Confirmation of Test Results

Ref.: **10018/2022-40932**

Applicant: **REC SOLAR PTE. LTD.**
20 Tuas South Avenue 14, 637312 Singapore

Product: **Crystalline Silicon Photovoltaic (PV)-Modules**

Type:

A) RECxxxTP2	REC TwinPeak 2 Series
A) RECxxxTP2M	REC TwinPeak 2 Mono Series
A) RECxxxTP3M	REC TwinPeak 3 Mono Series
B) RECxxxTP2S 72	REC TwinPeak 2S 72 Series
B) RECxxxTP2SM 72	REC TwinPeak 2S Mono 72 Series
B) RECxxxNP 72	REC N-Peak 72 Series
B) RECxxxTP3SM 72	REC TwinPeak 3S Mono 72 Series
C) RECxxxTP2S 72 XV	REC TwinPeak 2S 72 XV Series
C) RECxxxTP2SM 72 XV	REC TwinPeak 2S Mono 72 XV Series
C) RECxxxNP 72 XV	REC N-Peak 72 XV Series
C) RECxxxTP3SM 72 XV	REC TwinPeak 3S Mono 72 XV Series
D) RECxxxNP	REC N-Peak Series
E) RECxxxAA	REC Alpha Series
F) RECxxxAA 72	REC Alpha 72 Series
G) RECxxxAA 72 XV	REC Alpha 72 XV Series
H) RECxxxTP Plus	REC TwinPeak Plus Series
I) RECxxxNP Plus	REC N-Peak Plus Series
J) RECxxxTP4	REC TwinPeak 4 Series
K) RECxxxAA Pure	REC Alpha Pure Series
K) RECxxxAA Pure-P	REC Alpha Pure-P Series
L) RECxxxNP2	REC N-Peak 2 Series
M) RECxxxAA Pure-R	REC Alpha Pure-R Series
N) RECxxxNP3	REC N-Peak 3 Series
O) RECxxxTP5	REC TwinPeak 5 Series
P) RECxxxAA Pure 2	REC Alpha Pure 2 Series

xxx in the type number replaces the power in Watt at STC
Refer to Annex 100 of Certificate 40046983 for certified watt classes

This Confirmation of Test Results includes

Standard: IEC 61701:2011 (page 2)

IEC 62716:2013 (page 4)

VDE RENEWABLES GMBH
Siemensstraße 30
63755 Alzenau, Germany
Managing Director: Burkhard Holder

Tel: +49 69 6308 5300
Fax: +49 69 6308 5320
Email: renewables@vde.com
www.vde.com/renewables

Location: Alzenau
District Court: Aschaffenburg
Registration No: HRB 13820
Tax Number: 204/141/20793

Bank Information:
Deutsche Bank AG
IBAN: DE14 5007 0010 0235 5006 01
BIC: DEUTDEFFXXX

IEC 61701:2011

Salt mist corrosion testing of photovoltaic (PV) modules

Manufacturer:	REC Solar Pte Ltd.	
Standard:	IEC 61701:2011	
Test conditions:	As given in IEC 61701:2011	
	Severity:	6
	Testing time:	56 days
	Mist ph level:	7
	Angle of inclination from horizontal:	75

Pass criteria

Visual inspection:	No findings which may affect safety.
Power degradation:	< 5 %
Dry Insulation:	> 40 MΩm²
Wet insulation:	> 40 MΩm²
Bonding path resistance:	< 0,1 Ω
Bypass diode functionality test:	Bypass diodes shall remain functional.

Summary of test results:

Visual inspection: No findings which affect safety.

Maximum power degradation:	allowed	< 5 %
	measured	max. 0,61 %

The measured degradation is below the max. allowed degradation.

Dry insulation resistance:	required	≥20,00 MΩ
	measured	min. 500 MΩ

The measured dry insulation resistance is above the min. required insulation resistance.

Wet insulation resistance:	required	≥20,00 MΩ
	measured	min. 500 MΩ

The measured wet insulation resistance is above the min. required wet insulation resistance.

Bonding path resistance:	required	< 0,1 Ω
	measured	max. 0,01 Ω

The measured bonding path resistance is below max. allowed resistance.

Bypass diode functionality test: Bypass diodes remain functional.

The complete test results and the related bill of materials are given in the Test Report No. TRPVM-2022-40932-3
The overview of the already approved modules with the approved bill of materials is given in Annex 1 to 10018/2022-40932-3, dated 2022-12-09

VDE Renewables GmbH

Jose Jojo

Arnd Roth

63755 Alzenau, 2022-12-09

IEC 62716:2013

Ammonia corrosion testing of photovoltaic (PV) modules

Manufacturer:	REC Solar Pte Ltd.	
Standard:	IEC 62716 ed.1.0	
Test conditions:	As given in IEC 62716 ed. 1.0	
1st test section:	Testing time	8 h
	NH_3 Concentration:	6667 ppm
	Chamber temperature:	60°C
	Rel. humidity:	100%
2nd test section:	Testing time	16 h
	NH_3 Concentration:	0 ppm
	Chamber temperature:	23°C
	Rel. humidity:	70 %
Total testing time		480 h (20 cycles)

Pass criteria		
	Visual inspection:	No findings which may affect safety.
	Power degradation:	< 5 %
	Dry Insulation:	> 40 MΩm²
	Wet insulation:	> 40 MΩm²
	Bonding path resistance:	< 0,1 Ω
	Bypass diode functionality test:	Bypass diodes shall remain functional

Summary of test results:

Visual inspection:	No findings which affect safety.	
Maximum power degradation:	allowed	< 5 %
	measured	max. 0,85 %

The measured degradation is below the max. allowed degradation.

Dry insulation resistance:	required	≥20,00 MΩ
	measured	min. 500 MΩ

The measured dry insulation resistance is above the min. required insulation resistance.

Wet insulation resistance:	required	≥20,00 MΩ
	measured	min. 500 MΩ

The measured wet insulation resistance is above the min. required wet insulation resistance.

Bonding path resistance:	required	< 0,1 Ω
	measured	max. 0,01 Ω

The measured bonding path resistance is below max. allowed resistance.

Bypass diode functionality test: Bypass diodes remain functional.

The complete test results and the related bill of materials are given in the Test Report No. TRPVM-2022-40932-4
The overview of the already approved modules with the approved bill of materials is given in Annex 1 to 10018/2022-40932-4, dated 2022-12-09

VDE Renewables GmbH

Jose Jojo

Arnd Roth

63755 Alzenau, 2022-12-09