

## **Progress in Photovoltaics: Research and Applications**

Volume 7, Issue 2, Pages 137 - 149

Published Online: 7 May 1999 Copyright © 1999 John Wiley & Sons, Ltd.

## Quality control of wide collections of PV modules: lessons learned from the IES experience

E. Caamaño 1\*, E. Lorenzo 1, R. Zilles 2

<sup>1</sup>Instituto de Energía Solar, Ciudad Universitaria s/n, 28040 Madrid, Spain

<sup>2</sup>Instituto de Electrotécnica e Energía, Av. Prof. Luciano Gualberto 1289, 05508-900 São Paulo, Brazil

\*Correspondence to E. Caamaño, IES, Ciudad Universitaria s/n, E-28040 Madrid, Spain.

## **Abstract**

This paper presents the Quality Control method for PV modules developed by the Instituto de Energía Solar (IES), an institution with almost 10 years of experience in the field of Quality Control of PV modules associated with supply procedures of PV projects. The method is easy and fast to implement. It consists of Technical and Contractual procedures, both closely related. Concerning the first procedure, detailed description is offered of the type of measurements performed, equipments used, data processing and steadiness control of the method. Regarding the Contractual procedure, after its detailed description an example coming from the Toledo PV plant is offered and commented. The paper then summarises the IES experience on Quality Control processes, together with additional information about time requirements and costs of the IES method. In addition, some reflections upon the possible adoption of the method by countries involved in PV Rural Electrification programmes are finally included. Copyright © 1999 John Wiley & Sons, Ltd.