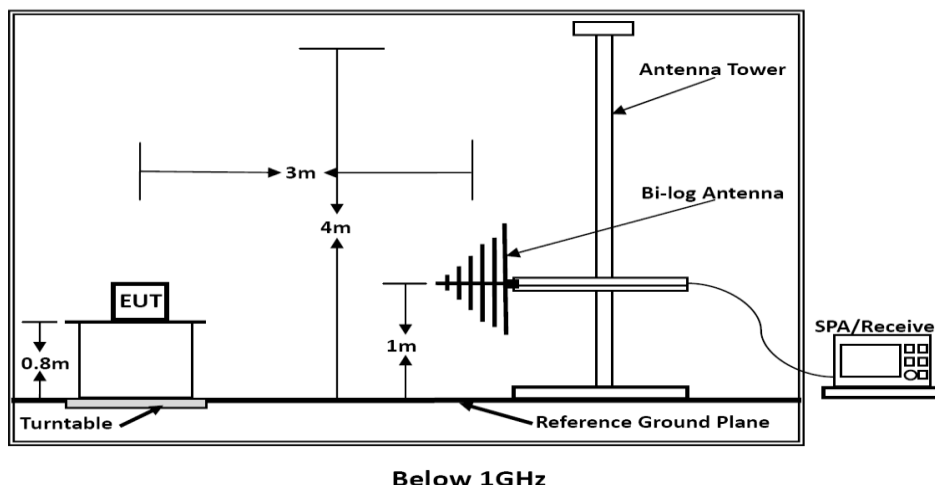




5. TEST RESULTS

5.1. RADIATED EMISSION MEASUREMENT

5.1.1. Block Diagram of Test Setup



5.1.2. Test Standard

EN IEC 61000-6-3:2021

5.1.3. Radiated Emission Limits

EN 61000-6-3 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 (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.

5.1.4. EUT Configuration on Test

The EN 61000-6-3 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 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 EMI test receiver is set at RBW/VBW=120kHz/300kHz.

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

5.1.7. Test Results

PASS.

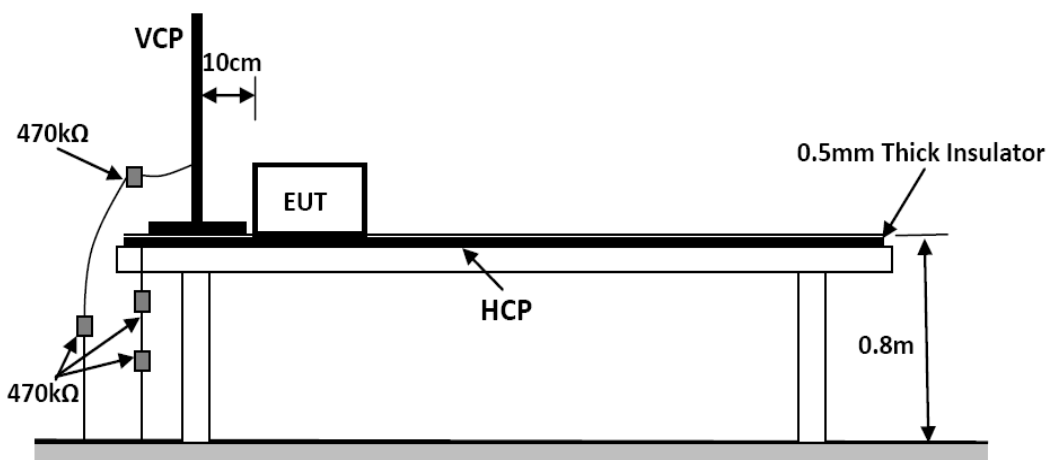
Refer to attached Annex B.1





5.2. ELECTROSTATIC DISCHARGE IMMUNITY TEST

5.2.1. Block Diagram of Test Setup



5.2.2. Test Standard

EN IEC 61000-6-1:2019 (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 5.2.1.

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.

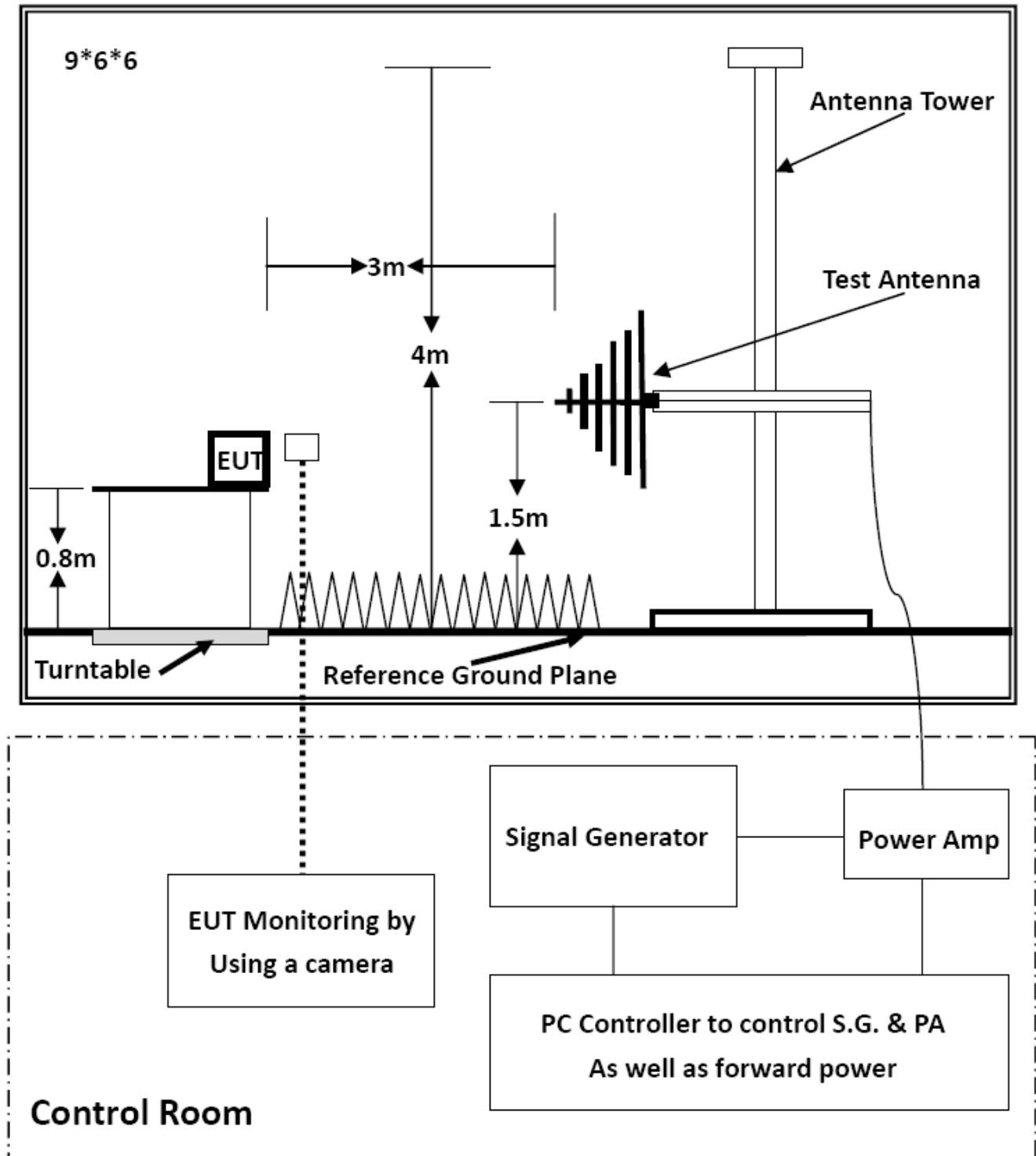
Refer to attached Annex B.2





5.3. RF FIELD STRENGTH SUSCEPTIBILITY TEST

5.3.1. Block Diagram of Test Setup



5.3.2. Test Standard

EN IEC 61000-6-1:2019 (EN IEC 61000-4-3:2020 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

Performance Criterion: A

5.3.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.3.1.

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
10. Dwell Time	3 Sec.
11. Fielded Strength	1V/m (Severity Level 1)
12. Radiated Signal	Unmodulated
13. Scanning Frequency	2.0-2.7GHz
14. Sweep time of radiated	0.0015 Decade/s
15. Dwell Time	3 Sec.

5.3.7. Test Results

PASS.

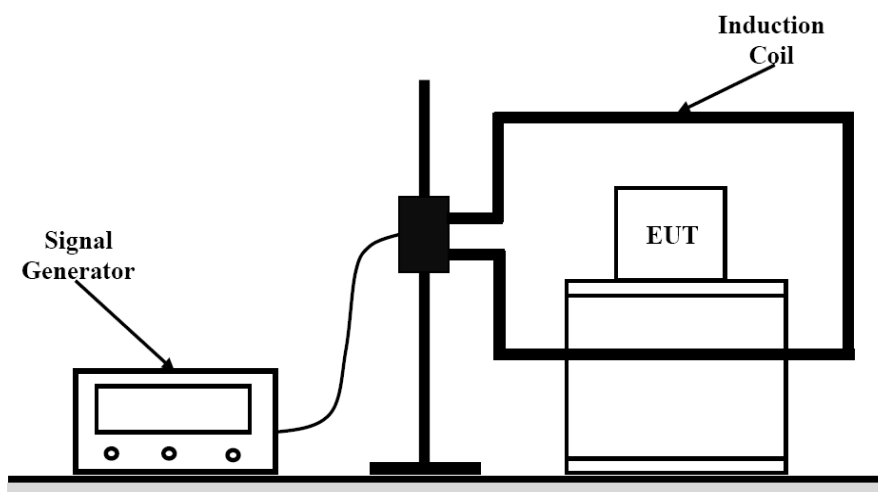
Refer to attached Annex B.3





5.4. MAGNETIC FIELD SUSCEPTIBILITY TEST

5.4.1. Block Diagram of Test Setup



5.4.2. Test Standard

EN IEC 61000-6-1:2019 (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 5.4.1.

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.

Refer to attached Annex B.4



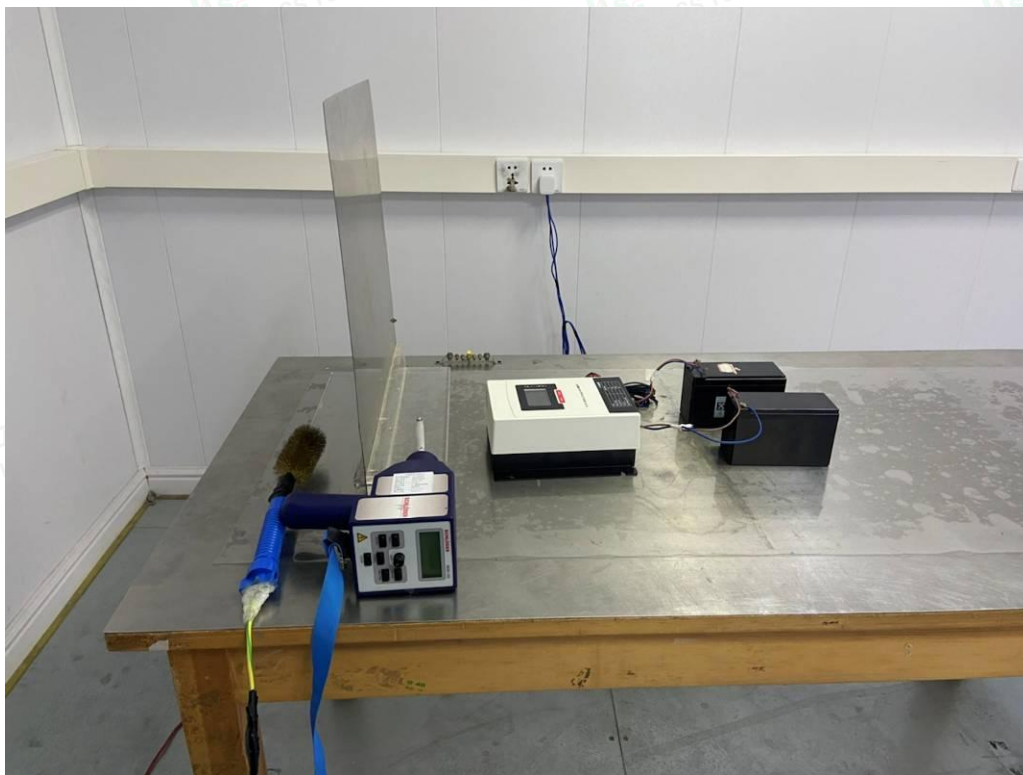


ANNEX A

(Test photograph)

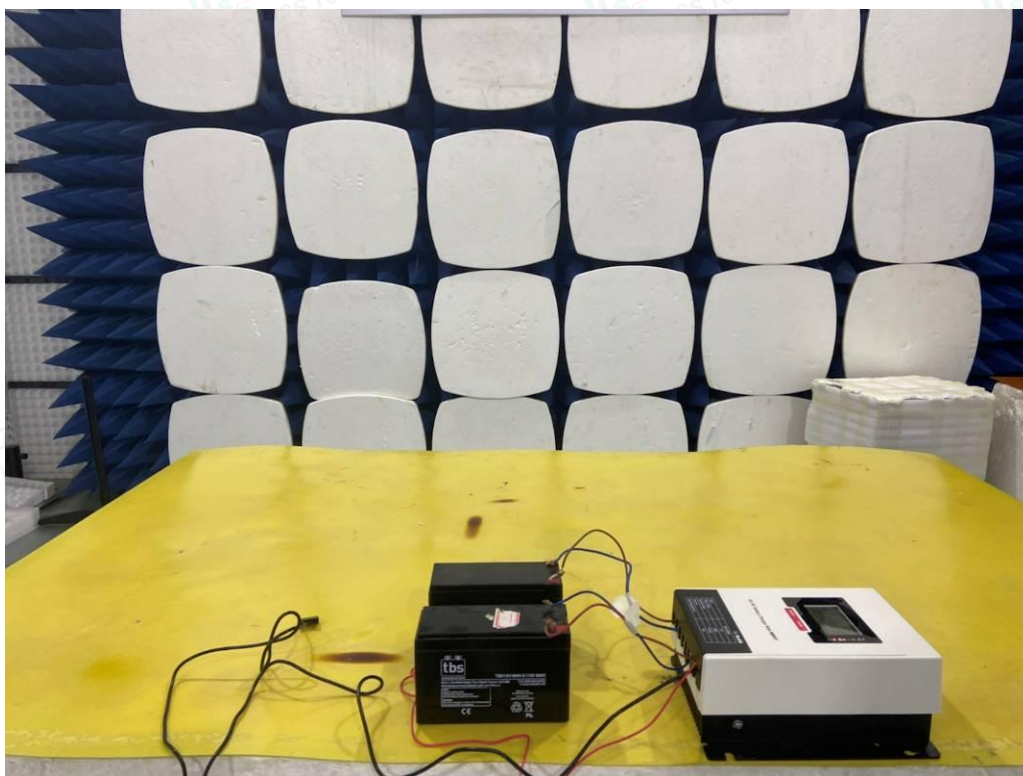


Test Setup Photo of Radiated Measurement (30MHz~1GHz)



Test Setup Photo of Electrostatic Discharge Test





Rf Field Strength Susceptibility Test



Test Setup Photo of Magnetic Field Immunity Test



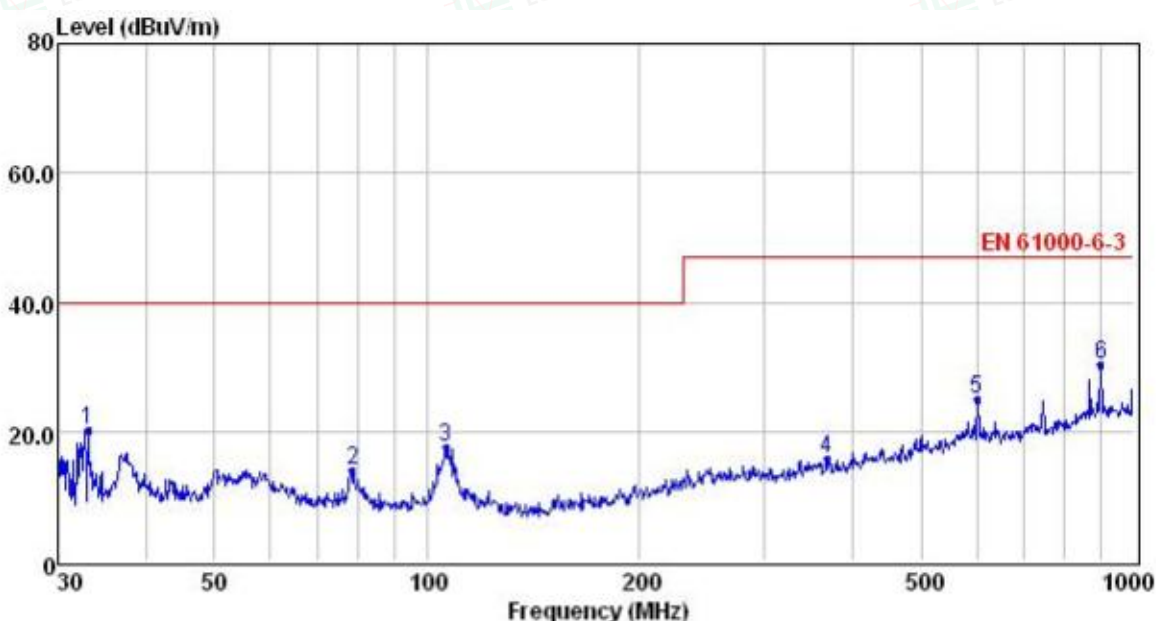
**ANNEX B**

(Emission and Immunity test results)

B.1 Radiated Disturbance Test Results (30MHz to 1000MHz)

Environmental Conditions:	22.3℃, 53% RH
Test Voltage:	DC
Test Model:	MD1250N05
Test Mode:	Working
Test Engineer:	Loring
Pol:	Vertical

Detailed results are shown below



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	33.09	9.13	0.44	10.79	20.36	40.00	-19.64	QP
2	78.41	3.43	0.73	9.86	14.02	40.00	-25.98	QP
3	106.39	5.64	0.84	11.15	17.63	40.00	-22.37	QP
4	368.11	-0.22	1.38	14.61	15.77	47.00	-31.23	QP
5	601.43	4.32	1.50	19.28	25.10	47.00	-21.90	QP
6	900.15	6.84	2.10	21.30	30.24	47.00	-16.76	QP

Note: 1. All readings are Quasi-peak values.

2. Measured= Reading + Antenna Factor + Cable Loss

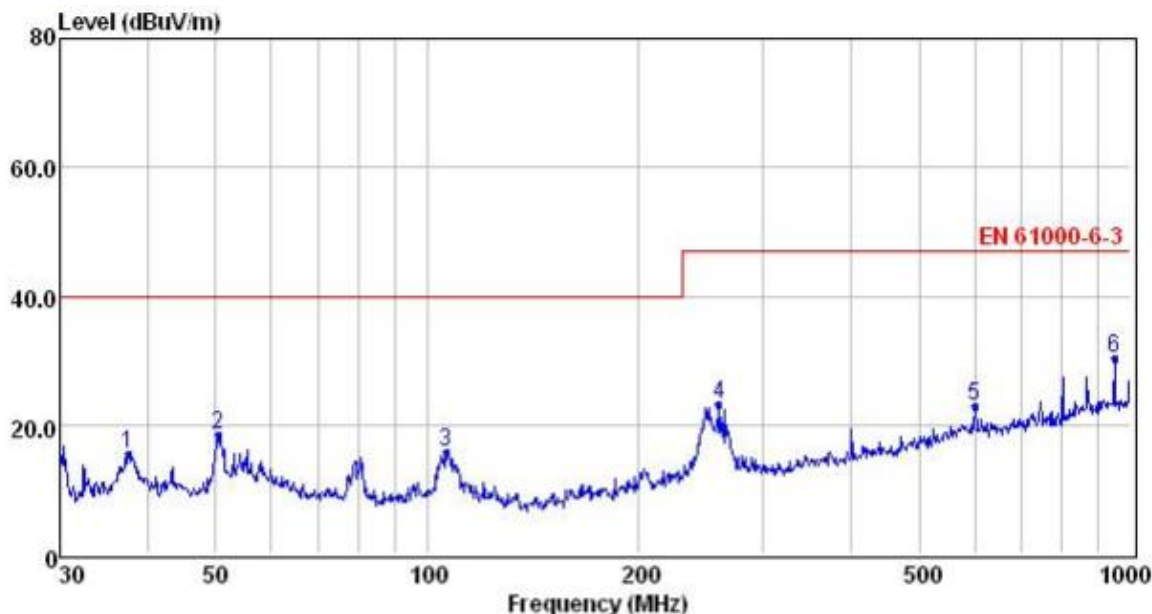
3. The emission that are 20db below the official limit are not reported





Environmental Conditions:	22.3°C, 53% RH
Test Voltage:	DC
Test Model:	MD1250N05
Test Mode:	Working
Test Engineer:	Loring
Pol:	Horizontal

Detailed results are shown below



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	37.55	3.74	0.49	11.22	15.45	40.00	-24.55	QP
2	50.41	5.25	0.60	12.60	18.45	40.00	-21.55	QP
3	106.39	3.84	0.84	11.15	15.83	40.00	-24.17	QP
4	260.14	9.23	1.28	12.73	23.24	47.00	-23.76	QP
5	601.43	2.24	1.50	19.28	23.02	47.00	-23.98	QP
6	948.76	6.82	2.15	21.51	30.48	47.00	-16.52	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



**B.2 ELECTROSTATIC DISCHARGE IMMUNITY TEST**

Electrostatic Discharge Test Results			
Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	SRNE Solar Co.,Ltd		
EUT	DC & Solar Charge Controller	Temperature	24.2℃
M/N	MD1250N05	Humidity	54.5%
Criterion	B	Pressure	1021mbar
Test Mode	Mode 1	Test Engineer	TERENCE

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	





B.3 RF FIELD STRENGTH SUSCEPTIBILITY TEST

RF Field Strength Susceptibility Test Results

Standard	<input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3		
Applicant	SRNE Solar Co.,Ltd		
EUT	DC & Solar Charge Controller	Temperature	23.7℃
M/N	MD1250N05	Humidity	54.2%
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
Test Mode	Mode 1	Criterion	A
Test Engineer	Terence		
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:



**B.4 MAGNETIC FIELD SUSCEPTIBILITY TEST****Magnetic Field Immunity Test Result**

Standard	<input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> EN 61000-4-8		
Applicant	SRNE Solar Co.,Ltd		
EUT	DC & Solar Charge Controller	Temperature	23.4℃
M/N	MD1250N05	Humidity	53.6%
Test Mode	Mode 1	Criterion	A
Test Engineer	Terence		

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:



**ANNEX C**

(External and internal photos of the EUT)



Fig. 1 (MD1250N05)

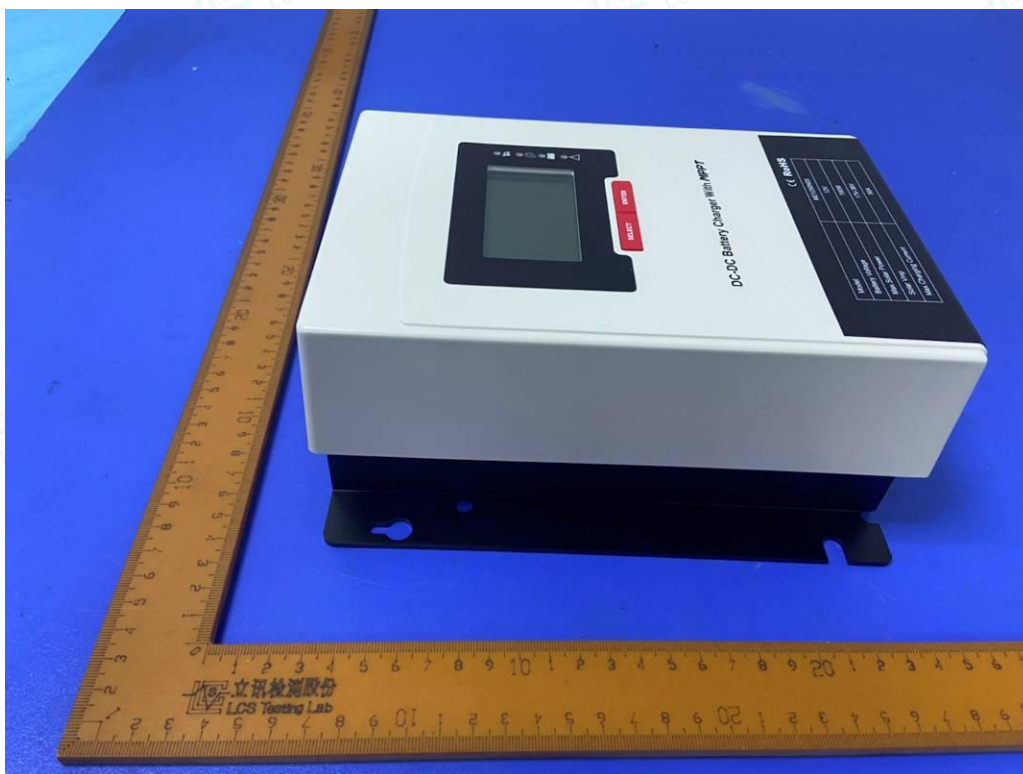


Fig. 2



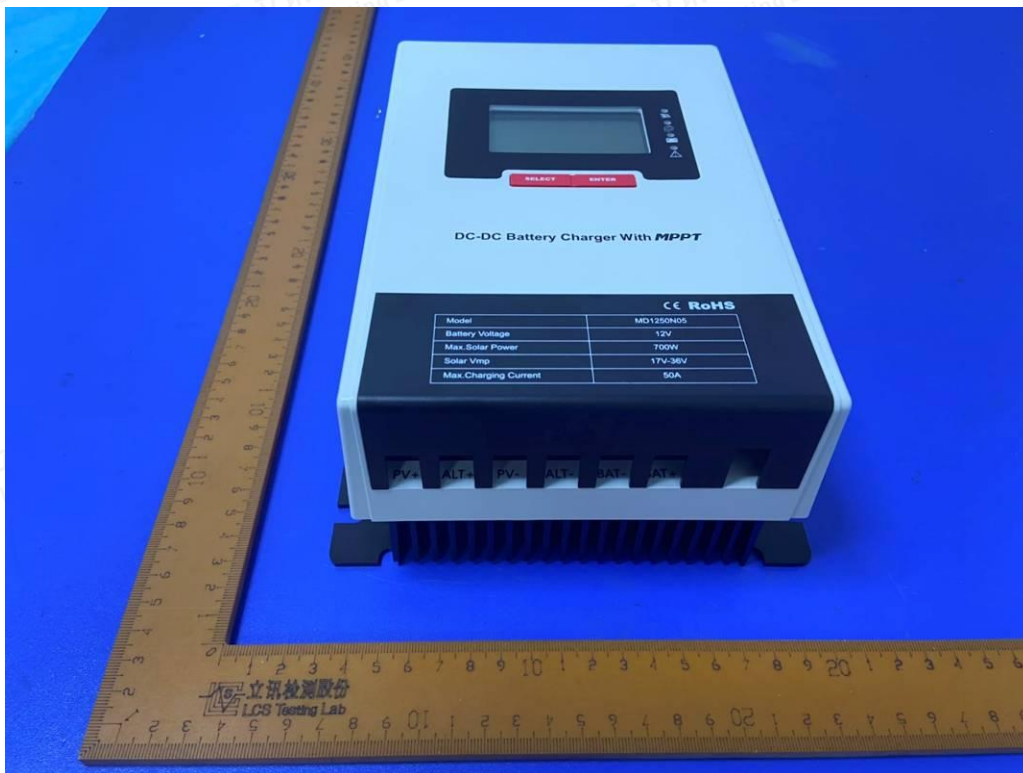


Fig. 3



Fig. 4



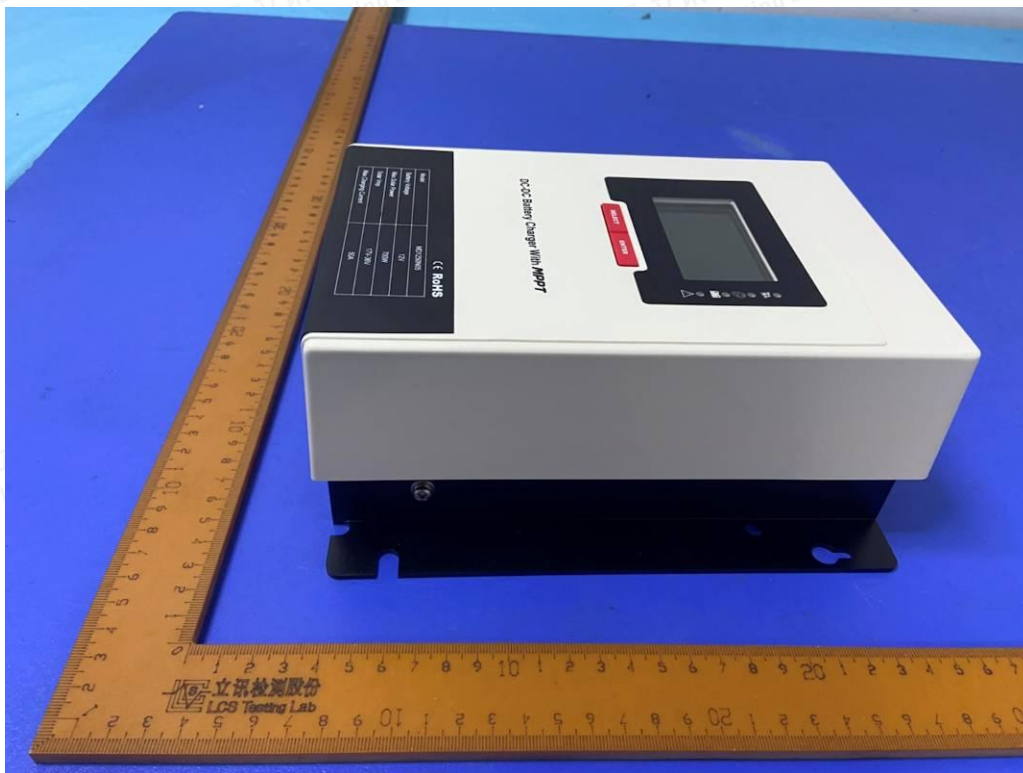


Fig. 5



Fig. 6



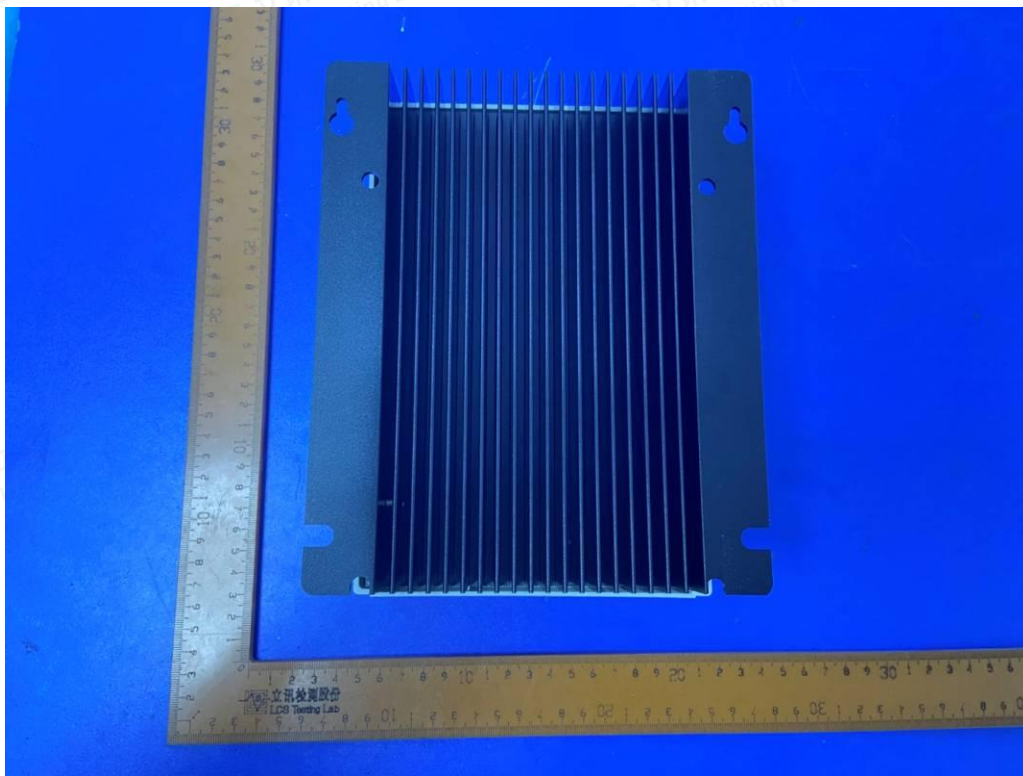


Fig. 7



Fig. 8



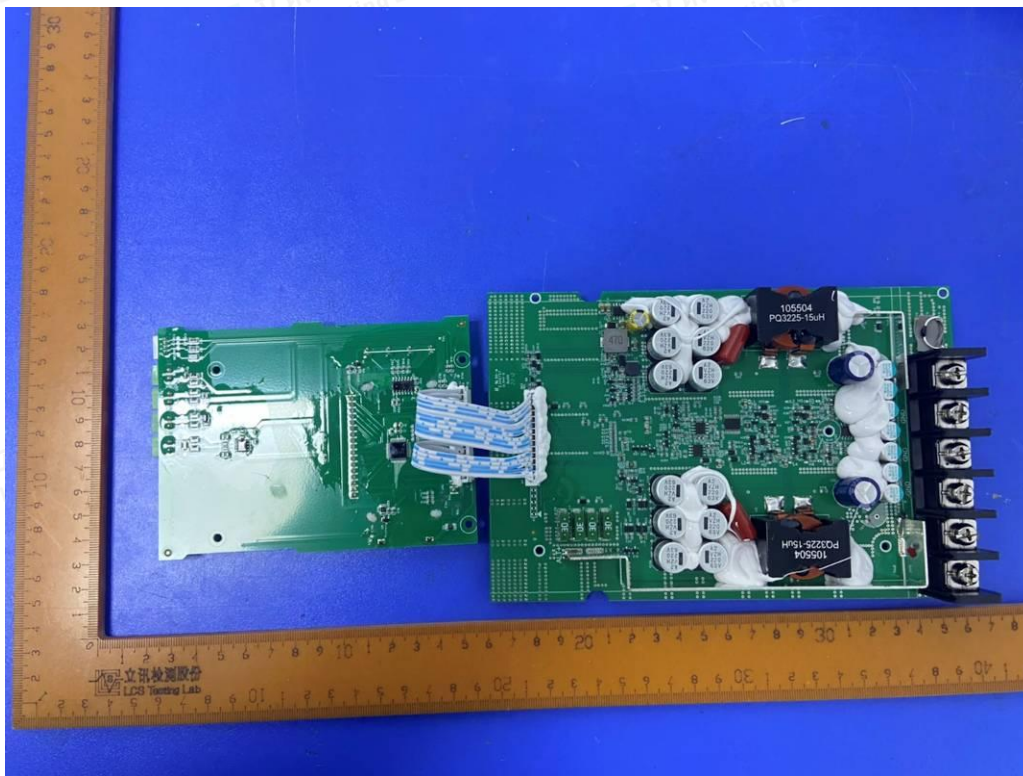


Fig. 9

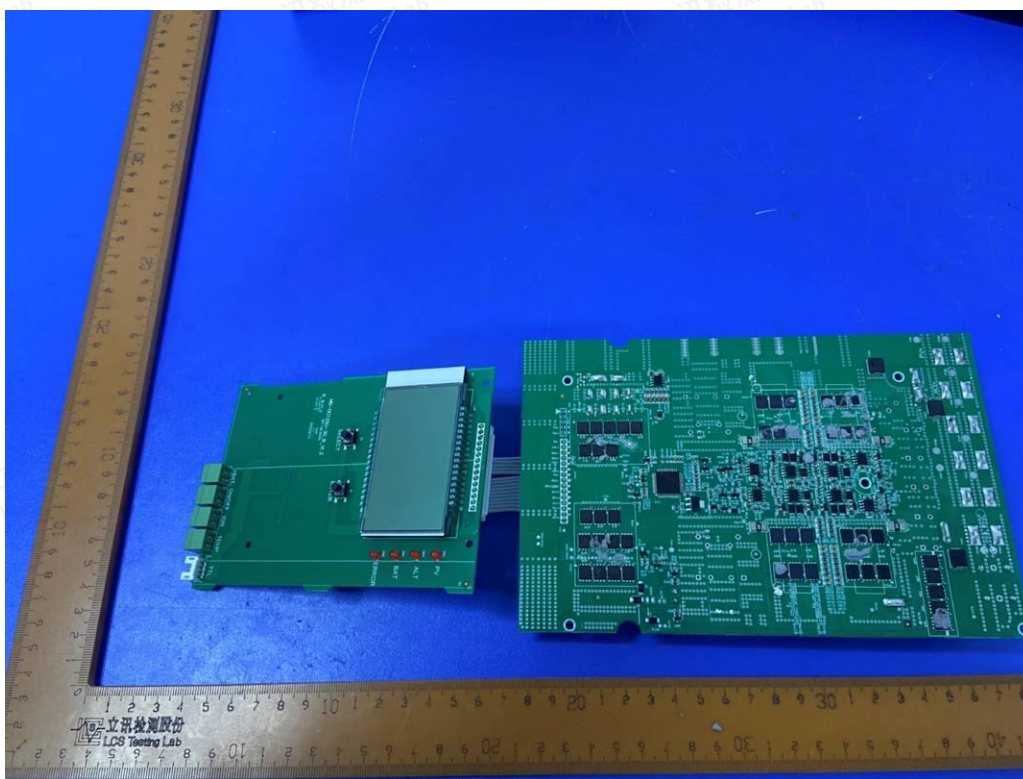


Fig. 10





Fig. 11 (MD1230N05)



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

