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国际互认  
检测  
TESTING  
CNAS L0128



W02491600011E

# 检测报告

## Test Report

*(Relatório de testes em laboratório)*



TP2bC31n

**Name of Sample**

**575 W monocristalino bifacial**

*Nome da amostra*

**Type**

**ERA Pro-72HCB575M**

*Tipo de modulo*

**Applicant**

**Zhejiang ERA Solar Technology Co., Ltd.**

*Requerente*

**Test Purpose**

**Entrusted Tests**

*Finalidade do teste*

*Teste de delegação*



上海市质量监督检验技术研究院  
Shanghai Institute of Quality Inspection and Technical Research



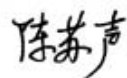
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|  |   |   |   |
|--|---|---|---|
| Name of Sample<br><i>Nome da amostra</i>             | 575 W monocristalino bifacial   | Test Purpose<br><i>Finalidade do teste</i>                                  | Entrusted Tests<br><i>Teste de delegação</i>  |
| Type <i>Tipo de módulo</i>                           | ERA Pro-72HCB575M   | Trade Mark<br><i>Marca</i>  |  |
| Grade <i>Nível</i>                                   | Qualified products<br><i>Produtos qualificados</i>  |   |   |
| Applicant <i>Requerente</i>                          | Zhejiang ERA Solar Technology Co., Ltd.   |   |   |
| Tested Company<br><i>Testado empresa</i>             | /   |   |   |
| Producer <i>Produtor</i>                             | Zhejiang ERA Solar Technology Co., Ltd.   |   |   |
| Number of Client<br><i>Número de cliente</i>         | 6001011   | Entrusting/Sampling Date<br><i>Data De entrega</i>                          | 2024.01.16  |
| Reception Date<br><i>Data de recepção:</i>           | 2024.01.16  | Sampling Spot<br><i>Local de amostragem</i>                                 | /   |
| Sample Quantity<br><i>Quantidade de amostra</i>      | 2 pcs   | Sum of Sample<br><i>Soma de amostra</i>                                     | /   |
| Date of Production<br><i>Data De produção</i>        | /   | Original Number<br><i>Número de serie</i>                                   | /   |
| Situation of Sample<br><i>Situação Da amostra</i>    | Intact Sent by client<br><i>Está como estava Enviado pelo cliente</i>   |   |   |
| Testing Place <i>Local de realização dos testes:</i> | No.900 Jiangyue Rd, Shanghai  |   |   |
| Test Standard<br><i>Padrão de testes</i>             | IEC 61215-2:2021 Terrestrial photovoltaic (PV) modules - Design qualification and type approval - Part 2: Test procedures   |   |   |
| Judgement Rules<br><i>Regras de Acórdãos</i>         | PORTARIA Nº 140, DE 21 DE MARÇO DE 2022   |   |   |
| Date of Testing<br><i>Data do teste</i>              | 2024.01.16 to 2024.01.16  |   |   |
| Conclusion<br><i>Conclusão</i>                       | The test report only offers a single testing conclusion; See the details on page of summary.<br><i>O relatório de teste fornece apenas uma conclusão de teste. Veja a página de resumo para detalhes.</i><br><br>Issued Date: 2024.01.22 |   |   |
| Client's Message<br><i>Mensagem do cliente</i>       | Add.<br><i>Endereço</i>   | Sihai Road, Huangyan Economic Development Zone, Taizhou, 318020 P. R. China |   |
|  | Zip Code<br><i>Código postal</i>  | 318020  | Tel.<br><i>O telefone</i>   |

Approved by: 陈苏声  
*Aprovado por:* 副主任



Checked by: 李拉刚  
*Revisor:*

Tested by: 马潇  
*O testador:*

SQI-YW-JL-BG-435

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| <b>Collection of The Test Results</b> |  |  |  |  |                               |
|---------------------------------------|--|--|--|--|-------------------------------|
| <i>Coleção de testes</i>              |  |  |  |  |                               |
| No.<br><i>Número</i>                  | Test Items<br><i>Itens de teste</i>  | Technical Requirements<br><i>Requisitos técnicos</i>   | Test Results<br><i>Resultados de teste</i> | Judgements by Single Item<br><i>Juizos de valor por item único</i> | Remarks<br><i>Observações</i> |
| 1                                     | Visual inspection<br>(MQT 01)<br><i>Inspeção visual(MQT 01)</i>                | For the tested PV module, major visual defects do not exist.<br><i>O modulo não pode apresentar defeitos visuais evidentes.</i>  | Page 6<br><i>Página 6</i>                  | Complies<br><i>Elegível para</i>                                   | /                             |
| 2                                     | Initial Stabilization<br>(MQT 19.1)<br><i>Estabilização Inicial (MQT 19.1)</i> | Initial stabilization of c-Si modules shall be obtained by exposing to sunlight with an irradiation dose level of $\geq 10$ kWh/m <sup>2</sup> .<br><i>A estabilização inicial dos módulos c-Si deve ser obtida pela exposição à luz solar com um nível de dose de radiação de <math>\geq 10</math> kWh/m<sup>2</sup>.</i> | Page 7<br><i>Página 7</i>                  | Complies<br><i>Elegível para</i>                                   | /                             |

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| Collection of The Test Results   |  |   |  |   |   |
|--|--|---|--|---|---|
| <i>Coleção de testes</i>   |  |   |  |   |   |
| 3  | <p>Maximum Power Determination (MQT 02)</p> <p><i>Determinação de Potência Máxima (MQT 02)</i></p>   | <p>The measured power of the PV module shall not be less than 100% or more than 105%.</p> <p><i>Os módulos não podem apresentar medida de potência menor que 100% ou maior que 105%.</i></p>  | <p>Page 8</p> <p><i>Página 8</i></p>   | <p>Complies</p> <p><i>Elegível para</i></p> | / |
| 4  | <p>Insulation test (MQT 03)</p> <p><i>Teste de isolamento de (MQT 03)</i></p>                        | <p>For modules area <math>\geq 0.1 \text{ m}^2</math>, measured insulation resistance shall be <math>\geq 40 \text{ M}\Omega \cdot \text{m}^2</math>.</p> <p>Otherwise, the insulation resistance shall be <math>\geq 400 \text{ M}\Omega</math>.</p> <p><i>Com valor de resistência elétrica <math>\geq 40 \text{ M}\Omega \cdot \text{m}^2</math>, Para módulos com área maior que <math>0.1 \text{ m}^2</math>. Caso contrário, e resistência <math>\geq 400 \text{ M}\Omega</math>.</i></p> | <p>Page 9</p> <p><i>Página 9</i></p>   | <p>Complies</p> <p><i>Elegível para</i></p> | / |
| 5  | <p>Wet leakage current test (MQT 15)</p> <p><i>Teste de fuga de corrente molhada de (MQT 15)</i></p> | <p>Requirements are the same as Insulation test.</p> <p><i>Os requisitos são os mesmos dos Teste de isolamento de.</i></p>  | <p>Page 10</p> <p><i>Página 10</i></p> | <p>Complies</p> <p><i>Elegível para</i></p> | / |
| <p>Supplementary information: none</p> <p><i>Informação suplementar: nenhuma</i></p> |  |   |  |   |   |

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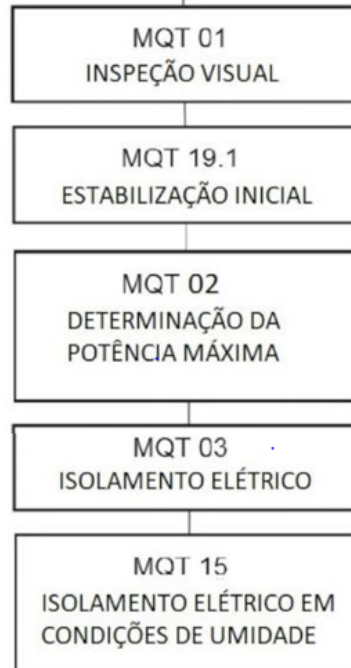
## Test item description

### *Teste item descrição*

Figura 1 - Fluxograma de ensaios de módulos

1 MÓDULO  
(CONTROLE)

1 MÓDULO  
(PROVA)



List of Test Samples:

*Lista de amostras:*

| Sample #<br><i>Amostra</i> | Model<br><i>Modelo</i> | S/N           | Remark<br><i>Observações</i> |
|----------------------------|------------------------|---------------|------------------------------|
| 1.                         | ERA Pro-72HCB575M      | AS22191204505 | Test<br><i>PROVA</i>         |
| 2.                         | ERA Pro-72HCB575M      | AS22191204504 | Control<br><i>Controlo</i>   |

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| <b>Test item description</b><br><i>Teste item descrição</i>  |   |                                       |
|--|---|---------------------------------------|
| Abbreviations:<br><i>Abreviaturas:</i>   |   |                                       |
| Pmax – Maximum power   | STC – Standard Test Conditions          | Voc – Open Circuit Voltage            |
| <i>Pmax- Potência máxima</i>   | <i>STC- Condições normais de ensaio</i> | <i>Voc –Circuito aberto de tensão</i> |
| Vmp – Maximum Power Voltage  | FF –Fill Factor                         | Imp – Maximum Power                   |
| Current  |   |                                       |
| <i>Vmp –Potência máxima</i>  | <i>FF- Enches o Factor</i>              | <i>Imp- Potência máxima actual</i>    |
| Isc – Short Circuit Current  | <i>Isc- Curto circuito atual</i>        |                                       |
| Possible test case verdicts:   |   |                                       |
| <i>Caso verdicts:</i>  |   |                                       |
| - test case does not apply to the test object.....   | N/A                                     |                                       |
| <i>O caso do teste não é aplicado ao teste object .....</i>  | <i>N/A</i>                              |                                       |
| - test object does meet the requirement .....  | P (Pass)                                |                                       |
| <i>O teste object conhece a requisição.....</i>  | <i>P (Passe isso)</i>                   |                                       |
| - test object does not meet the requirement.....   | F (Fail)                                |                                       |
| <i>- O teste object não conhece a requisição .....</i>   | <i>F (Não passou)</i>                   |                                       |
| -test case provides measured values.....   | —                                       |                                       |
| <i>- O caso de ensaio é um valor medido .....</i>  | <i>—</i>                                |                                       |
| Remarks:   |   |                                       |
| <i>Observações:</i>  |   |                                       |
| 1、 The test report only offers the conclusions for the tested items according to the relevant testing standards which are not included the conclusions of the untested items or performances.<br><i>O relatório de teste fornece as conclusões do projeto de teste com base apenas nos critérios de teste relevantes e não inclui conclusões de projetos não testados ou desempenho.</i> |   |                                       |
| 2、 The test report has two versions, one in English, the other in Portuguese. The English one is in priority.<br><i>O relatório de teste está disponível em duas versões, uma em inglês e outra em português. A grã - bretanha tem prioridade.</i>   |   |                                       |
| 3、 Notices, Statement and Subordinate Units of SQI are the parts of this report.<br><i>Notas, declarações e subordinados do SQI fazem parte deste relatório.</i>   |   |                                       |

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|   |  |          |
|---|--|----------|
| <b>4.1</b>  | <b>Visual inspection</b><br><b>INSPEÇÃO VISUAL</b>   | <b>P</b> |
| Test date [DD/MM/YYYY]<br><i>Data de realização dos testes [DD/MM/AAAA]</i> | 16/01/2024   | —        |
| Sample #<br><i>Amostra #</i>  | Nature and position of findings<br><i>Natureza e localização dos desvios</i>   | —        |
| 1   | No visual defects acc. to PORTARIA Nº 140, DE 21 DE MARÇO DE 2022<br><i>Sem Defeitos visuais de acordo com PORTARIA Nº 140, DE 21 DE MARÇO DE 2022</i> | <b>P</b> |
| Supplementary information: none<br><i>Informação suplementar: nenhuma</i>   |  |          |

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|   |   |  |  |  |  |  |  |  |
|---|---|--|--|--|--|--|--|--|
| <b>4.19.5</b>   |   | <b>Initial Stabilization</b><br><b>ESTABILIZAÇÃO INICIAL</b>   |  |  |  |  | <b>P</b>                                     |  |
| Light exposure method<br><i>Método de exposição à luz</i>   |   |  | <input type="checkbox"/> Solar simulator<br><i>Simulador solar</i> |  | <input checked="" type="checkbox"/> Natural sunlight<br><i>Luz solar natural</i> |  |  |  |
| Stabilization criterion x per IEC 61215-1-x<br><i>Critério de estabilização x por IEC 61215-1-x</i> |   |  | 1  |  |  |  |  |  |
| Sample #<br><i>Amostra #</i>  | 1   | Test date [DD/MM/YYYY] start-end<br><i>Data de realização dos testes</i><br><i>[DD/MM/AAAA] início/fim</i> |  |  | 16/01/2024-18/01/2024  |  |  |  |
| Test cycle<br><i>Ciclo de teste</i>   | Integrated irradiation (kWh/m <sup>2</sup> )<br><i>Irradiação integrada (kWh/m<sup>2</sup>)</i> | Irradiance (W/m <sup>2</sup> )<br><i>Irradiância (W/m<sup>2</sup>)</i>                                     | Module temperature (°C)<br><i>Temperatura do módulo(°C)</i>        | Resistive load<br><i>Carga resistiva</i> | P <sub>max</sub> (W) at the end of cycle<br><i>Pmax (W) no final do ciclo</i>    | (P <sub>max</sub> - P <sub>min</sub> ) / P <sub>average</sub> (%)<br><i>(Pmax - Pmin) / Paverage (%)</i> | Stable (Yes/No)<br><i>Estábulo (Sim/Não)</i> |  |
| Initial<br><i>Inicial</i>   | —   | —  | —  | —  | 577.96   | —  | —  |  |
| 1   | 5   | >500   | —  | MPPT                                     | 576.38   | —  | —  |  |
| 2   | 10  | >500   | —  | MPPT                                     | 577.22   | 0.13   | Yes  |  |
| Supplementary information: none<br><i>Informação suplementar: nenhuma</i>                           |   |  |  |  |  |  |  |  |



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| 4.2  |         | Maximum Power Determination<br><i>Determinação de Potência Máxima</i>            |   |         |          | P <sup>1</sup> |
|--|---------|--|---|---------|----------|----------------|
| Test date [DD/MM/YYYY]<br><i>Data de realização dos testes [DD/MM/AAAA]</i>  |         | 18/01/2024   |   |         |          | —              |
| Radiant Source<br><i>Radiante da fonte</i>   |         | <input checked="" type="checkbox"/> Solar Simulator<br><i>Do simulador Solar</i> | <input type="checkbox"/> Natural Sunlight<br><i>Natural de luz do sol</i> |         |          | —              |
| Module temperature [°C]<br><i>Temperatura do módulo [°C]</i>   |         | 25.0   |   |         |          | —              |
| Irradiance [W/m <sup>2</sup> ]<br><i>Irradiação [W/m<sup>2</sup>]</i>  |         | 1000   |   |         |          | —              |
| Sample #<br><i>Amostra #</i>   | Voc [V] | Vmp [V]  | Isc [A]   | Imp [A] | Pmax [W] | FF [%]         |
| 1  | 50.77   | 42.95  | 14.11   | 13.44   | 577.22   | 80.57          |
| <p>Supplementary information:<br/><i>Informação suplementar:</i></p> <p>Measurements were performed at standard test conditions (STC) with a flash light solar simulator class AAA acc. to IEC 61215-2:2021.<br/><i>As medições foram realizadas em condições padrão (STC) com um simulador solar de flash (flasher) classe AAA de acordo com a IEC 61215-2:2021.</i></p> <p>*measured graphs see IV curves in Photos of modules.<br/><i>*para os valores medidos ver curvas IV no Fotos dos módulos.</i></p> <p><sup>1</sup> The measured power of the PV module shall not be less than 100% or more than 105%.<br/><i><sup>1</sup>Os módulos não podem apresentar medida de potência menor que 100% ou maior que 105%.</i></p> <p>The measuring uncertainty of Pmax is <math>\leq \pm 2.1\%</math>.<br/><i>A incerteza de medição para Pmax é <math>\leq \pm 2.1\%</math>.</i></p> <p>The measuring uncertainty of Isc is <math>\leq \pm 2.0\%</math>.<br/><i>A incerteza de medição para Isc é <math>\leq \pm 2.0\%</math>.</i></p> <p>The measuring uncertainty of Voc is <math>\leq \pm 0.8\%</math>.<br/><i>A incerteza de medição para Voc é <math>\leq \pm 0.8\%</math>.</i></p> <p>Measuring uncertainty includes spectral mismatch error.<br/><i>A incerteza de medição inclui os erros por desvios no espectro.</i></p> |         |  |   |         |          |                |

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| 4.3   |                     | Insulation test<br><i>Teste de isolamento</i> |                           |  |                               | P                                |
|---|---------------------|---|---------------------------|--|-------------------------------|----------------------------------|
| Test date [DD/MM/YYYY]<br><i>Data de realização dos testes [DD/MM/AAAA]</i>   |                     | 18/01/2024                                    |                           |  |                               | —                                |
| Maximum system voltage [V <sub>DC</sub> ]<br><i>Voltagem máxima do sistema [V<sub>DC</sub>]</i>   |                     | 1500  |                           |  |                               | —                                |
| High voltage applied [V <sub>DC</sub> ]<br><i>Alta tensão aplicada [V<sub>DC</sub>]</i>   |                     | 8000  |                           |  |                               | —                                |
| Insulation resistance measured at [V <sub>DC</sub> ]<br><i>Valor da medição da resistência de isolamento [V<sub>DC</sub>]</i>   |                     | 1500  |                           |  |                               | —                                |
| Sample #<br><i>Amostra #</i>  | Area<br><i>Área</i> | Required<br><i>Valores-limite</i>             | Measured<br><i>Medida</i> | Dielectric breakdown<br><i>Quebra dielétrica</i> |                               | Result*<br><i>Resultado</i><br>* |
|   | m <sup>2</sup>      | MΩ  | MΩ                        | Yes (description)<br><i>Sim (descrição)</i>      | No(description)<br><i>Não</i> |                                  |
| 1   | 2.58                | ≥15.5   | 31720                     | /  | No<br><i>Não</i>              | P                                |
| *Supplementary information: Minimum requirement acc. to the standard is 40.0 MΩ*m <sup>2</sup> .<br><i>*Informação suplementar: Os requisitos mínimos de acordo com a norma são 40.0 MΩ*m<sup>2</sup></i> |                     |   |                           |  |                               |                                  |

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| 4.15  |  | Wet leakage current test<br><i>Teste de fuga de corrente molhada</i> |                                   | P                            |
|---|--|--|-----------------------------------|------------------------------|
| Test date [DD/MM/YYYY]<br><i>Data de realização dos testes [DD/MM/AAAA]:</i>  |  | 18/01/2024   |                                   | —                            |
| Insulation resistance measured at [V <sub>DC</sub> ]<br><i>Valor da medição da resistência de isolamento [V<sub>DC</sub>]</i>   |  | 1500   |                                   | —                            |
| Solution temperature [°C]<br><i>Temperatura da solução [°C]</i>   |  | 22±2   | 20.5                              | —                            |
| Solution resistivity [Ω cm]<br><i>Resistencia da solução [Ω cm]</i>   |  | ≤3500  | 1392                              | —                            |
| Sample #<br><i>Amostra #</i>  | Area<br><i>Área</i><br>[m <sup>2</sup> ] | Required<br><i>Valores-limite</i><br>[MΩ]                            | Measured<br><i>Medida</i><br>[MΩ] | Result*<br><i>Resultado*</i> |
| 1   | 2.58                                     | ≥15.5  | 4920                              | P                            |
| *Supplementary information: Minimum requirement acc. to the standard is 40.0 MΩ*m <sup>2</sup> .<br><i>*Informação suplementar: Os requisitos mínimos de acordo com a norma são 40.0 MΩ*m<sup>2</sup></i> |  |  |                                   |                              |

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## Photos of modules

### *Fotos dos módulos*

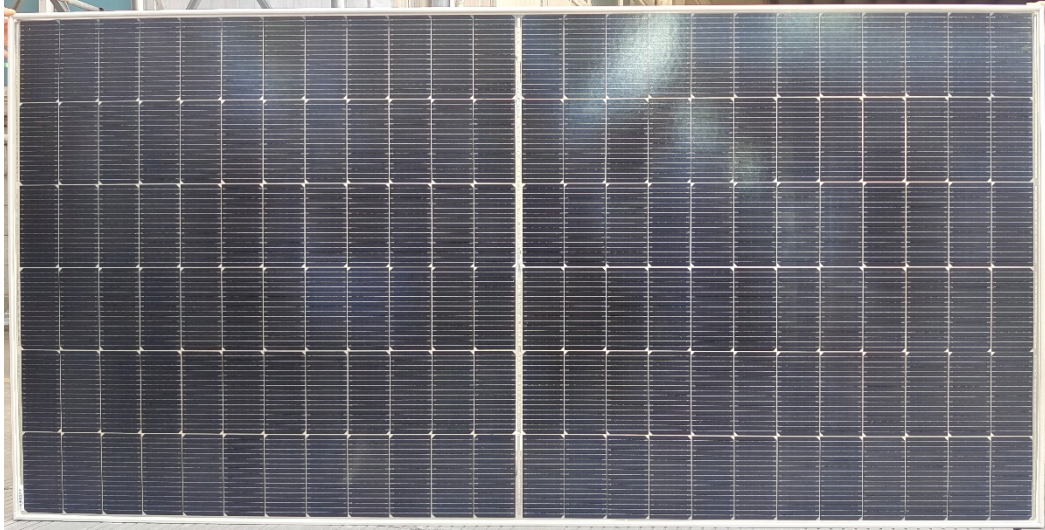


Fig. 1: Front view of module type ERA Pro-72HCB575M

*Fig. 1: Vista frontal do tipo de módulo ERA Pro-72HCB575M*

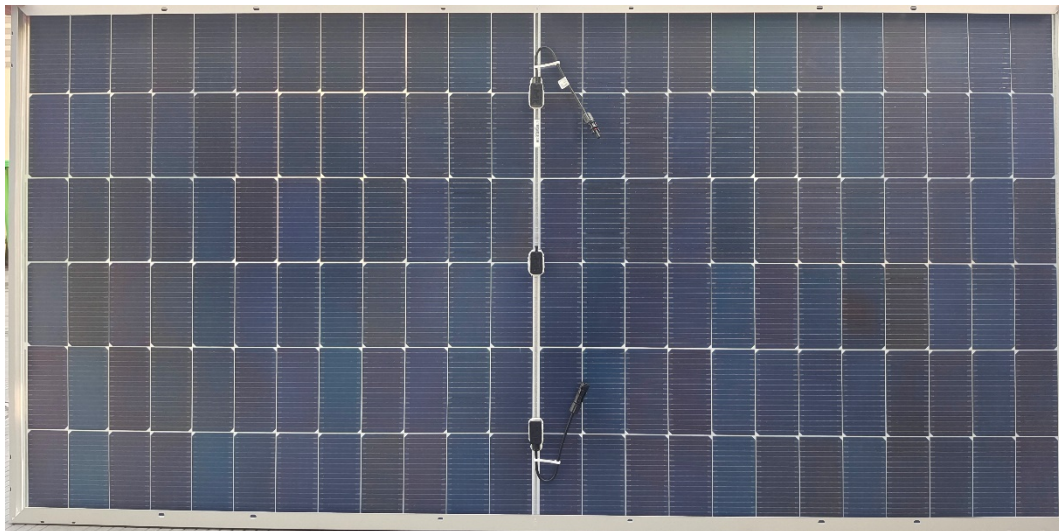


Fig. 2: Rear view of module type ERA Pro-72HCB575M

*Fig. 2: Vista da parte traseira do tipo de módulo ERA Pro-72HCB575M*

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## Photos of modules

### Fotos dos módulos

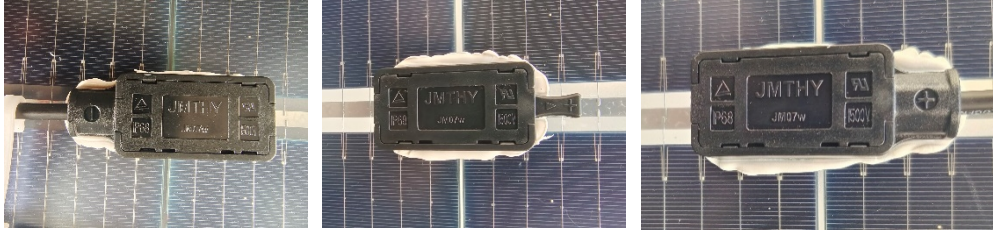


Fig. 3: View of junction box of module type ERA Pro-72HCB575M

Fig. 3: Vista detalhada da caixa de junção do tipo de módulo ERA Pro-72HCB575M

|  |                                  |                 |  |                                 |  |
|--|----------------------------------|-----------------|--|---------------------------------|--|
| <b>ERA</b><br><small>SOLAR</small><br>575 W monocristalino bifacial<br>Código ERA Pro-72HCB575M<br>Potência Máxima 575 W | Tensão em Pmax(Vmp)              | 42.37 V         | Eficiência   | 22,3% (222,6Wp/m <sup>2</sup> ) | ATENÇÃO: RISCO ELÉTRICO<br>Não conectar ou desconectar o sistema quando energizado.<br>Isso pode acarretar choque elétrico ou situações perigosas.<br>Fabricado na China |
|  | Corrente em Pmax(Imp)            | 13.57 A         | Maxima tensão do sistema                                 | 1500 V                          |  |
|  | Corrente de curto circuito (Isc) | 14.18 A         | Classe de aplicação                                      | Classe A                        |  |
|  | Tensão de circuito aberto (Voc)  | 50.57 V         | Todas informações técnicas nas condições padrão de teste |                                 |  |
|  | Temperatura de operação          | -40 °C ~ +85 °C | AM: 1.5  | I: 1000 W/m <sup>2</sup>        |  |
| Dimensões  | 2278×1134×35 mm                  |                 |  |                                 |  |

Fig. 4: View of type label of module type ERA Pro-72HCB575M

Fig. 4: Vista detalhada da placa de características do tipo de módulo ERA Pro-72HCB575M

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Electroluminescence images

*Imagens de eletroluminescência*

Analysis of electroluminescence images with respect to micro cracks (EL photos)

*Análise de imagens de eletroluminescência referente a Microfissuras*

|   |   |                                |
|---|---|--------------------------------|
| Test date [DD/MM/YYYY]  |   | 16/01/2024                     |
| <i>Data de realização dos testes [DD/MM/AAAA]</i>                         |   |                                |
| Sample #<br><i>Amostra #</i>  | Reverse current applied [A]<br><i>Corrente inversa aplicada [A]</i> | Attributes<br><i>Atributos</i> |
| 1   | Isc ± 5%  | N/A                            |
| Supplementary information: none<br><i>Informação suplementar: nenhuma</i> |   |                                |

# Test Report

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Shanghai Institute of Quality Inspection and Technical Research

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## Energy efficiency class

### Classe de eficiência energética

| Sample #<br>Amostra # | Module width<br>Largura do módulo<br>[mm] | Module length<br>Comprimento do módulo<br>[mm] | Module area<br>área módulo<br>[m <sup>2</sup> ] | Module power<br>potência módulo<br>[W] | Module efficiency<br>eficiência do módulo<br>[%] |
|-----------------------|---|--|---|--|--|
| 1                     | 1134                                      | 2278   | 2.58  | 575                                    | 22.3   |

Supplementary information: \*see rating label in Photos of modules

Informação suplementar: \*Ver a etiqueta de classificação no Fotos dos módulos

| Sample #<br>Amostra # | Module type<br>Tipo de módulo | Module efficiency<br>eficiência do módulo<br>[%] | Energy efficiency class<br>Classe de eficiência energética |
|-----------------------|-------------------------------|--|--|
| 1                     | ERA Pro-72HCB575M             | 22.3   | A  |

Supplementary information: none

Informação suplementar: nenhuma

### Energy efficiency classes

#### Classe de Eficiência Energética

A  $\geq$  20.0%

18.0%  $\leq$  B < 20.0%

16.0%  $\leq$  C < 18.0%

14.0%  $\leq$  D < 16.0%

E < 14.0%

# Test Report

## Figures números

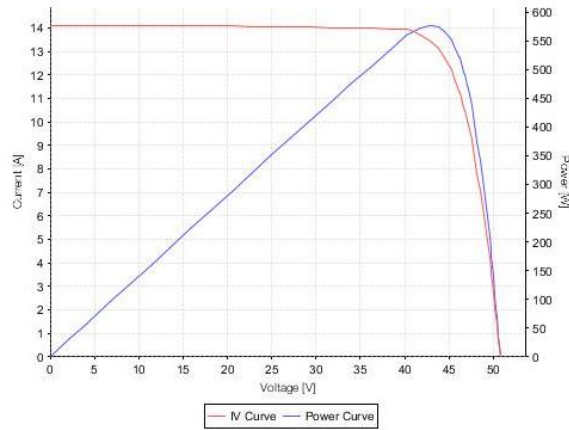


Fig. 5 IV curve of module No.1 Serial number: AS22191204505

Fig. 5 IV curva de módulo No.1 Número de série: AS22191204505

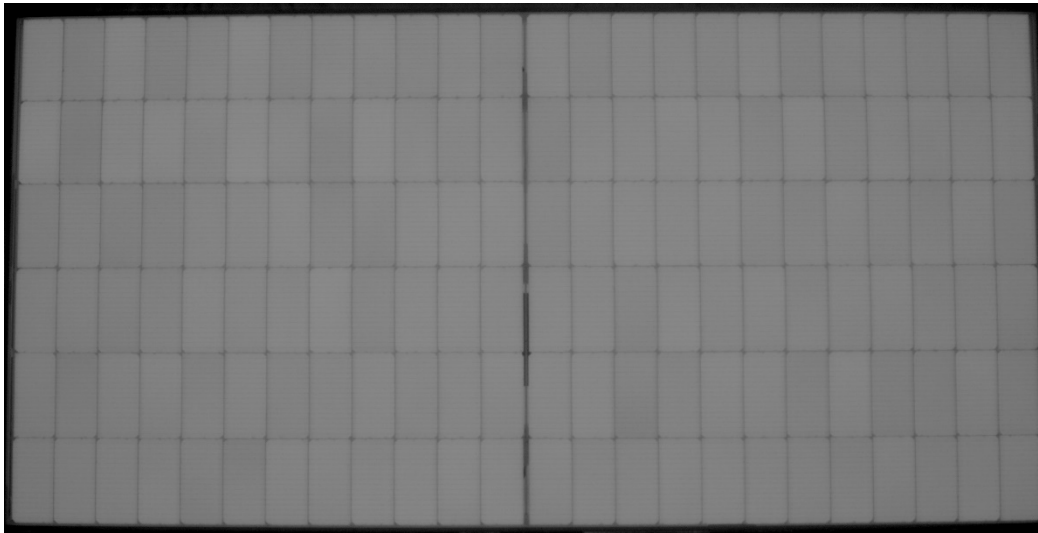


Fig. 6 EL photo of module No.2 Serial number: AS22191204505

Fig. 6 EL fotografia de módulo No.2 Número de série: AS22191204505



# Test Report

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## List of measurement equipment Lista de equipamentos de medição

| Clause Item | Measurement / testing<br>Ensaio/<br>Procedimentos                    | Testing / measuring equipment / material used, (Equipment ID)<br>Equipamento / material de teste / medição usado (ID do dispositivo) | Range used<br>Escopo a ser usado | Last Calibration date<br>Data da última calibração | Calibration due date<br>Data de expiração da calibração |
|-------------|--|--|----------------------------------|--|---|
| MQT 01      | Visual Inspection<br>Inspeção Visual                                 | Digital illuminometer<br>Fotômetro digital<br>DZ-B-A1-0200   | 0~2000lux                        | 2023-02-08   | 2024-02-07  |
|             |  | Band tape<br>Fita métrica<br>DZ-B-A1-0014  | 3.5m                             | 2021-09-02   | 2024-09-01  |
| MQT 19.1    | Initial Stabilization<br>Estabilização Inicial                       | Pulse solar simulator<br>Simulador solar pulsado<br>DZ-A-A2-0022   | 200~1200W/m <sup>2</sup>         | 2023-09-21   | 2024-09-20  |
| MQT 03      | Insulation test<br>Teste de isolamento Elétrico                      | Insulation tester<br>Resistor de isolamento<br>DZ-A-A1-0258  | 0~6kV,<br>1~50GΩ                 | 2023-07-05   | 2024-07-04  |
|             |  | Withstand voltage tester<br>Testador de tensão suportável<br>DZ-A-A1-0238  | 0~10kV                           | 2023-02-15   | 2024-02-14  |
| MQT 02      | Maximum Power Determination<br>Determinação de Potência Máxima       | Pulse solar simulator<br>Simulador solar pulsado<br>DZ-A-A2-0022   | 200~1200W/m <sup>2</sup>         | 2023-09-21   | 2024-09-20  |
|             |  | Reference module<br>Módulo de referência<br>DZ-B-A2-0102   | 210mm Cell                       | 2023-02-17   | 2024-02-16  |
| MQT 15      | Wet leakage current<br>Resistência de Isolamento em Condições Úmidas | Insulation tester<br>Resistor de isolamento<br>DZ-A-A1-0258  | 0~6kV,<br>1~50GΩ                 | 2023-07-05   | 2024-07-04  |
|             |  | Conductivity meter<br>Medidor de condutividade<br>DZ-B-A2-0055   | 0μS/cm~100mS/cm,<br>0.0~60.0 °C  | 2023-06-08   | 2024-06-07  |
| /           | EL image<br>Imagens de eletroluminescência                           | EL camera<br>Câmera de eletroluminescência<br>DZ-A-A1-0274   | /                                | 2019-08-27   | 2029-08-26  |
|             |  | Power supply<br>Fonte de alimentação cc<br>DZ-A-A1-0009  | 160V 50A                         | 2024-01-02   | 2025-01-01  |

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