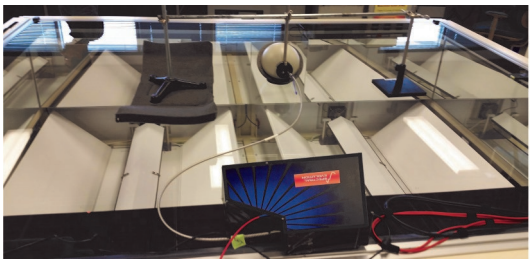
SPECTRAL EVOLUTION

Spectral Matching for Short and Long Pulsed Solar Simulators

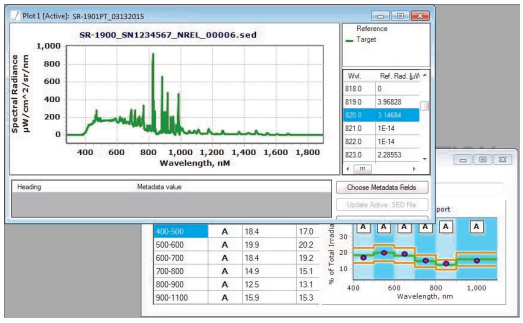
Solar module and panel manufacturers are required to deliver on promised performance and service guarantees. Uncertainty or error in power and performance ratings can have an impact on revenue and profit. To ensure that they are able to provide accurate ratings, solar manufacturers use solar simulators to test modules by reproducing outdoor operating conditions.



SR-1901PT set up on a Spire Sun Simulator test bench.

Solar simulators can be either continuous (steady-state) or pulsed (short or long pulse). Both types are classified according to international ASTM E927 and IEC 60904-091 standards. These standards define three classes of solar simulator (Class A, Class B and Class C) that meet acceptable tolerances for spectral match to sunlight, uniformity of the light source, and stability of the light source over time.

The SPECTRAL EVOLUTION SR-1901PT portable spectroradiometer provides an ideal system for classifying short and long pulse solar simulators for spectral match to AM0, AM 1.5 and AM1.5 global tilt. They are also used for uniformity and stability measurements.

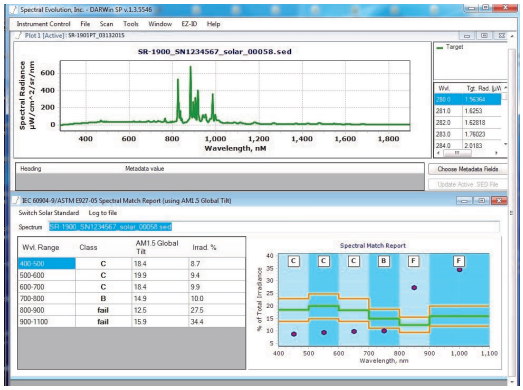


A spectral match screen in DARWin SP on the SR-1901PT showing a spectral match for a Class A solar simulator.

Unlike other spectroradiometers used for solar simulator classification, the SR-1901PT captures the full spectrum from 280-1900nm in a single flash with a 1 millisecond integration time. This allows for spectral matching for short and long pulse simulators in a fraction of the time it would normally take—done in seconds instead of hours.

Like all SPECTRAL EVOLUTION instruments, the SR-1901PT includes DARWin SP Data Acquisition software. From DARWin you can quickly access a spectral match report for your scan that shows class ratings for each of the wavelength bands.

The SR-1901PT includes NIST-traceable irradiance calibration, 1.2 meter dual fiber optic with a custom diffuser and built-in phototrigger, 100-240 volt/50-60hz power supply, and a dust-proof and waterproof foam lined Pelican shipping case.



A spectral match report from the SR-1901PT showing the classification of a low cost solar simulator.

The SR-1901PT is easy to set-up and use and features:

- 512 element UV-enhanced silicon photodiode array
- 256 TE-cooled extended InGaAs photodiode array
- Adjustable integration and scan averaging time
- Internal phototrigger with SMA-905 port
- 0-100 millisecond trigger delay increment
- External TTL triggering input port ≤5 µsec trigger jitter
- Photodetector jitter ≤100 nsec
- Spectral match to AM0 and AM1.5
- DARWin SP Data Acquisition software with spectral match—saves all spectral data as ASCII files

26 Parkridge Road ◊ Suite 104
Haverhill, MA 01835 USA
Tel: 978 687-1833 ◊ Fax: 978 945-0372
Email: sales@spectralevolution.com
www.spectralevolution.com