

Technical Report No.: 704061704304-27A1

Date: 2023-02-08

Client: Risen Energy Co., Ltd
Meilin, Ninghai, 315609 Ningbo, Zhejiang, PEOPLE'S REPUBLIC OF CHINA.

Factory: Risen Energy (CHANGZHOU) Co., Ltd. (101449)
No.1, Shuinan Road, Zhixi Industrial Park, Jintan District 213251
Changzhou City PEOPLE'S REPUBLIC OF CHINA

Risen Energy (YIWU) Co., Ltd.(106291)
No. 599 Sufu Road, Suxi Town, Yiwu City, Zhejiang Province,
322000, PEOPLE'S REPUBLIC OF CHINA

Risen Energy (Anhui) Co., Ltd.(113068)
No.325, East Tongling Road Economic and Technological
Development Zone 239000 Chuzhou City, Anhui Province
PEOPLE'S REPUBLIC OF CHINA

Risen Energy (Ningbo) Co.,Ltd (115158)
No.1 Middle Xingke Road, Ninghai, 315609,
Ningbo,Zhejiang,P.R.China

RISEN SOLAR TECHNOLOGY SDN. BHD.(115943)
No.3, Jalan Hi-Tech 14, Zon Industri Fasa 4, Kulim
Hi-Tech Park,09090 Kulim, Kedah Malaysia.

Risen Energy (Baotou) Co., Ltd. (119117)
Baotou Jinshan Industrial Park, Guyang County, Baotou City
014200 Inner Mongolia Autonomous Region PEOPLE'S REPUBLIC
OF CHINA

Test object: Product: Photovoltaic modules
Model: See clause 1.4

Test specification: IEC 61215-1:2016; EN 61215-1:2016;
IEC 61215-2:2016; EN 61215-1-1:2016;
IEC 61215-1-1:2016; EN 61215-2:2017;
IEC 61730-1:2016; EN IEC 61730-1:2018;
EN IEC 61730-1:2018/AC:2018-06
IEC 61730-2:2016; EN IEC61730-2:2018;
EN IEC 61730-2:2018/AC:2018-06

- Purpose of examination:
- Testing (visual / partial) for compliance with specified requirements to assess conformity with the essential safety and health requirements of the following European Directives: Low Voltage Directive 2014/35/EU relating to electrical equipment designed for use within certain voltage limits
 - 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.

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1. Description of the test object

1.1 Picture(s)

N/A

1.2 Function

N/A

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

Model : RSM72-6-xxxMDG, xxx=315 to 385 in step of 5
RSM60-6-xxxMDG, xxx=265 to 320 in step of 5
RSM144-6-xxxMDG, xxx=350 to 415 in step of 5
RSM132-6-xxxMDG, xxx=320 to 380 in step of 5
RSM120-6-xxxMDG, xxx=295 to 350 in step of 5
RSM72-6-xxxBMDG, xxx=340 to 385 in step of 5
RSM60-6-xxxBMDG, xxx=280 to 325 in step of 5
RSM144-6-xxxBMDG, xxx=360 to 415 in step of 5
RSM132-6-xxxBMDG, xxx=330 to 380 in step of 5
RSM120-6-xxxBMDG, xxx=300 to 350 in step of 5
RSM156-6-xxxBHDG, xxx=435 to 465 in step of 5
RSM132-6-xxxBHDG, xxx=365 to 390 in step of 5
RSM144-6-xxxBHDG, xxx=400 to 430 in step of 5
RSM120-6-xxxBHDG, xxx=330 to 360 in step of 5
RSM144-7-xxxBMDG, xxx=425 to 455 in step of 5
RSM132-7-xxxBMDG, xxx=390 to 420 in step of 5
RSM120-7-xxxBMDG, xxx=355 to 380 in step of 5
RSM144-6-xxxBMDG, xxx=425 to 455 in step of 5
RSM144-7-xxxBMDGZ, xxx=425 to 455 in step of 5
RSM132-6-xxxBMDG, xxx=390 to 420 in step of 5
RSM132-7-xxxBMDGZ, xxx=390 to 420 in step of 5
RSM120-6-xxxBMDG, xxx=355 to 380 in step of 5
RSM120-7-xxxBMDGZ, xxx=355 to 380 in step of 5
RSM150-8-xxxBMDG, xxx= 465 to 510 in step of 5
RSM90-8-xxxBMDG, xxx= 285 to 300 in step of 5
RSM144-9-xxxBMDG, xxx= 520 to 560 in step of 5
RSM132-9-xxxBMDG, xxx= 480 to 510 in step of 5
RSM120-9-xxxBMDG, xxx= 435 to 465 in step of 5
RSM132-8-xxxBMDG, xxx= 635 to 675 in step of 5
RSM120-8-xxxBMDG, xxx= 560 to 615 in step of 5
RSM110-8-xxxBMDG, xxx= 525 to 565 in step of 5
RSM80-8-xxxBMDG, xxx= 380 to 405 in step of 5
RSM144-6-xxxHDGB, xxx=400 to 430 in step of 5
RSM132-6-xxxHDGB, xxx=365 to 390 in step of 5
RSM120-6-xxxHDGB, xxx=330 to 360 in step of 5
RSM120-8-xxxBNDG, xxx=605 to 635 in step of 5
RSM132-8-xxxBNDG, xxx=665 to 695 in step of 5
RSM110-8-xxxBNDG, xxx=550 to 580 in step of 5
RSM132-8-xxxBHDG, xxx= 650 to 705 in step of 5
RSM120-8-xxxBHDG, xxx= 590 to 645 in step of 5
RSM110-8-xxxBHDG, xxx= 540 to 590 in step of 5
RSM264-8-xxxBMDG, xxx=645 to 670 in step of 5
RSM144-9-xxxBNDG, xxx= 550 to 585 in step of 5
RSM120-9-xxxBNDG, xxx= 455 to 485 in step of 5

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RSM108-9-xxxBNDG, xxx= 410 to 435 in step of 5
RSM144-10-xxxBNDG, xxx=570 to 600 in step of 5
RSM120-10-xxxBNDG, xxx=475 to 500 in step of 5
RSM108-10-xxxBNDG, xxx=425 to 450 in step of 5
xxx is standing for rated output power at STC

Rated output Power at STC : Same as above
Max. system voltage : 1500 V DC

2. Order

2.1 Date of Purchase Order, Customer's Reference

The order dated 2022-08-22 & 2022-09-16

2.2 Test Sample(s)

- Reception date(s):
2022-08-22
- Location(s) of reception:
Changzhou HuaYang Inspection and Testing Technology Co., Ltd.
NO.8 Lanxiang Road, Wujin Economic Development Zone, Changzhou, Jiangsu, China.
- Condition of test sample(s):
In good condition

2.3 Date(s) of Testing

2022-08-22/2022-12-02

2.4 Location(s) of Testing

Changzhou HuaYang Inspection and Testing Technology Co., Ltd.
NO.8 Lanxiang Road, Wujin Economic Development Zone, Changzhou, Jiangsu, China.

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

- Bifacial module test method refer to IEC 61215:2021

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

Test specification(s)	Report no. / Rev. No.	Date	Remark
Electrical safety:	704061704304-27A1	2023-02-08	Refer Clause 4.1
Mechanical safety:	704061704304-27A1	2023-02-08	Refer Clause 4.1

3.2 Points of Non-Compliance according to the test specification

- None

4 Remarks

4.1 General

Based on previous report: 704061704304-27,

1, Add new adhesive for junction box/frame: type:4065 (A&B), manufactured by Shanghai Huitian New Material Co., Ltd.

2, Add new superstrate, type: Coating tempered glass.Thickness: 2.0 mm, manufactured by CAIHONG GROUP NEW ENERGY COMPANY LIMITED.

3, Add new substrate (glass), type: Tempered glass, with glaze on internal surface (White glaze) Thickness: 2.0 mm, manufactured by CAIHONG GROUP NEW ENERGY COMPANY LIMITED.

4, Add new encapsulant, type: TRA2500 (closed to front glass), material: EVA, thickness: 0.5 mm & type: EPE2100 (closed to rear side), material: EPE, thickness: 0.5 mm. Manufactured by Zhejiang Tony Electronic Co., Ltd.

Full tests according to IEC 61215-1:2016, IEC 61215-1-1:2016, IEC 61215-2:2016, IEC 61730-2:2016 were conducted on model RSM132-8-650BMDG.

Requirements according to IEC 61730-1:2016 were verified.

The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further particulars as well as of the composition and layout.

4.2 Factory surveillance cycle

Your production facility is currently on a

- Annual (12 month)
- Bi-Annual (6 month)
- Quarterly (3 month)
-

surveillance cycle.

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

Routine tests for electrical appliances / equipment:

Routine tests requirements for production are described in 70.197.22.101449.05, 70.197.22.106291.04, 70.197.22.113068.02. 70.197.22.115158.02. 70.197.22.115943.01. 70.197.22.119117.01.

5 Documentation


File	File name	Date
Data form (CDF):	704061704304-27A1 CDF	2023-02-08

Installation manual:	Version: A/4[2022]	2023-02-08
Photographs	Attachment No.1 of 704061704304-27A1	2023-02-08
Component datasheets	Attachment No.2 of 704061704304-27A1	2023-02-08

6 Summary

“The test specifications are met”

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

Tested by: Xiaoguang Song 

Approved by: Gang Huang 