



EnergyVille

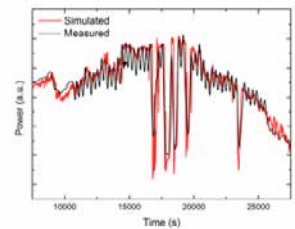
Metrological facilities for (building integrated) photovoltaics

Characterise the electrical and thermal behaviour of your photovoltaic modules for building-applied and building-integrated applications

Advantages

Our integrated team combines expertise in PV modules and building components. Work with us to execute tests:

- energy yield and performance ratio in outdoor climatological conditions
- tests under controlled climatic and irradiation conditions (cfr IEC 61215 and IEC 61646 standards)
- detailed power loss analysis (e.g. temperature dependency of energy yield, ventilation impact)
- (Hygro)thermal and ventilation air flow tests for building-integrated applications



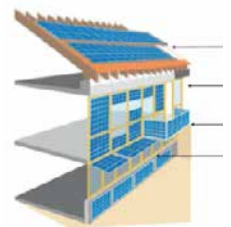
Our photovoltaic simulation tools can provide additional analysis of your measurement data. Our simulators address:

- the transient opto-electro-thermal behaviour of your PV module
- the interaction of your BAPV or BIPV modules with the electrical and thermal energy flows in buildings (cfr. IDEAS)

Applications

Use our photovoltaic metrological facilities to:

- measure and benchmark the energy yield and performance ratio of your innovative PV modules (such as improved electrical or thermal design)
- evaluate long term reliability
- derive thermal parameters for use in buildings
- compare BIPV vs. BAPV integration
- assess the hygrothermal impact of photovoltaic modules on building structures



Customers

- manufacturers of innovative PV modules
- BAPV/BIPV component and building element manufacturers
- PV system integrators



Characteristics

- Outdoor test field for façade-mounted BIPV modules (facilities in Leuven)
 - Meteorological data: air temp, wind speed and direction, radiation (global horizontal radiation and global radiation on the tested surface)
 - Continuous measurement of: energy yield, temperature profiles, relative humidity profiles, air flow between PV module and façade
 - 3 mounting positions, oriented South-West
- Atlas Solarclimatic Test Cabinet Type SC 2000 MHG
 - 1.995*1.150*1.510 m3; -30 to +100°C; 10% to 90 % RH; 800 to 1200 W/m2
 - Compatible with IEC 61215 and IEC 61646 standards
- Outdoor test field for rack-mounted modules
 - Set-up according to IEC standard 61853-1 and the European PV community's best practices
 - Meteo data: solar irradiance (global horizontal / global tilted); air temp and humidity; wind speed and direction
 - Continuous measurement of energy yield and periodic scan of I-V curves
 - Up to 10 pieces of crystalline-silicon and thin-film modules (up to 300 Wp each)
 - Power rating; P-G-T matrix; relative efficiency model; I-V parameters estimation
 - South-facing open-rack mounting, tilt angle 35° from horizontal
 - Optional: experiments under shaded conditions; cell by cell reverse I-V characteristics for shunting and breakdown mode analysis (on c-Si modules with removable discrete bypass diodes)

Conditions

The required test and set-up will always be designed in collaboration with an EnergyVille expert. Access to the test sites is limited to persons familiar with the infrastructure.



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*EnergyVille is an association of the Flemish research institutes KU Leuven, VITO and imec in the field of **sustainable energy and intelligent energy systems**. Our researchers provide expertise to industry and public authorities on energy-efficient buildings and intelligent networks in an urban environment. This includes, for example, smart grids and advanced district heating and cooling.*

This EnergyVille lab functions according to the international quality, environment and safety standards: ISO 9001, ISO 14001 and OHSAS 18001.

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