



## Type Approval Certificate PV-MQ-385/06

With reference to PV-MQ-384/06 of 22-May-2006, replaces PV-MQ-359/05 of 18-March-2005

Manufacturer Photowatt International  
Type designation PWM 1650, see Remarks  
Test samples received on PWM 1650, PW6-230 (11/10/2004) and PW 1650 (13/06/2002)

The ESTI laboratory has subjected the Photowatt International PWM 1650, PW 1650 and PW6-230 module types to qualification tests defined in the standard CEI / IEC 61215: *Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval.*

On the basis of technical data, a declaration supplied by Photowatt International and of the test results documented in Photovoltaic Module Test Reports:

PV-MQ-04-EU (PWM 1650), PV-MQ-02-CU (PW 1650) and PV-MQ-04-ET (PW6-230)

It is declared that the PWM 1650 module type conforms to the requirements of the CEI / IEC 61215.

Electrical performance rating is outside the scope of CEI / IEC 61215. This certificate is not a guarantee of module electrical performance.

This certificate may be used by the manufacturer for his own purposes. However, the Commission declines any legal responsibility which might arise from the use of such publications, papers or statements.

### Remarks

1. Photowatt International manufacture the PWM 1650 using the same materials and processes as the PW 1650 except as noted below.
2. The PWM 1650 incorporates 72 pseudo-square monocrystalline cells in comparison to the 72 polycrystalline square cells in the PW 1650.
3. The PWM 1650 module can be manufactured using the standard Photowatt J-box (tested in PV-MQ-04-EU) or a compact J-box with cables (as tested in PV-MQ-04-ET).
4. Electrical insulation tests were executed at a test level of 6000V, exceeding the requirements (2540V) of CEI / IEC 61215 for a declared maximum system voltage of 770V.

22/MAY/2006  
Dr. T. Sample  
Responsible for  
Module Qualification Testing

European Solar Test Installation  
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