

FOTOELEKTRILISTE MOODULITE OHUTUSNÕUDED. OSA
2: KATSETUSNÕUDED

Photovoltaic (PV) module safety qualification - Part 2:
Requirements for testing

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 61730-2:2018 sisaldab Euroopa standardi EN IEC 61730-2:2018 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 61730-2:2018 consists of the English text of the European standard EN IEC 61730-2:2018.
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

Photovoltaic (PV) module safety qualification - Part 2:
Requirements for testing
(IEC 61730-2:2016)

Qualification pour la sûreté de fonctionnement des modules
photovoltaïques (PV) - Partie 2: Exigences pour les essais
(IEC 61730-2:2016)

Photovoltaik (PV) Module - Sicherheitsqualifikation - Teil 2:
Anforderungen an die Prüfung
(IEC 61730-2:2016)

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

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European foreword

The text of document 82/1129/FDIS, future edition 2 of IEC 61730-2, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61730-2:2018.

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) 2018-10-27
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-04-27

This document supersedes EN 61730-2:2007.

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.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive 2006/42/EC see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 61730-2:2016 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 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60060-1	-	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	2010
IEC 60068-2-1	-	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	2007
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	2007
IEC 60068-3-5	-	Environmental testing - Part 3-5: Supporting documentation and guidance - Confirmation of the performance of temperature chambers	EN 60068-3-5	2002
IEC 60598-1 (mod)	2014	Luminaires - Part 1: General requirements and tests	EN 60598-1	2015
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60695-2-10	-	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	2002
IEC 60904-2	-	Photovoltaic devices - Part 2: Requirements for photovoltaic reference devices	EN 60904-2	2015
IEC 60904-9	-	Photovoltaic devices - Part 9: Solar simulator performance requirements	EN 60904-9	2007
IEC 60950-1 (mod)	2005	Information technology equipment - Safety - Part 1: General requirements	EN 60950-1	2006
-	-		+ A11	2009
-	-		+ A12	2011
-	-		+ AC	2011
IEC 61010-1	-	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements	EN 61010-1	2010
IEC 61032	1997	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	1998
IEC 61140	-	Protection against electric shock - Common aspects for installation and equipment	EN 61140	2016
IEC 61215	series	Terrestrial photovoltaic (PV) modules Design qualification and type approval	EN 61215	series
IEC 61215-2	-	Terrestrial photovoltaic (PV) modules - Design qualification and type approval - Part 2: Test procedures	EN 61215-2	2017

IEC 61730-1	2016	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction	EN 61730-1	2018
IEC 62790	-	Junction boxes for photovoltaic modules - Safety requirements and tests	EN 62790	2015
ISO 813	2016	Rubber, vulcanized or thermoplastic - Determination of adhesion to a rigid substrate - 90° peel method	-	-
ISO 4046-4	2016	Paper, board, pulps and related terms - Vocabulary - Part 4: Paper and board grades and converted products	-	-
ISO 4587	2003	Adhesives - Determination of tensile lap-shear strength of rigid-to-rigid bonded assemblies	-	-
ISO 5893	2002	Rubber and plastics test equipment - Tensile, flexural and compression types (constant rate of traverse) - Specification	-	-
ISO 8124-1	2018	Safety of toys - Part 1: Safety aspects related to mechanical and physical properties	-	-
ISO 11925-2	2010	Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test	EN ISO 11925-2	2010
ISO 23529	2016	Rubber - General procedures for preparing and conditioning test pieces for physical test methods	-	-
ISO/IEC 17025	-	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025	2017
ANSI Z97.1	2009	American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test	-	-
ANSI/UL 1703	2015	Flat-Plate Photovoltaic Modules and Panels -	-	-

Annex ZZ (informative)

Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission's standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

Table ZZ.1 – Correspondence between this European standard and Annex I of Directive 2014/35/EU [2014 OJ L96]

Safety objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1. General conditions		
1 (a) the essential characteristics, the recognition and observance of which will ensure that electrical equipment will be used safely and in applications for which it was made, shall be marked on the electrical equipment, or, if this is not possible, on an accompanying document;	EN 61730-1, 5.2	
1 (b) the electrical equipment, together with its component parts, shall be made in such a way as to ensure that it can be safely and properly assembled and connected;	EN 61730-1, 5.2	
1(c) the electrical equipment shall be so designed and manufactured as to ensure that protection against the hazards set out in points 2 and 3 is assured, providing that the equipment is used in applications for which it was made and is adequately maintained.	EN 61730-1, 5.2 refer to 2a) to 2d) and 3a) to 3c) of this table cl. 5.4 (intended use)	

Safety objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
<p>2. Protection against hazards arising from the electrical equipment</p> <p>Measures of a technical nature shall be laid down in accordance with point 1, in order to ensure that:</p>		
<p>2 (a) persons and domestic animals are adequately protected against the danger of physical injury or other harm which might be caused by direct or indirect contact;</p>	<p>EN 61730-1, 5.2.2, 5.3.4, 5.3.5, 5.5.4, 5.6.4.2 EN 61730-2, 4.4 EN 61730-2, 10.9, (MST 11) EN 61730-2, 10.11, (MST 13) EN 61730-2, 10.12, (MST 14) EN 61730-2, 10.13, (MST 16) EN 61730-2, 10.14, (MST 17)</p>	
<p>2 (b) temperatures, arcs or radiation which would cause a danger, are not produced;</p>	<p>EN 61730-1, 5.1, 5.2.2.1, 5.2.3, 5.3, 5.5 and Annex B (B6) EN 61730-2, 4.2 EN 61730-2, 10.15, (MST 21)</p>	
<p>2 (c) persons, domestic animals and property are adequately protected against non-electrical dangers caused by the electrical equipment which are revealed by experience;</p>	<p>EN 61730-1, 5.2.3 EN 61730-2, 10.7, (MST 06) EN 61730-2, 10.10, (MST 12) EN 61730-2, 10.21, (MST 32) EN 61730-2, 10.23, (MST 34)</p>	
<p>2 (d) the insulation is suitable for foreseeable conditions.</p>	<p>EN 61730-1, 5.2.2.1 k) and MST 26 EN 61730-1, 5.2.2, 5.2.2.1, 5.3.4, 5.3.5, 5.5.4, 5.6 and 5.6.4.2 EN 61730-2, 4.4 EN 61730-2, 10.13, (MST 16) EN 61730-2, 10.14, (MST 17)</p>	

Safety objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
<p>3. Protection against hazards which may be caused by external influences on the electrical equipment Technical measures shall be laid down in accordance with point 1, in order to ensure that the electrical equipment:</p>		
<p>3 (a) meets the expected mechanical requirements in such a way that persons, domestic animals and property are not endangered;</p>	<p>EN 61730-1, 5.1, 5.2.3, 5.3, 5.4 and 5.5 EN 61730-2, 4.2 EN 61730-2, 10.7, (MST 06) EN 61730-2, 10.21, (MST 32) EN 61730-2, 10.23, (MST 34)</p>	
<p>3 (b) is resistant to non-mechanical influences in expected environmental conditions, in such a way that persons, domestic animals and property are not endangered;</p>	<p>EN 61730-2, 4.5 EN 61730-2, 10.15, (MST 21) EN 61730-2, 10.17, (MST 23)</p>	<p>No remote access to modules to influence function. There are no mandatory requirements for fire tests, spread of flame and burning-brand tests for PV modules in this standard.</p>
<p>3 (c) does not endanger persons, domestic animals and property in foreseeable conditions of overload.</p>	<p>EN 61730-1, 5.2 EN 61730-1, 5.2.2.1 k) and MST 26</p>	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

CONTENTS

FOREWORD.....	6
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	10
4 Test categories.....	10
4.1 General.....	10
4.2 Environmental stress tests	10
4.3 General inspection	10
4.4 Electrical shock hazard tests	11
4.5 Fire hazard tests	11
4.6 Mechanical stress tests	11
5 Classes and their necessary test procedures.....	12
6 Sampling	14
7 Test report	14
8 Testing.....	15
9 Pass criteria	17
10 Test procedures	17
10.1 General.....	17
10.2 Visual inspection MST 01	17
10.2.1 Purpose	17
10.2.2 Procedure.....	17
10.2.3 Pass criteria.....	17
10.3 Performance at STC MST 02.....	19
10.3.1 Purpose	19
10.3.2 Procedure.....	19
10.3.3 Pass criteria.....	19
10.4 Maximum power determination MST 03	19
10.4.1 Purpose	19
10.4.2 Procedure.....	19
10.4.3 Pass criteria.....	19
10.5 Insulation thickness test MST 04	19
10.5.1 Purpose	19
10.5.2 Procedure.....	20
10.5.3 Pass criteria.....	20
10.6 Durability of markings MST 05.....	20
10.7 Sharp edge test MST 06.....	20
10.8 Bypass diode functionality test MST 07.....	21
10.9 Accessibility test MST 11.....	21
10.9.1 Purpose	21
10.9.2 Apparatus	21
10.9.3 Procedure	21
10.9.4 Final measurements.....	21
10.9.5 Pass criteria.....	21
10.10 Cut susceptibility test MST 12	21
10.10.1 Purpose	21
10.10.2 Apparatus	22