UL 61215-2

STANDARD FOR SAFETY

Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval – Part 2: Test Procedures

UL Standard for Safety for Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval – Part 2: Test Procedures, UL 61215-2

Second Edition, Dated July 28, 2021

Summary of Topics

UL 61215-2 is an adoption of IEC 61215-2, Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval – Part 2: Test Procedures (Second Edition, issued February 2021). Please note that there are no National Differences.

The requirements are substantially in accordance with Proposal(s) on this subject dated May 21, 2021.

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Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval – Part 2: Test Procedures

First Edition – February, 2017

Second Edition

July 28, 2021

This ANSI/UL Standard for Safety consists of the Second Edition.

The most recent designation of ANSI/UL 61215-2 as an American National Standard (ANSI) occurred on July 7, 2021. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, or Preface. The IEC Foreword is also excluded from the ANSI approval of IEC-based standards.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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PREFACE

This UL Standard is based on IEC Publication IEC 61215-2: Second edition Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval – Part 2: Test Procedures. IEC publication IEC 61215-2 is copyrighted by the IEC.

This edition has been issued to satisfy UL Standards policy.

This is the UL Standard for Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval – Part 2: Test Procedures. UL 61215-2 is to be used in conjunction with the second edition of UL 61215-1.

Note – Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.

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FOREWORD

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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

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

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

a) Addition of cyclic (dynamic) mechanical load testing (MQT 20).

b) Addition of a test for detection of potential-induced degradation (MQT 21).

c) Addition of test methods required for bifacial PV modules.

d) Addition of test methods required for flexible modules. This includes the addition of the bending test (MQT 22).

e) Revision of simulator requirements to ensure uncertainty is both well-defined and minimized.

f) Correction to the hot spot endurance test, where the procedure for monolithically integrated (MLI) thin film technologies (MQT 09.2) previously included two sections describing a procedure only appropriate for silicon modules.

g) Selection of three diodes, rather than all, for testing in the bypass diode thermal test (MQT 18).

h) Removal of the nominal module operating test (NMOT), and associated test of performance at NMOT, from the IEC 61215 series.

Informative Annex A of IEC 61215-1:2021 explains the background and reasoning behind some of the more substantial changes that were made in the IEC 61215 series in progressing from edition 1 to edition 2.

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

FDIS	Report on voting
82/1829/FDIS	82/1853/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.

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

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.

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

• reconfirmed,

• withdrawn,

• replaced by a revised edition, or

• amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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.