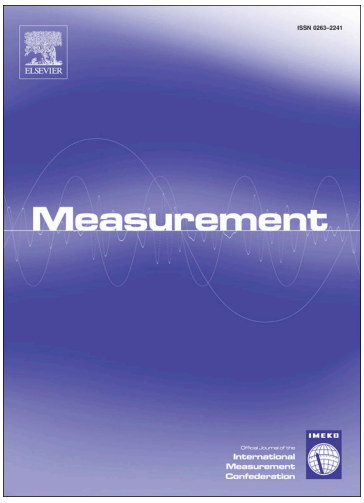

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Effects of Dust on Photovoltaic Measurements: A Comparative Study

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Abstract – ***Installation of renewal energy plant is a vital question for safeguarding cities and human agglomerations against pollution and helping them in the effort to save conventional energy contribution. As it is a widespread issue, PV plants can be located everywhere even in a severe conditions on the proviso that no external depositions, covering and coating the solar module, can alter the photovoltaic efficiency. To solve the problem, practically speaking, diverse solutions are envisaged and among them there is a continuous cleaning of dust by means of water and special liquids. The research proposes a modelling of the effect of dust on efficiency using experimental measurements provided through MPPT (maximum power point tracker) installed in the measuring architecture. Dust covering the PV module reduces the solar irradiance affecting the energy conversion. A comparison has been performed between a clean PV module under MPPT variations and another one of the same technology (CdTe, cadmium telluride) with dust. Both acquisitions have been carried out simultaneously for around one month. Both measurement campaigns agree with the scientific literature.***

Keywords: Photovoltaic measurements, Dust, Solar radiation, MPPT, Solar energy, Efficiency, CdTe module, Pollution.

1. INTRODUCTION

Thin-film CdTe PV module is generally used in area where the interest is to capture