

Terrestrial photovoltaic (PV) modules - Design
qualification and type approval - Part 1: Test
requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 61215-1:2016 sisaldab Euroopa standardi EN 61215-1:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 61215-1:2016 consists of the English text of the European standard EN 61215-1:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

**Terrestrial photovoltaic (PV) modules - Design qualification and
type approval - Part 1: Test requirements
(IEC 61215-1:2016)**

Modules photovoltaïques (PV) pour applications terrestres -
Qualification de la conception et homologation - Partie 1:
Exigences d'essai
(IEC 61215-1:2016)

Terrestrische Photovoltaik-(PV-)Module - Bauartzeichnung
und Bauartzulassung - Part 1: Prüfanforderungen
(IEC 61215-1:2016)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 82/1046/FDIS, future edition 1 of IEC 61215-1, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61215-1:2016.

The following dates are fixed:

- latest date by which the document has to be (dop) 2017-06-09
implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2019-12-09
standards conflicting with the
document have to be withdrawn

This document supersedes partially EN 61215:2005.

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Endorsement notice

The text of the International Standard IEC 61215-1:2016 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u> <u>series</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u> <u>series</u>
IEC 60050	-	International Electrotechnical Vocabulary	-	-
IEC 60269-6	-	Low-voltage fuses -- Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems	EN 60269-6	-
IEC 60891	-	Photovoltaic devices - Procedures for temperature and irradiance corrections to measured I-V characteristics	EN 60891	-
IEC 60904-1	-	Photovoltaic devices -- Part 1: Measurement of photovoltaic current- voltage characteristics	EN 60904-1	-
IEC 60904-3	-	Photovoltaic devices - Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data	EN 60904-3	-
IEC 60904-10	-	Photovoltaic devices -- Part 10: Methods of linearity measurement	EN 60904-10	-
IEC 61215-2	-	Terrestrial photovoltaic (PV) modules - Design qualification and type approval -- Part 2: Test procedures	EN 61215-2	-
IEC 61730-2	-	Photovoltaic (PV) module safety qualification -- Part 2: Requirements for testing	EN 61730-2	-
IEC 61853-1	-	Photovoltaic (PV) module performance testing and energy rating -- Part 1: Irradiance and temperature performance measurements and power rating	EN 61853-1	-
IEC 61853-2	-	Photovoltaic (PV) module performance testing and energy rating -- Part 2: Spectral response, incidence angle and module operating temperature measurements	-	-
IEC/TS 61836	-	Solar photovoltaic energy systems - Terms, definitions and symbols	CLC/TS 61836	-
IEC/TS 62915	-	Photovoltaic (PV) Modules - Retesting for type approval, design and safety qualification	-	-
ISO/IEC 17025	-	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025	-
ISO/IEC Guide 98-3	-	Uncertainty of measurement -- Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)	-	-

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope and object.....	6
2 Normative references.....	6
3 Terms, definitions and abbreviations	7
4 Test samples.....	8
5 Marking and documentation	8
5.1 Name plate	8
5.2 Documentation.....	9
5.2.1 Minimum requirements	9
5.2.2 Information to be given in the documentation	9
5.2.3 Assembly instructions	10
6 Testing.....	10
7 Pass criteria	11
7.1 General.....	11
7.2 Power output and electric circuitry	11
7.2.1 Verification of rated label values → Gate No. 1	11
7.2.2 Maximum power degradation during type approval testing → Gate No. 2	12
7.2.3 Electrical circuitry.....	13
7.3 Visual defects	13
7.4 Electrical safety	13
8 Major visual defects.....	13
9 Report.....	14
10 Modifications	15
11 Test flow and procedures.....	15
Figure 1 – Full test flow for design qualification and type approval of photovoltaic modules	18
Table 1 – Summary of test levels	16

INTRODUCTION

Whereas Part 1 of this standard series describes requirements (both in general and specific with respect to device technology), the sub-parts of Part 1 define technology variations and Part 2 defines a set of test procedures necessary for design qualification and type approval. The test procedures described in Part 2 are valid for all device technologies.

TERRESTRIAL PHOTOVOLTAIC (PV) MODULES – DESIGN QUALIFICATION AND TYPE APPROVAL –

Part 1: Test requirements

1 Scope and object

This part of IEC 61215 lays down IEC requirements for the design qualification and type approval of terrestrial photovoltaic (PV) modules suitable for long-term operation in general open-air climates, as defined in IEC 60721-2-1. This standard is intended to apply to all terrestrial flat plate module materials such as crystalline silicon module types as well as thin-film modules.

This standard does not apply to modules used with concentrated sunlight although it may be utilized for low concentrator modules (1 to 3 suns). For low concentration modules, all tests are performed using the current, voltage and power levels expected at the design concentration.

This standard does not address the particularities of PV modules with integrated electronics, it may however be used as a basis for testing such PV modules.

The objective of this test sequence is to determine the electrical and thermal characteristics of the module and to show, as far as possible within reasonable constraints of cost and time, that the module is capable of withstanding prolonged exposure in climates described in the scope. The actual lifetime expectancy of modules so qualified will depend on their design, their environment and the conditions under which they are operated.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>)

IEC 60269-6, *Low-voltage fuses – Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems*

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

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

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

IEC 60904-10, *Photovoltaic devices – Part 10: Methods of linearity measurement*

IEC 61215-2, *Terrestrial photovoltaic (PV) modules – Design qualification and type approval – Part 2: Test procedures*