IEC TS 63392

Edition 1.0 2025-11

TECHNICAL SPECIFICATION

Fire test for concentrator PV modules

ICS 27.160

ISBN 978-2-8322-8656-2

IEC TS 63392:2025-11(en)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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IEC TS 63392 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems. It is a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
82/2132/DTS	82/2188/RVDTS

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

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

1 Scope

This document, which is a Technical Specification, specifies a test method for evaluating the basic fire behavior of modules used in concentrating systems with a maximum DC system voltage of 1 500 V or less. Since the concentrator module may be exposed to flames due to flying embers or fire may be caused by the module itself due to hot spots or arching (internal fire), the tests outlined in this document are conducted in these two modes.

Applicable fire testing may be required by local codes but are not covered in this document.

CPV system or CPV modules mounted in or on buildings, shall fulfil national building and construction codes, regulations, and requirements and are not covered by this Technical Specification. If national or local codes define fire test requirements, they should be followed. If such requirements are not available, the following international and national standards give information for tests, which could be used: ISO 5657, ENV 1187-1 to -4, ANSI/UL 790, EN 13501-1.

CPV modules that are constructed in the flat plate module format and operate at 3X and less geometric concentration ratio are considered for evaluation to IEC 61730-1, *Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction*.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60695-11-20, *Fire hazard testing - Part 11-20: Test flames - 500 W flame test method*

IEC 61140, *Protection against electric shock - Common aspects for installation and equipment*

IEC 61730-1, *Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction*

IEC 61730-2, *Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing*

IEC TS 61836, *Solar photovoltaic energy systems - Terms, definitions and symbols*

IEC 62108, *Concentrator photovoltaic (CPV) modules and assemblies – Design qualification and type approval*

ISO 834-1, *Fire-resistance tests - Elements of building construction - Part 1: General Requirements*

ISO TR 834-3, *Fire-resistance tests - Elements of building construction - Part 3: Commentary on test method and guide to the application of the outputs from the fire-resistance test*

ENV 1187-1 to -4, *Test methods for roof coverings under the influence of a thermal attack of burning brands and radiant heat*

ANSI/UL 790, *Standard Test Methods for Fire Tests of Roof Coverings*

EN 13501-1, *Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests*