

(PREVIEW)
Indian Standard
PHOTOVOLTAIC DEVICES

PART 9 SOLAR SIMULATOR PERFORMANCE REQUIREMENTS

1 Scope and object

IEC standards for photovoltaic devices require the use of specific classes of solar simulators deemed appropriate for specific tests. Solar simulators can be either used for performance measurements of PV devices or endurance irradiation tests. This part of IEC 60904 provides the definitions of and means for determining simulator classifications. In the case of PV performance measurements, using a solar simulator of high class does not eliminate the need to quantify the influence of the simulator on the measurement by making spectral mismatch corrections and analyzing the influences of uniformity of irradiance of the test plane and temporal stability on that measurement. Test reports for devices tested with the simulator shall list the class of simulator used for the measurement and the method used to quantify the simulator's effect on the results.

The purpose of this standard is to define classifications of solar simulators for use in indoor measurements of terrestrial photovoltaic devices, solar simulators are classified as A, B or C for each of the three categories based on criteria of spectral distribution match, irradiance non-uniformity on the test plane and temporal instability. This standard provides the required methodologies for determining the rating achieved by a solar simulator in each of the categories.

This standard is referred to by other IEC standards in which class requirements are laid down for the use of solar simulators. Solar simulators for irradiance exposure should at least fulfil class CCC requirements where the third letter is related to long term instability. In the case of use for PV performance measurements, classification C6A is demanded where the third letter is related to the short term instability.

2 Normative references

The following referenced documents are indispensable for the application 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 60904-3: *Photovoltaic devices - Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data*