



TEST REPORT

SGS-CSTC
Standards Technical Services
(Shanghai) Co., Ltd.
No.588 West Jindu Road,
Songjiang District,
Shanghai, China



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Report reference no.: SHES230601055871-01
Date of issue.....: Jun. 13, 2023
Total number of pages: 11
Testing laboratory: SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Address: 588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Applicant's name.....: LUXEN SOLAR ENERGY CO., LTD.
Address: No. 1, Haiyue Road, Suxitong Technologies & Industries Park, Nantong City, Jiangsu Province, P. R. China

Test specification: Clause MQT 01, MQT 02, MQT 03, MQT 15 of IEC 61215-2:2016

Test item description: Photovoltaic (PV) module(s)

Trade mark.....: 

Manufacturer: LUXEN SOLAR ENERGY CO., LTD.
 No. 1, Haiyue Road, Suxitong Technologies & Industries Park, Nantong City, Jiangsu Province, P. R. China

Model/Type reference: LNVU-550M

Ratings: Refer to marking plate of sample



Signature

Tested by: Janine Tian



Signature

Approved by: Van Hua



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List of tests performed

Test item	Requirement + Test	Result	Verdict
1	Visual inspection	See Table 1	P
2	Maximum power determination	See Table 2	P
3	Insulation test	See Table 3	P
4	Wet leakage current test	See Table 4	P

Pre-conditioning has been performed with an irradiance dose of 5.0 kWh/m².



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Summary of testing

Submitted samples are tested according to Clause MQT 01, MQT 02, MQT 03, MQT 15 of IEC 61215-2:2016. The test results are present within this test report.

Tests performed (name of test and test clause):

IEC 61215-2-2016:
 Visual inspection (MQT 01)
 Performance at STC (MQT 02)
 Insulation test (MQT 03)
 Wet leakage current test (MQT 15)

Testing location:

Guoce Testing Technology (suzhou) Co., Ltd.
 Building 11, No. 18, Yaofeng East Road, Mudu Town,
 Wuzhong District, Suzhou, Jiangsu, 215151, China

Copy of marking plate / device under test:

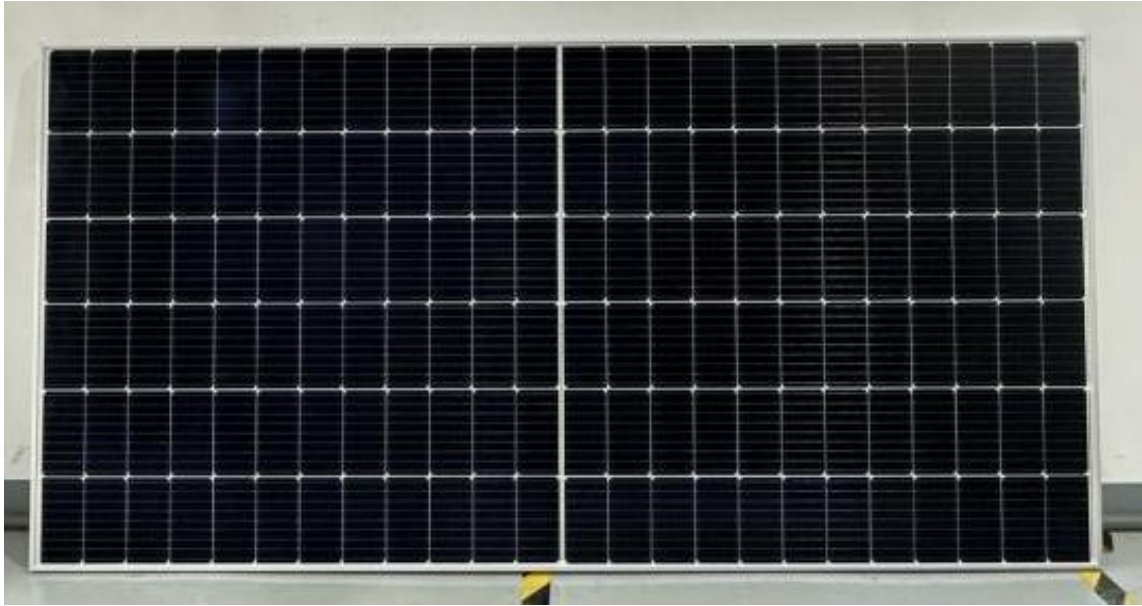
Module Type: LNVU-550M



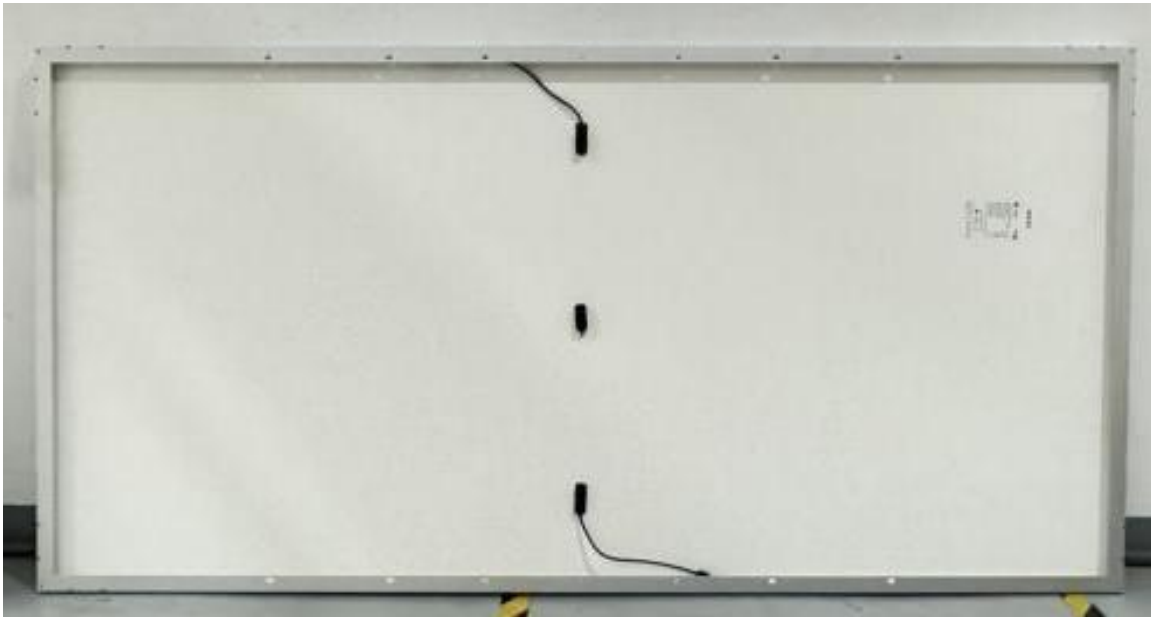
Marking plate of Sample



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Front view of sample



Rear view of sample



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Connector



Junction Box

Possible test case verdicts

- Test case does not apply to the test object	N/A
- Test object does meet the requirement	Pass (P)
- Test object does not meet the requirement	Fail (F)

General remarks

The test results presented in this report relate only to the object tested.
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 "(See Enclosure #)" refers to additional information appended to the report.
 "(See appended table)" refers to a table appended to the report.
 Throughout this report a point is used as the decimal separator.
 List of test equipment must be kept on file and available for review.
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 Contents:
 1) The main report
 2) Appendix 1: List of measurement equipment
 3) Appendix 2: Statement of the estimated uncertainty of the test results

General product information



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The product is photovoltaic (PV) module.						
Description of module construction						
Model	Cell Type	No. of cells	Dimension [mm]			
LNVU-550M	Mono-crystalline	144	2279x1134x35			
Technical Data						
Type/Model	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	Max.System Voltage [V]
LNVU-550M	50.32	42.28	13.90	13.01	550	1500
Supplementary information: Energy efficiency >13.5%: Class A.						
Energy efficiency classes	A>13.5%					
	13%<B≤13.5%					
	12%<C≤13%					
	11%<D≤12%					
	E<11%					



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1. Sampling procedure

<input type="checkbox"/> Random sampling from production (e.g. during factory audit (FA) or inline inspection)
<input type="checkbox"/> Random sampling from the warehouse, container or transportation boxes
<input checked="" type="checkbox"/> Modules have been submitted by the manufacturer/ client without random sampling by SGS

2. Test sample

Sample #	Model Type	Serial Number
01	LNVU-550M	VUMC314163770452
02		VUMC314163770839

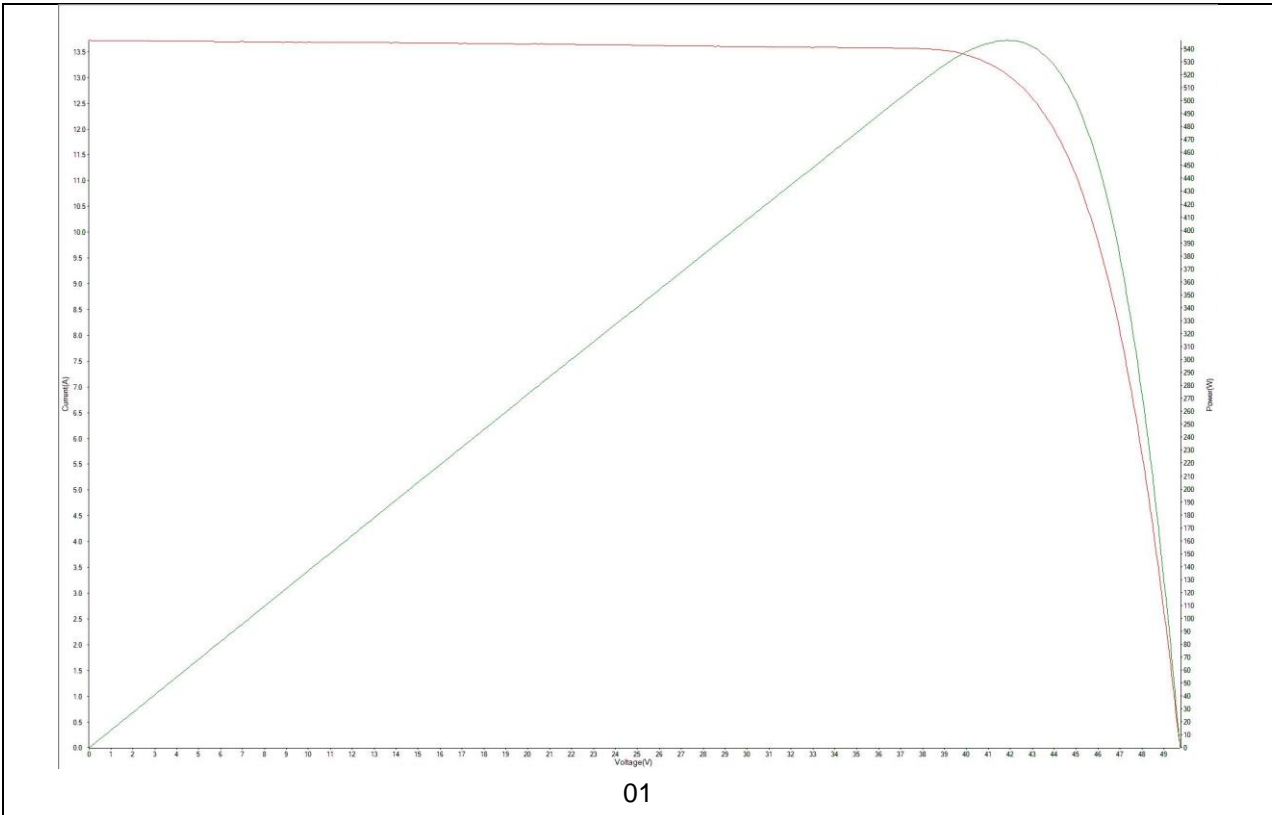
3. Test specification and test result

TABLE 1: MQT 01 Visual inspection		
Test Date [YYYY-MM-DD]	: 2023-06-08	—
Sample #	Nature and position of initial findings	Verdict
01	No Major visual defects	P
02	No Major visual defects	P
Supplementary information: N/A		

TABLE 2: MQT 02 Maximum power determination						
Test Date [YYYY-MM-DD]:		2023-06-08			—	
Test method		<input checked="" type="checkbox"/> indoor	<input type="checkbox"/> outdoor		—	
Module temperature [°C]:		Corrected to 25.0			—	
Irradiance [W/m ²]:		Corrected to 1000			—	
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]
01	49.74	41.88	13.72	13.05	546.5	80.08
02	49.64	41.79	13.66	12.98	542.4	79.95
IV Curve:						



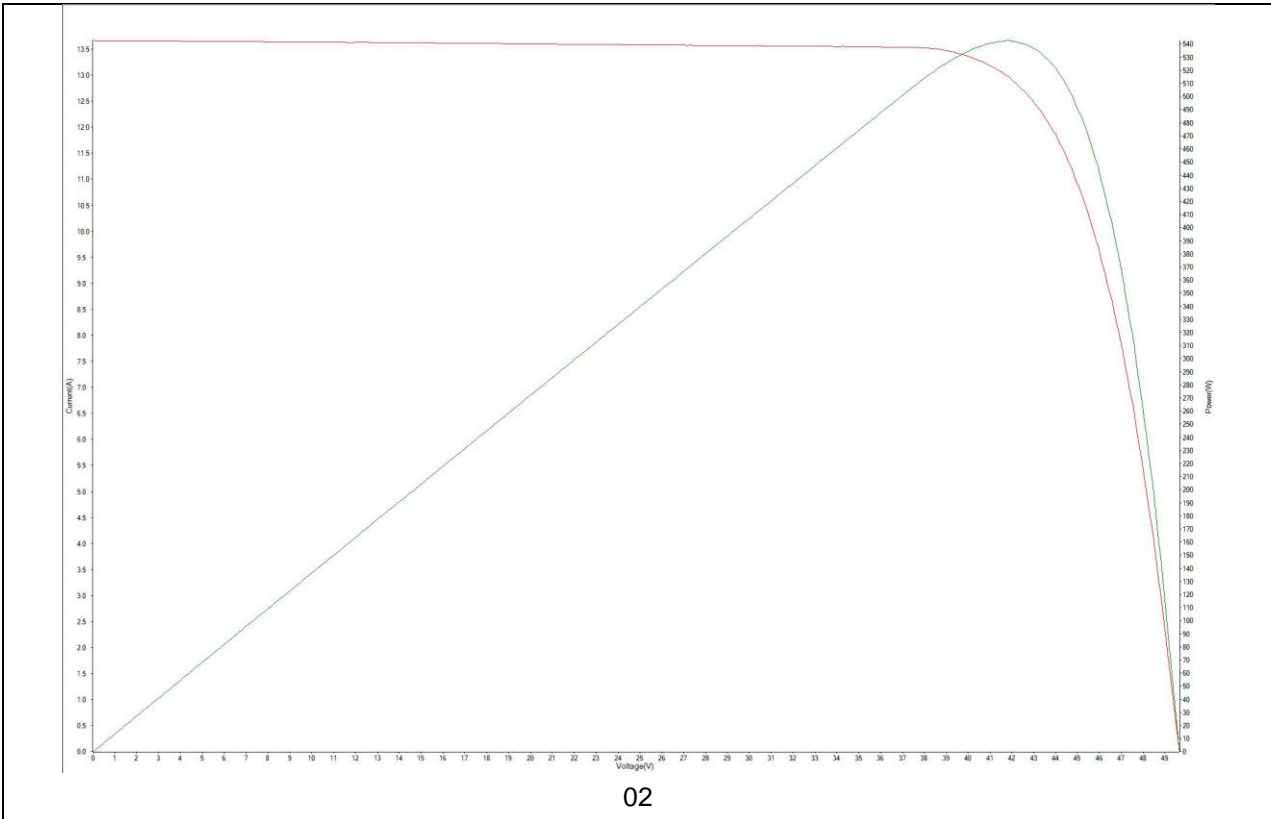
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Supplementary information: Refer to Appendix 2: Statement of the estimated uncertainty of the test verdicts. The discrepancy between the labelled power value and the measured value shall not exceed the limit of -5%~10%.

TABLE 3: MQT 03 Insulation test					
Test Date [YYYY-MM-DD]		2023-06-09		—	
Test Voltage applied [V]		4000V 1min/1500V 2min		—	
Size of module [m ²]		2.58		—	
Sample #	Measured	Required Resistance	Dielectric breakdown		Result
	MΩ	MΩ	Yes (description)	No	
01	27452	≥15.50	—	No	P
02	25554	≥15.50	—	No	P

Supplementary information: Minimum requirement acc. to IEC 61215:2016 is 40 MΩ *m².



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TABLE 4: MQT 15 Wet leakage current test			
Test Date [YYYY-MM-DD]	2023-06-09		—
Test Voltage applied [V]	1500V 2min		—
Solution resistivity [Ω cm)	1967		—
Solution temperature [$^{\circ}$ C]	24.2		—
Size of module [m^2]	2.58		—
Sample #	Required Resistance [$M\Omega$]	Measured [$M\Omega$]	Result
01	≥ 15.50	9195	P
02	≥ 15.50	17816	P
Supplementary information: Minimum requirement acc. to IEC 61215:2016 is $40 M\Omega * m^2$.			

Appendix 1: List of measurement equipments

Clause	Measurement / testing	Testing / measuring equipment / material used	Equipment ID	Calibration due date
4.1 10.2	Visual inspection	Luminometer	PM6612L	2024.02.13
4.3 10.13	Insulation test	Withstanding voltage/Insulation resistance tester	GCYQ-AG-18	2023.08.18
4.6	Performance at STC	Pulsed Solar Simulator	GIV-20A2616	2023.08.02
4.15 10.14	Wet leakage current test	Withstanding voltage/ Insulation resistance tester	GCYQ-AG-18	2023.08.18
		Conductive meter	GCYQ-AG-07	2023.11.01

Appendix 2: Statement of the estimated uncertainty of the test results

The estimated uncertainty fulfils the requirements from the CTL decision sheet DSH 251B / 2009.

----- End of Test Report -----



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