Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-20448-01-00 according to ISO/IEC 17025:2017

Period of validity: 26.02.2021 to 14.06.2022

Date of issue: 26.02.2021

Holder of certificate:

Laboratory of National Standards of Center for Standardization and Metrology under the Ministry of Economy of the Kyrgyz Republic
197, Panfilov street, Bishkek, 720040, Kyrgyz Republic

Calibrations in the fields:

Mechanical quantities
- **Mass (mass standards)**
- **Pressure**
- **Weighing instruments** [a)]

Chemical and medical quantities
Chemical analysis, reference materials
- **Volume of liquids**

Thermodynamic quantities
Temperature quantities
- **Resistance thermometers**
- **Liquid in glass thermometers**
- **Thermocouples**
- **Direct reading thermometers**

Humidity quantities
- **Devices for relative humidity**

[a)] only on-site calibration

Within the measurands/calibration items marked with [*)] , 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 of ISO/IEC 17025 are written in language relevant to operations of calibration laboratories. Laboratories that conform to the requirements of this standard, operate generally in accordance with the principles of DIN EN ISO 9001.

The certificate together with the annex reflects the status as indicated by the date of issue.
The current status of any given scope of accreditation may be found respectively in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH https://www.dakks.de/en/content/accredited-bodies-dakks

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement [1)]	Remarks
Mass standard Conventional Mass [*)]	1 mg, 2 mg, 5 mg 10 mg, 20 mg	OIML R 111-1: 2004	0.003 mg	For weight pieces according to OIML recommendation R 111-1:2004, Class E_2
	50 mg		0.004 mg	
	100 mg		0.005 mg	
	200 mg		0.006 mg	
	500 mg		0.008 mg	
	1 g		0.010 mg	
	2 g		0.012 mg	
	5 g		0.016 mg	
	10 g		0.020 mg	
	20 g		0.025 mg	
	50 g		0.03 mg	
	100 g		0.05 mg	
	200 g		0.10mg	
	500 g		0.25mg	
	1 kg		0.5 mg	
	2 kg		3.0 mg	For weight pieces according to OIML recommendation R 111-1:2004, Class F_1
	5 kg		8.0 mg	
	10 kg		16 mg	
	20 kg		30 mg	
Conventional Mass [*)]	> 1 mg to 20 mg		0.003 mg	For free nominal values
	> 20 mg to 50 mg		0.004 mg	
	> 50 mg to 100 mg		0.005 mg	
	> 100 mg to 200 mg		0.006 mg	
	> 200 mg to 500 mg		0.008 mg	
	> 500 mg to 1 g		0.010 mg	
	> 1 g to 2 g		0.012 mg	
	> 2 g to 5 g		0.016 mg	
	> 5 g to 10 g		0.020 mg	
	> 10 g to 20 g		0.025 mg	
	> 20 g to 50 g		0.03 mg	
	> 50 g to 100 g		0.05 mg	
	> 100 g to 200 g		0.10 mg	
	> 200 g to 500 g		0.25 mg	
	> 500 g to 1 kg		0.5 mg	
	> 1 kg to 2 kg		3.0 mg	
	> 2 kg to 5 kg		8.0 mg	
	> 5 kg to 10 kg		16 mg	
	> 10 kg to 20 kg		30 mg	

[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.

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement [1)]	Remarks
Temperature quantities Resistance thermometers	5 °C to 50 °C	PC 02/13:2016-02, DKD-R 5-1:2018	15 mK	Water bath
	> 50 °C to 80 °C		30 mK	
	50 °C to 150 °C		20 mK	Oil bath
	> 150 °C to 250 °C		35 mK	
	-50 °C to -20 °C		30 mK	Low temperature bath
	> -20 °C to 0 °C		15 mK	
	> 0 °C to 50 °C		15 mK	
	0 °C		10 mK	Dewar vessel
	50 °C to 220 °C		0.25 K	Dry-block-calibrator
	> 220 °C to 660 °C		0.5 K	
Direct reading thermometers with resistance sensor	5 °C to 50 °C	PC 02/14:2016-02, Out-mode	15 mK	Water bath
	> 50 °C to 80 °C		30 mK	
	50 °C to 150 °C		25 mK	Oil bath
	> 150 °C to 250 °C		35 mK	
	-50 °C to -20 °C		30 mK	Low temperature bath
	> -20 °C to 0 °C		15 mK	
	> 0 °C to 50 °C		15 mK	
	0 °C		10 mK	Dewar vessel
	> 5 °C to 35 °C		0.1 K	Temperature/humidity generator
	> 35 °C to 70 °C		0.1 K	
	5 °C to 70 °C	PC 02/14:2016-02, In-mode	0.2 K	Climatic chamber
Liquid-in-glass thermometers	5 °C to 50 °C	PC 02/11:2016-02, PTB testing instructions “Liquid-in-glass thermometers, 1999	20 mK	Water bath
	> 50 °C to 80 °C		50 mK	
	50 °C to 150 °C		40 mK	Oil bath
	> 150 °C to 250 °C		70 mK	
	-50 °C to -35 °C		0.10 K	Low temperature bath
	> -35 °C to -20 °C		55 mK	
	> -20 °C to 0 °C		30 mK	
	> 0 °C to 50 °C		20 mK	
	0 °C		10 mK	Dewar vessel
Thermocouples, also direct reading	300 °C to 660 °C	PC 02/12:2016-03, EURAMET cg-8, Version 2.1	0.5 K	Furnace
	> 660 °C to 1100 °C		0.7 K	

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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
Humidity quantities Direct reading hygrometers for relative humidity, except psychrometers	15 % to 90 %	Temperature 20 °C PC 02/21:2017-03	1.5 %	Climatic chamber Measurement uncertainty is an absolute value of the relative humidity
Pressure Negative and positive Gauge pressure p_e *)	-0.8 bar to 0.0 bar	DKD-R 6-1:2014, EURAMET Calibration Guide No. 17 Version 3.0	1.0 mbar	Pressure medium: Gas
	> 0 bar to 20 bar		2.5 mbar	
	> 20 bar to 34 bar		4.0 mbar	
Positive Gauge pressure p_e *)	0 bar; 1 bar to 70 bar		10 mbar + 8.0 · 10^{-5} · p_e	Pressure medium: Oil
	> 70 bar to 700 bar		15 mbar + 9.0 · 10^{-5} · p_e	Reference value (p_e = 0 bar)
Pressure Balance *)	1 bar to 70 bar	EURAMET Calibration Guide No. 3 Version 1.0	1.5 mbar + 8.4 · 10^{-5} · p_e	Pressure medium: hydraulic mineral oil p_e - measured value
Chemical analysis Volume of liquids Volume Piston pipettes (fixed and variable volume) and hand dispensers *)	1 µL to < 10 µL	Gravimetric method according to ISO 8655:2002 and DKD-R 8-1:2011	2.5 %	
	10 µL to < 100 µL		0.60 %	
	100 µL to 10 mL		0.50 %	
Laboratory glassware adjusted as to deliver "Ex" *)	0.1 mL to < 1 mL	Gravimetric method according to ISO 4787:2010	1.6 %	
	1 mL to < 10 mL		0.20 %	
	10 mL to 100 mL		0.080 %	
Laboratory glassware adjusted as to contain "In" *)	1 mL to < 10 mL		1.5 %	
	10 mL to < 100 mL		0.18 %	
	100 mL to < 1 L		0.060 %	

[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.

On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement [1)]	Remarks
Weighing instruments Non-automatic electronic weighing instruments [*)]	up to 600 g	EURAMET Calibration Guide No. 18 Version 4.0	$2.0 \cdot 10^{-6}$	with weights according to OIML R 111, Class E_2
	up to 120 kg		$7.0 \cdot 10^{-6}$	with weights according to OIML R 111, Class F_1

Abbreviations used:

DIN	Deutsches Institut für Normung e.V.
DKD-R	Guideline of Deutscher Kalibrierdienst (DKD), published by Physikalisch-Technische Bundesanstalt (PTB)
EURAMET	European Association of National Metrology Institutes
OIML	International Organization of Legal Metrology
PC 02…	In house method of Center for Standardization and Metrology

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