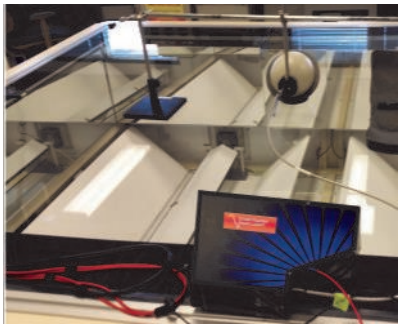
SPECTRAL EVOLUTION

Testing a Solar Simulator for Spectral Match

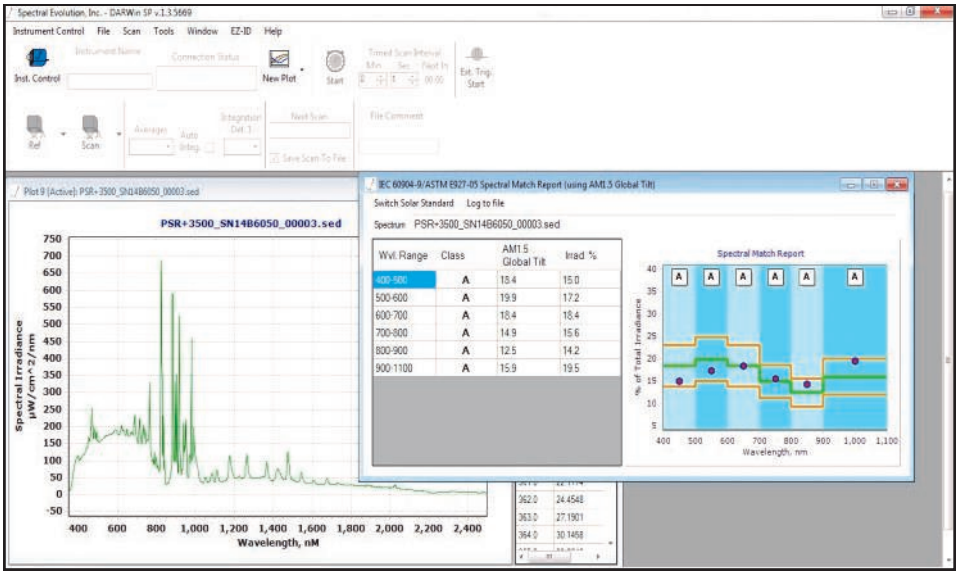
To ensure that solar cells, modules, and panels efficiently convert sunlight to electrical output, solar designers and manufacturers use solar simulators. Solar simulators can be continuous or pulsed—continuous provides steady illumination to mimic natural sunlight while pulsed simulators use a flash approach to accomplish the same thing in less time with less heat.

Solar simulators are classified as A, B, or C according to their ability to meet IEC and ASTM standards. These standards measure three essential characteristics: spectral match, spatial uniformity and temporal stability. A solar simulator meeting Class A specifications in all three categories is a Class A (sometimes called Class AAA) simulator.

Spectroradiometers from Spectral Evolution with NIST-traceable calibration like the PSR+, SR-3501 and SR-1901 can provide accurate classification for spectral matching of continuous solar simulators while the SR-1901PT can provide accurate classification for pulsed simulators.



Solar simulators are used to test PV cells, modules, and solar panels.



Spectral match odf a continuous solar simulator collected with a Spectral Evolution PSR+ spectroradiometer fitted with a right angle diffuser calibrated for irradiance. All our spectroradiometers include DARWin SP Data Acquisition software which has a built-in utility to generate spectral match reports per IEC Standard 60904-9/ ASTM E927-05. Pictured is a spectral match using AM1.5 global tilt. The DARWin spectral match utility can also perform spectral match to AM0 and AM1.5.

The SR-1901PT for classifying pulsed solar simulators.

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