Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-20448-01-00 according to ISO/IEC 17025:2005

Period of validity: 2017-06-15 to 2022-06-14 Date of issue: 2017-06-15

Holder of certificate:

Center for Standardization and Metrology
under the Ministry of Economy of the Kyrgyz Republic

with its calibration laboratory:

Laboratory of National Standards
of CSM under the ME KR
197, Panfilov street, Bishkek, 720040, Kyrgyz Republic

Head: Marina Denisova
Deputy: Ekaterina Kotova
Almaz Baialiev
Tamara Savina
Gulmira Abieva

Accredited since: 2017-06-15

Calibrations in the fields:

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

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.

Abbreviations used: see last page

Permanent Laboratory

Measured quantity / Calibration item	Range	Measurement conditions / procedure	Best measurement capability [1)]	Remarks
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	OIML R 111-1: 2004	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	OIML R 111-1: 2004	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 best measurement capabilities are stated according to EA-4/02. These are expanded uncertainties of measurement with a coverage probability of 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.

Measured quantity / Calibration item	Range			Measurement conditions / procedure	Best measurement capability [1)]	Remarks
Temperature Resistance thermometers	5 °C	to	50 °C	PC 02/13:2016-02 DAkkS-DKD-R 5-1:2010	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	
Relative Humidity Direct reading hygrometers, 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

[1)] The best measurement capabilities are stated according to EA-4/02. These are expanded uncertainties of measurement with a coverage probability of 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.

Measured quantity / Calibration item	Range	Measurement conditions / procedure	Best measurement capability [1)]	Remarks
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	DKD-R 6-1:2014 EURAMET Calibration Guide No. 17 Version 3.0	10 mbar + 8.0 · 10^{-5} · p_e	Pressure medium: Oil Reference value (p_e = 0 bar)
	> 70 bar to 700 bar		15 mbar + 9.0 · 10^{-5} · p_e	
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	Gravimetric method according to ISO 4787:2010	1.5 %	
	10 mL to < 100 mL		0.18 %	
	100 mL to < 1 L		0.060 %	

On-site Calibration

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

Abbreviations used:

OIML	International Organization of Legal Metrology
EURAMET	European Association of National Metrology Institutes
DKD-R	Guideline of Deutscher Kalibrierdienst
DAkkS-DKD-R	Guideline of Deutsche Akkreditierungsstelle

Procedures of Laboratory of national standards of SCM under ME KR:

PC 02/11	Calibration of liquid-in-glass thermometers by comparison
PC 02/12	Calibration of thermocouples by comparison
PC 02/13	Calibration of resistance thermometers by comparison
PC 02/14	Calibration of direct reading thermometers
PC 02/21	Calibration of humidity sensors

[1)] The best measurement capabilities are stated according to EA-4/02. These are expanded uncertainties of measurement with a coverage probability of 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.