

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Terrestrial photovoltaic (PV) modules – Quality system for PV module manufacturing

Modules photovoltaïques (PV) pour applications terrestres – Système de qualité pour la fabrication des modules photovoltaïques



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CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Terms, definitions and abbreviated terms	7
4 Support	10
4.1 Resources	10
4.1.1 Succession planning	10
4.1.2 Provision of resources for product warranty system	10
4.2 Monitoring and measuring resources.....	11
4.2.1 Control of monitoring and measuring equipment	11
4.2.2 Control of performance rating (IV) measurement equipment	11
4.3 Control of documented information.....	11
5 Operation	11
5.1 Operational planning and control	11
5.2 Requirements for products and services	12
5.2.1 Customer communication	12
5.2.2 Determining the requirements for products and services	12
5.2.3 Review of the requirements for products and services	12
5.2.4 Organization manufacturing feasibility	13
5.3 Design and development of products and services	13
5.3.1 Design and development planning	13
5.3.2 Design and development inputs	13
5.3.3 Design and development controls	13
5.3.4 Design and development outputs	14
5.3.5 Design and development changes	14
5.3.6 Manufacturing process design inputs	14
5.3.7 Manufacturing process design outputs	14
5.4 Control of externally provided processes, products and services	15
5.4.1 General	15
5.4.2 Type and extent of control	15
5.4.3 Information on external providers.....	16
5.5 Production and service provision	16
5.5.1 Control of production and service provision	16
5.5.2 Control plan	16
5.5.3 Control plan for the measurement procedure	17
5.5.4 Control plan for all solar simulators used for performance rating.....	17
5.5.5 Validation of processes for production and services provisions	18
5.5.6 Identification and traceability	18
5.5.7 Customer property	18
5.5.8 Preservation of product.....	18
5.5.9 Post-delivery activities	19
5.6 Control of nonconforming outputs	19
6 Performance evaluation	19
6.1 Monitoring, measurement, analysis and evaluation	19
6.1.1 Monitoring and measurement of a manufacturing process.....	19
6.1.2 Monitoring and measurement of product	20

6.1.3	Ongoing product monitoring.....	20
6.2	Customer satisfaction	21
6.3	Analysis and evaluation	21
6.4	Internal audit.....	21
7	Improvement	21
7.1	Corrective and preventive action.....	21
7.2	Continual improvement	21
Annex A (informative) Correspondence between ISO 9001:2015 and IEC 62941		22
Bibliography.....		25

INTERNATIONAL ELECTROTECHNICAL COMMISSION

TERRESTRIAL PHOTOVOLTAIC (PV) MODULES – QUALITY SYSTEM FOR PV MODULE MANUFACTURING

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International Standard IEC 62941 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
82/1635/FDIS	82/1641/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

TERRESTRIAL PHOTOVOLTAIC (PV) MODULES – QUALITY SYSTEM FOR PV MODULE MANUFACTURING

1 Scope

This document is applicable to organizations manufacturing photovoltaic (PV) modules certified to IEC 61215 series and IEC 62108 for design qualification and type approval and IEC 61730 for safety qualification and type approval. The design qualification and type approval of PV modules depend on appropriate methods for product and process design, as well as appropriate control of materials and processes used to manufacture the product. This document lays out best practices for product design, manufacturing processes, and selection and control of materials used in the manufacture of PV modules that have met the requirements of IEC 61215 series, IEC 61730, or IEC 62108. These standards also form the basis for factory audit criteria of such sites by various certifying and auditory bodies.

The object of this document is to provide a framework for the improved confidence in the ongoing consistency of performance and reliability of certified PV modules. The requirements of this document are defined with the assumption that the quality management system of the organization has already fulfilled the requirements of ISO 9001 or equivalent quality management system. This document is not intended to replace or remove any requirements of ISO9001 or equivalent quality management system. By maintaining a manufacturing system in accordance with this document, PV modules are expected to maintain their performance as determined from the test sequences in IEC 61215 series, IEC 62108, or IEC 61730.

This document is applicable to all PV modules independent of design and technology, i.e. flat panel, concentrator photovoltaic (CPV). Quality controls for CPV and nonconventional flat-plate manufacturing will differ somewhat from those of more conventional designs; this document has not considered these differences.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60812: *Failure modes and effects analysis (FMEA and FMECA)*

IEC 60891, *Photovoltaic devices – Procedure for temperature and irradiance corrections to measured I-V characteristics*

IEC 60904-1, *Photovoltaic devices – Part 1: Measurement of photovoltaic current-voltage characteristics*

IEC 60904-2, *Photovoltaic devices – Part 2: Requirements for photovoltaic reference devices*

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

IEC 60904-4, *Photovoltaic devices – Part 4: Reference solar devices – Procedures for establishing calibration traceability*

IEC 60904-7, *Photovoltaic devices – Part 7: Computation of the spectral mismatch correction for measurements of photovoltaic devices*

IEC 60904-9, *Photovoltaic devices – Part 9: Solar simulator performance requirements*

IEC 61215 (all parts), *Terrestrial photovoltaic (PV) modules – Design qualification and type approval*

IEC 61730-1, *Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction*

IEC 61730-2, *Photovoltaic (PV) module safety qualification – Part 2: Requirements for testing*

IEC TS 61836, *Solar photovoltaic energy systems – Terms, definitions and symbols*

IEC 61853-1, *Photovoltaic (PV) module performance testing and energy rating – Part 1: Irradiance and temperature performance measurements and power rating*

IEC 62108, *Concentrator photovoltaic (CPV) modules and assemblies – Design qualification and type approval*

IEC 62759-1, *Photovoltaic (PV) modules – Transportation testing – Part 1: Transportation and shipping of module package units*

IEC TS 62915, *Photovoltaic (PV) modules – Type approval, design and safety qualification – Retesting*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement*

ISO 9001:2015, *Quality management systems – Requirements*

3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms and definitions given in IEC TS 61836 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

containment

action taken to protect the customer from the effect of a harmful situation

Note 1 to entry: Containment may include correcting an existing situation or adding additional screening or retesting.

3.2

control plan

documented description of the systems and processes, and controls required for maintaining the product and process quality as well as reaction to non-conformance