



# TEST REPORT

**SGS-CSTC**  
**Standards Technical Services**  
**(Shanghai) Co., Ltd.**

No.588 West Jindu Road,  
Songjiang District,  
Shanghai, China

Report reference no. ....: SHES190802053771

Date of issue.....: Sep.11, 2019

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.....: Zhejiang Shinefar Solar Power Co., Ltd.

Address .....: NO.108 Xinghe Road, Yuyue Town, Deqing , Huzhou , Zhejiang ,China.

Test specification .....: Clause MQT 01, MQT 06.1, MQT 03, MQT 08, MQT 15, MQT 16 of IEC 61215-2:2016

Clause MST 26 of IEC 61730-2:2016

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

Trade mark.....: Null

Manufacturer .....: Same as application

Model/Type reference .....: SF-P6/72350

Ratings .....: Refer to marking plate of sample

Signature

Tested by: Jessie Zhang

Signature

Approved by: Monica Liu



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**Summary of testing**

Submitted samples are tested according to MQT 01, MQT 06.1, MQT 03, MQT 08, MQT 15, MQT 16 of IEC 61215-2:2016 and MST 26 of IEC 61730-2:2016.

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 06.1)
- Insulation test (MQT 03)
- Outdoor exposure test (MQT 08)
- Wet leakage current test (MQT 15)
- Static mechanical load test (MQT 16)
- IEC 61730-2:2016:
- Reverse current overload test MST 26

**Testing location:**

Shanghai Institute of Quality Inspection and Technical Research  
No.900 Jiangyue Road, Shanghai, China

**Copy of marking plate / device under test:**

**Module Type: SF-P6/72350**



**Polycrystalline PV Module**

**Model: SF-P6/72350**





Max System Voltage:	DC 1000V
Max Power(W):	350W
Max Power Voltage(Vmp):	39.20V
Max Power Current(Imp):	8.93A
Open Circuit Voltage(Voc):	47.60V
Short Circuit Current(Isc):	9.68A

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Data refers to: STC 1000w/m<sup>2</sup> irradiance  
25°C cell temperature spectrum AM 1,5G

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Mail: info@shinefarsolar.com  
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IEC 61215 Ed2  
IEC 61730



Marking plate of Sample



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Serial Number of Sample



Front view of sample



SGS-CSTC (Shanghai) Technical Services (Shanghai) Co., Ltd.  
Testing Center East China University

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Rear view of sample

**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**

The product is photovoltaic (PV) module.



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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	SF-P6/72350	7790291811970001
02	SF-P6/72350	7790291811970002

**3. Test specification and test result**

MQT 01 Visual inspection		
Test Date [YYYY-MM-DD] :	2019-08-09	—
Sample #	Nature and position of initial findings	Verdict
01	No Major visual defects	P
Supplementary information: N/A		

MQT 06.1 Performance at STC						
Test Date [YYYY-MM-DD]..... :	2019-08-09					—
Test method	<input checked="" type="checkbox"/> indoor		<input type="checkbox"/> outdoor		—	
Module temperature [°C] .....	Corrected to 25±0.5					—
Irradiance [W/m <sup>2</sup> ] .....	Corrected to 1000±10					—
Sample #	Voc [V]	Isc [A]	Vmp [V]	Imp [A]	Pmp [W]	FF [%]
01	47.178	9.634	38.280	9.166	350.865	77.20
Supplementary information: Refer to Appendix 2: Statement of the estimated uncertainty of the test verdicts.						

MQT 03 Insulation test		
Test Date [YYYY-MM-DD]..... :	2019-08-12	—



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Test Voltage applied [V] .....		6000/1000	—	
Size of module [m <sup>2</sup> ] .....		1.94	—	
Required Resistance [MΩ].....		≥20.62	—	
Sample #	Measured	Dielectric breakdown		Result
	MΩ	Yes (description)	No	
01	17550	—	No	P
Supplementary information: /				

MQT 15 Wet leakage current test			
Test Date [YYYY-MM-DD] .....		2019-08-12	—
Test Voltage applied [V].....		1000	—
Solution temperature [°C] .....		23.0	—
Size of module [m <sup>2</sup> ] .....		1.94	—
Sample #	Required Resistance [MΩ]	Measured [MΩ]	Result
01	114	≥20.62	P
Supplementary information: /			

MQT 08 Outdoor exposure test			P
Test Date [YYYY-MM-DD] start/end .....		2019-08-23 to 2019-08-26	—
Sample #		01	—
Total irradiation dosage [kWh/m <sup>2</sup> ] .....		60.0	—
Angle of tilt the test module .....		Vertical	—
Electrical load [Ω]:		5	—
Supplementary information: /			
Table 10.1: MQT 01: Visual inspection after outdoor exposure test			P
Test Date [YYYY-MM-DD] .....		2019-08-26	—
Sample #	Nature and position of initial findings – comments or attach photos		Result
01	No Major visual defects		P
Supplementary information: /			
Table 10.2: MQT 15: Wet leakage current test after outdoor exposure test			P
Test Date [YYYY-MM-DD] .....		2019-08-26	—



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Test Voltage applied [V] .....		1000				—
Solution temperature [°C] .....		23.3				—
Size of module [m <sup>2</sup> ] .....		1.94				—
Required Resistance [MΩ].....		≥20.62				—
Sample #	Measured [MΩ]		Limit [MΩ]			Result
01	102		≥20.62			P
Supplementary information: /						
<b>MQT 02 - Maximum power determination after outdoor exposure test - Optional</b>						—
Test Date [YYYY-MM-DD].....		2019-08-26			—	
Module temperature [°C].....		Corrected to 25.0			—	
Irradiance [W/m <sup>2</sup> ] .....		Corrected to 1000			—	
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]
01	46.868	38.095	9.467	9.003	342.950	77.30
Supplementary information: /						

<b>MQT 03 - Insulation test after outdoor exposure test - Optional</b>						P
Test Date [YYYY-MM-DD].....		2019-08-26			—	
Test Voltage applied [V] .....		1000			—	
Size of module [m <sup>2</sup> ] .....		1.94			—	
Required Resistance [MΩ].....		≥20.62			—	
Sample #	Measured	Required (MΩ)	Dielectric breakdown		P	
	(MΩ)	(MΩ)	Yes (description)	No		
01	4072	≥20.62	—	No	P	
Supplementary information: /						

<b>MQT 16 Static mechanical load test</b>					P
Sample #:		01			—
Design load (front side/ back side) .....		1600/1600			—
Safety factors .....		1.5			—
Test Date [YYYY-MM-DD].....		2019-08-28			—



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Mounting method .....	Clamps mounting (4 points)		—
Load applied to .....	front side	back side	—
Mechanical load [Pa] .....	2400	2400	—
First cycle time (start/end) .....	1h	1h	—
Intermittent open-circuit (yes/no) .....	No	No	P
Second cycle time (start/end) .....	1h	1h	—
Intermittent open-circuit (yes/no) .....	No	No	P
Third cycle time (start/end) .....	1h	1h	—
Intermittent open-circuit (yes/no) .....	No	No	P
Supplementary information: /			
<b>MQT 01 - Visual inspection after static mechanical load test</b>			P
Test Date [YYYY-MM-DD] .....	2019-08-27		—
Sample #	Nature and position of initial findings – comments or attach photos		—
01	No Major visual defects		P
Supplementary information: /			
<b>MQT 15 - Wet leakage current test after static mechanical load test</b>			P
Test Date [YYYY-MM-DD] .....	2019-08-27		—
Test Voltage applied [V] .....	1000		—
Solution temperature [°C] .....	23.0		—
Size of module [m <sup>2</sup> ] .....	1.94		—
Required Resistance [MΩ] .....	≥20.6		—
Sample #	Measured [MΩ]	Limit [MΩ]	Result
01	95	≥20.6	P
Supplementary information: /			

MST 26 Reverse current overload test		
Sample # .....	01	—
Test Date (YYYY-MM-DD) .....	2019-08-30	—
Test current (A) .....	20.25	—
Range of applied voltage (V) .....	55.8~57.1	—
Test duration .....	1 hours	—



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Observations			Result
■	No flaming of the module		P
■	No flaming or charring of the cheesecloth		
■	No flaming of the tissue paper		
■	MST 17 requirements fulfilled (see appended Table MST17)		
Supplementary information: /			
<b>MST 17: Wet leakage current test after Reverse current overload test</b>			—
Test Date (YYYY-MM-DD) .....	2019-08-28		—
Test Voltage applied (V, dc) .....	1000		—
Solution resistivity (Ω cm) .....	1705		—
Solution temperature (°C) .....	23.0		—
Sample #	Measured (MΩ)	Required (MΩ)	Result
01	89	≥20.62	P
Supplementary information: Size of module 1.94 [m <sup>2</sup> ]			

**Appendix 1: List of measurement equipments**

Identification #	Description	Calibration expire date
DZ-A-A2-0022	Pulse Simulator	2020-07-12
DZ-A-A2-0022-5	Electronic Load	2021-02-21
DZ-A-A1-0258	Insulation Resistor Instrument	2020-03-12
DZ-B-A2-0055	Conductivity meter	2020-07-24
DZ-A-A1-0009	Switch Power Supply	2019-12-31
DA-A-A2-0020	Mechanical Load Tester	2019-10-05

**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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