

Location of the infrastructure : Freiburg, Germany

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Objectives :

- Indoor measurements of CPV modules at Fraunhofer ISE

Main features : The CPV indoor measurement set-up consist of a flash bulb, that is located at a distance of 6 meter in the focal point of a parabolic mirror. In that way highly collimated light is generated (divergence +/- 0.3°). A fast data acquisition allows for the measurement of CPV module during the intensity plateau of the flash source. Although the achievable measurement accuracy of the test set-up is still under evaluation, it allows for the realization of scientific experiments.

1. Standard IV curve measurements
IV curve measurements with determination of irradiance with a calibrated 3j solar cell. Additionally the reading of a set of component cells can be recorded as monitoring of the spectrum of the collimated light
2. Specific measurement campaigns
Besides the IV curve at laboratory measurement, IV measurements at elevated temperature of the optic and/or module rear side can be performed. Additionally the set-up allows for angular dependent measurements of CPV modules.

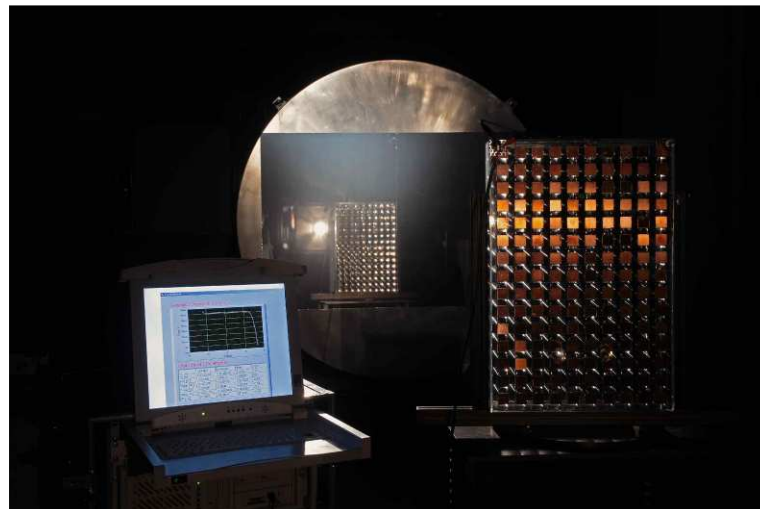


Figure 1: Indoor measurement set-up for IV measurements of CPV modules.

Limitations or constraints : The access will be allowed with technical and scientific assistance from Fraunhofer ISE. The allowed aperture area of the modules is limited to 0.8m x 0.8m for standard configuration of the set-up.

Typical services or results : Indoor IV measurements of CPV module
Angular dependent measurements
Measurements at elevated CPV module temperature
Support can be provided in respect to the data analysis.

Examples of research projects :

- Comparison with outdoor measurement data.
- Separation of different parameters influencing the CPV module performance.