

ACS 585

LED Luminance Standard

Key features at a glance

- ▲ Reference values for luminance
- ▲ Specification of color coordinates and color temperature
- ▲ Supports testing of all luminance meters on both filter and spectroradiometric basis



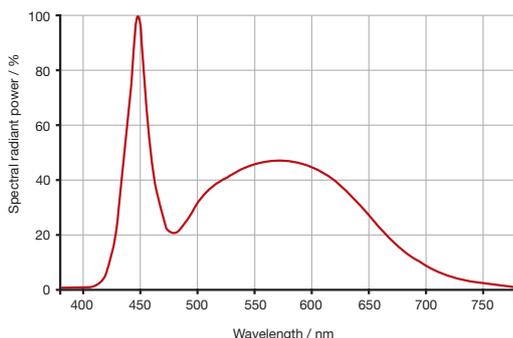
The ACS 585 LED luminance standard from Instrument Systems GmbH is a highly stable light source based on LED technology. Its light is homogenized by an integrating sphere. The ACS 585 is used to verify absolute measuring accuracy of the luminance meters. Instrument Systems provides accredited testing service for luminance.

\\ MODE OF OPERATION

The high-power LED inside the ACS 585 is actively temperature-stabilized by a TEC element. The generated heat is transferred to the surroundings by an integrated electrical fan. The ACS 585 luminance standard is usually operated at a current of 250 mA and the temperature is regulated to 35 °C. Specially developed software is used for the control.

The radiation of the high-power LED at a stabilized temperature is incorporated into an integrating sphere with an inner diameter of 100 mm. The inner layer of the integrating sphere homogenizes the radiation and emits through an opening of 25 mm in diameter.

The reference values, the spectrum, and the relevant operating parameters are stored in the ACS 585. In addition, the expired operation time is tracked and logged in the device.



▲ The spectrum of the ACS 585.

\\ PSU 10 & TEC CONTROLLER

The ACS 585 is operated with the PSU 10 power supply unit and TEC controller. The PSU 10 control unit provides two functionalities for controlling the LED luminance standard ACS 585.

Firstly, the PSU 10 includes a power source which supplies a steady LED current of 250 mA to ensure constant optical radiant power. In addition, this module supplies power to the fan built into the ACS 585.

Secondly, the TEC controller ensures that the LED temperature is kept constant at 35 °C. The PSU 10 is connected to a computer with an USB link and controlled via the PSU-ACS control software. The Windows 7/10 operating systems are supported. The corresponding program libraries are available for the Windows and OS X operating systems (.dll and .dylib) for direct control.



▲ PSU 10 power supply unit.

\\ TECHNICAL SPECIFICATIONS

ACS 585 LED-luminance standard	
Diameter of the light emitting aperture	25 mm
Luminance ¹	Typically 400-660 cd/m ²
Temporal stability of luminance	Within $\pm 0.1\%$ in 12 h and within 0.5% in 100 h
Temporal stability of color coordinates	Within ± 0.0002 in 12 h and within 0.0005 in 100 h in x and y
Spatial uniformity ²	< $\pm 0.05\%$ deviation from photometric average value in reference to the center
Correlated color temperature (CCT)	Typically 5000-6000 K
Turn-on stabilization time	< 200 s
Recommended recalibration interval	100 h
Sensitivity to ambient temperature variation (luminance)	Typically < 0.15% / 10 K
Sensitivity to ambient temperature variation (color coordinates x,y)	Typically < 0.0001 / 10 K

¹ Exact value determined with DTS 140 with following uncertainties: luminance: $\pm 3.5\%$; color coordinates: ± 0.0015 ; CCT ± 10 K

² Determined with LumiTop 2700, distance 50 cm, FOV 15 mm, max. translation from center ± 4 mm

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\\ ORDERING INFORMATION

Order number	Description
ACS-585-1	Cold white high-power LED luminance standard; integrating sphere with 25 mm measurement port
Power sources and temperature controllers	
PSU10-100	Combined power supply (0-18 V, 0-1000 mA) and TEC controller (± 19 V, ± 10 A) for LED calibration standards; incl. connector cables and control software for Windows
Determination of reference values	
CAL-580	Accredited test of luminance with additional information on x,y color coordinates and CCT