



PRESS RELEASE

Four Spectral Evolution spectroradiometers to classify your continuous and pulsed solar simulators.

Test to ensure that your solar simulator is performing to its stated capability, so you can ensure your solar cell, module, or panel will perform appropriately.

Lawrence, MA – May 31, 2019 Solar simulators mimic solar radiation for the purpose of testing solar cells, modules and panels to determine their performance rating and ensure that they meet it. Solar simulators can be continuous or pulsed. Continuous simulators provide steady illumination for a longer period of time; pulsed apply a flash type illumination of shorter duration. Spectral Evolution has four spectroradiometers including the SR-3501 and SR-1901 to measure continuous simulators, and the SR-1901PT and SR-2501PT for pulsed simulators.

There are several factors affecting the amount of solar radiation in a natural setting: location, time of day, time of year, and more. These factors change the air mass that solar radiation passes through to reach the surface of the earth. Solar simulator use air mass filters to account for these factors. The filters are standardized as:

- AM0 – solar radiation in space
- AM1D – direct
- AM1G – global
- AM1.5D – direct at 48.2° zenith angle
- AM1.5G – global at 48.2° zenith angle
- AM2.0D – direct at 60.1° zenith angle

For most non-space applications, AM1.5G is considered the standard sun spectra. The standard is further defined by how close a match the simulator is to the sun's spectrum – Class A within $\pm 25\%$ of the ideal; Class B $\pm 40\%$, and Class C $+100/-60\%$. If there is no tolerance for spectral match provided by a solar simulator, it is considered a xenon lamp, not a solar simulator.

In addition to spectral match, our spectroradiometers measure for uniformity to ensure that the solar simulator is accurately illuminating a defined area. International standards specify the non-uniformity allowed for each class of solar simulator as well as the detector area, number and location of positions and standard measurement procedures. With a right angle diffuser calibrated for irradiance, our spectroradiometers can be used to measure the uniformity of either a continuous or pulsed solar simulator.

Our spectroradiometers can also provide accurate measurements for temporal stability – measuring the light output from the simulator over time.

Spectral Evolution spectroradiometers provide an accurate instrument for measuring both continuous and pulsed solar simulators. The SR-3501, SR-1901, SR-1901PT and SR-2501PT use our DARWin SP Data Acquisition software for spectral match to AM0 and AM1.5, DARWin includes pull-down menus for easy access to spectral match report capabilities. The DARWin software captures and shows actual irradiance for respective spectral ranges. Built-in software routines provide class status as a function of wavelength and generate a spectral match report.

The SR-3501 and SR-2501PT have a spectral range from 280-2500nm; the SR-1901 and SR-1901PT have spectral ranges from 280-1900nm.

These systems are:

- Ideal for measuring irradiance, spectral match and uniformity;
- High reliability, with no moving optics to breakdown;
- NIST traceable calibration;
- Weight less than three pounds;
- Available with fiber optic cable & diffuser in varying lengths for different applications;
- Autoexposure, autoranging and auto dark current shutter for easy, one-touch operation.

For more information on spectral match, visit:

<https://spectralevolution.com/applications/solar/test-and-classify-your-continuous-or-pulsed-solar-simulator/>

About Spectral Evolution

Established in 2004, Spectral Evolution is a leading manufacturer of laboratory and handheld portable spectrometers and spectroradiometers. Spectral Evolution spectrometers are used worldwide for many mission-critical lab, field and on-line process assignments due to their reliable, robust, rugged design and user-friendly one-touch features.

Spectral Evolution maintains a facility in Lawrence, Massachusetts which houses all operations including, design, prototyping, manufacturing and in-house repair facilities for the instruments that it markets and sells worldwide, either through direct sales, OEM sales or through distributor agents. Spectral Evolution also maintains state of the art spectral, spectral radiance and spectral irradiance calibration facilities for periodic calibration of equipment in the UV, VIS, NIR and SWIR wavelength regions.

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