DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV
Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition

Accreditation

The Deutsche Akkreditierungsstelle GmbH attests that the calibration laboratory

Ahlborn Mess- und Regelungstechnik GmbH
Eichenfeldstraße 1-3, 83607 Holzkirchen

is competent under the terms of DIN EN ISO/IEC 17025:2018 to carry out calibrations in the following fields:

Thermodynamic quantities
Temperature quantities
- **Resistance thermometers**
- **Thermocouples**
- **Temperature indicators and simulators**

Humidity quantities
- **Devices for relative humidity**

Fluid quantities
- **Velocity of gases**

Electrical quantities
DC and low frequency quantities
- **DC voltage**
- **DC current**
- **DC resistance**
- **AC voltage**
- **AC current**

Time and frequency
- **Frequency**

The accreditation certificate shall only apply in connection with the notice of accreditation of 20.05.2019 with the accreditation number D-K-19342-01. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 7 pages.

Registration number of the certificate: **D-K -19342-01-00**

Braunschweig,
26.05.2019

Dr. Heike Manke
Head of Division

Translation issued:
24.10.2019

Head of Division

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

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

See notes overleaf.

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

Office Frankfurt am Main
Europa-Allee 52
60327 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) of 31 July 2009 (Federal Law Gazette I p. 2625) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (Official Journal of the European Union L 218 of 9 July 2008, p. 30). DAkkS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatories to these agreements recognise each other's accreditations.

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

DAkkS Deutsche Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-19342-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 20.05.2019

Date of issue: 20.05.2019

Holder of certificate:

Ahlborn Mess- und Regelungstechnik GmbH
Eichenfeldstraße 1-3, 83607 Holzkirchen

Calibration in the fields:

Thermodynamic quantities
Temperature quantities
- **Resistance thermometers**
- **Thermocouples**
- **Temperature indicators and simulators**

Humidity quantities
- **Devices for relative humidity**

Fluid quantities
- **Velocity of gases**

Electrical quantities
DC and low frequency quantities
- **DC voltage**
- **DC current**
- **DC resistance**
- **AC voltage**
- **AC current**

Time and frequency
- **Frequency**

Abbreviations used: see last page

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.

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement [1]	Remarks
Relative humidity Electrical hygrometers	10 % to 30 %	in 2-pressure-generators temperature range 20 °C to 30 °C AA070001:2019-01	0,4 %	Measurement uncertainty expressed in relative humidity
	> 30 % to 60 %		0,8 %	
	> 60 % to 85 %		1,0 %	
Mechanical hygrometers	10 % to 30 %	in climatic chambers air temperature: 10 °C to 95 °C AA070001:2019-01	0,7 %	Measurement uncertainty expressed in relative humidity
	> 30 % to 60 %		0,9 %	
	> 60 % to 95 %		1,1 %	
Electrical hygrometers, psychrometers	10 % to 98 %	in climatic chambers air temperature: 10 °C to 95 °C AA070001:2019-01	0,6 %	Comparison with standard psychrometer
Temperature Temperature measuring chains or temperature probes with resistance sensors*)	0,01 °C	triple point of water	2 mK	calibration at fixed point temperature
	0 °C	in ice baths DKD-R 5-1:2018	10 mK	Comparison with standard resistance thermometer
	20 °C to 30 °C	in 2-pressure-generators DKD-R 5-1:2018	0,06 K	
	-30 °C to < 0 °C	in climatic chambers DKD-R 5-1:2018	0,10 K	
	0 °C to 100 °C		0,08 K	
	> 100 °C to 150 °C		0,10 K	
	-100 °C to 200 °C	in liquid baths DKD-R 5-1:2018	10 mK	
	250 °C to 550 °C	in salt baths DKD-R 5-1:2018	20 mK	
	-100 °C to < -50 °C	in dry block calibrators DKD-R 5-1:2018	0,13 K	
	-50 °C to 250 °C		0,10 K	
	> 250 °C to 500 °C		0,15 K	
	> 500 °C to 650 °C		0,17 K	
	-100 °C to 155 °C	in dry block calibrators DKD-R 5-1:2018	0,03 K	Comparison with standard resistance thermometer Only for calibration items with sensors in metal protection tubes
	> 155 °C to 250 °C		0,06 K	
	> 250 °C to 650 °C		0,12 K	

[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 measuring chains or temperature probes with thermocouple sensors*)	20 °C to 30 °C	in 2-pressure-generators DKD-R 5-3:2018	0,3 K	Comparison with standard resistance thermometer
	-30°C to 150 °C	in climatic chambers DKD-R 5-3:2018	0,3 K	
	-100 °C to 250°C	in liquid baths or dry block calibrators DKD-R 5-3:2018	0,3 K	
	> 250 °C to 650 °C		0,8 K	
	500 °C to 1100 °C	in tube furnaces DKD-R 5-3:2018	1,5 K	Comparison with standard thermocouple
	> 1100 °C to 1200 °C		2,0 K	
Temperature indicators and simulators for resistance thermometers*)	-200 °C to 661 °C	DKD-R 5-5:2018	10 mK	Comparison with reference multimeter Characteristic curve according to DIN EN 60751:2009
	> 661 °C to 850 °C		20 mK	
Temperature indicators and simulators for base metal thermocouples*)	-200 °C to 1300 °C	DKD-R 5-5:2018	0,1 K	without reference junction compensation Characteristic curve according to DIN EN 60584-01:2014
	-200 °C to 1300 °C	DKD-R 5-5:2018	0,3 K	with reference junction compensation Characteristic curve according to DIN EN 60584-01:2014
Temperature indicators and simulators for noble metal thermocouples Type S, R*)	0 °C to 1768 °C	DKD-R 5-5:2010	0,2 K	without reference junction compensation Characteristic curve according to DIN EN 60584-01:2014
Temperature indicators and simulators for noble metal thermocouples Typ S, R*)	0 °C to 1768 °C	DKD-R 5-5:2010	0,3 K	with reference junction compensation Characteristic curve according to DIN EN 60584-01:2014

[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 indicators and simulators for noble metal thermocouples Typ B*)	500 °C to 1820 °C	DKD-R 5-5:2010	0,2 K	without reference junction compensation Characteristic curve according to DIN EN 60584-01:2014
Temperature indicators and simulators for noble metal thermocouples Typ B*)	500 °C to 1820 °C	DKD-R 5-5:2010	0,3 K	with reference junction compensation Characteristic curve according to DIN EN 60584-01:2014
Velocity of gases	0,1 m/s to 65 m/s	AA070002: 2019-01	0,5 %, but not smaller than 0,01 m/s	wind tunnel: type Göttingen nozzle: 320 mm calibration standard: laser-Doppler anemometer
DC voltage Sources	0 V to < 0,2 V		$0{,}2\ \mu V + 5 \cdot 10^{-6} \cdot U$	U: measured value
	0,2 V to < 2 V		$0{,}5\ \mu V + 5 \cdot 10^{-6} \cdot U$	
	2 V to < 20 V		$5\ \mu V + 5 \cdot 10^{-6} \cdot U$	
	20 V to < 200 V		$50\ \mu V + 5 \cdot 10^{-6} \cdot U$	
	200 V to 1000 V		$0{,}5\ mV + 5 \cdot 10^{-6} \cdot U$	
Measuring instruments	0 V to < 0,33 V		$0{,}8\ \mu V + 22 \cdot 10^{-6} \cdot U$	U: measured value
	0,33 V to < 3,3 V		$1{,}4\ \mu V + 10 \cdot 10^{-6} \cdot U$	
	3,3 V to < 33 V		$16 \cdot 10^{-6} \cdot U$	
	33 V to < 330 V		$0{,}1\ mV + 16 \cdot 10^{-6} \cdot U$	
	330 V to 1020 V		$1{,}0\ mV + 16 \cdot 10^{-6} \cdot U$	
DC current Sources	1 µA to < 200 µA		$0{,}4\ nA + 15 \cdot 10^{-6} \cdot I$	I: measured value
	200 µA to < 2 mA		$4{,}0\ nA + 15 \cdot 10^{-6} \cdot I$	
	2 mA to < 20 mA		$40\ nA + 15 \cdot 10^{-6} \cdot I$	
	20 mA to < 200 mA		$0{,}8\ \mu A + 45 \cdot 10^{-6} \cdot I$	
	200 mA to < 2 A		$16\ \mu A + 0{,}17 \cdot 10^{-3} \cdot I$	
	2 A to 20 A		$0{,}4\ mA + 0{,}37 \cdot 10^{-3} \cdot I$	
Measuring instruments	1 µA to < 330 µA		$20\ nA + 0{,}1 \cdot 10^{-3} \cdot I$	I: measured value
	330 µA to < 3,3 mA		$40\ nA + 77 \cdot 10^{-6} \cdot I$	
	3,3 mA to < 33 mA		$0{,}22\ \mu A + 77 \cdot 10^{-6} \cdot I$	
	33 mA to < 330 mA		$2{,}2\ \mu A + 77 \cdot 10^{-6} \cdot I$	
	330 mA to < 1,1 A		$30\ \mu A + 0{,}16 \cdot 10^{-3} \cdot I$	
	1,1 A to < 3 A		$30\ \mu A + 0{,}28 \cdot 10^{-3} \cdot I$	
	3 A to < 11 A		$0{,}3\ mA + 0{,}40 \cdot 10^{-3} \cdot I$	
	11 A to 20,5 A		$0{,}3\ mA + 0{,}78 \cdot 10^{-3} \cdot I$	

[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
DC resistance Sources	0,1 Ω to < 2 Ω		4 μΩ + 15 · 10^{-6} · R	R: measured value
	2 Ω to < 20 Ω		20 μΩ + 9 · 10^{-6} · R	
	20 Ω to < 200 Ω		40 μΩ + 8 · 10^{-6} · R	
	200 Ω to < 2 kΩ		10 · 10^{-6} · R	
	2 kΩ to < 20 kΩ		10 · 10^{-6} · R	
	20 kΩ to < 200 kΩ		10 · 10^{-6} · R	
	200 kΩ to < 2 MΩ		14 · 10^{-6} · R	
	2 MΩ to < 20 MΩ		0,1 kΩ + 20 · 10^{-6} · R	
	20 MΩ to < 200 MΩ		10 kΩ + 0,11 · 10^{-3} · R	
	200 MΩ to 2 GΩ		1 MΩ + 0,55 · 10^{-3} · R	
Measuring instruments	0 Ω to < 11 Ω		0,75 mΩ + 36 · 10-6 · R	R: measured value
	11 Ω to < 33 Ω		1,1 mΩ + 24 · 10^{-6} · R	
	33 Ω to < 110 Ω		1,0 mΩ + 22 · 10^{-6} · R	
	110 Ω to < 330 Ω		1,4 mΩ + 22 · 10^{-6} · R	
	330 Ω to < 1,1 kΩ		30 · 10^{-6} · R	
	1,1 k Ω to < 3,3 kΩ		35 · 10^{-6} · R	
	3,3 kΩ to < 11 kΩ		30 · 10^{-6} · R	
	11 kΩ to < 33 kΩ		35 · 10^{-6} · R	
	33 kΩ to < 110 kΩ		30 · 10^{-6} · R	
	110 kΩ to < 330 kΩ		40 · 10^{-6} · R	
	330 kΩ to < 1,1 MΩ		30 · 10^{-6} · R	
	1,1 MΩ to < 3,3 MΩ		80 · 10^{-6} · R	
	3,3 MΩ to < 11 MΩ		0,16 · 10^{-3} · R	
	11 MΩ to < 33 MΩ		0,30 · 10^{-3} · R	
	33 MΩ to < 110 MΩ		0,60 · 10^{-3} · R	
	110 MΩ to < 330 MΩ		3,5 · 10^{-3} · R	
	330 MΩ to 1,1 GΩ		18 · 10^{-3} · R	
AC voltage Sources	10 mV to < 200 mV	10 Hz to 40 Hz	4 μV + 0,14 · 10^{-3} · U	U: measured value
		> 40 Hz to 10 kHz	4 μV + 0,14 · 10^{-3} · U	
		> 10 kHz to 30 kHz	25 μV + 0,25 · 10-3 · U	
		> 30 kHz to 100 kHz	0,1 mV + 0,30 · 10-3 · U	
	0,2 V to < 2 V	10 Hz to 40 Hz	20 μV + 0,11 · 10^{-3} · U	
		> 40 Hz to 10 kHz	20 μV + 0,10 · 10^{-3} · U	
		> 10 kHz to 30 kHz	40 μV + 0,20 · 10^{-3} · U	
		> 30 kHz to 100 kHz	0,2 mV + 0,5 · 10^{-3} · U	
	2 V to < 20 V	10 Hz to 40 Hz	0,2 mV + 0,11 · 10^{-3} · U	
		> 40 Hz to 10 kHz	0,2 mV + 0,10 · 10^{-3} · U	
		> 10 kHz to 30 kHz	0,4 mV + 0,20 · 10^{-3} · U	
		> 30 kHz to 100 kHz	2 mV + 0,50 · 10^{-3} · U	
	20 V to < 200 V	10 Hz to 40 Hz	2 mV + 0,11 · 10^{-3} · U	
		> 40 Hz to 10 kHz	2 mV + 90 · 10^{-6} · U	
		> 10 kHz to 30 kHz	4 mV + 0,20 · 10^{-3} · U	
		> 30 kHz to 100 kHz	20 mV + 0,50 · 10^{-3} · U	
	200 V to 1050 V	40 Hz to 10 kHz	20 mV + 0,12 · 10^{-3} · U	

[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
AC voltage Measuring instruments	1 mV to < 33 mV	10 Hz to 45 Hz	5 µV + 0,6 · 10^{-3} · U	U: measured value
		> 45 Hz to 10 kHz	5 µV + 0,12 · 10^{-3} · U	
		> 10 kHz to 20 kHz	5 µV + 0,15 · 10^{-3} · U	
		> 20 kHz to 50 kHz	5 µV + 0,75 · 10^{-3} · U	
		> 50 kHz to 100 kHz	10 µV + 3 · 10^{-3} · U	
	33 mV to < 330 mV	10 Hz to 45 Hz	5 µV + 0,40 · 10^{-3} · U	
		> 45 Hz to 10 kHz	5 µV + 0,18 · 10^{-3} · U	
		> 10 kHz to 20 kHz	5 µV + 0,25 · 10^{-3} · U	
		> 20 kHz to 50 kHz	5 µV + 0,50 · 10^{-3} · U	
		> 50 kHz to 100 kHz	20 µV + 0,80 · 10^{-3} · U	
	330 mV to < 3,3 V	10 Hz to 45 Hz	35 µV + 0,28 · 10^{-3} · U	
		> 45 Hz to 10 kHz	25 µV + 0,18 · 10^{-3} · U	
		> 10 kHz to 20 kHz	45 µV + 0,20 · 10^{-3} · U	
		> 20 kHz to 50 kHz	25 µV + 0,30 · 10^{-3} · U	
		> 50 kHz to 100 kHz	0,80 · 10^{-3} · U	
	3,3 V to < 33 V	10 Hz to 45 Hz	0,30 mV + 0,30 · 10^{-3} · U	
		> 45 Hz to 10 kHz	0,30 mV + 0,20 · 10^{-3} · U	
		> 10 kHz to 20 kHz	0,15 mV + 0,28 · 10^{-3} · U	
		> 20 kHz to 50 kHz	0,15 mV + 0,35 · 10^{-3} · U	
		> 50 kHz to 100 kHz	0,15 mV + 1,0 · 10^{-3} · U	
	33 V to < 330 V	45 Hz to 1 kHz	0,2 mV + 0,20 · 10^{-3} · U	
		> 1 kHz to 10 kHz	0,2 mV + 0,28 · 10^{-3} · U	
		> 10 kHz to 20 kHz	0,1 mV + 0,35 · 10^{-3} · U	
		> 20 kHz to 50 kHz	4 mV + 0,50 · 10^{-3} · U	
		> 50 kHz to 100 kHz	30 mV + 2,0 · 10^{-3} · U	
	330 V to 1020 V	45 Hz to 10 kHz	0,25 · 10^{-3} · U	
AC current Sources	1 µA to < 200 µA	1 Hz to 10 kHz	0,03 µA + 0,43 · 10^{-3} · I	I: measured value
	200 µA to < 2 mA	10 Hz to 10 kHz	0,30 µA + 0,28 · 10^{-3} · I	
	2 mA to < 20 mA	10 Hz to 10 kHz	2,2 µA + 0,32 · 10^{-3} · I	
	20 mA to < 200 mA	10 Hz to 10 kHz	22 µA + 0,3 · 10^{-3} · I	
	200 mA to < 2 A	10 Hz to 2 kHz	0,22 mA + 0,65 · 10^{-3} · I	
	2 A to 20 A	10 Hz to 2 kHz	2 mA + 0,85 · 10^{-3} · I	

[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
AC current Measuring instruments	29 µA to < 330 µA	45 Hz to 1 kHz	$0{,}1\ \mu A + 1 \cdot 10^{-3} \cdot I$	I: measured value
		> 1 kHz to 5 kHz	$0{,}2\ \mu A + 3 \cdot 10^{-3} \cdot I$	
		> 5 kHz to 10 kHz	$0{,}2\ \mu A + 6 \cdot 10^{-3} \cdot I$	
	330 µA to < 3,3 mA	45 Hz to 1 kHz	$0{,}15\ \mu A + 0{,}8 \cdot 10^{-3} \cdot I$	
		> 1 kHz to 5 kHz	$0{,}30\ \mu A + 2 \cdot 10^{-3} \cdot I$	
		> 5 kHz to 10 kHz	$0{,}30\ \mu A + 4 \cdot 10^{-3} \cdot I$	
	3,3 mA to < 33 mA	45 Hz to 1 kHz	$2\ \mu A + 0{,}5 \cdot 10^{-3} \cdot I$	
		> 1 kHz to 5 kHz	$3\ \mu A + 0{,}7 \cdot 10^{-3} \cdot I$	
		> 5 kHz to 10 kHz	$3\ \mu A + 1{,}5 \cdot 10^{-3} \cdot I$	
	33 mA to < 330 mA	45 Hz to 1 kHz	$20\ \mu A + 0{,}4 \cdot 10^{-3} \cdot I$	
		> 1 kHz to 5 kHz	$0{,}1\ mA + 0{,}8 \cdot 10^{-3} \cdot I$	
		> 5 kHz to 10 kHz	$0{,}1\ mA + 1{,}6 \cdot 10^{-3} \cdot I$	
	330 mA to < 1,1 A	45 Hz to 1 kHz	$50\ \mu A + 0{,}45 \cdot 10^{-3} \cdot I$	
		> 1 kHz to 5 kHz	$0{,}7\ mA + 0{,}6 \cdot 10^{-3} \cdot I$	
	1,1 A to < 3 A	45 Hz to 1 kHz	$0{,}1\ mA + 0{,}6 \cdot 10^{-3} \cdot I$	
		> 1 kHz to 5 kHz	$0{,}7\ mA + 5 \cdot 10^{-3} \cdot I$	
	3 A to < 11 A	45 Hz to 100 Hz	$2\ mA + 0{,}6 \cdot 10^{-3} \cdot I$	
		> 100 Hz to 1 kHz	$2\ mA + 1 \cdot 10^{-3} \cdot I$	
	11 A to 20,5 A	45 Hz to 100 Hz	$5\ mA + 1{,}2 \cdot 10^{-3} \cdot I$	
		> 100 Hz to 1 kHz	$5\ mA + 1{,}5 \cdot 10^{-3} \cdot I$	
Frequency Sources	10 Hz to 1,0 MHz		$20\ \mu Hz + 13 \cdot 10^{-6} \cdot f$	f: measured value
Measuring instruments	0,01 Hz to < 120 Hz		$11\ mHz + 1 \cdot 10^{-6} \cdot f$	f: measured value
	120 Hz to < 1,2 kHz		$0{,}11\ Hz + 1 \cdot 10^{-6} \cdot f$	
	1,2 kHz to < 12 kHz		$1{,}1\ Hz + 1 \cdot 10^{-6} \cdot f$	
	12 kHz to < 0,12MHz		$11\ Hz + 1 \cdot 10^{-6} \cdot f$	
	0,12MHz to < 1,2 MHz		$0{,}11\ kHz + 1 \cdot 10^{-6} \cdot f$	
	1,2 MHz to 2,0 MHz		$1{,}1\ kHz + 1 \cdot 10^{-6} \cdot f$	

Abbreviations used:

AA	In house procedure of Ahlborn Mess- und Regelungstechnik GmbH
CMC	Calibration and measurement capabilities
DKD-R	Calibration Guideline of Deutscher Kalibrierdienst (DKD), published by Physikalisch-Technische Bundesanstalt (PTB)

[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.