

Test Report issued under the responsibility of:

TEST REPORT	
IS 16077:2013/IEC 61646:2008	
Thin-film Terrestrial Photovoltaic (PV) Modules	
- Design Qualification and Type Approval	
Report Reference No.	
Date of issue.....	
Total number of pages.....	
Testing Laboratory	
Address.....	
Applicant's name	
Address.....	
Test specification	
Standard	IS 16077:2013/IEC 61646:2008
Test procedure	
Non-standard test method	N/A
Test Report Form No.	IS16077/IEC61646_V1.0
Test Report Form Originator.....	BIS
Master TRF.....	19.02.2018
Test item description	
Trade Mark	
Manufacturer	
Model/Type reference.....	
Ratings.....	

Testing procedure and testing location:☐ **Testing Laboratory:**

Testing location/ address

Tested by (name + signature)

Approved by (+ signature).....

Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
Summary of compliance with National Differences:	
Copy of marking plate	

Test item particulars:				
Accessories and detachable parts included in the evaluation				
Options included				
Abbreviations used in the report:				
HF – Humidity Freeze		TC – Temperature Cycling		
DH – Damp Heat		Vmp – Maximum power voltage		
Imp – Maximum power current		Voc – Open circuit voltage		
Isc - Short circuit current		FF – Fill Factor		
Pmp – Maximum power		α – Current temperature coefficient		
NOCT – Nominal Operating Cell Temperature		β – Voltage temperature coefficient		
STC – Standard Test Conditions		δ – power temperature coefficient		
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)		
Testing				
Date of receipt of test item				
Date (s) of performance of tests				
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. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma (point) is used as the decimal separator.				
General product information				
<u>Product Electrical Ratings:</u>				
Module type				
Voc (Vdc)				
Vmp (Vdc)				
Imp (Adc)				
Isc (Adc)				
Pmax (W)				
Maximum system voltage (V)				
Series Fuse Rating (A)				

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Clause	Requirement + Test	Result - Remark	Verdict

Description of module construction: (Manufactories and part numbers, unless otherwise specified)	
Samples	: Random sampling from production ☐ Prototype submitted by client ☐
<u>Module</u> Front Cover.....: Rear Cover: Encapsulation material: Frame: Dimensions l x w x h [mm].....: Module area [m ²]: Minimum distance between current carrying parts and module edge [mm].....:	
<u>Cell</u> Cell type.....: Cell dimensions l x w [mm].....: Cell area [cm ²]: Number of cells.....:	
<u>Components and other</u> Cells per bypass diode: Type of bypass diode: No. of bypass diodes: Cell- and string connectors.....: Junction box: Cable: Connectors: Adhesives (frame): Adhesives (junction box): Potting material (junction box).....: Others:	
Summary of testing:	

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Clause	Requirement + Test	Result - Remark	Verdict
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Testing procedure

☐ New module type

- All the tests required were performed with the model applied this time

☐ Modifications (if yes, please choose the applicable modification according to the Retesting Guideline)

- For some of the tests, previously tested results with an original model were applicable and other remaining tests were performed with the newly applied model as shown below.
- All the relevant test results including those previously tested are introduced in this report.

- ☐ Change in cell technology
- ☐ Modification to encapsulation system
- ☐ Modification to superstrate
- ☐ Increase in module size
- ☐ Modification to backsheet/ substrate
- ☐ Modification to frame and/ or mounting structure
- ☐ Modification to junction box/ electrical termination
- ☐ Change in cell interconnect materials or technique
- ☐ Change in electrical circuit of an identical package
- ☐ Higher or lower power output (by 10%) in the identical package including size and using the identical cell process
- ☐ Qualification of a frameless module after the design has received certification as a framed module
- ☐ Change in bypass diode or number of diodes

Description of similarity (differences) between the applied model and the previously tested model

Tests performed		Newly tested model	Previously tested model	Testing location:
Test clause	Name of test			
10.1	Visual inspection			
10.2	Maximum power determination			
10.3	Insulation test			
10.4	Measurement of temperature coefficient			
10.5	Measurement of NOCT			
10.6	Performance at STC and NOCT			
10.7	Performance at low irradiance			
10.8	Outdoor exposure test			
10.9	Hot spot endurance test			
10.10	UV preconditioning test			
10.11a	Thermal cycling test (50 cycles)			
10.11b	Thermal cycling test (200 cycles)			
10.12	Humidity freeze test			
10.13	Damp heat test			
10.14	Robustness of termination test			

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Clause	Requirement + Test	Result - Remark	Verdict

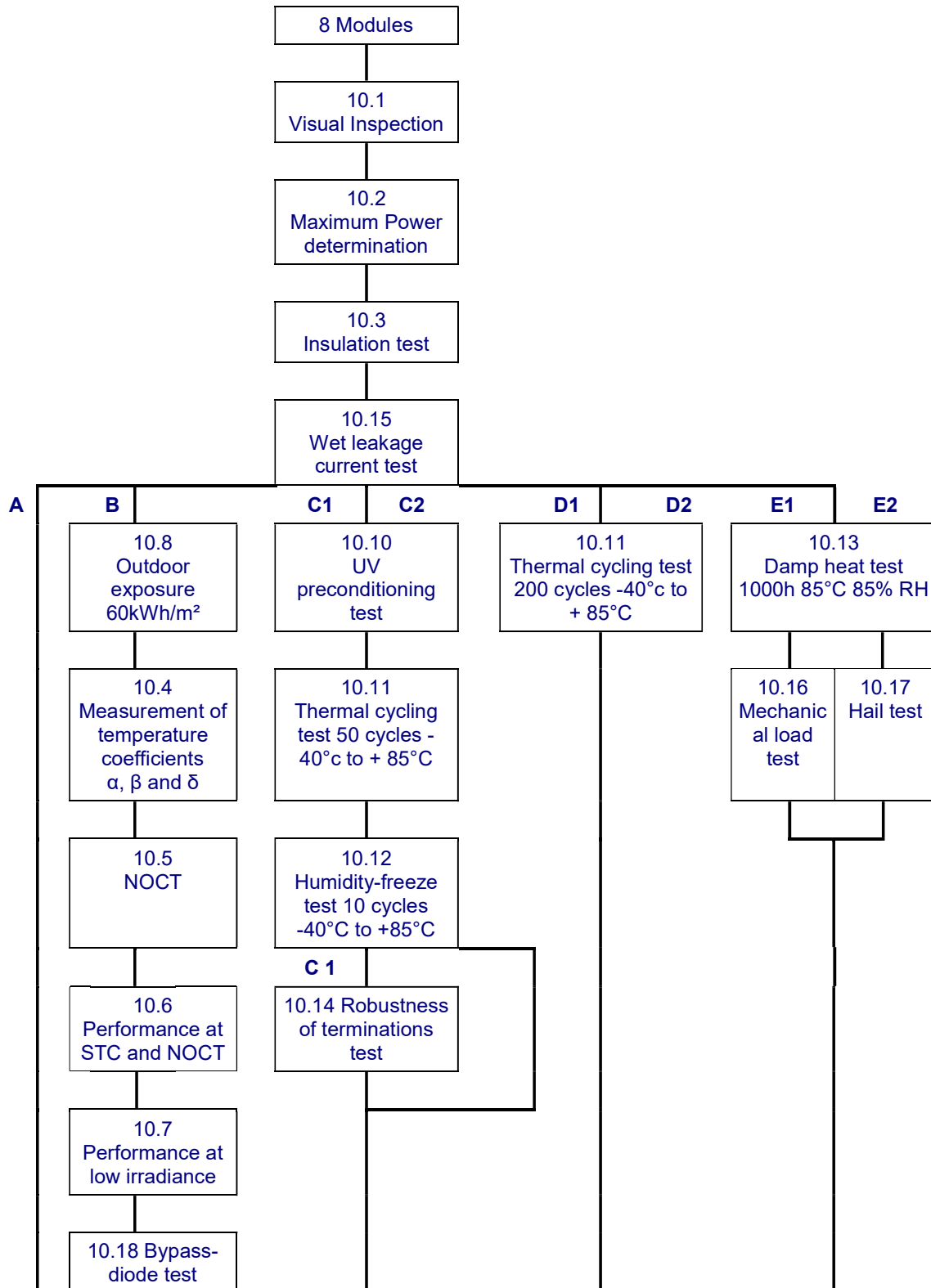
10.15	Wet leakage current test			
10.16	Mechanical load test			
10.17	Hail test			
10.18	Bypass diode thermal test			
10.19	Light soaking			

Module group assignment:

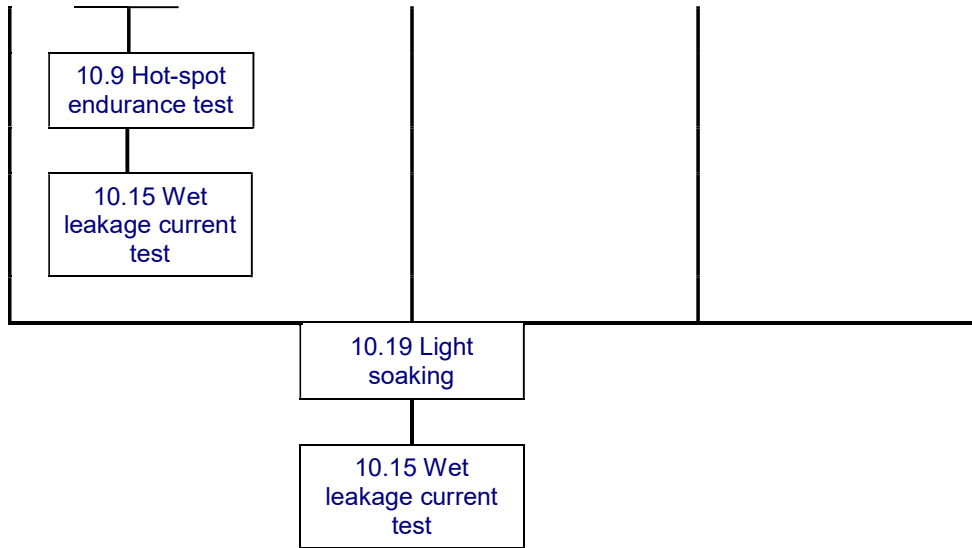
Sample #	Sample Group ID	Model (module type)	Sample S/N
	A		
	B		
	C1		
	C2		
	D1		
	D2		
	E1		
	E2		

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Clause	Requirement + Test	Result - Remark	Verdict

10	TEST PROCEDURES (if it is not a full test, strikethrough non-performed test) Note: Deviations from test sequence are possible but must be documented.
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Clause	Requirement + Test	Result - Remark	Verdict



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Clause	Requirement + Test	Result - Remark	Verdict

4	MARKING		—
	Name, monogram or symbol of manufacturer		—
	Type or model number		—
	Serial number		—
	Polarity of terminals or leads		—
	Maximum system voltage		—
	Nominal value of maximum output power at STC :		—
	Minimum value of maximum output power at STC :		—
	The date and place of manufacture.....		—

	Initial examination	All modules	—
10.1	Visual inspection	See table 10.1 Int	
10.2	Maximum power determination.....	See table 10.2 Int	—
10.3	Insulation test.....	See table 10.3 Int	
10.15	Wet leakage current test	See table 10.15 Int	

Group A	Control Module	Sample Group ID A	—
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Group B	1 Module	Sample Group ID B	—
10.8	Outdoor exposure test	See table 10.8 B	
10.4	Measurement of temperature coefficients	See table 10.4 B	—
10.5	Measurement of Nominal Operating Cell Temperature (NOCT, °C).....	See table 10.5 B	—
10.6	Performance at STC and NOCT	See table 10.6 B	—
10.7	Performance at low irradiance	See table 10.7 B	—
10.18	Bypass diode thermal test	See table 10.18 B	
10.9	Hot spot endurance test.....	See table 10.9 B	

Group C	2 Modules	Sample Group ID C1, C2	—
10.10	UV preconditioning test	See table 10.10 C	
10.11	Thermal cycling test (50 cycles).....	See table 10.11 C	
10.12	Humidity freeze (10 cycles).....	See table 10.12 C	

Group C1	1 Module	Sample Group ID C1	—
10.14	Robustness of terminations test	See table 10.14 C1	

Group D	2 Modules	Sample Group ID D1, D2	—
10.11	Thermal cycling test (200 cycles)	See table 10.11 D	

Group E	2 Modules	Sample Group ID E1, E2	—
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Clause	Requirement + Test	Result - Remark	Verdict
10.13	Damp heat test :	See table 10.13 E	
Group E1	1 Module	Sample Group ID E1	—
10.16	Mechanical load test..... :	See table 10.16 E1	
Group E2	1 Module	Sample Group ID E2	—
10.17	Hail test	See table 10.17 E2	
	Final measurement	All modules	—
10.19	Light soaking	See table 10.19 F	
10.15	Wet leakage current test	See table 10.15 F	

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Clause	Requirement + Test	Result - Remark	Verdict

10.1 Int	TABLE: Visual inspection (Initial)		—
Test Date (MM/DD/YYYY):			—
Sample #	Nature and position of initial findings – comments or attach photos		Verdict
Supplementary information:			

10.2 Int	TABLE: Maximum power determination (initial)						—
Test Date (MM/DD/YYYY)							—
Radiant source			☐ Solar simulator, ☐ Natural sunlight				—
Module temperature (°C)							—
Irradiance (W/m ²)							—
Sample #	Voc (V)	Vmp (V)	Isc (A)	Imp (A)	Pmp (W)	FF (%)	
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

10.3 Int	Table: Insulation test (initial)			—
Test Date (MM/DD/YYYY)				—
Test Voltage applied (V, DC)				—
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict
Supplementary information: Size of module (m ²)				

10.15 Int	TABLE: Wet leakage current test (Initial)		—
Test Date (MM/DD/YYYY) :			—
Test Voltage applied (V, dc) :			—
Solution resistivity (Ω cm) < 3,500 at $22 \pm 3^{\circ}\text{C}$:			—
Solution temperature ($^{\circ}\text{C}$)..... :			—
Sample #	Measured ($\text{M}\Omega$)	Limit ($\text{M}\Omega$)	Verdict
Supplementary information: Size of module (m^2)			

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Clause	Requirement + Test	Result - Remark	Verdict

10.8 B	TABLE: Outdoor exposure test						—											
Test Date (MM/DD/YYYY) start/end							—											
Total irradiation dosage (kWh/m ²)							—											
Supplementary information:																		
(10.1 Visual inspection after outdoor exposure test)							—											
Test Date (MM/DD/YYYY).....							—											
Sample #	Nature and position of initial findings – comments or attach photos						Verdict											
Supplementary information:																		
(10.2 Maximum power determination after outdoor exposure test)							—											
Test Date (MM/DD/YYYY).....							—											
Radiant source		☐ Solar simulator, ☐ Natural sunlight					—											
Module temperature (°C).....							—											
Irradiance (W/m ²).....							—											
Minimum value of maximum output power (W)							—											
Sample #	Voc (V)	Vmp (V)	Isc (A)	Imp (A)	Pmp (W)	FF (%)	Verdict											
(10.3 Insulation test after outdoor exposure test)							—											
Test Date (MM/DD/YYYY).....							—											
Test Voltage applied (V, DC)							—											
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No				Verdict											
Supplementary information:																		

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Clause	Requirement + Test	Result - Remark	Verdict

10.4 B	TABLE: Measurement of temperature coefficients			—
Test Date (MM/DD/YYYY)				—
Radiant source		☐ Solar simulator, ☐ Natural sunlight		—
Irradiance at which the measurements were made (W/m ²)				—
Range of module temperature (high/low) (°C)..... :				—
Parameter		Sample #	Calculated Value	—
Current: α (%/°K)				—
Voltage: B (%/°K)				—
Peak power: δ (%/K)				—
Supplementary information:				

10.5 B	TABLE: Measurement of Nominal Operating Cell Temperature (NOCT, °C)			—
Test Date (MM/DD/YYYY) :				—
Wind velocity (m/s) high/low..... :				—
Ambient temperature (°C) high/low :				—
Irradiance (W/m ²) high/low..... :				—
Module temperature (°C) high/low..... :				—
NOCT correction factor (°C) :				—
Calculated NOCT (°C) :				—
Sample #		Average NOCT (°C)		—
				—
Supplementary information: Attach correction procedure and origin of module I-V correction parameters				

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Clause	Requirement + Test	Result - Remark	Verdict

10.6 B	TABLE: Performance at STC and NOCT						—
Performance at STC							
Test Date (MM/DD/YYYY):							—
Radiant source			☐ Solar simulator, ☐ Natural sunlight				—
Module temperature (°C) :							—
Irradiance (W/m ²) :							—
Sample #	Voc (V)	Vmp (V)	Isc (A)	Imp (A)	Pmp (W)	FF (%)	
Performance at NOCT							
Test Date (MM/DD/YYYY):							—
Radiant source			☐ Solar simulator, ☐ Natural sunlight				—
Module temperature (°C) :							—
Irradiance (W/m ²) :							—
Sample #	Voc (V)	Vmp (V)	Isc (A)	Imp (A)	Pmp (W)	FF (%)	
Supplementary information:							

10.7 B	TABLE: Performance at low irradiance						—
Test Date (MM/DD/YYYY):							—
Radiant source			☐ Solar simulator, ☐ Natural sunlight				—
Irradiance (W/m ²) (200 W/m ²):							—
Module temperature (°C):							—
Test method:		☐ Directly measured ☐ Data corrected to a 25°C cell temperature and 200 W/m2 irradiance					—
Data corrected to a 25°C cell temperature and 200 W/m ² irradiance							
Sample #	Voc (V)	Vmp (V)	Isc (A)	Imp (A)	Pmp (W)	FF (%)	
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

10.18 B	TABLE: Bypass diode thermal test	—		
Test Date (MM/DD/YYYY) start/end		—		
Tested sample	☐ Full scale module ☐ Special sample	—		
Number of diodes in junction box		—		
Diode manufacturer		—		
Diode type designation		—		
Max. permissible junction temperature T_{jmax} [°C] (according to diode datasheet)		—		
Procedure adopted	☐ Procedure 1 (Tcase method), ☐ Procedure 2 (Vf-Tj method)	—		
Procedure 1 (Tcase method)		—		
	Diode 1	Diode 2	Diode 3	Verdict
Current flow (Isc) applied [A]				—
Max. diode surface temperature [°C] a or b :				—
Voltage drop [V]				—
Power dissipation [W]				—
Thermal resistance junction to leads (R_{THjl})/to case (R_{THjc}) [K/W] (according to datasheet) :				—
Calculated max. junction temperature T_{jcalc} [°C] a or b				—
$T_{jcalc} < T_{jmax}$ (test passed)? yes/no				
Current flow (1.25 Isc) [A]				—
Diode still operational?				
Remarks: (^a measured at diode case, ^b measured at diode leads)				
Procedure 2 (Vf-Tj method)				—
	Diode 1	Diode 2	Diode 3	Verdict
Current flow (Isc) applied [A]				—
Forward voltage (Vf) when Isc flowing at 75°C				—
Diode junction temperature $T_{jmeasured}$ [°C] corresponding to Vf measured above				—
$T_{jmeasured} < T_{jmax}$ (test passed)? yes/no				
Current flow (1.25 Isc) [A]				—
Diode still operational?				
Supplementary information:				

(10.1 Visual inspection after bypass diode thermal test)		—
Test Date (MM/DD/YYYY)		—
Sample #	Nature and position of initial findings – comments or attach photos	Verdict
Supplementary information:		

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Clause	Requirement + Test	Result - Remark	Verdict

(10.3 Insulation test after bypass diode thermal test)				—
Test Date (MM/DD/YYYY).....:				—
Test Voltage applied (V, DC)				—
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict
Supplementary information:				

10.9 B	TABLE: Hot-spot endurance test			—	
Test Date (MM/DD/YYYY) start/end				—	
Cell interconnection circuit.....:		☐ S	☐ PS	☐ SP	—
Module temperature at thermal equilibrium [°C]					—
Width of opaque cover (number of cells shaded)					—
Maximum measured cell temperature [°C]		:			—
Supplementary information:					
(10.1 Visual inspection after hot-spot endurance test)				—	
Test Date (MM/DD/YYYY).....:					—
Sample #	Nature and position of initial findings – comments or attach photos			Verdict	
Supplementary information:					
(10.3 Insulation test after hot-spot endurance test)				—	
Test Date (MM/DD/YYYY).....:					—
Test Voltage applied (V, DC)					—
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No		Verdict
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

10.10 C	TABLE: UV preconditioning test			—			
Test Date (MM/DD/YYYY) start/end				—			
Module temperature [°C]				—			
UV irradiance (280-400nm) [w/m ²]							
Ratio of UV irradiance (280-320nm) (%)				—			
UV irradiation (280-400nm) [kWh/ m ²]				—			
Supplementary information:							
(10.1 Visual inspection after UV preconditioning test)				—			
Test Date (MM/DD/YYYY).....				—			
Sample #	Nature and position of initial findings – comments or attach photos			Verdict			
Supplementary information:							
(10.3 Insulation test after UV preconditioning test)				—			
Test Date (MM/DD/YYYY).....				—			
Test Voltage applied (V, DC)				—			
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict			
Supplementary information:							
10.11 C	TABLE: Thermal cycling test (50 cycles)			—			
Test Date (MM/DD/YYYY) start/end				—			
Total cycles (50)				—			
Sample #	Continuity of internal circuit (open circuits or no)			Verdict			
Supplementary information:							
(10.1 Visual inspection after thermal cycling 50 test)				—			
Test Date (MM/DD/YYYY).....				—			
Sample #	Nature and position of initial findings – comments or attach photos			Verdict			
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

(10.3 Insulation test after thermal cycling 50 test)				—
Test Date (MM/DD/YYYY).....:				—
Test Voltage applied (V, DC)				—
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict
Supplementary information:				

10.12 C	TABLE: Humidity freeze test (10 cycles)		—
Test Date (MM/DD/YYYY) start/end:			—
Total cycles (10) :			—
Sample #	Continuity of internal circuit (open circuits or no)		Verdict

Supplementary information:

(10.1 Visual inspection after humidity freeze 10 test)		—
Test Date (MM/DD/YYYY).....:		—
Sample #	Nature and position of initial findings – comments or attach photos	Verdict

Supplementary information:

(10.3 Insulation test after humidity freeze 10 test)				—
Test Date (MM/DD/YYYY).....:				—
Test Voltage applied (V, DC)				—
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

10.14 C1	TABLE: Robustness of terminations test		—
Test Date (MM/DD/YYYY) start/end ...:			—
Types of terminations		☐ Type A: wire of flying lead ☐ Type B: tags, threaded stubs, screws, etc. ☐ Type C: connector	—
Test Ua ₁ : Tensile test: Applied force [N]			—
Test Ub: Bending test: Applied force [N]			—
Test Ud: Torque test: Applied torque [Nm]			—
Supplementary information:			
(10.1 Visual inspection after robustness of terminations test)			—
Test Date (MM/DD/YYYY).....:			—
Sample #	Nature and position of initial findings – comments or attach photos		Verdict
Supplementary information:			

(10.3 Insulation test after robustness of terminations test)				—
Test Date (MM/DD/YYYY).....:				—
Test Voltage applied (V, DC)				—
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

10.11 D	TABLE: Thermal cycling test (200 cycles)			—
Test Date (MM/DD/YYYY) start/end:				—
Total cycles (200):				—
Sample #	Continuity of internal circuit (open circuits or no)			Verdict
Supplementary information:				
(10.1 Visual inspection after thermal cycling 200 test)				—
Test Date (MM/DD/YYYY).....:				—
Sample #	Nature and position of initial findings – comments or attach photos			Verdict
Supplementary information:				
(10.3 Insulation test after thermal cycling 200 test)				—
Test Date (MM/DD/YYYY).....:				—
Test Voltage applied (V, DC):				—
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

10.13 E	TABLE: Damp heat test (1000hr)			—
Test Date (MM/DD/YYYY) start/end				—
Total hours (1000)				—
Supplementary information:				
(10.1 Visual inspection after damp heat 1000 test)				—
Test Date (MM/DD/YYYY).....				—
Sample #	Nature and position of initial findings – comments or attach photos			Verdict
Supplementary information:				
(10.3 Insulation test after damp heat 1000 test)				—
Test Date (MM/DD/YYYY).....				—
Test Voltage applied (V, DC)				—
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict
(10.15 Wet leakage current test after damp heat 1000 test)				—
Test Date (MM/DD/YYYY) :				—
Test Voltage applied (V, dc) :				—
Solution resistivity (Ω cm) < 3,500 at 22 ± 3°C:				—
Solution temperature (°C) :				—
Sample #	Measured (MΩ)		Limit (MΩ)	Verdict
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

10.16 E1	TABLE: Mechanical load test			—
Test Date (MM/DD/YYYY) :				—
Mechanical load applied to front side [Pa] :				—
Mechanical load applied to back side [Pa] :				—
Sample #	Electrical continuity of module during the test (open circuits or no)			Verdict
Supplementary information:				
(10.1 Visual inspection after mechanical load test)				—
Test Date (MM/DD/YYYY)..... :				—
Sample #	Nature and position of initial findings – comments or attach photos			Verdict
Supplementary information:				
(10.3 Insulation test after mechanical load test)				—
Test Date (MM/DD/YYYY)..... :				—
Test Voltage applied (V, DC) :				—
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict
Supplementary information:				

10.17 E2	TABLE: Hail impact test			—
Test Date (MM/DD/YYYY)..... :				—
Ice ball size [mm] :				—
Ice ball weight [g] :				—
Ice ball velocity [m/s] :				—
Number of impact locations :				—
Supplementary information: (impact location descriptions)				
(10.1 Visual inspection after hail impact test)				—
Test Date (MM/DD/YYYY)..... :				—
Sample #	Nature and position of initial findings – comments or attach photos			Verdict
Supplementary information:				
(10.3 Insulation test after hail impact test)				—
Test Date (MM/DD/YYYY)..... :				—
Test Voltage applied (V, DC) :				—
Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

10.19 F	TABLE: Light soaking							—
Abbreviation: Regarding light source “S” for Solar simulator and “N” for Natural sunlight								
Sample #			Test Date (MM/DD/YYYY) start/end					
Test cycle	Light source	Irradiance applied (kWh/m2)	Average irradiance (W/m2)	Module temperature during test (°C)			Pmp(W) at the end of cycle	Change in Pmp in the cycle (%)
				min	max	avg		
Initial	—	—	—	—	—	—		—
1								
2								
3								
4								
5								
Supplementary information:								
Sample #			Test Date (MM/DD/YYYY) start/end					
Test cycle	Light source	Irradiance applied (kWh/m2)	Average irradiance (W/m2)	Module temperature during test (°C)			Pmp(W) at the end of cycle	Change in Pmp in the cycle (%)
				min	max	avg		
Initial	—	—	—	—	—	—		—
1								
2								
3								
4								
5								
Supplementary information:								
Sample #			Test Date (MM/DD/YYYY) start/end					
Test cycle	Light source	Irradiance applied (kWh/m2)	Average irradiance (W/m2)	Module temperature during test (°C)			Pmp(W) at the end of cycle	Change in Pmp in the cycle (%)
				min	max	avg		
Initial	—	—	—	—	—	—		—
1								
2								
3								
4								
5								
Supplementary information:								
Sample #			Test Date (MM/DD/YYYY) start/end					
Test cycle	Light source	Irradiance applied (kWh/m2)	Average irradiance (W/m2)	Module temperature during test (°C)			Pmp(W) at the end of cycle	Change in Pmp in the cycle (%)
				min	max	avg		
Initial	—	—	—	—	—	—		—
1								
2								
3								
4								
5								
Supplementary information:								

IS 16077:2013/IEC 61646:2008			
Clause	Requirement + Test	Result - Remark	Verdict

Sample #			Test Date (MM/DD/YYYY) start/end					
Test cycle	Light source	Irradiance applied (kWh/m2)	Average irradiance (W/m2)	Module temperature during test (°C)			Pmp(W) at the end of cycle	Change in Pmp in the cycle (%)
				min	max	avg		
Initial	—	—	—	—	—	—		—
1								
2								
3								
4								
5								

Supplementary information:

Sample #			Test Date (MM/DD/YYYY) start/end					
Test cycle	Light source	Irradiance applied (kWh/m2)	Average irradiance (W/m2)	Module temperature during test (°C)			Pmp(W) at the end of cycle	Change in Pmp in the cycle (%)
				min	max	avg		
Initial	—	—	—	—	—	—		—
1								
2								
3								
4								
5								

Supplementary information:

Sample #			Test Date (MM/DD/YYYY) start/end					
Test cycle	Light source	Irradiance applied (kWh/m2)	Average irradiance (W/m2)	Module temperature during test (°C)			Pmp(W) at the end of cycle	Change in Pmp in the cycle (%)
				min	max	avg		
Initial	—	—	—	—	—	—		—
1								
2								
3								
4								
5								

Supplementary information:

IS 16077:2013/IEC 61646:2008			
Clause	Requirement + Test	Result - Remark	Verdict

Sample #			Test Date (MM/DD/YYYY) start/end					
Test cycle	Light source	Irradiance applied (kWh/m ²)	Average irradiance (W/m ²)	Module temperature during test (°C)			Pmp(W) at the end of cycle	Change in Pmp in the cycle (%)
				min	max	avg		
Initial	—	—	—	—	—	—		—
1								
2								
3								
4								
5								

Supplementary information:

(10.1 Visual inspection after light soaking)		—
Test Date (MM/DD/YYYY)..... :		—
Sample #	Nature and position of initial findings – comments or attach photos	Verdict

Supplementary information:

(10.3 Insulation test after light soaking)								—
Test Date (MM/DD/YYYY) :								—
Test Voltage applied (V, DC) :								—

Sample #	Measured (MΩ)	Required(MΩ)	Dielectric breakdown, Yes (description) or No	Verdict

Supplementary information:

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