



# TEST REPORT

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

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



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.  
Testing Center E&C Center Laboratory

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**Report reference no.** .....: SHES230601056071-01  
**Date of issue**.....: Jun. 13, 2023  
**Total number of pages** .....: 28  
**Testing laboratory** .....: SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.  
**Address** .....: 588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

**Applicant's name**.....: LUXEN SOLAR ENERGY CO., LTD.  
**Address** .....: No. 1, Haiyue Road, Suxitong Technologies & Industries Park, Nantong City, Jiangsu Province, P. R. China

**Test specification** .....: Clause MQT 01, MQT 02, MQT 03, MQT 15 of IEC 61215-2:2016

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

**Trade mark**.....: 

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

**Model/Type reference** .....: LNVU-550M, LNVU-555M,  
 LNVU-550MD, LNVU-555MD,  
 LNVU-575ND

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



Signature

Tested by: Janine Tian



Signature

Approved by: Van Hua



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**List of tests performed**

Test item	Requirement + Test	Result	Verdict
1	Visual inspection	See Table 1	P
2	Maximum power determination	See Table 2	P
3	Insulation test	See Table 3	P
4	Wet leakage current test	See Table 4	P

Pre-conditioning has been performed with an irradiance dose of 5.0 kWh/m<sup>2</sup>.



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### Summary of testing

Submitted samples are tested according to Clause MQT 01, MQT 02, MQT 03, MQT 15 of IEC 61215-2:2016. The test results are present within this test report.

#### Tests performed (name of test and test clause):

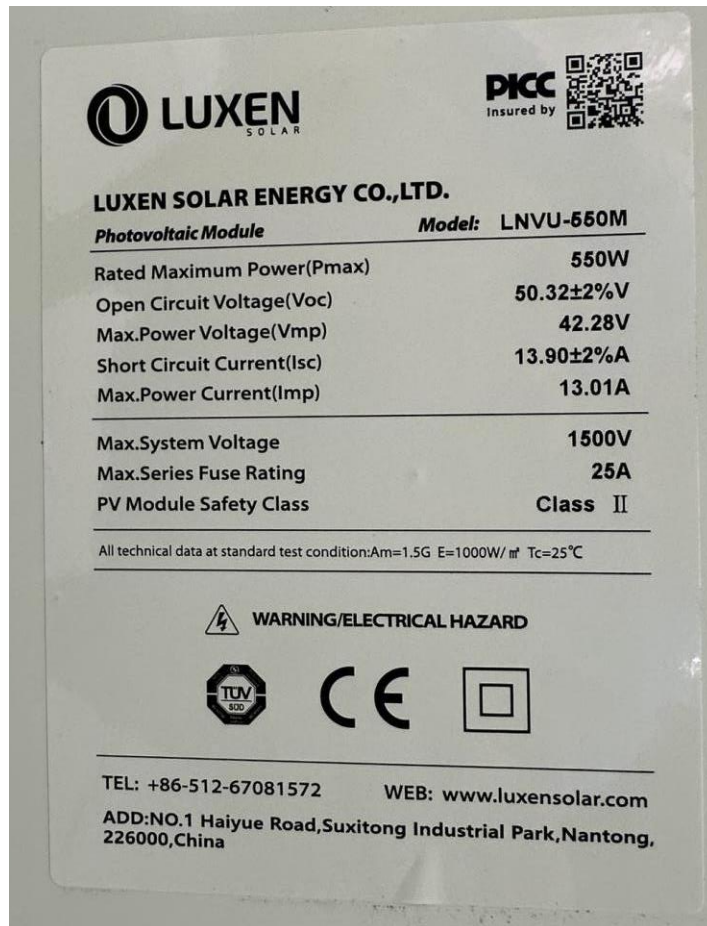
IEC 61215-2-2016:  
 Visual inspection (MQT 01)  
 Performance at STC (MQT 02)  
 Insulation test (MQT 03)  
 Wet leakage current test (MQT 15)

#### Testing location:

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

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

Module Type: LNVU-550M



Marking plate of Sample



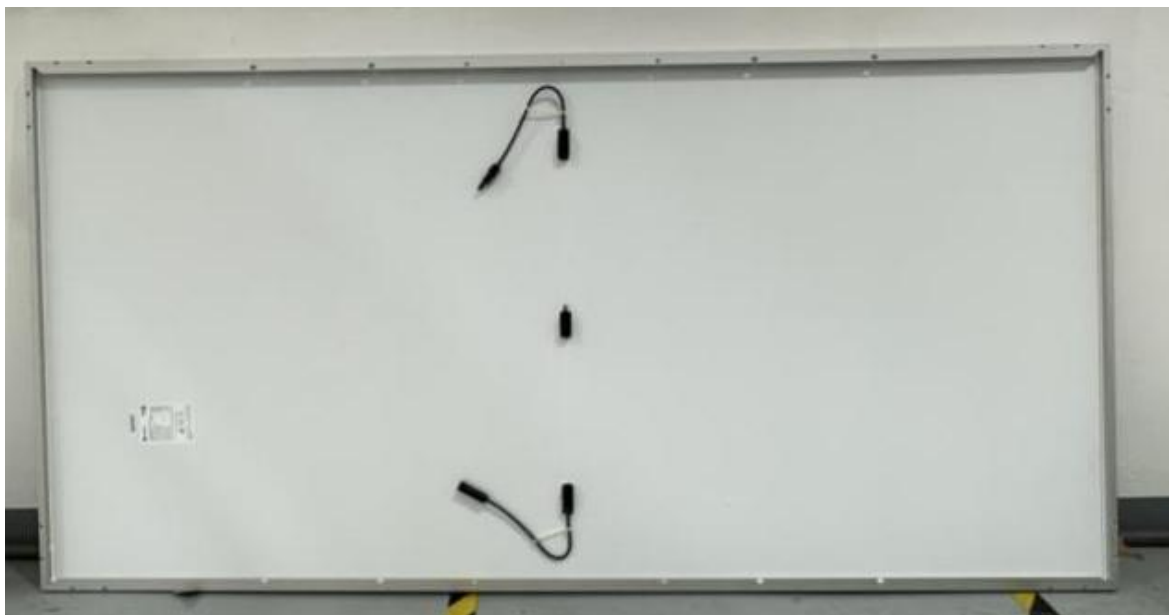
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 Testing Center E&C Division

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Front view of sample



Rear view of sample



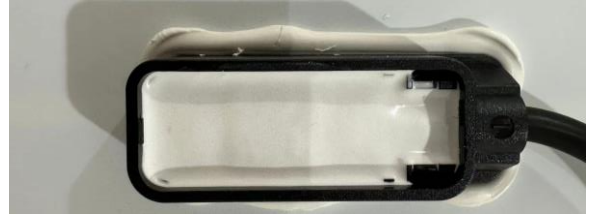
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Connector



Junction Box

**Module Type: LNVU-555M**







**LUXEN SOLAR ENERGY CO.,LTD.**

Photovoltaic Module	Model: LNVU-555M
Rated Maximum Power(Pmax)	555W
Open Circuit Voltage(Voc)	50.47±2%V
Max.Power Voltage(Vmp)	42.43V
Short Circuit Current(Isc)	13.97±2%A
Max.Power Current(Imp)	13.08A
Max.System Voltage	1500V
Max.Series Fuse Rating	25A
PV Module Fire Class	Class C

All technical data at standard test condition:Am=1.5G E=1000W/m² Tc=25°C

**⚡ WARNING/ELECTRICAL HAZARD**

Standard :IEC 61215:2016/IEC 61730:2016

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TEL: +86-512-67081572      WEB:www.luxensolar.com

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 Factory add: No.1 Haiyue Road, Sutong Technologies & Industries Park, 226001 Nantong City, Jiangsu Province, P.R.China.

Marking plate of Sample



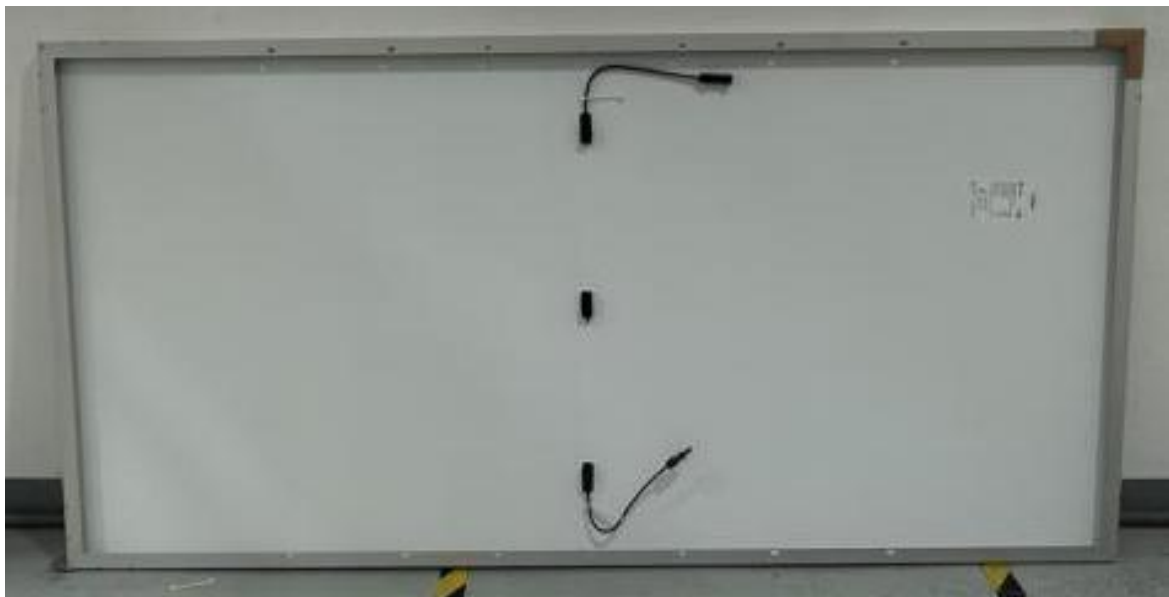
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Front view of sample



Rear view of sample



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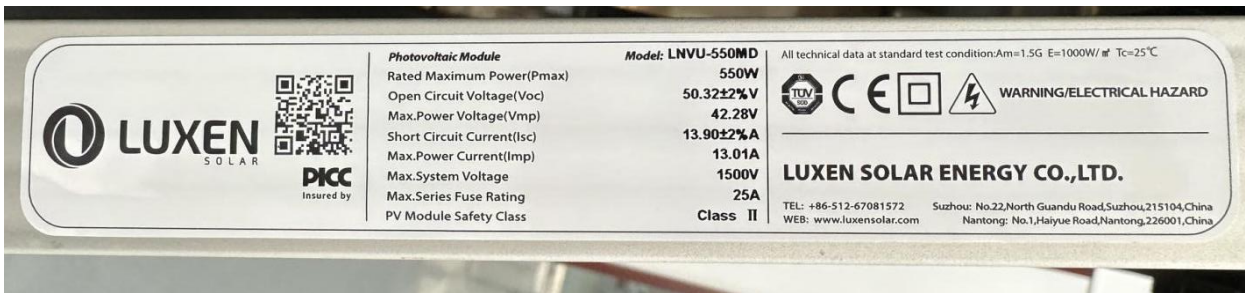


Connector

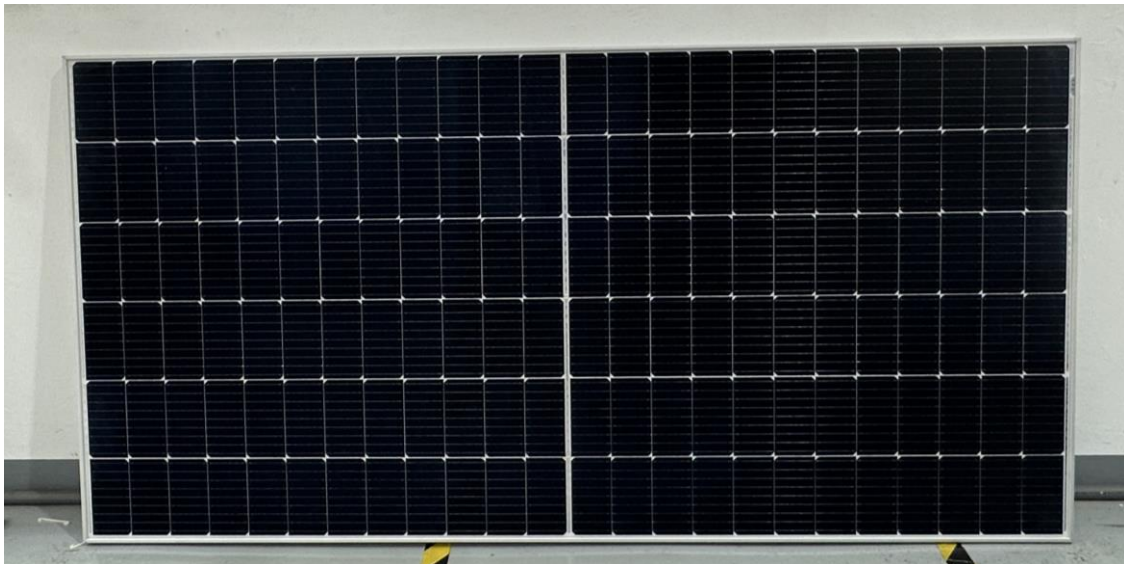


Junction Box

**Module Type: LNVU-550MD**



Marking plate of Sample



Front view of sample



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Rear view of sample

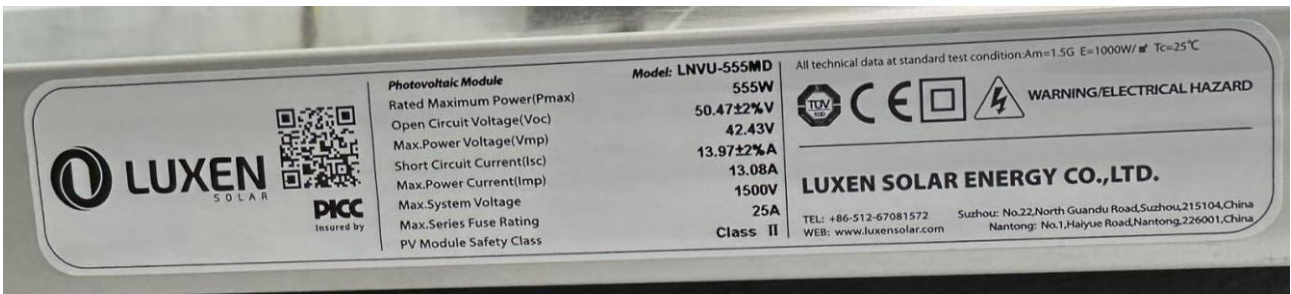


Connector



Junction Box

**Module Type: LNVU-555MD**



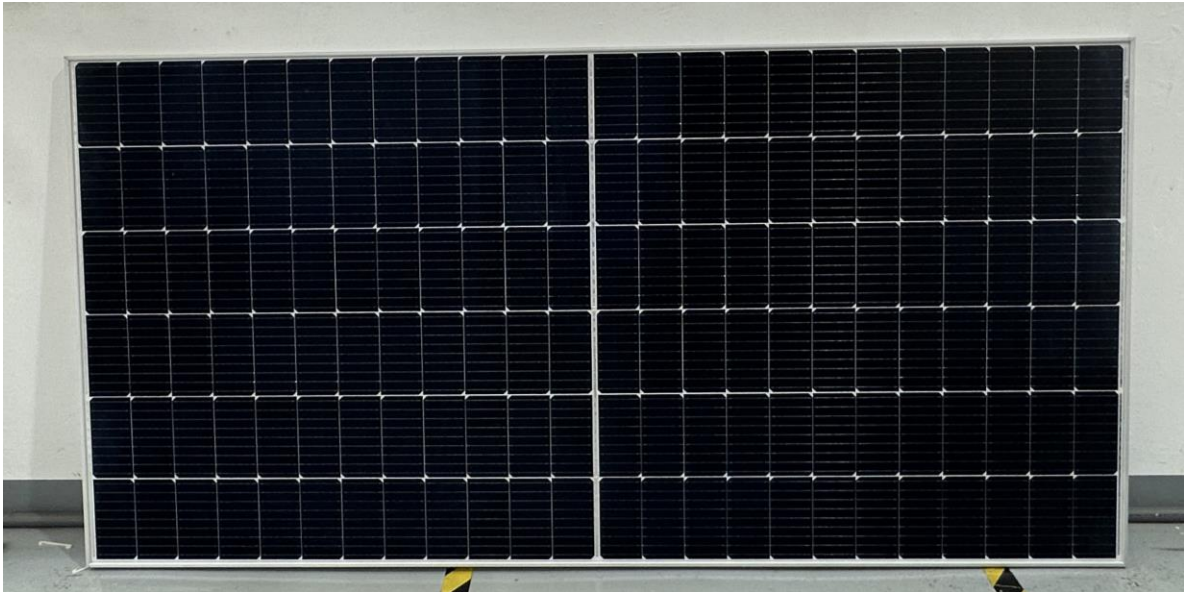
Marking plate of Sample



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Front view of sample



Rear view of sample



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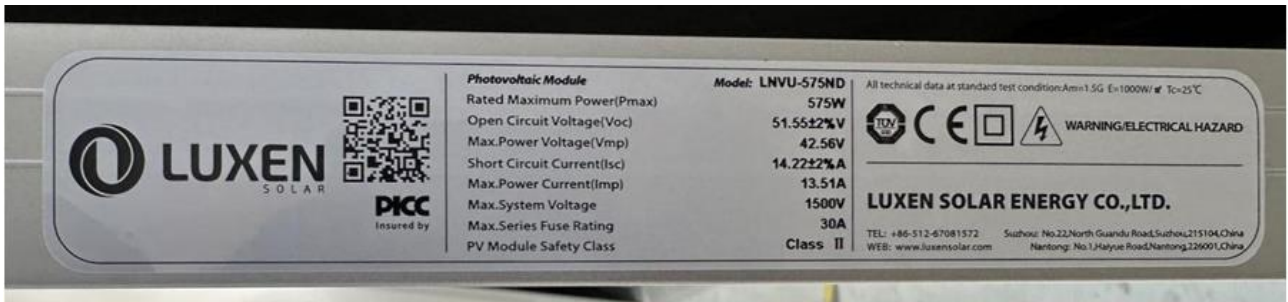
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Connector



Junction Box

Module Type: LNVU-575ND



Marking plate of Sample



Front view of sample



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Rear view of sample



Connector



Junction Box

**Possible test case verdicts**

- Test case does not apply to the test object .....	N/A
- Test object does meet the requirement .....	Pass (P)



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- Test object does not meet the requirement ..... : Fail (F)

**General remarks**

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 "(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.

**Description of module construction**

Model	Cell Type	No. of cells	Dimension [mm]
LNVU-550M	Mono-crystalline	144	2278x1134x30
LNVU-555M	Mono-crystalline	144	2278x1134x35
LNVU-550MD	Mono-crystalline	144	2278x1134x30
LNVU-555MD	Mono-crystalline	144	2278x1134x30
LNVU-575ND	Mono-crystalline	144	2278x1134x30

**Technical Data**

Type/Model	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	Max.System Voltage [V]
LNVU-550M	50.32	42.28	13.90	13.01	550	1500
LNVU-555M	50.47	42.43	13.97	13.08	555	1500



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LNVU-550MD	50.32	42.28	13.90	13.01	550	1500																		
LNVU-555MD	50.47	42.43	13.97	13.08	555	1500																		
LNVU-575ND	51.55	42.56	14.22	13.51	575	1500																		
<table border="1"> <thead> <tr> <th>Type/Model</th> <th>Module Efficiency [%]</th> <th>Energy Efficiency Class</th> </tr> </thead> <tbody> <tr> <td>LNVU-550M</td> <td>21.29</td> <td>A</td> </tr> <tr> <td>LNVU-555M</td> <td>21.48</td> <td>A</td> </tr> <tr> <td>LNVU-550MD</td> <td>21.29</td> <td>A</td> </tr> <tr> <td>LNVU-555MD</td> <td>21.48</td> <td>A</td> </tr> <tr> <td>LNVU-575ND</td> <td>22.26</td> <td>A</td> </tr> </tbody> </table>							Type/Model	Module Efficiency [%]	Energy Efficiency Class	LNVU-550M	21.29	A	LNVU-555M	21.48	A	LNVU-550MD	21.29	A	LNVU-555MD	21.48	A	LNVU-575ND	22.26	A
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LNVU-550MD	21.29	A																						
LNVU-555MD	21.48	A																						
LNVU-575ND	22.26	A																						
Supplementary information: Energy efficiency >13.5%: Class A.																								
Energy efficiency classes	A>13.5%																							
	13%<B≤13.5%																							
	12%<C≤13%																							
	11%<D≤12%																							
	E<11%																							



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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	LNVU-550M	VUMC314163991384
02		VUMC314163991378
03	LNVU-555M	POE2023V0001
04		POE2023V0005
05	LNVU-550MD	VUMC314163991379
06		VUMC314163991371
07	LNVU-555MD	VUMC314163991380
08		VUMC314163991377
09	LNVU-575ND	JW334622060261002181
10		JW334622060261002460

**3. Test specification and test result**

TABLE 1: MQT 01 Visual inspection		
Test Date [YYYY-MM-DD]	: 2023-06-08	—
Sample #	Nature and position of initial findings	Verdict
01	No Major visual defects	P
02	No Major visual defects	P
03	No Major visual defects	P
04	No Major visual defects	P
05	No Major visual defects	P
06	No Major visual defects	P
07	No Major visual defects	P
08	No Major visual defects	P



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09	No Major visual defects	P
10	No Major visual defects	P
Supplementary information: N/A		

TABLE 2: MQT 02 Maximum power determination						
Test Date [YYYY-MM-DD]:		2023-06-08			—	
Test method		<input checked="" type="checkbox"/> indoor		<input type="checkbox"/> outdoor		—
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	50.06	42.14	13.75	13.12	553.0	80.34
02	50.06	42.16	13.71	13.13	553.5	80.64
03	50.02	42.17	13.70	13.05	550.2	80.26
04	50.03	42.15	13.68	13.05	549.9	80.34
05-F	50.07	42.20	13.79	13.16	555.3	80.43
05-B	49.59	42.19	9.64	9.01	379.9	79.49
06-F	50.06	42.13	13.76	13.12	552.9	80.24
06-B	49.47	42.06	9.64	9.01	378.9	79.43
07-F	50.04	42.19	13.74	13.12	553.4	80.51
07-B	49.47	42.12	9.67	8.99	378.6	79.15
08-F	50.08	42.12	13.74	13.13	553.0	80.35
08-B	49.47	42.20	9.65	9.00	379.6	79.50
09-F	51.51	42.79	13.65	13.10	560.4	79.71
09-B	50.85	43.24	10.31	9.63	416.5	79.43
10-F	51.48	42.98	13.57	13.00	558.8	79.97
10-B	50.89	43.29	10.31	9.63	417.1	79.46
IV Curve:						

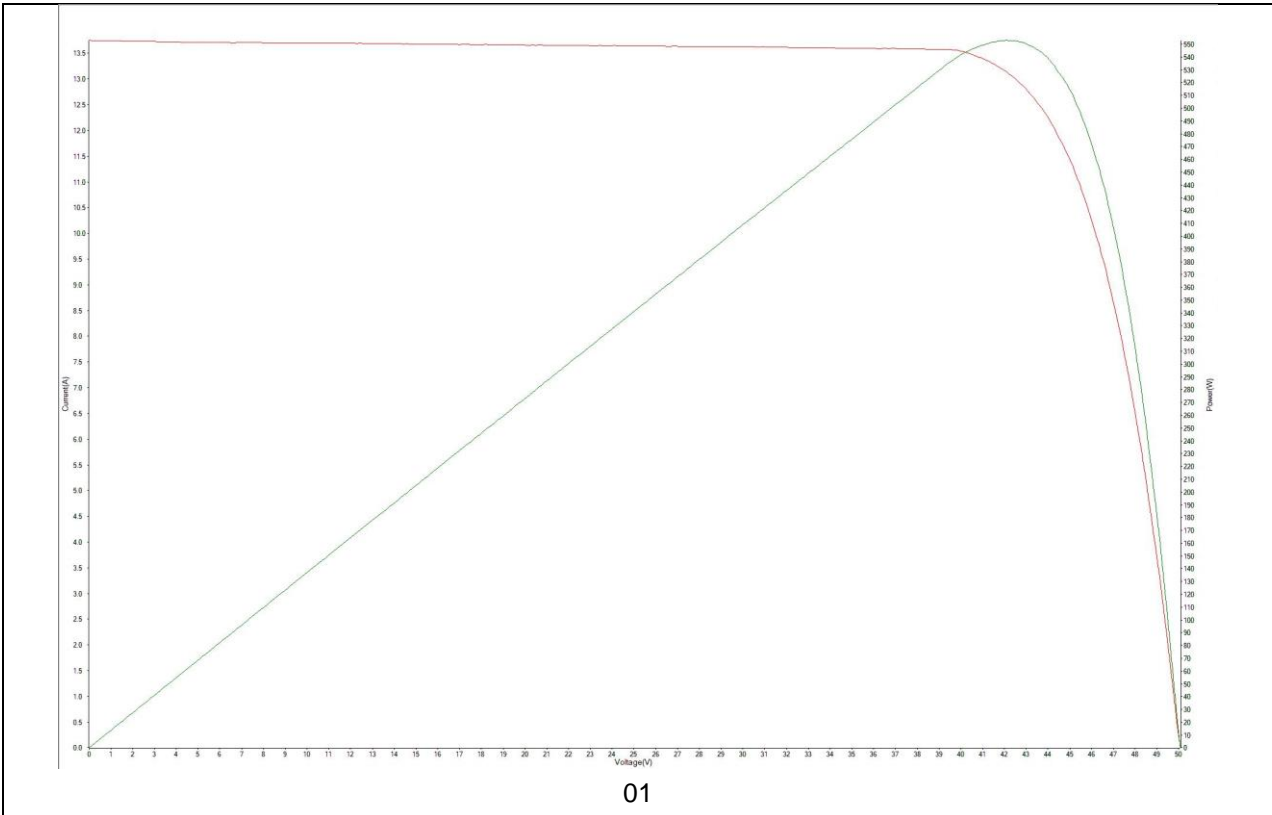


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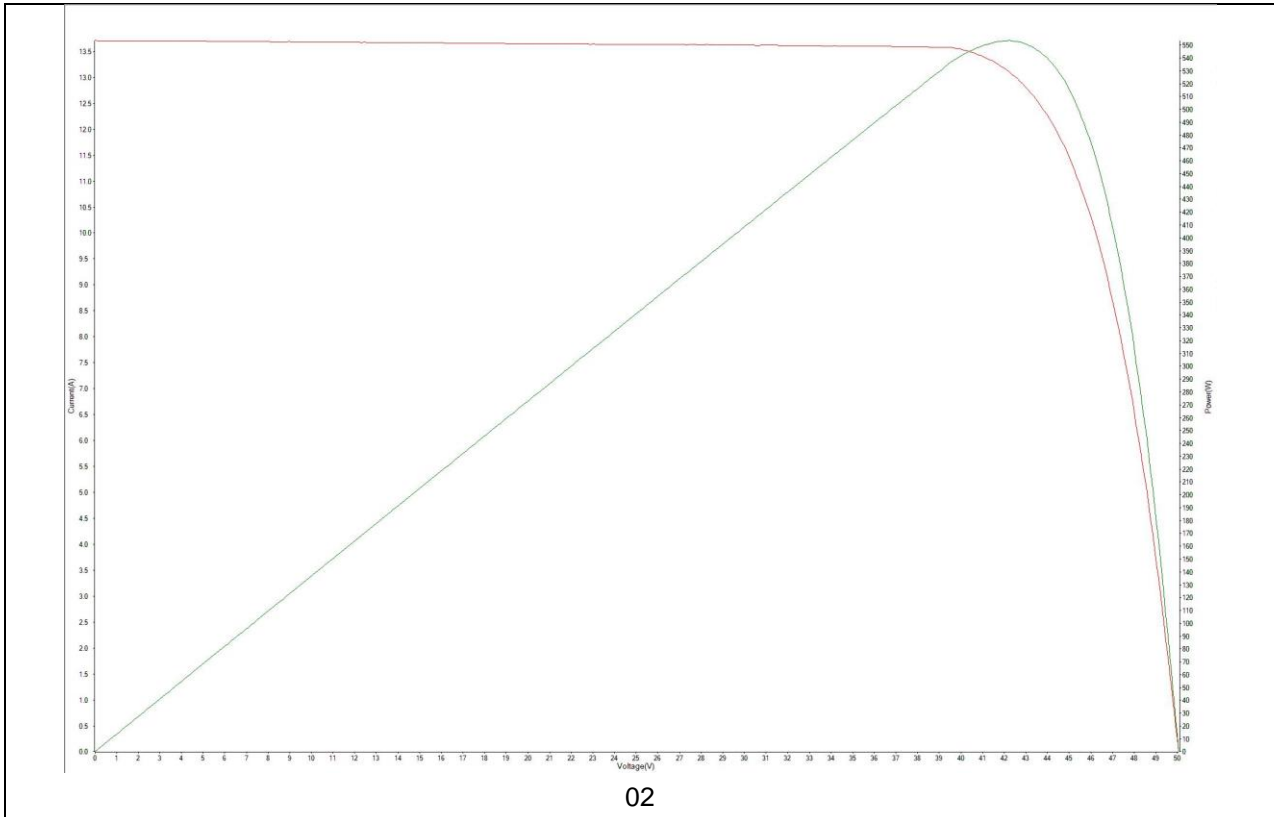




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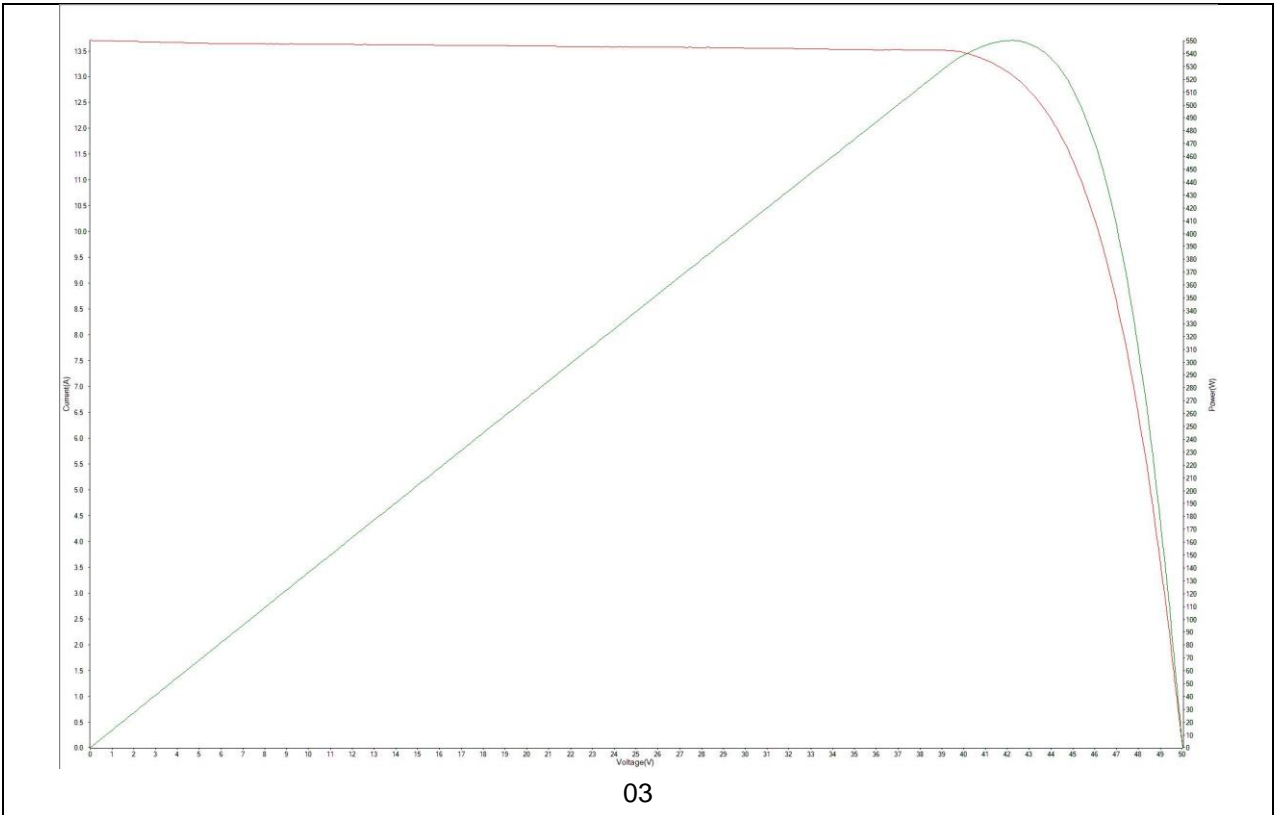
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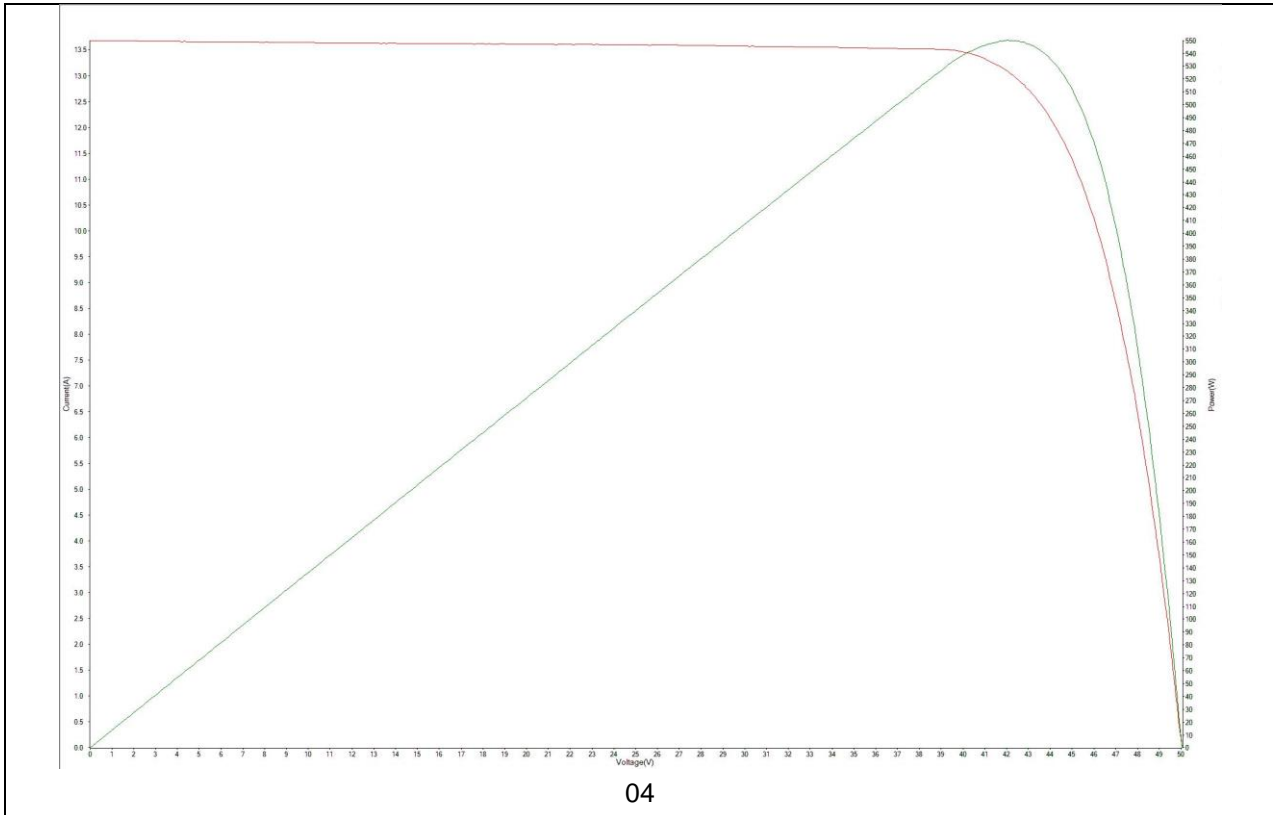
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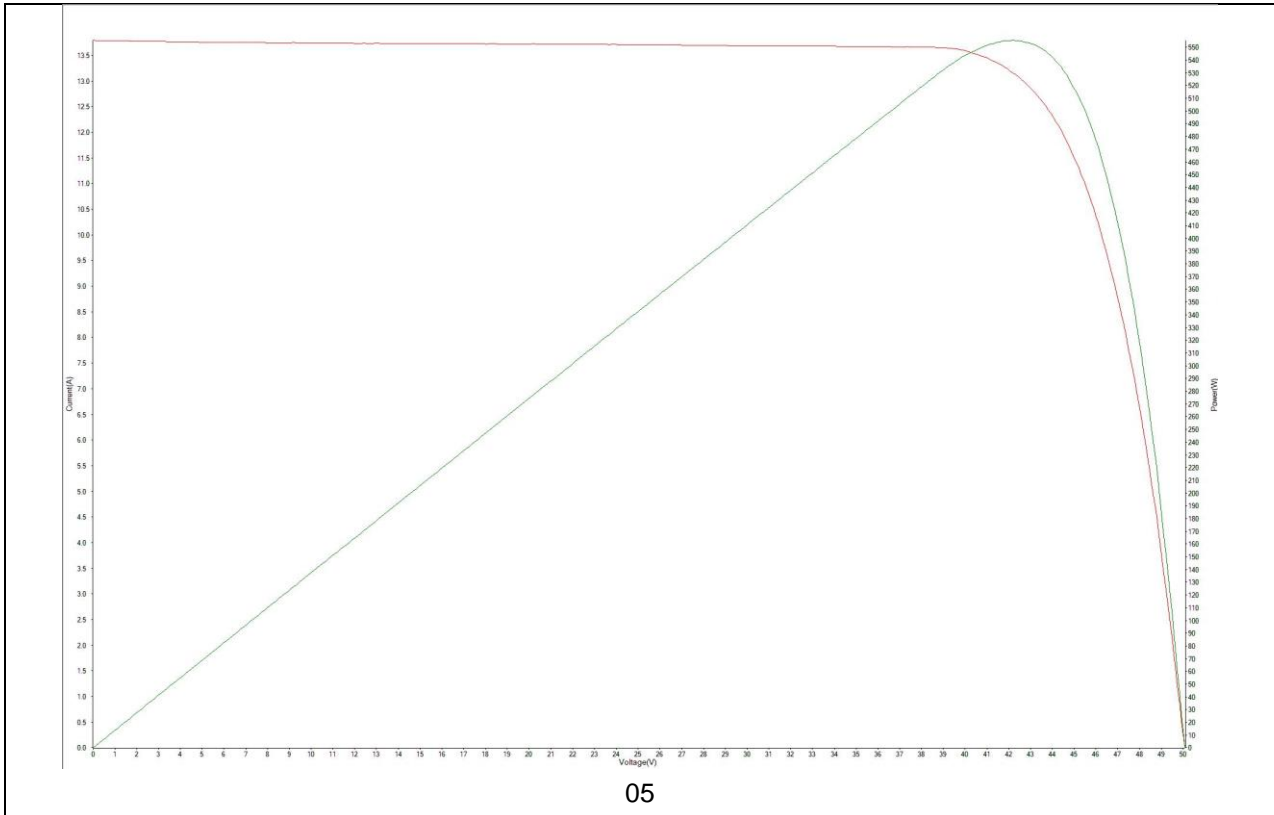
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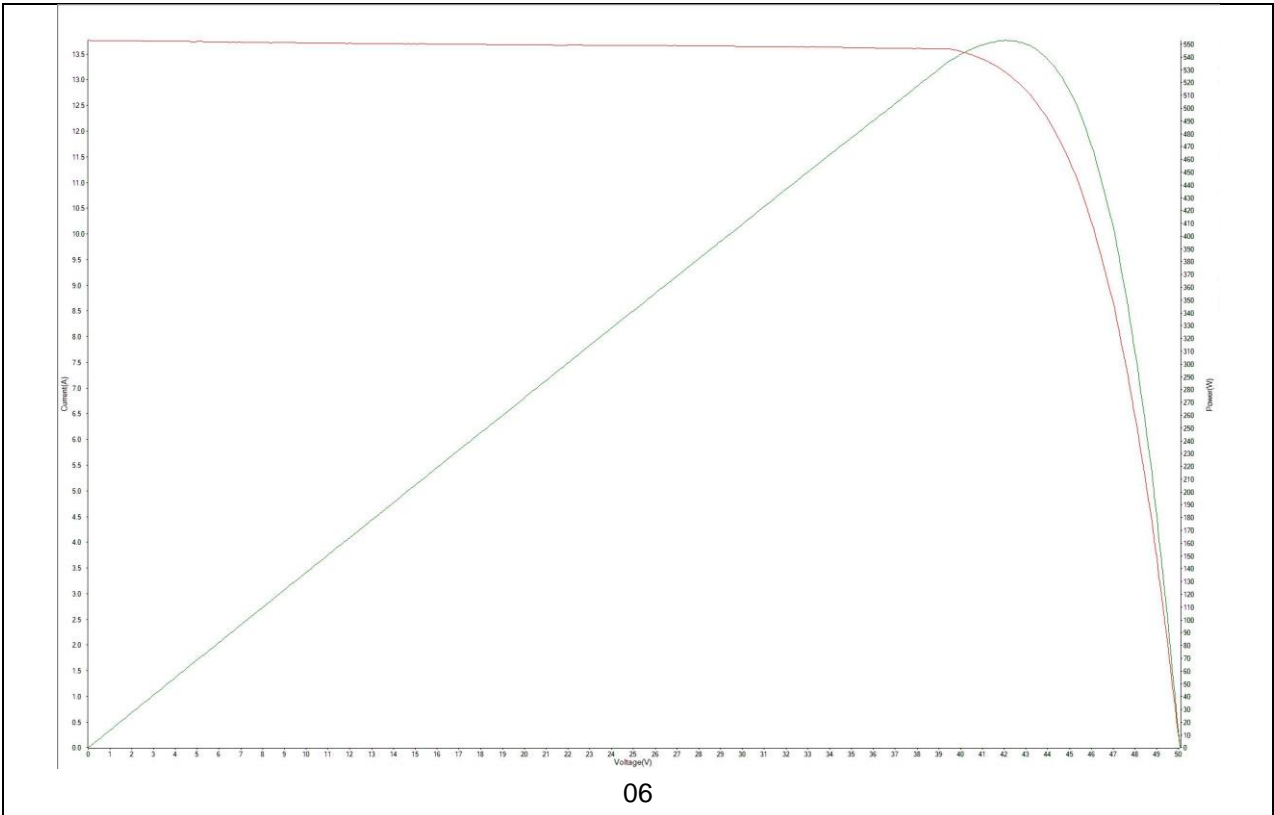
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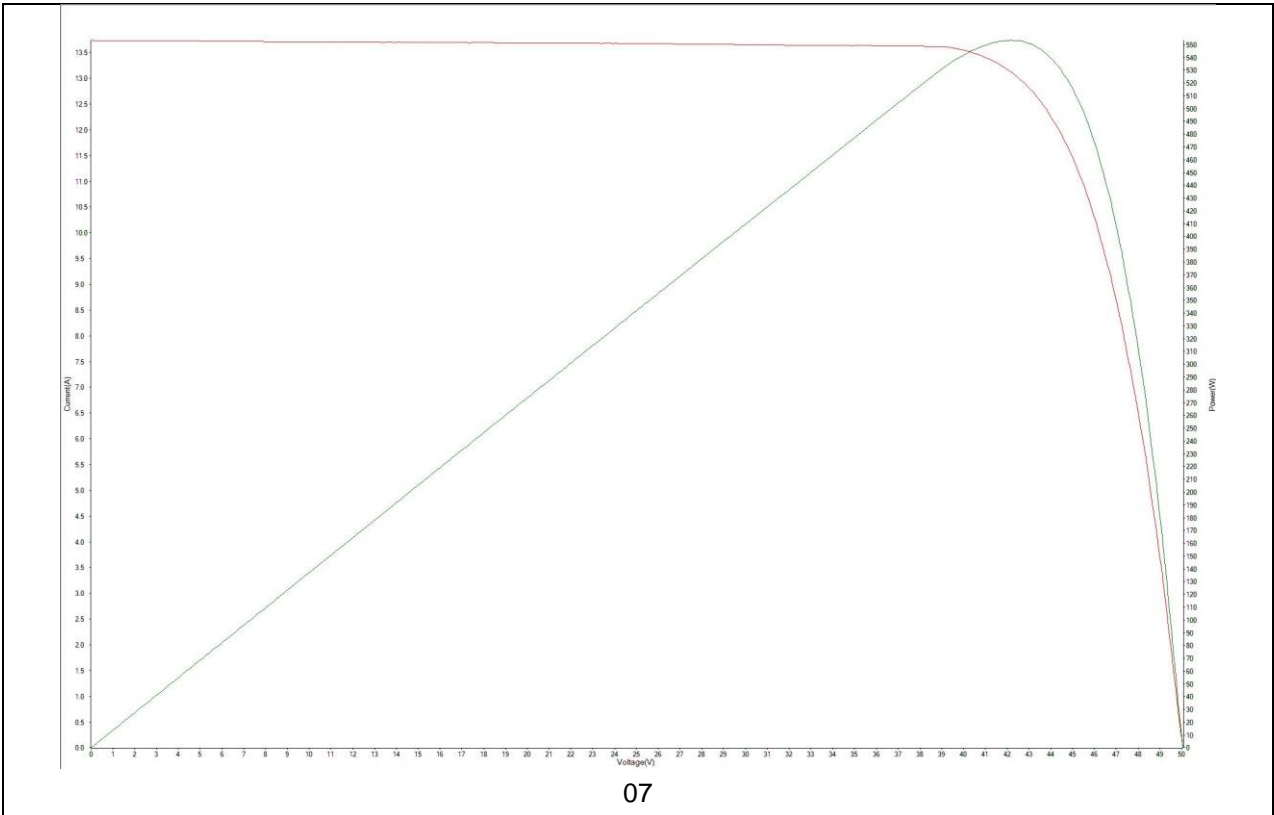
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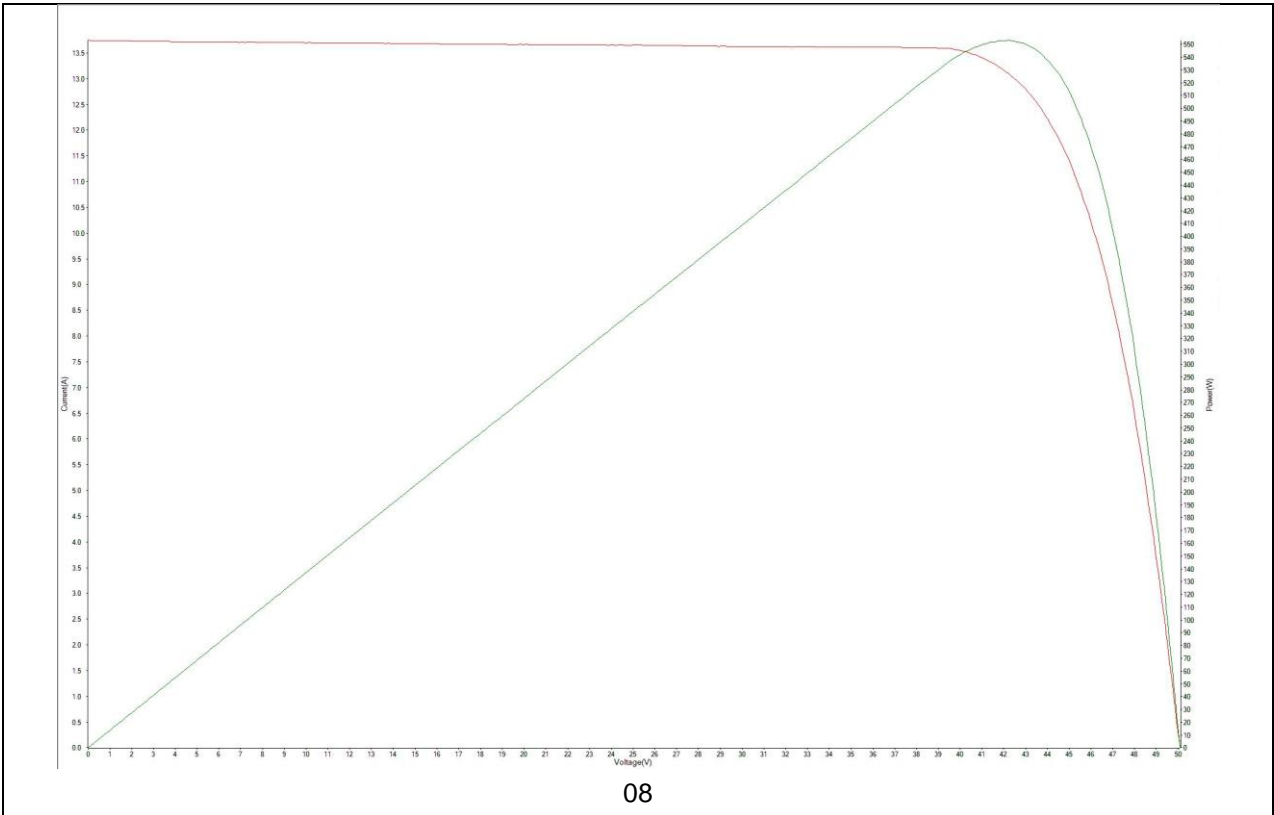


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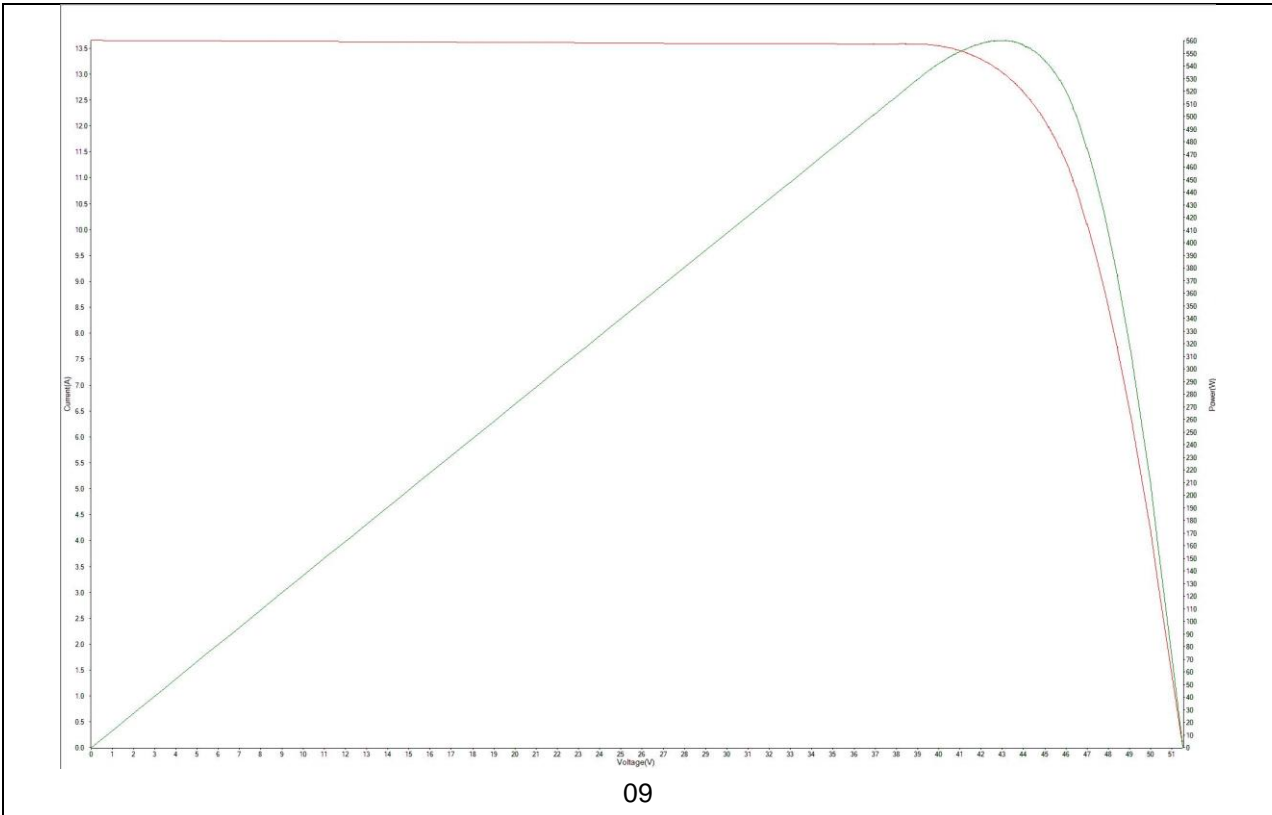


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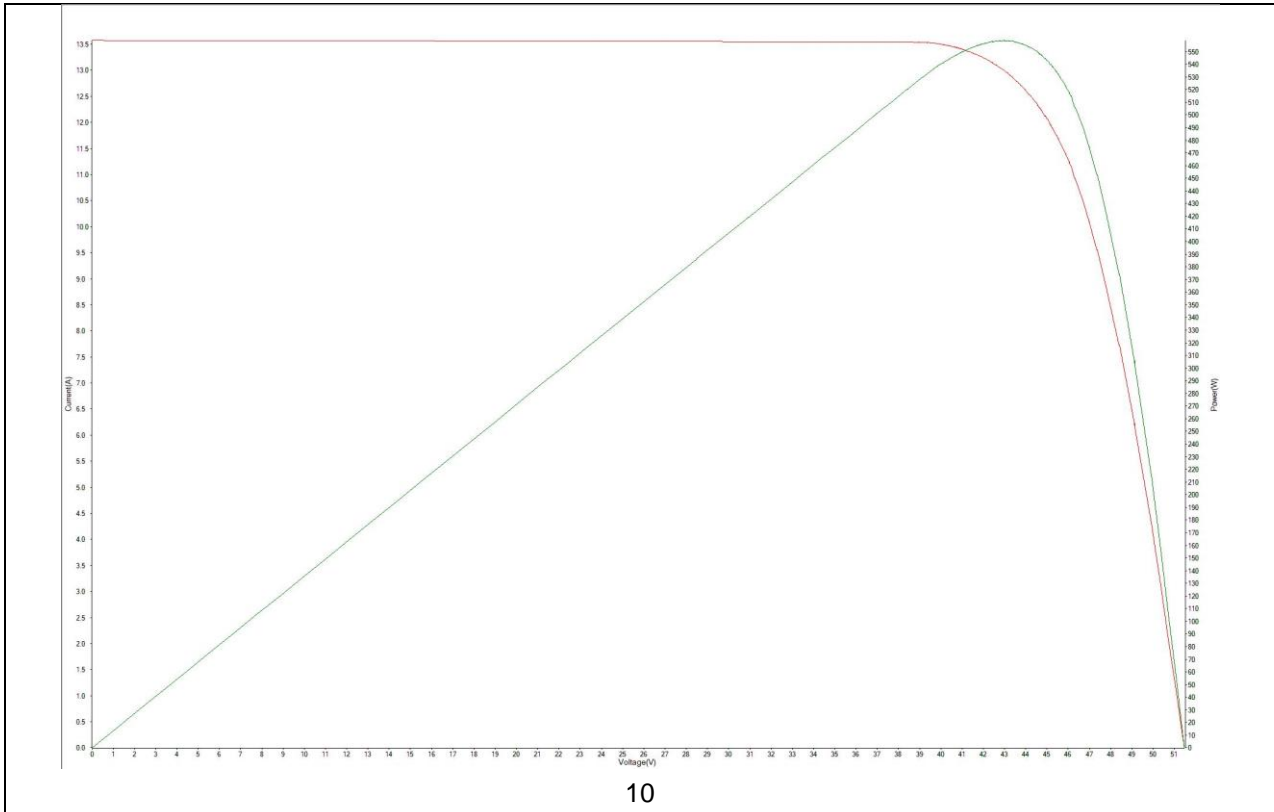




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Supplementary information: Refer to Appendix 2: Statement of the estimated uncertainty of the test verdicts. The discrepancy between the labelled power value and the measured value shall not exceed the limit of -5%~10%.

TABLE 3: MQT 03 Insulation test					
Test Date [YYYY-MM-DD] .....		2023-06-09		—	
Test Voltage applied [V] .....		4000V 1min/1500V 2min		—	
Size of module [m <sup>2</sup> ] .....		2.58		—	
Sample #	Measured	Required Resistance	Dielectric breakdown		Result
	MΩ	MΩ	Yes (description)	No	
01	26798	≥15.50	—	No	P
02	22468	≥15.50	—	No	P
03	18968	≥15.50	—	No	P
04	24014	≥15.50	—	No	P
05	18654	≥15.50	—	No	P



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06	20132	≥15.50	—	No	P
07	19803	≥15.50	—	No	P
08	21506	≥15.50	—	No	P
09	25577	≥15.50	—	No	P
10	20737	≥15.50	—	No	P

Supplementary information: Minimum requirement acc. to IEC 61215:2016 is 40 MΩ \*m².

**TABLE 4: MQT 15 Wet leakage current test**

Test Date [YYYY-MM-DD] .....	2023-06-09	—	
Test Voltage applied [V] .....	1500V 2min	—	
Solution resistivity [Ω cm) .....	1967	—	
Solution temperature [°C] .....	24.2	—	
Size of module [m²] .....	2.58	—	
Sample #	Required Resistance [MΩ]	Measured [MΩ]	Result
01	≥15.50	16563	P
02	≥15.50	13599	P
03	≥15.50	10338	P
04	≥15.50	11982	P
05	≥15.50	13968	P
06	≥15.50	9029	P
07	≥15.50	15704	P
08	≥15.50	13501	P
09	≥15.50	9294	P
10	≥15.50	11780	P

Supplementary information: Minimum requirement acc. to IEC 61215:2016 is 40 MΩ \*m².

**Appendix 1: List of measurement equipments**



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Clause	Measurement / testing	Testing / measuring equipment / material used	Equipment ID	Calibration due date
4.1 10.2	Visual inspection	Luminometer	PM6612L	2024.02.13
4.3 10.13	Insulation test	Withstanding voltage/Insulation resistance tester	GCYQ-AG-18	2023.08.18
4.6	Performance at STC	Pulsed Solar Simulator	GIV-20A2616	2023.08.02
4.15 10.14	Wet leakage current test	Withstanding voltage/ Insulation resistance tester	GCYQ-AG-18	2023.08.18
		Conductive meter	GCYQ-AG-07	2023.11.01

**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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