A Novel Method for Investigating Photovoltaic Module Degradation

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Résumé en anglais	This paper proposes a method for the detection and assessment of the degradation of the photovoltaic modules electrical characteristics such as short-circuit current (Isc), open-circuit voltage (Voc) and maximum output power (Pmax). This work presents a standardization method for measurements of these characteristics in real conditions. Standardization is bringing back the measurements in real conditions to the corresponding values in standard test conditions (STC). Thus the standardized values of short-circuit current (Isc,stc), the open-circuit voltage (Voc,stc) and the maximum output power (Pmax) are compared with reference values corresponding to the first putting service of module or the manufacturer's data as in our case. The data collected on a platform of measurements installed at the University of Dakar in Senegal are used to validate our approach. A Period of one operation year of the PV module is considered. After one year of module operation, we note an average degradation of 10% for the short-circuit current, 2% for the open-circuit voltage. For the maximum output-power no degradation is yet detected at this stage.
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