

Accredited body according to EN ISO/IEC 17025:2018:

SCOPE OF ACCREDITATION

The Laboratory is qualified to update standards identifying the calibration procedures.

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: length

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ^{2), 3)}	Identification of the procedure
1.1*	Extensometers for mechanical testing of materials	(0 up to 25) mm	0.9 μm	(EN ISO 9513)
		(25 up to 50) mm	1.3 μm	
		(50 up to 1000) mm	20 μm	
1.2*	Extensometers for mechanical testing of materials	(0 up to 10) mm	0.9 μm	(ASTM E83)
		(10 up to 50) mm	1.3 μm	
		(50 up to 1000) mm	20 μm	
1.3	Gauge blocks	(0.3 up to 1000) mm		(EN ISO 3650)
	2. order		(0.05+0.5 L) μm	
	3. order		(0.1+1 L) μm	
	4. order		(0.2+2 L) μm	
	5. order		(0.5+5 L) μm	
1.4*	Range of comparison for gauge block comparators - parameter nominal length (0.3 up to 100) mm	±0.01 mm	0.032 μm	
1.5*	Calibration by laserinterferometre	to 20 m	(0.02+0.4 L) μm	
1.6	Micrometers	(0 up to 500) mm	(1.5 + 5.0 L) μm	
1.7	Calipers	(0 up to 1000) mm	20 μm	
1.8	Calibration by a measuring instrument of length	up to 1 m	(0.2+2 L) μm	
1.9	Testing sieves	(0.005 up to 150) mm	(1.5 + 4.0 L) μm	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ^{2), 3)}	Identification of the procedure
1.10	Calibration by a form measuring instrument	± 2 mm		
	Roundness - maximal diameter: 350 mm		Q[0.025; 0.01R] μm	
	Straightness and parallelism - maximal horizontal way: 200 mm, maximal vertical way: 300 mm		Q[0.2; 0.01R] μm	
1.11	Calibration by IAC MasterScanner XP 10060		2.5 μm	
	- Outer diameter	(1 up to 90) mm		
	- Inner diameter	(2.5 up to 100) mm		
1.12	Calibration by linear height	(0 up to 600) mm	(1.2 + 2.5L) m	
1.13 *	Calibration of coordinate measuring machines			
	- using ballplate	(0.4 up to 2.5) m	Q[0.6; 0.8L] m	(VDI/VDE 2617-5, ISO 10360-2)
	- using laser interferometer	(0 up to 30) m	Q[0,01; 0,4L; 0,1 L] m	(VDI/VDE 2617-2.1)
	- using stepgauge	(0.3 up to 1) m	Q[0,3; 0,6L] m	(VDI/VDE 2617-5, ISO 10360-2, VDI/VDE 2634-1, VDI/VDE 2634-3)
	- using ballbar	(0.01 up to 2.5) m	Q[0,8; 1,4L] m	(VDI/VDE 2617-2.3, VDI/VDE 2617-5, ISO 10360-2) VDI/VDE 2634-1, VDI/VDE 2634-2, VDI/VDE 2634-3, VDI/VDE 2617-9)
	- using glass scale	(0 up to 1.4) m	Q[0,2; 0,8L] m	(VDI/VDE 2617-6.1, VDI/VDE 2617-6.2)
	- using plate with marks	(0 up to 0.2) m	Q[0,5; 0,8L] m	(VDI/VDE 2617-6.1, VDI/VDE 2617-6.2)
1.14	Measurements and calibrations carry out on CMM	(0 up to 2550) mm	Q[0,09; 0,5L] μm	

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Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ^{2), 3)}	Identification of the procedure
1.15	Tape measures, length and distance measurement instruments	(0.3 up to 30)	Q[100; 3L] m	
		(0 up to 300) m	Q[20; 20L] m	
1.16	Calibrations carried out on CMM WERTH-Video Check HA 800	(0 up to 1020) mm	Q[0,2; 0,8L] m	
1.17 *	Calibrations of machines with electronic measuring cubage of beams			
	- length	(0 up to 30) m	7 mm	
	- diameter	(5 up to 100) cm	0.2 mm	
1.18 *	Roughness			
	adjustment standard, Pt characteristics [μm]	(0.01 up to <1) μm (1 up to 100) μm	Q[20; 50Pt] nm Q[20; 20Pt] nm	
	geometrical standard type C, characteristics: Ra, Rq, Rpm, Rk profiles, seat parts, Rsk, Rp3z, Rku, Rc, Rdq, Rδc all characteristics [μm]	(0.01 up to 100) m	Q[10; 30Ra] nm	
	Rmax, RzISO, Rp, Rv, Rz, Rt, Rz1, Rz2, Rz3, Rz4, Rz5 all characteristics [μm]	(0.01 up to 100) m	Q[20; 40Rp] nm	
	geometrical standard type D, characteristics: Ra, Rq, Rpm, Rk profiles, seat parts, Rsk, Rp3z, Rku, Rc, Rdq, Rδc all characteristics [μm]	(0.01 up to 100) m	Q[10; 40Ra] nm	
	Rmax, RzISO, Rp, Rv, Rz, Rt, Rz1, Rz2, Rz3, Rz4, Rz5 all characteristics [μm]	(0.01 up to 100) m	Q[20; 50Rp] nm	
	geometrical standard type C and D horizontal, characteristics all characteristics [μm]	(0 up to 120) mm	Q[20; 50RSm] nm	

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Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ^{2), 3)}	Identification of the procedure
1.19 *	Laboratory roughness instruments for adjustment standards all characteristics [µm]	(0.01 up to 1) m (1 up to 6000) µm	3.4 % 1.2 %	
	Laboratory roughness instruments for geometrical standards all characteristics [µm]	(1 up to 6000) µm	3.4 %	
	Working roughness instruments for adjustment standards all characteristics [µm]	(0.01 up to 1) m (1 up to 6000) µm	Q(20 + 50Pt) nm Q(20 + 20Pt) nm	
	Working roughness instruments for geometrical standards characteristics: Ra, Rq, Rpm, Rk profiles, bearing ratios, Rsk, Rp3z, Rku, Rc, Rdq, Rδc all characteristics [µm]	(0.01 up to 6000) µm	Q(10 + 40Ra) nm	
	Working roughness instruments for geometrical standards characteristics: Rmax, RzISO, Rp, Rv, Rz, Rt, Rz1, Rz2, Rz3, Rz4, Rz5 all characteristics [µm]	(0.01 up to 6000) µm	Q(20 + 50Rp) nm	
	Working roughness instruments for geometrical standards horizontal, characteristics all characteristics [µm]	(0 up to 120) mm	Q(20 + 50RSm) nm	
1.20 *	Measurement and calibrations provided by Coordinate Measuring arm FARO			
	- by laser probe	(0 up to 1800) mm	15 µm	
	- by touch probe	(0 up to 1800) mm	13 m	
1.21	Contactless calibration of gauge blocks	(0.3 up to 100) mm	Q[0,05; 0,5L] µm	
1.22	Calibration of optical aerosol particle counters: counting efficiency	η = (0 up to 5) for particle size of (0 up to 50) µm	9 %	ISO 21501-4: cl. 4.3, 4.5, 4.7

Accredited body according to EN ISO/IEC 17025:2018:

- ¹⁾ an asterisk at the item number marks the calibrations carried out outside of fixed laboratory areas or carried out both inside and outside of fixed laboratory areas
- ²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for $k = 2$
- ³⁾ Calibration and measurement capability in the form of $Q[A; B]$. Substituted are the values of roughness characteristics in μm , L is the dimension in metres, R is roundness in μm and α is the thermal expansion coefficient in $\mu\text{m}/\text{m}/\text{K}$. For example, $Q[20; 40R_p]$ nm for $k=2$ in the calculation of U_{95} where R_p is the value measured in μm and the resulting uncertainty is in nm

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Extensometers for mechanical testing of materials
2	Gauge blocks
3	Gauge block comparators
4	Measuring instruments of length, 2D measuring machines, surface plates, coordinate measuring machines
5	Setting ring gauges, micrometers
6	Micrometers
7	Calipers
8	Testing sieves
9	Gauges measured on 3D CMM SIP CMM5 and ZEISS XENOS
10	1D, 2D, 3D Coordinate Measuring Machines – calibration by laser interferometers
11	3D Coordinate Measuring Machines – calibration by step gauges
12	3D Coordinate Measuring Machines – calibration by a Ball Plate
13	Tape measures, length and distance measurement instruments
14	Optical calibres and measures, 3D standards and their parts
15	Instruments for measuring machines with electronic measuring cubage of beams
16	Special measurements and preparations
17	Adjustment standards for roughness and geometrical standards of roughness, type C and D and specimen
18	Laboratory and working roughness instruments
19	Coordinate Measuring arm FARO
20	Thread and plain gauges and rings
21	Aerosol particle counters

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: plane angle

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [\pm] ²⁾	Identification of the procedure
2.1	Levels	- 100' up to +100' - 2200'' up to +2200''	1'' 0.2''	
2.2	Autocollimators	- 100' až +100' - 2200'' až +2200''	0.5'' 0.03''	
2.3 *	Dividing heads and tables	0° up to 360°	0.5''	
2.4	Goniometers, instruments for control the angular separation	0° up to 360°	0.5''	
2.5	Angle protractor converters	0° up to 360°	0.5''	
2.6	Polygons	0° up to 360°	0.6''	
2.7	Polygons	0° up to 360°	0.08''	
2.8	Angle protractors	0° up to 360°	1' 20''	
2.9	Clinometers	- 180° up to +180°	2.4''	

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²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for $k = 2$

Accredited body according to EN ISO/IEC 17025:2018:

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	All kinds of levels including electronic and coincidence
2	Autocollimators visual and electronic
3	Dividing heads and tables
4	Goniometers and instruments for control the angular separation
5	Angle encoders
6	Polygons
7	Angle protractors
8	Clinometers

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: volume, flow

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
3.1	Volumetric glassware ⁴⁾	(0.2 up to 0.5) cm ³	0.00015 cm ³	(EN ISO 4787, EURAMET cg-19)
		(> 0.5 up to 2) cm ³	0.00016 cm ³	
		(> 2 up to 5) cm ³	0.00017 cm ³	
		(> 5 up to 10) cm ³	0.00018 cm ³	
		(> 10 up to 20) cm ³	0.00021 cm ³	
		(> 20 up to 25) cm ³	0.00023 cm ³	
		(> 25 up to 50) cm ³	0.00033 cm ³	
		(> 50 up to 100) cm ³	0.00058 cm ³	
		(> 100 up to 250) cm ³	0.0049 cm ³	
		(> 250 up to 500) cm ³	0.0051 cm ³	
		(> 500 up to 1000) cm ³	0.0061 cm ³	
		(> 1000 up to 2000) cm ³	0.0093 cm ³	
		(> 2000 up to 5000) cm ³	0.021 cm ³	
		(> 5000 up to 10000) cm ³	0.29 cm ³	
(> 10000 up to 20000) cm ³	0.39 cm ³			
3.2	Metal provers	(2 up to 100) dm ³	0.01 % MV	
3.3	Piston – operated volumetric apparatus ⁴⁾	(0,5 up to 5) µl	0.00015 µl	(EN ISO 8655-6, EURAMET cg-19)
		(>5 up to 500) µl	0.010 µl	
		(>500 up to 1000) µl	0.014 µl	
		(>1000 up to 2000) µl	0.019 µl	
		(>2000 up to 5000) µl	0.031 µl	
		(>5000 up to 10000) µl	0.066 µl	
		(>10000 up to 50000) µl	0.20 µl	
		(>50000 up to 100000) µl	0.66 µl	
		(>100000 up to 150000) µl	1.3 µl	
		(>150000 up to <200000) µl	1.9 µl	
	200000 µl	2.6 µl		
3.4*	Static containers and tanks			
	a) volumetric method (by provers)	(20 up to 500) dm ³	0.3 % of MV	
	b) flow method (by a flowmeter)	200 dm ³ up to 100 m ³	0.3 % of MV	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability $ \pm $ ²⁾	Identification of the procedure	
3.5	Volumetric and velocity gas meters and gas flow meters				
	P1 (SONICAL SN1000)	(0.06 up to 1200) m ³ h ⁻¹	0.25 % of MV		
	P2	(20 up to 10000) m ³ h ⁻¹	0.19 % of MV		
	P3	(0.3 up to 1600) m ³ h ⁻¹	0.20 % of MV		
	P4 (JUSTUR)	(0.02 up to 16) m ³ h ⁻¹			
		Q _{min} up to 0.1Q _{max}	0.65 % of MV		
		0.1Q _{max} up to Q _{max}	0.28 % of MV		
	Spektrum stations	(0.02 up to 160) m ³ h ⁻¹			
		Q _{min} up to 0.1Q _{max}	0.70 % of MV		
		0.1Q _{max} up to Q _{max}	0.50 % of MV		
	Water EZEM	(9.5 up to 760) dm ³ h ⁻¹	0.16 % of MV		
	Bell Prover	(0.5 to 280) m ³ h ⁻¹	0.07 %MV		
3.6	Rotameters	(0.01 up to 0.75) m ³ h ⁻¹	1 % of MV		
		(0.75 up to 1.3) m ³ h ⁻¹	1.3 % of MV		
		(1.3 up to 25) m ³ h ⁻¹	1 % of MV		
3.7	Gas conversion devices	(- 30 up to +80) °C (0.8 up to 135) bar ³⁾	0.06 % of MV conversion factor Z		
3.8	Anemometers, flowmeters for air-conditioning				
	a) anemometers using LDA as standard	(0.3 up to 5) m/s	0.01m/s+0.3% MV		
		(5 up to 50) m/s	0.5% MV		
	b) anemometers using Pitot tube as standard	(0.5 up to 5) m/s	0.01m/s+0.5% MV		
		(5 up to 50) m/s	0.7% MV		
	c) flowmeters using LDA as standard	(140 up to 28 600) m ³ /h	(0.6/v + 0.5) % v ... velocity in m/s		
	d) flowmeters using Pitot tube as standard	(280 up to 28 600) m ³ /h	(0.7/v + 0.76) % v ... velocity in m/s		

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability ± ²⁾	Identification of the procedure
3.9	Meters of volume of water, flow sensors of heat meters and flow meters tested using water			
	Volume flow rate using Enbra test rig	(0.05 up to 150) m ³ /h	0.10 %	
	Mass flow rate using Enbra test rig	(0.05 up to 150) t/h	0.10 %	
	Volume flow rate using Sensus test rig	(0.002 up to 0.005) m ³ /h	0.25 %	
		(0.005 up to 0.012) m ³ /h	0.16 %	
		(0.012 up to 0.025) m ³ /h	0.09 %	
		(0.025 up to 0.050) m ³ /h	0.07 %	
		(0.050 up to 10.0) m ³ /h	0.05 %	
	Mass flow rate using Sensus test rig	(0.002 up to 0.005) t/h	0.20 %	
		(0.005 up to 0.012) t/h	0.15 %	
		(0.012 up to 0.025) t/h	0.08 %	
(0.025 up to 10.0) t/h		0.05 %		
3.10	Flow and volume of liquids	(3 up to 1000) dm ³ /min	0.10 %	
3.11	Meters and measuring systems for cryogenic liquids on road trucks and trailers	(85 up to 460) dm ³ /min	0.50 %	

¹⁾ an asterisk at the item number marks the calibrations carried out outside of fixed laboratory areas or carried out both inside and outside of fixed laboratory areas

²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for k = 2

³⁾ absolute pressure

⁴⁾ contribution to uncertainties for calibrated equipment is not included to CMC

Accredited body according to EN ISO/IEC 17025:2018:

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Volumetric glassware
2	Metal provers
3	Piston – operated volumetric apparatus
4	Cooling and storage tanks for milk
5	Wooden barrels and tanks
6	Storage tanks (made of concrete or masonry)
7	Barrels and tanks made of other materials
8	Transport barrels
9	Transport tanks for liquids without flowmeters
10	Velocity and volumetric gas meters
11	Rota meters
12	Gas conversion devices
13	Meters of air content in fresh concrete
14	Anemometers, flowmeters for air-conditioning
15	Meters for delivered amount of liquid, flow part of heat meters and flow meters tested by water
16	Flowmeters for liquids other than water
17	Meters and measuring systems for cryogenic liquids on road trucks and trailers

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: mass

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
4.1	Conventional mass of weights	(1 up to 20) mg	0.001 0 mg	
		50 mg	0.001 3 mg	
		100 mg	0.001 6 mg	
		200 mg	0.002 0 mg	
		500 mg	0.002 6 mg	
		1 g	0.003 mg	
		2 g	0.004 mg	
		5 g	0.005 mg	
		10 g	0.006 mg	
		20 g	0.008 mg	
		50 g	0.010 mg	
		100 g	0.016 mg	
		200 g	0.030 mg	
		500 g	0.080 mg	
		1 kg	0.15 mg	
		2 kg	0.30 mg	
		5 kg	0.80 mg	
		10 kg	1.5 mg	
		20 kg	3.3 mg	
		50 kg	8 mg	
100 kg	50 mg			
200 kg	100 mg			
500 kg	250 mg			
1000 kg	500			

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability $[\pm]$ ²⁾	Identification of the procedure
4.2*	Non-automatic and automatic weighing instruments	$m \leq 20 \text{ kg}$	$5 \cdot 10^{-7} \text{ MV}$	
		$20 \text{ kg} < m \leq 50 \text{ kg}$	$1.6 \cdot 10^{-6} \text{ MV}$	
		$50 \text{ kg} < m \leq 600 \text{ kg}$	$5 \cdot 10^{-6} \text{ MV}$	
		$600 \text{ kg} < m \leq 200\,000 \text{ kg}$	$1.6 \cdot 10^{-5} \text{ MV}$	

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²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for $k = 2$

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Weights of classes E ₂ , F ₁ , F ₂ , M ₁ , M ₁₋₂ , M ₂ , M ₂₋₃ , M ₃ (according to OIML R111), standard weights, special weights, other tangible bodies
2	Analytical, laboratory and industrial weighing instruments

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: mechanical motion, vibration

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. 1)	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] 2)	Identification of the procedure
5.1*	Mean square value of acceleration of rectilinear mechanical vibration in the frequency range	(0.01 up to 400) m s ⁻²		(ISO 16063-21)
	(0.1 up to 5000) Hz		1.0 % MV	
	(> 5 up to 20) kHz		1.5 % MV	
5.2*	Vibration transducer sensitivity 4)	(0,01 to 1000) pC/m·s ⁻² (0,01 to 10000)mV/m·s ⁻² (0,1 to 10000) mV/m.s ⁻¹		
	in the frequency range:			
	(0.1 up to 5000) Hz		1.0 % MV	
	(5.1 up to 20) kHz		1.5 % MV	
5.3*	Transfer function of amplifier and filter by simulator Calibration and measurement capability of amplifier and filter in the frequency range: (0.1 up to 100000) Hz	(10 ⁻⁷ to 10 ⁷) V/V (0.001 to 1000) mV/pC	0.5% MV, resp. 0.1dB	
5.4*	Calibration of vibrometers without transducer by simulator in the frequency range (0.1 up to 100000) Hz Acceleration Velocity	(0.01 to 10000) m·s ⁻² (0.1 to 1000) mm·s ⁻¹	0.5% MV 0.5% MV	
5.5	Acceleration of mechanical shock of half-sine form Peak value of acceleration	(1 up to 100 000) m s ⁻²	1.2 % MV	
5.6*	Speed of road transportation vehicles and other objects simulated laboratory measurement 3)	6) (5 up to 220) km h ⁻¹ 7) (5 up to 300) km h ⁻¹ 8) (1 up to 999) km h ⁻¹ (0 up to 320) km h ⁻¹	0.2 km h ⁻¹ 0.2 km h ⁻¹ 0.2 km h ⁻¹ 0.01 % MV	
5.7	Vibration frequency	(0.1 up to 10000) Hz	0.01 % MV	
5.8	Revolution and pulse counting – calibration:			
	-contact method 5)	(0.01 up to 100 000) min ⁻¹	10 ⁻² MV	
	-non-contact method 5)	(0.01 up to 10 000 000) min ⁻¹	5-10 MV	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. 1)	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] 2)	Identification of the procedure
5.9*	Calibration of revolution and pulse generators/counters:			
	-contact method 5)	(0.01 up to 100 000) min ⁻¹	10 ⁻² MV	
	-non-contact method 5)	(0.01 up to 10 000 000) min ⁻¹	10-5 MV	
5.10	Calibration of linear motion velocity	(0 up to 1000) m s ⁻¹	0.01 % MV	
5.11 *	Calibration of linear motion velocity	(0 up to 1000) m s ⁻¹	0.1 % MV	
5.12	Calibration of linear motion acceleration	(-200 up to 200) m s ⁻²	0.01 % MV	
5.13 *	Calibration of linear motion acceleration	(-100 up to 100) m s ⁻²	0.05 % MV	

1) an asterisk at the item number marks the calibrations carried out outside of fixed laboratory areas or carried out both inside and outside of fixed laboratory areas

2) expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for k = 2

3) ambient temperature in laboratory; for cal. of measuring instruments of speed in the field the temperature range is - 20 °C up to +45 °C

4) it is possible to specify in pC/g, resp. mV/g, where 1 g = 9.81 m s⁻²

5) it is possible to specify in Hz

6) by speedometer standard at wheel rotations counting

7) by GPS speedometer standard

8) by speedometer standard with optical scanning

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Vibration transducers, vibrometers, charge or voltage amplifiers, filters, vibration calibrators
2	Shock transducers, shock meters
3	Working measuring instruments of speed (speedometers), belt tension meters
4	Revolution counters, mechanical, optical and electronic pulse counters, digital converters and recorders

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: force, torque, mechanical testing of materials, hardness testers

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
6.1	Force (force transducers)	(0.2 up to 100) N	0.000 2 MV	(EN ISO 376)
		8 N up to 500 N	0.000 04 MV	
		30 N up to 3 kN	0.000 05 MV	
		150 N up to 20 kN	0.000 04 MV	
		500 N up to 1000 kN	0.000 2 MV	
6.2*	Torque (devices for measurement of torque)			
a		0.1 N m up to 2 N m	0.001 MV	
b		2 N m up to 1 kN m	0.000 4 MV	
c		1 kN m up to 10 kN m	0,000 7 MH	
d		1 N m up to 100 N m	0.000 08 MV	
6.3*	Torque (torque wrenches)	0.02 N m up to 0.06 N m	0.01 MV	(EN ISO 6789)
		0.06 N m up to 2 kN m	0.005 MV	
		2 kN m up to 3 kN m	0.005 MV	
6.4*	Torque (devices for calibration of torque wrenches)			
a		0.1 N m up to 0.2 N m	0.001 MV	
b		0.2 N m up to 2 kN m	0.001 MV	
c		1 kN m až 10 kN m	0,000 7 MH	
6.5*	Force (working force transducers)			
a		0.02 N up to 5 N	0.002 MV	
b		5 N up to 100 kN	0.001 MV	
c		100 kN up to 200 kN	0.001 MV	
d		200 kN up to 1000 kN	0.001 MV	
e		1000 kN up to 2000 kN	0.001 MV	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
6.6*	Machines for mechanical testing of materials:			(EN ISO 7500)
	pressure	(0 up to 5000) kN	0.28 % MV	
	tension	(0 up to 2000) kN	0.28 % MV	
6.7*	Machines for mechanical testing of materials: self adjustment of upper pressing board	(0 up to 2000) kN	0.34 % MV	(EN 12390-4, annex A)
6.8*	Machines for mechanical testing of materials:			(ASTM E4)
	pressure	(0 up to 5000) kN	0.3 % MV	
	tension	(0 up to 2000) kN	0.3 % MV	
6.9*	Pendulum hammers for testing of indent resistance of materials	up to 2500 J	0.42 % MV	(EN ISO 148-2, EN ISO 13802, ASTM E23, BS 131-4)
6.11*	Force increase analysis	(0 up to 150) kN/s:		
	programme AED PANEL32		0.7 %	
	digital stopwatch		1.5 %	
6.11	Hardness (hardness measurements)		0.20 HR	(EN ISO 6508-1; EN ISO 6508-2; EN ISO 6508-3)
	Rockwell - A	(10 up to 100) HRA		
	Rockwell - B	(10 up to 110) HRB		
	Rockwell - C	(10 up to 80) HRC		
	Rockwell - D	(10 up to 90) HRD		
	Rockwell - E	(10up to 110) HRE		
	Rockwell - F	(10up to 110) HRF		
	Rockwell - G	(10 up to 100) HRG		
	Rockwell - H	(10 up to 110) HRH		
Rockwell - K	(6 up to 110) HRK			
6.12	Hardness (hardness measurement)		0.26 HR	(EN ISO 6508-1; EN ISO 6508-2; EN ISO 6508-3)
	Rockwell - 15N	(10 up to 100) HR 15N		
	Rockwell - 30N	(10 up to 100) HR 30N		
	Rockwell - 45N	(10 up to 90) HR 45N		
	Rockwell - 15T	(10 up to 100) HR 15T		
	Rockwell - 30T	(10 up to 90) HR 30T		
	Rockwell - 45T	(6 up to 80) HR 45T		

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure	
6.13	Hardness (hardness measurements) Vickers	(20 up to 3000) HV		(EN ISO 6507-1, EN ISO 6507-2, EN ISO 6507-3)	
		HV0.01 up to < HV0.05	0.59%		
		HV0.5 up to < HV1	0.51%		
		HV1 up to < HV5	0.44%		
		HV5 up to < HV10	0.44%		
		HV10 up to < HV30	0.38%		
		HV30 up to < HV50	0.36%		
		HV50 and more	0.34%		
6.14	Hardness (hardness measurements) Brinell	(20 up to 650) HBW		(EN ISO 6506-1, EN ISO 6506-2, EN ISO 6506-3)	
		For scales with balls of diameter from 2.5 to 1 mm	0.24%		
		For scales with balls of 5mm diameter	0.20%		
		For scales with balls of 10mm diameter	0.20%		
6.15	Hardness (indenters Rockwell)			(EN ISO 6508-1, EN ISO 6508-2, EN ISO 6508-3)	
		conical angle:	(118 up to 122) °		0.04 °
		radius of rounding:	(100 up to 300) m		0.08 m
6.16	Hardness (indenters Vickers)			(EN ISO 6507-1, EN ISO 6507-2, EN ISO 6507-3)	
		angle of opposite sides:	(134 up to 138) °		0.04
6.17*	Hardness - hardness testers Rockwell				
		(20 up to 70) HRC	0.38 HR		
		(30 up to 94) HRGS (W)	0.38 HR		
		(40 up to 100) HRKS (W)	0.38 HR		
		(20 up to 88) HRA	0.38 HR		
		(60 up to 100) HRFS (W)	0.38 HR		
		(80 up to 100) HRHS (W)	0.38 HR		
		(20 up to 100) HRBS (W)	0.38 HR		
		(40 up to 70) HRD	0.38 HR		
(70 up to 100) HRES (W)	0.38 HR				

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
		(70 up to 94) HR15N	0.57 HR	
		(42 up to 86) HR30N	0.57 HR	
		(20 up to 77) HR45N	0.57 HR	
		(67 up to 93) HR15TS (W)	0.57 HR	
		(29 up to 82) HR30TS (W)	0.57 HR	
		(1 up to 72) HR45TS (W)	0.57 HR	
	Vickers	up to 225 HV	0.32 % HV	
		(over 225 up to 700) HV	0.32 % HV	
		over 700 HV	0.32 % HV	
	Brinell	up to 200 HBW	0.30 % HBW	
		(over 200 up to 500) HBW	0.30 % HBW	
over 500 HBW		0.30 HBW		
6.18	Hardness – Hardness testers			
	Shore A	(1.0 up to 110.0) Shore A	0.22 Shore A	
	Shore B	(1.0 up to 110.0) Shore B	0.22 Shore B	
	Shore C	(1.0 up to 110.0) Shore C	0.22 Shore C	
	Shore D	(1.0 up to 110.0) Shore D	0.22 Shore D	
	Shore DO	(1.0 up to 110.0) Shore DO	0.22 Shore DO	
	IRHD M	(1.0 up to 110.0) °IRHD M	0.42 °IRHD	
	IRHD N	(1.0 up to 110.0) °IRHD N	0.22 °IRHD	
	IRHD H	(1.0 up to 110.0) °IRHD H	0.22 °IRHD	
	IRHD L	(1.0 up to 110.0)°IRHD L	0.22 °IRHD	
	measurement Shore	(0 up to 110) Shore	0.26 Shore	
	measurement IRHD N, H, L	(0 up to 110) °IRHD	0.44 °IRHD	
	measurement IRHD M	(0 up to 110) °IRHD	0.70 IRHD	
6.19*	Torque (torque instruments and torque systems)	0.5 N m up to 25 N m	0.005 MV	

¹⁾ an asterisk at the item number marks the calibrations carried out outside of fixed laboratory areas or carried out both inside and outside of fixed laboratory areas

²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for k = 2

Accredited body according to EN ISO/IEC 17025:2018:

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Torque wrenches
2	Force transducers
3	Devices for measurement of torque
4	Devices for calibration of torque wrenches
5	Working force transducers
6	Mechanical testing machines – self adjustment of upper pressing board and particular parts of testing machines
7	Pendulum hammers
8	Hardness testers
9	Hardness blocks and specimen Rockwell, Brinell, Vickers
10	Indenters Rockwell, Vickers
11	Hardness blocks and specimen Shore a IRHD and calibration of hardness testers Shore and IRHD
12	Pneumatic and electric torque screwdrivers, torque wrenches and torque systems

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: pressure

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
7.1	Pressure gauges; digital pressure gauges and piston gauges			
	gas medium, absolute pressure	(1 up to 100) Pa	10 % MV	
		(> 0.1 up to 1.0) kPa	2.0 Pa	
		(> 1.0 up to 10.0) kPa	5.0 Pa	
		(> 10 up to 34.5) kPa	3.5 Pa	
		(> 34.5 up to 345) kPa	0.0075 % MV + 2 Pa	
		(> 0.345 up to 2.0) MPa	0.0013 % MV + 37 Pa	
		(> 2.0 up to 7.0) MPa	0.0023 % MV + 64 Pa	
	gas medium, negative pressure	(0 up to -2) kPa	1.5 Pa	
		(< -2 up to -4) kPa	3.0 Pa	
		(< -4 up to -100) kPa	0.008 % MV + 3 Pa	
	gas medium, gauge pressure	(0 up to 100) Pa	1.5 Pa	
		(> 0.1 up to 2.0) kPa	0.01 % MV + 0.35 Pa	
		(> 2.0 up to 3.45) kPa	0.26 Pa	
		(> 3.45 up to 345) kPa	0.0075 % MV	
		(> 0.345 up to 2.0) MPa	0.0014 % MV + 30 Pa	
		(> 2.0 up to 7.0) MPa	0.0023 % MV + 60 Pa	
	liquid medium, gauge pressure	(0.02 up to 0.6) MPa	48 Pa	
		(> 0.6 up to 100) MPa	0.008 % MV	
		(> 100 up to 120) MPa	0.020 % MV	
7.2	liquid medium, gauge pressure	(0.1 up to 0.5) MPa	0.25 kPa	
		(0.5 up to 50) MPa	0.05 % MV	
7.3	gas medium, negative gauge pressure	(- 100 up to 0) kPa	50 Pa	
		(0 up to 3) kPa	20 Pa	
	gauge pressure	(3 up to 20) kPa	2 Pa	
		(20 up to 700) kPa	0.01 % MV	
		(700 up to 1 000) kPa	100 Pa	
		(1 000 up to 10 000) kPa	0.01 % MV	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure		
	liquid medium, gauge pressure	(25 up to 600) kPa	120 Pa			
		(0.6 up to 4.5) MPa	0.02 % MV			
		(4.5 up to 6) MPa	0.9 kPa			
		(6 up to 60) MPa	0.015 % MV			
7.4 *	Pressure measuring chains inclusive field calibration – relative pressure	(-100 up to -4) kPa	50 Pa			
		(> -4 up to -2) kPa	3.0 Pa			
		(> -2 up to +2) kPa	1.5 Pa			
		(> 2 up to 4) kPa	3.0 Pa			
		(> 4 up to 300) kPa	150 Pa			
		(> 300 up to 1000) kPa	0.75 kPa			
		(> 1 up to 3) MPa	1.5 kPa			
		(> 3 up to 6) MPa	3.0 kPa			
		(> 6 up to 60) MPa	0.05 % MV			
		(> 60 up to 100) MPa	50 kPa			
		Pressure measuring chains inclusive field calibration - gas medium, absolute pressure	(1 up to 100) Pa		10 % MV	
			(> 0.1 up to 10) kPa		7.5 Pa	
	(> 10 up to 75) kPa		50 Pa			
	(> 75 up to 115) kPa		22 Pa			
	(> 115 up to 120) kPa		50 a			
	7.5	Pressure transducers and transmitters				
gas medium, gauge pressure		(1 up to 100) Pa	10 % MV			
		(> 0.1 up to 1.0) kPa	0.0012 % MV + 2 Pa			
		(> 1.0 up to 10.0) kPa	0.0012 % MV + 5 Pa			
		(> 10 up to 34.5) kPa	0.0012 % MV + 3.5 Pa			
		(> 34.5 up to 345) kPa	0.0076 % MV + 2 Pa			
		(> 0.345 up to 2.0) MPa	0.0018 % MV + 37 Pa			
		(> 2.0 up to 7.0) MPa	0.0026 % MV + 64 Pa			
gas medium, negative pressure		(0 up to -2) kPa	0.0012 % MV + 1.5 Pa			
		(< -2 up to -4) kPa	0.0012 % MV + 3 Pa			
		(< -4 up to -100) kPa	0.0081 % MV + 3 Pa			

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
	gas medium, gauge pressure	(0 up to 100) Pa	0.0012 % MV + 1.5 Pa	
		(> 0.1 up to 2.0) kPa	0.01 % MV + 0.35 Pa	
		(> 2.0 up to 3.45) kPa	0.0012% MV + 0.26 Pa	
		(> 3.45 up to 345) kPa	0.0076 % MV	
		(> 0.345 up to 2.0) MPa	0.0019 % MV + 30 Pa	
		(> 2.0 up to 7.0) MPa	0.0026 % MV + 60 Pa	
	liquid medium, gauge pressure	(0.02 up to 0.6) MPa	0.0012 % MV + 48 Pa	
		(> 0.6 up to 100) MPa	0.0081 % MV	
		(> 100 up to 120) MPa	0.020 % MV	

¹⁾ an asterisk at the item number marks the calibrations carried out outside of fixed laboratory areas or carried out both inside and outside of fixed laboratory areas

²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for k = 2

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Deformation type pressure gauges
2	Digital pressure gauges
3	Pressure measuring transducers with the unified output signal
4	Analog and digital pressure measuring chains
5	Piston gauges and deadweight testers

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: temperature and humidity

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
8.1	Liquid-in-glass thermometers (division < 0.1 °C)	(-80 up to 100) °C	0.015 °C	
		(> 100 up to 150) °C	0.020 °C	
		(> 150 up to 210) °C	0.040 °C	
		(> 210 up to 360) °C	0.050 °C	
	Liquid-in-glass thermometers (division ≥ 0.1 °C)	(-80 up to 150) °C	0.03 °C	
		(> 150 up to 210) °C	0.05 °C	
		(> 210 up to 360) °C	0.06 °C	
		(> 360 up to 420) °C	0.15 °C	
	Liquid-in-glass thermometers (division ≥ 1 °C)	(> 420 up to 550) °C	0.20 °C	
		(-80 up to 210) °C	0.40 °C	
		(> 210 up to 360) °C	0.50 °C	
		(> 360 up to 550) °C	0.60 °C	
8.2	Resistance thermometers (SPRT)	-196 °C	0.03 °C	
		0.01 °C	0.002 °C	
		(-80 up to 160) °C	0.01 °C	
		(> 160 up to 300) °C	0.02 °C	
		(> 300 up to 420) °C	0.03 °C	
		(> 420 up to 550) °C	0.05 °C	
	Resistance thermometers (IPRT)	(> 550 up to 660) °C	0.09 °C	
		-196 °C	0.035 °C	
		0.01 °C	0.004 °C	
		(-80 up to 160) °C	0.020 °C	
		(> 160 up to 300) °C	0.025 °C	
		(> 300 up to 420) °C	0.035 °C	
		(> 420 up to 550) °C	0.055 °C	
		(> 550 up to 660) °C	0.090 °C	
8.3	Thermocouples			
	Noble metals (standards)	(0 up to 220) °C	0.4 °C	
		(> 220 up to 550) °C	0.5 °C	
		(> 550 up to 1100) °C	0.8 °C	
		(> 1100 up to 1200) °C	1.0 °C	
(> 1200 up to 1600) °C	1.7 °C			

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [\pm] ²⁾	Identification of the procedure
	Base metals (standards)	-196 °C	0.3 °C	
		(-80 up to 220) °C	0.2 °C	
		(> 220 up to 550) °C	0.4 °C	
		(> 550 up to 1100) °C	1.0 °C	
		(> 1100 up to 1300) °C	1.4 °C	
	Noble metals (industrial)	(0 up to 220) °C	0.5 °C	
		(> 220 up to 550) °C	0.6 °C	
		(> 550 up to 1100) °C	0.9 °C	
		(> 1100 up to 1200) °C	1.1 °C	
		(> 1200 up to 1600) °C	1.7 °C	
	Base metals (industrial)	-196 °C	0.7 °C	
		(-80 up to 220) °C	0.6 °C	
		(> 220 up to 550) °C	0.8 °C	
		(> 550 up to 1100) °C	1.2 °C	
		(> 1100 up to 1300) °C	1.5 °C	
8.4	Gauged thermometers	-196 °C	0.03 °C	
		0.01 °C	0.002 °C	
		(-80 up to 160) °C	0.01 °C	
		(> 160 up to 300) °C	0.02 °C	
		(> 300 up to 420) °C	0.03 °C	
		(> 420 up to 550) °C	0.05 °C	
		(> 550 up to 660) °C	0.09 °C	
		(> 660 up to 1100) °C	0.8 °C	
		(> 1100 up to 1200) °C	1.0 °C	
8.5*	Gauged thermometers Temperature measuring chains including temperature sensors, the performance of temperature chambers	(-196 up to -80) °C	0.50 °C	
		(> -20 up to 50) °C	0.10 °C	
		(> 50 up to 100) °C	0.15 °C	
		(> 100 up to 700) °C	0.15 % MV (°C)	
		(> 700 up to 1100) °C	0.20 % MV (°C)	
		(> 1100 up to 1600) °C	0.25 % MV (°C)	
8.6*	Radiation thermometers Measuring chains with noncontact temperature sensors, range (-15 up to 500) °C	(-30 up to -15) °C	2.2 °C	
		(> -15 up to 0) °C	1.6 °C	
		(> 0 up to 20) °C	1.1 °C	
		(> 20 up to 100) °C	0.8 °C	
		(> 100 up to 200) °C	1.1 °C	
		(> 200 up to 300) °C	1.4 °C	
		(> 300 up to 400) °C	1.7 °C	
		(> 400 up to 500) °C	2.2 °C	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [\pm] ²⁾	Identification of the procedure
		(> 500 up to 600) °C	2.6 °C	
		(> 600 up to 700) °C	2.9 °C	
8.7*	Simulation of signal output - thermocouples			
	Type K	(-100 up to -50) °C	0.2 °C	
		(> -50 up to 1200) °C	0.03 % MV + 0.1 °C	
		(> 1200 up to 1300) °C	1.3 °C	
	Type J	(-150 up to 870) °C	0.4 °C	
		(> 870 up to 1000) °C	1.3 °C	
	Type N	(-100 up to 900) °C	0.3 °C	
		(> 900 up to 1300) °C	0.4 °C	
	Type S	(300 up to 550) °C	0.7 °C	
		(> 550 up to 1300) °C	0.8 °C	
	Platinum resistance thermometers	(-100 up to 800) °C	0.04 % MV + 0.1 °C	
	Voltage output of transmitters	(-10 up to 50) mV	0.04 % MV + 7 μ V	
		(-100 up to 500) mV	0.04 % MV + 50 μ V	
		(-1 up to 5) V	0.04 % MV + 0.5 mV	
		(-1 up to 50) V	0.04 % MV + 5 mV	
	Current output of transmitters	(0 up to 24) mA	0.04 % MV + 5 μ A	
8.8	SPRT at fixed points of ITS-90	-189.3442 °C (Ar)	0.7 mK	
8.9	Infrared thermometers - calibration at fixed points	In	0.2 °C	
		Sn	0.2 °C	
		Al	0.15 °C	
		Cu	0.10 °C	
8.9	Infrared thermometers - calibration by comparison	(-30 up to +35) °C	0.4 °C	
		(> 35 up to 600) °C	0.45 °C	
		(> 600 up to 1000) °C	0.6 °C	
		(> 1000 up to 1300) °C	1.0 °C	
		(> 1300 up to 1800) °C	1.5 °C	
8.10 *	Blackbodies	(-30 > up to +35) °C	0.45 °C	
		(> 35 up to 500) °C	0.5 °C	
		(> 500 up to 1000) °C	0.5 °C	
		(> 1000 up to 1300) °C	0.6 °C	
		(> 1300 up to 1800) °C	1.0 °C	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
8.11*	Thermal imagers	(-50 up to 500) °C	0.50 °C	
		(> 500 up to 1000) °C	0.7 °C	
		(> 1000 up to 1300) °C	1.0 °C	
		(> 1300 up to 1800) °C	1.5 °C	
8.12	Thermal imagers	(-20 up to -10) °C	1.8 °C	
		(> -10 up to 10) °C	1.6 °C	
		(> 10 up to 35) °C	1.4 °C	
		(> 35 up to 100) °C	1.6 °C	
		(> 100 up to 200) °C	1.8 °C	
		(> 200 up to 300) °C	1.9 °C	
		(> 300 up to 400) °C	2.8 °C	
		(> 400 up to 500) °C	3.4 °C	
8.20	Hygrometers relative humidity (temperature 15 °C up to 90 °C)	(10 up to 35) %	0.6 %	
		(> 35 up to 55) %	0.7 %	
		(> 55 up to 75) %	0.8 %	
		(> 75 up to 85) %	0.9 %	
		(> 85 up to 90) %	1.0 %	
		(> 90 up to 95) %	1.5 %	
8.21	Hygrometers temperature of dew/frost point	(-75 up to -60) °C	0.30 °C	
		(> -60 up to -40) °C	0.20 °C	
		(> -40 up to -20) °C	0.16 °C	
		(> -20 up to +20) °C	0.14 °C	
8.22*	Hygrometers Relative humidity Humidity measuring chains inclusive humidity sensors, the performance of climatic chambers (temperature 15 °C up to 90 °C)	(10 up to 20) %	0.7 %	
		(> 20 up to +40) %	0.8 %	
		(> 40 up to 65) %	0.9 %	
		(> 65 up to 80) %	1.0 %	
		(> 80 up to 90) %	1.2 %	
		(> 90 up to 95) %	1.5 %	

¹⁾ an asterisk at the item number marks the calibrations carried out outside of fixed laboratory areas or carried out both inside and outside of fixed laboratory areas

²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for k = 2

³⁾ For intermediate values of the division size apply to CMC as a division 0.1 °C, whilst respecting the actual readability thermometer

⁴⁾ valid for CJC temperature = 0 °C; additional uncertainty in the internal CJC mode is ± 0.4 °C

Accredited body according to EN ISO/IEC 17025:2018:

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Liquid-in-glass, resistance and gauged thermometers
2	Thermocouples
3	Radiation thermometers and measuring chains with noncontact temperature sensors
4	Analog and digital temperature measuring chains, the performance of temperature chambers
5	Hygrometers of gases, humidity measuring chains, the performance of climatic chambers
6	Analog and digital temperature measuring chains, the performance of temperature chambers
7	Infrared thermometers
8	Black bodies
9	Thermo imagery

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: electrical quantities

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability $[\pm]$ ²⁾	Identification of the procedure
9.1*	DC voltage			
	(0 up to 20) mV		$15 \cdot 10^{-6} \cdot U + 0.05 \mu\text{V}$	
	(20 up to 200) mV		$5.0 \cdot 10^{-6} \cdot U$	
	200 mV up to 2 V		$2.6 \cdot 10^{-6} \cdot U$	
	(2 up to 20) V		$2.1 \cdot 10^{-6} \cdot U$	
	10 V		$0.15 \cdot 10^{-6} \cdot U$	
	(20 up to 1100) V		$2.9 \cdot 10^{-6} \cdot U$	
9.2	DC voltage:			
	Measuring (sources)			
	(0 up to 2) V		$1.5 \cdot 10^{-6} \cdot U + 0.05 \mu\text{V}$	
	(2 up to 20) V		$0.8 \cdot 10^{-6} \cdot U$	
	(20 up to 1100) V		$1.6 \cdot 10^{-6} \cdot U$	
	Generating (meters)			
	(0 up to 2) V		$2.2 \cdot 10^{-6} \cdot U + 0.10 \mu\text{V}$	
	(2 up to 20) V		$1.6 \cdot 10^{-6} \cdot U$	
	10 V		$0.15 \cdot 10^{-6} \cdot U$	
(20 up to 1100) V		$2.0 \cdot 10^{-6} \cdot U$		
9.3*	AC voltage			
	(0.9 up to 2) mV	10 Hz up to 75 kHz	0.20 %	
		75 kHz up to 400 kHz	0.31 %	
		400 kHz up to 750 kHz	0.33 %	
		750 kHz up to 1 MHz	0.35 %	
	(2.0 up to 20) mV	10 Hz up to 25 kHz	0.036 %	
		25 kHz up to 75 kHz	0.033 %	
		75 kHz up to 200 kHz	0.053 %	
200 kHz up to 400 kHz		0.071 %		

Accredited body according to EN ISO/IEC 17025:2018:

Item no. 1)	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] 2)	Identification of the procedure
		400 kHz up to 750 kHz	0.079 %	
		750 kHz up to 1 MHz	0.11 %	
	(20 up to 200) mV	10 Hz up to 25 kHz	$98 \cdot 10^{-6} \cdot U$	
		25 kHz up to 75 kHz	$190 \cdot 10^{-6} \cdot U$	
		75 kHz up to 200 kHz	$370 \cdot 10^{-6} \cdot U$	
		200 kHz up to 400 kHz	$590 \cdot 10^{-6} \cdot U$	
		400 kHz up to 750 kHz	$650 \cdot 10^{-6} \cdot U$	
		750 kHz up to 1 MHz	$1000 \cdot 10^{-6} \cdot U$	
		200 mV up to 2 V	10 Hz up to 35 Hz	
	35 Hz up to 40 kHz		$26 \cdot 10^{-6} \cdot U$	
	40 kHz up to 75 kHz		$37 \cdot 10^{-6} \cdot U$	
	75 kHz up to 200 kHz		$48 \cdot 10^{-6} \cdot U$	
	200 kHz up to 400 kHz		$120 \cdot 10^{-6} \cdot U$	
	400 kHz up to 750 kHz		$230 \cdot 10^{-6} \cdot U$	
	750 kHz up to 1 MHz		$590 \cdot 10^{-6} \cdot U$	
	(2 up to 20) V	10 Hz up to 35 Hz	$37 \cdot 10^{-6} \cdot U$	
		35 Hz up to 40 kHz	$26 \cdot 10^{-6} \cdot U$	
		40 kHz up to 75 kHz	$33 \cdot 10^{-6} \cdot U$	
		75 kHz up to 200 kHz	$40 \cdot 10^{-6} \cdot U$	
		200 kHz up to 400 kHz	$110 \cdot 10^{-6} \cdot U$	
		400 kHz up to 750 kHz	$210 \cdot 10^{-6} \cdot U$	
		750 kHz up to 1 MHz	$560 \cdot 10^{-6} \cdot U$	
	(20 up to 200) V	10 Hz up to 35 Hz	$42 \cdot 10^{-6} \cdot U$	
		35 Hz up to 175 Hz	$37 \cdot 10^{-6} \cdot U$	
		175 Hz up to 40 kHz	$28 \cdot 10^{-6} \cdot U$	
		40 kHz up to 75 kHz	$40 \cdot 10^{-6} \cdot U$	
		75 kHz up to 150 kHz	$71 \cdot 10^{-6} \cdot U$	
		150 kHz up to 200 kHz	$240 \cdot 10^{-6} \cdot U$	
(200 up to 1100) V	10 Hz up to 5 kHz	$40 \cdot 10^{-6} \cdot U$		
	5 kHz up to 25 kHz	$45 \cdot 10^{-6} \cdot U$		
	25 kHz up to 40 kHz	$76 \cdot 10^{-6} \cdot U$		
	40 kHz up to 75 kHz	$120 \cdot 10^{-6} \cdot U$		
	75 kHz up to 100 kHz (Generating to 750 V)	$350 \cdot 10^{-6} \cdot U$		

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
9.4	AC voltage			
	(0.1 up to 1) μV	(50 up to 200) Hz	0.50 %	
		(0.2 up to 10) kHz	0.20 %	
		(10 up to 100) kHz	0.70 %	
	(1 up to 1000) μV	(50 up to 200) Hz	0.20 %	
		(0.2 up to 10) kHz	0.07 %	
(10 up to 100) kHz		0.30 %		
9.5*	DC current:			
	Measuring (sources)			
	(0 up to 1) μA		0.10 nA	
	(1 up to 100) μA		21·10 ⁻⁶ ·I	
	(100 up to 200) μA		12·10 ⁻⁶ ·I	
	200 μA up to 2 A		6.0·10 ⁻⁶ ·I	
	(2 up to 20) A		15·10 ⁻⁶ ·I	
	(20 up to 100) A		20·10 ⁻⁶ ·I	
	Generating (meters)			
	(0 up to 1) μA		0.10 nA	
	(1 up to 100) μA		21·10 ⁻⁶ ·I	
	(100 up to 200) μA		15·10 ⁻⁶ ·I	
	(0.2 up to 20) mA		6.0·10 ⁻⁶ ·I	
	(20 up to 200) mA		8.0·10 ⁻⁶ ·I	
	(0.2 up to 2) A		15·10 ⁻⁶ ·I	
	(2 up to 20) A		30·10 ⁻⁶ ·I	
	(20 up to 100) A		30·10 ⁻⁶ ·I	
	9.6*	AC current		
Measuring (sources)				
9 μA up to 2 mA		10 Hz up to 20 Hz	100·10 ⁻⁶ ·I	
		20 Hz up to 40 Hz	90·10 ⁻⁶ ·I	
		40 Hz up to 5 kHz	70·10 ⁻⁶ ·I	
		5 kHz up to 10 kHz	80·10 ⁻⁶ ·I	
(2 up to 20) mA		10 Hz up to 20 Hz	90·10 ⁻⁶ ·I	
		20 Hz up to 40 Hz	75·10 ⁻⁶ ·I	
		40 Hz up to 1 kHz	65·10 ⁻⁶ ·I	
		1 kHz up to 10 kHz	70·10 ⁻⁶ ·I	
(20 up to 200) mA		10 Hz up to 20 Hz	80·10 ⁻⁶ ·I	
		20 Hz up to 1 kHz	65·10 ⁻⁶ ·I	
		1 kHz up to 5 kHz	70·10 ⁻⁶ ·I	
		5 kHz up to 10 kHz	80·10 ⁻⁶ ·I	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure	
	200 mA up to 2 A	10 Hz up to 20 Hz	$120 \cdot 10^{-6} \cdot I$		
		20 Hz up to 40 Hz	$100 \cdot 10^{-6} \cdot I$		
		40 Hz up to 1 kHz	$90 \cdot 10^{-6} \cdot I$		
		1 kHz up to 5 kHz	$100 \cdot 10^{-6} \cdot I$		
		5 kHz up to 10 kHz	$120 \cdot 10^{-6} \cdot I$		
	(2 up to 20) A	10 Hz up to 20 Hz	$180 \cdot 10^{-6} \cdot I$		
		20 Hz up to 40 Hz	$160 \cdot 10^{-6} \cdot I$		
		40 Hz up to 1 kHz	$110 \cdot 10^{-6} \cdot I$		
		1 kHz up to 5 kHz	$140 \cdot 10^{-6} \cdot I$		
		5 kHz up to 10 kHz	$160 \cdot 10^{-6} \cdot I$		
	(20 up to 100) A	10 Hz up to 20 Hz	$250 \cdot 10^{-6} \cdot I$		
		20 Hz up to 40 Hz	$160 \cdot 10^{-6} \cdot I$		
		40 Hz up to 1 kHz	$120 \cdot 10^{-6} \cdot I$		
		1 kHz up to 5 kHz	$150 \cdot 10^{-6} \cdot I$		
		5 kHz up to 10 kHz	$200 \cdot 10^{-6} \cdot I$		
	Generating (meters)				
	(9 up to 200) μ A	10 Hz up to 35 Hz	$130 \cdot 10^{-6} \cdot I$		
		35 Hz up to 1 kHz	$100 \cdot 10^{-6} \cdot I$		
		1 kHz up to 5 kHz	$160 \cdot 10^{-6} \cdot I$		
		5 kHz up to 10 kHz	$800 \cdot 10^{-6} \cdot I$		
200 μ A up to 2mA	10 Hz up to 35 Hz	$120 \cdot 10^{-6} \cdot I$			
	35 Hz up to 1 kHz	$90 \cdot 10^{-6} \cdot I$			
	1 kHz up to 5 kHz	$140 \cdot 10^{-6} \cdot I$			
	5 kHz up to 10 kHz	$140 \cdot 10^{-6} \cdot I$			
(2 up to 200) mA	10 Hz up to 35 Hz	$120 \cdot 10^{-6} \cdot I$			
	35 Hz up to 1 kHz	$75 \cdot 10^{-6} \cdot I$			
	1 kHz up to 5 kHz	$130 \cdot 10^{-6} \cdot I$			
	5 kHz up to 10 kHz	$140 \cdot 10^{-6} \cdot I$			
200 mA up to 2 A	10 Hz up to 35 Hz	$170 \cdot 10^{-6} \cdot I$			
	35 Hz up to 1 kHz	$120 \cdot 10^{-6} \cdot I$			
	1 kHz up to 5 kHz	$220 \cdot 10^{-6} \cdot I$			
	5 kHz up to 10 kHz	$220 \cdot 10^{-6} \cdot I$			
(2 up to 20) A	10 Hz up to 35 Hz	$310 \cdot 10^{-6} \cdot I$			
	35 Hz up to 1 kHz	$200 \cdot 10^{-6} \cdot I$			
	1 kHz up to 5 kHz	$300 \cdot 10^{-6} \cdot I$			
	5 kHz up to 10 kHz	$690 \cdot 10^{-6} \cdot I$			
(20 up to 100) A	10 Hz up to 35 Hz	$350 \cdot 10^{-6} \cdot I$			
	35 Hz up to 1 kHz	$200 \cdot 10^{-6} \cdot I$			
	1 kHz up to 5 kHz	$300 \cdot 10^{-6} \cdot I$			
	5 kHz up to 10 kHz	$950 \cdot 10^{-6} \cdot I$			

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
9.7	DC resistance			
	0.0001 Ω		$7.2 \cdot 10^{-6} \cdot R$	
	0.001 Ω		$3.5 \cdot 10^{-6} \cdot R$	
	0.01 Ω		$2.6 \cdot 10^{-6} \cdot R$	
	0.02 Ω		$2.2 \cdot 10^{-6} \cdot R$	
	0.1 Ω		$0.86 \cdot 10^{-6} \cdot R$	
	1 Ω		$0.73 \cdot 10^{-6} \cdot R$	
	10 Ω		$0.71 \cdot 10^{-6} \cdot R$	
	25 Ω		$0.63 \cdot 10^{-6} \cdot R$	
	100 Ω		$0.35 \cdot 10^{-6} \cdot R$	
	1 kΩ		$0.35 \cdot 10^{-6} \cdot R$	
	10 kΩ		$0.38 \cdot 10^{-6} \cdot R$	
	100 kΩ		$0.59 \cdot 10^{-6} \cdot R$	
	1 MΩ		$4.0 \cdot 10^{-6} \cdot R$	
	10 MΩ		$7.0 \cdot 10^{-6} \cdot R$	
	100 MΩ		$16 \cdot 10^{-6} \cdot R$	
	1 GΩ		$100 \cdot 10^{-6} \cdot R$	
10 GΩ		$500 \cdot 10^{-6} \cdot R$		
9.8*	DC resistance			
	(0 up to 0.1) mΩ		$3.5 \cdot 10^{-6} \cdot R + 0.5$ n	
	(0.1 up to 0.2) mΩ		$7.2 \cdot 10^{-6} \cdot R$	
	(0.000 2 up to 0.001) Ω		$6.0 \cdot 10^{-6} \cdot R$	
	(0.001 up to 0.002) Ω		$3.5 \cdot 10^{-6} \cdot R$	
	(0.002 up to 0.01) Ω		$5.6 \cdot 10^{-6} \cdot R$	
	(0.01 up to 0.02) Ω		$2.6 \cdot 10^{-6} \cdot R$	
	(0.02 up to 0.1) Ω		$1.6 \cdot 10^{-6} \cdot R$	
	(0.1 up to 0.2) Ω		$0.86 \cdot 10^{-6} \cdot R$	
	(0.2 up to 1) Ω		$1.6 \cdot 10^{-6} \cdot R$	
	(1 up to 2) Ω		$0.73 \cdot 10^{-6} \cdot R$	
	(2 up to 10) Ω		$1.6 \cdot 10^{-6} \cdot R$	
	(10 up to 20) Ω		$0.71 \cdot 10^{-6} \cdot R$	
	(20 up to 100) Ω		$1.2 \cdot 10^{-6} \cdot R$	
	(100 up to 200) Ω		$0.35 \cdot 10^{-6} \cdot R$	
	(200 up to 1000) Ω		$0.93 \cdot 10^{-6} \cdot R$	
	(1 up to 2) kΩ		$0.35 \cdot 10^{-6} \cdot R$	
(2 up to 10) kΩ		$1.2 \cdot 10^{-6} \cdot R$		
(10 up to 20) kΩ		$0.38 \cdot 10^{-6} \cdot R$		
(20 up to 100) kΩ		$0.86 \cdot 10^{-6} \cdot R$		
(100 up to 200) kΩ		$0.59 \cdot 10^{-6} \cdot R$		

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
	(200 up to 1000) kΩ		$4.1 \cdot 10^{-6} \cdot R$	
	(1 up to 2) MΩ		$4.0 \cdot 10^{-6} \cdot R$	
	(2 up to 10) MΩ		$7.4 \cdot 10^{-6} \cdot R$	
	(10 up to 20) MΩ		$7.0 \cdot 10^{-6} \cdot R$	
	(20 up to 200) MΩ		$16 \cdot 10^{-6} \cdot R$	
	(200 up to 1000) MΩ		$520 \cdot 10^{-6} \cdot R$	
	(1 up to 2) GΩ		$120 \cdot 10^{-6} \cdot R$	
	(2 up to 10) GΩ		0.52 %	
	(10 up to 20) GΩ		0.12 %	
9.9	Bridge for thermometry:			
	Ratio 0 up to 1.1	0 Hz up to 400 Hz	$8 \cdot 10^{-7}$	
	Ratio 1.1 up to 4		$2 \cdot 10^{-6}$	
9.10	AC active electrical power 1-phase and 3-phase 0.005 W up to 216 kW in: voltage (1 up to 600) V current (0.005 up to 120) A $\cos \varphi$ (0.1 up to 1) capacitive and inductive	15 up to 800 Hz	0.010 %	
9.11	AC reactive electrical power 1-phase and 3-phase 0.005 var up to 216 kvar in: voltage (1 up to 600) V current (0.005 up to 120) A $\sin \varphi$ (0.1 up to 1) capacitive and inductive	15 up to 800 Hz	0.020 %	
9.12	Phase angle: 0° up to 360°			
	for voltage (0.1 up to 1) μV	(0.4 up to 1.592) kHz	0.10°	
	for voltage (1 up to 100) μV	(0.4 up to 1.592) kHz	0.05°	
	for voltage (0.1 up to 1) mV	(0.4 up to 1.592) kHz	0.10°	
	for voltage (1 up to 10) mV	(0.4 up to 1.592) kHz	0.05°	
	for voltage (0.01 up to 100) V	1 Hz up to 6 kHz	0.001°	
		6 kHz up to 50 kHz	0.002°	
		50 kHz up to 100 kHz	0.050°	
	for voltage (0.01 up to 1) V	100 kHz up to 1 MHz	0.05°	
		1 MHz up to 10 MHz	0.10°	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
9.13	Flicker (0.5 up to 5) Pst	50 Hz	0.003·Pst	
9.14	pH			
	(electrical simulation) (0 up to 14) pH		0.001 pH	
	(- 1000 up to +1000) mV		0.01 V	
9.15	Temperature Temperature calibrators (electrical simulation)			
	Thermocouples:			
	R / (- 50 up to +1760) °C		0.12 °C	
	S / (- 50 up to +1760) °C		0.16 °C	
	B / (0 up to 1820) °C		0.14 °C	
	J / (- 210 up to +1200) °C		0.04 °C	
	T / (- 270 up to +400) °C		0.04 °C	
	E / (- 270 up to +1000) °C		0.04 °C	
	K / (- 270 up to +1370) °C		0.05 °C	
	N / (- 270 up to +1300) °C		0.05 °C	
	M / (- 200 up to +100) °C		0.03 °C	
	Fe-ko / (- 200 up to +900) °C		0.04 °C	
	L / (- 200 up to +800) °C		0.03 °C	
	A / (0 up to 2500) °C		0.24 °C	
	Resistance thermometers:			
	Pt100 / (- 200 up to +850) °C		0.02 °C	
	Pt200 / (- 200 up to +850) °C		0.02 °C	
	Pt500 / (- 200 up to +850) °C		0.03 °C	
	Pt1000 / (- 200 up to +850) °C		0.02 °C	
	Ni 100 / (- 60 up to +250) °C		0.01 °C	
Ni 1000 / (- 60 up to +250) °C		0.01 C		

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
9.16	Capacitance:			
	(10 a 100) pF	1 kHz	0.5·10 ⁻⁶ ·C	
	(1 up to 10) pF	50 Hz up to 200 Hz	0.015 %	
		200 Hz up to 1 kHz	0.0070 %	
		1 kHz	0.0015 %	
		1 kHz up to 10 kHz	0.0050 %	
		10 kHz up to 1 MHz	0.010 %	
		1 MHz up to 10 MHz	0.20 %	
		(10 up to 1000) pF	50 Hz up to 1 kHz	0.0050 %
	1 kHz		0.0007 %	
	1 kHz up to 10 kHz		0.0050 %	
	10 kHz up to 1 MHz		0.010%	
	1 MHz up to 10 MHz		0.20 %	
	(1 up to 10) nF	50 Hz up to 1 kHz	0.0070 %	
		1 kHz	0.0010 %	
		1 kHz up to 10 kHz	0.0050 %	
		10 kHz up to 1 MHz	0.010 %	
		1 MHz up to 10 MHz	0.20 %	
	(10 up to 100) nF	50 Hz up to 200 Hz	0.010 %	
		200 Hz up to 1 kHz	0.0030 %	
		1 kHz up to 10 kHz	0.0070 %	
		10 kHz up to 100 kHz	0.010 %	
		100 kHz up to 1 MHz	0.050 %	
	(100 up to 1000) nF	50 Hz up to 200 Hz	0.0070 %	
		200 Hz up to 10 kHz	0.0050 %	
		10 kHz up to 100 kHz	0.015 %	
		100 kHz up to 1 MHz	0.050 %	
	(1 up to 10) μF	20 Hz up to 50 Hz	0.010 %	
		50 Hz up to 1 kHz	0.0070 %	
		1 kHz	0.0050 %	
		(1 up to 10) kHz	0.0060 %	
		(10 up to 20) kHz	0.015 %	
		(20 up to 100) kHz	0.050 %	
(10 up to 100) μF		(20 up to 50) Hz	0.010 %	
	50 Hz up to 1 kHz	0.0050 %		
	(1 up to 10) kHz	0.0060 %		
	(10 up to 20) kHz	0.020 %		

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
	(100 up to 1000) μ F	(20 up to 200) Hz	0.010 %	
		(200 up to 1000) Hz	0.015 %	
		(1 up to 5) kHz	0.020 %	
	(1 up to 3) mF	(20 up to 200) Hz	0.020 %	
		(200 up to 1000) Hz	0.025 %	
	(3 up to 10) mF	(20 up to 200) Hz	0.030 %	
	100 μ F to 1 F	0.1 Hz	0.1 %	
9.17	Dissipation factor D:		Reported as absolute value	
	For C = (1 up to 10) pF			
	D < 0.001	50 Hz to 200 Hz	57E-06	
		200 Hz up to 1 kHz	8E-06	
		1 kHz	3E-06	
		(1 up to 5) kHz	17E-06	
		(5 up to 10) kHz	42E-06	
		(10 up to 20) kHz	120E-06	
	0.001 < D < 0.01	50 Hz to 200 Hz	61E-06	
		200 Hz up to 1 kHz	18E-06	
		1 kHz	5E-06	
		(1 up to 5) kHz	26E-06	
		(5 up to 10) kHz	50E-06	
		(10 up to 20) kHz	130E-06	
	0.01 < D < 0.1	50 Hz to 200 Hz	150E-06	
		200 Hz up to 1 kHz	120E-06	
		1 kHz	30E-06	
		(1 up to 5) kHz	110E-06	
		(5 up to 10) kHz	130E-06	
	0.1 < D < 1	1 kHz	300E-06	
	For C = (10 up to 100) pF			
	D < 0.001	50 Hz to 200 Hz	13E-06	
		200 Hz up to 1 kHz	4E-06	
		1 kHz	3E-06	
		(1 up to 5) kHz	9E-06	
		(5 up to 10) kHz	18E-06	
		(10 up to 20) kHz	39E-06	
0.001 < D < 0.01	50 Hz to 200 Hz	20E-06		
	200 Hz up to 1 kHz	13E-06		

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
		1 kHz	5E-06	
		(1 up to 5) kHz	15E-06	
		(5 up to 10) kHz	23E-06	
		(10 up to 20) kHz	43E-06	
	0.01 < D < 0.1	50 Hz to 200 Hz	61E-06	
		200 Hz up to 1 kHz	52E-06	
		1 kHz	30E-06	
		(1 up to 5) kHz	48E-06	
		(5 up to 10) kHz	58E-06	
	0.1 < D < 1	1 kHz	300E-06	
	For C = (100 up to 1000) pF			
	D < 0.001	50 Hz to 200 Hz	9E-06	
		200 Hz up to 1 kHz	4E-06	
		1 kHz	3E-06	
		(1 up to 5) kHz	7E-06	
		(5 up to 10) kHz	12E-06	
		(10 up to 20) kHz	23E-06	
	0.001 < D < 0.01	50 Hz to 200 Hz	12E-06	
		200 Hz up to 1 kHz	7E-06	
		1 kHz	5E-06	
		(1 up to 5) kHz	9E-06	
		(5 up to 10) kHz	14E-06	
	0.01 < D < 0.1	(10 up to 20) kHz	25E-06	
		50 Hz to 200 Hz	140E-06	
		200 Hz up to 1 kHz	74E-06	
		1 kHz	30E-06	
		(1 up to 5) kHz	70E-06	
	0.1 < D < 1	(5 up to 10) kHz	61E-06	
		1 kHz	300E-06	
	For C = (1 up to 10) nF			
	D < 0.001	50 Hz to 200 Hz	79E-06	
		200 Hz up to 1 kHz	7E-06	
1 kHz		9E-06		
(1 up to 5) kHz		24E-06		
(5 up to 10) kHz		41E-06		
(10 up to 20) kHz		79E-06		
0.001 < D < 0.01	50 Hz to 200 Hz	82E-06		
	200 Hz up to 1 kHz	7E-06		

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure	
		1 kHz	9E-06		
		(1 up to 5) kHz	24E-06		
		(5 up to 10) kHz	41E-06		
		(10 up to 20) kHz	79E-06		
	0.01 < D < 1	50 Hz to 200 Hz	100E-06		
		200 Hz up to 1 kHz	7E-06		
		1 kHz	9E-06		
		(1 up to 5) kHz	24E-06		
		(5 up to 10) kHz	41E-06		
		(10 up to 20) kHz	79E-06		
		D < 1	50 Hz to 200 Hz		30E-06
			200 Hz up to 1 kHz		15E-06
	1 kHz		15E-06		
	(1 up to 5) kHz		21E-06		
	(5 up to 10) kHz		35E-06		
	(10 up to 20) kHz		67E-06		
	For C = (100 up to 1000) nF				
	D < 1	20 Hz up to 50 Hz	100E-06		
		50 Hz up to 5 kHz	30E-06		
		(5 up to 10) kHz	60E-06		
		(10 up to 20) kHz	80E-06		
	For C = (1 up to 10) μF				
	D < 1	20 Hz up to 50 Hz	100E-06		
		50 Hz up to 5 kHz	30E-06		
		(5 up to 10) kHz	60E-06		
		(10 up to 20) kHz	150E-06		
	For C = (10 up to 100) μF				
	D < 1	20 Hz up to 50 Hz	100E-06		
50 Hz up to 200 Hz		30E-06			
200 Hz up to 5 kHz		50E-06			
(5 up to 10) kHz		100E-06			
(10 up to 20) kHz		220E-06			
For C = (100 up to 1000) μF					
D < 1	20 Hz up to 50 Hz	100E-06			
	50 Hz up to 1 kHz	50E-06			
	1 kHz up to 5 kHz	100E-06			
	(5 up to 10) kHz	160E-06			

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
		(10 up to 20) kHz	350E-06	
	For C = (1 up to 3) mF			
	D < 1	20 Hz up to 50 Hz	100E-06	
		50 Hz up to 200 Hz	50E-06	
		200 Hz up to 5 kHz	100E-06	
	For C = (3 up to 10) mF			
	D < 1	20 Hz up to 1 kHz	100E-06	
9.18	AC Resistance:			
	1 mΩ up to 10 mΩ	20 Hz up to 50 Hz	0.015 %	
		50 Hz up to 20 kHz	0.010 %	
	10 mΩ up to 100 mΩ	20 Hz up to 50 Hz	0.010 %	
		50 Hz up to 20 kHz	0.0070 %	
		20 kHz up to 1 MHz	0.10 %	
	100 mΩ up to 1 Ω	20 Hz up to 50 Hz	0.0070 %	
		50 Hz up to 20 kHz	0.0050 %	
		20 kHz up to 1 MHz	0.10 %	
	1 Ω up to 10 kΩ	20 Hz up to 20 kHz	0.0020 %	
		(20 up to 1000) kHz	0.020 %	
		(1 up to 10) MHz	0.20 %	
	10 kΩ up to 100 kΩ	20 Hz up to 50 Hz	0.0070 %	
		50 Hz up to 20 kHz	0.0050 %	
		20 kHz up to 1 MHz	0.10 %	
		1 MHz up to 10 MHz	5.0 %	
	100 kΩ up to 1 MΩ	20 Hz up to 50 Hz	0.015 %	
		50 Hz up to 20 kHz	0.0080 %	
		20 kHz up to 1 MHz	0.10 %	
		1 MHz up to 10 MHz	5.0 %	
	1 MΩ up to 10 MΩ	20 Hz up to 50 Hz	0.030 %	
		50 Hz up to 20 kHz	0.015 %	
		20 kHz up to 1 MHz	0.30 %	
		1 MHz up to 10 MHz	5.0 %	
	10 MΩ up to 100 MΩ	20 Hz up to 50 Hz	0.070 %	
		50 Hz up to 5 kHz	0.030 %	
		5 kHz up to 10 kHz	0.050 %	
		10 kHz up to 1 MHz	0.30 %	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure											
9.19	Minor component of impedance Z expressed as phase angle φ (1 up to 10) mΩ	(20 up to 200) Hz	3.5 μrad												
		(0.2 up to 1) kHz	(17·f) μrad												
		(1 up to 100) kHz	(11·f) μrad												
	(10 up to 100) mΩ	(20 up to 200) Hz	2.5 μrad												
		(0.2 up to 1) kHz	(13·f) μrad												
		(1 up to 100) kHz	(9.7·f) μrad												
	(0.1 up to 0.5) Ω	(20 up to 150) Hz	1.5 μrad												
		(0.15 up to 1) kHz	(10·f) μrad												
		(1 up to 100) kHz	(9.4·f) μrad												
	(0.5 up to 1) Ω	(20 up to 100) Hz	1 μrad												
		(0.1 up to 1) kHz	(9.5·f) μrad												
		(1 up to 100) kHz	(8.2·f) μrad												
	(1 up to 10) Ω	(20 up to 120) Hz	0.7 μrad												
		120 Hz up to 100 kHz	(6.3·f) μrad												
		(100 up to 1000) kHz	(12·f) μrad												
	(10 up to 100) Ω	(20 up to 150) Hz	0.7 μrad												
		150 Hz up to 100 kHz	(4.4·f) μrad												
		(100 up to 1000) kHz	(7.5·f) μrad												
	(0.1 up to 1) kΩ	(20 up to 200) Hz	0.7 μrad												
		200 Hz up to 100 kHz	(3.1·f) μrad												
		(0.1 up to 1) MHz	(6.3·f) μrad												
	(1 up to 10) kΩ	(20 up to 120) Hz	0.7 μrad												
		120 Hz up to 100 kHz	(6.3·f) μrad												
	(10 up to 100) kΩ	20 Hz up to 1 kHz	7 μrad												
		(1 up to 10) kHz	15 μrad												
		(10 up to 100) kHz	(9.4·f) μrad												
	(0.1 up to 10) MΩ	(50 up to 200) Hz	50 μrad												
		(200 up to 5000) Hz	8.0 μrad												
		(5 up to 10) kHz	20 μrad												
		(10 up to 20) kHz	9 μrad												
	9.20	Inductance													
		(10 and 100) mH	1 kHz											0.0015 %	
1 μH up to 10 μH		1 kHz up to 1 MHz	0.10 %												
10 μH up to 100 μH		(50 up to 200) Hz	0.10 %												
		(200 up to 1000) Hz	0.015 %												
		(1 up to 20) kHz	0.020 %												
(20 up to 1000) kHz		0.10 %													
100 μH up to 1 mH	(20 up to 50) Hz	0.30 %													

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
		(50 up to 1000) Hz	0.015 %	
		(1 up to 20) kHz	0.010 %	
		(20 up to 1000) kHz	0.050 %	
	(1 up to 10) mH	(20 up to 50) Hz	0.30 %	
		(50 up to 200) Hz	0.015 %	
		(200 up to 1000) Hz	0.0080 %	
		1 kHz	0.0050 %	
		(1 up to 20) kHz	0.0080 %	
		(20 up to 1000) kHz	0.050 %	
	(10 up to 100) mH	(20 up to 50) Hz	0.30 %	
		(50 up to 1000) Hz	0.0080 %	
		1 kHz	0.0050 %	
		(1 up to 20) kHz	0.015 %	
		(20 up to 1000) kHz	0.050 %	
	100 mH up to 1 H	(50 up to 1000) Hz	0.0080 %	
		1 kHz	0.0050 %	
		(1 up to 10) kHz	0.020 %	
		(10 up to 20) kHz	0.050 %	
	100 mH up to 10 H	(20 up to 50) Hz	0.30 %	
		(50 up to 1000) Hz	0.020 %	
		(1 up to 1000) kHz	0.050 %	
	(10 up to 100) H	(20 up to 50) Hz	0.30 %	
		(50 up to 1000) Hz	0.030 %	
(1 up to 100) kHz		0.050 %		
100 H up to 1000 H	20 Hz up to 50 Hz	0.30 %		
	50 Hz up to 10 kHz	0.09		
9.21	Instrument current transformers			
	0.5 A up to 5 000 A/ 5 A and 1 A		0.002 %; 0.07'	
	5 kA up to 30 kA/5 A and 1 A		0.003 %; 0.10'	
9.22*	Instrument voltage transformers			
	5 kV; 10 kV and 22 kV/100 V		0.006 %; 0.21'	
	1 kV up to 400 kV/5 V up to 250		0.007 %; 0.24'	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
9.23*	Instrument voltage transformers 100 V up to 100 kV/5 V up to 250 V		0.007 %; 0.24'	
9.24*	Rogowski coils AC current			
	- up to 10 kA direct method with 1 conductor		(0.021 up to 0.100) %	
	- up to 30 kA by means of a current loop with 10 turns		(9 up to. 20) '	
9.25	Quantities measured or generated by digital electrical testers and related standards			
	insulation resistance - measurement			
	10 k up to 10 M		0.0012 %	
	10 M up to 100 M		0.0020 %	
	100 M up to 1 G		0.010 %	
	1 G up to 10 G		0.025 %	
	10 G up to 100 G		0.050 %	
	(0.1 up to 1) T Ω		0.002·R ² +0.001·R (R is resistance in T)	
	100 M		0.0017 %	
	1 G		0.0030 %	
	10 G		0.010 %	
	insulation resistance - generation			
	10 k up to 1 G		0.020 %	
	1 G up to 10 G		1.0 %	
	10 G up to 100 G		1.5 %	
	100 G up to 1 TΩ		2.5 %	
	1 T up to 10 TΩ		4.0 %	
	100 M		0.0030 %	
	1 G		0.0050 %	
	10 G		0.020 %	
	100 G		0.10 %	
	1 T		0.50 %	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [\pm] ²⁾	Identification of the procedure
	Line/Loop impedance source, ground bond resistance source generating using Fluke 5320			
	25 m		5 m	
	50 m		5 m	
	100 m		5 m	
	330 m		7 m	
	500 m		8 m	
	1 Ω		10 m	
	1.8 Ω		18 m	
	5 Ω		30 m	
	10 Ω		60 m	
	18 Ω		100 m	
	50 Ω		300 m	
	100 Ω		500 m	
	180 Ω		1 Ω	
	500 Ω		2.5 Ω	
	1 k		5 Ω	
	1.8 k		10 Ω	
	RCD trip current measurement 3 mA up to 3000 mA	50 Hz	0.20%	
	RCD trip current generating 3 mA up to 3000 mA	50 Hz	1.0%	
	RCD trip time generating 10 ms up to 5000 ms		0.020 % + 0.25 ms	
	RCD trip time measurement 10 ms up to 5000 ms		0.050 ms	
	leakage current passive generating 0.1 mA up to 30 mA	50 Hz	0.3 % + 2 μ A	
	leakage current differential generating 0.1 mA up to 30 mA	50 Hz	0.3 % + 2 μ A	
	leakage current substitution 0.1 up to 30 mA	50 Hz	0.3 % + 2 μ A	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
	leakage current active measurement 0.1 mA up to 30 mA	50 Hz	0.3 % + 1 μA	
	leakage current measurement 0.1 mA up to 300 mA	0Hz, 20 Hz to 400 Hz	0.20%	
	high voltage measurement			
	0 up to 10 kV	0 Hz	0.3 % + 5 V	
	0 up to 10 kV	50 Hz	0.5 % + 5 V	
	current clamp measurement			
	1A up to 1000 A	0 Hz	0.80%	
	1A up to 1000 A	50 Hz	0.50%	
9.26	Oscilloscope vertical deflection factor			
	-222 V up to 222 V	0 Hz	0.025 % + 25 V	
	(1 up to 21) mV	10 Hz up to 10 kHz	0.1 % + 15 V	
	(21 up to 556) mV		0.1 % + 1 V	
	556 mV up to 210 V		0.05 % + 1 V	
9.27	Oscilloscope time base			
	1 ns up to 50 s		0.25 10 ⁻⁶	
9.28	Oscilloscope -3 dB bandwidth			
	(0 up to 100) MHz		3 %	
	(100 up to 550) MHz		6 %	
	(0.55 up to 1.1) GHz		8 %	
	Oscilloscope amplitude decrease at f _{max}	(0 up to 100) MHz	0.13 dB	
	-6 dB up to 6 dB	(100 up to 550) MHz	0.26 dB	
		(0.55 up to 1.1) GHz	0.35 dB	
9.29	Oscilloscope rise time 300 ps		12 ps	
9.30	Oscilloscope input resistance			
	800 k up to 1.2 M			
	9 up to 90 Ω		0.1 %	
9.31	Dividing ratio of voltage oscilloscope probes (up to 222 V) 0.9: 1 up to 1100 : 1	0 Hz up to 10 kHz	0.5 %	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
9.32*	HF power: power sensor calibration factor 0.05 up to 1.1	(0 up to 1) GHz	0.9 %	
		(1 up to 18) GHz	1.5 %	
		(18 up to 40) GHz	2.0 %	
	HF power level <i>L</i> (44 up to 55) dB (mW)	9 kHz up to 2.5 GHz	0.12 dB	
		9 kHz up to 6 GHz	0.09 dB	
	(20 up to 44) dB (mW)	(6 up to 18) GHz	0.14 dB	
		9 kHz up to 1 GHz	0.06 dB	
	(10 up to 20) dB (mW)	1 GHz up to 10 GHz	0.07 dB	
		10 GHz up to 18 GHz	0.1 dB	
		18 GHz up to 40 GHz	0.13 dB	
	(– 10 up to 10) dB (mW)	9 kHz up to 10 GHz	0.05 dB	
		10 GHz up to 18 GHz	0.09 dB	
		18 GHz up to 40 GHz	0.13 dB	
	(– 30 up to – 10) dB (mW)	9 kHz up to 1 GHz	0.06 dB	
		1 GHz up to 10 GHz	0.07 dB	
		10 GHz up to 18 GHz	0.10 dB	
		18 GHz up to 40 GHz	0.13 dB	
	(– 60 up to – 30) dB (mW)	9 kHz up to 1 GHz	0.07 dB	
		1 GHz up to 10 GHz	0.09 dB	
		10 GHz up to 18 GHz	0.10 dB	
		18 GHz up to 40 GHz	[0.13 – 0.001 (<i>L</i> +30)] dB	
	(– 100 up to – 60) dB (mW)	0.1 MHz up to 1 GHz	[0.07 – 0.001 (<i>L</i> +60)] dB	
		(1 up to 10) GHz	[0.09 – 0.001 (<i>L</i> +60)] dB	
(10 up to 18) GHz		[0.11 – 0.0015 (<i>L</i> +60)] dB		
(18 up to 26.5) GHz		[0.15 – 0.002 (<i>L</i> +60)] dB		
HF voltage at defined location in coaxial line				
1 mV up to 2 V	(0 up to 2) GHz	1 %		
2V up to 100 V	(0 up to 2) GHz	1.7%		
HF current at defined location in coaxial line				

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
	20 A up to 40 mA	(0 up to 2) GHz	1 %	
	40 mA up to 2 A	(0 up to 2) GHz	1.7%	
	Difference of levels <i>L</i> (HF power, voltage, current) {attenuation, linearity check, gain}			
	(0 up to 65) dB	9 kHz up to 1 MHz	(0.02 + 0.0006 <i>L</i>) dB	
	(65 up to 75) dB		0.14 dB	
	(75 up to 85) dB		0.21 dB	
	(0 up to 85) dB	1 MHz up to 13.2 GHz	(0.02 + 0.0006 <i>L</i>) dB	
	(85 up to 95) dB		0.14 dB	
	(95 up to 105) dB		0.21 dB	
	(105 up to 110) dB		0.56 dB	
	(0 up to 75) dB	(13.2 up to 26.5) GHz	(0.02 + 0.0006 <i>L</i>) dB	
	(75 up to 85) dB		0.14 dB	
	(85 up to 95) dB		0.21 dB	
	(95 up to 100) dB		0.56 dB	
	(0 up to 40) dB	(26.5 up to 40) GHz	0.1 dB	
9.33	Voltage 0.5 mV up to 1 kV Voltage 1 mV up to 100 V Current 0.1 mA up to 1 A (measured by multimeter)	0 Hz 40 Hz up to 100 kHz 0 Hz	0.1 % 1.3 μ+ 0.15 % 0.1 %	
9.34	Amplitude modulation depth <i>m</i>			
	5 % up to 99 %	<i>f_c</i> : 100 kHz up to 10 MHz <i>f_{mod}</i> : 50 Hz up to 10 kHz	0.75 % <i>m</i>	
	5 % up to 20 %	<i>f_c</i> : 10 MHz up to 3 GHz	2.5 % <i>m</i>	
	20 % up to 99 %	<i>f_{mod}</i> : 50 Hz up to 100 kHz	0.5 % <i>m</i>	
9.35	Impedance of coupling networks (3 – 200) Ω	9 kHz – 30 MHz	magnitude 6 % phase 4 °	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [\pm] ²⁾	Identification of the procedure
9.36	Pulse generators ESD simulators Current 1 A – 80 A		4 %	
9.37	Pulse generators (rise time > 0.2 s) Short-circuit current, peak value 1 A – 3 kA		4 %	
9.38	Pulse generators (rise time > 0.2 s) Open-circuit voltage, peak value 200 V – 8 kV		3.5 %	
9.39	Pulse generators EFT/burst Voltage, peak value into load:			
	50 Ω 100 V – 2.5 kV		3 %	
	1 k 200 V – 6 kV		1 %	
9.40*	Calibration of Antennas:			
	Antenna factors, Standard Site Method (3 m distance)	(– 10 up to +60) dB/m: (30 up to 100) MHz	2.8 (dB)	
		(– 10 up to +60) dB/m: (100 up to 300) MHz	2.8 (dB)	
		(– 10 up to +60) dB/m: (300 up to 1000) MHz	3 (dB)	
		(– 10 up to +60) dB/m: (1000 up to 18000) MHz	2 (dB)	
	Antenna factors, Standard Site Method (10 m distance)	(– 10 up to +60) dB/m: (30 up to 100) MHz	2.2 (dB)	
		(– 10 up to +60) dB/m: (100 up to 300) MHz	1.5 (dB)	
(– 10 up to +60)		1.4 (dB)		

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
		dB/m: (300 up to 1000) MHz		
		(- 10 up to +60) dB/m: (1000 up to 18000) MHz	2.0 (dB)	
	Reference antenna method Antenna factors, (3 m distance)	(- 10 up to +60) dB/m: (30 up to 100) MHz	3.3 (dB)	
		(- 10 up to +60) dB/m: (100 up to 300) MHz	3.3 (dB)	
		(- 10 up to +60) dB/m: (300 up to 1000) MHz	3.5 (dB)	
		(- 10 up to +60) dB/m: (1000 up to 18000) MHz	2.2 (dB)	
	Reference antenna method Antenna factors, (10 m distance)	(- 10 up to +60) dB/m: (30 up to 100) MHz	2.5 (dB)	
		(- 10 up to +60) dB/m: (100 up to 300) MHz	1.7 (dB)	
		(- 10 up to +60) dB/m: (300 up to 1000) MHz	1.7 (dB)	
		(- 10 up to +60) dB/m: (1000 up to 18000) MHz	2.2 (dB)	
	Monopole (ROD) antenna – Equivalent Capacitance Substitution Method antenna factor	(- 10 up to +60) dB/m: (0.009 up to 30) MHz	2.1 (dB)	
	Antenna factors in distance of 1m	(- 10 up to +60) dB/m: (30 up to 1000) MHz	3.5 (dB)	
		(- 10 up to +60) dB/m: (1000 up to 18000) MHz	3.1 (dB)	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity and Range of measured quantity	Frequency	Calibration and Measurement Capability [\pm] ²⁾	Identification of the procedure
	Antenna factors loop antenna factors in distance 1 m	(- 10 up to +60) dB(S/m) (0.01 up to 30) MHz	2.2 (dB)	

¹⁾ an asterisk at the item number marks the calibrations carried out outside of fixed laboratory areas or carried out both inside and outside of fixed laboratory areas

²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for $k = 2$

³⁾ by mathematical calculation, it can be expressed also as: Q, XS, BP, CP, LS, τ

Accredited body according to EN ISO/IEC 17025:2018:

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Calibrators
2	Multimeters
3	Direct current (DC) and alternating current (AC) voltmeters
4	DC and AC ammeters
5	DC resistance decades
6	DC electrical resistors
7	Electricity meters (electrical power meters)
8	Wattmeters
9	Wattmeter calibrators
10	Flickermeters
11	Capacitance and Dissipation Factor Standards
12	Inductance Standards
13	AC Resistance Standards
14	RLC Meters
15	Temperature calibrators (electrical simulation)
16	pH-meters and pH-simulators (electrical simulation)
17	Voltage and current measuring transformers
18	Rogowski coils
19	Digital electrical testers - resistance, insulation resistance, ground impedance, protective loop network impedance, ground loops, RCD, leakage currents, high voltage and current using current clamp meters. Related standards - Fluke 5320 calibrator, standards of resistance and resistance decade
20	Analog oscilloscopes
21	Digital oscilloscopes
22	Probes to oscilloscopes
23	Electronic counters
24	Signal generators
25	Testers of mobile phones 6103, 6103A, 6103G
26	Testers of base stations 6113, 6113A, 6113G
27	HF power meters
28	HF voltage meters
29	Selective HF level meters
30	Modulation measuring instruments
31	Attenuators, amplifiers
32	HF voltage probes, current to voltage transducers
33	Pulse generators, ESD simulators
34	EMC coupling networks
35	Other equipment where frequency dependent transmission function is of interest

Accredited body according to EN ISO/IEC 17025:2018:

Item no.	Instrument or device to be measured
36	Antennas in frequency range 0.009 MHz ÷ 18 000 MHz
37	Resistance bridges for thermometry
38	Generators and phase meters
39	Lock-in amplifiers

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: magnetic quantities

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
10.1	Magnetic flux density	1 mT up to 2 T	(0.21 up to 1) %	

¹⁾ an asterisk at the item number marks the calibrations carried out outside of fixed laboratory areas or carried out both inside and outside of fixed laboratory areas

²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for $k = 2$

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Reference magnets

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: optical quantities

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure					
11.1	Spectral reflectance factor R	(0 up to 100) % for geometry: 8° / t and 8° / d:							
		(380 up to 460) nm	(0.1 + 0.010.R) %						
		(465 up to 780) nm	(0.12 + 0.008.R) %						
		For geometry 0° / 45°: (380 up to 780) nm	(0.17 + 0.014.R) %						
11.2	Colorimetric coordinates L*, a*, b*	L*	a*	b*	U				
		2 up to 99	- 40 up to 65	- 45 up to 95	standard	L*	a*	b*	
					GH06 1 up to GH06 5	0.47	0.25	0.25	
					GH06 6	0.45	0.35	0.94	
					GH06 7 up to GH06 11	0.35	0.30	0.65	
					GH06 12	1.30	1.55	1.45	
11.3	Colorimetric coordinates Y, x, y	Y [%]	x	y	U				
		0.3 up to 90	0.18 up to 0.70	0.1 up to 0.5	standard	Y [%]	x	y	
					GH06 1	0.55	0.0005	0.0005	
					GH06 2 up to GH06 5	0.30	0.0010	0.0005	
					GH06 6	0.30	0.0050	0.0008	
					GH06 7 up to GH06 11	0.60	0.0016	0.0010	
					GH06 12	0.25	0.0136	0.0143	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity			Calibration and Measurement Capability [±] ²⁾				Identification of the procedure	
		L	u'	v'	U					
11.4	Colorimetric coordinates L, u', v'	2	0.13	0.24	standard	L	u'	v'		
		up	up	up	GH06 1 up to GH06 5	0.47	0.0010	0.0005		
		to	to	to						
		99	0.90	0.60						
										GH06 6
			GH06 7 up to GH06 11	0.35	0.0008	0.0006				
							GH06 12	1.30	0.0045	0.0149
11.5	Gloss	(0 up to 150) GU			1.8 GU					
11.6*	Illuminance E _v	(0.1 up to 50 000) lx			2.2 %					
11.7*	Irradiance E _e (230 up to 470) nm	(1E-13 up to 1 000) mW/cm ²			5 %					
11.8*	Correlated colour temperature T _{cp}	(100 up to 10000) K			(10 up to 85) K varies with spectral distribution of the optical source					
11.9*	Transmittance regular spectral τ _r	τ _r [-]			wavelength [nm]	U [-]				
		1. 10 ⁻¹ up to 1. 10 ⁰			200 up to 380	1.2. 10 ⁻³				
		1. 10 ⁻³ up to 1. 10 ⁻¹			200 up to 380	1.0. 10 ⁻⁴				
		6. 10 ⁻¹ up to 1. 10 ⁰			380 up to 1000	8.0. 10 ⁻⁴				
11.10*	Transmittance regular spectral τ _r	τ _r [-]			wavelength [nm]	U [-]				
		3. 10 ⁻¹ up to 6. 10 ⁻¹			380 up to 400	4.1. 10 ⁻³				
		3. 10 ⁻¹ up to 6. 10 ⁻¹			400 up to 700	5.6. 10 ⁻⁴				
		3. 10 ⁻¹ up to 6. 10 ⁻¹			700 up to 1000	1.7. 10 ⁻³				
		2. 10 ⁻² up to 3. 10 ⁻¹			380 up to 400	1.5. 10 ⁻³				
		2. 10 ⁻² up to 3. 10 ⁻¹			400 up to 1000	2.2. 10 ⁻⁴				
		1. 10 ⁻³ up to 2. 10 ⁻²			380 up to 400	2.0. 10 ⁻⁴				
		1. 10 ⁻³ up to 2. 10 ⁻²			400 up to 1000	8.0. 10 ⁻⁵				
	expression in absorbance A			U _A [-]			U _A = - log(1 - U[-] / τ _r)			
11.11*	Wavelength λ	200 nm up to 1000 nm			0.2 nm					
11.12	Optical density D	0 up to 4.5			0.0038					

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
11.13	Optical power	Optical power – 90 dBm up to +40 dBm (1 pW up to 10 W), Wavelength 800 nm up to 1650 nm	Wavelength [nm]	U[%]
			800 up to 920	0.40
			920 up to 960	0.50
			960 up to 1000	0.45
			1000 up to 1650	0.47
	Optical attenuation	0 dB up to 65 dB	1.2 %	
	Linearity	0 dB up to 0.5 dB	0.4 %	
	Wavelength	800 nm up to 1650 nm	4 · 10 ⁻⁹ relatively	
11.14	Illuminance	1 up to 50 000 lx	0.8 %	
	Luminous intensity	1 up to 20 000 cd	0.8 %	
11.15	Luminous flux	10 up to 20 000 lm	1.0 %	

¹⁾ an asterisk at the item number marks the calibrations carried out outside of fixed laboratory areas or carried out both inside and outside of fixed laboratory areas

²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for k = 2

³⁾ Expressed in dBm: $P[\text{dBm}] = 10 \cdot \log(P[\text{W}]/0.001)$, $U[\text{dBm}] = 10 \cdot \log(1/(1 - U[-]))$

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Colorimetric measuring instruments
2	Glossmeters, standards of mirror gloss
3	Optical sources
4	Optical filters
5	Standards of Optical Density
6	Optical Radiometers and Fiber Optic Radiometers
7	Spectral Analyzers
8	Optical Attenuators
9	Fiber Optic Couplers (Y, X - fibres)
10	Laser Based Radiation Sources
11	Luminous intensity standards and Illuminance meters
12	Luminous flux standards and Lamps and Luminaires

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: time, frequency

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
12.1*	Frequency			
a		0.01 Hz up to 3 GHz	$1 \cdot 10^{-11}$	
b		(3 up to 18) GHz	1 Hz	
c		(18 up to 46) GHz	3 Hz	
12.2*	Period	5 ns up to 10^5 s	$1 \cdot 10^{-11}$	
12.3*	Time interval			
	measurement by counter	(0 up to 10^5) s	$(1.1 \cdot 10^{-9} + 1 \cdot 10^{-11} \text{ t})$ s	
	measurement by oscilloscope	(0 up to 10) s	$(10 \cdot 10^{-12} + 2 \cdot 10^{-3} \text{ t})$ s	
12.4*	Pulse counting $f_{\max} = 50$ MHz	0 up to $1 \cdot 10^7$	0	
12.5	FM frequency deviation f_c : 250 kHz up to 10 MHz f_{mod} : 20 Hz up to 10 kHz $\Delta f/f_{\text{mod}} > 0.2$ $\Delta f/f_{\text{mod}} > 1.2$	(0.2 up to 40) kHz	1.5 % 1 %	
	f_c : 10 MHz up to 6.6 GHz, f_{mod} : 50 Hz up to 200 kHz $\Delta f/f_{\text{mod}} > 0.2$ $\Delta f/f_{\text{mod}} > 0.45$	(0.25 up to 400) kHz	1.5 % 1 %	
12.6	Time interval Stopwatches with mechanical start/stop	(0.1 up to 35 999.99) s	16 ms	
12.7	Relative frequency error of time base of stopwatches with LCD,	$-1 \cdot 10^{-3}$ up to $1 \cdot 10^{-3}$	$3 \cdot 10^{-7}$	

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²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA-4/02 for $k = 2$

Accredited body according to EN ISO/IEC 17025:2018:

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Frequency standards, counters, generators
2	Multimeters, multicalibrators, oscilloscopes, electronic devices measuring time intervals and other measuring equipment, for which frequency and time parameters are important
3	Pulse generators, devices measuring time intervals and another signal sources
4	Signal sources, counters
5	Modulation measuring instruments, equipment for generating and measurement of telecommunication signals
6	Stopwatches with mechanical start/stop
7	Stopwatches with LCD

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: acoustics

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
13.1	Level of acoustic pressure (in relation to frequency and total distortion) According to nominal calibrator pressure value	(59.91 up to 134.09) dB (re $20 \cdot 10^{-6}$ Pa)	0.09 dB	(EN 60942)
13.2	Sensitivity of microphone According to nominal microphone sensitivity value	(- 31.08 dB up to - 23.92) dB (re $1 \text{ V} \cdot \text{Pa}^{-1}$)	0.05 dB	(EN 61094-1, EN 61094-2)

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²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA 4/02 for $k = 2$

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Acoustical calibrators (e.g. B&K, types: 4220, 4228, 4230, 4231)
2	Laboratory standard 1" microphones

Accredited body according to EN ISO/IEC 17025:2018:

Field of measured quantity: physical chemistry

Calibration: Nominal temperature at calibration: as specified in the respective procedures

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
14.1*	Moisture - cereals and oil seeds Relative moisture	(4 up to 50) %	0.25 %	
14.2*	Moisture - cereals and oil seeds - multi-parameter analyzers			
	Relative moisture	(4 up to 50) %	0.27 %	
	Content of nitrogen substances	(5 up to 40) %	0.30 %	
	Oil content	(10 up to 80) %	0.29 %	
	Zeleny test	(10 up to 75) ml	1.3 ml	
14.3*	Moisture - wood Absolute moisture	(4 up to 110) %	0.31 %	
14.4*	Moisture – plastics Relative moisture	(0.001 up to 20) %	0.005 %	
14.5	Index of refraction	1.3 up to 1.7	9 · 10 ⁻⁵	
14.6	Kinematic viscosity - time of outflow for flow cups	(30 up to 100) s		
	Orifice No.D4		0.18 s	
	Orifice No.C3		0.10 s	
	Orifice No.C4		0.56 s	
	Orifice No.C5		0.11 s	
	Orifice No.C6		0.26 s	
	Orifice No.A4		0.10 s	
14.7	Kinematic viscosity (capillary viscometers)	0.001 mm ² s ⁻²	2.9 · 10 ⁻⁶ mm ² s ⁻²	
		0.003 mm ² s ⁻²	1.3 · 10 ⁻⁵ mm ² s ⁻²	
		0.01 mm ² s ⁻²	5.2 · 10 ⁻⁵ mm ² s ⁻²	
		0.03 mm ² s ⁻²	1.8 · 10 ⁻⁴ mm ² s ⁻²	
		0.1 mm ² s ⁻²	6.3 · 10 ⁻⁴ mm ² s ⁻²	
		0.3 mm ² s ⁻²	2.0 · 10 ⁻³ mm ² s ⁻²	
		1 mm ² s ⁻²	7.2 · 10 ⁻³ mm ² s ⁻²	

Accredited body according to EN ISO/IEC 17025:2018:

Item no. ¹⁾	Measured quantity	Range of measured quantity	Calibration and Measurement Capability [±] ²⁾	Identification of the procedure
		3 mm ² s ⁻²	2.5 · 10 ⁻² mm ² s ⁻²	
		10 mm ² s ⁻²	9.3 · 10 ⁻² mm ² s ⁻²	
		30 mm ² s ⁻²	3.1 · 10 ⁻¹ mm ² s ⁻²	
14.8	Kinematic viscosity (calibration liquids)	(0.6 up to 6) mm ² s ⁻¹	0.13 %	
		(6 up to 60) mm ² s ⁻¹	0.32 %	
		(60 up to 600) mm ² s ⁻¹	0.36 %	
		(600 up to 6000) mm ² s ⁻¹	0.41 %	
		(6000 up to 30000) mm ² s ⁻¹	0.51 %	
	Dynamic viscosity (calibration liquids)	(0.6 up to 6) mPa s	0.13 %	
		(6 up to 60) mPa s	0.32 %	
		(60 up to 600) mPa s	0.36%	
		(600 up to 6000) mPa s	0.41 %	
		(6000 up to 30000) mPa s	0.51 %	
14.9	Dynamic viscosity (rotary viscometers)	(10 up to 150) mPa s	0.53 %	
		(150 up to 400) mPa s	0.60 %	
		(400 up to 1300) mPa s	0.69 %	
		(1300 up to 30000) mPa s	0.84 %	
14.10	Liquid density (glass hydrometers)	(650 to 1850) kg m ⁻³	0.022 kg.m ⁻³	
		(0 up to 100) % obj.	0.019 % obj.	
		(0 up to 90) % hm.	0.019 % hm.	
		(10 up to 30) kg hl ⁻¹	0.019 kg.hl ⁻¹	
14.11	Conductivity meters	(0.005 up to <0.015) S m ⁻¹	from 5.60 % up to 0.64 %	
		(0.015 up to <0.15) S m ⁻¹	from 0.64 % up to 0.19 %	
		(0.15 up to <1.5) S m ⁻¹	from 0.19 % up to 1.5%	
		(1.5 up to 10) S m ⁻¹	1.5 %	
14.12	Concentration of ethanol in the gas phase (breath analyzers) - dry gas method (chapter no. 5.3.1)	0.140 mg/l	0.006 mg/l	
		0.480 mg/l	0.011 mg/l	
		0.900 mg/l	0.019 mg/l	
		1.400 mg/l	0.028 mg/l	
14.13	Concentration of ethanol in the gas phase (breath analyzers) - simulation method (chapter no.5.3.2)	0.140 mg/l	0.008 mg/l	
		0.480 mg/l	0.013 mg/l	

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²⁾ expressed in a similar way like uncertainty in compliance with the requirements of EA 4/02 for $k = 2$

Instruments or devices to be measured:

(in compliance with the above list of measured quantities and their ranges the following kinds of instruments or devices can be measured)

Item no.	Instrument or device to be measured
1	Moisture meters of cereals and oil seeds
2	Moisture meters of wood, plastics
3	Flow caps to measure rheological properties of liquids
4	Breath analyzers
5	Conductivity meters
6	Capillary viscometers
7	Rotary viscometers
8	Densitometers – areometry

Explanations and abbreviations:

- ANSI - American National Standards Institute
- ČMI - Czech Metrology Institute
- ČSN - Czech technical standard
- EN - European standard
- ISO - International organisation for standardisation
- LFM - Laboratory for Fundamental Metrology
- MV - from measured value
- RI - Regional Inspectorate
- FP - Fixed point
- α - thermal expansion coefficient of the measured material expressed as ($\mu\text{m}/\text{m}/\text{K}$)

XXX-MP-AYYY - Internal procedure (calibration procedure prepared by CMI)