

SLOVENSKI STANDARD

SIST EN IEC 61215-1-2:2021

01-junij-2021

Nadomešča:

SIST EN 61215-1-2:2017

**Prizemni fotonapetostni (PV) moduli - Ocena zasnove in odobritev tipa - 1-2. del:
Posebne zahteve za preskušanje fotonapetostnih modulov iz tankoslojnega
kadmij-telurja (CdTe)**

Terrestrial photovoltaic (PV) modules - Design qualification and type approval - Part 1-2:
Special requirements for testing of thin-film Cadmium Telluride (CdTe) based
photovoltaic (PV) modules

iTeh STANDARD PREVIEW

Terrestrische kristalline Silizium-Photovoltaik (PV)-Module - Bauarteignung und
Bauartzulassung - Teil 1-2: Besondere Anforderungen an die Prüfung von Photovoltaik
(PV)-Dünnschichtmodulen aus Cadmiumtellurid-(CdTe)

<https://standards.iteh.ai/catalog/standards/sist/16f67b98-9130-40a0-969d-dda7b118876b/sist-en-iec-61215-1-2-2021>

Modules photovoltaïques (PV) pour applications terrestres - Qualification de la
conception et homologation - Partie 1-2: Exigences particulières d'essai des modules
photovoltaïques (PV) au tellure de cadmium (CdTe) à couches minces

Ta slovenski standard je istoveten z: EN IEC 61215-1-2:2021

ICS:

27.160

Sončna energija

Solar energy engineering

SIST EN IEC 61215-1-2:2021

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 61215-1-2:2021

<https://standards.iteh.ai/catalog/standards/sist/16f67b98-9130-40a0-969d-dda7b118876b/sist-en-iec-61215-1-2-2021>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 61215-1-2

March 2021

ICS 27.160

Supersedes EN 61215-1-2:2017 and all of its
amendments and corrigenda (if any)

English Version

**Terrestrial photovoltaic (PV) modules - Design qualification and
type approval - Part 1-2: Special requirements for testing of thin-
film Cadmium Telluride (CdTe) based photovoltaic (PV) modules
(IEC 61215-1-2:2021)**

Modules photovoltaïques (PV) pour applications terrestres -
Qualification de la conception et homologation - Partie 1-2:
Exigences particulières d'essai des modules
photovoltaïques (PV) au tellure de cadmium (CdTe) à
couches minces
(IEC 61215-1-2:2021)

Terrestrische Photovoltaik(PV)-Module - Bauartegnung und
Bauartzulassung - Teil 1-2: Besondere Anforderungen an
die Prüfung von Photovoltaik(PV)-Dünnschichtmodulen aus
Cadmiumtellurid (CdTe)
(IEC 61215-1-2:2021)

This European Standard was approved by CENELEC on 2021-03-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 61215-1-2:2021 (E)**European foreword**

The text of document 82/1825/FDIS, future edition 2 of IEC 61215-1-2, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61215-1-2:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-12-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-03-16

This document supersedes EN 61215-1-2:2017 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

iTeh STANDARD PREVIEW
The text of the International Standard IEC 61215-1-2:2021 was approved by CENELEC as a European Standard without any modification. (standards.iteh.ai)

SIST EN IEC 61215-1-2:2021
<https://standards.iteh.ai/catalog/standards/sist/16f67b98-9130-40a0-969d-dda7b118876b/sist-en-iec-61215-1-2-2021>

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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.

The normative references of EN IEC 61215-1:2021 and EN IEC 61215-2:2021 are applicable without modifications.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 61215-1-2:2021
<https://standards.iteh.ai/catalog/standards/sist/16f67b98-9130-40a0-969d-dda7b118876b/sist-en-iec-61215-1-2-2021>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 61215-1-2:2021

<https://standards.iteh.ai/catalog/standards/sist/16f67b98-9130-40a0-969d-dda7b118876b/sist-en-iec-61215-1-2-2021>



IEC 61215-1-2

Edition 2.0 2021-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Terrestrial photovoltaic (PV) modules – Design qualification and type approval –
Part 1-2: Special requirements for testing of thin-film Cadmium Telluride (CdTe)
based photovoltaic (PV) modules**

**Modules photovoltaïques (PV) pour applications terrestres – Qualification de la
conception et homologation –
Partie 1-2: Exigences particulières d'essai des modules photovoltaïques (PV)
au tellurure de cadmium (CdTe) à couches minces**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 27.160

ISBN 978-2-8322-9358-4

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Test samples	7
5 Marking and documentation	7
6 Testing	7
7 Pass criteria	7
8 Major visual defects	7
9 Report	7
10 Modifications	7
11 Test flow and procedures	7
11.1 Visual inspection (MQT 01)	7
11.2 Maximum power determination (MQT 02)	7
11.3 Insulation test (MQT 03)	8
11.4 Measurement of temperature coefficients (MQT 04)	8
11.5 Placeholder section, formerly NMOT	8
11.6 Performance at STC (MQT 06.1)	8
11.7 Performance at low irradiance (MQT 07)	8
11.8 Outdoor exposure test (MQT 08)	8
11.9 Hot-spot endurance test (MQT 09)	8
11.9.1 Purpose	8
11.9.2 Hot-spot effect	8
11.9.3 Classification of cell interconnection	8
11.9.4 Apparatus	8
11.9.5 Procedure	8
11.9.6 Final measurements	9
11.9.7 Requirements	9
11.10 UV preconditioning test (MQT 10)	9
11.11 Thermal cycling test (MQT 11)	9
11.12 Humidity-freeze test (MQT 12)	9
11.13 Damp heat test (MQT 13)	9
11.14 Robustness of terminations (MQT 14)	9
11.15 Wet leakage current test (MQT 15)	9
11.16 Static mechanical load test (MQT 16)	9
11.17 Hail test (MQT 17)	9
11.18 Bypass diode testing (MQT 18)	9
11.19 Stabilization (MQT 19)	9
11.19.1 Criterion definition for stabilization	9
11.19.2 Light induced stabilization procedures	10
11.19.3 Other stabilization procedures	10
11.19.4 Initial stabilization (MQT 19.1)	10
11.19.5 Final stabilization (MQT 19.2)	10
11.20 Cyclic (dynamic) mechanical load test (MQT 20)	11
11.21 Potential induced degradation test (MQT 21)	11

11.22 Bending test (MQT 22).....	11
----------------------------------	----

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN IEC 61215-1-2:2021](https://standards.iteh.ai/catalog/standards/sist/16f67b98-9130-40a0-969d-dda7b118876b/sist-en-iec-61215-1-2-2021)

<https://standards.iteh.ai/catalog/standards/sist/16f67b98-9130-40a0-969d-dda7b118876b/sist-en-iec-61215-1-2-2021>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 1-2: Special requirements for testing of thin-film Cadmium Telluride (CdTe) based photovoltaic (PV) modules

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61215-1-2 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

This second edition cancels and replaces the first edition of IEC 61215-1-2, issued in 2016, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) A cyclic (dynamic) mechanical load test (MQT 20) added.
- b) A test for detection of potential-induced degradation (MQT 21) added.
- c) A bending test (MQT 22) for flexible modules added.