



Sunset Technology, Inc.

PV Standards. What does the IEC have for you?

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Technical Committee 82 and its Working Groups

- **WG1: Glossary** Task: To prepare a glossary.
- **WG2: Modules, non-concentrating** Task: To develop international standards for non-terrestrial photovoltaic crystalline & thin-film concentrating, modules--
- **WG3: Systems** Task: To give general instructions for the photovoltaic system design, and maintenance.
- **WG6: Balance-of-system components** Task: To develop international standards for balance-of-system components PV systems.
- **WG 7: Concentrator modules** Task: To develop international standards for photovoltaic concentrators and receivers.
- **JCW 21/TC 82 Batteries** Task: To draw up standard requirements for battery storage systems intended for use in photovoltaic systems.
- **JCWG TC 82/TC 88/TC21/SC21A** Task: To prepare guidelines for Decentralized Rural Electrification (DRE) projects which are now being implemented in developing countries.

TC 82 Standards

blue indicates standard is either new work item or is being revised

WG 1. GLOSSARY

IEC 61836: 2007 Ed 2, Solar photovoltaic energy systems - Terms, definitions and symbols. [Ed 3 in process; publish 3Q 2011](#)

WG2. MODULES

IEC 60891: 2009 Ed 2, Procedures for temperature and irradiance corrections to measured I-V characteristics of crystalline silicon photovoltaic (PV) devices.

IEC 60904-1: 2006 Ed 2, Photovoltaic devices-Part 1: Measurements of PV current-voltage characteristics

IEC 60904-2: 2007 Ed 2, Photovoltaic devices – Part 2: Requirements for reference solar devices

IEC 60904-3: 2008 Ed 2, Photovoltaic devices – Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data

IEC 60904-4: 2009 Ed 1, Photovoltaic devices - Part 4: Reference solar devices - Procedures for establishing calibration traceability

IEC 60904-5: 1993 Ed 1, Photovoltaic devices – Part 5: Determination of the equivalent cell temperature (ECT) of photovoltaic (PV) devices by the open-circuit voltage method. [Being revised; publish about 1Q 2011](#)

IEC 60904-7: 2008 Ed 3, Photovoltaic devices - Part 7: Computation of the spectral mismatch correction for measurements of photovoltaic devices

IEC 60904-8: 1998 Ed 2, Photovoltaic devices – Part 8: Measurement of spectral response of a photovoltaic (PV) device

TC 82 Standards (Cont'd)

- IEC 60904-9: 2007 Ed 2, Photovoltaic devices – Part 9: Solar simulator performance requirements
- IEC 60904-10: 2009 Ed 2, Photovoltaic devices – Part 10: Methods of linearity measurement
- IEC 61215: 2005 Ed 2, Crystalline silicon terrestrial PV modules – Design qualification and type approval. [Ed 3 in process; publish 1Q 2011](#)
- IEC 61345: 1998 Ed 1, UV test for photovoltaic (PV) modules
- IEC 61646: 2008 Ed 2, Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval
- IEC 61701: 1995 Ed 1, Salt mist corrosion testing of photovoltaic (PV) modules. [Ed 2 in process; publish 4Q 2010](#)
- IEC 61730-1: 2004 Ed 1, Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction [Amendment 1 in process; publish 4Q 2010](#)
- IEC 61730-2: 2004 Ed 1, Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing [Amendment 1 in process; publish 3Q 2010](#)
- IEC 61829: 1995 Ed 1, Crystalline silicon photovoltaic (PV) array - On-site measurement of I-V characteristics. [Ed 2 in process; publish 1Q 2011](#)
- [IEC 61853-1: Ed 1, Photovoltaic \(PV\) module performance testing and energy rating - Part 1: Irradiance and temperature performance measurements and power rating; publish 1Q 2011](#)
- [IEC 61853-2: Ed 1, Photovoltaic \(PV\) module performance testing and energy rating - Part 2: Spectral response, incidence angle and module operating temperature measurements; publish 4Q2010](#)

TC 82 Standards (Cont.)

WG3 SYSTEMS

- IEC 61194: 1992 Ed 1, Characteristic parameters of stand-alone photovoltaic (PV) systems
- IEC 61683: 1999 Ed 1 Photovoltaic systems - Power conditioners - Procedure for measuring efficiency [Revision to Ed 2 is underway; expect publication in 3Q 2011](#)
- IEC 61702: 1995 Ed 1, Rating of direct coupled photovoltaic pumping systems
- IEC 61724: 1998 Ed 1, Photovoltaic system performance monitoring – guidelines for measurement, data exchange and analysis
- IEC 61725: 1997 Ed 1, Analytical expression for daily solar profiles
- IEC 61727: 2004 Ed 2, Photovoltaic (PV) systems – Characteristics of the utility interface
- IEC 62124: 2004 Ed 1, Photovoltaic (PV) stand alone systems - Design verification
- IEC 62446: 2009 Ed 1 Grid connected photovoltaic systems - Minimum requirements for system documentation, commissioning tests and inspection
- [IEC 62253: Ed 1 Equipment and safety specifications for direct coupled photovoltaic \(PV\) – pumping systems; publish 2Q 2010](#)
- [IEC 62548: Ed 1 Installation and Safety Requirements for Photovoltaic \(PV\) Generators; publish 2Q 2010](#)

TC 82 Standards (Cont.)

WG6 BALANCE OF SYSTEMS

IEC 61683: 1999 Ed 2, PV systems – Power conditioners – Procedure for measuring efficiency

IEC 62093: 2005 Ed 1, Balance-of-system components for photovoltaic systems - Design qualification natural environments

IEC 62109-1 Ed. 1.0 Safety of power converters for use in photovoltaic power systems
-- Part 1. General requirements. Publish 2Q 2010

IEC 62109-2 Ed. 1.0 Safety of power converters for use in photovoltaic power systems
-- Part 2. Particular requirements for inverters. Publish 4Q 2010

IEC 62109-3 Ed. 1.0 Safety of power converters for use in photovoltaic power systems
-- Part 3. Controllers. New Work Item Proposal

IEC 62116: 2008 Ed 1, Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters

IEC 62509 Ed. 1.0 Performance and functioning of photovoltaic battery charge controllers. Publish 4Q 2010

TC 82 Standards (Cont.)

WG7 CONCENTRATOR PHOTOVOLTAICS

IEC 62108: 2007 Ed 1, Concentrator photovoltaic (CPV) modules and assemblies -
Design qualification and type approval [Amendment or revision is underway](#)

[Concentrator Photovoltaic \(CPV\) Module and Assembly Performance Testing and
Energy Rating: Part 1: Performance Measurements and Power Rating -
Irradiance and Temperature](#)

[CPV safety standard. New Work Item Proposal.](#)

[Tracker specification. New Work Item Proposal.](#)

JWG TC21/TC82, PV BATTERIES

IEC 61427: 2005 Ed 3, Secondary cells and batteries for photovoltaic energy systems
(PVES) - General requirements and methods of test [Revision to include latest
battery technology is underway](#)

TC 82 Standards (Cont.)

JCWGTC82/TC21/TC88/TC105

- IEC/TS 62257-1: 2003 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 1: General introduction to rural electrification
- IEC/TS 62257-2: 2004 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 2: From requirements to a range of electrification systems
- IEC/TS 62257-3: 2004 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 3: Project development and management
- IEC/TS 62257-4: 2005 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 4: System selection and design
- IEC/TS 62257-5: 2005 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 5: Protection against electrical hazards
- IEC/TS 62257-6: 2005 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 6: Acceptance, operation, maintenance and replacement
- IEC/TS 62257-7: 2008 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 7: Generators

TC 82 Standards (Cont.)

- IEC/TS 62257-7-1: 2006 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 7-1: Generators - Photovoltaic arrays
- IEC/TS 62257-7-3: 2008 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 7-3: Generator set - Selection of generator sets for rural electrification systems
- IEC/TS 62257-8-1: 2007 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 8-1: Selection of batteries and battery management systems for stand-alone electrification systems - Specific case of automotive flooded lead-acid batteries available in developing countries
- IEC/TS 62257-9-1: 2008-09 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-1: Micropower systems
- IEC/TS 62257-9-2: 2006 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-2: Microgrids
- IEC/TS 62257-9-3: 2006 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-3: Integrated system - User interface
- IEC/TS 62257-9-4: 2006 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-4: Integrated system – User installation

TC 82 Standards (Cont.)

- IEC/TS 62257-9-5: 2007 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-5: Integrated system - Selection of portable PV lanterns for rural electrification projects
- IEC/TS 62257-9-6: 2008 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-6: Integrated system - Selection of Photovoltaic Individual Electrification Systems (PV-IES)
- IEC/TS 62257-12-1: 2007 Ed 1 Recommendations for small renewable energy and hybrid systems for rural electrification - Part 12-1: Selection of self-ballasted lamps (CFL) for rural electrification systems and recommendations for household lighting equipment