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# Evaluating the reliability of crystalline silicon photovoltaic modules in harsh environment

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## Abstract

1 Electricity generated using photovoltaic system can only be commercial  
2 if the photovoltaic modules operate reliably for 20-25 years under field condi-  
3 tions. Understanding the performance degradation of photovoltaic modules  
4 is critical for optimizing its financial viability. Performance degradation of  
5 photovoltaic modules is due to multiple factors such as installation site and  
6 module technologies. In order to gain insight on performance degradation  
7 of crystalline silicon PV technology in harsh environment, a degradation ef-  
8 fects study of c-Si photovoltaic modules in desert environment was carried.  
9 The main contribution of this paper is focused on the evaluation of c-Si PV  
10 modules performance that operated in extreme environmental conditions.  
11 This evaluation usually consists of I-V curve field measurements and visual  
12 inspections.

*Keywords:*

c-Si PV modules, Degradation, Failure, Desert, Performance evaluation.

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