



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

## Type Approval Certificate PV-MQ-701-354/04

with reference to PV-MQ-701-351/04 replaces PV-MQ-701-273/02

Manufacturer United Solar Ovonic LLC  
Type designation US-116, see remarks  
Test samples received on 24th June 2002 (US-116) and 15th October 1997 (US-64)

The ESTI laboratory has subjected the US-116 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-02-CV (US-116) and PV-MQ-97-KF (US-64)

It is declared that the above module type conforms 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 known as United Solar Systems Corporation (USSC).
2. United Solar Ovonic LLC uses the same materials, components and processes in the production of the US-116 and the US-64 except as noted below.
3. The US-116 is approximately twice the size of the US-64 and uses a modified frame. The US-116 also incorporates type L-cells used in the previously certified ASR and SSR module types.
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.

T. Sample

14 JULY 2004

Dr. T. Sample  
Responsible for  
Module Qualification Testing



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

H. A. Ossenbrink

14/7/04

Dr. H. A. Ossenbrink  
Unit Head  
Renewable Energies Unit