



DPC: 20 / 30338416 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: + 44 (0)20 8996 9000

Fax: + 44 (0)20 8996 7400

www.bsigroup.com

Date: 09 January 2020

Origin: European

Latest date for receipt of comments: 5 February 2020

Project No. 2016/00459

Responsible committee: GEL/82 Photovoltaic Energy Systems

Interested committees:

Title: Draft BS EN 61730-1:2007 Amendment 1 - Photovoltaic (PV) module safety qualification

Part 1: Requirements for construction

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

**WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD.
THIS DRAFT IS NOT CURRENT BEYOND 5 February 2020**

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop <http://shop.bsigroup.com> or from BSI Customer Services, Tel: + 44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from <http://standardsdevelopment.bsigroup.com>

Responsible Committee Secretary: Ms Louisa Mohsen (BSI)

Direct tel: 020 8996 7230

E-mail: louisa.mohsen@bsigroup.com

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
------------------	------------------------

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

PROJECT NUMBER:

IEC 61730-1/AMD1 ED2

DATE OF CIRCULATION:

2019-12-13

CLOSING DATE FOR COMMENTS:

2020-03-06

SUPERSEDES DOCUMENTS:

82/1380/CD, 82/1416A/CC

IEC TC 82 : SOLAR PHOTOVOLTAIC ENERGY SYSTEMS

SECRETARIAT:

United States of America

SECRETARY:

Mr George Kelly

OF INTEREST TO THE FOLLOWING COMMITTEES:

PROPOSED HORIZONTAL STANDARD:

☐

Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

☐ EMC☐ ENVIRONMENT☐ QUALITY ASSURANCE☒ SAFETY

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Amendment 1 – Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction

NOTE FROM TC/SC OFFICERS:

Following their last meeting in Mississauga, WG2 decided to issue a second CD instead of CDV for part 1 (a first CD is already planned for part 2 as per 82/1483/RR)

1 Introduction

2 General topics included in this amendment:

- Addition of requirements for qualification of specific components according to their standard documents (Junction Box, Connectors, Frontsheets/Backsheets)
- Replacement of specific frontsheet/backsheet weathering testing to a requirement for relied-upon insulation to be qualified according to IEC 62788-2-1
- Removal of all reference to “open rack”, with updates according to a scope of usage for applications according to the 98th percentile application temperature
- Clarifications on the concept and measurement of dti, and related materials test requirements
- Modules meeting Class 0 for use in restricted access areas are not required to pass the breakage test, (MST 32).
- Definition and clarification of materials which are relied-upon for insulation, and associated requirements and test methods.

Bifacial modules were discussed in the project team. The relevant tests are addressed in the new edition of IEC 61215, being developed in parallel to this document. This document references the testing in IEC 61215, and the team decided no additional changes were needed.

Scope

Replace the first two paragraphs with the following:

This part of IEC 61730 specifies and describes the fundamental construction requirements for photovoltaic (PV) modules in order to provide safe electrical and mechanical operation. Specific topics are provided to assess the prevention of electrical shock, fire hazards, and personal injury due to mechanical and environmental stresses. This part of IEC 61730 pertains to the particular requirements of construction. IEC 61730-2 defines the requirements for testing. [Modules with modified construction shall be qualified as described in IEC TS 62915 “Module Retest Guidelines”](#)

This International Standard series lays down IEC requirements of terrestrial photovoltaic modules suitable for long-term operation in open-air climates [with 98th percentile operating temperatures of 70 °C or less. The actual lifetime expectancy of modules so qualified will depend on their design, their environment and the conditions under which they are operated. Test results should not be construed as a quantitative prediction of module lifetime.](#)

Section 2 Normative References

Add:

[IEC 60904-1-2, Photovoltaic devices – Part 1-2: Measurement of current-voltage characteristics of bifacial photovoltaic \(PV\) devices](#)

[IEC TS 62788-2-1: Measurement procedures for materials used in photovoltaic modules, Part 2: Polymeric materials – Frontsheets and backsheets, Part 1: Safety requirements for backsheets.](#)

[IEC 62930, Electric cables for photovoltaic systems with a voltage rating of 1,5 kV DC](#)

Remove:

EN 50618, Electric cables for Photovoltaic systems

Section 3 Terms

Add:

3.3.7

Reduced mechanical load

Describes modules where the test load is reduced in MST 34 from 2400 Pa to a value optimized for a particular site.

3.5.5.6

98th percentile operating temperature

When temperature data from a varying temperature process are placed into rank order, the 98th-percentile temperature represents a temperature that is larger than 98 percent of remaining temperatures and is exactly met or exceeded only 2 % of the time. For a standard year, the 98th-percentile temperature would be met or exceeded for 175,2 hours.

Section 5.1

Add at beginning:

This standard is suitable for modules operating at 98th percentile application temperatures of 70 °C or less. For applications with 98th-percentile temperatures >70C, refer to IEC TS 63126.

Section 5.2.2.1

Add the following to the bulleted list:

- For modules with reduced mechanical load: the range of positive and negative design loads will allow, preceded by the phrase “reduced mechanical design load” and followed by the phrase “May only be used in systems designed by a licensed professional engineer.”

Example: “Reduced mechanical design load ± 800 Pa. May only be used in systems designed by a licensed professional engineer.”

NOTE: The same module may be capable of multiple design loads based on mounting configuration.

Section 5.2.3

Add the following test after this bullet: “a statement indicating the minimum mechanical means for securing the PV module (as evaluated during the mechanical load test (MST 34))”

- For modules with **reduced mechanical load**, the documentation shall contain the following: “When PV modules are intended to be installed in an engineered scenario by qualified personnel such as in a commercial or utility scale application, they may be designed to meet a lower starting minimum test load of 1 200 Pa with a safety factor of 1,5: i.e. an 800 Pa design load for the down pressures (positive) and uplift pressures (negative). As an example, these modules may be used in interior or exterior rows where the module mounting and structure in combination are designed to meet a specific design load by the installer. Alternatively, modules having a higher minimum test load