



Choose certainty.  
Add value.

## Photovoltaic module testing and certification

Gain market access and ensure  
reliability for your PV modules.

### Your challenges

To access global markets, manufacturers of photovoltaic (PV) modules must have their products certified by an independent third-party service provider that verifies quality, safety and performance. Most countries require product compliance according to national and international standards and codes. However, manufacturers often lack sufficient awareness and understanding of the exact design and safety requirements. It is important to ensure that PV modules will safely and reliably deliver the guaranteed rated power over the entire product lifetime and remain commercially viable, even in extreme environmental conditions.

### What is PV module testing and certification?

PV module testing and certification covers a wide range of different performance safety tests. It involves simulating the various environmental conditions that PV modules will be exposed to during their lifetime.

### Why is PV module testing and certification important for your business?

Beyond leading to international market access and global recognition, testing and certification services identify potential improvements in your manufacturing process. These improvements enable you to increase production quality and product safety.

### How can you prepare for PV module testing and certification?

Prior to testing and certification, TÜV SÜD makes an initial technical assessment that requires important technical details such as datasheets, installation manuals and instructions provided by the manufacturer.

### How can we help you?

TÜV SÜD offers long-standing expertise and a strong background in PV module testing and certification. Our service portfolio focuses not only on traditional crystalline and thin-film PV modules but also on building integrated PV modules (BIPV) and smart PV modules,

covering all tests in IEC 61215/IEC 61646, IEC 61730 and beyond, with specific environmental conditions.

## Our PV module testing and certification services

### ▪ **Product development**

TÜV SÜD provides support with PV module testing during research and development (R&D). We offer PV laboratory qualification according to ISO/IEC 17025, which comprises verification of scope and accreditations, testing structure and laboratory layout, operations and maintenance requirements.

### ▪ **Product testing and certification**

Our experts conduct rigorous testing and certification of your PV modules in accordance with national and international standards. We test crystalline modules in accordance with IEC EN 61215 (c-Si, performance) and amorphous crystalline modules in accordance with IEC EN 61646 (thin-film, performance). The safety-related requirements for both cell technologies are tested in accordance with IEC EN 61730-1/2 (c-Si and thin-film, safety). We also offer PV module durability testing, thresher test protocol and additional environmental stress tests such as salt mist corrosion testing, ammonia corrosion testing, dust and sand testing, potential induced degradation (PID) testing, dynamic mechanical load testing, fire testing, flammability testing, highly accelerated stress testing (HAST) and outdoor performance comparison measurements.

### ▪ **Performance and safety-related environmental testing**

TÜV SÜD evaluates the performance of your PV modules to ULC/ORD-C1703, UL 1703 and IEC 61730 safety standards as well as IEC 61215 and IEC 61646 performance standards.

### ▪ **Product quality monitoring and inspections**

Our experts conduct factory audits that include initial and follow-up surveillance for manufacturing facilities. We offer supplier evaluation, annual routine inspections comprising the predefined routine tests, special inspections and on-site assessments, pre-shipment inspection (PSI) and during-production audits (DuPro), as well as bankability audits.

## Your business benefits

▪ **Achieve PV module competency** – through our extensive product knowledge in PV module safety and performance compliance.

- **Strengthen your asset value** – by choosing a globally renowned third-party service provider as your partner for quality and safety.
- **Receive global support** – through TÜV SÜD's strong presence and high level of knowledge in global PV markets, backed up by our experts in local areas.
- **Gain international acceptance** – from our testing and certification according to national and international standards and codes.

## Why choose TÜV SÜD?

As a widely known third-party solutions provider with a reputation for independence and impartiality, TÜV SÜD offers a comprehensive PV service portfolio. Through our extensive international network, we can support your specific needs in all key markets on a local, regional and global scale.

With decades of accumulated experience in real-world scenarios, our PV specialists come from a wide array of disciplines. Our PV teams are familiar with all relevant national and international directives. We provide specific PV module reliability programmes for a higher level of product lifetime confidence. Following successful certification, our customers can display our unique PV certification marks on their PV modules to indicate their compliance with standards and codes, as well as specific conditions above the standard requirements.

## Choose certainty. Add value.

TÜV SÜD is a premium quality, safety and sustainability solutions provider that specialises in testing, inspection, auditing, certification, training and knowledge services. Represented in over 800 locations worldwide, we hold accreditations in Europe, the Americas, the Middle East, Asia and Africa. By delivering objective solutions to our customers, we add tangible value to businesses, consumers and the environment.

### Related services

TÜV SÜD provides the following related services:

- Photovoltaic balance of system component testing and certification
- PV plant certification
- Bankable photovoltaic power solutions
- In-service inspection for PV power plants
- Site assessment for solar power plants
- Performance ratio assessment