

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

**Modules photovoltaïques (PV) pour applications terrestres – Qualification de la
conception et homologation –
Partie 2: Procédures d'essai**



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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope and object.....	8
2 Normative references.....	8
3 Terms and definitions	9
4 Test procedures	10
4.1 Visual inspection (MQT 01)	10
4.1.1 Purpose	10
4.1.2 Procedure.....	10
4.1.3 Requirements	11
4.2 Maximum power determination (MQT 02).....	11
4.2.1 Purpose	11
4.2.2 Apparatus	11
4.2.3 Procedure.....	11
4.3 Insulation test (MQT 03).....	11
4.3.1 Purpose	11
4.3.2 Apparatus	12
4.3.3 Test conditions	12
4.3.4 Procedure.....	12
4.3.5 Test requirements	12
4.4 Measurement of temperature coefficients (MQT 04)	12
4.5 Measurement of nominal module operating temperature (NMOT) (MQT 05)	13
4.5.1 General	13
4.5.2 Principle	13
4.5.3 Test procedure.....	13
4.6 Performance at STC and NMOT (MQT 06).....	14
4.6.1 Purpose	14
4.6.2 Apparatus	14
4.6.3 Procedure.....	14
4.7 Performance at low irradiance (MQT 07).....	15
4.7.1 Purpose	15
4.7.2 Apparatus	15
4.7.3 Procedure.....	15
4.8 Outdoor exposure test (MQT 08)	15
4.8.1 Purpose	15
4.8.2 Apparatus	15
4.8.3 Procedure.....	16
4.8.4 Final measurements.....	16
4.8.5 Requirements	16
4.9 Hot-spot endurance test (MQT 09).....	16
4.9.1 Purpose	16
4.9.2 Hot-spot effect	16
4.9.3 Classification of cell interconnection	17
4.9.4 Apparatus	19
4.9.5 Procedure.....	19
4.9.6 Final measurements.....	27

4.9.7	Requirements	27
4.10	UV preconditioning test (MQT 10).....	27
4.10.1	Purpose	27
4.10.2	Apparatus	27
4.10.3	Procedure	28
4.10.4	Final measurements.....	28
4.10.5	Requirements	28
4.11	Thermal cycling test (MQT 11).....	28
4.11.1	Purpose	28
4.11.2	Apparatus	28
4.11.3	Procedure	29
4.11.4	Final measurements.....	29
4.11.5	Requirements	30
4.12	Humidity-freeze test (MQT 12).....	30
4.12.1	Purpose	30
4.12.2	Apparatus	30
4.12.3	Procedure	30
4.12.4	Final measurements.....	30
4.12.5	Requirements	30
4.13	Damp heat test (MQT 13).....	31
4.13.1	Purpose	31
4.13.2	Procedure	31
4.13.3	Final measurements.....	31
4.13.4	Requirements	31
4.14	Robustness of terminations (MQT 14).....	32
4.14.1	Purpose	32
4.14.2	Retention of junction box on mounting surface (MQT 14.1).....	32
4.14.3	Test of cord anchorage (MQT 14.2)	32
4.15	Wet leakage current test (MQT 15)	35
4.15.1	Purpose	35
4.15.2	Apparatus	35
4.15.3	Procedure	36
4.15.4	Requirements	36
4.16	Static mechanical load test (MQT 16)	36
4.16.1	Purpose	36
4.16.2	Apparatus	37
4.16.3	Procedure	37
4.16.4	Final measurements.....	37
4.16.5	Requirements	37
4.17	Hail test (MQT 17).....	38
4.17.1	Purpose	38
4.17.2	Apparatus	38
4.17.3	Procedure	39
4.17.4	Final measurements.....	39
4.17.5	Requirements	40
4.18	Bypass diode testing (MQT 18).....	40
4.18.1	Bypass diode thermal test (MQT 18.1).....	40
4.18.2	Bypass diode functionality test (MQT 18.2)	42
4.19	Stabilization (MQT 19).....	43

4.19.1	General	43
4.19.2	Criterion definition for stabilization.....	43
4.19.3	Light induced stabilization procedures	44
4.19.4	Other stabilization procedures	45
4.19.5	Initial stabilization (MQT 19.1)	45
4.19.6	Final stabilization (MQT 19.2).....	45
Figure 1	– Case S, series connection with optional bypass diode	17
Figure 2	– Case PS, parallel-series connection with optional bypass diode	18
Figure 3	– Case SP, series-parallel connection with optional bypass diode	18
Figure 4	– Module I-V characteristics with different cells totally shadowed	20
Figure 5	– Module I-V characteristics with the test cell shadowed at different levels	21
Figure 6	– Hot-spot effect in a MLI thin-film module with serially connected cells.....	22
Figure 7	– Module I-V characteristics with different cells totally shadowed where the module design includes bypass diodes	24
Figure 8	– Module I-V characteristics with the test cell shadowed at different levels where the module design includes bypass diodes	25
Figure 9	– Thermal cycling test – Temperature and applied current profile	29
Figure 10	– Humidity-freeze cycle – Temperature and humidity profile	31
Figure 11	– Typical arrangement for the cord anchorage pull test for component testing.....	34
Figure 12	– Typical arrangement for torsion test.....	34
Figure 13	– Hail-test equipment	38
Figure 14	– Hail test impact locations: top for wafer/cell based technologies, bottom for monolithic processed thin film technologies	40
Figure 15	– Bypass diode thermal test.....	41
Table 1	– Pull forces for cord anchorage test.....	33
Table 2	– Values for torsion test.....	33
Table 3	– Ice-ball masses and test velocities.....	39
Table 4	– Impact locations	39

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**TERRESTRIAL PHOTOVOLTAIC (PV) MODULES –
DESIGN QUALIFICATION AND TYPE APPROVAL –****Part 2: Test procedures****FOREWORD**

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

This first edition of IEC 61215-2 cancels and replaces the second edition of IEC 61215 (2005) and parts of the second edition of 61646 (2008) and constitutes a technical revision.

The main technical changes with regard to these previous editions are as follows:

This standard includes the testing procedures – formally Clause 10 – of the previous edition. Revisions were made to subclauses NMOT (replaces NOCT – MQT 05), performance measurements (MQT 06), robustness of terminations (MQT 14) and stabilization (MQT 19).

The text of this standard is based on the following documents:

FDIS	Report on voting
82/1048/FDIS	82/1076/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

A list of all parts in the IEC 61215 series, published under the general title *Terrestrial photovoltaic (PV) modules – Design qualification and type approval*, can be found on the IEC website.

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

The committee has decided that the contents of this publication 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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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 2: Test procedures

1 Scope and object

This International Standard series lays down IEC requirements for the design qualification and type approval of terrestrial photovoltaic modules suitable for long-term operation in general open-air climates, as defined in IEC 60721-2-1. This part of IEC 61215 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.

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 general open-air climates. 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, *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>)

IEC 60068-1, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-21, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60721-2-1, *Classification of environmental conditions – Part 2-1: Environmental conditions appearing in nature – Temperature and humidity*

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

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

IEC 60904-2, *Photovoltaic devices – Part 2: Requirements for photovoltaic reference devices*