



TC-5100

**HI PHYSIX**  
testing & calibration laboratory

**HI PHYSIX LABORATORY INDIA PVT. LTD.**

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<b>TEST REPORT</b> <b>IEC TS 62804-1: 2015</b> <b>Photovoltaic (PV) modules- Test methods for the detection of potential-induced degradation</b>	
<b>ULR-TC510022000000776F</b> <b>Discipline:</b> Electronics Testing <b>Group:</b> Miscellaneous Products	
<b>Report Number.....:</b> <b>Date of Issue .....</b> <b>Total no. of pages.....:</b>	HPLI/Test/2207028001 30/08/2022 22
<b>Manufacturer's Name.....:</b> <b>Address.....:</b>	<b>ABHISHEK SOLAR INDUSTRIES PVT LTD</b> BESIDES PREMCHAND MAHTO HIGH SCHOOL MESRA, P.O NEORI VIKAS RANCHI, JHARKHAND, 835217 Contact person: Nagendra Singh Contact number: 9934303421
<b>Name of test laboratory.....:</b> <b>Address of laboratory.....:</b>	<b>HI PHYSIX LABORATORY INDIA PVT. LTD.</b> B-32/1/2, MIDC, RANJANGAON, PUNE, MAHARASHTRA- 412220.
<b>Test Specification</b> <b>Standard.....:</b> <b>Test Procedure .....</b> <b>Non- Standard Test Method.....:</b>	<b>IEC TS 62804 - 1:2015</b> Compliance Report N/A
<b>Test Report Form No.....:</b> <b>Test Report Form(s) Originator.....:</b> <b>Test Report Form .....</b>	IEC TS 62804-1: 2015/HPLI_PV Hi Physix Laboratory India Pvt. Ltd., Pune Dated 02-2019
<b>Test item Description .....</b>  <b>Trade Mark.....:</b>	Crystalline silicon terrestrial photovoltaic (PV) modules (Poly- crystalline). 

FOR HI PHYSIX LABORATORY INDIA PVT. LTD.

  
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(Chief Technical Manager)

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<b>Model / Type reference .....</b>	<b>ASP-335 (Representative model).</b>  <b>72 Cells:</b> ASP-325, ASP-315, <b>ASPD-335</b> , ASPD-325, ASPD-315 <b>(Series models).</b>  <b>60 Cells:</b> ASP-275, ASP-270, ASP-265, ASP-260, ASPD-275, ASPD-270, ASPD-265, ASPD-260 <b>(Series models).</b>  <b>54 Cells:</b> ASP-250, ASP-240, ASP-230, ASPD-250, ASPD-240, ASPD-230 <b>(Series models).</b>  <b>48 Cells:</b> ASP-225, ASP-220, ASP-210, ASPD-225, ASPD-220, ASPD-210 <b>(Series models).</b>  <b>42 Cells:</b> ASP-200, ASP-190, ASPD-200, ASPD-190 <b>(Series</b> <b>models).</b>  <b>36 Cells:</b> ASP-160, ASPD-160 <b>(Series models).</b>  <b>36 Cut Cells:</b> ASP-125, ASP-115, ASP-110, ASP-100, ASP-80, ASP-75, ASP-60, ASP-40, ASP-30, ASP-20, ASPD-125, ASPD- 115, ASPD-110, ASPD-100, ASPD-80, ASPD-75, ASPD-60, ASPD-40, ASPD-30, ASPD-20 <b>(Series models).</b>
<b>Ratings.....</b>	See copy of marking plate on page no. 5
<b>Remark:</b>	Test performed on only Model No. ASP-335 <b>(Representative Model)</b> , all series models are included in this test report declared by manufacturer.

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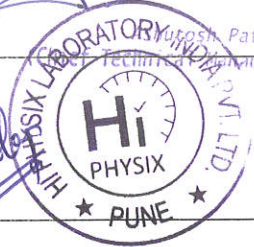




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<b>Testing procedure and testing location:</b>		
<input checked="" type="checkbox"/> <b>Testing Laboratory:</b>		
Testing location/ address.....:	Hi Physix Laboratory India Private Limited B-32/1/2 M.I.D.C, Ranjangaon Pune Maharashtra -412220.	
Tested by (name + signature).....:	Heeralal Mahto (Testing Engineer)	
Approved by (name + signature).:	Ashutosh Pathak (Chief Technical Manager)	 <small>FOR HI PHYSIX LABORATORY INDIA PVT. LTD.</small>
Issued by (name, function, Signature).....:	(Priyanka Gholap / Dy. Quality Manager)	 



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**Summary of testing:**

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

**IEC TS 62804-1: 2015 (Single Polarity-Negative, Three Cycles)**

Preconditioning

10.2 Visual Inspection (Initial and Final)

10.2 Maximum power determination (Initial and Final)

10.15 Wet leakage current test (Initial and Final)

MST 13 Ground continuity test (Initial)

PID stress test according to IEC TS 62804-1:2015 with following severities

- Climatic conditions: 85°C and 85% RH
- Duration: 288 hours – 3 Cycles of 96 hours each

**Testing location:**

Hi Physix Laboratory India Private Limited.

B-32/1/2 M.I.D.C, Ranjangaon Pune Maharashtra - 412220.

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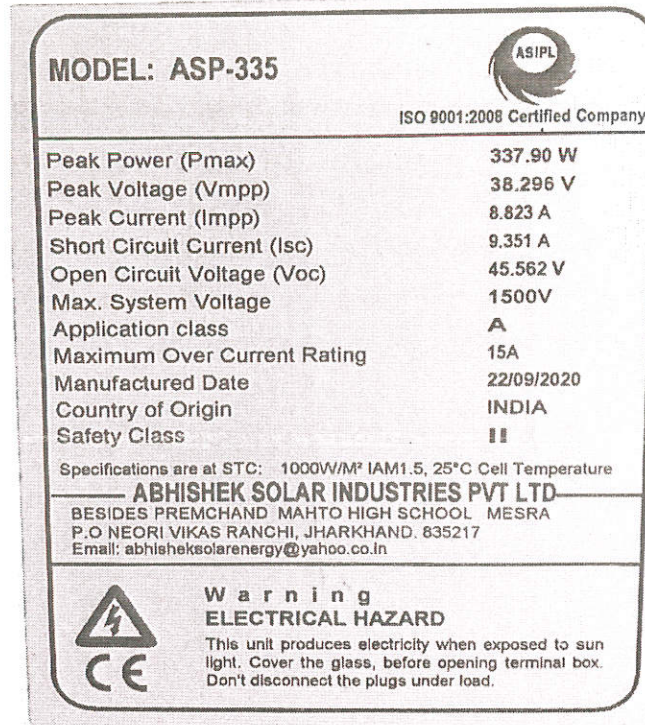
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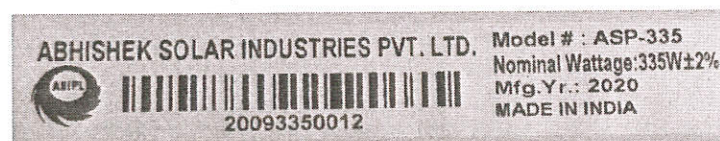
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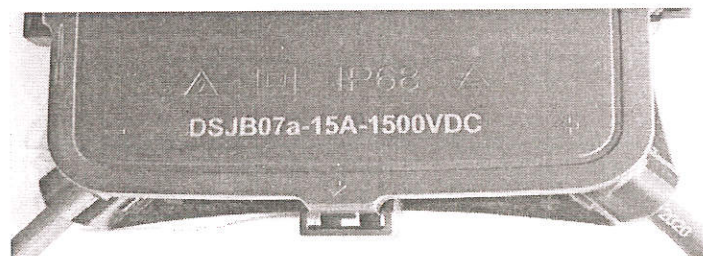
Copy of marking plate on the backside of the Module:



Copy of marking laminated inside the glass:



Polarity of terminals or leads:



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<b>Test item particulars:</b>	Crystalline silicon terrestrial photovoltaic (PV) modules.
Accessories and detachable parts included in the evaluation.:	N/A
Options included .....	N/A
Abbreviations used in the report:	
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	STC – Standard Test Conditions
<b>Possible test case verdicts:</b>	
- 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)
- Date(s) of performance of tests.....	01/08/2022 to 26/08/2022
- Receipt Number.....	22070280
- Date of Deposit.....	29/07/2022
<b>General remarks:</b> 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. The Management System is maintained in accordance with IS/ISO/IEC 17025:2017 and testing Standards/Instruments are traceable to National / International Standards. "(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 point is used as the decimal separator.	
<b>Optional tests of performance at low irradiance and Electroluminescence at Isc and 0.1.Isc has not been conducted.</b>	
<b>Module group assignment:</b>	
Sample #	Sample Group ID
ASP-335	1 (Control)
	2
	3
<b>Remark:</b> All tests has been carried out on model: <b>ASP-335</b> of 72 cells package. Family Models are mentioned on this test report on the bases of customer declaration only. Laboratory is not answerable for any pass or fails in the series family models.Bill of material is same for all family models as per declaration provided by the manufacturer	

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S.No.	Tests with clausereference	Specified Requirements	Covered under our NABL Scope (Yes/No)	RESULTS	Verdict
1	Cl. No. 4 of IEC TS 62804-1: 2015 (Test procedures)	The procedures given in the following subclauses shall be performed in the order given. Any intended or unintended changes and deviations shall be recorded and reported in details as indicated in clause 5.1(Marking)	Yes	See clause. No 4 and PID test flow chart	P
2.	Cl. No. 4.2 of IEC TS 62804-1:2015 (Pres -stress tests)& (InitialMeasurements)	a) All modules shall be exposed to sunlight (either real or simulated)to a target irradiation level according to the procedure for stabilization for crystalline Si modules within IEC 61215:2005 Clause 5 ( Preconditioning)	Yes	Complies	P
		b) Perform IEC 61215:2005 10.1 Visual inspection		See table 10.1	P
		c) Perform IEC 61215:2005 10.2 Maximum power determination, including on the control module		See table 10.2	P
		d) Perform IEC 61215:2005 10.7 (Performance at low irradiance, including on the control module) <b>Optional test</b>		---	---
		e) Perform IEC 61215:2005 10.15 (Wet leakage Test)		See table 10.15	P
		f) Perform electroluminescence imaging at 1 and 0.1 short circuit current (Isc) <b>Optional test</b>		---	---
		g) Perform IEC 61730-2 MST 13 (Ground continuity Test)		See table MST 13	P

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S.No.	Tests with clausereference	Specified Requirements	Covered under our NABL Scope (Yes/No)	RESULTS	Verdict
3	Cl. No. 4.3 of IEC TS 62804-1: 2015  (Dampheattestapp liedwithvoltagestr ess)	Test according to IEC TS 62804-1:2015 (Severity A and Severity B)	Yes	See tablePID stress test (1 <sup>st</sup> Cycle) (2 <sup>nd</sup> Cycle) (3 <sup>rd</sup> Cycle)	P
4	Cl. No. 4.2 of IEC TS 62804-1: 2015 (Post –stress tests)&(FinalMeas urements)	b) Perform IEC 61215:2005 10.1 Visual inspection	Yes	See tablePID stress test (1 <sup>st</sup> Cycle)(2 <sup>nd</sup> Cycle) (3 <sup>rd</sup> Cycle) after (Visual inspection)	P
		c) Perform IEC 61215:2005 10.2 Maximum power determination, including on the control module		See tablePID stress test (1 <sup>st</sup> Cycle)(2 <sup>nd</sup> Cycle) (3 <sup>rd</sup> Cycle) after (Maximum power determination)	P
		d) Perform IEC 61215:2005 10.7 (Performance at low irradiance, including on the control module) <b>Optional test</b>		--	--
		e) Perform IEC 61215:2005 10.15 (Wet leakage Test)		See tablePID stress test (1 <sup>st</sup> Cycle)(2 <sup>nd</sup> Cycle) (3 <sup>rd</sup> Cycle) after (Wet leakage Test)	P
		f) Perform electroluminescence imaging at 1 and 0.1 short circuit current (Isc) <b>Optional test</b>		--	--

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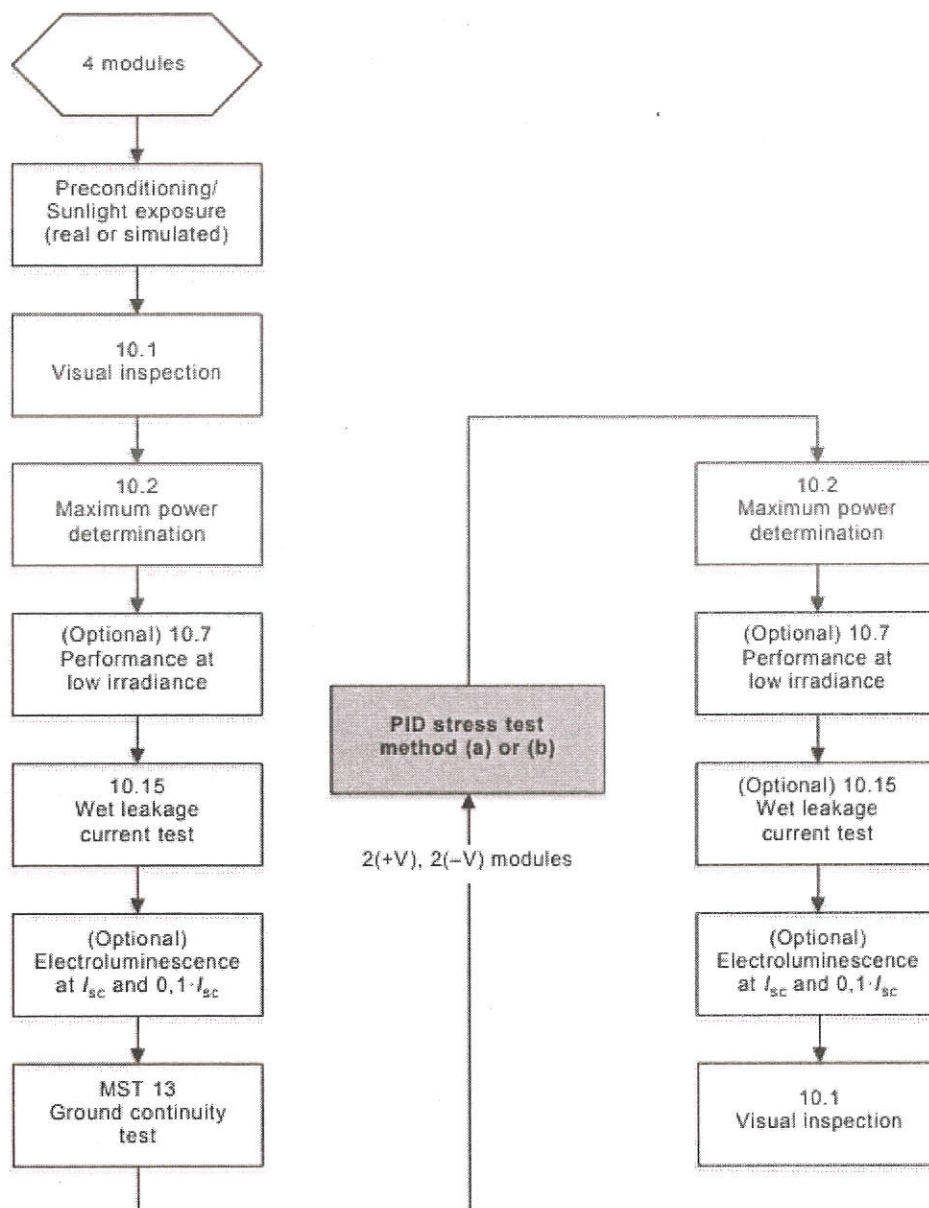


Figure 1 – PID test flow

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4	MARKING	P
	Name, monogram or symbol of manufacturer..... :  <b>ABHISHEK SOLAR INDUSTRIES PVT LTD</b>   (See also on page No. 05)	P
	Type or model number ..... : <b>ASP-335</b> (See also on page No. 05)	P
	Serial number ..... : Marked. (See copy of marking laminated inside glass on page No. 05)	P
	Polarity of terminals or leads..... : Positive and negative marked (See copy of markings of Polarity of terminals or leads page No. 06)	P
	Maximum system voltage ..... : 1500V marked	P
	The date and place of manufacture ..... : Marked as Mfg year: 22/09/2020 Place marked as: BESIDES PREMCHAND MAHTO HIGH SCHOOL MESRA, P.O NEORI VIKAS RANCHI, JHARKHAND, 835217 (See copy of marking plate on page No: 05)	P

	Initial examination	All modules	P
10	Preconditioning..... :	5.0 kWh/m <sup>2</sup>	P
10.1	Visual inspection..... :	See table 10.1 Initial	P
10.2	Maximum power determination ..... :	See table 10.2 Initial	P
10.15	Wet leakage current test..... :	See table 10.15 Initial	P
MST 13	Ground continuity Test..... :	See table MST 13	P

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**TABLES****Visual Inspection (Initial) (10.1)**

TABLE: Visual inspection (Initial)		P
Test Date [DD/MM/YYYY].....:	04/08/2022	—
Sample #	Nature and position of initial findings – comments or attach photos	—
1	No visual defects observed	P
2	No visual defects observed	P
3	No visual defects observed	P
Supplementary information: Nil		

**Maximum power determination (Initial) (10.2)**

TABLE: Maximum power determination (Initial)							P
Test Date [DD/MM/YYYY].....:	04/08/2022						—
Module temperature [°C].....:	25						—
Irradiance [W/m <sup>2</sup> ].....:	1000						—
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]	
1	47.317	38.213	9.217	8.726	333.443	76.5	
2	47.379	38.365	9.202	8.707	334.061	76.6	
3	47.377	38.255	9.210	8.723	333.701	76.5	
Supplementary information: Temperature corrected to 25°C and Irradiance corrected to 1000 W/m <sup>2</sup>							

**Wet leakage current test (Initial) (10.15)**

TABLE: Wet leakage current test (Initial)				P
Test Date [DD/MM/YYYY].....:	04/08/2022			—
Test Voltage applied [V].....:	1500			—
Solution resistivity [Ω cm].....:	< 3,500 Ω cm at 22 ± 3°C		2540	—
Surface tension [Nm <sup>-1</sup> ].....:	< 0.03 Nm <sup>-1</sup> at 22 ± 3°C		0.026	—
Solution temperature [°C].....:	23°C			—
Sample #	Measured [MΩ]	Limit [MΩ]	Result	
1	1470	20.41	P	
2	1490	20.41	P	
3	1430	20.41	P	
Supplementary information: Size of module 1.96 [m <sup>2</sup> ], Minimum requirement according to the standard is 40MΩ-m <sup>2</sup> .				

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**Ground continuity test (Initial) (MST 13)**

TABLE: Ground Continuity Test – MST 13 (Initial)			P
Test Date [DD/MM/YYYY] .....	04/08/2022		—
Maximum system voltage [V <sub>DC</sub> ] .....	1500V		—
Current applied [A] .....	50 A		—
Location of designated grounding point .....	Two grounding holes on sides of frames		—
Location of second contacting point .....	Greatest physical displacement from the grounding point.		—
Sample No.	Voltage [V <sub>DC</sub> ]	Resistance [Ω]	
1	0.20	0.004	P
2	0.10	0.002	P
3	0.10	0.002	P
Supplementary information: Nil			

**Performance of PID Test- 1<sup>st</sup> Cycle**

TABLE: PID stress test			P
Test Date [DD/MM/YYYY] .....	05/08/2022 to 10/08/2022		—
Test Method .....	Chamber		—
Module Temperature .....	85°C		—
Relative Humidity .....	85%Rh		—
Grounding Polarity .....	+ve		—
Duration[Hours] .....	96		—
Sample No.	Applied Voltage [V]		
2	-1500		P
3	-1500		P
Supplementary information: Nil			

**Visual inspection after 1<sup>st</sup> PID Cycle Test (10.1)**

TABLE: Visual inspection			P
Test Date [DD/MM/YYYY] .....	10/08/2022		—
Sample #	Nature and position of initial findings – comments or attach photos		—
2	No visual defects observed		P
3	No visual defects observed		P
Supplementary information: Nil			

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**Maximum power determination after 1<sup>st</sup> PID Cycle Test (10.2)**

TABLE: Maximum power determination							P
Test Date [DD/MM/YYYY] : 10/08/2022							—
Module temperature [°C] : 25							—
Irradiance [W/m <sup>2</sup> ] : 1000							—
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]	
2	47.382	38.125	9.206	8.696	331.546	76.0	
3	47.364	37.917	9.212	8.707	330.138	75.7	
1 (control)	47.324	38.166	9.211	8.730	333.199	76.4	
Pmp degradation after this test [%]				2: -0.75	3: -1.06		P
Supplementary information: Temperature corrected to 25°C and Irradiance corrected to 1000 W/m <sup>2</sup>							

**Wet leakage current test after 1<sup>st</sup> PID Cycle Test (10.15)**

TABLE: Wet leakage current test				P
Test Date [DD/MM/YYYY] : 10/08/2022				—
Test Voltage applied [V] : 1500				—
Solution resistivity [Ω cm] :		< 3,500 Ω cm at 22 ± 3°C	2540	—
Surface tension [Nm <sup>-1</sup> ] :		< 0.03 Nm <sup>-1</sup> at 22 ± 3°C	0.026	—
Solution temperature [°C] : 24°C				—
Sample #	Measured [MΩ]	Limit [MΩ]	Result	
2	1380	20.41		P
3	1360	20.41		P
Supplementary information: Size of module 1.96 [m <sup>2</sup> ], Minimum requirement according to the standard is 40MΩ-m <sup>2</sup> .				

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**Performance of PID Test- 2<sup>nd</sup> Cycle**

TABLE: PID stress test		P
Test Date [DD/MM/YYYY].....:	11/08/2022 to 16/08/2022	—
Test Method.....:	Chamber	—
Module Temperature.....:	85°C	—
Relative Humidity.....:	85%Rh	—
Grounding Polarity.....:	+ve	—
Duration[Hours].....:	96	—
Sample No.	Applied Voltage [V]	—
2	-1500	P
3	-1500	P
Supplementary information: Nil		

**Visual inspection after 2<sup>nd</sup> PID Cycle Test (10.1)**

TABLE: Visual inspection		P
Test Date [DD/MM/YYYY].....:	16/08/2022	—
Sample #	Nature and position of initial findings – comments or attach photos	—
2	No visual defects observed	P
3	No visual defects observed	P
Supplementary information: Nil		

**Maximum power determination after 2<sup>nd</sup> PID Cycle Test (10.2)**

TABLE: Maximum power determination						P
Test Date [DD/MM/YYYY] .....	16/08/2022					—
Module temperature [°C].....:	25					—
Irradiance [W/m <sup>2</sup> ].....:	1000					—
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]
2	47.381	37.660	9.206	8.709	327.964	75.2
3	47.359	37.535	9.211	8.706	326.791	74.9
1 (control)	47.385	38.314	9.176	8.690	332.950	76.6
Pmp degradation after this test [%]				2: -1.08	3: - 1.01	P
Supplementary information: Temperature corrected to 25°C and Irradiance corrected to 1000 W/m <sup>2</sup>						

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**Wet leakage current test after 2<sup>nd</sup> PID Cycle Test (10.15)**

TABLE: Wet leakage current test				P
Test Date [DD/MM/YYYY] .....		16/08/2022		—
Test Voltage applied [V].....		1500		—
Solution resistivity [ $\Omega$ cm).....		< 3,500 $\Omega$ cm at 22 $\pm$ 3°C	2540	—
Surface tension [ $\text{Nm}^{-1}$ ).....		< 0.03 $\text{Nm}^{-1}$ at 22 $\pm$ 3°C	0.026	—
Solution temperature [°C] .....		23°C		—
Sample #	Measured [ $\text{M}\Omega$ ]		Limit [ $\text{M}\Omega$ ]	Result
2	1240		20.41	P
3	1250		20.41	P
Supplementary information: Size of module 1.96 [ $\text{m}^2$ ], Minimum requirement according to the standard is 40 $\text{M}\Omega\text{-m}^2$ .				

**Performance of PID Test- 3<sup>rd</sup> Cycle**

TABLE: PID stress test		P
Test Date [DD/MM/YYYY].....:	17/08/2022 to 22/08/2022	—
Test Method.....:	Chamber	—
Module Temperature.....:	85°C	—
Relative Humidity.....:	85%Rh	—
Grounding Polarity.....:	+ve	—
Duration[Hours].....:	96	—
Sample No.	Applied Voltage [V]	—
2	-1500	P
3	-1500	P
Supplementary information: Nil		

**Visual inspection after 3<sup>rd</sup> PID Cycle Test (10.1) (Final)**

TABLE: Visual inspection			P
Test Date [DD/MM/YYYY].....:		26/08/2022	—
Sample #	Nature and position of initial findings – comments or attach photos		—
2	No visual defects observed		P
3	No visual defects observed		P
Supplementary information: Nil			

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**Maximum power determination after 3<sup>rd</sup> PID Cycle Test (10.2) (Final)**

TABLE: Maximum power determination							P
Test Date [DD/MM/YYYY] .....		26/08/2022					—
Module temperature [°C] .....		25					—
Irradiance [W/m <sup>2</sup> ] .....		1000					—
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]	
2	47.371	37.270	9.208	8.709	324.573	74.4	
3	47.373	37.301	9.210	8.666	323.245	74.1	
1 (control)	47.381	38.368	9.165	8.674	332.808	76.6	
Pmp degradation after this test [%]				2: -1.03	3: -1.08		P
Supplementary information: Temperature corrected to 25°C and Irradiance corrected to 1000 W/m <sup>2</sup>							

**Wet leakage current test after 3<sup>rd</sup> PID Cycle Test (10.15) (Final)**

TABLE: Wet leakage current test				P
Test Date [DD/MM/YYYY] .....		26/08/2022		—
Test Voltage applied [V].....		1500		—
Solution resistivity [Ω cm).....		< 3,500 Ω cm at 22 ± 3°C	2540	—
Surface tension [Nm <sup>-1</sup> ).....		< 0.03 Nm <sup>-1</sup> at 22 ± 3°C	0.026	—
Solution temperature [°C] .....		24°C		—
Sample #	Measured [MΩ]	Limit [MΩ]		Result
2	920	20.41		P
3	880	20.41		P
Supplementary information: Size of module 1.96 [m²], Minimum requirement according to the standard is 40MΩ-m².				

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testing & calibration laboratory

**HI PHYSIX LABORATORY INDIA PVT. LTD.**

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Test Report No.: HPLI/Test/2207028001

**List of Annexes**

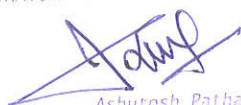
Annex 1: List of measurement equipment

Annex 2: Statement of the estimated uncertainty of the test results

Annex 3: Enclosures(PHOTOGRAPHS OF PV MODULE UNDER TEST)

Annex 4: Bill of Material

FOR HI PHYSIX LABORATORY INDIA PVT. LTD.

  
Ashutosh Pathak  
(Chief Technical Manager)



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**Annex 1: List of measurement equipments**

Description	Application
1. Visual inspection test setup	Visual inspection test
2. Large area steady state solar simulator with I-V Tracer	Maximum power determination
3. Insulation resistance tester	Wet leakage current test
4. Wet leakage test setup	Wet leakage current test
5. Measuring tape	For dimension of PV modules
6. Preconditioning test setup with pyranometer	For preconditioning test
7. E.C.R test apparatus	Ground Continuity Test
8. Damp Heat Chamber	PID stress test
9. DC Voltage Source	PID stress test

**Annex 2: Statement of the estimated uncertainty of the test results**

The total measuring uncertainty of  $P_{mpp}$  is  $\pm 2.4\%$

The total measuring uncertainty of  $I_{sc}$  is  $\pm 2\%$

The total measuring uncertainty of  $V_{oc}$  is  $\pm 0.9\%$

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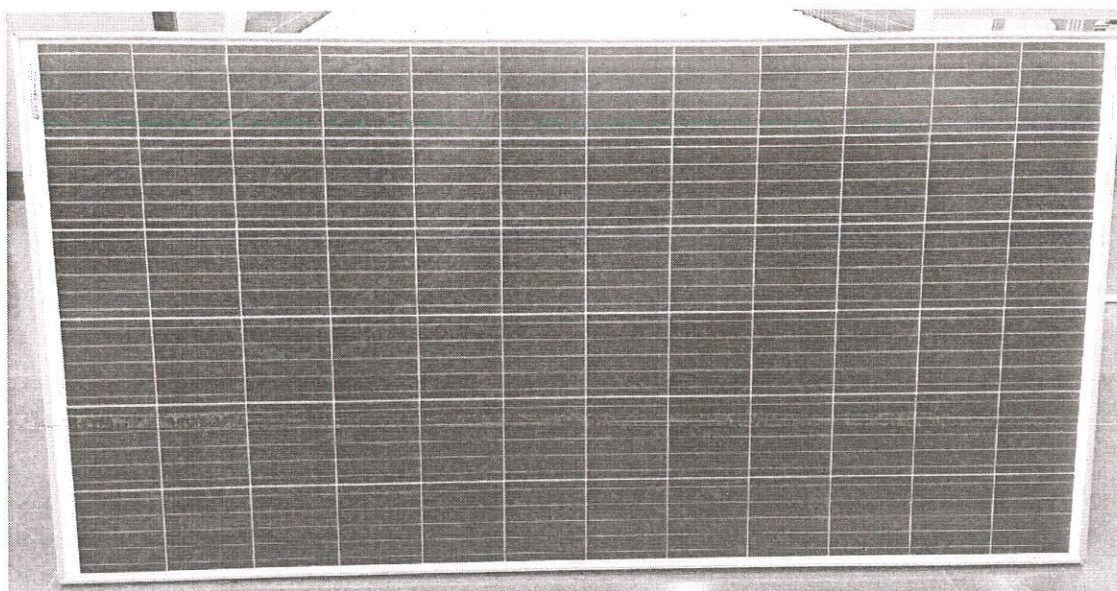
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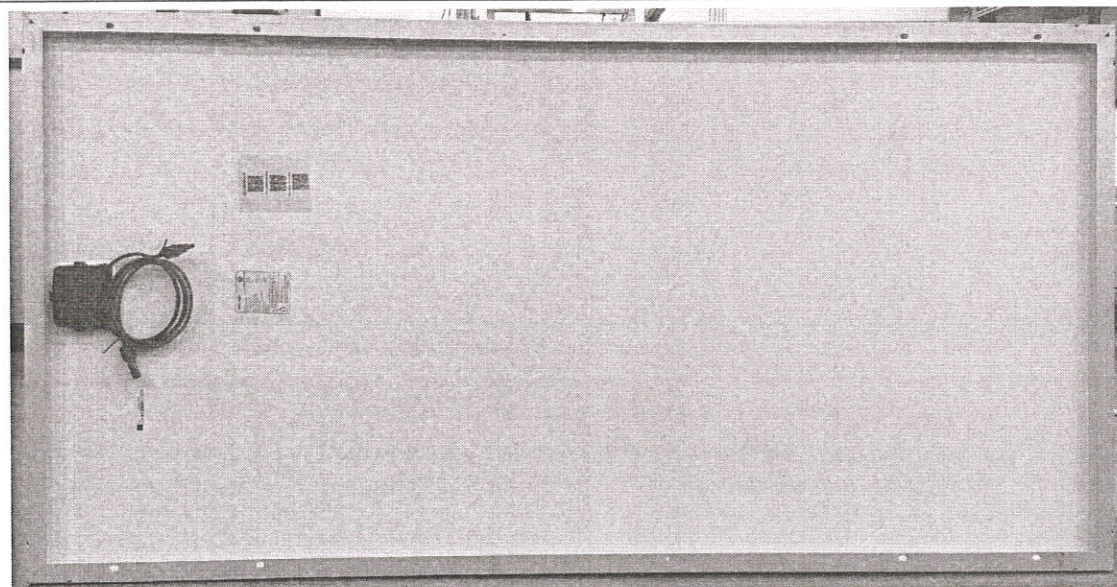
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**Annex 3: Enclosures (PHOTOGRAPHS OF PV MODULE UNDER TEST)**

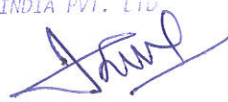


Front View



Rear View

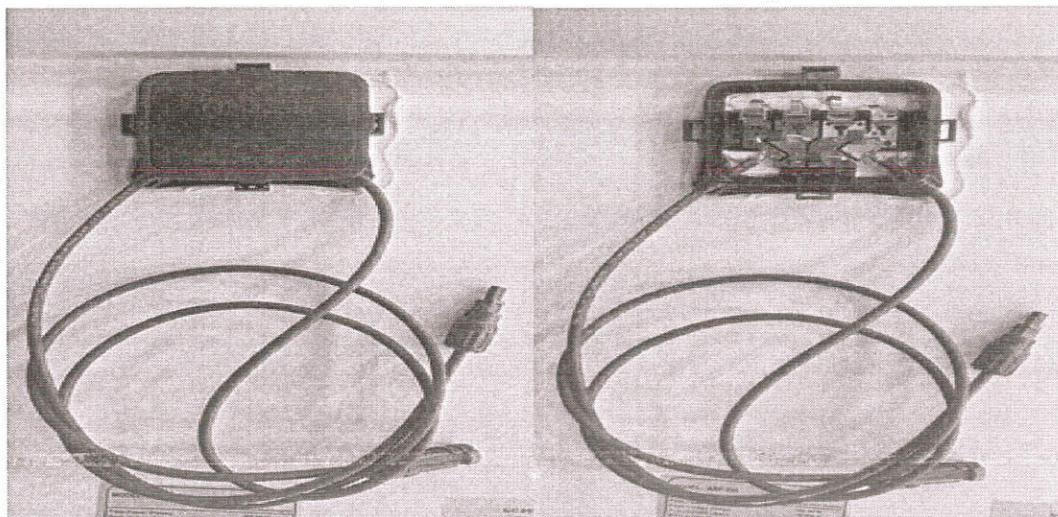
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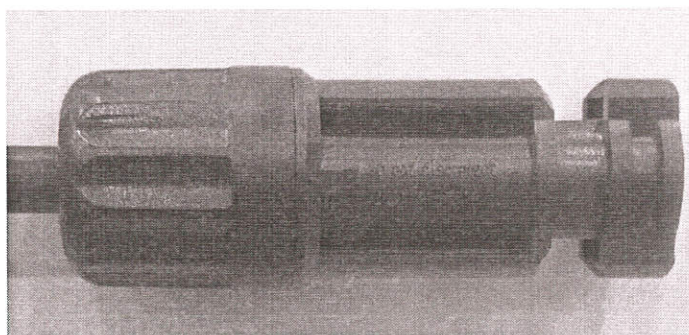
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Junction box closed view Junction box open view



Connector view

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**Annex 4: Bill of Material**

Sr No.	Objective / part no.	Type/model/ Technical data
1	Bypass diode	D20SQ045, VRRM: 45V, IO: 20A, Max. Tj: 200°C, RθJC: 2.2°C/W, Manufactured by PANJIT SEMICONDUCTOR
2	Front Cover	ARC Textured Tempered Solar Glass, Thickness: 3.2mm, Manufactured by GUJARAT BOROSIL LIMITED
3	Rear cover (Backsheet)	Cynagard 275A, Rated voltage: 1500 VDC, Thickness: 314 micron, TI electrical and TI mechanical: 124°C, Flame spread index: 49.5, Manufactured by Cybrid Technologies Inc., Tested by TUV Rheinland (Test Report No.: 15076572 002)
4	Encapsulation material	UFC200FB, Thickness: 0.45mm, Manufactured by Lucent clean energy Pvt Ltd
5	Frame parts	6063-T6, Anodized aluminum, 35X35 mm, Manufactured by Jiyangyin new sulv technology co., LTD
6	<b>Cell Connector &amp; String connectors:</b>	<b>Cell Connector:</b> SnPb 60/40, Dimension: 1.00X0.18 mm, Manufactured by A B INDUSTRIES <b>String connectors:</b> SnPb 60/40, Dimension: 5X0.350 mm, Manufactured by A B INDUSTRIES
7	Junction box	DSJB07a, Rated Voltage: DC 1500V, Current: 15A, IP68, Ambient temperature: -40°C to +85°C, Manufactured by DhaSh PV Technologies Private Limited. Tested by TUV Rheinland (Test Report No.: 19631583 002)
8	Cable	H1Z2Z2-K, 1x4.0mm <sup>2</sup> , Rated Voltage: DC 1500V, Ambient temperature: -40°C to +90°C, Max. temperature at Conductor: 120°C, Manufactured by Dhash PV Technologies Private Limited, Certified by TUV Rheinland (Certificate No.: R 60139492)
9	Connector	DS01, Rated Voltage: 1500VDC, Rated Current: 35A, IP68, Ambient temperature: -40°C to +85°C, Manufactured by DhaSh PV Technologies Private Limited Tested by TUV Rheinland (Test Report No.: 19600431 001)
10	Fluxing Agent	245, No Clean Flux, Manufactured by Kester
11	Soldering Material	952-S, Sn63Pb37, Manufactured by Kester
12	Adhesive for frame	JS-606, White Color, Manufactured by Hangzhou Zhijiang Silicone Chemicals CO.,LTD

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13	Adhesive for junction box	JS-606, White Color, Manufactured by Hangzhou Zhijang Silicone Chemicals CO.,LTD
14	Solar Cell	156.75-POLY-5BB-PID, Poly crystalline Silicon Solar Cell, Manufactured by Changzhou Hershey-Power New Energy Co., Ltd.

All Bill of materials are declared by manufacturer.

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

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