



EUROPEAN COMMISSION
DIRECTORATE-GENERAL JRC
JOINT RESEARCH CENTRE
Institute for Environment and Sustainability
Renewable Energies Unit

Type Approval Certificate PV-MQ-701-352/04

with reference to PV-MQ-701-351/04 replaces PV-MQ-701-168/98

Manufacturer United Solar Ovonic LLC
Type designation US-21, US-11, US-5 and US-3, see remarks
Test samples received on 15th October 1997 (US-64 and US-21)

The ESTI laboratory has subjected the US-21 and US-64 module types to qualification tests defined in the standard CEC specification 701 *Recommended qualification test procedures for thin-film photovoltaic modules*.

On the basis of a declaration supplied by United Solar Ovonic LLC and of the test results documented in Photovoltaic Module Test Reports:

PV-MQ-97-MF (US-21) and PV-MQ-97-KF (US-64)

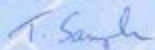
It is declared that the above module types conform to the requirements of the CEC specification 701.

Electrical performance rating is outside the scope of CEC specification 701. 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

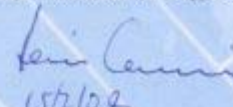
1. United Solar Ovonic LLC was previously know as United Solar Systems Corporation (USSC).
2. United Solar Ovonic LLC uses the same materials, components and processes in the production of the above listed module types, which differ in their electrical power outputs. The US-21 differs from the US-64 in the components used for the electrical terminals.
3. The maximum system voltage rating of the above listed module types is 600V.
4. Qualification tests described in CEC Specification 701 are identical to those laid down in CEI / IEC 61646 Thin-film photovoltaic (PV) modules - Design qualification and type approval.



14/JUN-4/2004



European Solar Test Installation
EC JRC IES Ispra (TP450)
via E. Fermi, 1
I-21020 Ispra (VA)



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