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

**Qualification pour la sûreté de fonctionnement des modules photovoltaïques (PV) –
Partie 2: Exigences pour les essais**



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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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CONTENTS

FOREWORD.....	4
1 Scope and object.....	6
2 Normative references	7
3 Application classes.....	8
3.1 General.....	8
3.2 Class A: General access, hazardous voltage, hazardous power applications.....	8
3.3 Class B: Restricted access, hazardous voltage, hazardous power applications.....	8
3.4 Class C: Limited voltage, limited power applications.....	8
4 Test categories.....	8
4.1 General.....	8
4.2 Preconditioning tests.....	9
4.3 General inspection	9
4.4 Electrical shock hazard tests.....	9
4.5 Fire hazard tests	9
4.6 Mechanical stress tests	10
4.7 Component tests	10
5 Application classes and their necessary test procedures.....	10
6 Sampling.....	12
7 Test report.....	12
8 Testing.....	13
9 Pass criteria	16
10 Test procedures	16
10.1 Visual inspection MST 01	16
10.2 Accessibility test MST 11	16
10.3 Cut susceptibility test MST 12	17
10.4 Ground continuity test MST 13	20
10.5 Impulse voltage test MST 14	20
10.6 Dielectric withstand test MST 16	22
10.7 Temperature test MST 21	23
10.8 Fire test MST 23.....	25
10.9 Reverse current overload Test MST 26	25
10.10 Module breakage test MST 32	26
11 Component tests	31
11.1 Partial discharge-test MST 15	31
11.2 Conduit bending test MST 33	31
11.3 Terminal box knockout tests MST 44	33
Annex A (normative) Fire tests, spread-of-flame and burning-brand tests	34
Bibliography.....	40

Figure 1 – Test sequences.....	15
Figure 2 – Cut susceptibility test.....	19
Figure 3 – Wave-form of the impulse voltage according to IEC 60060-1.....	22
Figure 4 – Impactor.....	28
Figure 5 – Impact test frame 1.....	29
Figure 6 – Impact test frame 2.....	30
Figure 7 – Test fixture assembly.....	32
Figure A.1 – Test apparatus for fire test.....	35
Figure A.2 – Burning brand construction.....	38
Table 1 – Preconditioning tests.....	9
Table 2 – General inspection test.....	9
Table 3 – Electrical shock hazard tests.....	9
Table 4 – Fire hazard tests.....	10
Table 5 – Mechanical stress tests.....	10
Table 6 – Component tests.....	10
Table 7 – Required tests, depending on the application class.....	11
Table 8 – Impulse voltage versus maximum system voltage.....	21
Table 9 – Component temperature limits.....	24
Table 10 – Bending loads.....	32

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PHOTOVOLTAIC (PV) MODULE SAFETY QUALIFICATION –

Part 2: Requirements for testing

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This consolidated version of IEC 61730-2 consists of the first edition (2004) [documents 82/357/FDIS and 82/366/RVD] and its amendment 1 (2011) [documents 82/660/FDIS and 82/678/RVD]. It bears the edition number 1.1.

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience. A vertical line in the margin shows where the base publication has been modified by amendment 1. Additions and deletions are displayed in red, with deletions being struck through.

International Standard IEC 61730-2 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

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

IEC 61730 consists of the following parts, under the general title *Photovoltaic (PV) module safety qualification*:

Part 1: Requirements for construction

Part 2: Requirements for testing

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date the publication will be

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PHOTOVOLTAIC (PV) MODULE SAFETY QUALIFICATION –

Part 2: Requirements for testing

1 Scope and object

This part of IEC 61730 describes the testing requirements for photovoltaic (PV) modules in order to provide safe electrical and mechanical operation during their expected lifetime. Specific topics are provided to assess the prevention of electrical shock, fire hazards, and personal injury due to mechanical and environmental stresses. IEC 61730-1 pertains to the particular requirements of construction. This part of IEC 61730 outlines the requirements of testing.

This standard attempts to define the basic requirements for various application classes of photovoltaic modules, but it cannot be considered to encompass all national or regional building codes. The specific requirements for marine and vehicle applications are not covered. This standard is not applicable to modules with integrated AC inverters (p. C modules).

This standard is designed so that its test sequence can co-ordinate with those of IEC 61215 or IEC 61646, so that a single set of samples may be used to perform both the safety and performance evaluation of a photovoltaic module design.

The test-sequences of this standard are arranged in an optimal way so that tests of IEC 61215 or IEC 61646 can be used as basic preconditioning tests.

NOTE 1 The sequence of tests required in this standard may not test for all possible safety aspects associated with the use of PV modules in all possible applications. This standard utilizes the best sequence of tests available at the time of its writing. There are some issues, such as the potential danger of electric shock posed by a broken module in a high voltage system, that should be addressed by the systems design, location, restrictions on access and maintenance procedures.

The object of this document is to provide the testing sequence intended to verify the safety of PV modules whose construction has been assessed by IEC 61730-1. The test sequence and pass criteria are designed to detect the potential breakdown of internal and external components of PV modules that could result in fire, electric shock and personal injury. The standard defines the basic safety test requirements and additional tests that are a function of the module end-use applications.

Test categories include general inspection, electrical shock hazard, fire hazard, mechanical stress, and environmental stress.

NOTE 2 The additional testing requirements outlined in relevant ISO standards, or the national or local codes which govern the installation and use of these modules in their intended locations, should be considered in addition to the requirements contained within this document.