



TS IEC 62804-1:2015

Photovoltaic (PV) Modules - Test Methods for the detection of potential-induced degradation

Part 1: Crystalline silicone
Confirmation of test results

Ref.: 10118/2017-40287

Applicant: SolarWorld Industries GmbH
Martin-Luther-King-Str. 24, 53175 Bonn, Germany

Product: Crystalline silicon Photovoltaic (PV)-Modules

Type: C) Sunmodule Protect SW XXX mono Y
D) Sunmodule Bisun protect XXX Y
E) Sunmodule Bisun XXX XL Y

XXX in the type replace the power in watt and can be any number between:

200 – 320 for C) and D), 305 – 385 for E)

Y in the type replaces a potential suffix and can be black or clear

Manufacturer: SolarWorld Industries GmbH

Standard: TS IEC 62804-1:2015, modified

Test conditions

Testing time: 96h

Chamber temperature: 60°C

Relative Humidity: 85%

Potential to ground: -1000V for Protect SW XXX mono Y
and Bisun protect XXX Y
-1500V for Bisun XXX XL Y

Pass criteria

Power degradation: < 5%

Dry Insulation: > 40 MΩm²

Wet insulation: > 40 MΩm²



Summary of test results:

Maximum power degradation: allowed max. 5%
measured max. 0,52% for Protect SW XXX mono Y
and Bisun protect XXX Y
measured max. 2,07% for Bisun XXX XL Y

The measured degradation is below the allowed degradation.

Dry insulation resistance: required 23,81 M Ω for Protect SW XXX mono Y
and Bisun protect XXX Y
required 20,10 M Ω for Bisun XXX XL Y
measured >500 M Ω

The measured dry insulation resistance is above the limit.

Wet insulation resistance: required 23,81 M Ω for Protect SW XXX mono Y
and Bisun protect XXX Y
required 20,10 M Ω for Bisun SW XXX XL Y
measured >500 M Ω

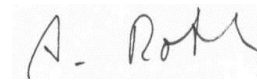
The measured wet insulation resistance is above the limit.

Visual inspection: No findings

The complete test results are given in Test Report No.: TRPVM-2017-40287-8 and TRPVM-2017-40287-9

VDE Renewables GmbH


Thomas Hartmann


Arnd Roth

63755 Alzenau, 2017-08-30