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BSI Standards Publication

# Photovoltaic modules — Bypass diode electrostatic discharge susceptibility testing

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# National foreword

This Published Document is the UK implementation of IEC/TS 62916:2017.

The UK participation in its preparation was entrusted to Technical Committee GEL/82, Photovoltaic Energy Systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

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# TECHNICAL SPECIFICATION

colour inside

## Photovoltaic modules – Bypass diode electrostatic discharge susceptibility testing

INTERNATIONAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# PHOTOVOLTAIC MODULES – BYPASS DIODE ELECTROSTATIC DISCHARGE SUSCEPTIBILITY TESTING

## FOREWORD

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62916, which is a technical specification, has been prepared by IEC technical committee 82: Solar photovoltaic systems.

The text of this technical specification is based on the following documents:

| Enquiry draft | Report on voting |
|---|---|
| 82/1059/DTS | 82/1259/RVDTS |

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

This document 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 website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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# PHOTOVOLTAIC MODULES – BYPASS DIODE ELECTROSTATIC DISCHARGE SUSCEPTIBILITY TESTING

## 1 Scope

This document describes a discrete component bypass diode electrostatic discharge (ESD) immunity test and data analysis method. The test method described subjects a bypass diode to a progressive ESD stress test and the analysis method provides a means for analyzing and extrapolating the resulting failures using the two-parameter Weibull distribution function.

It is the object of this document to establish a common and reproducible test method for determining diode surge voltage tolerance consistent with an ESD event during the manufacturing, packaging, transportation or installation processes of PV modules.

This document does not purport to address causes of electrostatic discharge or to establish pass or fail levels for bypass diode devices. It is the responsibility of the user to assess the ESD exposure level for their particular circumstances. The data generated by this procedure may support qualification of new design types, quality control for incoming material, and/or identify the need for additional ESD controls in the manufacturing process.

Finally, this document does not apply to large energy surge events such as direct or indirect lightning exposure, utility capacitor bank switching events, or the like.

## 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 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity* test

## 3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms and definitions of IEC TS 61836 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

**3.1**
**DUT**
device under test

**3.2**
**contact discharge method**
method of testing in which the electrode of the test generator is kept in contact with the DUT and the discharge is actuated by the discharge within the generator