



**Fraunhofer** Institut  
Solare Energiesysteme

# Measurement Results 2008 for the grid-connected PV System from REC Solar AS



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## Summary of Results

Fraunhofer ISE is continuously monitoring four PV systems, installed on premises of REC Solar AS, Sweden. All systems consist of SMA Sunnyboy 1700 inverters and 8 resp. 9 modules which are south-oriented with an elevation angle of 30 °. Each system uses different module models. Two incorporate PV modules from REC Solar AS and the others modules from competitors with a good reputation. All systems are well designed with no significant shading effects.

The systems were installed in March 2008 and measurement started on 29<sup>th</sup> March 2008. The overall data availability is 75.9 %.

In 2008 all four inverters proved to operate with very similar efficiencies. This fact and the total setup of four comparable systems allow us to compare the four different module models for the given climatic conditions in 2008.

The following evaluations include the monthly irradiations and energy yields as well as the efficiencies of components and the Performance Ratio. Based on 5 minute averages, the irradiation dependence from various system parameters like generator current, generator efficiency, inverter efficiency and input voltage of the inverter have been evaluated.

<b>System</b>	<b>P_nom Wp</b>	<b>G_mod kWh/m<sup>2</sup></b>	<b>Yield kWh/kWp</b>	<b>η_inverter %</b>	<b>η_modules %</b>	<b>PR %</b>	<b>AC Energy kWh</b>
REC SCM 210 AR	1.72	926	814	89.9	12.7	87.9	1401
REC SCM 210	1.72	926	800	89.9	12.5	86.3	1375
Chinese Supplier	1.98	926	769	89.8	13.2	83.1	1454
European Supplier	1.60	926	805	89.6	11.6	86.9	1288

### Explanation of abbreviations:

PR: Performance Ratio  
 G\_mod: Total irradiation on module surface