

TECHNICAL SPECIFICATION

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Guidelines for qualifying PV modules, components and materials for operation
at high temperatures

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Guidelines for qualifying PV modules, components
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FOREWORD

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC TS 63126:2020. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC TS 63126 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems. It is a Technical Specification.

This second edition cancels and replaces the first edition published in 2020. This edition constitutes a technical revision.

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

- a) Updated the Introduction and Scope to clarify the applicability of this document.
- b) Defined "Level 0" as that qualified for in the IEC 61730 series and the IEC 61215 series.
- c) For the purposes of minimizing testing needs, it is explicitly stated if a test or sequence is passed for a higher Level that it passes for lower levels too.
- d) Backsheet weathering was changed to match what is in IEC 62788-2-1. For all three levels, the test condition is A3 with 4 000 h on the front side and 2 000 h on the back side.
- e) Frontsheet weathering was kept at 4 000 h under A4 or A5 exposure conditions but options for exposure using A3 for longer times or using A3 with a dark insulator on the back are described.
- f) The UV test of MST 54 is now only applied to the front side exposure in sequence B of IEC 61730. Previously, it was modified as part of IEC 61215 MQT 10 which is an equivalent exposure to MST 54.
- g) Modified the backsheet testing for longer duration for frontside exposure and for the use of A3 for all levels.
- h) For IEC 62788-7-1 for the optical transmittance of encapsulants, a longer exposure using the A3 condition is outlined in this document, but the original A4 and A5 options were not modified. A third option to insulate the backside with a dark light absorbing material to achieve elevated temperatures was also added.
- i) The higher thermal cycling (TC) testing for Level 1 and Level 2 will only apply to the 200 TC leg of IEC 61730 and IEC 61215.
- j) For sequence C of IEC 61730, the UV preconditioning test (MST 54) will no longer be modified as the 50 TC of this sequence is not modified.
- k) For sequence B of IEC 61730, the higher temperature for the UV exposure (MST 54) dose will only be applied to the frontsheet of a module. The backsheet exposure will not be changed.
- l) Relative to IEC 61215, the high temperature modification of the TC test only applies to sequence D and MQT 10 (UV preconditioning) is not modified, i.e. sequence C of IEC 61215 is not changed.
- m) Improved method for estimating the T_{98} temperature. This includes a method utilizing an effective standoff distance for quick estimate of the system temperature. Or it can be used to estimate a minimum standoff distance for a given geographic location.
- n) The testing for the junction box standard, IEC 62790 was clarified to explicitly state the upper ambient temperature for testing. Here ambient testing temperature for Level 2 was also reduced from 105 °C to 100 °C.
- o) Changed the modifications to IEC 62852 to specify the ambient testing temperature instead of the ULT. Ambient test temperatures of 85 °C, 90 °C and 100 °C are used for Level 0, 1, and 2, respectively.

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

Draft	Report on voting
82/2401/DTS	82/2472/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.

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