UL 1703

STANDARD FOR SAFETY

Flat-Plate Photovoltaic Modules and Panels

UL Standard for Safety for Flat-Plate Photovoltaic Modules and Panels, UL 1703

Third Edition, Dated March 15, 2002

SUMMARY OF TOPICS

The revision of ANSI/UL 1703 dated November 25, 2019 New Fire Type Additions and Revisions to Existing Types in Fire Performance – PV Modules or Panels and Roofs, Section 16.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated September 20, 2019.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

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UL 1703

Standard for Flat-Plate Photovoltaic Modules and Panels

First Edition – August, 1986
Second Edition – May, 1993

Third Edition

March 15, 2002

This ANSI/UL Standard for Safety consists of the Third Edition including revisions through November 25, 2019.

The most recent designation of ANSI/UL 1703 as an American National Standard (ANSI) occurred on November 7, 2019. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

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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INTRODUCTION

1 Scope

1.1 These requirements cover flat-plate photovoltaic modules and panels intended for installation on or integral with buildings, or to be freestanding (that is, not attached to buildings), in accordance with the National Electrical Code, NFPA 70, and Model Building Codes.

1.2 These requirements cover modules and panels intended for use in systems with a maximum system voltage of 1500 V or less.

1.3 These requirements also cover components intended to provide electrical connection to and mounting facilities for flat-plate photovoltaic modules and panels.

1.4 These requirements do not cover:

a) Equipment intended to accept the electrical output from the array, such as power conditioning units (inverters) and batteries;

b) Any tracking mechanism;

c) Cell assemblies intended to operate under concentrated sunlight;

d) Optical concentrators; or

e) Combination photovoltaic-thermal modules or panels.

1.5 *Deleted*

2 Glossary

2.1 For the purpose of this standard, the following definitions apply.

2.2 AIR MASS (AM) – A dimensionless quantity, the ratio of:

a) The actual path length of radiation through the atmosphere to

b) The vertical path length of radiation through the atmosphere to sea level. At sea level, for all but very high zenith angles (θ_z) (the angle subtended by the zenith and the line of sight to the sun),

$$AM = \sec\theta_z$$

2.3 ARRAY – A mechanically-integrated assembly of modules or panels with a support structure and foundation, tracking, thermal control, and other components, if used, to form a dc power-producing unit.

2.3.1 BIFACIAL PV MODULE – A PV module that is constructed to allow illumination from the super and substrate to be transmitted to the PV cells that are capable of generating power from both front and back surfaces.

2.3.2 BIFACIALITY COEFFICIENT – The ratios between the main electrical characteristics of the rear side and the front side of a bifacial PV module, at Standard Test Conditions (STC) unless otherwise specified for short circuit current, open circuit voltage and maximum power point.

2.4 BLOCKING DIODE – A diode used to block reverse current into a photovoltaic-source circuit.