

Technical Report No.: 704062200516-00

Date: 2022-05-20

Client: Shanghai JA Solar Technology Co., Ltd. (072092)
No. 118, Lane 3111, West Huancheng Road, Fengxian District,
201401, Shanghai, People's Republic of China
Contact person: Ms. Wenli Gong

Factory: Shanghai JA Solar Technology Co., Ltd. (072092)
No. 118, Lane 3111, West Huancheng Road, Fengxian District,
201401, Shanghai, People's Republic of China
Contact person: Ms. Wenli Gong

Product: Crystalline Silicon Photovoltaic modules

Test object:
Model: See clause 1.4

Test specification: IEC 61730-2: 2016 MST 23 Fire test
(Test method is according to UL790)

Purpose of examination:

- Testing and evaluation (visual / partial) according to the test specification

Test result: The test results show that the presented product is in compliance with the above listed test specifications.
This report is the result of a visual examination.

Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question. It does not imply a general statement regarding the quality of products from regular production. For further details please see testing and certification regulation, chapter A-3.4.

1. Description of the test object

1.1 Picture(s)

See 3.1 Positive Test Results

1.2 Function

Manufacturer's specification for intended use:

The PV modules for electricity generation systems with max. voltage of 1500 V DC.

Manufacturer's specification for predictive use:

N/A

1.3 Consideration of the foreseeable use

- Not applicable
- Covered through the applied standard
- Covered by the following comment*
- Covered by attached risk analysis

1.4 Technical Data

Sample No.	Module type	Model serial No.
GDP220350-1	JAM78S30-580/MR	21A0109610000538
GDP220350-2	JAM78S30-605/MR	21A0109610000541

Following model types were involved due to same materials and similar construction:

JAM78S30-xxx/MR, xxx= 580 to 605 in steps of 5

JAM72S30-xxx/MR, xxx=510 to 555 in steps of 5

JAM66S30-xxx/MR, xxx=470 to 505 in steps of 5

JAM60S30-xxx/MR, xxx=435 to 460 in steps of 5

JAM54S30-xxx/MR, xxx= 390 to 415 in steps of 5

2. Order

Report No.: 704062200516

Rev.: 00

Date: 2022-05-20

Page 2 of 9

www.tuvsud.com



TÜV SÜD Certification and Testing (China) Co., Ltd.

Shanghai Branch

SMN

No. 151 Heng Tong Road,
Shanghai 200070, P. R. China
Telephone: +86 21 6141-0100

2.1 Date of Purchase Order, Customer's Reference

The order dated 2022-05-07

2.2 Test Sample(s)

- Reception date(s): 2021-10-25
- Location(s) of reception: Yangzhou Opto-electrical Product Testing Institute
No. 10 West Kaifa Road, Yangzhou, 225009 Jiangsu,
P. R. China
- Condition of test sample(s): In good condition

2.3 Date(s) of Testing 2022-05-17

2.4 Location(s) of Testing Yangzhou Opto-electrical Product Testing Institute No. 10 West Kaifa Road, Yangzhou, 225009 Jiangsu, P. R. China

2.5 Points of Non-Compliance or Exceptions of the Test Procedure

- None

3. Test Results

- "Decision rule according to IEC Guide 115:2021, clause 4.4.3, 4.5.1 was applied."
- "Decision rule (based on ILAC-G8) for an upper specification limit (A lower limit or specification with an up-per and a lower limit is treated similarly.):
 - Compliance with the requirement: If a specification limit is not breached by a measurement result plus the expanded uncertainty with a 95% coverage probability, then compliance with the specification will be stated (e.g. Pass).

3.1 Positive Test Results

- See below details

3.1.1	TABLE: Visual inspection (Initial)		P
Test Date [YYYY-MM-DD].....:	2022-05-17		—
Sample No.	Nature and position of initial findings – comments or attach photos	Verdict	
GDP220350-1	No major visual defects found	P	
GDP220350-2	No major visual defects found	P	
Supplementary information: N/A			

3.1.2	TABLE: Fire Test - MST 23 (Spread-of-flame test)		P
Test Date [YYYY/MM/DD].....:	2022-05-17		—
Module fire resistance class.....:	Class A		—
No. of modules provided to create the test assembly.....:	1		—
Testing method.....:	according to UL790		—
Test environmental conditions.....:	25°C, 41% R.H.		—
Test temperature (°C).....:	760±28		—
Wind speed (m/s).....:	5.30 (76mm from right)		—
	5.31 (middle)		
	5.32 (76mm from left)		
	5.31 (Average)		
Test duration time (s).....:	600		—
Sample No.	Observations		—
GDP220350-1	<input checked="" type="checkbox"/> Modules comply with the requirements for the fire resistance class		P

Test process description:

During the test, the backpanel was broken, but nothing has been blown off or fall off the test deck in the form of flaming or flowing brands.

The flaming of the material has not spread beyond 6 feet (1.8 m) (the top of the deck) in 10 minutes. There has been no significant lateral spread of flame from the path directly exposed to the test flame.

Supplementary information: Testing samples were stored indoors at temperatures not lower than 16°C (60°F) nor higher than 32°C (90°F) for the period of time necessary to cure the material.

Test photos:



Superstrate side





3.1.3	TABLE: Fire Test - MST 23 (Ignition of brands)					P	
	Test Date [YYYY/MM/DD].....	2022-05-17				—	
	Module fire resistance class.....	Class C				—	
	No. of modules provided to create the test assembly	1				—	
	Testing method	according to UL790				—	
	Test environmental conditions	25°C, 41% R.H.				—	
	The dry weight of the finished brand (g)	9.13	8.96	9.04	8.92	9.13	—
		9.14	9.21	8.96	9.25	8.91	
		9.14	9.09	9.13	8.94	8.88	
		9.04	9.03	9.06	9.04	9.12	
	Test temperature of the igniting flame(°C)	888±10				—	
	Wind speed (m/s)	5.30 (76mm from right)				—	
		5.31 (middle)					
		5.32 (76mm from left)					
		5.31 (Average)					
	Sample No.	Observations				—	
	GDP220350-2	<input checked="" type="checkbox"/> Modules comply with the requirements for the fire resistance class				P	

Test process description:

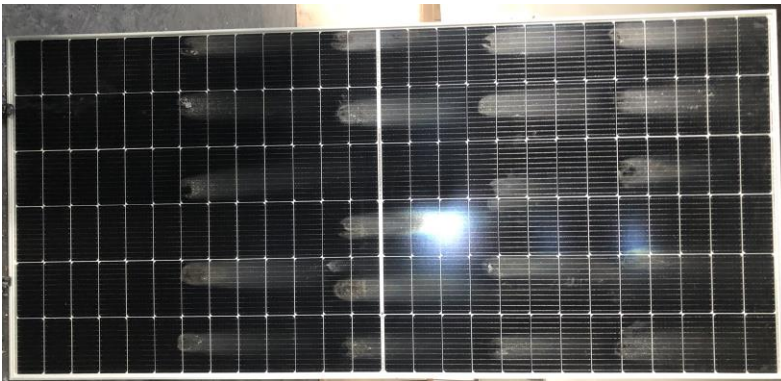
No defect was found on the module during the test, nothing had been blown or fall off the test deck in the form of flaming or flowing brands.

Supplementary information: Testing samples were stored indoors at temperatures not lower than 16°C (60°F) nor higher than 32°C (90°F) for the period of time necessary to cure the material.

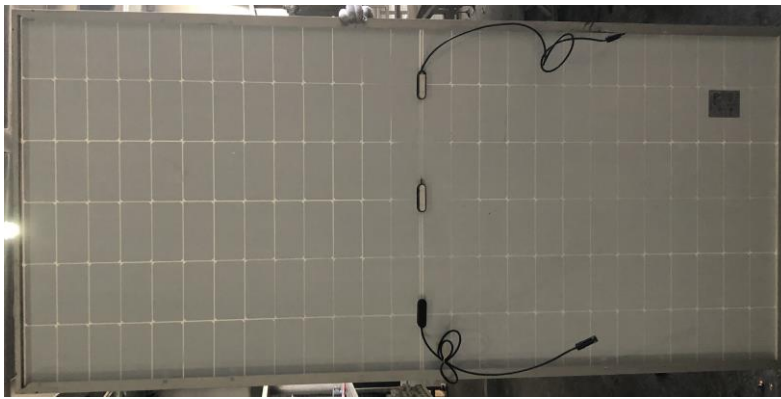
Test photos:



Superstrate side



Substrate side



3.2 Points of Non-Compliance according to the test specification

- None

4. Remarks

4.1 General

N/A

4.2 Factory surveillance cycle

Your production facility is currently on a

- Annual (12 month)
- Bi-Annual (6 month)
- Quarterly (3 month)
- N/A

surveillance cycle.

4.3 Additional information for routine tests to be performed by the factory(ies)

Routine tests for electrical appliances / equipment:

N/A

5. Documentation

Appendix 1: Photos

See 3.1 Positive Test Results

Appendix 2: List of measurement equipment

Description	Equipment ID	Date of calibration
Spread-of-flame tester	SB11086	2021-11-23
Burning brand tester	SB11087	2021-11-23
Oven	SB11089	-

6. Summary

"The test specifications are met"

TÜV SÜD Certification and Testing (China)Co., Ltd. Shanghai Branch

Tested by:

Rongwei Jing *Rongwei Jing*

printed name, function & signature

Approved by:

Guangxia Fu

printed name, function & signature