Mitsui Chemicals India Pvt. Ltd.

ULR No. : TC890623000000049F

DOC No.	:	MCIND/2023/LB/049.V1	Plot 5 and 6, Swastik Industrial Estate, Vill: Sari, Tal: Sanand, Ahmedabad, Ahmadabad, Gujarat, India - 382220
Telephone	:	+91 9871742221	
FAX	:	41204299	
E-Mail	:	puneet.kumar@mitsuichemicals.com	
BO Code	:	NA	

Test REPORT AS PER : IS 14286 (2010)

QR Code/Barcode : 129186CRS

REPORT NO : SC22SPI00961_1 DATE : 02 Aug, 2023

PART A. PARTICULARS OF SAMPLE SUBMITTED

a) Customer Name & Address	:	NOVASYS GREENERGY PRIVATE LIMITED KHASRA NO. 185, MOUZA: MAHALGAON, TAHSIL: KAMPTEE, NAGPUR-441202, MAHARASHTRA, INDIA, NA, MAHARASHTRA, India - 441202
b) Nature of sample	:	-
c) Grade/Variety/Type/Class Size etc	:	NA
d) Declare values, if any	:	-
e) Batch No. & Date of Manufacture	:	/
f) Quantity	:	8
g) Date of Receipt	:	01 Dec, 2022
h) BIS Seal	:	Verified by Sample Cell
i) IO's Signature	:	Verified by Sample Cell
j) Any other Information / Expiry Date, If any	:	/
k) Date of Commencement of Testing	:	01 Aug, 2023
l) Date of Completion of Testing	:	02 Aug, 2023
m) Section Code	:	22E1444N
n) Section Report No.	:	22E1444N_1
o) Report Type	:	New
p) Reference Report No.	:	
q) Remarks	:	Please refer attached test report

Vinay Singh
OIC SAMPLE CELL
(Authorized Signatory)
Authorized on: 02 Aug, 2023 19:34 PM

1. Mitsui Chemicals India Pvt. Ltd.

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PART B. SUPPLEMENTARY INFORMATION

1.	Reference to sampling procedure, wherever applicable.	Not Applicable
2.	Supporting documents for the measurements taken and results derived like graphs, table sketches and or photographs as appropriate to test report, if any.	Yes
3.	Deviation from the test methods as prescribed in relevant ISS/Work instruction, if any.	Not Applicable
3.	NABL Report required ?	Yes

Vinay Singh
OIC Electrical
(Authorized Signatory)
Authorized on: 02 Aug, 2023 19:32 PM

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PART C. TEST RESULT

S.No.	Clause No Table No. Sl. No	Parameter - Method of test	Test Description	Min Limit	Max Limit	Unit	Result/ Observation
1	10.18	Bypass diode thermal' test	-	-	-	-	75.5ºC (Panjit Semi Conductor.).The diode junction temperature did not exceed the diode manufacturer’s maximum junction temperature limit. and the samples met the following requirements, 1. Visual Inspection test, No Visual defects found 2. Maximum power determination Power degradation≤ 5% 3. Insulation test - The measured insulation resistance was not less than 15.5 MΩ. For more details, please refer test report.
2	10.17	Hail test	-	-	-	-	The Hail test was completed on 19/01/2023. There was no evidence of mechanical damage during the test and the samples met the following requirements, 1. Visual Inspection test No Visual defects found 2. Maximum power determination Power degradation≤5% 3. Insulation test -The measured insulation resistance was not less than 15.5 MΩ. For more details, please refer test report
3	10.16	Mechanical load test	-	-	-	-	The mechanical load test was completed on 18/01/2023. There was no damage after the test, and the samples met the following requirements, 1. Visual Inspection test No Visual defects found 2. Maximum power determination, power degradation≤5% 3. Insulation test -The measured insulation resistance was not less than 15.5 MΩ. For more details please refer test report.

4	10.15	Wet leakage current test	-	-	-	-	All the modules passed the initial and final wet leakage current test. For more details, please refer to the test report
5	10.14	Robustness of termination test	-	-	-	-	Test date: 05/01/2023. There was no evidence of a major defect after the Robustness of the termination Test and the samples met the following requirements, 1. Visual Inspection test. No Visual defects found 2. Maximum power determination, Power degradation≤5% 3. Insulation test- The measured insulation resistance was not less than 15.5 MΩ.For more details, please refer test report
6	10.13	Damp heat test	-	-	-	-	There was no evidence of a major defect after the Damp Heat Test and the samples met the following requirements, 1. Visual Inspection test. No Visual defects found 2. Maximum power determination, Power degradation≤5% 3. Insulation test- The measured insulation resistance was not less than 15.5 MΩ 4. Wet Leakage current test- The measured insulation resistance was not less than 15.5MΩ. For more details, please refer test report.
7	10.12	Humidity freeze test	-	-	-	-	There was no evidence of a major defect after the Humidity Freeze Test and the samples met the following requirements, 1. Visual Inspection test. No Visual defects found 2. Maximum power determination, Power degradation≤5% 3. Insulation test- The measured insulation resistance was not less than 15.5 MΩ. For more details, please refer test report.

8	10.11	Thermal cycling test	-	-	-	-	There was no evidence of a major defect in the Thermal Cycling test and the samples met the following requirements, 1.Visual Inspection test. No Visual defects found 2. Maximum power determination, Power degradation≤5% 3. Insulation test- The measured insulation resistance was not less than 15.5 MΩ. For more details, please refer test report.
9	10.10	UV preconditioning	-	-	-	-	There was no evidence of a major defect in UV exposure and the samples met the following requirements, 1.Visual Inspection test. No Visual defects found 2. Maximum power determination, Power degradation≤5% 3. Insulation test- The measured insulation resistance was not less than 15.5 MΩ.For more details, please refer test report
10	10.9	Hot-spot endurance test	-	-	-	-	There was no evidence of a major visual defect in the Hotspot test and the samples met the following requirements, 1. Visual Inspection test. No Visual defects found 2. Maximum power determination, Power degradation≤5% 3. Insulation test- The measured insulation resistance was not less than 15.5 MΩ 4. Wet Leakage current test- The measured insulation resistance was not less than 15.5 MΩ. For more details, please refer test report
11	10.8	Outdoor exposure test	-	-	-	-	Test Not Applicable
12	10.7	Performance at low irradiance	-	-	-	-	Test Not Applicable
13	10.6	Performance at STC and NOCT	-	-	-	-	Test Not Applicable
14	10.5	Measurement of NOCT	-	-	-	-	Test Not Applicable
15	10.4	Measurement of temperature coefficients	-	-	-	-	Test Not Applicable

16	10.3	Insulation test	-	-	-	-	All modules passed the test. For more details. Please refer test report.
17	10.2	Maximum power determination	-	-	-	-	All Modules passed the test. Initial test date: 30/11/2022. Final test date: 23/02/2023. Please refer test report for more details
18	10.1	Visual inspection	-	-	-	-	All the modules passed the visual inspection test. Test date: 02/11/2022. For more details, please refer to the test report
19	4	Marking	-	-	-	-	All Markings are as per standard criteria. Please refer to the attached report for more information.

Vinay Singh
OIC Electrical
(Authorized Signatory)
Authorized on: 02 Aug, 2023 19:32 PM

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PART D. REMARKS

please refer attached test report

Vinay Singh
OIC Electrical
(Authorized Signatory)
Authorized on: 02 Aug, 2023 19:32 PM

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TC-8906

Test Report issued under the responsibility of:

Mitsui Chemicals Group

Solar PV Laboratory

SUMMARY OF REPORT No. MCIND/2023/LB/049.V1, DATED (DD/MM/YYYY): 02/08/2023

ULR No. TC890623000000049F

(Number of pages in test report: Page no.3 to 95)

TEST FORMAT AS PER IS 14286:2010 (First Revision)

1. Name of manufacturer:	NOVASYS GREENERGY PRIVATE LIMITED
2. Product:	Crystalline Silicon Terrestrial Photovoltaic Modules (Si wafer based)
3. Test Request Number:	SC22SPI00961
4. Model:	**Mono Crystalline (PERC):** **NOVA550MP144 (Representative Model)** **Series Models:** **144 Half-cut Cell Family- 182mm Cell (1500V System voltage):** NOVA545MP144, NOVA540MP144, NOVA535MP144, NOVA530MP144, NOVA525MP144, NOVA520MP144, NOVA515MP144, NOVA510MP144, NOVA505MP144, NOVA500MP144, NOVA495MP144 **132 Half-cut Cell Family- 182mm Cell (1500V System voltage):** NOVA505MP132, NOVA500MP132, NOVA495MP132, NOVA490MP132, NOVA485MP132, NOVA480MP132, NOVA475MP132, NOVA470MP132, NOVA465MP132, NOVA460MP132, NOVA455MP132 **120 Half-cut Cell Family- 182mm Cell (1500V System voltage):** NOVA460MP120, NOVA455MP120, NOVA450MP120, NOVA445MP120, NOVA440MP120, NOVA435MP120, NOVA430MP120, NOVA425MP120, NOVA420MP120, NOVA415MP120 **108 Half-cut Cell Family- 182mm Cell (1500V System voltage):** NOVA415MP108, NOVA410MP108, NOVA405MP108, NOVA400MP108, NOVA395MP108, NOVA390MP108, NOVA385MP108, NOVA380MP108, NOVA375MP108 **96 Half-cut Cell Family- 182mm Cell (1500V System voltage):** NOVA365MP96, NOVA360MP96, NOVA355MP96, NOVA350MP96, NOVA345MP96, NOVA340MP96,

	NOVA335MP96, NOVA330MP96, NOVA325MP96 **72 Half-cut Cell Family- 182mm Cell (1500V System voltage):** NOVA275MP72, NOVA270MP72, NOVA265MP72, NOVA260MP72, NOVA255MP72, NOVA250MP72, NOVA245MP72
5. Model differences provided (if applicable): Yes/No	Yes
6. Model differences verified as per MNRE Guidelines for series formulation: Yes/No	Yes
7. Test Results:	

SL.NO.	TEST REQUIREMENTS	CLAUSE	VERDICT
1	Visual Inspection	10.1	P
2	Maximum Power Determination	10.2	P
3	Insulation Test	10.3	P
4	Hotspot Endurance Test	10.9	P
5	UV preconditioning	10.10	P
6	Thermal Cycling Test	10.11	P
7	Humidity Freeze Test	10.12	P
8	Damp Heat Test	10.13	P
9	Robustness and Termination Test	10.14	P
10	Wet Leakage Test	10.15	P
11	Mechanical Load Test	10.16	P
12	Hail Test	10.17	P
13	Bypass Diode Thermal Test	10.18	P

General Information:

1. The conformity certificates of critical components are verified to ensure complete testing of product under test and details regarding harmonized IEC/UL Standards (where IS standards are not available) are also provided in the list of critical component.

CONCLUSION:

1. Sample meets all relevent requirements of IS 14286:2010 (First Revision):
2. ~~Sample fails to meet the following test requirements:~~

I, hereby, undertake that the verdict stated in the test reports for all the tests matches with the test results. The sample meets all relevant requirements of IS 14286:2010: /~~does not meet the requirementsstated above at 2) of conclusion~~. If any deviation is found, suitable punitive action may be taken by BIS.

Asim Bisayee

Date (DD/MM/YYYY): 02/08/2023 **(Signature of authorized person)**