

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-20284-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 26.11.2020

Date of issue: 26.11.2020

Holder of certificate:

**Opsytec Dr. Gröbel GmbH
Am Hardtwald 6 - 8
76275 Ettlingen**

Calibration in the fields:

Optical quantities
– **Radiometry**

The calibration laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use calibration standards or equivalent calibration procedures listed here with different issue dates.

The calibration laboratory maintains a current list of all calibration standards / equivalent calibration procedures within the flexible scope of accreditation.

The management system requirements in DIN EN ISO/IEC 17025 are written in language relevant to operations of calibration laboratories and operate generally in accordance with the principles of DIN EN ISO 9001.

*The certificate together with its annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH.
<https://www.dakks.de/en/content/accredited-bodies-dakks>*

Abbreviations used: see last page

This document is a translation. The definitive version is the original German annex to the accreditation certificate.

Annex to the accreditation certificate D-K-20284-01-00

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement ¹⁾	Remarks
Irradiance / broad-band radiometer with display	200 nm to 240 nm 100 µW/cm ² to 1 W/cm ²	ASTM G130-12:2020, ASTM E824-10:2018	7,5 %	The calibration of radiometers is limited to the specific application of the customer and is valid only for the geometric and radiometric conditions during the calibration (e.g. the linearity, the cosine correction and the spectral mismatch to the corresponding actinic action spectrum of the detector). When deviations from the calibration conditions occur, the measurement uncertainty must be increased.
	240 nm to 280 nm 100 µW/cm ² to 5 W/cm ²		5,4 %	
	280 nm to 400 nm 100 µW/cm ² to 10 W/cm ²		4,6 %	
	400 nm to 1000 nm 100 µW/cm ² to 10 W/cm ²		4,5 %	

Abbreviations used:

ASTM ASTM American Standard for Testing and Materials
CMC Calibration and measurement capabilities

¹⁾ The expanded uncertainties according to EA-4/02 M:2013 are part of CMC and are the best measurement uncertainties within accreditation. They have a coverage probability of approximately 95 % and have a coverage factor of $k = 2$ unless stated otherwise. Uncertainties without unit are relative uncertainties referring to the measurement value unless stated otherwise.