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Results of the Power Measurement

commissioned by

SCHOTT Solar AG
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Report EES424-FN-DK-1002-V01

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28 Oct. 2010

This report includes 4 pages. The results may neither be published partially nor in an ambiguous manner.
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1 Task and Procedure

In September 2010, a power measurement was carried out at the CalLab PV Modules of Fraunhofer ISE for a total of 60 SCHOTT Solar modules, model PQ40 (previously AEG PQ40), which were manufactured in 1984. The solar generator in which the modules are fitted has been in operation in a low-voltage system at Fraunhofer ISE since September 1984. Consequently, all modules have reached an operating time of 26 years.

2 Results and Evaluation

When the modules were removed, it was noticed that 3 modules had suffered glass damage and 4 modules showed further defects. These modules were therefore not included in the evaluation. All other modules showed no visible anomalies and were thoroughly cleaned before the measuring process. According to the data sheet, the nominal value for the modules is 38.4 Wp and the power tolerance stated at that time is +/- 10%.

After 26 years, all 53 measured modules have an average of 92% of the nominal power as stated by the manufacturer on delivery and are therefore still within the manufacturer's power tolerance (see Image 1). Guaranteed power levels of 80% of the nominal power over 25 years are currently standard in the market. The results show that high-quality solar modules are also perfectly capable of complying with these guarantees in practice. Our many years of random sample measurements have shown that there is no discernible systematic degradation in these modules. The assessments are being continued in order to be able to identify the actual serviceable life using practical examples.

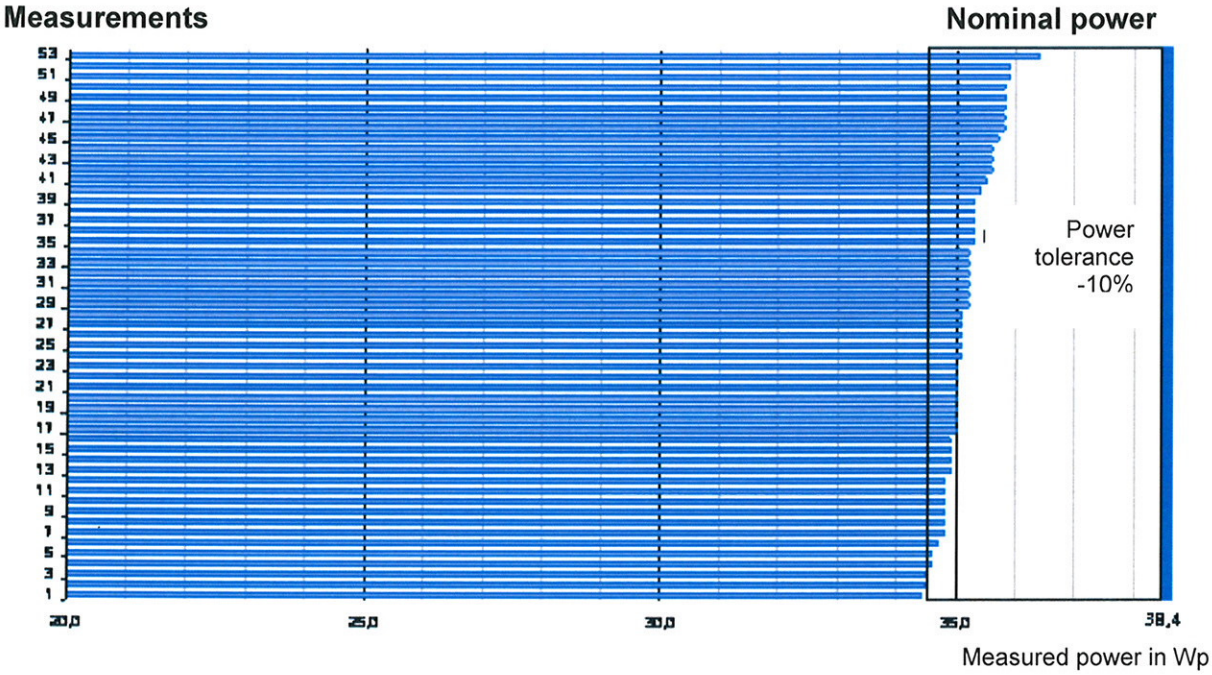

Image 1: Measured power of the 53 modules in 2010. The measurement accuracy for the power evaluations carried out is +/-3%.

Image 2: Solar generator with type AEG PQ40 modules

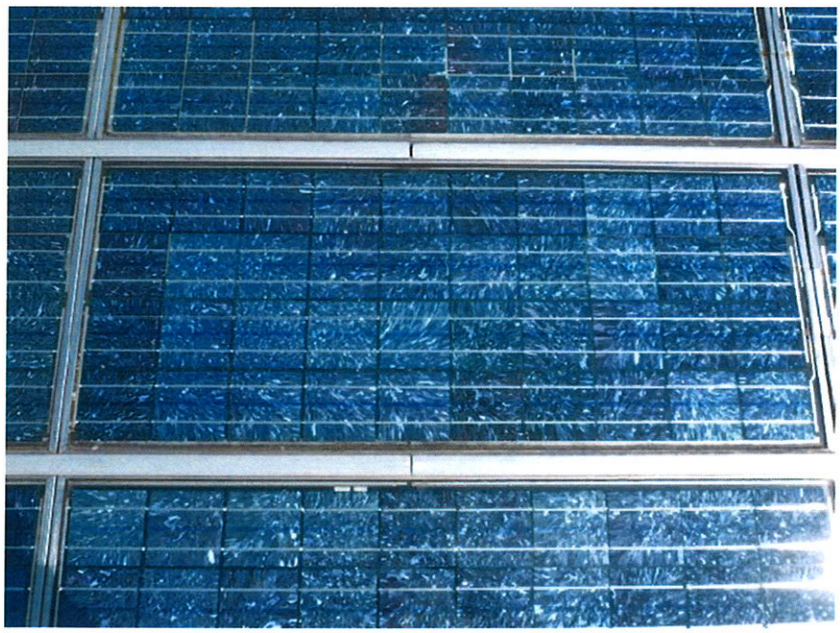

Image 3: Type AEG PQ 40 module