

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-18752-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 05.08.2020

Date of issue: 05.08.2020

Holder of certificate:

Hellma GmbH & Co. KG
Klosterrunsstraße 5, 79379 Müllheim

Calibration in the fields:

High frequency and radiation quantities
Optical quantities
– **Radiometry**

Abbreviations used: see last page

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Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement ¹⁾	Remarks
Wavelength	190 nm to 890 nm	spectrophotometry	0.20 nm	
Optical density in transmission (absorbance)	0 to < 0.35		0.0024	Measurement uncertainty in the unit of optical density. The optical density has a unit with dimension 1 and is equivalent to the unit Abs. Definition of optical density according to DIN 5036-1:1978-07.
	0.35 to < 0.55		0.0028	
	0.55 to < 1.05		0.0034	
	1.05 to < 1.55		0.0068	
	1.55 to < 2.05		0.0079	
	2.05 to < 2.55		0.012	
	2.55 to < 3.10		0.022	

Abbreviations used:

CMC Calibration and measurement capabilities
DIN Deutsches Institut für Normung e.V.

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.