

Technical Report No.: <704062202937>

Rev. <00>

Dated <2022-07-26>

Client: LONGi Green Energy Technology Co.,Ltd.
No.388, Middle Hangtian Road Chang'an District 710100
Xi'an City,Shaanxi PEOPLE'S REPUBLIC OF CHINA

Manufacturing place:

1. LONGi Solar Technology (Taizhou) Co., Ltd.
No.268 Xingtai South Road Hailing District 225300 Taizhou
Jiangsu People's republic of China
Factory No.: 99605.
No.268 Xingtai South Road Hailing District 225300 Taizhou
Jiangsu People's republic of China
Factory No.: 99605
2. LONGi Solar Technology (Zhejiang) Co., Ltd.
Production Facility Code: 99626
2 Middle Bailing Road, Donggang Industrial Park, Economic
Development Zone, 324000,Quzhou, Zhejiang, P.R.China.
- 3.Vina Solar Technology Co., Ltd.
E12 factory, lot CN-03
Van Trung Industrial Park, Viet Yen District
21000 Bac Giang Province, Vietnam.
4. LONGi Solar Technology Co., Ltd. (Xi' an Module Factory)
(Production facility No. in certificate: 02875)
5. LONGi Solar Technology (Chuzhou) Co., Ltd. (Production
Facility Code: 102892)
No. 19 Huaian Road, Chuzhou City, Anhui Province, P. R. China.
6. HT SOLAR VIETNAM LIMITEDCOMPANY(Production Facility
Code: 097323)
Factory F3-1 and F3-2, Lot F3, Trang Due Industrial park, a part of
Dinh Vu-Cat Hai economic zone, Hong phong commune, An
Duong District, Haiphong city, Vietnam
7. LONGi Solar Technology (Jiangsu) Co., Ltd. (Production Facility
Code: 108647)
No. 288 Yaojia Road, Jiulong Town, Hailing District, Taizhou City,
Jiang-su, P.R.China
8. LONGi Solar Technology (Xianyang) Co., Ltd. (Production
Facility Code: 108363)

No.120 Wenxing West Road, Qindu District, Xianyang City,
Shaanxi Province

9. Xi'an LONGi Green Energy Architecture Technology Co., Ltd.
(Production Facility Code: 108212)
No.8369 Shangyuan Road,Xi'an Economic and Technological
Development Zone. Xi'an, Shaanxi, P.R. China.

10. LONGi Solar Technology(Jiaxing) Co.,Ltd. (Production facility
No. in certificate: 110068)
No.130 Ruifeng Street, Gaozhao Subdistrict, Xiuzhou District,
314031 Jiaxing City, Zhejiang Province, PEOPLE'S REPUBLIC OF
CHINA

11. LONGi Solar Technology (Xi'an) Co., Ltd.
(Production Facility Code: 114737)
No. 388,Middle Hangtian Road, Chang'an District, 710100, Xi'an
city, Shaanxi, P.R. China.

12. LONGi Solar Technology (Qinghai) Co., Ltd.
(Production Facility Code: 116018)
No. 1-53 Gabatai Community of Xitai Village, 813000 Gonghe
County, Qinghai Province, PEOPLE'S REPUBLIC OF CHINA

13. LONGi Solar Technology(Datong) Co., Ltd.
(Production Facility Code: 115423)
Room 106B, North Zone, Enterprise Incubation Service Center,
Xinrong Economic and Technological Development Zone,
Huayuaton Town, Xinrong District, 037002 Datong, Shanxi
Province, PEOPLE'S REPUBLIC OF CHINA.

Test subject: Product: Photovoltaic modules

Test specification: IEC 61215-2:2016, visual inspection (MQT 01)
IEC 61215-2:2016, performance at STC (MQT 06)
IEC 61215-2:2016, Insulation test (MQT 03)
IEC 61215-2:2016, Wet leakage current (MQT 15)
IEC 61215-2:2016, Hail test (MQT 17)
Electroluminescence at Isc
According to client requirements

Purpose of examination: Test according to the test specification

Test result: The present test results show in clause 3

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1. Description of the test subject

1.1 Function

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

1.2 Consideration of the foreseeable use

(Regulated by law, e.g. ProdSG, MDD, therefore always applicable)

- ☐ Not applicable
- ☒ Covered through the applied standard
- ☐ Covered by the following comment
- ☐ Covered by attached risk analysis

1.3 Technical Data

Sample No.	Model serial No.	Model type	Remark
1	LRR004111220500200013	LR5-72HTH-580M	35mm Hail
2	LRR004111220500200014	LR5-72HTH-580M	35mm Hail
3	LRR004111220500200016	LR5-72HTH-580M	45mm Hail
4	LRR004111220500200010	LR5-72HTH-580M	45mm Hail
5	LRR010111220301500046	LR5-54HTB-425M	35mm Hail
6	LRR010111220301500047	LR5-54HTB-425M	35mm Hail
7	LRR010111220301500051	LR5-54HTB-425M	45mm Hail
8	LRR010111220301500045	LR5-54HTB-425M	45mm Hail

2. Order

2.1 Date of Purchase Order, Customer's Reference

The order dated 2022-05-24

2.2 Receipt of Test Sample, Condition, Location

Changzhou HuaYang Inspection and Testing Technology Co., Ltd

No.8 Lanxiang Road, Wujin Economic Development Zone, Changzhou, Jiangsu, P.R.China

2.3 Date of Testing

2022-05-25/2022-06-07

2.4 Location of Testing

No.8 Lanxiang Road, Wujin Economic Development Zone, Changzhou, Jiangsu, P.R.China

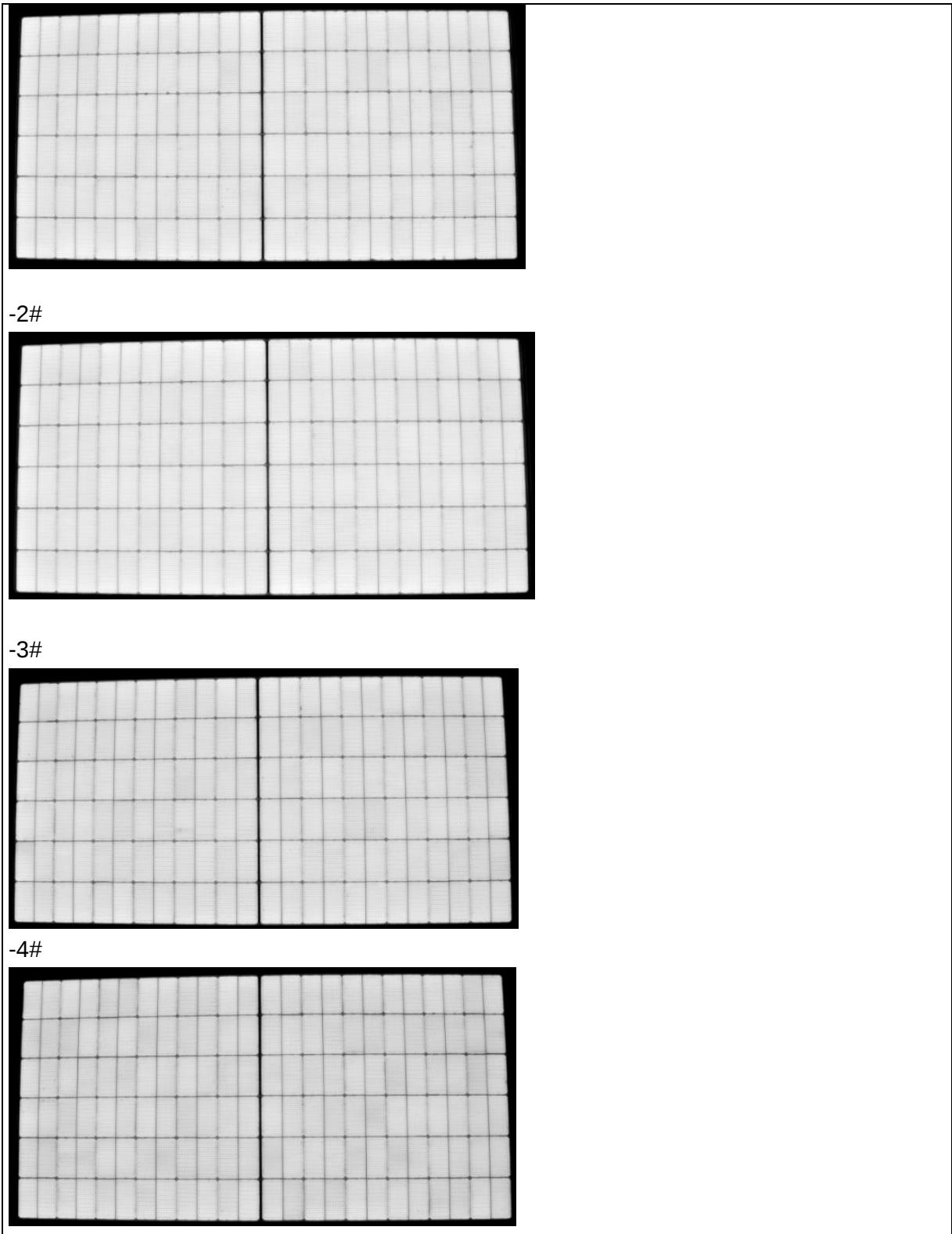
2.5 Points of Non-Compliance or Exceptions of the Test Procedure

N/A

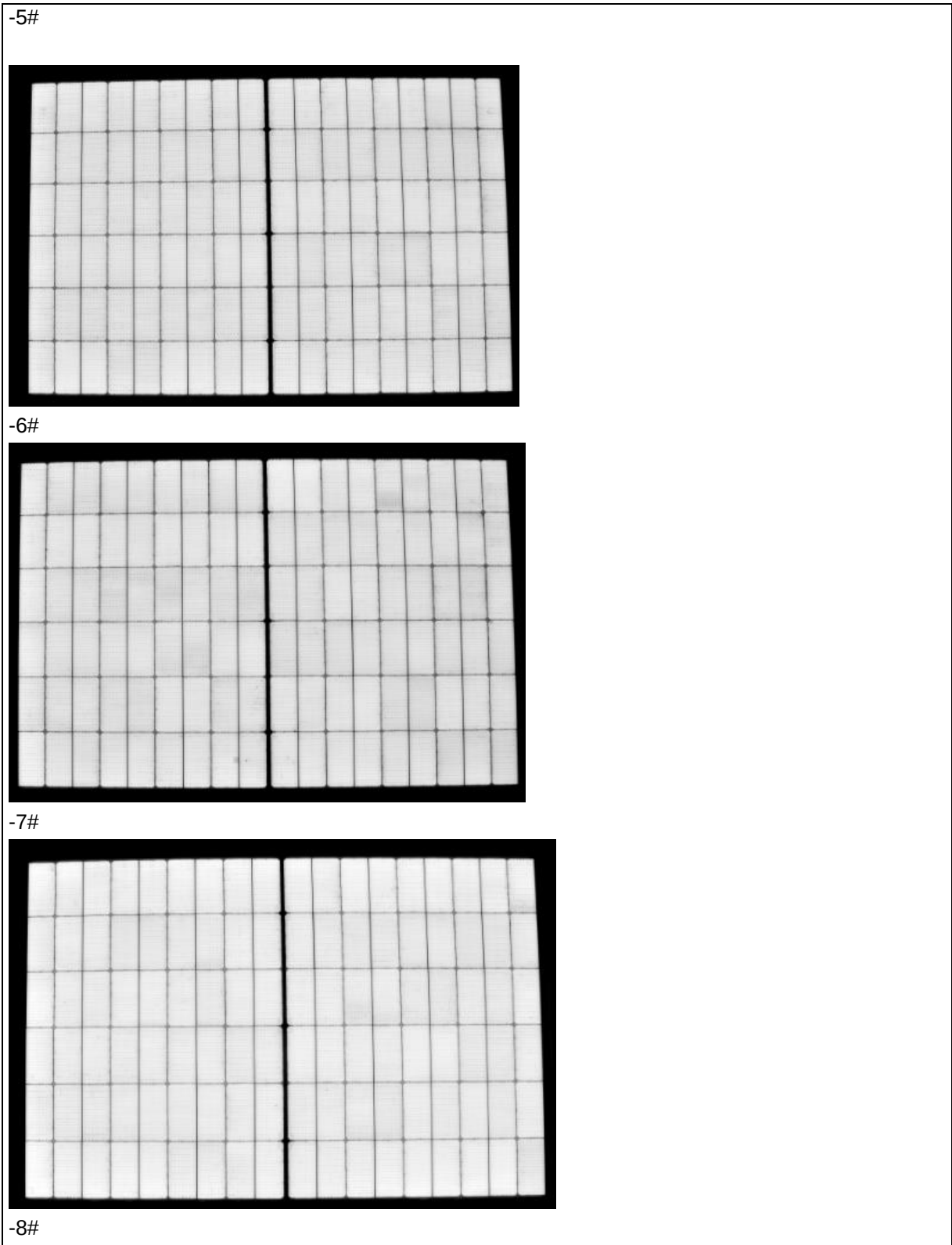
3. Test Results

3.1	TABLE: Visual inspection		P
Test Date [YYYY/MM/DD].....:		2022-05-25	—
Sample No.	Nature and position of initial findings – comments or attach photos		Verdict
1	No major visual defects		P
2	No major visual defects		P
3	No major visual defects		P
4	No major visual defects		P
5	No major visual defects		P
6	No major visual defects		P
7	No major visual defects		P
8	No major visual defects		P
Supplementary information:N/A			

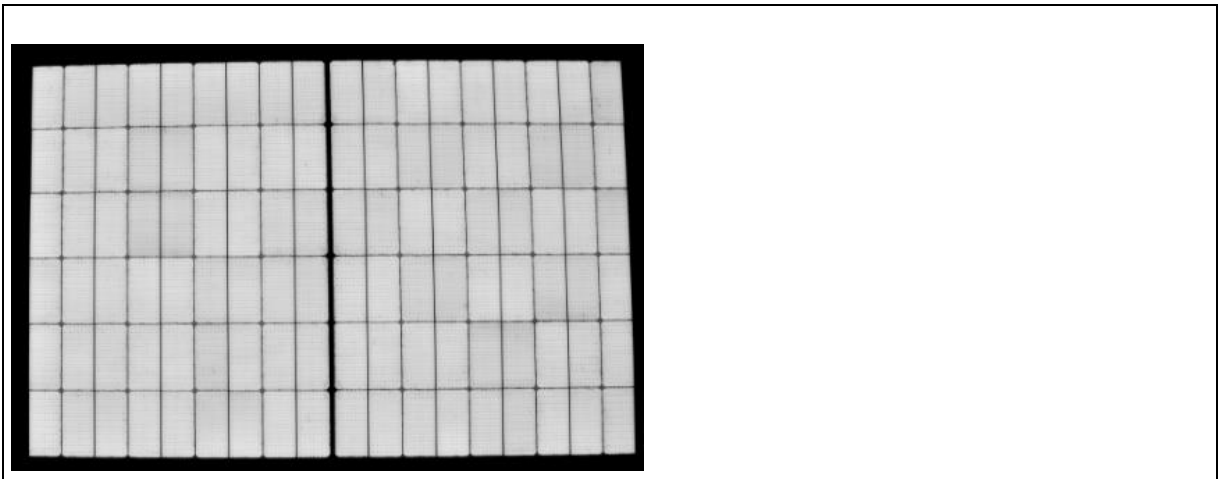
3.2	TABLE: EL-images		—
Test Date [YYYY/MM/DD].....:		2022-05-25	—
Current applied		11.5	
Sample No.	5		Verdict
1	No major visual defects.		—
2	No major visual defects.		—
3	No major visual defects.		—
4	No major visual defects.		—
5	No major visual defects.		—
6	No major visual defects.		—
7	No major visual defects.		—
8	No major visual defects.		—
Supplementary information: Supplementary information: EL pictures			
-1#			



Doc No.: ITC-TTW0902.02E – Rev10



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3.3 Initial		TABLE: Performance at STC (Initial)					—
Test Date [YYYY/MM/DD]..... :			2022-05-31				—
Irradiance [W/m²]..... :			1000				—
Module temperature [°C]..... :			25.0				—
Test method			☒ Simulator ☐ Natural sunlight				—
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmax [W]	FF [%]	Result
1	52.503	44.392	14.028	13.245	587.985	79.83	—
2	52.485	44.506	13.912	13.171	586.173	80.28	—
3	52.557	44.374	13.934	13.275	589.086	80.44	—
4	52.475	44.458	13.912	13.218	587.632	80.49	—
5	39.380	32.940	13.650	13.018	428.816	79.78	—
6	39.373	32.860	13.623	12.987	426.736	79.56	—
7	39.391	32.703	13.535	12.978	424.423	79.61	—
8	39.345	33.317	13.618	12.930	430.785	80.40	—
Supplementary information: N/A							

3.6		TABLE: Insulation Test - MST 16 (Initial)			P
Test Date [YYYY-MM-DD]		2022-05-31			—
Test Voltage applied [V]		8000/1500			—
Sample #	Measured	Required	Dielectric breakdown		Result

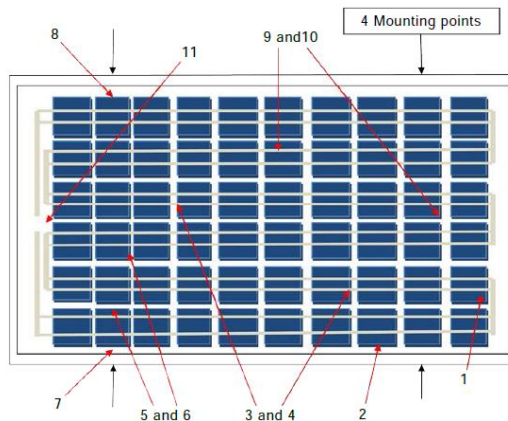
	MΩ	MΩ	Yes (description)	No	
1	>9990	15.50	No dielectric breakdown	×	P
2	>9990	15.50	No dielectric breakdown	×	P
3	>9990	15.50	No dielectric breakdown	×	P
4	>9990	15.50	No dielectric breakdown	×	P
5	>9990	20.51	No dielectric breakdown	×	P
6	>9990	20.51	No dielectric breakdown	×	P
7	>9990	20.51	No dielectric breakdown	×	P
8	>9990	20.51	No dielectric breakdown	×	P
Supplementary information: Size of module 2.58 [m²] (sample 1-4) and 1.95[m²] (sample 4-8) . The maximum resistance measurement range is 9990 MΩ.					

3.7	TABLE: Wet Leakage Current Test - MST 17 (Initial)			P
Test Date [YYYY-MM-DD].....:		2022-05-31		—
Test Voltage applied [V].....:		8000/1500		—
Solution resistivity [$\Omega\cdot\text{cm}$].....:		< 3500 $\Omega\cdot\text{cm}$ at 22 $\pm$ 2°C	1357	—
Solution temperature [°C].....:		22.3		—
Sample #	Measured [$\text{M}\Omega$]	Limit [$\text{M}\Omega$]		Result
1	6440	15.50		P
2	3170	15.50		P
3	6470	15.50		P
4	3960	15.50		P
5	7300	20.51		P
6	5030	20.51		P
7	4170	20.51		P
8	4420	20.51		P
Supplementary information: Size of module 2.58 [m ²] (sample 1-4) and 1.95[m ²] (sample 4-8).				

3.8	TABLE: Hail impact test						P	
Test Date [YYYY-MM-DD:		2022-06-01					—	
Sample #		1						
Ice ball size		1	2	3	4	5	6	—

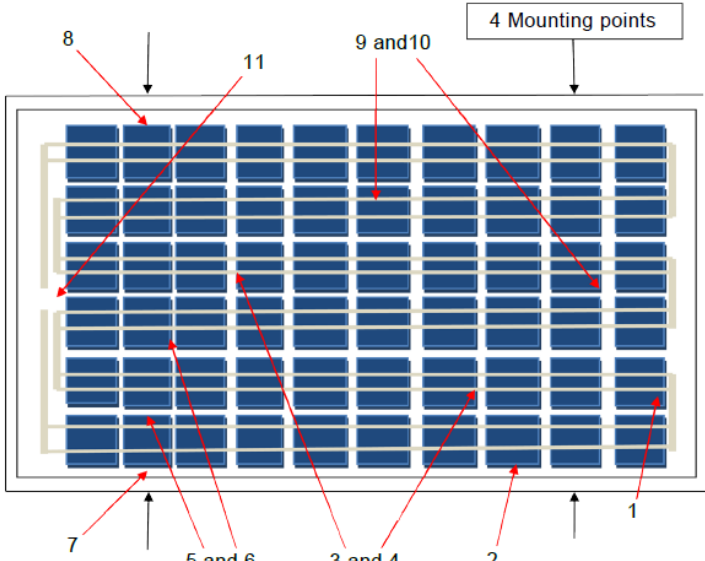
[mm]..... :	1	2	3	4	5	6	
	34.0	33.8	34.7	34.6	35.3	33.5	
	7	8	9	10	11	/	
Ice ball weight [g]..... :	34.1	35.2	35.2	35.1	35.0	/	—
	1	2	3	4	5	6	
	20.17	20.48	21.12	21.24	21.02	20.95	
	7	8	9	10	11	/	
Ice ball velocity [m/s]..... :	20.16	21.10	21.37	20.30	19.82	/	—
	1	2	3	4	5	6	
	26.2	27.0	27.7	27.9	26.4	27.0	
	7	8	9	10	11	/	
Number of impact locations.....:	11						P

Supplementary information: (impact location descriptions)



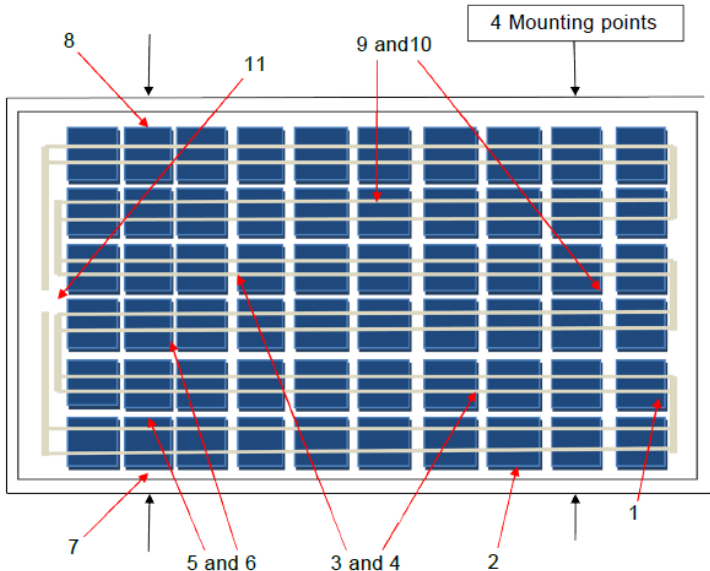
(Visual inspection after hail impact test)		P
Test Date [YYYY-MM-DD]:	2022-06-01	—
Sample #	Nature and position of initial findings – comments or attach photos	—
1	No major visual defects	P
Supplementary information: N/A		

4.17 E2	TABLE: Hail impact test	P
Sample #	2	
Test Date [YYYY-MM-DD]:	2022-06-01	—

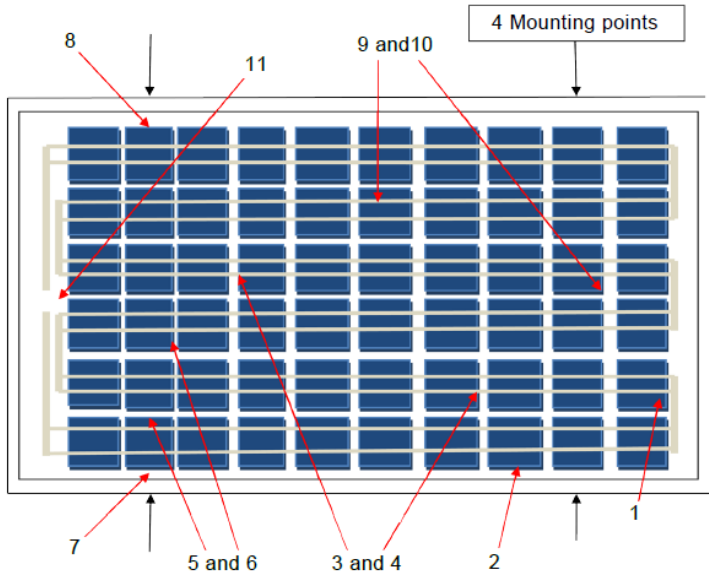
Ice ball size [mm]..... :	1	2	3	4	5	6	—
	35.0	33.7	35.2	34.9	34.6	35.0	—
	7	8	9	10	11	/	
	33.6	33.7	34.6	33.7	34.2	/	
Ice ball weight [g]..... :	1	2	3	4	5	6	—
	21.23	20.70	21.44	19.95	20.13	20.62	
	7	8	9	10	11	/	
	20.05	21.40	19.83	21.21	21.13	/	
Ice ball velocity [m/s]..... :	1	2	3	4	5	6	—
	26.5	28.0	26.7	27.4	27.8	26.3	
	7	8	9	10	11	/	
	26.7	26.3	26.9	26.7	26.3	/	
Number of impact locations..... :	11						P
Supplementary information: (impact location descriptions)							
8 11 9 and 10 4 Mounting points  7 5 and 6 3 and 4 2 1							
(4.1 Visual inspection after hail impact test)							P
Test Date [YYYY-MM-DD]:		2022-06-01					—
Sample #	Nature and position of initial findings – comments or attach photos						—
2	No major visual defects found						P

Supplementary information: N/A

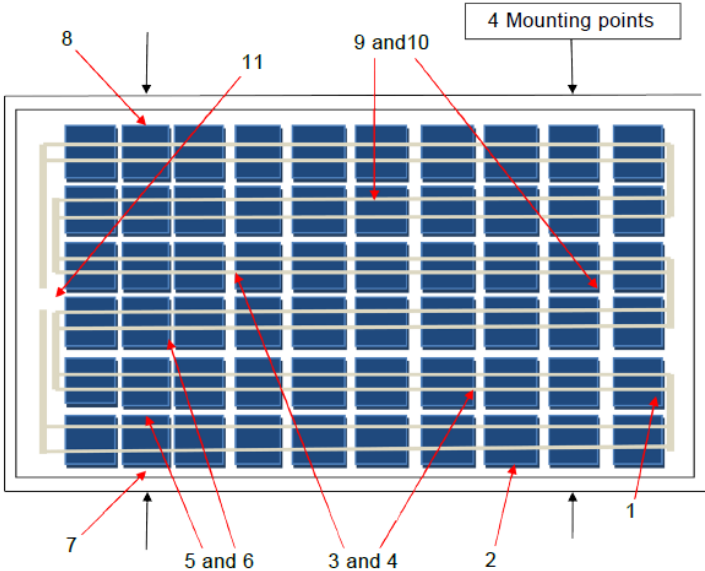
4.17 E2	TABLE: Hail impact test						P	
Sample #		3						
Test Date [YYYY-MM-DD]:		2022-06-01						—
Ice ball size [mm]..... :	1	2	3	4	5	6	—	
	43.5	45.2	44.2	44.3	44.5	43.7	—	
	7	8	9	10	11	/		
	44.2	45.1	45.0	43.9	43.6	/		
Ice ball weight [g]..... :	1	2	3	4	5	6	—	
	42.66	43.12	44.59	45.13	42.12	43.85		
	7	8	9	10	11	/		
	44.80	45.38	43.61	42.32	43.41	/		
Ice ball velocity [m/s]..... :	1	2	3	4	5	6	—	
	30.9	31.6	31.3	31.2	30.5	30.8		
	7	8	9	10	11	/		
	29.7	30.6	31.9	29.5	30.8	/		
Number of impact locations..... :		11						P
Supplementary information: (impact location descriptions)								

		
(4.1 Visual inspection after hail impact test)		P
Test Date [YYYY-MM-DD]:	2022-06-01	—
Sample #	Nature and position of initial findings – comments or attach photos	—
3	No major visual defects found	P
Supplementary information: N/A		

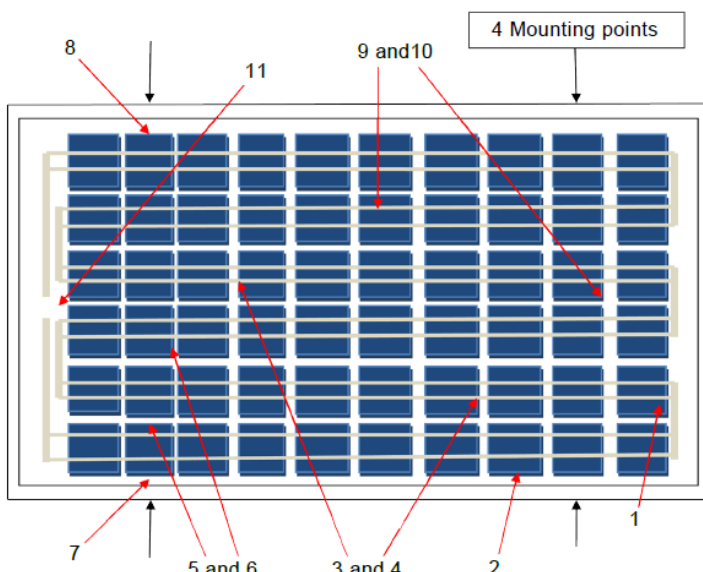
4.17 E2	TABLE: Hail impact test						P
Sample #	4						
Test Date [YYYY-MM-DD]:	2022-06-07						—
Ice ball size [mm]..... :	1	2	3	4	5	6	—
	43.0	43.8	43.0	43.8	44.9	43.8	—
	7	8	9	10	11	/	
Ice ball weight [g]..... :	45.1	43.2	45.2	43.5	43.5	/	—
	1	2	3	4	5	6	
	44.53	42.15	45.30	43.82	44.20	44.46	
Ice ball velocity	7	8	9	10	11	/	—
	42.37	45.35	42.55	45.32	42.10	/	
Ice ball velocity							—

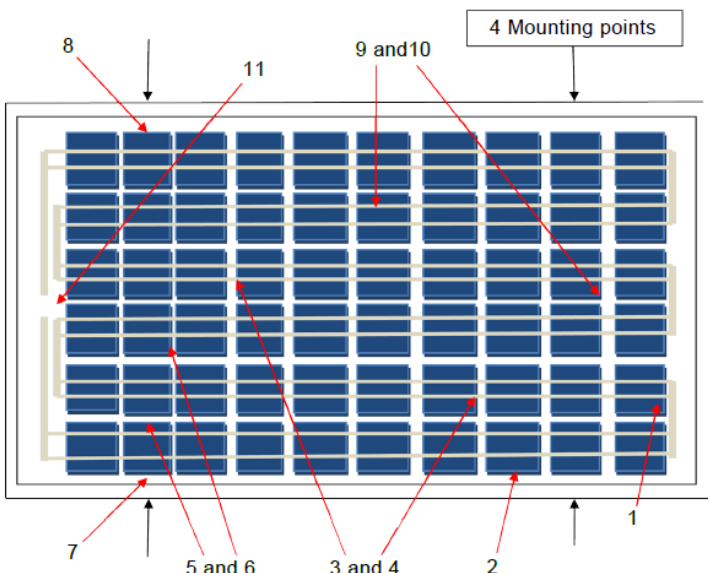
[m/s]..... :		29.9	31.2	30.6	29.8	31.0	30.5
		7	8	9	10	11	/
		31.0	30.8	31.4	31.9	31.7	/
Number of impact locations..... :		11					P
Supplementary information: (impact location descriptions)							
							
(4.1 Visual inspection after hail impact test)							P
Test Date [YYYY-MM-DD]:		2022-06-07					—
Sample #	Nature and position of initial findings – comments or attach photos						—
4	No major visual defects found						P
Supplementary information:N/A							

4.17 E2	TABLE: Hail impact test						P
Sample #	5						
Test Date [YYYY-MM-DD]:	2022-05-31						—
Ice ball size [mm]..... :	1	2	3	4	5	6	—
	35.1	33.8	34.9	35.0	35.1	33.7	—
	7	8	9	10	11	/	
	33.9	34.7	33.6	34.2	34.6	/	
Ice ball weight [g]..... :	1	2	3	4	5	6	—

	20.81	19.93	19.97	20.76	21.20	20.32	
	7	8	9	10	11	/	
	20.33	20.38	20.70	19.98	21.26	/	
Ice ball velocity [m/s]..... :	1	2	3	4	5	6	—
	27.9	27.4	26.2	26.3	26.3	27.8	
	7	8	9	10	11	/	
	27.0	27.1	26.5	26.0	27.1	/	
Number of impact locations..... :	11						P
Supplementary information: (impact location descriptions)							
							
(4.1 Visual inspection after hail impact test)							P
Test Date [YYYY-MM-DD] :						2022-05-31	—
Sample #	Nature and position of initial findings – comments or attach photos						—
5	No major visual defects found						P
Supplementary information: N/A							

4.17 E2	TABLE: Hail impact test						P
Sample #	6						
Test Date [YYYY-MM-DD]:	2022-05-31						—
Ice ball size [mm]..... :	1	2	3	4	5	6	—
	35.2	35.0	34.6	35.0	34.8	34.0	

		7	8	9	10	11	/	—
		34.6	34.7	35.3	35.0	35.0	/	
Ice ball weight [g]..... :		1	2	3	4	5	6	—
		21.08	20.67	19.93	20.40	20.98	20.60	
		7	8	9	10	11	/	
		20.25	19.88	20.08	20.79	20.21	/	
Ice ball velocity [m/s]..... :		1	2	3	4	5	6	—
		28.0	26.2	26.5	26.7	26.2	26.7	
		7	8	9	10	11	/	
		27.9	27.6	26.3	27.1	27.3	/	
Number of impact locations..... :	11						P	
Supplementary information: (impact location descriptions)								
								
(4.1 Visual inspection after hail impact test)								P
Test Date [YYYY-MM-DD]:		2022-05-31						—
Sample #	Nature and position of initial findings – comments or attach photos						—	
6	No major visual defects found						P	
Supplementary information: N/A								

4.17 E2	TABLE: Hail impact test						P
Sample #	7						
Test Date [YYYY-MM-DD]..... :	2022-05-31						—
Ice ball size [mm]..... :	1	2	3	4	5	6	—
	43.2	44.2	44.9	43.5	43.4	44.7	—
	7	8	9	10	11	/	
	45.1	43.0	43.3	45.2	43.5	/	
Ice ball weight [g]..... :	1	2	3	4	5	6	—
	42.73	43.02	44.42	45.22	43.74	43.22	
	7	8	9	10	11	/	
	43.52	43.43	44.75	44.59	44.34	/	
Ice ball velocity [m/s]..... :	1	2	3	4	5	6	—
	29.5	30.1	31.1	29.7	30.4	29.8	
	7	8	9	10	11	/	
	29.8	30.0	32.0	31.2	31.8	/	
Number of impact locations..... :	11						P
Supplementary information: (impact location descriptions)							
							
(4.1 Visual inspection after hail impact test)						P	
Test Date [YYYY-MM-DD]..... :	2022-05-31						—



Sample #	Nature and position of initial findings – comments or attach photos	—
7	No major visual defects found	P
Supplementary information: N/A		

4.17 E2	TABLE: Hail impact test						P
Sample #			8				
Test Date [YYYY-MM-DD]..... :			2022-05-31				—
Ice ball size [mm]..... :	1	2	3	4	5	6	—
	43.3	44.4	43.5	44.3	44.5	44.7	—
	7	8	9	10	11	/	
	43.7	45.0	44.8	43.4	43.6	/	
Ice ball weight [g]..... :	1	2	3	4	5	6	—
	44.00	45.20	43.51	44.73	42.41	42.89	
	7	8	9	10	11	/	
	44.53	43.04	44.30	43.18	43.59	/	
Ice ball velocity [m/s]..... :	1	2	3	4	5	6	—
	31.2	31.1	31.2	30.7	30.8	31.0	
	7	8	9	10	11	/	
	29.9	31.1	31.7	31.4	30.6	/	
Number of impact locations..... :			11				P
Supplementary information: (impact location descriptions)							

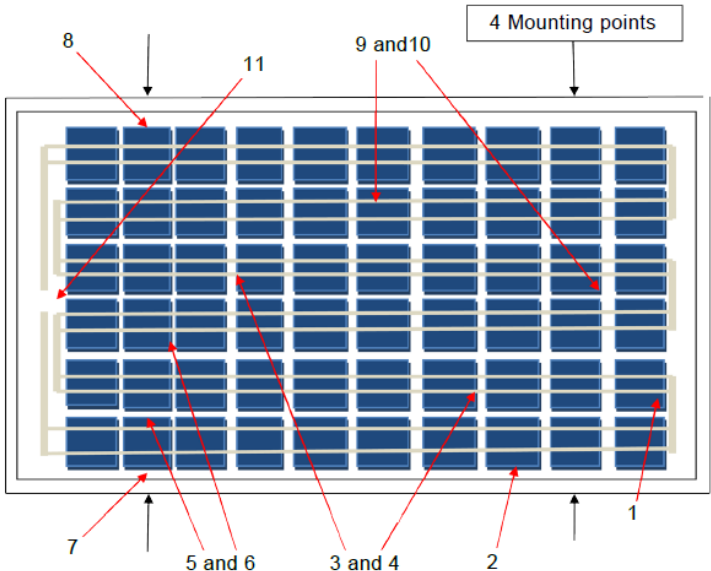
		
(4.1 Visual inspection after hail impact test)		P
Test Date [YYYY-MM-DD]	2022-05-31	—
Sample #	Nature and position of initial findings – comments or attach photos	—
8	No major visual defects found	P
Supplementary information:N/A		

TABLE 17.9: MQT 06.1: Final Performance at STC									P
Test Date [YYYY-MM-DD]: 2022-06-07									—
Test method:				☒ Simulator ☐ Natural sunlight					—
Sample #	Isc [A]	Voc [V]	Imp [A]	Vmp [V]	Pmax [W]	FF [%]	Pmax [W] (Lab _GateNo.2)	Power Degradation [%]	Result
1	14.034	52.517	13.239	44.360	587.289	79.68	587.985	-0.12	P
2	13.895	52.426	13.160	44.472	585.270	80.34	586.173	-0.15	P
3	13.935	52.508	13.248	44.345	587.501	80.29	589.086	-0.27	P
4	13.898	52.432	13.168	44.530	586.381	80.47	587.632	-0.21	P
5	13.635	39.365	12.995	32.931	427.934	79.73	428.816	-0.21	P
6	13.621	39.319	12.966	32.812	425.432	79.43	426.736	-0.31	P
7	13.524	39.324	12.943	32.698	423.200	79.58	424.423	-0.29	P

8	13.609	39.333	12.885	33.334	429.519	80.24	430.785	-0.29	P
Supplementary information: Pmax [W] (Lab_GateNo.2) is calculated by considering the reproducibility <i>r</i> of control module.									

TABLE 21: MQT 03 fin: Final Insulation test					P
Test Date [YYYY-MM-DD].....:		2022-06-07			—
Test Voltage applied [V]		8000/1500			—
Size of module [m²].....:		2.58(sample 1-4) 1.95(sample 5-8)			—
Sample #	Required	Measured	Dielectric breakdown		Result
	MΩ	MΩ	Yes (description)	No	
1	15.50	>10000	No Dielectrical breakdown	X	P
2	15.50	>10000	No Dielectrical breakdown	X	P
3	15.50	>10000	No Dielectrical breakdown	X	P
4	15.50	>10000	No Dielectrical breakdown	X	P
5	20.51	>10000	No Dielectrical breakdown	X	P
6	20.51	>10000	No Dielectrical breakdown	X	P
7	20.51	>10000	No Dielectrical breakdown	X	P
8	20.51	>10000	No Dielectrical breakdown	X	P
Supplementary information:N/A.					

TABLE 22: MQT 15 fin: Final Wet leakage current test				P
Test Date [YYYY-MM-DD]		2022-06-07		—
Test Voltage applied [V]		1500		—
Solution temperature [°C]		23.2		—
Size of module [m²].....:		2.58(sample 1-4) 1.95(sample 5-8)		—
Required Resistance [MΩ]		15.50(sample 1-4) 20.51(sample 5-8)		—
Sample #	Measured [MΩ]	Limit [MΩ]	Result	
1	7670	15.50	P	
2	3640	15.50	P	

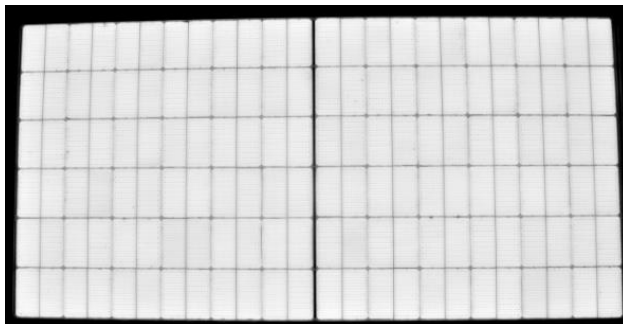
3	5690	15.50	P
4	3660	15.50	P
5	6580	20.51	P
6	6860	20.51	P
7	3920	20.51	P
8	5240	20.51	P
Supplementary information: Solution resistivity 2303 [$\Omega \cdot \text{cm}$].			

TABLE: Electroluminescence measurement		—
Test Date [MM/DD/YYYY].....:	2022-06-07	—
Applied current [A].....:	11.5	—
Exposure time [s]	5	—
Sample No.	Nature and position of initial findings – comments or attach photos	Result
1	No major visual defects.	—
2	No major visual defects.	—
3	No major visual defects.	—
4	No major visual defects.	—
5	No major visual defects.	—
6	No major visual defects.	—
7	No major visual defects.	—
8	No major visual defects.	—

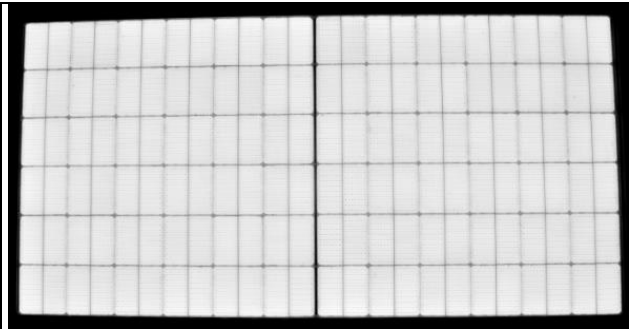
Supplementary information: EL pictures

Note: no valid standard for verdicts in EL currently.

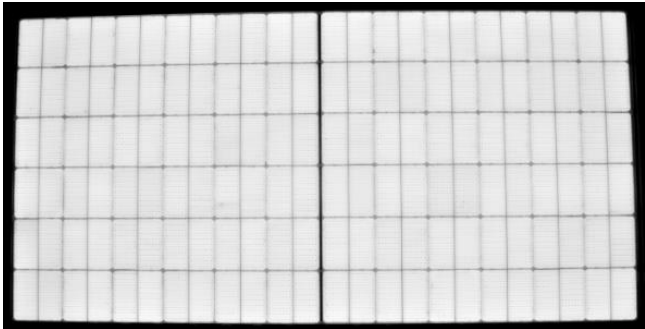
-1#



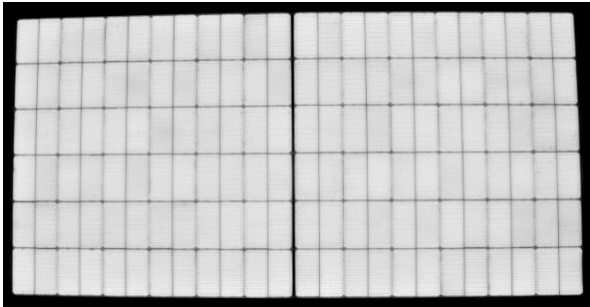
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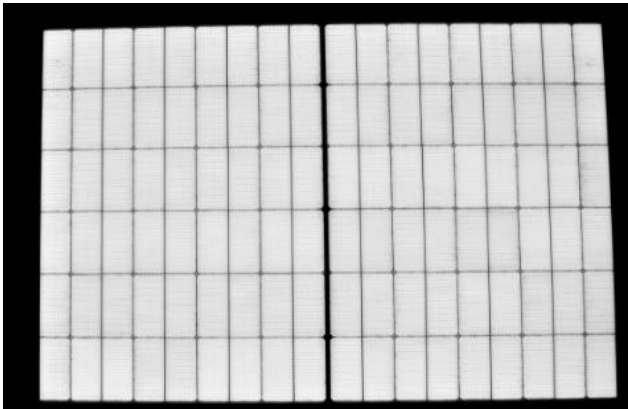
-3#



-4#

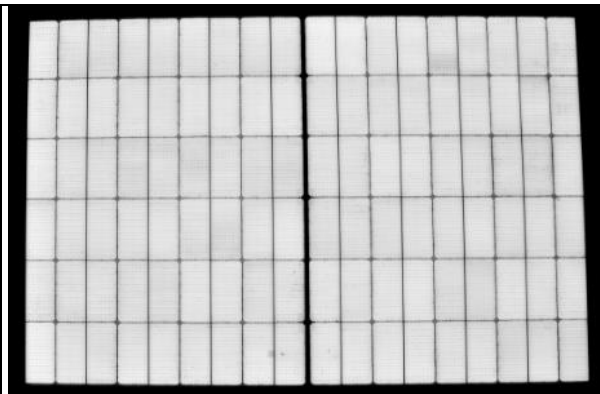


-5#

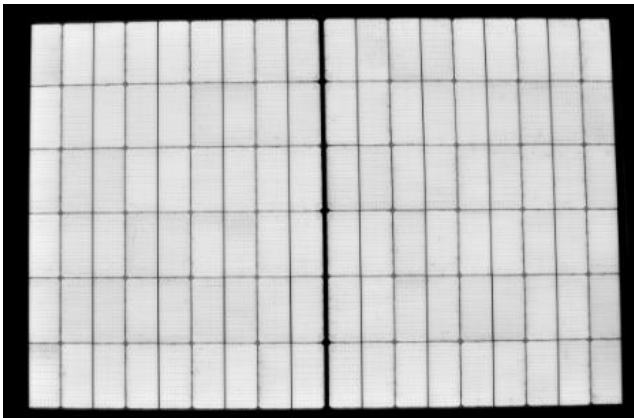


-6#

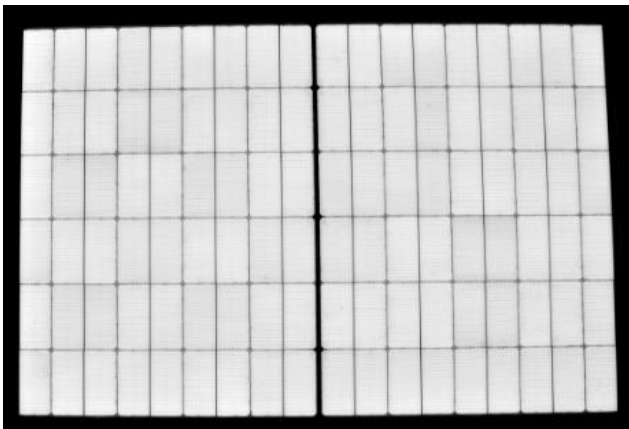
Doc No.: ITC-TTW0902.02E – Rev10



-7#



-8#



4. Remark

N/A

Doc No.: ITC-TTW0902.02E – Rev10

Annex 1: List of measurement equipment

Clause	Measurement / testing	Testing / measuring equipment / material used, (Equipment ID)	Range used	Last Calibration date	Calibration due date
4.1	Visual inspection	Visual inspection table HYJC-YS-033	/	/	/
		Illumination photometer HYJC-YS-070	0 ~ 40.0klux	2022.01.10	2023.01.09
4.2	Maximum power determination	Module pulse simulator HYJC-YS-021	AAA	2022.01.10	2023.01.09
4.3	Insulation test	Programmable control voltage insulation meter HYJC-YS-155	0-1500V	2021.09.09	2022.09.08
4.6	Performance at STC	Module pulse simulator HYJC-YS-021	AAA	2022.01.10	2023.01.09
4.15	Wet leakage current test	Programmable control voltage insulation meter HYJC-YS-155	0-1500V	2021.09.09	2022.09.08
		Conductance meter HYJC-YS-171	0.000US/cm ~ 200.0ms/cm	2021.09.09	2022.09.08
4.17	Hail test	Hail tester HYJC-YS-036	0 ~ 50m/s	2021.09.09	2022.09.08

All equipment used for tests having a significant effect on the accuracy or validity of the result of the test is calibrated before being put into service.

Annex 2: Statement of the estimated uncertainty of the test results and reproducibility r from the control module

$P_{\max}$ measurement uncertainty: 2.12%

V_{oc} measurement uncertainty: 0.98%

I_{sc} measurement uncertainty: 2.26%

Appendix 3: The tested BOM described as below:

A1.1	MODULE TYPE/S
	LR5-72HTH-xxxM,(xxx=555-600 in step of 5) LR5-54HTH-xxxM,(xxx=420-450 in step of 5)

A1.2	MODULE DESIGN
	Module dimensions (L x W x H) [mm]..... : 144-cell module: 2278×1134×35mm 108-cell module: 1722×1134×30mm
	Weights..... : 144-cell module: 27.5 kg 108-cell module: 20.8 kg
	Front/Rear cover bonding classification..... : rigid/flexible

A1.3	SOLAR CELL
	Cell type reference..... : Mono-Si, Cell type: M10P0B Back surface: 1.0 mm discontinuous soldering pads. 1.30 mm discontinuous soldering pads
	Cell dimensions L x W x T (± %) [mm]..... : 182(±2) x91(±2) (mm), half cut 182(±2) x91.875(±2) (mm), half cut Cell area: 161.71~168.39 (cm²)
	Cell thickness [μm]..... : Cell Thickness: 180μm±18μm
	Cell area [cm²]..... : 161.71~168.39 (cm²)

A1.4	IDENTIFICATION OF MATERIALS
	Front cover..... : Xinyi Solar (Hong Kong) Limited Type: Coating tempered glass Thickness: 3.2± 0.2 mm
	Rear cover..... : Suzhou First PV Material Co., Ltd BEC-306D Inner layer is black or white, outer layer is white Thickness:0.320mm,PVF 25 μm / PET 275 μm / Fluororesin 10 μm partial discharge voltage 1500VDC

	Encapsulation material front side..... :	Hangzhou First Photovoltaic Material Co.,Ltd. Type: TF4 (POE,near front surface) Thickness: POE: 0.6 ~ 1.0 mm
	Encapsulation material back side..... :	Hangzhou First Photovoltaic Material Co.,Ltd. Type:EVA, F806W Thickness: EVA:0.40~0.85mm
	Frame parts..... :	LONGi Green Energy Technology Co., Ltd Anodized aluminum alloy, 6005-T6, silver colour
	Mounting parts..... :	N/A
	Adhesive for frame	H.B.Fuller(Suzhou) Advanced Material Co.,Ltd,Type: 1527
	Edge sealing..... :	N/A
	Internal wiring..... :	N/A
	Cell connector..... :	LONGi Green Energy Technology Co., Ltd Cross section: 0.25x0.6mm Material: Base Cu, Coating Sn63Pb37.
	String connector..... :	LONGi Green Energy Technology Co., Ltd. Cross section: 0.3 × 7mm&0.3×4mm Material: Base Cu, Coating Sn63Pb37.
	Soldering material..... :	N/A
	Fluxing agent..... :	Singapore Asahi Chemical and Solder Industries Pte Ltd Type: SF56
	Junction box..... :	LONGi Green Energy Technology Co., Ltd. PV-LR04A, DC 1500 V, 22A, IP 68, - 40 °C to 85 °C.
	Cable..... :	LONGi Green Energy Technology Co., Ltd. Type: H1Z2Z2-K 1×4mm ² , 1500V DC, -40 °C to 90 °C

	Connector..... :	LONGi Green Energy Technology Co., Ltd. Type: PV-LR5, DC 1500V, 30A, IP 67, -40 °C to 85 °C
	Bypass diode..... :	LONGi Green Energy Technology Co., Ltd. Type: 40SQ045, Schottky, Max. peak reverse voltage 45 V, Max. average forward current 30 A, Max. junction temperature 200 °C.
	Potting material..... :	H.B.Fuller(Suzhou) Advanced Material Co.,Ltd,Type: 1521
	Adhesive for junction box :	H.B.Fuller(Suzhou) Advanced Material Co.,Ltd,Type: 1527
	Additional material (e. g. fixing tape, insulation tape)..... :	Fixing tape: Type: BEC-201, Suzhou First PV Material Co., Ltd; Soldering paste:SRT901-ZF-4-ZXZ01, BEIJING COMPO ADVANCED TECHNOLOGY CO.,LTD; Insulation glue:KSM-386GY, JIANGSU KUANGSHUN PHOTSENSITIVITY NEW-MATERIAL STOCK CO., LTD.

A1.5	MODULE DESIGN - MINIMUM DISTANCES	
	Between cells..... :	0.6±0.5 mm
	Between cell and accessible surfaces..... :	10.5mm
	Between any current carrying part and accessible surfaces..... :	10.5 mm

A1.6	MODULE DESIGN - ELECTRICAL CONFIGURATION	
	Total number of cells..... :	144/108
	Serial-parallel connection of cells..... :	S/P
	Cells per bypass diode..... :	48/36
	No. of bypass diodes..... :	3

A1.1	MODULE TYPE/S
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	LR5-54HTB-xxxM,(xxx=410-440 in step of 5)
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A1.2	MODULE DESIGN	
	Module dimensions (L x W x H) [mm]..... :	108-cell module: 1722×1134×30mm
	Weights..... :	108-cell module: 20.8 kg
	Front/Rear cover bonding classification..... :	rigid/flexible

A1.3	SOLAR CELL	
	Cell type reference..... :	Mono-Si, Cell type: M10P0B Back surface: 1.0 mm discontinuous soldering pads. 1.30 mm discontinuous soldering pads
	Cell dimensions L x W x T (± %) [mm]..... :	182(±2) x91(±2) (mm), half cut 182(±2) x91.875(±2) (mm), half cut Cell area: 161.71~168.39 (cm ²)
	Cell thickness [μm]..... :	Cell Thickness: 180μm±18μm
	Cell area [cm ²]..... :	161.71~168.39 (cm ²)

A1.4	IDENTIFICATION OF MATERIALS	
	Front cover..... :	Xinyi Solar (Hong Kong) Limited Type: Coating tempered glass Thickness: 3.2± 0.2 mm
	Rear cover..... :	Suzhou First PV Material Co., Ltd BEC-306D(black) Inner layer is black or white, outer layer is white Thickness:0.320mm,PVF 25 μm / PET 275 μm / Fluororesin 10 μm partial discharge voltage 1500VDC
	Encapsulation material front side..... :	Hangzhou First Photovoltaic Material Co.,Ltd. Type: TF4 (POE,near front surface) Thickness: POE: 0.6 ~ 1.0 mm
	Encapsulation material back side..... :	Hangzhou First Photovoltaic Material Co.,Ltd. Type:EVA, F806PS Thickness: EVA:0.35~0.85mm

	Frame parts.....	LONGi Green Energy Technology Co., Ltd Anodized aluminum alloy, 6005-T6, silver colour
	Mounting parts.....	N/A
	Adhesive for frame	H.B.Fuller(Suzhou) Advanced Material Co.,Ltd,Type: 1527
	Edge sealing.....	N/A
	Internal wiring.....	N/A
	Cell connector.....	LONGi Green Energy Technology Co., Ltd Cross section: 0.25x0.6mm Material: Base Cu, Coating Sn63Pb37.
	String connector.....	LONGi Green Energy Technology Co., Ltd. Cross section: 0.25 × 6mm&0.3×4mm Material: Base Cu, Coating Sn63Pb37.
	Soldering material.....	N/A
	Fluxing agent.....	Singapore Asahi Chemical and Solder Industries Pte Ltd Type: SF56
	Junction box.....	LONGi Green Energy Technology Co., Ltd. PV-LR04A, DC 1500 V, 22A, IP 68, -40 °C to 85 °C.
	Cable.....	LONGi Green Energy Technology Co., Ltd. Type: H1Z2Z2-K 1×4mm ² , 1500V DC, -40 °C to 90 °C
	Connector.....	Stäubli Electrical Connectors AG. PV-KST4-EVO 2/xy_UR PV-KBT4-EVO 2/xy_UR
	Bypass diode.....	LONGi Green Energy Technology Co., Ltd. Type: 30SQ045-SL, Schottky, Max. peak reverse voltage 45 V, Max. average forward current 30 A, Max. junction temperature 200 °C.
	Potting material.....	H.B.Fuller(Suzhou) Advanced Material Co.,Ltd,Type: 1521

	Adhesive for junction box	H.B.Fuller(Suzhou) Advanced Material Co.,Ltd,Type: 1527
	Additional material (e. g. fixing tape, insulation tape).....	Fixing tape: Type: UV-1,3M; Soldering paste:SRT901-ZF-4-ZXZ01, BEIJING COMPO ADVANCED TECHNOLOGY CO.,LTD; Insulation glue:KSM-386GY, JIANGSU KUANGSHUN PHOTSENSITIVITY NEW-MATERIAL STOCK CO., LTD; Insulation tap:BEC-201B,Suzhou First PV material Co.,Ltd. Or BCP-1B, LONGi Green Energy Technology Co.,Ltd.

A1.5	MODULE DESIGN - MINIMUM DISTANCES	
	Between cells.....	0.6±0.5 mm
	Between cell and accessible surfaces.....	10.5mm
	Between any current carrying part and accessible surfaces.....	10.5 mm

A1.6	MODULE DESIGN - ELECTRICAL CONFIGURATION	
	Total number of cells.....	108
	Serial-parallel connection of cells.....	S/P
	Cells per bypass diode.....	36
	No. of bypass diodes.....	3

4.1 Factory surveillance cycle

Your production facility is currently on a

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

surveillance cycle.

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

Routine tests for electrical appliances / equipment:

Routine test requirements for production are described in annual inspection test reports.

5. Documentation

File	File name	Date
Data form (CDF):	N/A	N/A
Photo documentation:	N/A	N/A
User manual:	N/A	N/A
Installation manual:	N/A	N/A

6. Summary

The test specification is met.

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

Technical Report



Tested by:

Yang Xu

printed name, function & signature

Approved by:

Tao Wang

printed name, function & signature