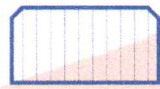
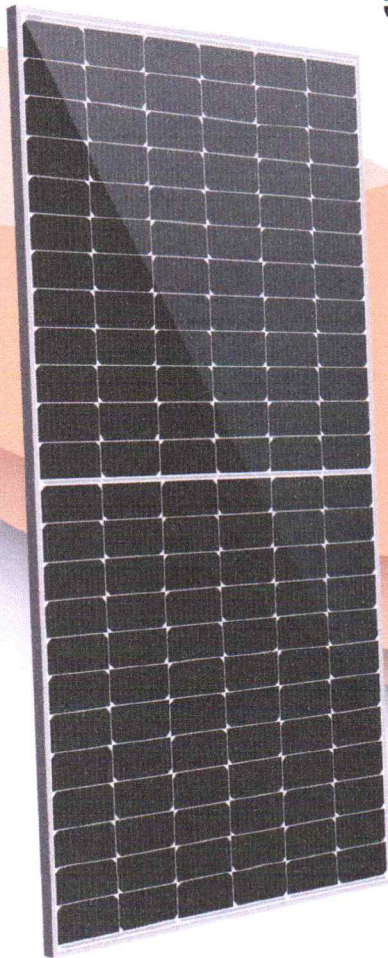
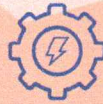


# SMF72HM10 545 Watt



144 Half Cell



Up to 21.10%



Up to 545Wp



Up to  
+2.99Wp Positive



28  
kg

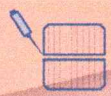
## HOW YOU BENEFIT



Optimal yield in all weather conditions; excellent lowlight and temperature behaviour



Excellent stability; tested for wind loads up to 2,400 Pa and snow loads up to 5,400 Pa



Better Performance under shade; separate operation of upper & lower half of the module

10  
YEARS  
25  
YEARS

10-year product warranty & 25-year linear performance warranty



UL 61730-1  
UL 61730-2

IS - 14286:2010  
IS / IEC 61730-1:2004  
IS / IEC 61730-2:2004



R-72002577



**ALMM**  
LISTED

## QUALITY & RELIABILITY

- ✓ Manufactured in an ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 Certified Facility.
- ✓ Certificates\*\*  
IEC - 61215, IEC - 61730-1&2, IEC - 61701, IEC - 62804, IEC - 61853, IEC - 60068, IEC - 62759, IEC - 62716, IS - 14286, IS/IEC 61730-1&2, UL 61730-1&2
- ✓ IP68 Rated Junction Box for Long-Term Weather Endurance.
- ✓ Made with high-grade raw material to achieve Quality, Durability, Efficiency, and through output.

## IDEAL SOLUTION FOR



Ground Mounted Installations



Commercial and Industrial Rooftop installations

\*Module image is for reference only, actual appearance may vary.

\*\*All certifications are under process.

# TECHNICAL DATASHEET

## TECHNICAL DATA FOR SMF72HM10-AAA (520-545) - MONOCRYSTALLINE MODULE

### ELECTRICAL PARAMETER AT STC#

MODULE TYPE	SMF72HM10*- AAA(520-545)					
Capacity rating - Pmax (Wp)	520	525	530	535	540	545
Power Tolerance (Wp)	0-3	0-3	0-3	0-3	0-3	0-3
Open circuit voltage - Voc(V)	48.70	48.86	49.02	49.18	49.34	49.5
Short circuit current - Isc(A)	13.63	13.71	13.79	13.87	13.96	14.04
Rated voltage - Vmp(V)	40.21	40.34	40.47	40.60	40.73	40.9
Rated current - Imp(A)	12.94	13.02	13.10	13.18	13.26	13.34
Module efficiency (%)	20.13	20.32	20.52	20.71	20.90	21.10

# Under Standard Test Conditions (STC) of irradiance 1000 W/m<sup>2</sup>, spectrum AM 1.5 and cell temperature of 25°C.

### BI-FACIAL OUTPUT - REAR SIDE POWER GAIN\*\*\*

5 % Gain	546	551	557	562	567	572
10 % Gain	572	578	583	589	594	600
15 % Gain	598	604	610	615	621	627
20 % Gain	624	630	636	642	648	654

\*\*\* Additional Power Gain from rear side is depends on albedo. (Higher albedo, the higher power gain.)

### PERMISSIBLE OPERATING CONDITIONS

Temperature range	-40°C to +85°C
Maximum system voltage	1500 VDC
NOCT	45± 2°C
Hail resistance	Maximum diameter of 25 mm with velocity 23 m/s

### MECHANICAL SPECIFICATION

SPECIFICATION	DETAILS
Solar cells	Monocrystalline Silicon (PERC), Bi facial MBB
Encapsulation	Ultra - clear PID free EVA (Ethylene-Vinyl-Acetate)
Backside	UV protected Transparent*White backsheet
Frame	Silver Anodized Aluminium Alloy
Front glass	32 mm, High Transmission, ARC Tempered Glass
Dimensions	(L) 2278 mm x (W) 1134 mm x (H) 35mm
Weight	~28 kg
J-box	IP 68 certified, 3 diodes junction box
Cable	Solar cable 400 mm length, 4 mm <sup>2</sup>
Connectors	Compatible With MC4 / MC4-EVO2 Connectors
Application Class	Class A
Electrical Safety	Class II
Fire Safety	Class C ( Type I)
Surface load	Snow load 5400 Pa, wind load 2400 Pa

### TEMPERATURE COEFFICIENT (TC)

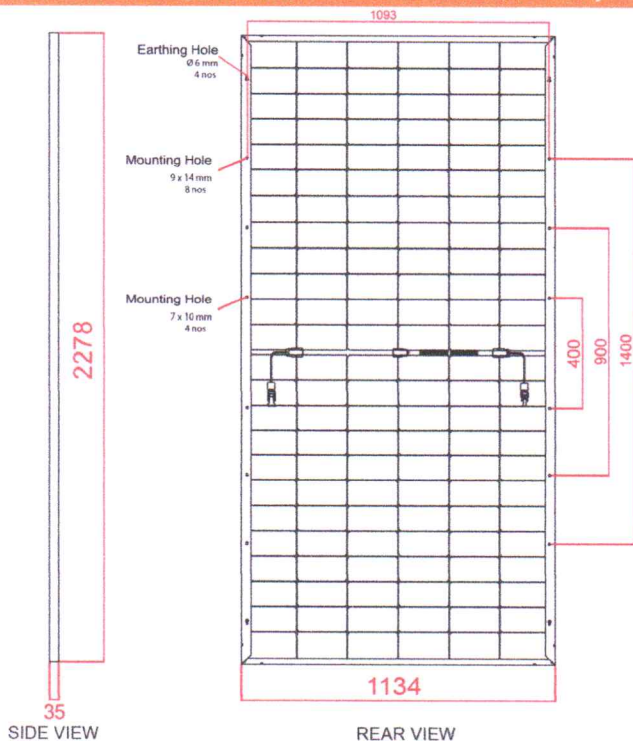
Temperature Coefficient (Voc)	-0.25% /°C
Temperature Coefficient (Isc)	0.04% /°C
Temperature Coefficient (Pmax)	-0.34% /°C

### WARRANTY

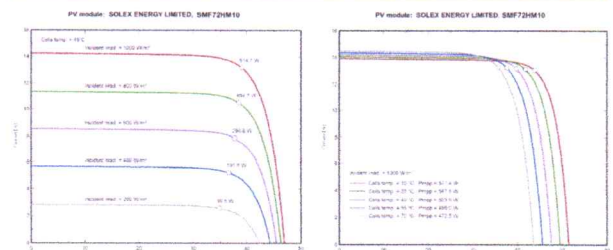
Product warranty**	10 years
Performance warranty***	Limited warranty for power output :- 90% for 10 years and 80% for 25 years

\*\*applicable only when module installation done as per Solex's installation manual.

### DRAWING (MEASUREMENTS ARE IN MM)



### IV CURVE



- For unpacking, handling & installation instructions refer to Solex Energy's Manual guidelines available on the company website.
- Before placing an order confirm your requirements with our sales representative.
- The technical data given here is for reference purposes only.
- Due to constant product modifications, Solex Energy Limited reserves the right to amend the above specifications without prior notice.
- Dispose-off the product as E-Waste after the end of its working life.

### PACKING CONFIGURATION

Container	40'HQ
Modules per Pallet	30
Pallets per Container	20
Modules per Container	600

## SOLEX ENERGY LTD.

Corp. Office: 303, Trinity Business Park, Near Madhuvan Circle, LP Savani Road, Pal, Surat - 395009, Gujarat, India  
 Regd. Office: Plot No. 131/A, Phase-1, H. M. Road, GIDC, Vitthal Udyognagar-388 121, Dist: Anand (Gujarat) India



# भारतीय मानक ब्यूरो

(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)

## BUREAU OF INDIAN STANDARDS

(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India)

मानक भवन, 9 बहादुर शाह जफर मार्ग, नई दिल्ली - 110002  
Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi - 110002  
दूरभाष/Phone: +91-11-23230856/2323010131/23233375/23239402  
ई-मेल/E-mail: registration@bis.gov.in  
वेबसाइट/Website: <https://bis.gov.in/>, <https://www.crsbis.in/BIS/>

Our Ref: Registration/CRS 2023-1269/R-72008125

Date:18-04-2023

### Subject : Licence Document

Manufacturing Unit :	SOLEX ENERGY LTD PLOT NO 1 A BLOCK 938, TADKESHWAR, KIM MANDVI ROAD, MANDVI, SURAT, GUJARAT GUJARAT,India-394110 brijesh.k@solex.in 9510777456	
----------------------	---	--

Dear Sir,

1. With reference to your Application, we are pleased to inform you that it has been decided to grant you licence as per details given below :

Product Category:	CRYSTALLINE SILICON TERRESTRIAL PHOTOVOLTAIC (PV) MODULES (Si wafer based)
Product Name:	Mono Crystalline Silicon Terrestrial Photovoltaic (PV) modules
IS NO :	IS 14286 : 2010/ IEC 61215 : 2005, IS/IEC 61730 (PART 1) : 2004 & IS/IEC 61730 (PART 2) : 2004
Brand (As Declared by Manufacturer) :	SOLEX
Model :	[Brand -> SOLEX, Models -> SMB54HM10-400, SMB54HM10- 400, SMB54HM10-405, SMB54HM10- 405, SMB54HM10-410, SMB54HM10- 410, SMB60HM10-440, SMB60HM10- 440, SMB60HM10-445, SMB60HM10- 445, SMB60HM10-450, SMB60HM10- 450, SMB66HM10-485, SMB66HM10-485, SMB66HM10-485, SMB66HM10-490, SMB66HM10- 490, SMB66HM10-495, SMB66HM10- 495, SMB66HM10-500, SMB66HM10- 500, SMB72HM10-530, SMB72HM10- 530, SMB72HM10-535, SMB72HM10- 535, SMB72HM10-540, SMB72HM10- 540, SMB72HM10-545, SMB72HM10- 545, SMB72HM10-550, SMB72HM10- 550, SMBB54HM10-400, SMBB54HM10- 400, SMBB54HM10-405, SMBB54HM10- 405, SMBB54HM10-410, SMBB54HM10- 410, SMBB60HM10-440, SMBB60HM10- 440, SMBB60HM10-445, SMBB60HM10- 445, SMBB60HM10-450, SMBB60HM10- 450, SMBB66HM10-485, SMBB66HM10- 485, SMBB66HM10-485, SMBB66HM10-490, SMBB66HM10- 490, SMBB66HM10-495, SMBB66HM10- 495, SMBB66HM10-500, SMBB66HM10- 500, SMBB72HM10- 530, SMBB72HM10-530, SMBB72HM10-535, SMBB72HM10- 535, SMBB72HM10-540, SMBB72HM10- 540, SMBB72HM10-545, SMBB72HM10- 545, SMBB72HM10-550, SMBB72HM10- 550, SMF54HM10-400, SMF54HM10- 400, SMF54HM10-405, SMF54HM10-410, SMF54HM10-415, SMF54HM10- 415, SMF60HM10-440, SMF60HM10- 440, SMF60HM10-445, SMF60HM10- 445, SMF60HM10-450, SMF60HM10- 450, SMF60HM10-455, SMF60HM10- 455, SMF66HM10-485, SMF66HM10-485, SMF66HM10-485, SMF66HM10-490, SMF66HM10-490, SMF66HM10-495, SMF66HM10- 495, SMF66HM10-500, SMF66HM10- 500, SMF66HM10-505, SMF66HM10- 505, SMF72HM10-530, SMF72HM10- 530, SMF72HM10-535, SMF72HM10- 535, SMF72HM10-540, SMF72HM10- 540, SMF72HM10-545, SMF72HM10- 545, SMF72HM10- 545, SMF72HM10- 550, SMF72HM10-550, SMF72HM10-555, SMF72HM10- 555, SMFB54HM10-400, SMFB54HM10-405, SMFB54HM10-410, SMFB54HM10- 410, SMFB54HM10-415, SMFB54HM10- 415, SMFB60HM10-440, SMFB60HM10- 440, SMFB60HM10-445, SMFB60HM10- 445, SMFB60HM10-450, SMFB60HM10- 450, SMFB60HM10-455, SMFB60HM10- 455, SMFB60HM10-460, SMFB60HM10- 460, SMFB66HM10-480, SMFB66HM10- 480, SMFB66HM10-485, SMFB66HM10- 485, SMFB66HM10-490, SMFB66HM10- 490, SMFB66HM10-495, SMFB66HM10- 495, SMFB66HM10- 500, SMFB66HM10- 500, SMFB66HM10-505, SMFB66HM10- 505, SMFB72HM10-530, SMFB72HM10- 530, SMFB72HM10-535, SMFB72HM10- 535, SMFB72HM10-540, SMFB72HM10- 540, SMFB72HM10-545, SMFB72HM10- 545, SMFB72HM10- 550, SMFB72HM10-555, SMFB72HM10- 555]
Factory Address :	PLOT NO 1 A BLOCK 938, TADKESHWAR, KIM MANDVI ROAD, MANDVI, SURAT, GUJARAT GUJARAT,India-394110

2. The licence is being granted for your unit located at the address and for the brand and models mentioned at serial no 1 above.
3. The number assigned to this Licence is **R-72008125** which has been made operative from **18-04-2023** and is valid upto **17-04-2025** . The Licence Number should invariably be referred to in your future correspondence.
4. The rights and privileges under the licence shall not be exercised by any other factory / organization at any other location. This licence is not transferable. In the event of shifting of the manufacturing machinery from the registered premises to some other place use of the licence Number shall be stopped and BIS shall be informed.
5. The licensee shall comply with the provisions of the Act, rules and regulations framed thereunder and as amended from time to time.
6. The licensee shall follow the guidelines for the use of Standard Mark and labeling requirements as per Annex-I.
7. The licensee shall not use the licence in any manner which contravenes the provisions of Act, rules and regulations framed thereunder and as amended from time to time.
8. Upon expiry of validity, stoppage or suspension or cancellation of licence, you shall discontinue forthwith the self declaration of conformity to the relevant Indian Standard(s) and withdraw all promotional and advertising matter which contains any reference thereto.
9. For renewal of licence, the licensee shall have to apply to BIS three months in advance before expiration of the licence and application form for renewal is available on BIS website.
10. The licence is not transferable. Kindly acknowledge receipt of this letter.

Thanking you,

Yours faithfully,  
(Jainendra Kumar)  
Scientist-D  
Telfax : +91-11-23230856  
E-mail: registration@bis.gov.in

Note: This is a system generated letter. Hence signature is not required.  
To verify authentication of letter, kindly scan the QR code on this letter.

#### **Annex - 1**

The guidelines for use of Standard Mark for Scheme-C are per 3(1) of BIS (Conformity Assessment) Regulations,2017 are given below:

- i) The monogram of the 'Standard Mark' consists of the pictorial representation, drawn in the exact style as indicated in the figure in the figure in Annexure I. Its photographic reduction and enlargement is permitted.
- ii) The 'Standard Mark' can be displayed in single colour or multi-colour as per the details given below. The colour scheme for the Standard Mark to be used in multi colour shall be use as indicated below.
- iii) The licensee shall display the 'Standard Mark' on the article and/or the packaging, as the case may be, in a manner so as to be easily visible. It shall be legible, indelible and non-removable. Further, the durability of marking shall be as per the provisions of the relevant Indian Standard, wherever applicable. The display of IS number, Registration number and words shall not be less than Arial font size 6.
- iv) Any device with a integrated display screen may present the Standard Mark electronically (e-labelling) in lieu of a physical presentation on the product.



Ref. Certif. No.

**US-42034-UL**

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

**CB TEST CERTIFICATE**

Product

Photovoltaic (PV) Module(s)

Name and address of the applicant

Solex Energy Ltd  
PLOT NO. 1A BLOCK 938, TADKESHWAR, KIM MANDVI ROAD, MANDVI,  
SURAT, Gujarat, 394110  
India

Name and address of the manufacturer

Solex Energy Ltd  
PLOT NO. 1A BLOCK 938, TADKESHWAR, KIM MANDVI ROAD, MANDVI,  
SURAT, Gujarat, 394110  
India

Name and address of the factory

Solex Energy Ltd  
PLOT NO. 1A BLOCK 938, TADKESHWAR, KIM MANDVI ROAD, MANDVI,  
SURAT, Gujarat, 394110  
India

Note: When more than one factory, please report on page 2

Additional Information on page 2

Ratings and principal characteristics

Maximum System Voltage: 1500 V  
Maximum over current protection rating: 25 A  
See Test Report, "Product Electrical Ratings" for electrical ratings for all models.

Trademark / Brand (if any)



Customer's Testing Facility (CTF) Stage used

Model / Type Ref.

**Mono PERC Bifacial Models:**  
144 Half cut cell Models: SMB72HM10-AAA, SMBB72HM10-AAA,  
 Additional Information on page 2

Additional information (if necessary may also be reported on page 2)

**Additionally evaluated to:**  
EN 61215-1:2016, EN 61215-2:2017, EN 61215-1-1:2016  
 Additional Information on page 2

A sample of the product was tested and found to be in conformity with

IEC 61215-1:2016, IEC 61215-2:2016, IEC 61215-1-1:2016

As shown in the Test Report Ref. No. which forms part of this Certificate

E531179-4790618738-D1 issued on 2023-04-26

This CB Test Certificate is issued by the National Certification Body



- UL Solutions (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
- UL Solutions (Denko), Borupvang 5A DK-2750 Ballerup, DENMARK
- UL Solutions (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
- UL Solutions (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see [www.ul.com/ncbnames](http://www.ul.com/ncbnames)

Date: 2023-04-28

Signature:

Jolanta M. Wroblewska



Ref. Certif. No.

**US-42034-UL**

**Additional Model Detail(s):**

**Mono PERC Bifacial Models:**

**144 Half cut cell Models:** SMB72HM10-AAA, SMBB72HM10-AAA, Where AAA stands for the power range from 530~560, in steps of 5W

**132 Half cut cell Models:** SMB66HM10-AAA, SMBB66HM10-AAA, Where AAA stands for the power range from 485~510, in steps of 5W

**120 Half cut cell Models:** SMB60HM10-AAA, SMBB60HM10-AAA, Where AAA stands for the power range from 440~465, in steps of 5W

**108 Half cut cell Models:** SMB54HM10-AAA, SMBB54HM10-AAA, Where AAA stands for the power range from 400~420, in steps of 5W

**Mono PERC Mono-facial Models:**

**144 Half cut cell Models:** SMF72HM10-AAA, SMFB72HM10-AAA, Where AAA stands for the power range from 530~560, in steps of 5W

**132 Half cut cell Models:** SMF66HM10-AAA, SMFB66HM10-AAA, Where AAA stands for the power range from 485~510, in steps of 5W

**120 Half cut cell Models:** SMF60HM10-AAA, SMFB60HM10-AAA, Where AAA stands for the power range from 440~465, in steps of 5W

**108 Half cut cell Models:** SMF54HM10-AAA, SMFB54HM10-AAA, Where AAA stands for the power range from 400~420, in steps of 5W

**Additional information (if necessary)**



- UL Solutions (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
- UL Solutions (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK
- UL Solutions (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
- UL Solutions (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see [www.ul.com/ncbnames](http://www.ul.com/ncbnames)

Date: 2023-04-28

Signature:

Jolanta M. Wroblewska



Ref. Certif. No.

US-42035-UL

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product: Photovoltaic (PV) Module(s)

Name and address of the applicant: Solex Energy Ltd  
PLOT NO. 1A BLOCK 938, TADKESHWAR, KIM MANDVI ROAD, MANDVI, SURAT, Gujarat, 394110 India

Name and address of the manufacturer: Solex Energy Ltd  
PLOT NO. 1A BLOCK 938, TADKESHWAR, KIM MANDVI ROAD, MANDVI, SURAT, Gujarat, 394110 India

Name and address of the factory: Solex Energy Ltd  
PLOT NO. 1A BLOCK 938, TADKESHWAR, KIM MANDVI ROAD, MANDVI, SURAT, Gujarat, 394110 India

Note: When more than one factory, please report on page 2

Ratings and principal characteristics: Maximum System Voltage: 1500 V  
Maximum over current protection rating: 25 A  
See Test Report, "Product Electrical Ratings" for electrical ratings for all models.

Trademark / Brand (if any)



Customer's Testing Facility (CTF) Stage used

Model / Type Ref.

**Mono PERC Bifacial Models:**  
144 Half cut cell Models: SMB72HM10-AAA, SMBB72HM10-AAA,  
 Additional Information on page 2

Additional information (if necessary may also be reported on page 2)

**Additionally evaluated to:** EN IEC 61730-1:2018, EN IEC 61730-2:2018  
 Additional Information on page 2

A sample of the product was tested and found to be in conformity with

IEC 61730-2:2016, IEC 61730-1:2016

As shown in the Test Report Ref. No. which forms part of this Certificate

E531179-4790618738-D2 issued on 2023-04-26

This CB Test Certificate is issued by the National Certification Body



- UL Solutions (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
- UL Solutions (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK
- UL Solutions (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
- UL Solutions (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see [www.ul.com/ncbnames](http://www.ul.com/ncbnames)

Date: 2023-04-28

Signature:

Jolanta M. Wroblewska



Ref. Certif. No.

**US-42035-UL**

**Additional Model Detail(s):**

**Mono PERC Bifacial Models:**

**144 Half cut cell Models:** SMB72HM10-AAA, SMBB72HM10-AAA, Where AAA stands for the power range from 530~560, in steps of 5W

**132 Half cut cell Models:** SMB66HM10-AAA, SMBB66HM10-AAA, Where AAA stands for the power range from 485~510, in steps of 5W

**120 Half cut cell Models:** SMB60HM10-AAA, SMBB60HM10-AAA, Where AAA stands for the power range from 440~465, in steps of 5W

**108 Half cut cell Models:** SMB54HM10-AAA, SMBB54HM10-AAA, Where AAA stands for the power range from 400~420, in steps of 5W

**Mono PERC Mono-facial Models:**

**144 Half cut cell Models:** SMF72HM10-AAA, SMFB72HM10-AAA, Where AAA stands for the power range from 530~560, in steps of 5W

**132 Half cut cell Models:** SMF66HM10-AAA, SMFB66HM10-AAA, Where AAA stands for the power range from 485~510, in steps of 5W

**120 Half cut cell Models:** SMF60HM10-AAA, SMFB60HM10-AAA, Where AAA stands for the power range from 440~465, in steps of 5W

**108 Half cut cell Models:** SMF54HM10-AAA, SMFB54HM10-AAA, Where AAA stands for the power range from 400~420, in steps of 5W

**Additional information (if necessary)**



- UL Solutions (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
- UL Solutions (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK
- UL Solutions (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
- UL Solutions (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see [www.ul.com/ncbnames](http://www.ul.com/ncbnames)

Date: 2023-04-28

Signature:

Jolanta M. Wroblewska



# STATEMENT OF COMPLIANCE

The product Photovoltaic Module has been tested by UL India Private Limited and found to comply in accordance with the Standard indicated on this report.

Project Number: 4790618738.5.1

Report Number: 4790618738.5.1-S1-R1 Dated 24 March 2023

Test Location: UL India Private Limited

Issued to: SOLEX ENERGY LTD  
PLOT NO 1 A BLOCK 938, TADKESHWAR,  
KIM MANDVI ROAD, MANDVI,  
SURAT, GUJARAT, GUJARAT, 394110

Tested Model: SMF72HM10-545

(Refer to Report No. 4790618738.5.1-S1-R1 for BOM and Test details)

Models Covered\*: Mono-Crystalline Photovoltaic Modules with maximum 1500V system voltage:

144 Half cut cell:

SMF72HM10-555, SMF72HM10-550, SMF72HM10-545, SMF72HM10-540, SMF72HM10-535,  
SMF72HM10-530

132 Half cut cell:

SMF66HM10-505, SMF66HM10-500, SMF66HM10-495, SMF66HM10-490,  
SMF66HM10-485, SMF66HM10-480

120 Half cut cell:

SMF60HM10-460, SMF60HM10-455, SMF60HM10-450, SMF60HM10-445,  
SMF60HM10-440

108 Half cut cell:

SMF54HM10-415, SMF54HM10-410, SMF54HM10-405, SMF54HM10-400

Standard(s): PID (Potential Induced Degradation) Testing of Solar Photovoltaic modules as per IEC TS 62804 – Test Methods for The Detection of Potential-Induced Degradation Part 1: Crystalline Silicon Photovoltaic Modules. Edition 1.0, 2015-08

Test Condition: [Positive Grounding] (Severity level as per MNRE requirement: 3 Cycles at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs – Total 288Hrs)

\* Manufacturer declares that samples submitted for evaluation are representative of the covered models and produced using the same materials, components, equipment, and processes. Details of the bill of materials are provided in the test report. Any change in design, materials, components, equipment, and processes may require retesting to maintain the compliance.

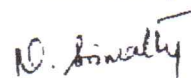
Disclaimer: Test results apply only to the sample(s) actually tested by UL India Private Limited or its vendor. The client provided all of the test samples for testing by UL. UL did not select the samples or determine whether the samples provided were representative of other manufactured products. UL has not established Follow-Up Service or other surveillance of the product. The client and or manufacturer are solely and fully responsible for conformity of all products to all applicable standards, specifications or requirements. UL Logo and Marks shall not be used in connection with the above tested product(s). Only those products bearing the UL Listing and Classification Marks should be considered as being covered by UL's Listing, Classification and Follow-Up Service. Look for the UL Listing and Classification Mark on the product.

Issued By:



Kantha Raju H S  
UL India Private Limited

Authorized By



N Srimathy  
UL India Private Limited



# STATEMENT OF COMPLIANCE

The product Photovoltaic Module has been tested by UL India Private Limited and found to comply in accordance with the Standard indicated on this report.

Project Number: 4790618738.11.1

Report Number: 4790618738.11.1-S2 Dated 31 March 2023

Test Location: UL India Private Limited

Issued to: SOLEX ENERGY LTD  
PLOT NO 1 A BLOCK 938, TADKESHWAR,  
KIM MANDVI ROAD, MANDVI,  
SURAT, GUJARAT, GUJARAT, 394110

Tested Model: SMF72HM10-545  
(Refer to Report No. 4790618738.11.1-S2 for BOM and Test details)

Models Covered\*: Mono-Crystalline Photovoltaic Modules with maximum 1500V system voltage:

144 Half cut cell:

SMF72HM10-555, SMF72HM10-550, SMF72HM10-545, SMF72HM10-540, SMF72HM10-535,  
SMF72HM10-530.

SMFB72HM10-555, SMFB72HM10-550, SMFB72HM10-545, SMFB72HM10-540,  
SMFB72HM10-535, SMFB72HM10-530.

132 Half cut cell:

SMF66HM10-505, SMF66HM10-500, SMF66HM10-495, SMF66HM10-490, SMF66HM10-485,  
SMF66HM10-480

SMFB66HM10-505, SMFB66HM10-500, SMFB66HM10-495, SMFB66HM10-490,  
SMFB66HM10-485, SMFB66HM10-480

120 Half cut cell:

SMF60HM10-460, SMF60HM10-455, SMF60HM10-450, SMF60HM10-445, SMF60HM10-440  
SMFB60HM10-460, SMFB60HM10-455, SMFB60HM10-450, SMFB60HM10-445,  
SMFB60HM10-440

108 Half cut cell:

SMF54HM10-415, SMF54HM10-410, SMF54HM10-405, SMF54HM10-400  
SMFB54HM10-415, SMFB54HM10-410, SMFB54HM10-405, SMFB54HM10-400

Standard(s): IEC TS 63342, Edition 1.0 2022-07, C-Si photovoltaic (PV) modules – Light and elevated temperature induced degradation (LETID) test – Detection

Test Condition: As per standard above.

\* Manufacturer declares that samples submitted for evaluation are representative of the covered models and produced using the same materials, components, equipment, and processes. Details of the bill of materials are provided in the test report. Any change in design, materials, components, equipment, and processes may require retesting to maintain the compliance.

Disclaimer: Test results apply only to the sample(s) actually tested by UL India Private Limited or its vendor. The client provided all of the test samples for testing by UL. UL did not select the samples or determine whether the samples provided were representative of other manufactured products. UL has not established Follow-Up Service or other surveillance of the product. The client and or manufacturer are solely and fully responsible for conformity of all products to all applicable standards, specifications or requirements. UL Logo and Marks shall not be used in connection with the above tested product(s). Only those products bearing the UL Listing and Classification Marks should be considered as being covered by UL's Listing, Classification and Follow-Up Service. Look for the UL Listing and Classification Mark on the product.

Issued By:



Kantha Raju H S  
UL India Private Limited

Authorized By



N Srimathy  
UL India Private Limited



# STATEMENT OF COMPLIANCE

The product Photovoltaic Module has been tested by UL India Private Limited and found to comply in accordance with the Standard indicated on this report.

Project Number: 4790618738.11.1

Report Number: 4790618738.11.1-NABL-S1 Dated 31 March 2023

Test Location: UL India Private Limited

Issued to: SOLEX ENERGY LTD  
PLOT NO 1 A BLOCK 938, TADKESHWAR,  
KIM MANDVI ROAD, MANDVI,  
SURAT, GUJARAT, GUJARAT, 394110

Tested Model: SMF72HM10-545

(Refer to Report No. 4790618738.11.1-NABL-S1 for BOM and Test details)

Models Covered\*: Mono-Crystalline Photovoltaic Modules with maximum 1500V system voltage:

144 Half cut cell:

SMF72HM10-555, SMF72HM10-550, SMF72HM10-545, SMF72HM10-540, SMF72HM10-535, SMF72HM10-530.

SMFB72HM10-555, SMFB72HM10-550, SMFB72HM10-545, SMFB72HM10-540, SMFB72HM10-535, SMFB72HM10-530.

132 Half cut cell:

SMF66HM10-505, SMF66HM10-500, SMF66HM10-495, SMF66HM10-490, SMF66HM10-485, SMF66HM10-480

SMFB66HM10-505, SMFB66HM10-500, SMFB66HM10-495, SMFB66HM10-490, SMFB66HM10-485, SMFB66HM10-480

120 Half cut cell:

SMF60HM10-460, SMF60HM10-455, SMF60HM10-450, SMF60HM10-445, SMF60HM10-440  
SMFB60HM10-460, SMFB60HM10-455, SMFB60HM10-450, SMFB60HM10-445, SMFB60HM10-440

108 Half cut cell:

SMF54HM10-415, SMF54HM10-410, SMF54HM10-405, SMF54HM10-400  
SMFB54HM10-415, SMFB54HM10-410, SMFB54HM10-405, SMFB54HM10-400

Standard(s): IEC 61215-2: Terrestrial photovoltaic (PV) modules – Design qualification and type approval – Part 2: Test procedures, Ed-1.0, 2016-03 (Initial Stabilization clause 19.1 and Outdoor Exposure Test Clause 4.8 – LID test)

Test Condition: Initial Stabilization (MQT 19.1) and Outdoor Exposure (MQT 08)

\* Manufacturer declares that samples submitted for evaluation are representative of the covered models and produced using the same materials, components, equipment, and processes. Details of the bill of materials are provided in the test report. Any change in design, materials, components, equipment, and processes may require retesting to maintain the compliance.

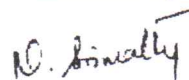
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Issued By:



Kantha Raju H S  
UL India Private Limited

Authorized By



N Srimathy  
UL India Private Limited



# STATEMENT OF COMPLIANCE

The product Photovoltaic Module has been tested by UL India Private Limited and found to comply in accordance with the Standard indicated on this report.

Project Number: 4790618738.8.1

Report Number: 4790618738.8.1-S1 Dated 21 March 2023

Test Location: China Telecommunication Technology Labs (vendor)

Issued to: SOLEX ENERGY LTD  
PLOT NO 1 A BLOCK 938, TADKESHWAR,  
KIM MANDVI ROAD, MANDVI,  
SURAT, GUJARAT, GUJARAT, 394110

Tested Model: SMFB72HM10-545

(Refer to Report No. 4790618738.8.1-S1 for BOM and Test details)

Models Covered\*: Mono-Crystalline Photovoltaic Modules with maximum 1500V system voltage:

144 Half cut cell:

SMF72HM10-555, SMF72HM10-550, SMF72HM10-545, SMF72HM10-540, SMF72HM10-535, SMF72HM10-530.

SMFB72HM10-555, SMFB72HM10-550, SMFB72HM10-545, SMFB72HM10-540, SMFB72HM10-535, SMFB72HM10-530.

132 Half cut cell:

SMF66HM10-505, SMF66HM10-500, SMF66HM10-495, SMF66HM10-490, SMF66HM10-485, SMF66HM10-480

SMFB66HM10-505, SMFB66HM10-500, SMFB66HM10-495, SMFB66HM10-490, SMFB66HM10-485, SMFB66HM10-480

120 Half cut cell:

SMF60HM10-460, SMF60HM10-455, SMF60HM10-450, SMF60HM10-445, SMF60HM10-440 SMFB60HM10-460, SMFB60HM10-455, SMFB60HM10-450, SMFB60HM10-445, SMFB60HM10-440

108 Half cut cell:

SMF54HM10-415, SMF54HM10-410, SMF54HM10-405, SMF54HM10-400 SMFB54HM10-415, SMFB54HM10-410, SMFB54HM10-405, SMFB54HM10-400

Standard(s): IEC 60068-2-68 Edition 1.0, 1994-08- Environmental Testing- Part 2: Dust and Sand.

Test Condition: Test method: Lc2

Dust/Sand type: Quartz, SiO<sub>2</sub>

Dust/Sand concentration: 10 g/m<sup>3</sup> ± 3 g/m<sup>3</sup>

Air velocity: 20 m/s ± 2 m/s

Duration: 8 hours (4 hours for front and 4 hours for rear side)

\* Manufacturer declares that samples submitted for evaluation are representative of the covered models and produced using the same materials, components, equipment, and processes. Details of the bill of materials are provided in the test report. Any change in design, materials, components, equipment, and processes may require retesting to maintain the compliance.

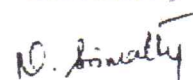
Disclaimer: Test results apply only to the sample(s) actually tested by UL India Private Limited or its vendor. The client provided all of the test samples for testing by UL. UL did not select the samples or determine whether the samples provided were representative of other manufactured products. UL has not established Follow-Up Service or other surveillance of the product. The client and or manufacturer are solely and fully responsible for conformity of all products to all applicable standards, specifications or requirements. UL Logo and Marks shall not be used in connection with the above tested product(s). Only those products bearing the UL Listing and Classification Marks should be considered as being covered by UL's Listing, Classification and Follow-Up Service. Look for the UL Listing and Classification Mark on the product.

Issued By:



Kantha Raju H S  
UL India Private Limited

Authorized By



N Srimathy  
UL India Private Limited



# STATEMENT OF COMPLIANCE

The product Photovoltaic Module has been tested by UL India Private Limited and found to comply in accordance with the Standard indicated on this report.

Project Number: 4790618738.4.1

Report Number: 4790618738.4.1-S1 Dated 21 March 2023

Test Location: China Telecommunication Technology Labs (vendor)

Issued to: SOLEX ENERGY LTD  
PLOT NO 1 A BLOCK 938, TADKESHWAR,  
KIM MANDVI ROAD, MANDVI,  
SURAT, GUJARAT, GUJARAT, 394110

Tested Model: SMFB72HM10-545

(Refer to Report No. 4790618738.4.1-S1 for BOM and Test details)

Models Covered\*: Mono-Crystalline Photovoltaic Modules with maximum 1500V system voltage:

144 Half cut cell:

SMF72HM10-555, SMF72HM10-550, SMF72HM10-545, SMF72HM10-540, SMF72HM10-535, SMF72HM10-530.

SMFB72HM10-555, SMFB72HM10-550, SMFB72HM10-545, SMFB72HM10-540, SMFB72HM10-535, SMFB72HM10-530.

132 Half cut cell:

SMF66HM10-505, SMF66HM10-500, SMF66HM10-495, SMF66HM10-490, SMF66HM10-485, SMF66HM10-480

SMFB66HM10-505, SMFB66HM10-500, SMFB66HM10-495, SMFB66HM10-490, SMFB66HM10-485, SMFB66HM10-480

120 Half cut cell:

SMF60HM10-460, SMF60HM10-455, SMF60HM10-450, SMF60HM10-445, SMF60HM10-440  
SMFB60HM10-460, SMFB60HM10-455, SMFB60HM10-450, SMFB60HM10-445, SMFB60HM10-440

108 Half cut cell:

SMF54HM10-415, SMF54HM10-410, SMF54HM10-405, SMF54HM10-400  
SMFB54HM10-415, SMFB54HM10-410, SMFB54HM10-405, SMFB54HM10-400

Standard(s): IEC 62716 Edition 1.0, 2013-06- Photovoltaic (PV) modules –  
Ammonia corrosion testing.

Test Condition: as per standard above

\* Manufacturer declares that samples submitted for evaluation are representative of the covered models and produced using the same materials, components, equipment, and processes. Details of the bill of materials are provided in the test report. Any change in design, materials, components, equipment, and processes may require retesting to maintain the compliance.

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Issued By:



Kantha Raju H S  
UL India Private Limited

Authorized By



N Srimathy  
UL India Private Limited





**PV module - SMF72HM10-545**

Manufacturer	SOLEX ENERGY LIMITED	<b>Commercial data</b>	
Model	SMF72HM10-545	Data source :	UL INDIA
Pnom STC power (manufacturer)	545 Wp	Technology	Si-mono
Module size (W x L)	1.134 x 2.278 m <sup>2</sup>	Rough module area (Amodule)	2.58 m <sup>2</sup>
Number of cells	2 x 72	Sensitive area (cells) (Acells)	2.38 m <sup>2</sup>

**Specifications for the model (manufacturer or measurement data)**

Reference temperature (TRef)	25 °C	Reference irradiance (GRef)	1000 W/m <sup>2</sup>
Open circuit voltage (Voc)	49.8 V	Short-circuit current (Isc)	13.67 A
Max. power point voltage (Vmpp)	41.9 V	Max. power point current (Impp)	13.00 A
=> maximum power (Pmpp)	545.1 W	Isc temperature coefficient (mulsc)	5.3 mA/°C

**One-diode model parameters**

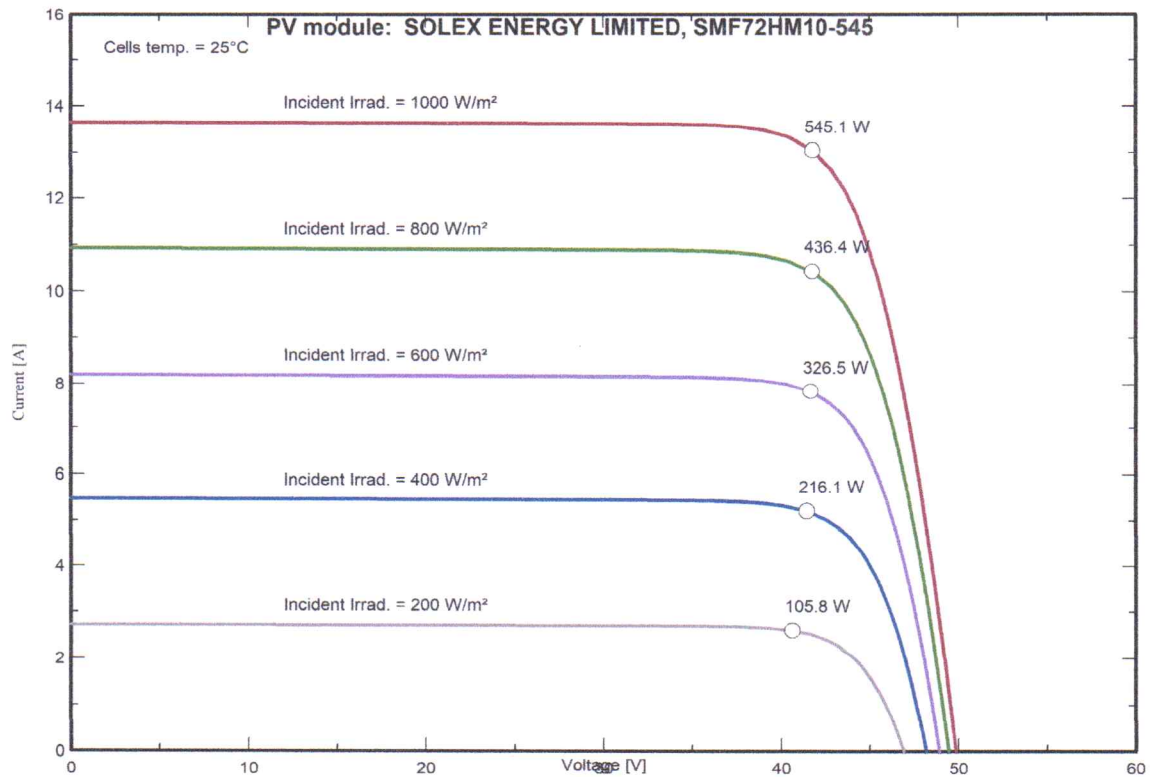
Shunt resistance (Rshunt)	1000 Ω	Diode saturation current (IoRef)	0.017 nA
Serie resistance (Rserie)	0.18 Ω	Voc temp. coefficient (MuVoc)	-130 mV/°C
Specified Pmax temper. coeff. (muPMaxR)	-0.32 %/°C	Diode quality factor (Gamma)	0.98
		Diode factor temper. coeff. (muGamma)	0.000 1/°C

**Reverse Bias Parameters, for use in behaviour of PV arrays under partial shadings or mismatch**

Reverse characteristics (dark) (BRev)	3.20 mA/V <sup>2</sup>	(quadratic factor (per cell))	
Number of by-pass diodes per module	3	Direct voltage of by-pass diodes	-0.6 V

**Model results for standard conditions (STC: T=25 °C, G=1000 W/m<sup>2</sup>, AM=1.5)**

Max. power point voltage (Vmpp)	41.8 V	Max. power point current (Impp)	13.09 A
Maximum power (Pmpp)	545.1 Wp	Power temper. coefficient (muPmpp)	-0.32 %/°C
Efficiency(/ Module area) (Eff_mod)	21.1 %	Fill factor (FF)	0.800
Efficiency(/ Cells area) (Eff_cells)	22.9 %		





TC-6168

# Test Report

## Solex Energy Ltd

REPORT NUMBER: 4790618738.12.1-NABL-S1

PROJECT NUMBER: 4790618738.12.1

ULR NUMBER: TC616823100000044F



### Select the applicable test

#### locations:

#### LOCATION 1:

UL India Private Limited,  
Laboratory building, Kalyani  
Platina Campus, Sy.no.129/4,  
EPIP Zone, Phase II, Whitefield,  
Bangalore – 560 066  
P:91-80-41384400

#### LOCATION 2:

UL India Private Limited,  
Oak building, Kalyani Platina  
Campus, Sy.No.129/4,  
EPIP Zone, Phase II, Whitefield,  
Bangalore, Karnataka – 560 066

#### LOCATION 3:

UL India Private Limited, 30/A, I  
Stage, Vishveshwarya Industrial  
Estate, Doddanekkundi Industrial  
Area, Bangalore - 560048

Report Number: 4790618738.12.1-NABL-S1  
ULR Number: TC616823100000044F



TEST DISCIPLINE: ELECTRONICS  
PRODUCT GROUP: SOLAR PANEL

### General details

<b>Customer / Applicant</b>	SOLEX ENERGY LTD. RS #938 KIM - MANDVI ROAD, NEAR GENERAL POLYTEX TADKESHWAR, GUJARAT, 394170, INDIA		
<b>Manufacturer</b>	SOLEX ENERGY LTD PLOT NO 1 A BLOCK 938, TADKESHWAR, KIM MANDVI ROAD, MANDVI, SURAT, GUJARAT, GUJARAT, 394110		
<b>Program</b>	NABL		
<b>Item Under Test</b>	Crystalline Silicon Solar PV Module		
<b>Model</b>	SMF72HM10-545		
<b>Number of Samples</b>	01(One)		
<b>UL. Sample Identification</b>	5622388	<b>Refer Summary of Test results for multiple samples</b>	
<b>Manufacturer Serial Number (if any)</b>	SA22110012035		
<b>Condition of IUT on receipt</b>	Good		
<b>Date of Receipt</b>	13 December 2022		
<b>Applicable Standard</b>	IEC 61215-2:2016, CL 4.2 Terrestrial photovoltaic (PV) modules - Design qualification and type approval - Part 2: Test procedures (Maximum power determination (MQT 02)) / IEC 60904-1:2020 Photovoltaic devices – Part 1: Measurement of photovoltaic current-voltage characteristics.		
<b>Date of Testing (Start date)</b>	20 January 2023	<b>End Date</b>	25 January 2023
<b>UL. general^ ambient condition</b>	<b>Temperature in °C</b>		23 ±5°C
	<b>Relative humidity in %</b>		<70 %
<b>Date of Issue</b>	31 January 2023		
<b>Test In-charge</b>	Naveen kumar N		

# Fill in the rows with information or add hyphen (-)

Form-ULID-003262

UL India Private Limited  
Registered Office: Kalyani Platina - Block I, 3rd Floor  
No. 24, EPIP Zone, Phase II, Whitefield, Bangalore - 560066, India  
T: 91 80.4138.4400 / F: 91 80.2841.3759 / W: ul.com  
CIN: U74200KA1997PTC023189

Form-ULID- 003262 (DCS:12-LO-F0851), Issue 21.0



Report Number: 4790618738.12.1-NABL-S1  
ULR Number: TC61682310000044F



<p><b>Kantha Raju</b> Digitally signed by Kantha Raju Date: 2023.01.31 19:33:30 +05'30'</p> <p>Kantha raju H S Senior Project Engineer</p>	<p><b>Srimathy N</b> Digitally signed by Srimathy N Date: 2023.01.31 19:52:22 +05'30'</p> <p>N Srimathy Project Engineer</p>
<b>Reviewed by</b>	<b>Authorized signatory</b>

Disclaimer

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Form-ULID-003262

UL India Private Limited  
Registered Office: Kalyani Platina - Block I, 3rd Floor  
No. 24, EPIP Zone, Phase II, Whitefield, Bangalore - 560066, India  
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Report Number: 4790618738.12.1-NABL-S1  
ULR Number: TC616823100000044F



### General Remarks (If any)

### Description of Item under Test (IUT)

Photovoltaic PV Modules – SMF72HM10-545 (5622388)

### Summary of Test Results

Test No.	Test Parameter	Standard & Clause Number	UL Sample Identification	Result
1	Visual inspection	IEC 61215-2:2016, CL 4.1	5622388	Refer Observation
2	Stabilization	IEC 61215-2:2016, CL 4.19		Refer Observation
3	Maximum power determination	IEC 61215-2:2016, CL 4.2		Refer Observation

**P: Meets the requirements    F: Does not meet the requirement    NA: Not applicable**

UL India Private Limited  
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ULR Number: TC616823100000044F



## Master Equipment and Calibration details

Test Name	Id Number	Description	Expiration Date
Visual Inspection	201099	Measuring Tool, Tape Measure	2023-06-10
Visual Inspection	160912	Fixture, For Testing, Table	NA
Visual Inspection	68610	Datalogger, RH & Temperature	2023-12-30
Visual Inspection	211906	Meter and/or Sensor, Light	2023-10-09
Visual Inspection	76645	Magnifying Lens, Without Ruler	NA
Maximum power determination	199796	Apparatus, Solar Simulator	NA
Maximum power determination	64832	Datalogger, RH & Temperature	2023-09-07
Maximum power determination	199638	Thermometer, Infrared	2023-04-05
Maximum power determination	226647	Reference Standard, Voltage or Current	2023-11-08
Stablization 1	54584	Apparatus, Pyranometer, Solar Diffuse Radiance	2025-08-26
Stablization 1	199233	Datalogger	2023-06-07
Stablization 1	175795	Fixture, For Testing, Metal Plate	NA
Stablization 1	175615	Load, Resistive, Variable	NA
Stablization 2	54584	Apparatus, Pyranometer, Solar Diffuse Radiance	2025-08-26
Stablization 2	199233	Datalogger	2023-06-07
Stablization 2	175795	Fixture, For Testing, Metal Plate	NA
Stablization 2	175615	Load, Resistive, Variable	NA

**Test methodology adopted: As per test Procedure Clause 4.2.3 of IEC 61215-2:2016.**

UL India Private Limited  
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Page 5 of 16

**This document is digitally signed and does not require signature on all pages**

Report Number: 4790618738.12.1-NABL-S1  
 ULR Number: TC616823100000044F



**Test Observation (If any)**

**Test Table: Visual inspection**

10.2 Initial	TABLE: Visual inspection	P
Test Date [YYYY-MM-DD] .....	2023-01-20	—
Sample #	Nature and position of initial findings – comments or attach photos	Result
5622388	No visual defects found	P
Supplementary information: N/A		

**Test Table: Stabilization**

<b>MQT 19.1: Initial stabilization</b>							
MQT 06.1: Performance at STC before initial stabilization							P
Test Date [YYYY-MM-DD].....				2023-01-20			—
Test method.....				<input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Natural sunlight			—
Sample #	Isc [A]	Voc [V]	Imp [A]	Vmp [V]	Pmax [W]	FF [%]	Result
5622388	13.49	49.85	12.85	42.14	541.64	81.00	P

UL India Private Limited  
 Registered Office: Kalyani Platina - Block I, 3rd Floor  
 No. 24, EPIP Zone, Phase II, Whitefield, Bangalore - 560066, India  
 T: 91 80 4138 4400 / F: 91 80 2841 3759 / W: ul.com  
 CIN: U74200KA1997PTC023189

Form-ULID- 003262 (DCS:12-LO-F0851), Issue 21.0



TABLE 02.2: MQT 19.1: Initial Stabilization procedure							P
Light exposure method							
<input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Natural sunlight							
Abbreviation: Regarding light source "S" for Solar simulator and "N" for Natural sunlight							
Stabilization criterion x per IEC 61215-1-x : IEC 61215-1-1					(0.01)/ 1%		
Sample #	5622388	Test Date (YYYY-MM-DD) start/end			2023-01-21/ 2023-01-25		
Test cycle	Integrated irradiation (kWh/m <sup>2</sup> )	Irradiance (W/m <sup>2</sup> )	Module temperature (°C)	Resistive load	Pmax (W) at the end of cycle	(Pmax – Pmin) / Paverage (%)	Stable (Yes/No)
Initial	—	—	—	—	541.64	—	—
1	5.02	844.7	51.7	4	540.21	—	—
2	5.03	702.2	50.0	4	539.71	0.4	Yes
3	—	—	—	—	—	—	—
4	—	—	—	—	—	—	—



**Test Table: Maximum power determination**

10.4 TABLE: Maximum power determination							P
Test Date [YYYY-MM-DD].....:			2023-01-25				—
Irradiance (W/m2)			1000				—
Module temperature (°C)			25				—
Test method.....:			<input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Natural sunlight				—
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmax [W]	FF [%]	—
5622388	49.87	41.89	13.46	12.88	539.71	80.00	—
5622388	49.89	42.00	13.46	12.84	539.31	80.00	—
5622388	49.91	41.82	13.46	12.90	539.50	80.00	—
<b>Average</b>	<b>49.89</b>	<b>41.90</b>	<b>13.46</b>	<b>12.87</b>	<b>539.50</b>	<b>80.00</b>	—
Supplementary information: NA							

**Statement of the estimated uncertainty of the test results**

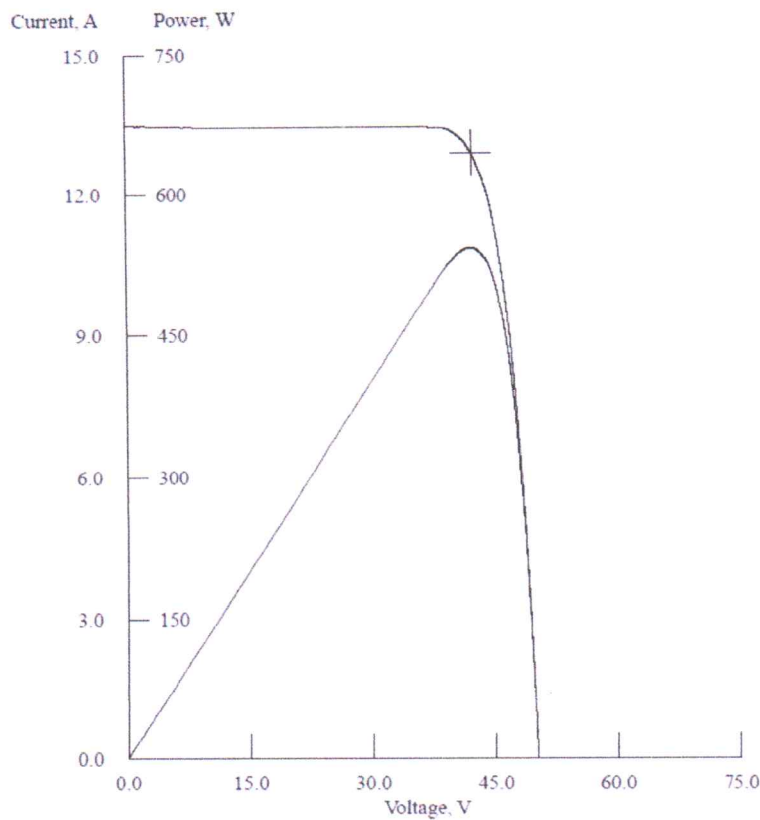
- 1) The Uncertainty of Voc is ±1.30%
- 2) The Uncertainty of Isc is ±1.60%
- 3) The Uncertainty of Pmp is ±1.70%

The expanded measurement uncertainty resulting from the standard measurement uncertainty multiplied with a factor k=2 is specified, denoting the deviations of the measurement value within a probability of 95%.



## Appendix

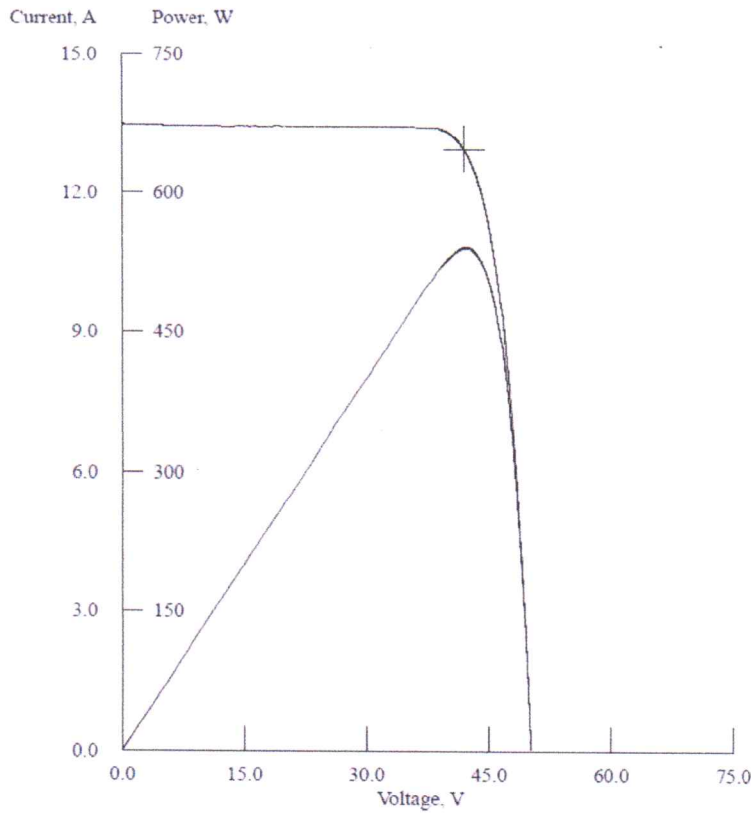
### PIV Graphs: SMF72HM10-545 (5622388)



5600

Title: SOLEX ENERGY\_4790618738  
Comment: INITIAL PIV  
Operator: Admin  
ID: 5622388 (SA22110012035)  
Module Type: ModuleType1  
17:30:01 20-01-2023  
Measured Temperature = 24.9°C  
Corrected Temperature = 25.0°C  
Irr Meas = 100.0mW/cm²  
Irr Corr = 100.0mW/cm²  
Voc = 49.85V  
Isc = 13.49A  
Pmax = 541.64W  
Vpm = 42.14V  
Ipm = 12.85A  
FF = 0.81  
Eff.m = 20.96%  
Eff.c = 22.99%  
Rs = 0.26 Ohm  
Rsh = 153.16 Ohm  
Load Voltage: 5.300 V  
IV Points: 3894

Report Number: 4790618738.12.1-NABL-S1  
ULR Number: TC616823100000044F



5600

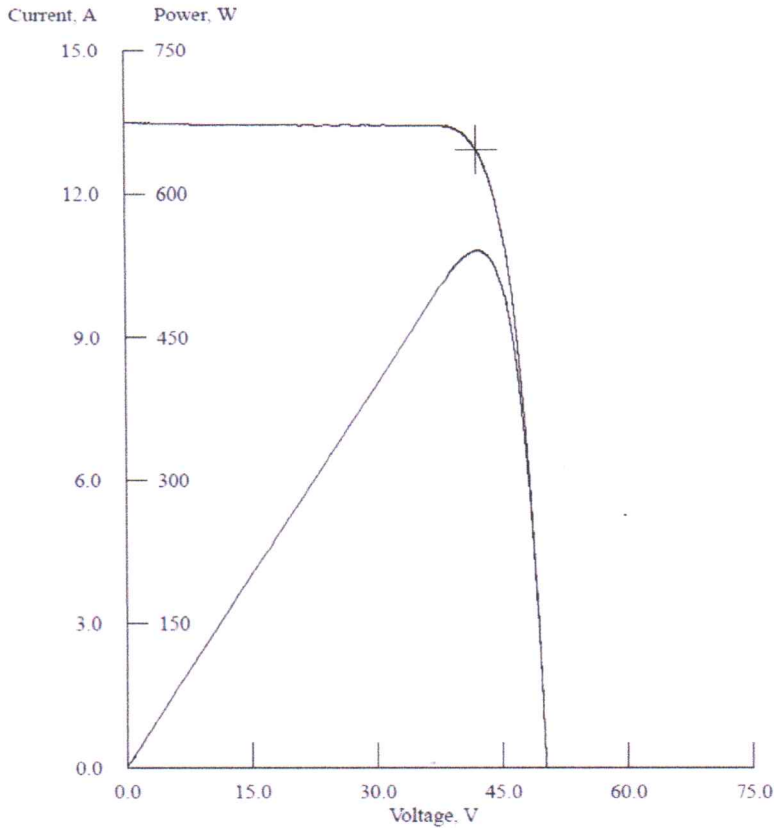
Title: SOLEX ENERGY\_4790618738  
Comment: STABILAZATION-1  
Operator: Admin  
ID: 5622388  
Module Type: ModuleType1  
09:48:35 24-01-2023  
Measured Temperature = 24.5°C  
Corrected Temperature = 25.0°C  
Irr Meas = 99.9mW/cm<sup>2</sup>  
Irr Corr = 100.0mW/cm<sup>2</sup>  
Voc = 49.86V  
Isc = 13.48A  
Pmax = 540.21W  
Vpm = 41.77V  
Ipm = 12.93A  
FF = 0.80  
Eff.m = 20.90%  
Eff.c = 22.93%  
Rs = 0.25 Ohm  
Rsh = 115.84 Ohm  
Load Voltage: 53.00 V  
IV Points: 3871

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Report Number: 4790618738.12.1-NABL-S1  
ULR Number: TC616823100000044F



5600

Title: SOLEX ENERGY\_4790618738  
Comment: STABILAZATION-2  
Operator: Admin  
ID: 5622388  
Module Type: ModuleType1  
16:18:07 25-01-2023  
Measured Temperature = 24.6°C  
Corrected Temperature = 25.0°C  
Irr Meas = 100.0mW/cm<sup>2</sup>  
Irr Corr = 100.0mW/cm<sup>2</sup>  
Voc = 49.87V  
Isc = 13.46A  
Pmax = 539.71W  
Vpm = 41.89V  
Ipm = 12.88A  
FF = 0.80  
Eff.m = 20.88%  
Eff.c = 22.91%  
Rs = 0.25 Ohm  
Rsh = 151.71 Ohm

Load Voltage: 5.400 V  
IV Points: 3549

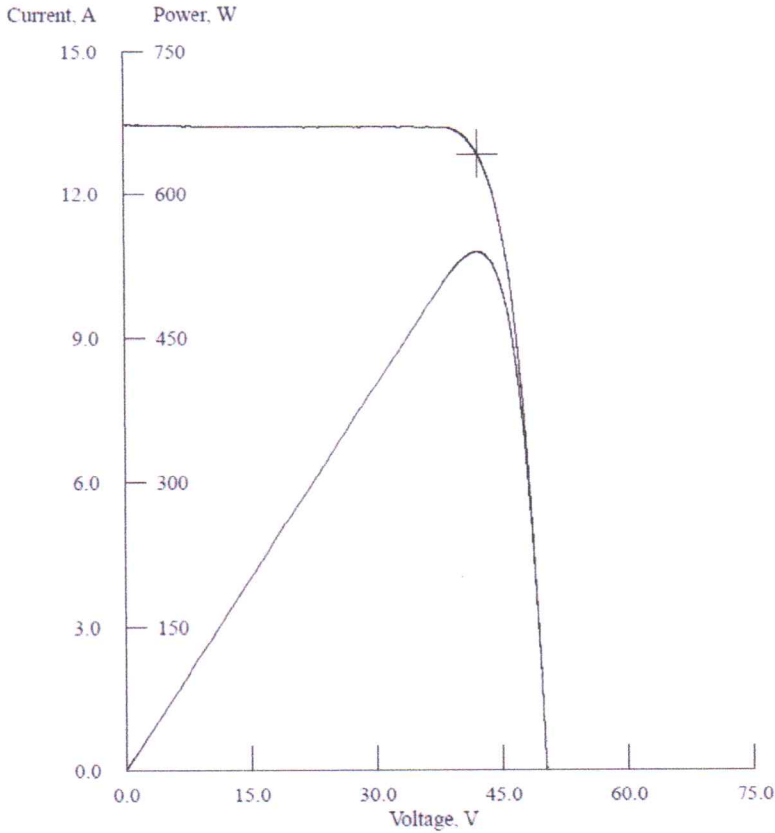
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Report Number: 4790618738.12.1-NABL-S1  
ULR Number: TC616823100000044F



5600

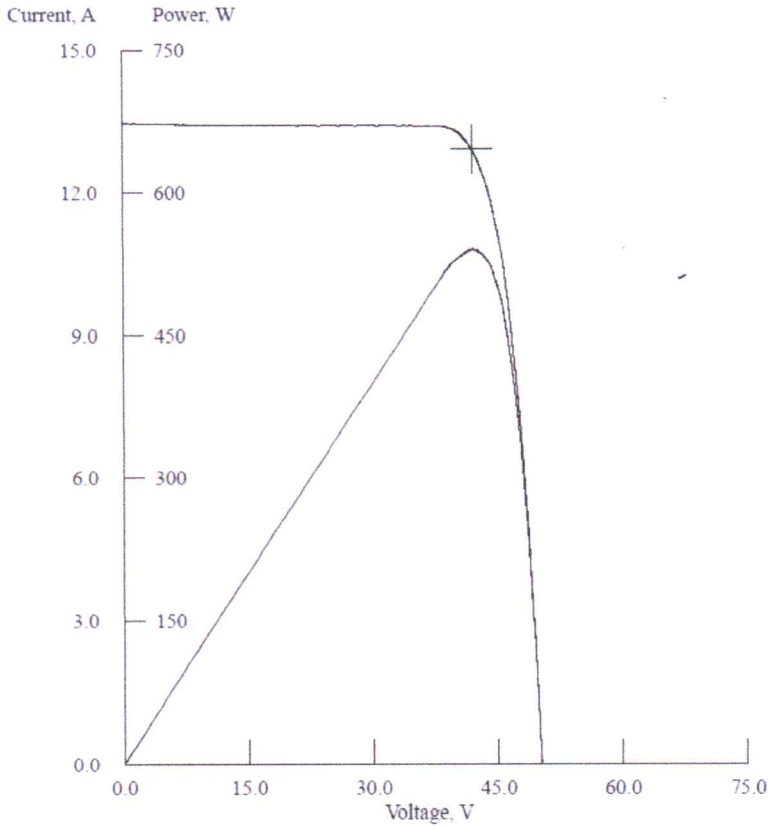
Title: SOLEX ENERGY\_4790618738  
Comment: STABILAZATION-2  
Operator: Admin  
ID: 562238  
Module Type: ModuleType1  
16:21:25 25-01-2023  
Measured Temperature = 24.9°C  
Corrected Temperature = 25.0°C  
Irr Meas = 100.0mW/cm²  
Irr Corr = 100.0mW/cm²  
Voc = 49.89V  
Isc = 13.46A  
Pmax = 539.31W  
Vpm = 42.00V  
Ipm = 12.84A  
FF = 0.80  
Eff.m = 20.87%  
Eff.c = 22.89%  
Rs = 0.25 Ohm  
Rsh = 141.05 Ohm

Load Voltage: 5.400 V  
IV Points: 3552

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Form-ULID- 003262 (DCS:12-LO-F0851), Issue 21.0

Report Number: 4790618738.12.1-NABL-S1  
ULR Number: TC616823100000044F



5600

Title: SOLEX ENERGY\_4790618738  
Comment: STABILAZATION-2  
Operator: Admin  
ID: 562238  
Module Type: ModuleType1  
16:23:52 25-01-2023  
Measured Temperature = 25.1°C  
Corrected Temperature = 25.0°C  
Irr Meas = 100.0mW/cm<sup>2</sup>  
Irr Corr = 100.0mW/cm<sup>2</sup>  
Voc = 49.91V  
Isc = 13.46A  
Pmax = 539.50W  
Vpm = 41.82V  
Ipm = 12.90A  
FF = 0.80  
Eff.m = 20.88%  
Eff.c = 22.90%  
Rs = 0.25 Ohm  
Rsh = 118.97 Ohm

Load Voltage: 5.400 V  
IV Points: 3556

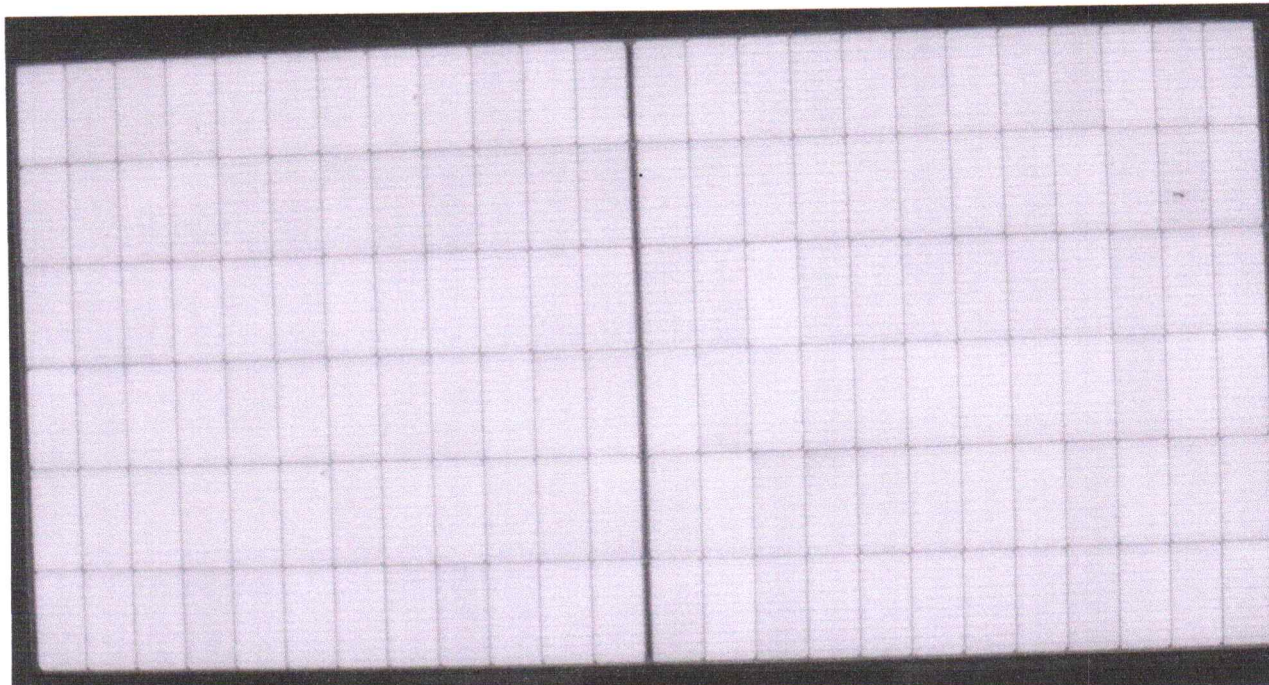
UL India Private Limited  
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No. 24, EPIP Zone, Phase II, Whitefield, Bangalore - 560066, India  
T: 91 80 4138 4400 / F: 91 80 2841 3759 / W: ul.com  
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Report Number: 4790618738.12.1-NABL-S1  
ULR Number: TC616823100000044F



**EL Image: SMF72HM10-545 (5622388)**



\*EL image is for Only for customer reference. EL image is not covered under NABL scope

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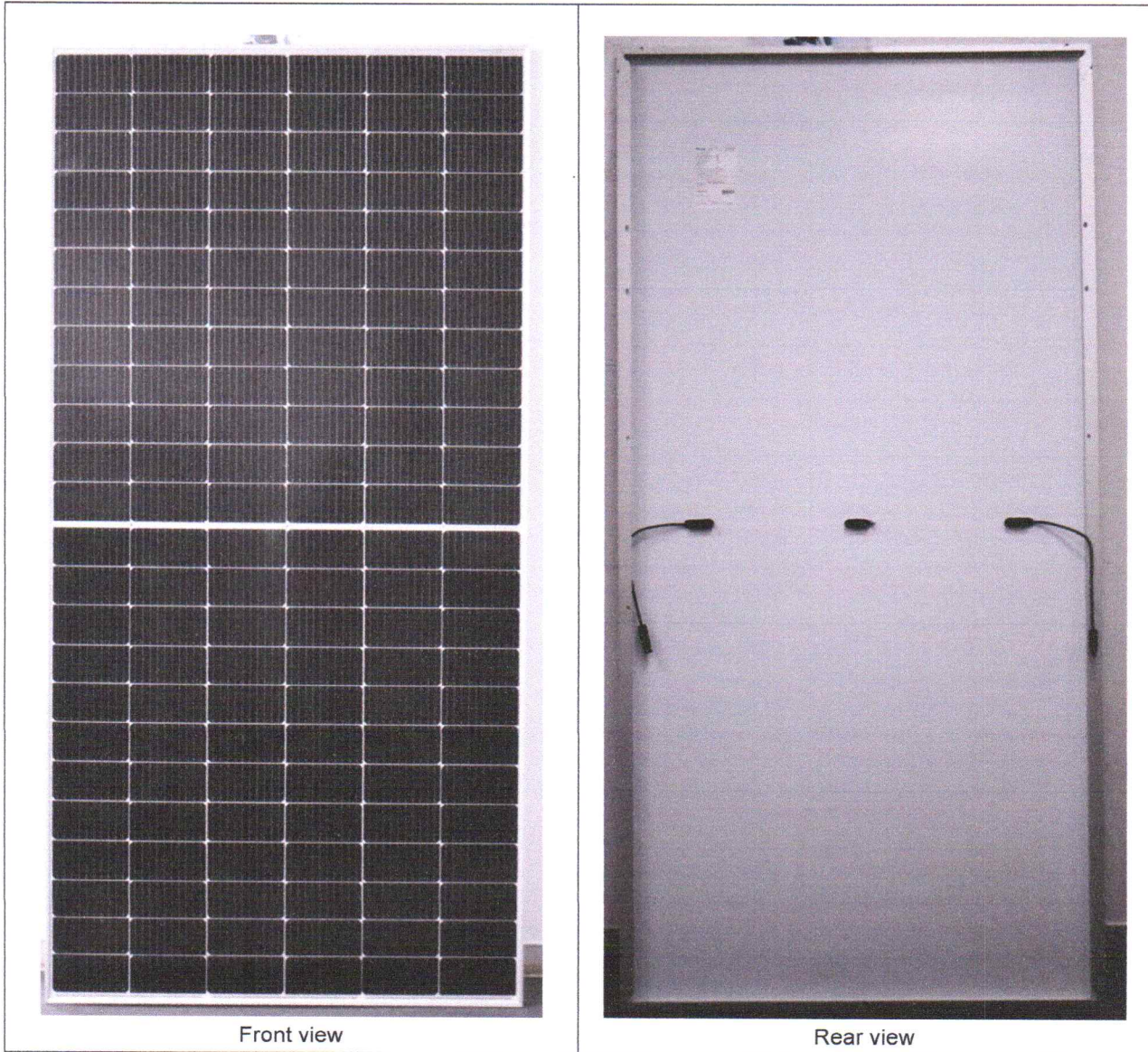
Page 14 of 16

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Report Number: 4790618738.12.1-NABL-S1  
ULR Number: TC616823100000044F



**Photographs: SMF72HM10-545 (5622388)**



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Report Number: 4790618738.12.1-NABL-S1  
 ULR Number: TC616823100000044F

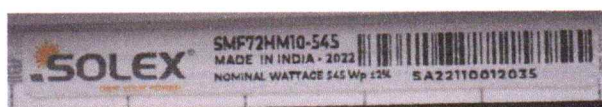


		<b>SOLAR PV MODULE</b> <b>SMF72HM10-54S</b>	
<b>ELECTRICAL RATING</b>			
Maximum Power (Pmax) (±5%)	54S Wp		
Open Circuit Voltage (Voc) (±5%)	49.84 V		
Short Circuit Current (Isc) (±5%)	13.67 A		
Voltage at Pmax (Vmp)	41.93 V		
Current at Pmax (Imp)	13.00 A		
Maximum System Voltage	1500 VDC		
Application Class	A		
Safety Class	II		
Series Fuse Rating	25A		
Fire Class	C		
Module Weight	28 kg		
Module Dimension (L x W x H)	2278 x 1134 x 35 mm		
Measured at STC: 1000W/m <sup>2</sup> , AM1.5, 25°C Cell Temperature			
<b>WARNING! ELECTRICAL HAZARD</b>			
<ul style="list-style-type: none"> <li>Solar PV module produce DC electricity when they exposed to sunlight.</li> <li>Read and follow all safety instructions in the installation manual prior to installing, using and maintaining this product.</li> <li>Do not connect/disconnect cable-connector under load.</li> <li>Dispose-off the module as e-waste after end of its working life.</li> </ul>			
<b>SOLEX ENERGY LIMITED</b> Factory Address - Plot no.1A Block 93B, Tadmashwar, Kim Mandvi road, Mandvi, Surat, Gujarat-394110			

Rating Label



Junction box



Serial number and Logo Inside Laminate



Connectors

\*\*\*\*\*End of Report\*\*\*\*\*

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 CIN: U74200KA1997PTC023189

Form-ULID- 003262 (DCS:12-LO-F0851), Issue 21.0

# CERTIFICATE OF COMPLIANCE

**Certificate Number** E531180  
**Report Reference** E531180-20230526  
**Date** 2023-May-26

**Issued to:** SOLEX ENERGY LTD  
PLOT NO 1 A BLOCK 938,  
TADKESHWAR, KIM MANDVI ROAD,  
MANDVI, SURAT, GUJARAT, 394110, INDIA

**This is to certify that representative samples of** PHOTOVOLTAIC MODULES AND PANELS WITH SYSTEM VOLTAGE RATINGS OVER 600 VOLTS  
See Addendum Page for Product Designation(s).

Have been evaluated by UL in accordance with the Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** UL 61730-1, Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction

UL 61730-2, Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing

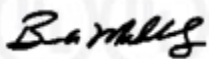
For full Standard(s) details, See Addendum page

**Additional Information:** See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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# CERTIFICATE OF COMPLIANCE

**Certificate Number** E531180  
**Report Reference** E531180-20230526  
**Date** 2023-May-26

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

## **Models: USL, CNL-**

### **Mono PERC Bifacial Models:**

#### 144 Half cut cell Models:

SMB72HM10-560, SMB72HM10-555, SMB72HM10-550, SMB72HM10-545, SMB72HM10-540,  
SMB72HM10-535, SMB72HM10-530, SMB72HM10-525, SMB72HM10-520  
SMBB72HM10-560, SMBB72HM10-555, SMBB72HM10-550, SMBB72HM10-545, SMBB72HM10-  
540, SMBB72HM10-535, SMBB72HM10-530, SMB72HM10-525, SMB72HM10-520

#### 132 Half cut cell Models:

SMB66HM10-510, SMB66HM10-505, SMB66HM10-500, SMB66HM10-495, SMB66HM10-490,  
SMB66HM10-485, SMBB66HM10-480, SMBB66HM10-475  
SMBB66HM10-510, SMBB66HM10-505, SMBB66HM10-500, SMBB66HM10-495, SMBB66HM10-  
490, SMBB66HM10-485, SMBB66HM10-480, SMBB66HM10-475

#### 120 Half cut cell Models:

SMB60HM10-465, SMB60HM10-460, SMB60HM10-455, SMB60HM10-450, SMB60HM10-445,  
SMB60HM10-440, SMB60HM10-435, SMB60HM10-430  
SMBB60HM10-465, SMBB60HM10-460, SMBB60HM10-455, SMBB60HM10-450, SMBB60HM10-  
445, SMBB60HM10-440, SMB60HM10-435, SMB60HM10-430

#### 108 Half cut cell Models:

SMB54HM10-420, SMB54HM10-415, SMB54HM10-410, SMB54HM10-405, SMB54HM10-400  
SMBB54HM10-420, SMBB54HM10-415, SMBB54HM10-410, SMBB54HM10-405, SMBB54HM10-  
400, SMBB54HM10-395, SMBB54HM10-390

#### 96 Half cut cell Models:

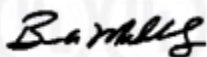
SMB48HM10-370, SMB48HM10-365, SMB48HM10-360, SMB48HM10-355, SMB48HM10-350,  
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355, SMBB48HM10-350, SMBB48HM10-345

#### 84 Half cut cell Models:

SMB42HM10-325, SMB42HM10-320, SMB42HM10-315, SMB42HM10-310, SMB42HM10-305,  
SMB42HM10-300, SMBB42HM10-325, SMBB42HM10-320, SMBB42HM10-315, SMBB42HM10-  
310, SMBB42HM10-305, SMBB42HM10-300

#### 72 Half cut cell Models:

SMB36HM10-280, SMB36HM10-275, SMB36HM10-270, SMB36HM10-265, SMB36HM10-260,  
SMBB36HM10-280, SMBB36HM10-275, SMBB36HM10-270, SMBB36HM10-265, SMBB36HM10-  
260



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# CERTIFICATE OF COMPLIANCE

**Certificate Number** E531180  
**Report Reference** E531180-20230526  
**Date** 2023-May-26

## **Mono PERC Mono-facial Models:**

### 144 Half cut cell Models:

SMF72HM10-560, SMF72HM10-555, SMF72HM10-550, SMF72HM10-545, SMF72HM10-540,  
SMF72HM10-535, SMF72HM10-530, SMF72HM10-525, SMF72HM10-520  
SMFB72HM10-560, SMFB72HM10-555, SMFB72HM10-550, SMFB72HM10-545, SMFB72HM10-  
540, SMFB72HM10-535, SMFB72HM10-530, SMFB72HM10-525, SMFB72HM10-520

### 132 Half cut cell Models:

SMF66HM10-510, SMF66HM10-505, SMF66HM10-500, SMF66HM10-495, SMF66HM10-490,  
SMF66HM10-485, SMF66HM10-480, SMF66HM10-475  
SMFB66HM10-510, SMFB66HM10-505, SMFB66HM10-500, SMFB66HM10-495, SMFB66HM10-  
490, SMFB66HM10-485, SMFB66HM10-480, SMFB66HM10-475

### 120 Half cut cell Models:

SMF60HM10-465, SMF60HM10-460, SMF60HM10-455, SMF60HM10-450, SMF60HM10-445,  
SMF60HM10-440, SMF60HM10-435, SMF60HM10-430  
SMFB60HM10-465, SMFB60HM10-460, SMFB60HM10-455, SMFB60HM10-450, SMFB60HM10-  
445, SMFB60HM10-440, SMFB60HM10-435, SMFB60HM10-430

### 108 Half cut cell Models:

SMF54HM10-420, SMF54HM10-415, SMF54HM10-410, SMF54HM10-405, SMF54HM10-400,  
SMF54HM10-395, SMF54HM10-390  
SMFB54HM10-420, SMFB54HM10-415, SMFB54HM10-410, SMFB54HM10-405, SMFB54HM10-  
400, SMFB54HM10-395, SMFB54HM10-390

### 96 Half cut cell Models:

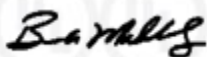
SMF48HM10-370, SMF48HM10-365, SMF48HM10-360, SMF48HM10-355, SMF48HM10-350,  
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SMFB48HM10-370, SMFB48HM10-365, SMFB48HM10-360, SMFB48HM10-355, SMFB48HM10-  
350, SMFB48HM10-345

### 84 Half Cut cell Models:

SMF42HM10-325, SMF42HM10-320, SMF42HM10-315, SMF42HM10-310, SMF42HM10-305,  
SMF42HM10-300  
SMFB42HM10-325, SMFB42HM10-320, SMFB42HM10-315, SMFB42HM10-310, SMFB42HM10-  
305, SMFB42HM10-300

### 72 Half cut cell Models:

SMF36HM10-280, SMF36HM10-275, SMF36HM10-270, SMF36HM10-265, SMF36HM10-260  
SMFB36HM10-280, SMFB36HM10-275, SMFB36HM10-270, SMFB36HM10-265, SMFB36HM10-  
260



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# CERTIFICATE OF COMPLIANCE

**Certificate Number** E531180  
**Report Reference** E531180-20230526  
**Date** 2023-May-26

USL – product designated USL have been investigated using US requirements as noted in the test record.

CNL - product designated CNL have been investigated using Canadian requirements as noted in the test record

## STANDARDS:

Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction, UL 61730-1

Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing, UL 61730-2

CSA C22.2 No. 61730-1: Photovoltaic (PV) module safety qualification — Part 1: Requirements for construction

CSA C22.2 No. 61730-2: Photovoltaic (PV) module safety qualification — Part 2: Requirements for testing.

The periodic inspection will happen on factory. For more details refer to NOC and IPI document.



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