



RELATÓRIO DE TESTE

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

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

Relatório de referência nº: SHES230601056171-02
Data de emissão: Jun. 13, 2023
Número total de páginas: 22
Laboratório de testes: SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Endereço: 588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Nome do requerente: LUXEN SOLAR ENERGY CO., LTD.
Endereço: No. 1, Haiyue Road, Suxitong Technologies & Industries Park, Nantong City, Jiangsu Province, P. R. China
Especificação de teste: Cláusula MQT 01, MQT 02, MQT 03, MQT 15 da IEC 61215-2:2016
Descrição do item de teste.....: Módulo(s) fotovoltaico(s) (PV)
Marca comercial: 

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

Referência de modelo/tipo: LNET-670M,
 LNET-665MD,
 LNET-690ND

Classificações: Consulte a placa de marcação da amostra



Assinatura

Testado por: Janine Tian



Assinatura

Aprovado por: Van Hua



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Lista de testes realizados

Item de teste	Requisito + Teste	Resultado	Veredito
1	Inspeção visual	Ver Tabela 1	P
2	Determinação de potência máxima	Ver Tabela 2	P
3	Teste de isolamento	Ver Tabela 3	P
4	Teste de corrente de fuga úmida	Ver Tabela 4	P

O pré-condicionamento foi realizado com uma dose de irradiância de 5.0 kWh/m².



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Resumo do teste

As amostras enviadas são testadas de acordo com a Cláusula MQT 01, MQT 02, MQT 03, MQT 15 da IEC 61215-2: 2016. Os resultados do teste estão presentes neste relatório de teste.

Testes realizados (nome do teste e cláusula do teste):

IEC 61215-2-2016:
 Inspeção visual (MQT 01)
 Desempenho em STC (MQT 02)
 Teste de isolamento (MQT 03)
 Teste de corrente de fuga úmida (MQT 15)

Local do teste:

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

Cópia da placa de marcação/dispositivo em teste:

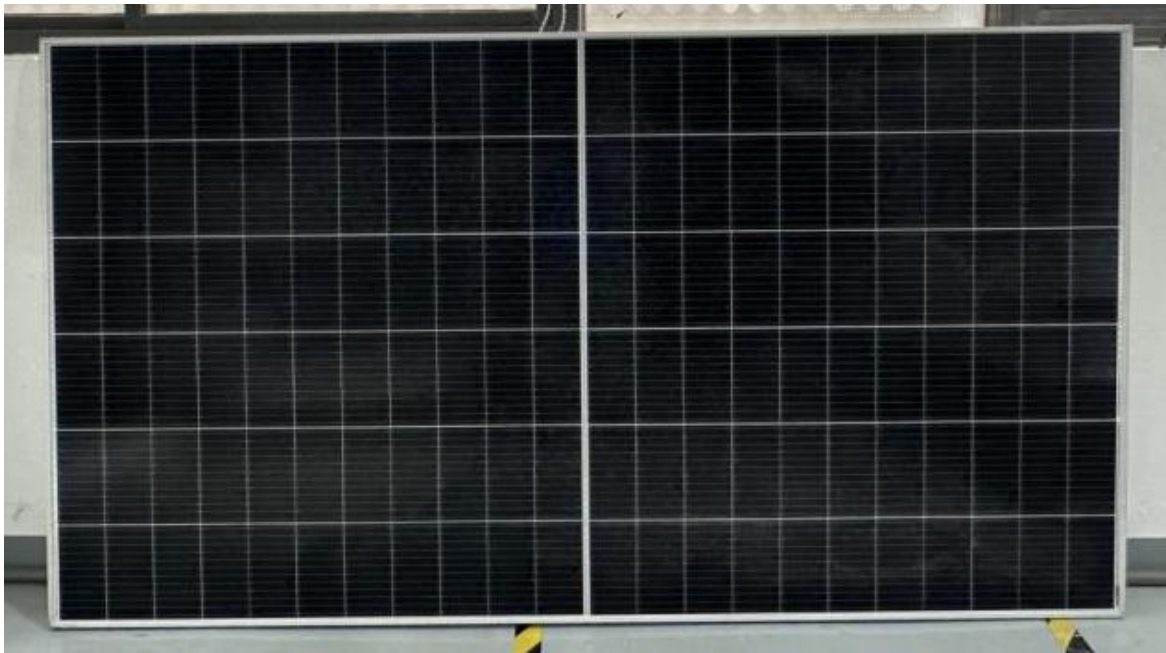
Tipo de Módulo: LNET-670M



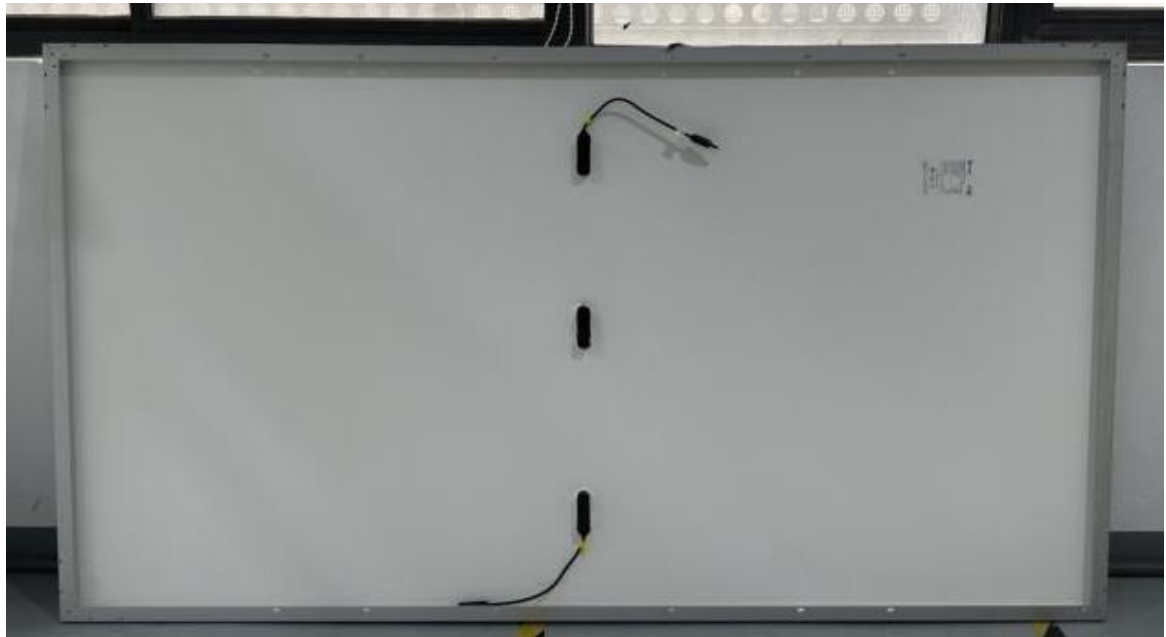
Placa de marcação da Amostra



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Vista frontal da amostra

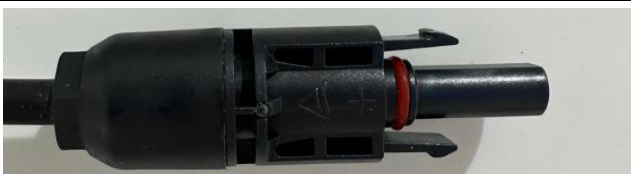


Vista traseira da amostra



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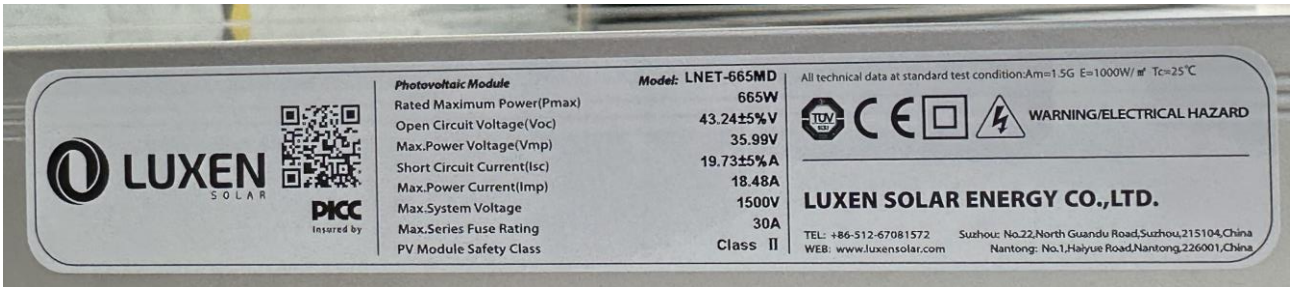


Conector



Caixa de Junção

Tipo de Módulo: LNET-665MD



Placa de marcação da Amostra



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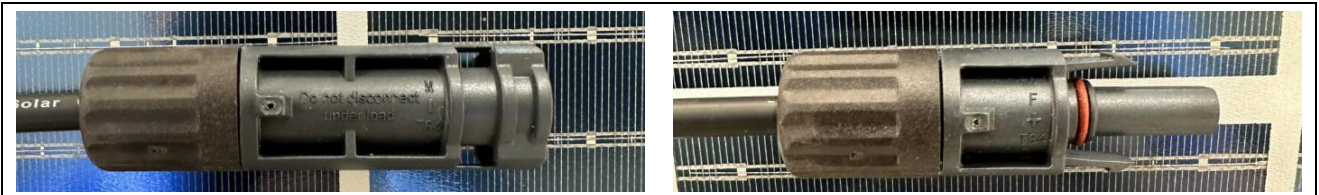
Vista frontal da amostra



Vista traseira da amostra



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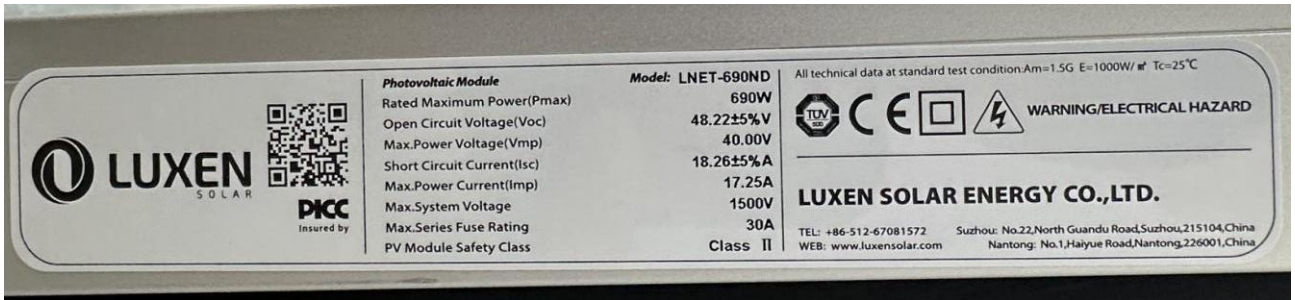


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Tipo de Módulo: LNET-690ND



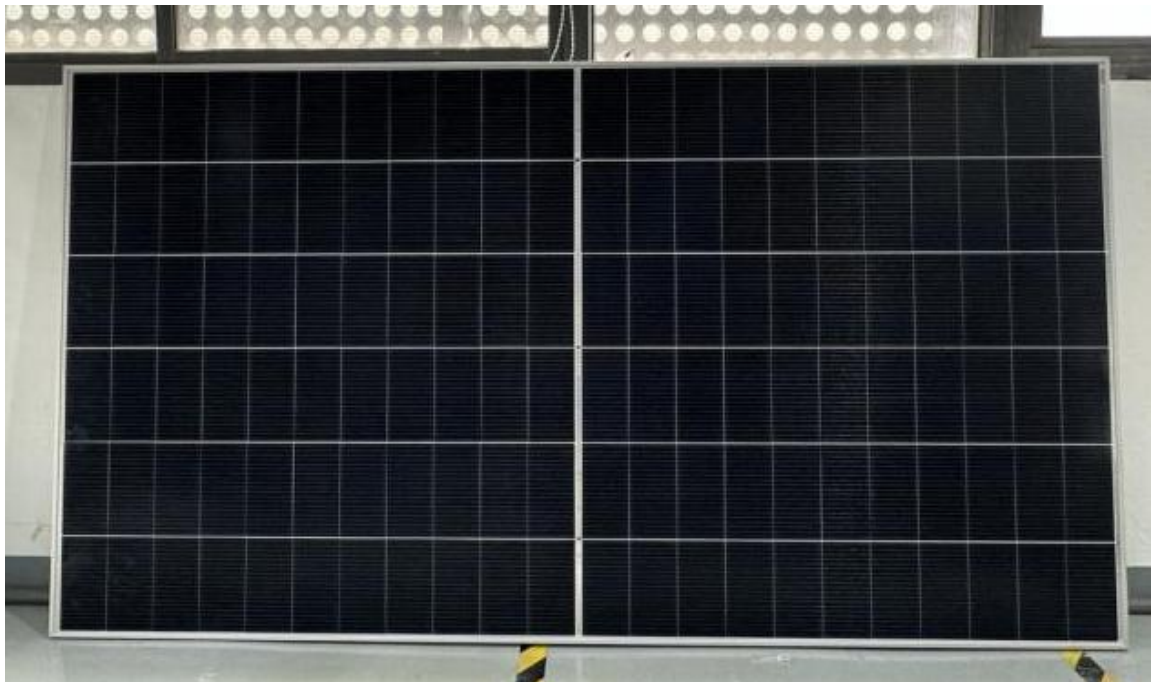
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Vista frontal da amostra



Vista traseira da amostra



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Possíveis veredictos de caso de teste			
- O caso de teste não se aplica ao objeto de teste ... :	N/D		
- O objeto de teste atende ao requisito :	Passou (P)		
- O objeto de teste não atende ao requisito :	Falha (F)		
Observações gerais			
<p>Os resultados do teste apresentados neste relatório referem-se apenas ao objeto testado. Este relatório não deve ser reproduzido, exceto na íntegra, sem a aprovação por escrito do laboratório de testes Emissor. "(Consulte o Anexo #)" refere-se a informações adicionais anexadas ao relatório. "(Veja a tabela anexa)" refere-se a uma tabela anexada ao relatório. Ao longo deste relatório, é usado um ponto como separador decimal. A lista de equipamentos de teste deve ser mantida em arquivo e disponível para revisão. Este documento é emitido pela empresa de acordo com as suas Condições Gerais de Serviço, acessíveis em http://www.sgs.com/terms_and_conditions.htm. Chama-se a atenção para as questões de limitação de responsabilidade, indenização e jurisdição aqui definidas. Qualquer titular deste documento é avisado de que as informações aqui contidas refletem as conclusões da Empresa no momento de sua intervenção apenas e dentro dos limites das instruções do Cliente, caso existam. A única responsabilidade da Empresa é para com o seu Cliente e este documento não exonera as partes de uma transação de exercer todos os seus direitos e obrigações nos termos dos documentos da transação. Qualquer alteração não autorizada ou falsificação do conteúdo ou aparência deste documento é ilegal e os infratores podem ser processados em toda a extensão da lei. Salvo indicação em contrário: (a) os resultados mostrados neste documento referem-se apenas à(s) amostra(s) testada(s) e (b) tal(is) amostra(s) é(são) retida(s) por 30 dias. Este documento não pode ser reproduzido, exceto na íntegra, sem autorização prévia da empresa. Conteúdos: 1) O relatório principal 2) Apêndice 1: Lista de equipamentos de medição 3) Apêndice 2: Declaração da incerteza estimada dos resultados do teste</p>			
Informações gerais do produto			
O produto é um módulo fotovoltaico (PV).			
Descrição da construção modular			
Modelo	Tipo de Célula	Nº de células	Dimensão [mm]
LNET-670M	Mono-crystalline	132	2384x1303x35
LNET-665MD	Mono-crystalline	132	2384x1303x35
LNET-690ND	Mono-crystalline	132	2384x1303x35
Dados Técnicos			



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Tipo/Modelo	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	Tensão Máx. do Sistema [V]
LNET-670M	45.71	38.22	18.78	17.53	670	1500
LNET-665MD	43.24	35.99	19.73	18.48	665	1500
LNET-690ND	48.22	40.00	18.26	17.25	690	1500
Tipo/Modelo	eficiência do módulo [%]		Classe de eficiência energética			
LNET-670M	21.57		A			
LNET-665MD	21.41		A			
LNET-690ND	22.21		A			
Informação suplementar: Eficiência Energética > 13.5%: Classe A.						
Classe de Eficiência Energética	A > 13.5%					
	13% < B ≤ 13.5%					
	12% < C ≤ 13%					
	11% < D ≤ 12%					
	E < 11%					



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1. Procedimento de amostragem

<input type="checkbox"/> Amostragem aleatória da produção (por ex. durante auditoria de fábrica (FA) ou inspeção em linha)
<input type="checkbox"/> Amostragem aleatória do armazém, contêiner ou caixas de transporte
<input checked="" type="checkbox"/> Os módulos foram enviados pelo fabricante/cliente sem amostragem aleatória pela SGS

2. Amostra de teste

Amostra #	Tipo de Modelo	Número de Série
01	LNET-670M	2960639192201091
02		2960639192201093
03	LNET-665MD	M01220800449306
04		M01220800458634
05	LNET-690ND	SO23062YC018118
06		SO23062YC018212

3. Especificação e resultado do teste

TABELA 1: MQT 01 Inspeção visual		
Data do Teste [AAAA-MM-DD] :	2023-06-08	—
Amostra #	Natureza e posição das descobertas iniciais	Veredito
01	Sem grandes defeitos visuais	P
02	Sem grandes defeitos visuais	P
03	Sem grandes defeitos visuais	P
04	Sem grandes defeitos visuais	P
05	Sem grandes defeitos visuais	P
06	Sem grandes defeitos visuais	P
Informação suplementar: N/D		

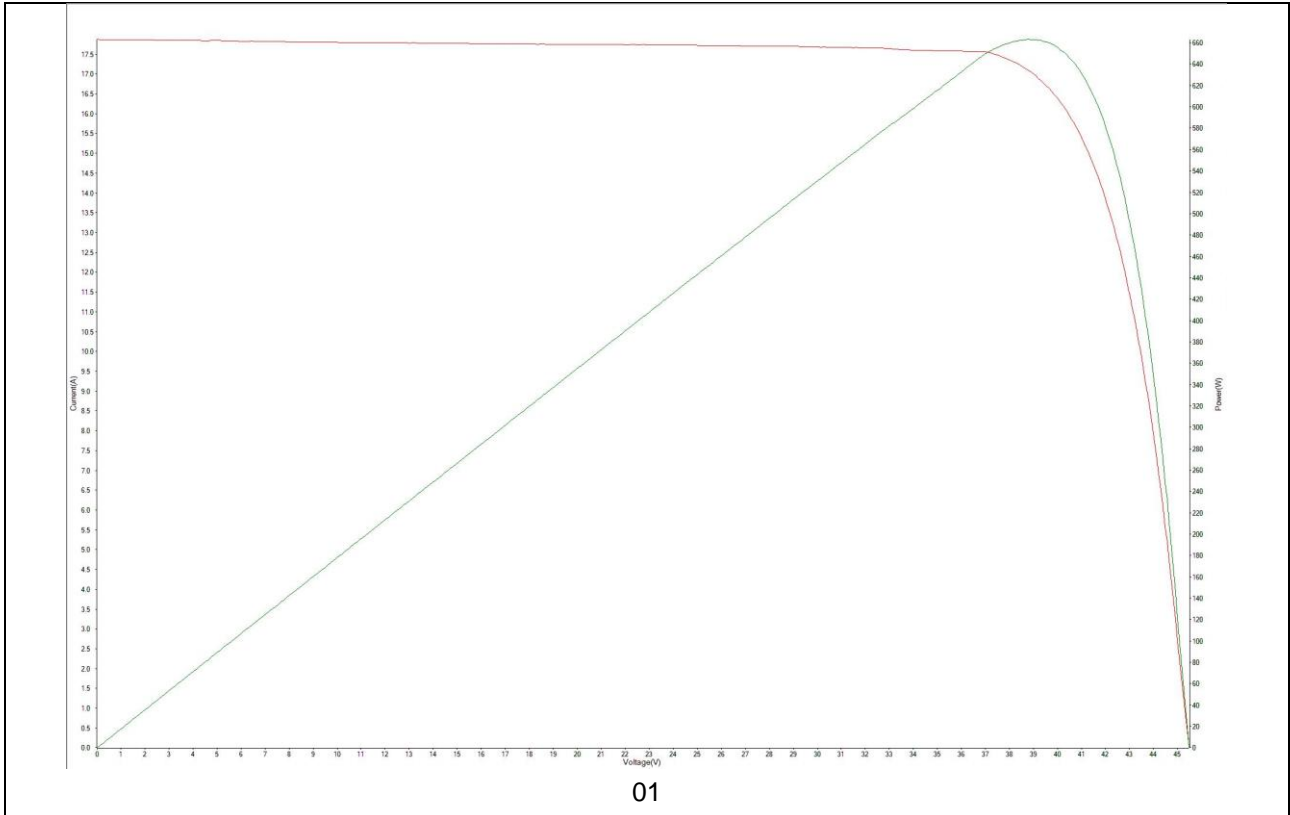


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TABELA 2: MQT 02 Determinação de potência máxima						
Data do Teste [AAAA-MM-DD]..... :		2023-06-08			—	
Método de Teste		<input checked="" type="checkbox"/> interior		<input type="checkbox"/> exterior		—
Temperatura do módulo [°C]:		Corrigida para 25.0			—	
Irradiância [W/m ²]..... :		Corrigida para 1000			—	
Amostra #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]
01	45.47	38.87	17.87	17.06	663.1	81.58
02	45.44	38.82	17.86	17.04	661.6	81.51
03-F	45.76	38.60	17.82	17.05	658.1	80.71
03-B	45.25	39.01	12.85	11.67	455.4	78.32
04-F	45.81	38.49	17.89	17.08	657.6	80.25
04-B	45.18	38.90	12.84	11.68	454.5	78.32
05-F	46.81	39.16	17.98	17.10	669.7	79.58
05-B	46.49	39.45	13.71	12.66	499.4	78.34
06-F	46.92	39.11	18.04	17.18	671.9	79.36
06-B	46.43	39.38	13.71	12.67	498.9	78.36
Curva IV:						



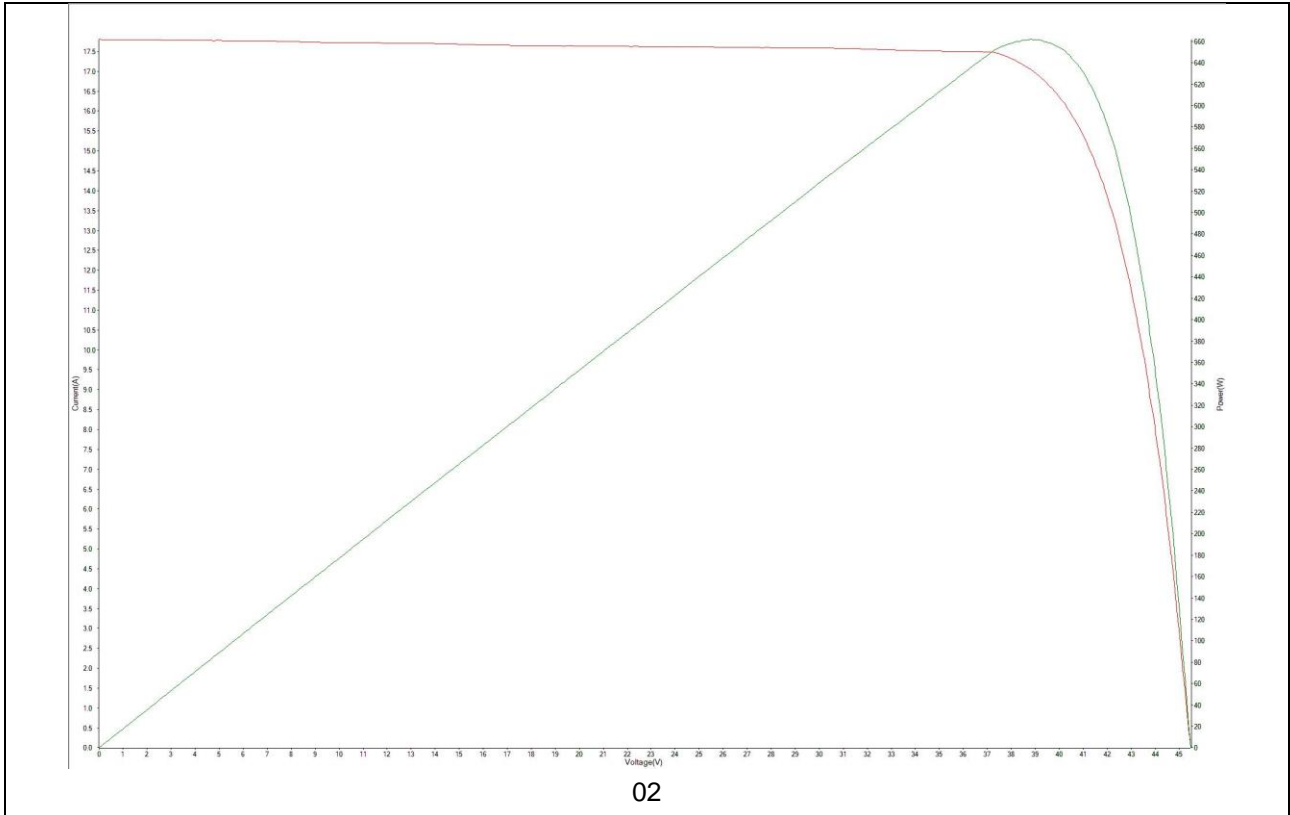
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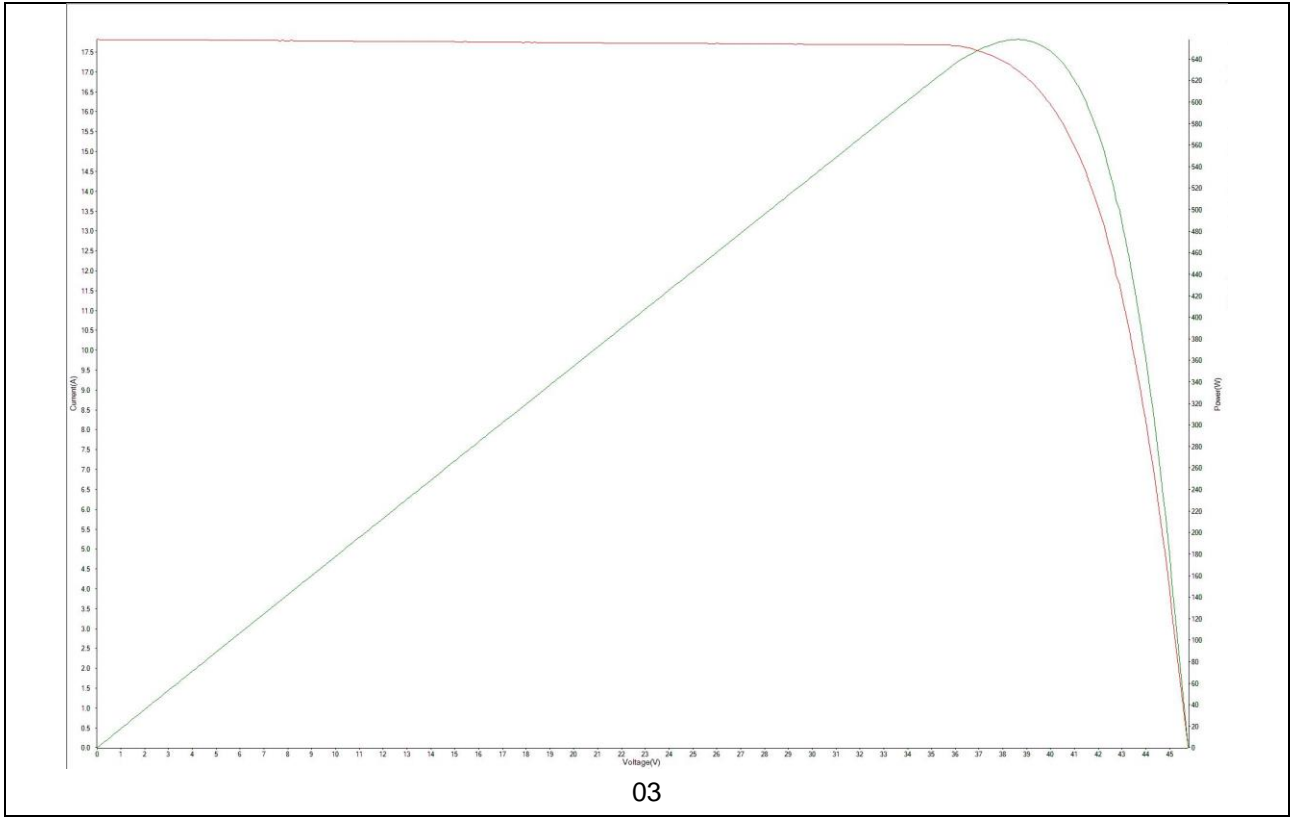
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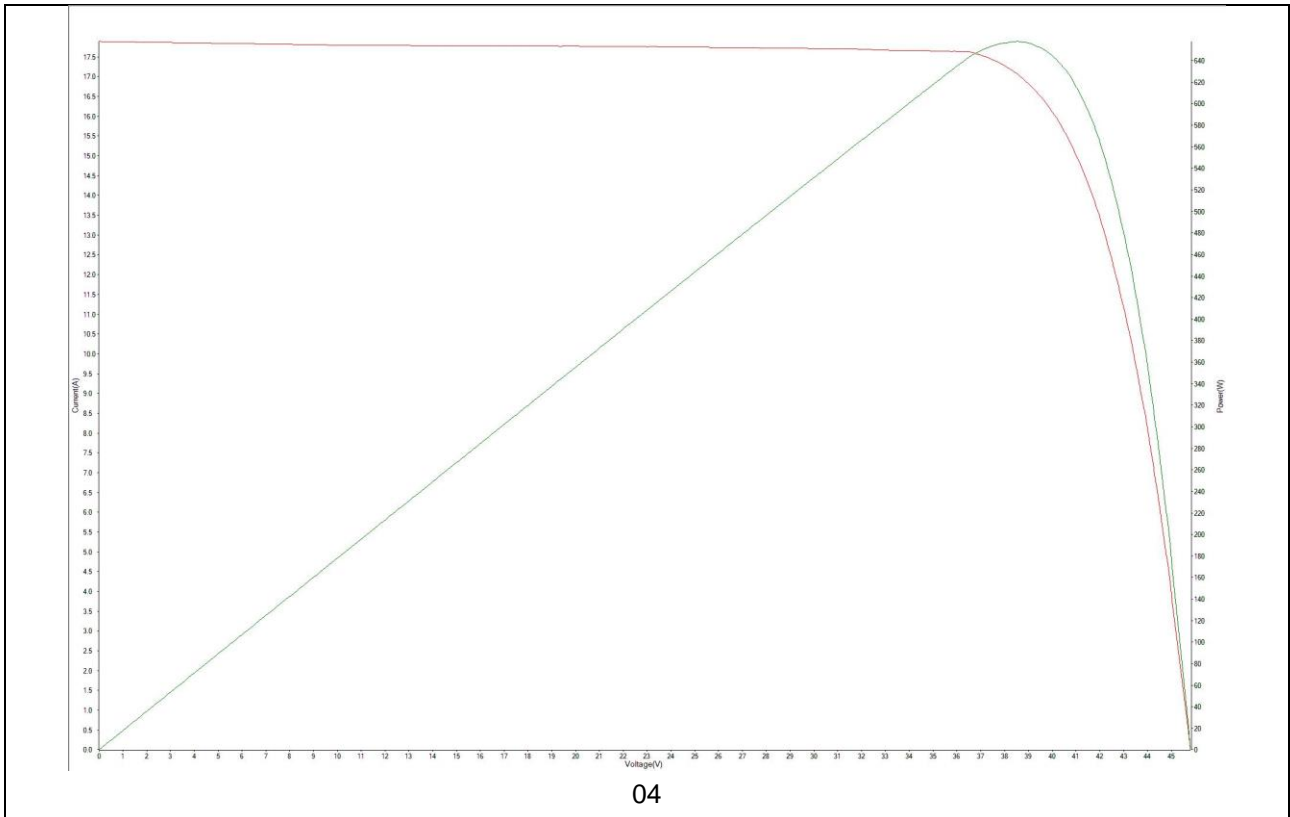
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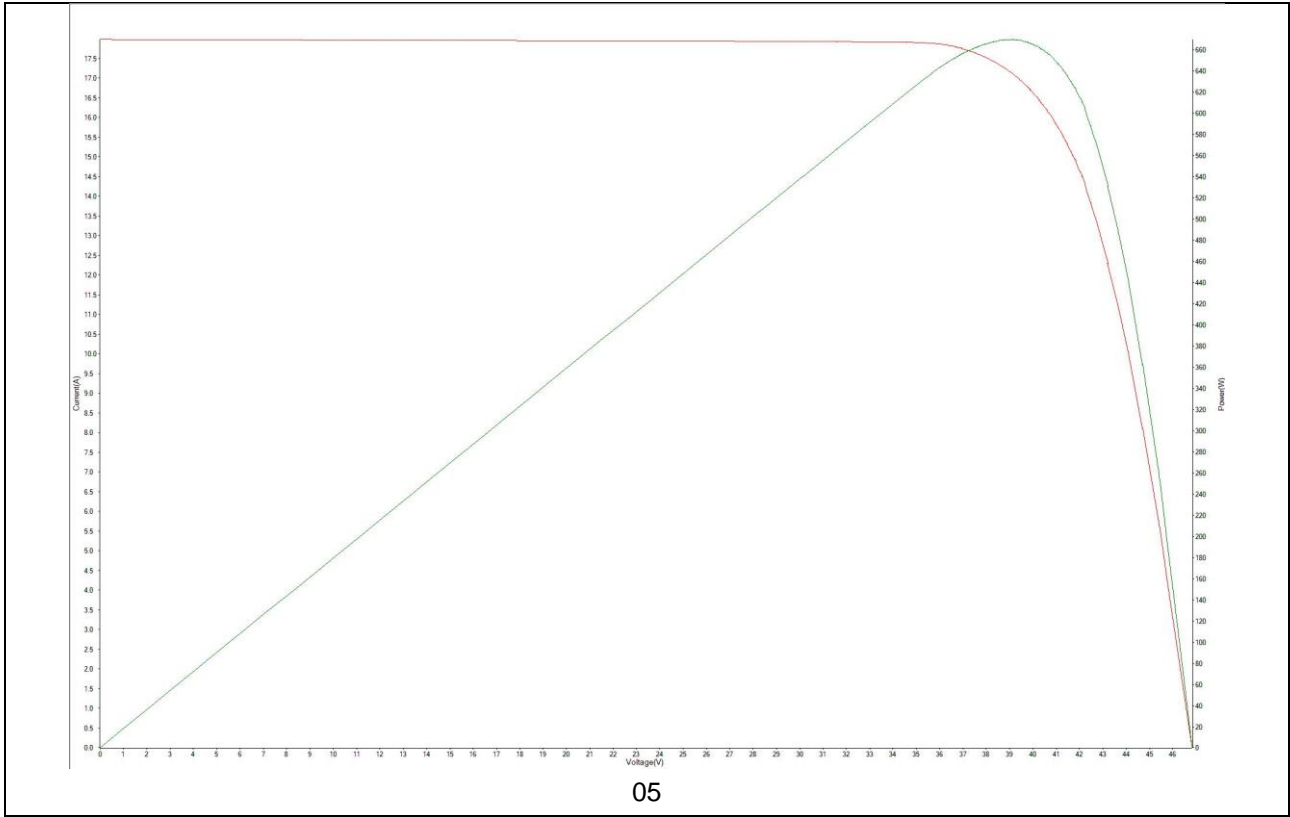
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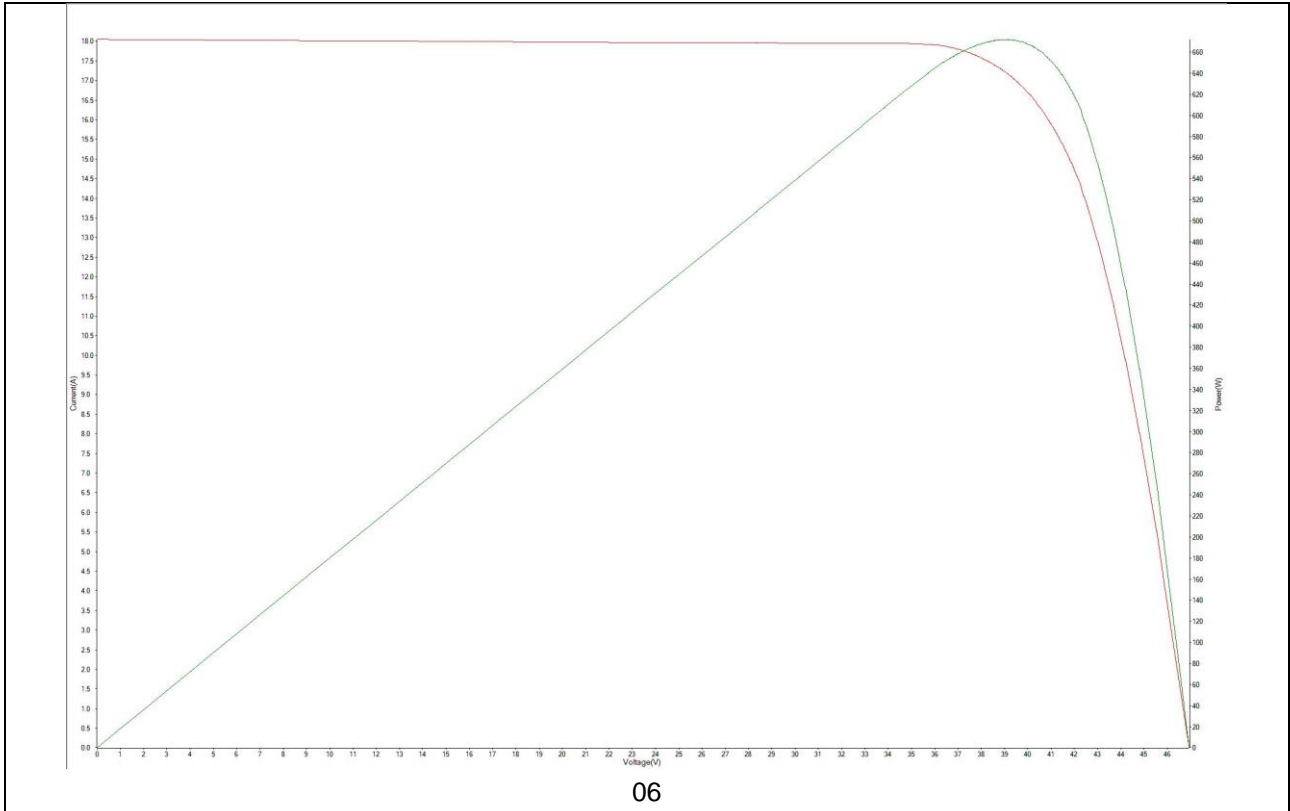
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Informação suplementar: Consulte o Apêndice 2: Declaração da incerteza estimada dos vereditos do teste. A discrepância entre o valor de potência rotulado e o valor medido não deve exceder o limite de -5%~10%.

TABELA 3: MQT 03 Teste de isolamento

Data do Teste [AAAA-MM-DD].... :		2023-06-09		—	
Tensão de Teste aplicada [V]		4000V 1min/1500V 2min		—	
Tamanho do módulo [m²]..... :		3.11		—	
Amostra #	Medido	Resistência Requerida	Quebra dielétrica		Resultado
			MΩ	MΩ	
01	27493	≥12.86	—	Não	P
02	25796	≥12.86	—	Não	P
03	25765	≥12.86	—	Não	P
04	27846	≥12.86	—	Não	P
05	22104	≥12.86	—	Não	P



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06	19590	≥12.86	—	Não	P
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Informação suplementar: O requisito mínimo de acordo com IEC 61215:2016 é 40 MΩ *m².

TABELA 4: MQT 15 Teste de corrente de fuga úmida

Data do Teste [AAAA-MM-DD]	2023-06-09	—	
Tensão de Teste aplicada [V]	1500V 2min	—	
Resistividade da solução [Ω cm]	1967	—	
Temperatura da solução [°C]:	24.2	—	
Tamanho do módulo [m ²].....	3.11	—	
Amostra #	Resistência Requerida [MΩ]	Medido [MΩ]	Resultado
01	≥12.86	11475	P
02	≥12.86	14285	P
03	≥12.86	15969	P
04	≥12.86	13683	P
05	≥12.86	12072	P
06	≥12.86	13304	P

Informação suplementar: O requisito mínimo de acordo com IEC 61215:2016 é 40 MΩ *m².



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Apêndice 1: Lista de equipamentos de medição

Cláusula	Medição/teste	Teste/equipamento de medição/material usado	ID do Equipamento	Data de vencimento da calibração
4.1 10.2	Inspeção visual	Luminômetro	PM6612L	2024.02.13
4.3 10.13	Teste de isolamento	Testador de resistência à tensão/isolamento	GCYQ-AG-18	2023.08.18
4.6	Desempenho em STC	Simulador Solar Pulsado	GIV-20A2616	2023.08.02
4.15 10.14	Teste de corrente de fuga úmida	Testador de resistência à tensão/isolamento	GCYQ-AG-18	2023.08.18
		Medidor condutor	GCYQ-AG-07	2023.11.01

Apêndice 2: Declaração da incerteza estimada dos resultados do teste

A incerteza estimada cumpre os requisitos da folha de decisão CTL DSH 251B / 2009.

----- Fim do Relatório de Teste -----



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