DCP LED Test Station

https://www.gigahertz-optik.com/en-us/product/dcp-led-test-station/

Product tags: UV

Description

Peculiarity when measuring UVC LEDs

A peculiarity of quasi monochromatic LED radiation must be considered when designing integrating sphere spectroradiometers for UV LEDs. The monochromatic UV radiation of the LED causes fluorescence of the integrating sphere coating which leads to significant measurement errors that cannot be compensated by conventional correction methods. This system is based on the know-how of our fluorescence-free TVUV10 UV LED measurement system.

See also our technical article Fluorescence-free radiant flux measurement of UV LEDs.

DCP Test Station complete system with spectroradiometer and SMU

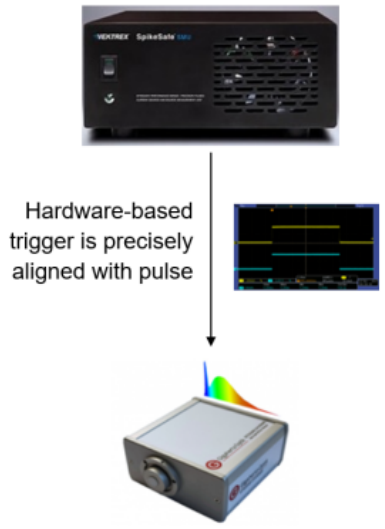
DCP Method Requirements and Solution

For accurate measurements with the DCP method (IES LM-92-22 and ongoing work in CIE TC2-91) two requirements need to be met:

- A fast (µs range) spectroradiometer which is optimized for UV measurements
- A fast (µs pulses) SMU

If this is not ensured the measurement uncertainty raises since temperature effects or jitter produce larger errors.

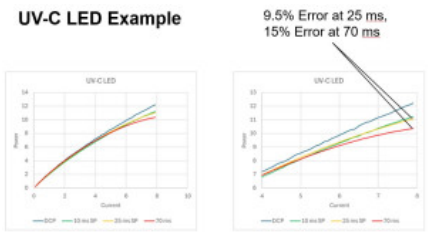
Together with Vektrex™ we set-up a UV LED Test station for accurate and fast DCP method measurements. The current is sweeped automatically within the desired range and the full scan can be done within seconds to minutes. Either run with a Python script or in the S-BTS2048 application software.



Vektrex ™ Spike Save and BTS2048, a powerful combination

Integrating sphere for radiant flux measurement

A standard configuration of the spectroradiometer's entrance optic for total radiant flux measurement is a 100 mm diameter integrating sphere with an input aperture of 25.4 mm diameter. However, other designs are of course possible due to the design options of our integration sphere construction kit.



DCP Method (IES LM-92-22) Example Measurement of a UV LED

High resolution spectroradiometer

The BTS2048-UV is part of the BTS2048 Series that has proven itself in a wide variety of demanding applications ranging from high-speed LED binning to NMI grade measurements. Such applications require the highest precision as well as reliability for continuous use. The spectroradiometer that is attached directly to the integrating sphere without using a light guide offers a spectral range from 250 nm to 430 nm with a spectral

resolution of 1 nm. Remote-controlled optical filters increase the dynamic range. The pixels of the temperature-stabilized CCD can be synchronously set to zero. This feature offers the possibility to measure single pulses within a pulse chain. Of course other spectral ranges e.g. including the VIS are possible as well.

Stray light and dark signals

Stray light and dark level offsets have a significant influence on the measurement results of UV spectroradiometers employing CCD or CMOS array sensors.

- Stray light incorrectly illuminates pixels thereby producing measurement signals that do not result from the desired wavelength. If stray light is not suitably suppressed, it becomes impossible to separate the LED's real spectrum from stray light effects. The BTS2048-UV spectroradiometers offer innovative stray light suppression through integrated light traps and optical filters.
- The influence of dark signals results from varying operating temperatures of the measuring instrument and adapted integration times for specific irradiance levels. The dark signal shutter of the BTS2048-UV spectroradiometer is used to measure the dark signal which is used for the dark signal correction of future measurements.

Factory calibrations and ISO/IEC/EN 17025 testing measurements

The measurement laboratory of Gigahertz-Optik offers high quality and traceability of their DCP-UV-LM92 factory calibrations. Factory calibrations are handled in **Gigahertz-Optik's calibration laboratory** using the same quality management procedure which applies to NMI accredited test measurements. NMI accredited testing measurements with an ISO/IEC/EN 17025 testing certificate are optionally available.

Specifications

General	
Short description	Measurement system for spectral radiant power of UV LEDs in a wavelength range from 250 nm to 430 nm. Complete measuring system with integrating sphere, spectroradiometer BTS2048-UV, software and calibration.
Main features	High quality spectroradiometer of the BTS2048 series with high sensitivity and high spectral resolution as well as a fast data processing rate. 150 mm diameter integrating sphere, UV pre-aged for long-term stability and lowest aptitude to emit fluorescence when excited by UV radiation.
Measurement ranges	Spectral range from 250 nm to 430 nm. Spectral resolution 1 nm.
Typical applications	UV LED manufacturers, UV LED luminaire manufacturers. Research institutes in the fields of semiconductors and with deep UV applcations. Metrologic institutes with demand for testing setups.
Calibration	Calibration of spectral radiant power sensitivity from 250 nm to 430 nm with detailed factory certificate including retraceability. Optional ISO/IEC/EN 17025 testing certificate of the NMI accredited test laboratory.
Spectral Detector	
Spectral range	(250 - 430) nm

Integration Time	2 µs - 60 s
Optical Bandwidth	1 nm
Number of pixels	2048
Chip	highly sensitive back-thinned CCD chip, single-stage cooling (1TEC)
General	see all detailed specifications on the product page of BTS2048-UV
Integrating Spheres	
Coating	Barium Sulfate or ODM, both available.
Diameter	150 mm
Integrating sphere	2Pi with auxiliary lamp, port for BTS2048-XX, purging connectors.

Downloads

Type	Description	File-Type	Download
UMPF-1.0-HL Portframe	Technical drawing of UMPF-1.0-HL Portframe		
TFUV10-V01	Technical Drawing of TFUV10-V01	pdf	https://www.gigahertz-optik.com/assets/Uploads/TFUV10-V2.pdf

Purchasing information

Article-Nr	Modell	Description
Product		
15318294	DCP-UV-LM92	Measuring system consisting of DCP-UV-LM92-ISD integrating sphere, BTS2048-UV spectroradiometer and further accessories. Including system calibration from 250 nm to 430 nm. Calibration certificate.
15318302	DCP-XX-Z12	TEC cooler for laser diodes high power LEDs. Including adapter plate for mounting to integrating sphere as well as mounting brackets.
15318307	DCP-XX-Z30	Vektrex SpikeSafe Source Measure Unit PSMU-PRF-4-50us.
Re-calibration		
15318315	K-DCPUV-PhiC-S	System calibration from 250 nm to 430 nm. Calibration certificate.

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We are known worldwide for excellent technical consulting and after sales support. Contact us to find together the best solution for you. Our services:

- Technical Consulting & Sales
- After-Sales Support
- Calibrations & Re-Calibrations (ISO/IEC 17025 Calibration Services, factory calibration, Calibration of Third-Party Products)
- Repairs & Updates
- OEM & Feasibility Consulting of Customized Solutions

Send us your inquiry or contact us by phone or e-mail. We would welcome your feedback too or review us on Google.

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