



Address: PO BOX 4321, PALMERSTON, NT 0831  
ABN: 44 600 817 463

Mob: 0402 123 891  
Email: [admin@albright.net.au](mailto:admin@albright.net.au)

## WIND PRESSURE TESTING OF SUNPOWER MAXEON SOLAR, MODELS: SPR-P6-XXX-BLK, SOLAR PHOTOVOLTAIC MODULES

ACE REFERENCE: 22-0033.05, REV: 02

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### **Maxeon Solar Technologies Ltd**

Attention: Applications Engineering

Mobile: 03 7003 5518

Address: Suite 207, 28 Riddell Parade, Elsternwick, VIC 3185

Email: [apps-eng@maxeon.com](mailto:apps-eng@maxeon.com)

**RE: SunPower Maxeon P6 Solar Panel Modules, 1808 mm x 1086 mm x 30 mm, 21 kg, SPR-P6-395-BLK; SPR-P6-400-BLK; SPR-P6-405-BLK; SPR-P6-410-BLK & SPR-P6-415-BLK, With 2 Supports at 800 mm & 2 Supports at 1200 mm Centres**

This Test Report certifies the Recommended Design Wind Pressure(s) for the above mentioned Sunpower.Maxeon P6 Solar Panel Modules. This Test Report is for the testing of the PV Module Frames only, and does not cover the supporting elements/ rails and or associated fixings of the tested panels to the supporting elements/ rails.

This Report also verifies that the PV Modules are capable of withstanding the Design Wind Loads when installed to an approved railing system with the corresponding support points as listed in Table 1.

Albright Consulting Engineers (ACE) Pty Ltd were engaged by Maxeon Solar Technologies Ltd to carry out and witness 6 individual mechanical load tests (simulated static, wind load strength test). The testing was performed on new panels supplied by Maxeon Solar Technologies Ltd.

**Table 1: Test Summary: Recommended Ultimate Design Strength, Limit Design Capacity**

Test	Panel Manufacturer, Model & Size (mm)	Support Centres (mm)	Maximum Applied Load (kPa)	Material Variability Factor AS/NZS 1170.0 Table B1 – kt	Recommended Ultimate Design Strength  Limit State Design Capacity (kPa)
No.1	X3 Samples: SunPower Maxeon P6 Solar Panel Modules, 1808 mm x 1086 mm x 30 mm, 21 kg, SPR-P6-XXX-BLK	2 Supports at 800mm	5.0	1.33	3.76
No.2	X3 Samples: SunPower Maxeon P6 Solar Panel Modules, 1808 mm x 1086 mm x 30 mm, 21 kg, SPR-P6-XXX-BLK	2 Supports at 1200mm	5.5	1.33	4.14

Note that the above mentioned Recommended Ultimate Design Strength, Limit Design Capacities are only applicable to the models & power series stated within this certificate, as well as listed on the attached data sheet.

Note that the Project Engineer/ Design Engineer should consider the panel deflection as a design criteria. These deflections could cause the panels to pop/ slip out of the fixing clamps.

**Maxeon, SPR-P6-395/ 400/ 405/ 410 415-BLK, Mechanical Properties:**

Cell Type:	Monocrystalline PERC
Cells:	No Data Provided
Dimensions:	1808 mm x 1086 mm x 30 mm
Weight:	21.0 kg
Junction Box:	IP68
Backing Material/ Substrate:	No Data Given
Front Material/ Superstrate:	3.2 mm Heat Strengthened Glass
Frame:	30 mm Black Anodized Aluminium Alloy

### Summary:

We recommended and certify that the **Sunpower.Maxeon P6 Solar Panel Modules, 1808 mm x 1086 mm x 30 mm, 21.0 kg, SPR-P6-395-BLK; SPR-P6-400-BLK; SPR-P6-405-BLK; SPR-P6-410-BLK & SPR-P6-415-BLK**, Solar Panel Modules can resist the following vertical design loads, with a Recommended Ultimate Design Strength (Limit State Design Capacity), as listed for the following support conditions:

**When supported on purlins and or battens with 2 supports/ rails at 800 mm centres: 3.76 kPa**  
**When supported on purlins and or battens with 2 supports/ rails at 1200 mm centres: 4.14 kPa**

This Report has been prepared on behalf of and for the exclusive use of Maxeon Solar Technologies Ltd and is for the testing of the PV Module Frame only; and **not** the supporting elements, clamps, rails and or associated fixings of the PV Modules to the rails.

The Recommended Ultimate Design Strength, Limit State Design Capacities, (kPa) are only applicable for the panel model; size, weight and support/ rail spacing's as the above-mentioned tested model(s).

Any additional power output models referenced may also be covered under this certificate provided that they are referenced in the same technical datasheet (attached); are mechanically & physically identical to the (tested): **SPR-P6-410-BLK (1808 mm x 1086 mm x 30 mm, 21.0 kg)** Solar Panel Modules; and that they are manufactured in the exact same way with the exact same materials as the (tested): **SPR-P6-410-BLK (1808 mm x 1086 mm x 30 mm, 21.0 kg)** Solar Panel Modules.

### This certificate and certification is no longer valid if:

1. If any of the Engineering & Mechanical Properties used in the manufacture of the solar panel modules/ models is altered or changed in any way to the above mentioned tested solar panel modules/ models.
2. If any of the manufacturing processes or techniques used in the manufacture of the solar panel modules/ models is altered or changed in any way to the above mentioned tested solar panel modules/ models.
3. It is the responsibility of the manufacturer to confirm if there has been any alterations, changes or revisions to the physical makeup of the frame, i.e. aluminium grade, front glass face or backing sheet, etc.; or if the manufacturing process has altered or changed in any way, re-testing may be required.
4. This certificate is rendered invalid if any changes have occurred to the tested modules/ models as noted above.




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**Important Notes:**

1. Note that the deflection criteria of the panels themselves may govern or limit the structural design and should be considered in high design wind pressure zones; as excessive deflections may cause the panel's to slip and or pop out from the fixing clamps.
2. The panel fixing clamps; the support rails; their associated fixings or the fixings of the L Feet to the immediate supporting structure, were not tested as part of the test procedure/ scope, and therefore no comment can be made as to their role as a potential failure mode. Note that these elements must be individually evaluated and confirmed by the Project Engineer and or the Design Engineer, as they may limit the structural design or capacity of the total structural system.
3. The railing system is excluded from this certification and is designed & certified by others.
4. The immediate supporting elements for the PV Roof Mounted Solar Panel System is also excluded from this certification and is designed & certified by others.
5. This Report Certifies the Design Wind Pressures for the above referenced Solar Panel Modules/ Modes. However, they are subject to the analysis and approval by the Project Engineer; Design Engineer and or Approved Competent Person on a project by project basis. Note that the Design Engineer must confirm that the Design Wind Pressures are less than the Recommend Capacities referenced within this report, for each specific project.

<b>Company Name</b> if certification issued on behalf of a corporation Albright Services Group Pty Ltd, Trading as Albright Consulting Engineers		<b>Company NT Registration Number</b> 215037ES	
I certify that reasonable care has been taken to ensure that the structural engineering aspects of the works as described above have been designed in accordance with the requirements of the Building Code of Australia and the Northern Territory Building Regulations			
<b>Name</b> Nicholas Kastellorizios Nominee for Albright Services Group Pty Ltd, Trading as Albright Consulting Engineers	<b>Nominee/Individual NT Registration Number</b> 215037ES	<b>Signature</b> 	<b>Date</b> 22/11/2022

Please contact our office if you require any further information in relation to this report.

Nicholas Kastellorizios  
 Director/ Structural Engineer  
**Albright Consulting Engineers**