



TEST REPORT

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

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

Report reference no.: SHES240400799071

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Total number of pages: 13

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

Address: 588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Applicant's name.....: PROMOD ENERJİ A.Ş.

Address: Kayseri O.S.B. Mah. 29. Cad. No.27 Melikgazi, KAYSERİ, Türkiye

Test specification: IEC 61215-2:2021 UV test

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

Trade mark: 

Manufacturer.....: PROMOD ENERJİ A.Ş.

Address: Kayseri O.S.B. Mah. 29. Cad. No.27 Melikgazi, KAYSERİ, Türkiye

Factory.....: PROMOD ENERJİ A.Ş.

Address: Kayseri O.S.B. Mah. 29. Cad. No.27 Melikgazi, KAYSERİ, Türkiye

Model/Type reference: PRD670-132MT (Test sample)

Ratings: Refer to nameplate



Signature

Drafted by: Ricardo Xu



Signature

Approved by: Van Hua

Summary of testing

PRD670-132MT is selected as test sample and tested according to Clause MQT 10 of IEC 61215-2:2021. and electroluminescence test.

The submitted samples have been tested and found to comply with the above-mentioned standards' requirements.

Tests performed (name of test and test clause):

IEC 61215-2:2021 UV test

Testing location:

Guoce Testing Technology (Suzhou) Co., Ltd.

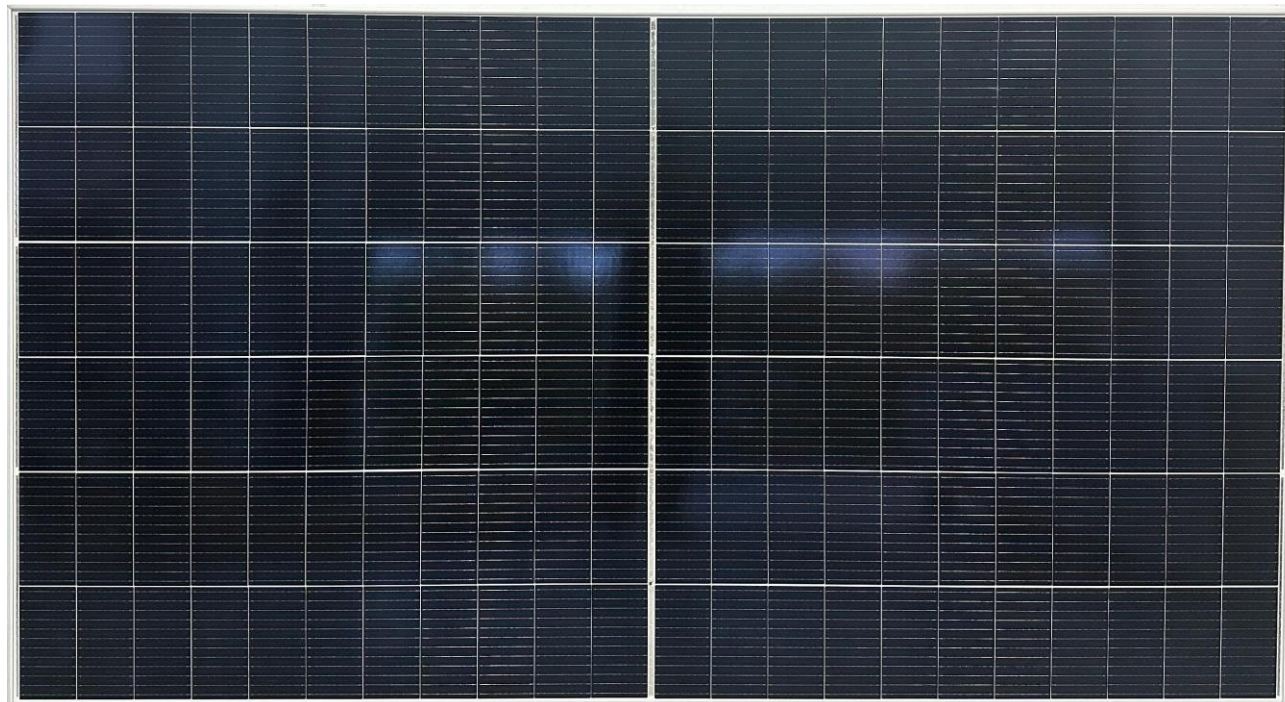
Building 11, No. 18, Yaofeng East Road, Mudu Town,
Wuzhong District, Suzhou, Jiangsu, 215151, China

Copy of marking plate / device under test:

Module Type: PRD670-132MT

PROMOD ENERJİ		Rated Max. Power (Pmax)	670W	Dimensions	2384*1303*35
		Voltage at Pmax	38.48V	Weight	34KG
Module type: PM66HC210BF STC: E=1000 W/m2, AM 1.5 Tc: 25°C. Power Sorting: 0 ~±4W 		Current at Pmax	17.42A	Safety class	Class II
		Open-Circuit Voltage(Voc)	46.15V	Standards	IEC
		Short-Circuit Current(Isc)	18.43A	 WARNING: This module produces electricity when exposed the light. Follow all applicable electrical safety precautions	
		Maximum System Voltage	1500V		
		Maximum Overcurrent Protection Rating	30A		
PROMODENERJİ ÜRETİM SA. VE TİC. A.Ş. Add: Kayseri OSB mah. 29. Cad. no:27 Melikgazi / Kayseri /TÜRKİYE www.promodenerji.com					
MADE IN TURKEY					

Marking plate of sample



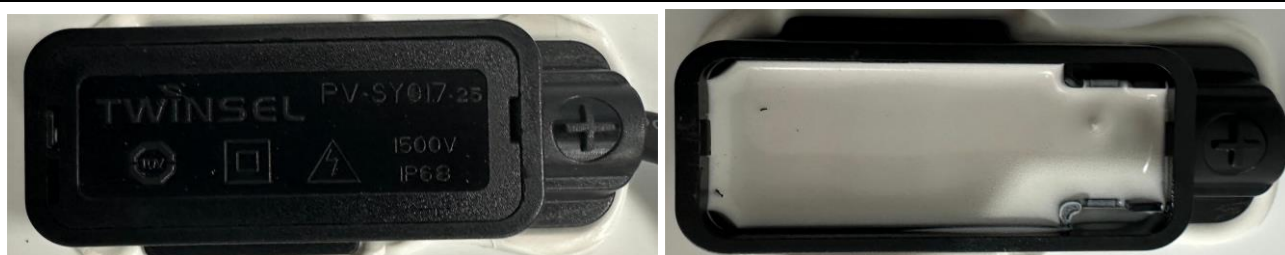
Front view of sample



Rear view of sample



View of connector



View of junction box



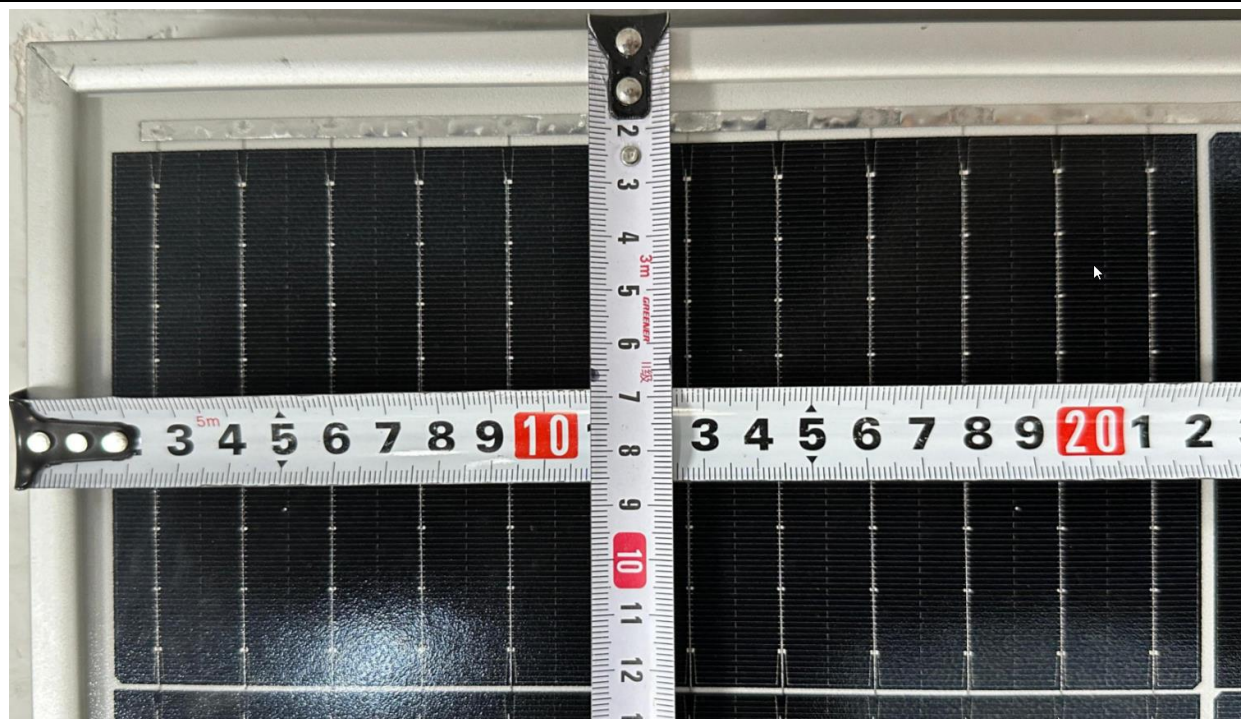
View of mounting holes



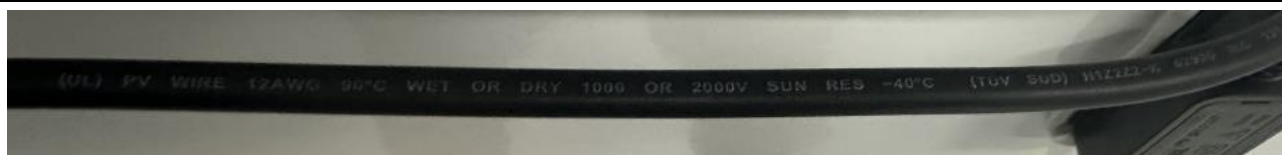
View of ground



View of frame



View of cell



View of cable

Possible test case verdicts:	
- Test case does not apply to the test object	N/A
- Test object does meet the requirement	Pass (P)
- Test object does not meet the requirement	Fail (F)
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory. Throughout this report, a point is used as the decimal separator. This document is issued by the company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated: (a) the results shown in this document refer only to the sample(s) tested and (b) such sample(s) are retained for 30 days. This document cannot be reproduced except in full, without prior approval of the company. Contents: 1) The main report	
General product information	
The product is photovoltaic (PV) module.	

1. Test samples

Sample #	Model	Sample S/N	Remark
01	PRD670-132MT	482028I2609007	UV test
02	PRD670-132MT	482028I2608956	UV test

2. Test specification and test result

Initial Measurements		
TABLE: 2.1	MQT 01 Visual inspection (Initial)	P
Test Date [YYYY-MM-DD]	2024-05-31	—
Sample #	Nature and position of initial findings – comments or attach photos	—
01	No major visual defects	P
02	No major visual defects	P

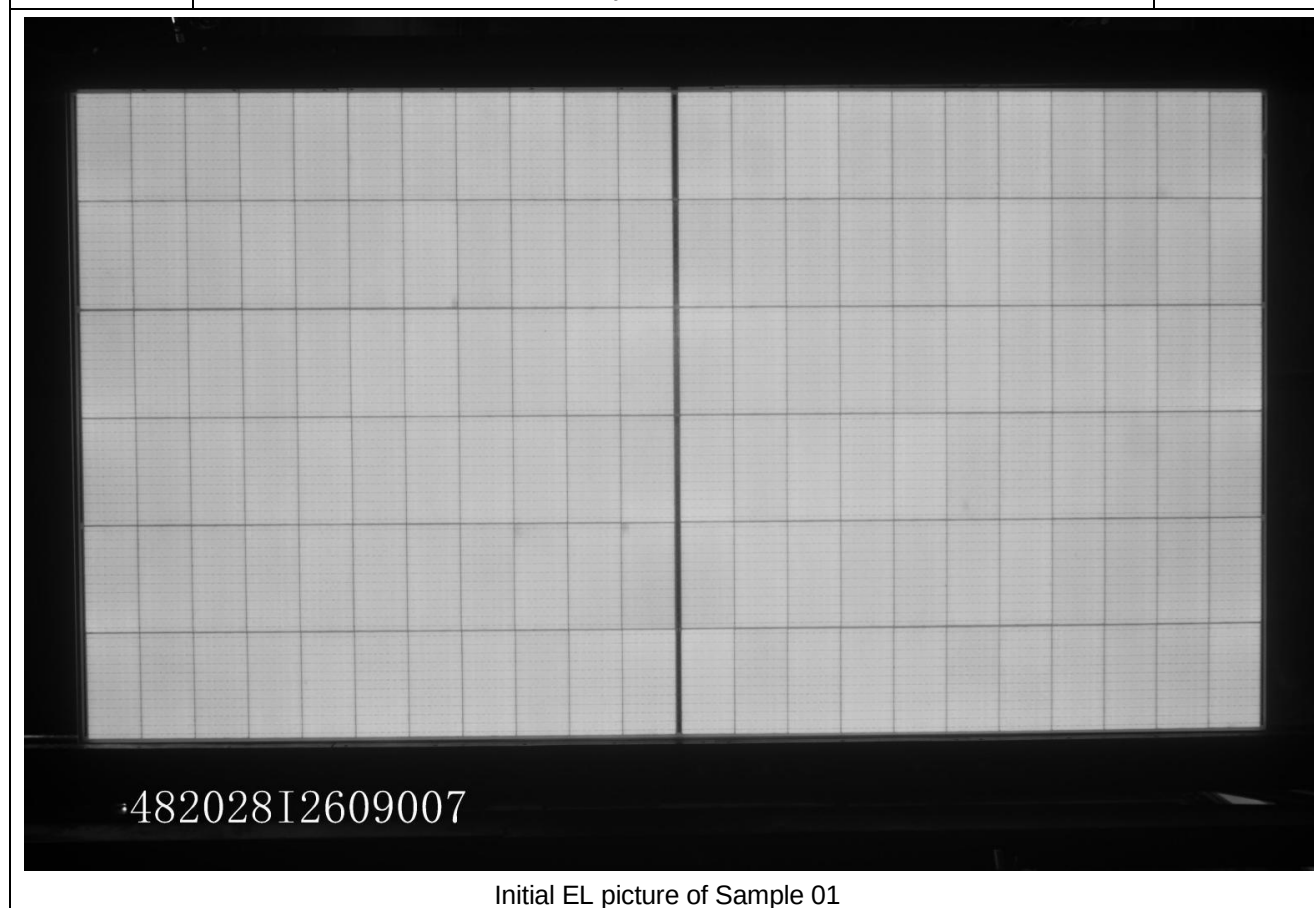
TABLE: 2.2	MQT 06.1 Performance at STC (Initial)						—
Test Date [YYYY-MM-DD]	2024-05-31						—
Module temperature [°C]	Corrected to 25.0						—
Irradiance [W/m ²]	Corrected to 1000						—
Sample #	Isc [A]	Voc [V]	Imp [A]	Vmp [V]	Pmp [W]	FF [%]	
01	18.40	46.19	16.83	39.87	671.1	18.40	
02	18.41	46.23	16.88	39.93	674.0	18.41	
Supplementary information: /							

TABLE 2.3	MQT 03 Insulation test (Initial)					P
Test Date [YYYY-MM-DD]	2024-05-31					—
Test Voltage applied [V]	8000/1500					—
Sample #	Measured	Required	Dielectric breakdown			Result
	MΩ	MΩ	Yes (description)	No		
01	38820	≥12.86	—	No		P
02	29130	≥12.86	—	No		P
Supplementary information: Size of module [m ²] 3.11						

TABLE 2.4	MQT 15 Wet leakage current test (Initial)		P
Test Date [YYYY-MM-DD]	2024-05-31		—
Test Voltage applied [V]	1500		—
Solution resistivity [Ω cm]	2071		P

Solution temperature [°C]		22.5	P
Sample #	Measured [MΩ]	Limit [MΩ]	Result
01	3211	≥12.86	P
02	4456	≥12.86	P
Supplementary information: Size of module [m²] 3.11			

TABLE 2.5	Electroluminescence test (Initial)		—
Test Date [MM/DD/YYYY]		2024-05-31	—
Applied current [A]		18	—
Exposure time [s]		6	—
Sample No.	Nature and position of initial findings – comments or attach photos		Result
01	No major visual defects		—
02	No major visual defects		—



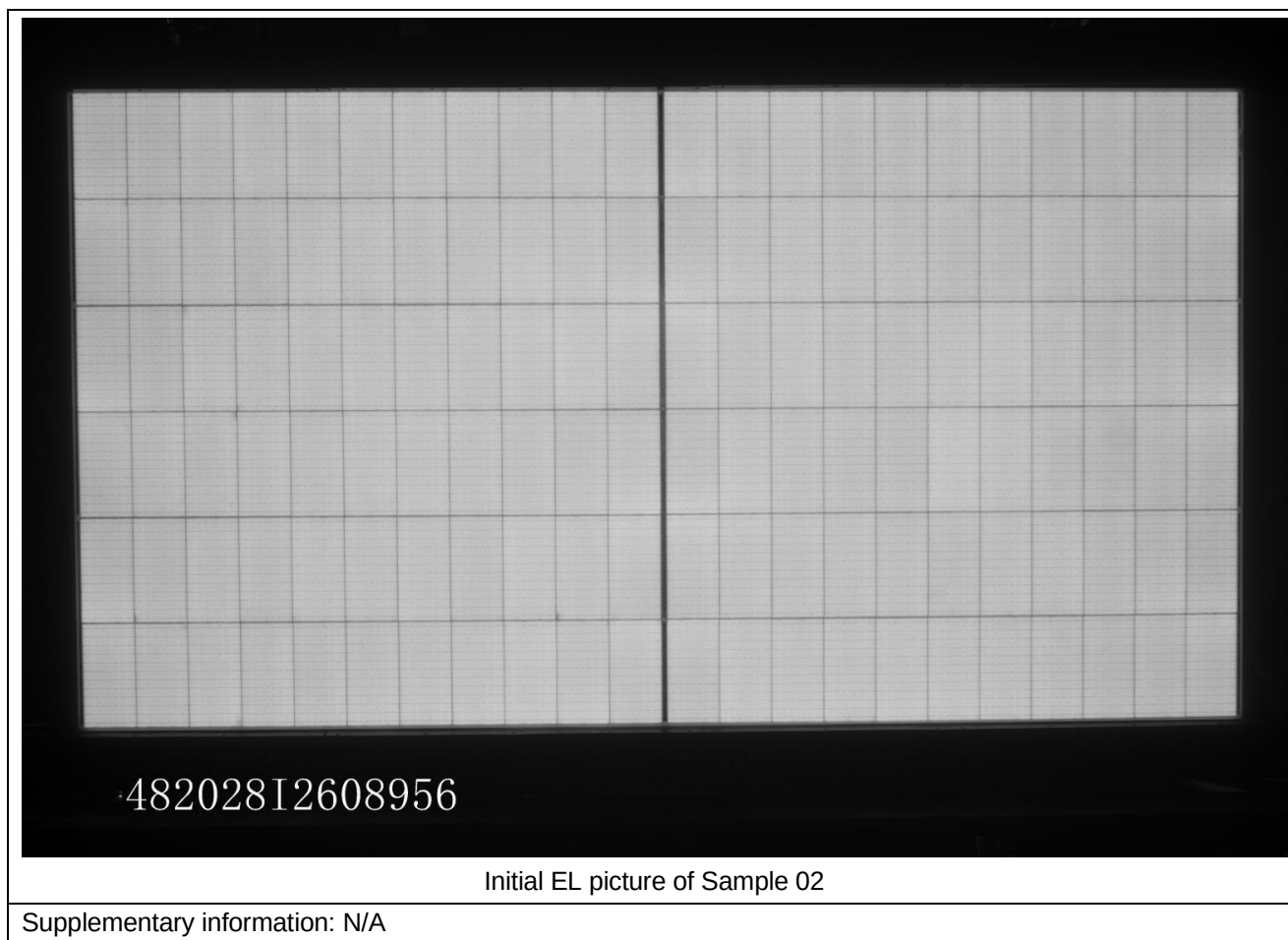
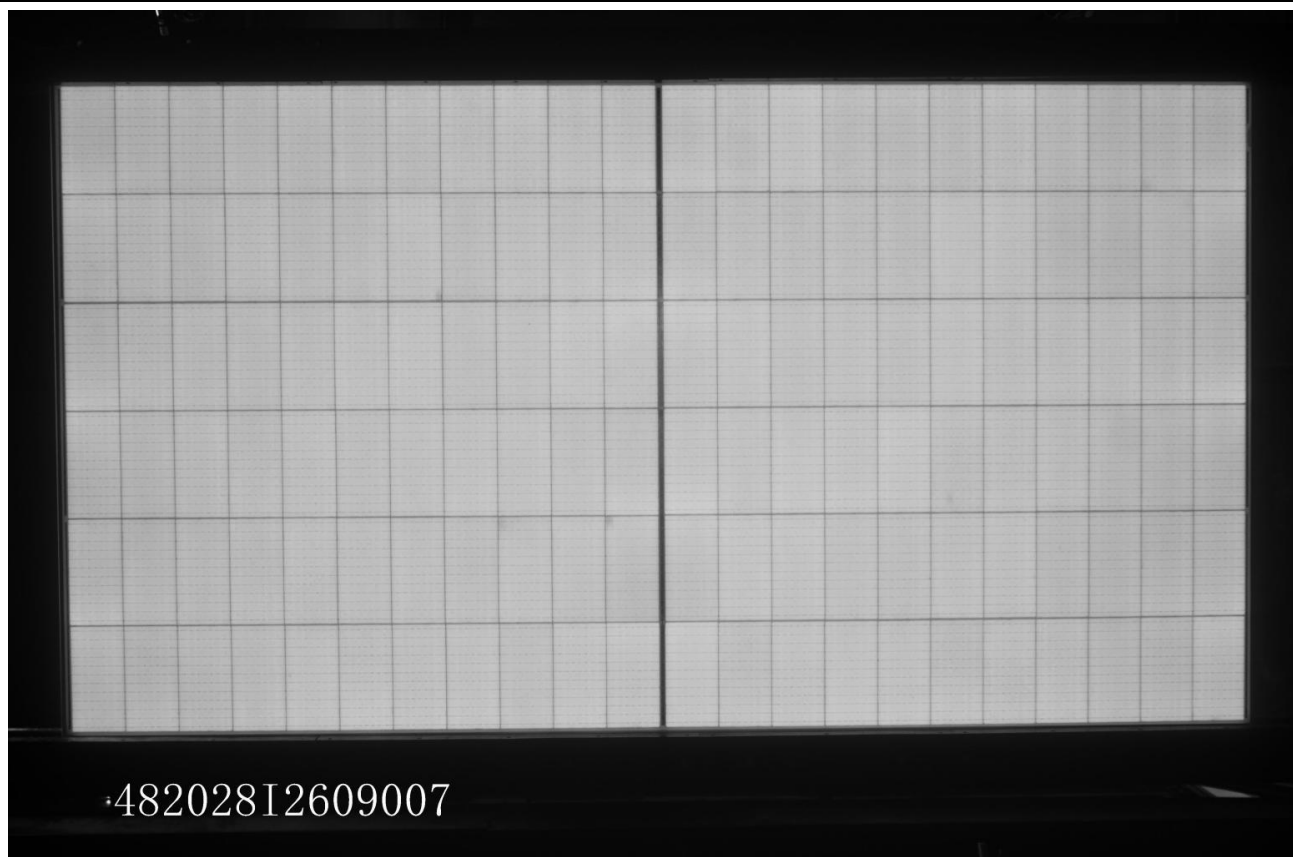


TABLE 2.6: UV test		—
Test Date [MM/DD/YYYY] start/end	2024-06-04/2024-06-08	—
Module temperature [° C].....	60.3	—
UV irradiance (280-400nm) [W/m²]	190.4	—
UV dose (280-320nm) [kWh/ m²].....	15	—
Module operation condition.....	☒ Short circuited ☐ Open circuited	—
Supplementary information: /		

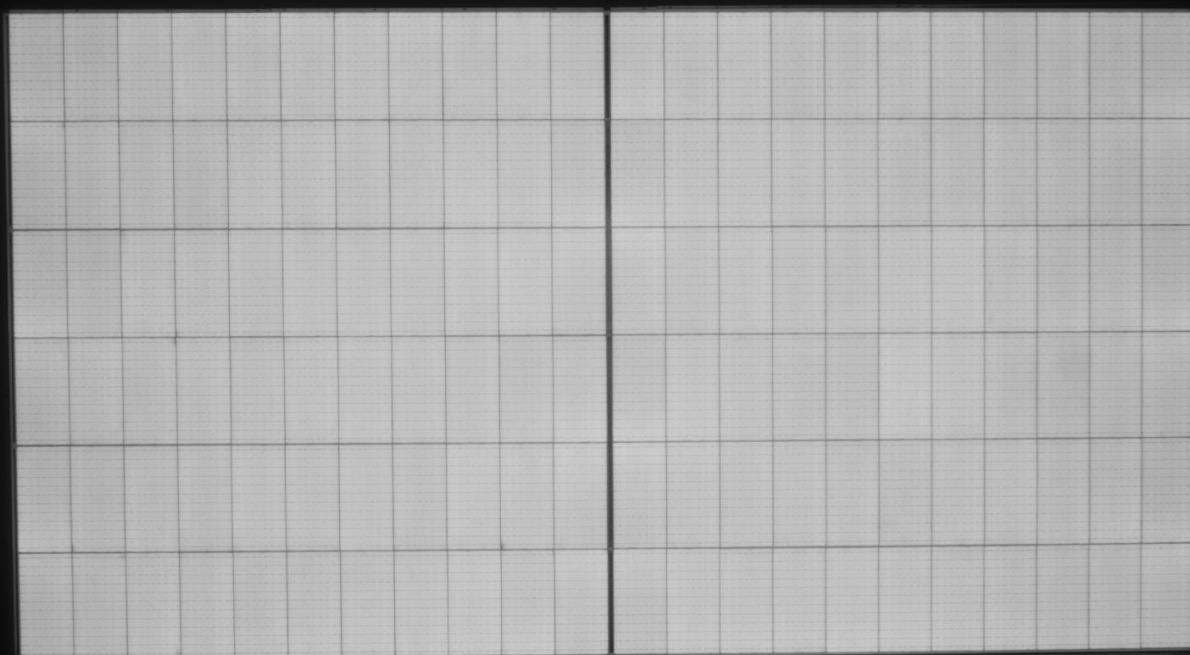
Final Measurements						
TABLE 2.7	MQT 01 Visual inspection after UV test					P
Test Date [MM/DD/YYYY]			2024-06-08			—
Sample #	Nature and position of initial findings – comments or attach photos					—
01	No visual defects					P
02	No visual defects					P
Supplementary information: /						
TABLE 2.8	MQT 06.1 Performance at STC after UV test					P
Test Date [MM/DD/YYYY]			2024-06-08			—
Module temperature [°C]			25			—
Irradiance [W/m²]			1000			—
Sample #	I _{sc} [A]	V _{oc} [V]	I _{mp} [A]	V _{mp} [V]	P _{max} [W]	FF [%]
01	18.37	46.12	16.71	39.86	666.2	78.64
02	18.38	46.17	16.79	39.94	670.6	79.02
Pmp degradation after this test [%] ≤5% :			Sample 01: -0.19% Sample 02: -0.16%			P
Supplementary information: /						
TABLE 2.9	MQT 03 Insulation test after UV test					P
Test Date [MM/DD/YYYY]			2024-06-08			—
Test Voltage applied [V]			8000 1min/1500 2min			—
Sample #	Measured	Required	Dielectric breakdown			Result
	MΩ	MΩ	Yes (description)		No	
01	25280	≥12.86	-		No	P
Supplementary information: Size of module [m²] 3.11.						
TABLE 2.10	TABLE: Wet leakage current test after UV test					P
Test Date [MM/DD/YYYY]			2024-06-08			—
Test Voltage applied [V]			1500 2min			—
Solution resistivity [Ω cm]			1985			P
Solution temperature [°C]			22.3			P
Sample #	Measured [MΩ]		Limit [MΩ]			Result
01	2102		≥ 12.86			P
02	3341		≥ 12.86			P
Supplementary information: Size of module [m²] 3.11.						

TABLE 2.11	Electroluminescence test after UV test		—
Test Date [MM/DD/YYYY]	2024-06-08		—
Applied current [A]	18		—

Exposure time [s]	6	—
Sample No.	Nature and position of initial findings – comments or attach photos	Result
01	No major visual defects	—
02	No major visual defects	—



EL picture of Sample 01



482028I2608956

EL picture of Sample 02

Supplementary information: N/A

3. List of measurement equipment

No.	Test Item	Equipment	Code	Calibration Expire Date
1	Visual inspection	Luminometer	PM6612L	2025-01-31
		Steel tape	Deli 5m	2024-08-23
2	Maximum power determination	Pulsed Solar Simulator	GIV-20A2616	2024-08-22
3	Insulation test	Withstanding voltage/ Insulation resistance tester	AN16313HG	2024-08-17
4	Wet leakage current test	Withstanding voltage/ Insulation resistance tester	AN16313HG	2024-08-17
		Conductive meter	DDS-307	2024-10-31
5	UV test	Ultraviolet aging test chamber	GRO-SUV5024T	2024-10-30
6	Electroluminescence EL test	EL test system	GCYQ-HJ-23	2024-08-01

4. Statement of the estimated uncertainty of the test results

The estimated uncertainty fulfils the requirements from the IEC GUIDE 115.
Uncertainty: I_{sc} :1.0%; V_{oc}: 2.4%; P_{max}: 2.6% (K=2)

----- End of Test Report -----