SpectralLED® RS-7-4 Tunable Light Source – Wafer Probe Illuminator

The SpectralLED® Wafer Probe Illuminator is an all solid- state, drop-in replacement for field-deployed wafer-level CCD and CMOS sensor testers. The system is fully turnkey, and can readily be adapted to test head manipulators and handler instrumentation.

The SpectralLED® Tunable Light Source incorporates up to 35 discrete wavelengths for synthesis of commercially available light sources or based on spectra that you import. The platform is easily adaptable for automated test systems and production line integration, with integrated optical feedback and temperature control to ensure rock-solid stability and consistent results.

Unprecedented Resolution and Accuracy
For Camera & Image Sensor Calibration

- All Solid-State Design for Rapid Start-up, Repeatable Performance and Maximum Up-time

- Wavelength Options From the UVA to the Near Infrared

- Quickly Simulate any CIE Illuminant or Macbeth™ / X- RITE™ Color Patch

- Built-in RMS Spectral Fitting for Simulation of User Imported Spectra

- Constant Current Drivers & Built-in Optical Feedback Ensure Accurate & Flicker-free Output in Real Time

- ISO/IEC 17025 Accredited by NVLAP (NVLAP lab code 200823-0) for Calibration Accuracy

System Compatibility
✓ Agilent
✓ Teradyne
✓ National Instruments
✓ Yokogawa
✓ Advantest
✓ Cascade Microtech

SpectralLED® Tunable Light Source LED Spectral Power Distribution
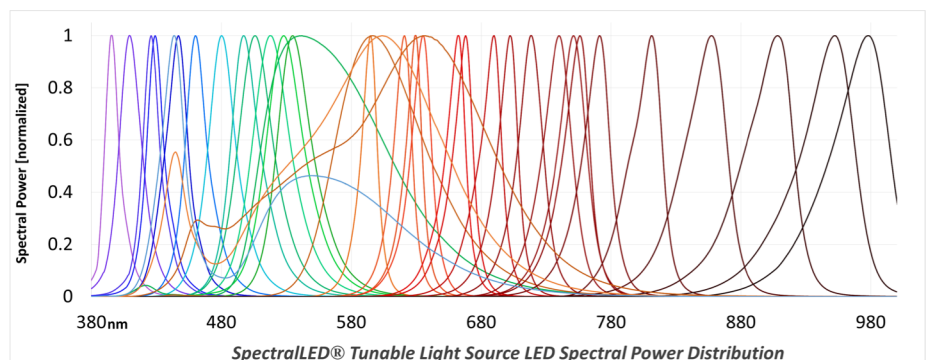
Measurement Applications

- White Balance
- Quantum Efficiency
- Spatial Non-uniformity
- Pixel Defects
- Crosstalk
- Vignetting Correction
- Sensitivity
- Responsivity
- Signal to noise
- Linearity
- ISO Speed
- Saturation Exposure
- Dynamic range

Gamma Scientific is ISO/IEC 17025 accredited by NVLAP (NVLAP lab code 200823-0) and performs LM-79 / LM-80 LED testing.

Optical Specifications	
Spectral Range	380 nm to 1,000 nm (Custom ranges available on request)
Spectral Output	32 discrete LED channels, 3 broadband LED Channels Visible resolution ~ 15 nm, NIR resolution ~ 50 nm (typical channel spacing)
Spectral Peaks	395nm, 405nm, 420nm, 430nm, 450nm, 460nm, 475nm, 495nm, 505nm, 520nm, 525nm, 535nm, 570nm, 595nm, 610nm, 620nm, 630nm, 637nm, 660nm, 675nm, 685nm, 700nm, 715nm, 730nm, 750nm, 760nm, 780nm, 805nm, 850nm, 895nm, 940nm, 965nm 2,700K Warm White, 3,000K Warm White, 6,500K Cool White (Custom configurations available)
Spectral Bandwidth	Typical: Visible 20nm FWHM, NIR 50nm FWHM
CCT Range	1,900K to 40,000K
Preset Spectra	CIE Illuminants A, B, C, D50, D55, D65, D75, E, F1-F12, Macbeth™ / X-Rite™ Color Patches
Custom Preset Spectra	Configurable at time of order via API. Contact factory for details

Accuracy Specifications	
Illumination Stability	≥ 99.99% after 50 ms for radiance or after 2,000 ms for color
Illumination Accuracy	± 1% Absolute, NIST traceable
Spectral Accuracy	± 1 nm centroid wavelength
Color Accuracy	CIE 1931 x, y ± 0.003
Linearity	< 0.1 % RMS of full scale
Temperature Stability	Within ± 1° C via active TEC
Long-term Drift	Output ≤ 2% Spectral ≤ 1 nm (channel dependent)

Electrical Specifications	
Electrical Resolution	16 bit DAC for channel current drivers 24 bit ADC for internal radiance monitor feedback
Dynamic Range Adjustment	4-5 decades typical (spectrum dependent)
LED Control	Pure DC constant current with floating differential sensing

General Specifications	
Software	Firmware includes full spectral calibration with spectral fitting, preset storage, real-time optical feedback, radiometric and photometric units supported
Interface Connectors	USB 2.0 type B and DB-9
Interface Protocol	Simple ASCII commands with optional binary block transfer
Supported Operating Systems	USB drivers for Windows, OSX and Linux via FTDI virtual COM port Legacy RS-232 serial port for integration (no OS required)
Input Voltage and Power	110 to 240 VAC at 50-60Hz, 600W maximum
Dimensions	Please contact factory for details

Optional Upgrades	
RS-7 Wavemon	Multi-channel photodiode system provides amplitude feedback & real-time wavelength measurements

Specifications are subject to change without notice.

Rev 6.18.1

CE