



International Electrotechnical Commission
Technical Committee 82 on Photovoltaics

PV Standards Development: IEC TC 82

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IEC Structure

- One vote per country
- 164 countries represented
 - “participating” or “observing” members
- Work Programme for each Technical Committee (TC) approved by country vote
 - Each National Committee (NC) may nominate experts to work on specific projects
- Rules defined under ISO/IEC Directives



Standards Development Principles

- Established by World Trade Organization
 - Common to ISO, IEC, ITU
- IEC procedures are intended to ensure:
 1. Transparency
 2. Openness
 3. Impartiality and consensus
 4. Effectiveness and relevance
 5. Coherence
- And to address the concerns of developing countries



Standards Development Tools

- IEC website: www.iec.ch
 - Up-to-date information on all projects
 - Access to all working documents
 - Electronic voting / commenting
 - Templates for drafting standards
 - Web-conferencing & collaboration tools
- IEC Experts Management System (**EMS**)
 - Administered by national committees
 - Online registration for TC meetings



TC 82 Scope

- To prepare international standards for systems of photovoltaic conversion of solar energy into electrical energy and for all the elements in the **entire photovoltaic energy system**.
- In this context, the "photovoltaic energy system" includes the entire field **from light input to a photovoltaic cell to and including the interface** with the electrical system(s) **to which energy is supplied**.



TC 82 Working Groups

WG 1: Glossary

WG 2: Modules, non-concentrating

WG 3: Systems

WG 6: BOS components

WG 7: Concentrator modules

NEW WG 8: Cells

JWG TC 21/TC 82 Batteries

JWG 1-TC 82/TC 88/TC 21/SC 21A
Decentralized Rural Electrification



Recent Standards Published

Document	Ed.	Date	Title
IEC 62716	1.0	Jun 2013	Photovoltaic (PV) modules - Ammonia corrosion testing
IEC/TS 62257-9-5	2.0	Apr 2013	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-5: Integrated system - Selection of stand-alone lighting kits for rural electrification
IEC 61730-1	1.2	Mar 2013	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction
IEC 61730-2	1.1	Nov 2012	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing
IEC/TS 62727	1.0	May 2012	Photovoltaic systems - Specification for solar trackers
IEC 61701	2.0	Dec 2011	Salt mist corrosion testing of photovoltaic (PV) modules



Recent Committee Drafts

Document	Title
IEC 61853-2 Ed. 1.0	Photovoltaic (PV) modules performance testing and energy rating - Part 2: Spectral response, incidence angle and module operating temperature measurements
IEC 62852 Ed. 1.0	Connectors for DC-application in photovoltaic systems - Safety requirements and tests
IEC 62790 Ed. 1.0	Junction boxes for photovoltaic modules - Safety requirements and tests
IEC/TS 62789 Ed. 1.0	Specification of concentrator cell description
IEC 62116 Ed. 2.0	Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters
IEC 62804 Ed. 1.0	System voltage durability qualification test for crystalline silicon modules
IEC 62782 Ed. 1.0	Dynamic mechanical load testing for photovoltaic (PV) modules
IEC 60904-8 Ed. 3.0	Photovoltaic devices - Part 8: Measurement of spectral response of a photovoltaic (PV) device
IEC 61730-2 Ed. 2.0	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing



Recent New Work Items

Document	Title
IEC 62788-2 Ed. 1.0	Measurement procedures for materials used in photovoltaic modules - Part 2: Polymeric materials used for frontsheets and backsheets
IEC 62788-1-5 Ed. 1.0	Measurement procedures for materials used in photovoltaic modules - Part 1-5: Encapsulants - Measurement of change in linear dimensions of sheet encapsulation material under thermal conditions
IEC 62805-1 Ed. 1.0	Test method for total haze and spectral distribution of haze of transparent conductive coated glass for solar cells
IEC 62805-2 Ed. 1.0	Test method for transmittance and reflectance of transparent conductive coated glass for solar cells
IEC 62109-3 Ed. 1.0	Safety of power converters for use in photovoltaic power systems - Part 3: Particular requirements for PV modules with integrated electronics
IEC 60904-11 Ed. 1.0	Photovoltaic devices - Part 11: Measurement of initial light-induced degradation of crystalline silicon solar cells and photovoltaic modules
IEC 62788-1-3 Ed. 1.0	Measurement procedures for materials used in photovoltaic modules - Part 1-3: Encapsulants - Measurement of dielectric strength
IEC 62787 Ed. 1.0	Concentrator photovoltaic (CPV) solar cells and cell-on-carrier (COC) assemblies - Reliability qualification
IEC 62788-1-2 Ed. 1.0	Measurement procedures for materials used in photovoltaic modules - Part 1-2: Encapsulants - Measurement of volume resistivity of photovoltaic encapsulation and backsheet materials



Anticipated areas of activity

- **WG2 Modules**
 - Module component specs & tests
 - Reliability & comparative testing
 - Closely tied to PVQA Task Force efforts
- **WG3/6 Systems/BOS**
 - Safety standards for specific components
 - System commissioning and O&M
- **WG7 Concentrators**
 - Power & energy rating; solar simulator



NEW WG 8: Cells

- Needs/gap identification
 - TC 82 voted in Oct 2012 to form new working group on Cells & Wafers
- Potential areas of overlap
 - Wafer standards now seen as adequately covered by SEMI; taken out of TC 82 scope
- Need participants to **define and prioritize** work on cell standards
 - Cell & module manufacturers highly encouraged
 - Test labs, universities & general interest



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Thank you for your attention

Questions?

Contact solarexpert13@gmail.com