

CLS 570-IR Series

Collimated IR LED Calibration Standards

Key features at a glance

- ▲ Reference value for radiant flux in infrared (IR) region
- ▲ Collimation unit for coupling into restricted areas
- ▲ Small beam angle
- ▲ Available for typical peak wavelengths 950 and 1450 nm
- ▲ Used with ACU control unit



The collimated IR LED Calibration Standards of CLS 570 series from Instrument Systems GmbH are compact and highly stable infrared sources based on LED technology. The light source is connected via optical fiber, making it suitable for applications with restricted space. They are available in two versions with typical peak wavelengths of 950 nm (ACS 570-17) and 1450 nm (ACS 570-46). As a service, Instrument Systems provides traceable reference values for radiant flux.

\\ CLS COLLIMATED IR LIGHT SOURCE

The infrared LEDs (ACS-570-x) inside the CLS 570 IR series are actively temperature-stabilized by a TEC element. The generated heat is transferred to the surroundings by a heat sink and an integrated electrical fan. A constant operating temperature ensures stable and reproducible radiant power of the LED. The IR LED Calibration Standard is operated at a current of 250 mA or 1 A and the temperature is regulated to 35 °C.

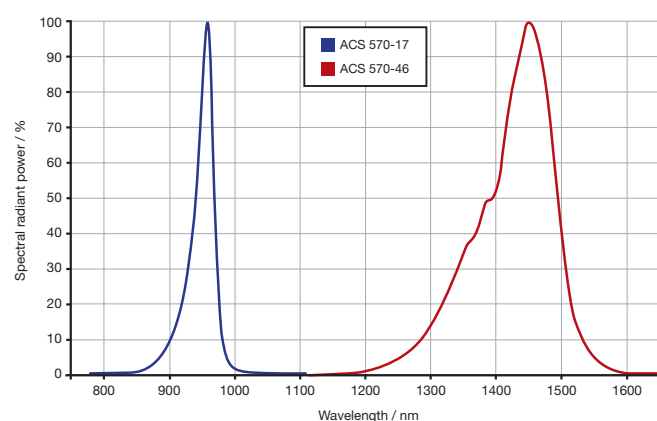
The collimation unit collects the light of the ACS to a beam angle of approx. $\pm 5^\circ$. With a 3 m long fibre it can be coupled into the system (i.e. an integrating sphere) in order to perform the audit of this system.

The coupling optics collects the IR emission of the ACS onto the fibre of 3 m length which guides the IR emission towards the collimation optics. The collimation optics emit IR light in a beam angle of approx. $\pm 5^\circ$ and can be connected to the measurement system (i.e. an integrating sphere) in order to perform the audit of this system.

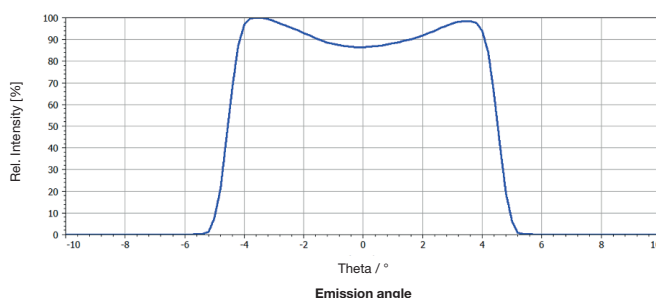
Instrument Systems ISO 17025 accredited test laboratories provide reference values for radiant flux (registration number D-PL-19052-01-00). All reference values, the spectrum, and all relevant operating parameters are stored inside the ACS 570. In addition, the expired operation time is tracked and logged in the device.

\\ RADIATION CHARACTERISTICS

The CLS-570-XX emits radiation in a narrow angle. Due to the collimation optics the emission characteristic does not change with changing distances, except for intensity.



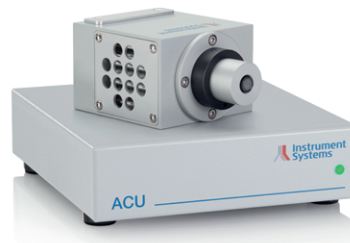
▲
Typical spectral curves for IR LED calibration standards.



\\ ACU CONTROL UNIT

The ACU is a new compact control unit for ACS calibration standards from Instrument Systems. It contains a high-precision constant current source in a compact desktop housing in addition to a TEC controller for accurate temperature stabilization.

The ACU has been developed for both laboratory and production use. The ACU is controlled by means of a computer via USB using the ACS Control software. Both, Windows 10 and OS X operating systems are supported.



ACU 100 control unit

Moreover, the relevant program libraries (.dll and .dylib) are available for direct access for both operating systems Windows and OS X.

\\ TECHNICAL SPECIFICATIONS

Collimated IR LED Calibration Standards	CLS-570-17	CLS-570-46
Typical radiant flux [mW]	5.25 – 6.5	1.75 – 2.5
Typical peak wavelength	950 nm	1450 nm
Typical full width at half maximum	30 nm	95 nm
Operating current and accuracy	250 mA ± 0.1 mA	1000 mA ± 0.1 mA
Operating temperature at control point and accuracy	35 °C ± 0.05 °C	
Temporal stability of radiant flux	< 0.2 % / 12 h and 0.5 % / 100 h	
Temperature dependency of radiant flux	< 0.25 % / 10 K	
Turn-on stabilization time	< 240 s	
Recommended recalibration interval	After 100 operating hours or one year after last calibration	
Connections	D-sub, 25-pin (ACS 570 to ACU 100); USB (ACU 100 to PC)	

Instrument Systems is continually working to develop and improve its products. Technical changes, errors or misprints do not constitute grounds for compensation. The company's terms of delivery and payment apply in all other respects.

\\ ORDERING INFORMATION

Order number	Description	
Collimated IR LED Calibration Standards		
CLS-570-17	ACS-570-17	LED calibration standard, 950 nm
	ACS-26973	Optics for collimation of ACS-570-17
CLS-570-46	ACS-570-46	ACS calibration standard, 1450 nm
	ACS-570-27658	Optics for collimation of ACS-570-46
Control unit		
ACU-100	Combined control unit for the operation of LED calibration standards of ACS-series; incl. connector cables and control software	
Determination of reference values		
CAL-517	Factory calibration of radiant flux of IR-LED calibration standards ACS 570-15/17 in an integrating sphere; with test certificate	