Accredited entity according to ČSN EN ISO/IEC 17025:2018:

Český metrologický institut
CAB number 2202, CMI Calibration Laboratory
Okružní 772/31, 638 00 Brno

Calibration laboratory locations:

1.	**Regional Inspectorate Praha**	Radiová 1136/3, 102 00 Praha 10 – Hostivař
2.	**Regional Inspectorate České Budějovice**	U Sirkárny 33/5, 370 04 České Budějovice 4
3.	**Regional Inspectorate Plzeň**	Bendova 539/11, 301 00 Plzeň
4.	**Regional Inspectorate Liberec**	Slunečná 23, 460 01 Liberec
5.	**Regional Inspectorate Most**	Vladislava Vančury 1428/7, 434 01 Most
6.	**Regional Inspectorate Pardubice**	Průmyslová 455, 530 03 Pardubice
7.	**Regional Inspectorate Brno**	Okružní 31, 638 00 Brno
8.	**Regional Inspectorate Jihlava**	Romana Havelky 17, 586 01 Jihlava
9.	**Regional Inspectorate Kroměříž**	Kotojedy 73, 767 01 Kroměříž
10.	**Regional Inspectorate Opava**	Gudrichova 41, 746 01 Opava
11.	**Regional Inspectorate Olomouc**	I.P. Pavlova 671/141, 779 00 Olomouc
12.	**Laboratories for Primary Metrology in Prague**	V Botanice 4, 150 72 Praha 5
13.	**TESTCOM Praha**	Hvožďanská 3, 148 00 Praha 4

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CMC for the field of measured quantity: Length

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
1*	Strain gauges for mechanical testing of materials	0 mm	up to	25 mm			0.9 µm	ČSN EN ISO 9513	151-MP-C003	1, 6, 10
		25 mm	up to	50 mm			1.3 µm			
		50 mm	up to	1,000 mm			20 µm			
		0 mm	up to	10 mm			0.9 µm	ASTM E83	151-MP-C005	
		10 mm	up to	50 mm			1.3 µm			
		50 mm	up to	1,000 mm			20 µm			
2	Steel parallels	0.3 mm	up to	1,000 mm		2nd order	(0.5L +0.05) µm	Mechanical comparison with a standard using a comparator or length gauge	614-MP-C033 (ČSN EN ISO 365 0)	4, 6, 7
						3rd order	(1L +0.1) µm			
						4th order	(2L +0.2) µm			
						5th order	(5L +0.5) µm			
3*	Mechanical comparators of nominal length (0.3 to 100) mm	-0.01 mm	up to	+0.01 mm			0.032 µm	Comparison using steel parallels	614-MP-C005	4, 7
4*	Length measuring instruments, meters and gauges	0 m	up to	20 m			(0.4L +0.02) µm	Direct measurement by a laser interferometer	614-MP-C006	7, 12
5	Micrometers	0 mm	up to	500 mm			(5L +1.5) µm	Comparison with steel parallels and gauges	614-MP-C008	4, 6, 7
6	Slide gauges	0 mm	up to	1,000 mm			20 µm	Comparison with steel parallels, gauges and rings	614-MP-C009	4, 6, 7
7	Length measuring instruments, meters and gauges	0 mm	up to	1,000 mm			(2L +0.2) µm	Direct measurement by a distance meter	614-MP-C029	4, 6, 7

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
8	Test sieves	0.005	mm	up to	150	mm		(4L +1.5) μm	Calibration on a 2D optical instrument, using slide gauge or limit gauges	614-MP-C102	6, 7
9	Roundness / balls, rings, cylinders, cones	-2	mm	up to	+2	mm	Maximum diameter 350 mm	Q[0.025;0.01R] μm	Direct measurement by a ring gauge	614-MP-C103	7
	Straightness and parallelity / rings, cylinders, cones, straightness and parallelity standards	-2	mm	up to	+2	mm	Maximum horizontal path: 200 mm Maximum vertical path: 300 mm	Q[0.2;0.01R] μm			
10	Diameter / thread limit gauges, plain limit gauges	1	mm	up to	100	mm		2.5 μm	Calibration on IAC MasterScanner XP 10060 analyzer	614-MP-C106	7
11	Gauges, standards, artefacts	0	mm	up to	600	mm		(2.5L +1.2) μm	Calibration on a linear height gauge	614-MP-C104	6
		0	mm	up to	2,550	mm		Q[0.09; 0.4L] μm	Measurement on a coordinate measuring machine	815-MP-C503	7, 12
12*	Coordinate measuring machine / system										
	- contacting	0	m	up to	6	m		Q[0.01;0.2L] μm	Comparison with the standard	815-MP-C501	7, 12
	- optical	0	m	up to	3	m		Q[0.01;0.2L] μm			
	- multisensor	0	m	up to	3	m		Q[0.01;0.2L] μm			
	- optical 3D	0	m	up to	3	m		Q[0.3;1L] μm			
	- articulated arm	0	m	up to	4.5	m		Q[0.3;1L] μm			
	- computer tomography	0	m	up to	1.5	m		Q[0.3;1L] μm			
	- laser-trackers	0	m	up to	30	m		Q[0.3;1L] μm			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
13	Tape measures, length and distance gauges	0.3 m 0 m	up to up to		30 m 300 m			Q[100; 3L] µm Q[20; 20L] µm	Comparison using a tape measure, micrometer head	815-MP-C510	6, 12
14*	Machines with electronic measurement of cubic content of wooden logs - length - diameter	0 m 5 cm	up to up to		30 m 100 m			7 mm 0.2 mm	Comparison using an artefact measured by a standard or direct comparison with a standard	411-MP-C003	4
15*	Roughness / setting standard	0.01 µm 1 µm	up to up to		1 µm 100 µm		Pt Pt	Q[20; 50Pt] nm Q[20; 20Pt] nm	Contact measurement	813-MP-C306	12
	- geometrical standard type C	0.01 µm	up to		100 µm		Ra, Rq, Rpm, Rk profiles, material ratios, Rsk, Rp3z, Rku, Rc, Rdq, Rδc	Q[10; 30Ra] nm			
							Rmax, RzISO, Rp, Rv, Rz, Rt, Rz1, Rz2, Rz3, Rz4, Rz5	Q[20; 40Rp] nm			
	- geometrical standard type D	0.01 µm	up to		100 µm		Ra, Rq, Rpm, Rk profiles, material ratios, Rsk, Rp3z, Rku, Rc, Rdq, Rδc	Q[10; 40Ra] nm			
							Rmax, RzISO, Rp, Rv, Rz, Rt, Rz1, Rz2, Rz3, Rz4, Rz5	Q[20; 50Rp] nm			
	- geometrical standard type C and D	0.01 µm	up to		1 µm		Horizontal characteristics	Q[20; 50Sm] nm			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
16*	Roughness meter for setting standards	0.01	µm	up to	1	µm	All characteristics	3.4 %	Contact measurement	813-MP-C306	12
		1	µm	up to	6,000	µm		1.2 %			
	Roughness meter for geometrical standards	1	µm	up to	6,000	µm		3.4 %			
17	Counting efficiency / Optical counters of aerosol particles	0	η	up to	5	η	particle size (0 to 50) µm	9 %	Comparison with PSL particles	614-MP-C105 ISO 21501-4, cl. 4.3, 4.5, 4.7	7
18	Linear thermal expansion / Parallel gauge blocks up to 100 mm	0.1	$\mu m \cdot m^{-1} \cdot K^{-1}$	up to	100	$\mu m \cdot m^{-1} \cdot K^{-1}$	at a temperature difference of 4 °C or more	0.29 $\mu m \cdot m^{-1} \cdot K^{-1}$	Measurement of length change at a defined temperature change	411-MP-C010	12
							at a temperature difference of 3 °C or more	0.35 $\mu m \cdot m^{-1} \cdot K^{-1}$			
							at a temperature difference of 2 °C or more	0.49 $\mu m \cdot m^{-1} \cdot K^{-1}$			
							at a temperature difference of 1 °C or more	0.95 $\mu m \cdot m^{-1} \cdot K^{-1}$			
19*	Length gauges rolling, contactless	0.1	m	to	10^5	m		0.005 %	Comparison using a tape measure, non-contact length gauges or non-contact length gauge reference standard	620-MP-C002	9
20*	Length sensors, thickness sensors, indicators	0	mm	to	150	mm		0.2 µm	Comparison with parallel gauge blocks	411-MP-C011	4, 7

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L nominal length expressed in metres

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CMC for the field of measured quantity: Plane angle

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
1	Autocollimator	-4,000″	up to	+4,000″			Q[0.01; $2\cdot10^{-5}\cdot\varphi$; $6\cdot10^{-9}\cdot\varphi^2$] ″	Comparison with a small angle generator	411-MP-C004	4
2*	Levels, autocollimators, clinometers	-180 °	up to	180 °			0.05″	Comparison with a rotary table or autocollimator	411-MP-C004	4
3*	Index heads and tables, goniometers, instruments for checking angular divisions, angle transducers, torque wrench angle sensors, built-in angle sensors, polygons, angle gauges, optical prisms	0 °	up to	360 °			0.03″	Comparison with an optical polygon, autocollimator or rotary table	411-MP-C006	4, 9
4	Polygons, optical prisms, angle gauges	0 °	up to	360 °			0.05″	Measurement using two autocollimators	411-MP-C006	4
5	Angle gauges	0 °	up to	360 °			60″	Comparison with angle gauges	411-MP-C006	4

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φ nominal angle of rotation in [″]

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CMC for the field of measured quantity: Volume, flow rate

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
1	Static volume/ Measuring vessels	0.2 mL	up to	21,000 mL		Distilled water	0.01 %	Gravimetric method	616-MP-C016 (ČSN EN ISO 4787, EURAMET cg-19)	6, 7
2*	Static volume/ metal measuring vessels – limit, scaled, with a graduation mark	2 L	up to	1,000 L		Distilled water / water	0.01 %	Gravimetric method	615-MP-C151 (ČSN EN ISO 4787, EURAMET cg-19)	6, 7, 10
3	Static volume / Piston volume meters piston pipettes other piston gauges	0.5 µL 200 µL	up to up to	10,000 µL 200,000 µL		Distilled water	0.13 % + 0,01 µL 0.04 %.	Gravimetric method	616-MP-C017 (ČSN EN ISO 8655-6, EURAMET cg-19)	6, 7
4*	Static volume/ Stationary reservoirs and tanks	5 dm^3 20 dm^3	up to up to	500 dm^3 100 m^3			0.3 % 0.3 %	Volume method Flow method	551-MP-C401	6
5	Volume and velocity gas meters and flow meters for gas	0.06 $m^3 \cdot h^{-1}$	up to	1,200 $m^3 \cdot h^{-1}$			0.25 %	Flow method	512-MP-C103, chap. 5.1	6
		8 $m^3 \cdot h^{-1}$	up to	10,000	$m^3 \cdot h^{-1}$		0.19 %	Volume method	512-MP-C103, chap. 5.2	
		0.3 $m^3 \cdot h^{-1}$	up to	1,600 $m^3 \cdot h^{-1}$			0.20 %		512-MP-C103, chap. 5.3	
		0.016 $m^3 \cdot h^{-1}$	up to	16 $m^3 \cdot h^{-1}$		Q_{min} to $0.1Q_{max}$ $0.1Q_{max}$ to Q_{max}	0.65 % 0.28 %		512-MP-C103, chap. 5.4	

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		0.02	$m^3 \cdot h^{-1}$	up to	160	$m^3 \cdot h^{-1}$	Q_{min} to $0.1Q_{max}$	0.70 %		512-MP-C103, chap. 5.5	
				up to			$0.1Q_{max}$ to Q_{max}	0.50 %			
		9.5	$dm^3 \cdot h^{-1}$	up to	760	$dm^3 \cdot h^{-1}$		0.16 %	Gravimetric method	512-MP-C103, chap. 5.6	
		0.5	$m^3 \cdot h^{-1}$	up to	280	$m^3 \cdot h^{-1}$		0.07 %	Volume method	512-MP-C103, chap. 5.7	
6	Float flow meters	0.01	$m^3 \cdot h^{-1}$	up to	0.75	$m^3 \cdot h^{-1}$		1 %	Volume method	512-MP-C104	6
		0.75	$m^3 \cdot h^{-1}$	up to	1.3	$m^3 \cdot h^{-1}$		1.3 %			
		1.3	$m^3 \cdot h^{-1}$	up to	25	$m^3 \cdot h^{-1}$		1 %			
7	Conversion number Z / Gas calculators	0.8		up to	275		(–30 to +80) °C (0.8 to 135) bar	0.06 %	Temperature and pressure measurement by volume flow simulation	512-MP-C105	6
8	Flow velocity anemometers						Air		Comparison with an LDA reference standard	615-MP-C147	7
		0.3	$m \cdot s^{-1}$	up to	5	$m \cdot s^{-1}$		0.3 % + 0.01 $m \cdot s^{-1}$	Comparison with a LDA standard		
		5	$m \cdot s^{-1}$	up to	50	$m \cdot s^{-1}$		0.5 %			
		0.5	$m \cdot s^{-1}$	up to	5	$m \cdot s^{-1}$		0.5 % + 0.01 $m \cdot s^{-1}$	Comparison with a standard – Pitot tube		
		5	$m \cdot s^{-1}$	up to	50	$m \cdot s^{-1}$		0.7 %			
	anemometers in the traction line	0.05	$m \cdot s^{-1}$	to	0.5	$m \cdot s^{-1}$		0.5 % + 0.005 $m \cdot s^{-1}$		615-MP-C149	

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9	Water flow meters (water meters), flow meters of heat meters and flow meters tested by water						Water		Gravimetric method	615-MP-C142	7
	volume or volume flow rate	0.05 $m^3 \cdot h^{-1}$	up to		150 $m^3 \cdot h^{-1}$		(10 to 30) °C	0.10 %			
	mass or mass flow rate	0.05 $t \cdot h^{-1}$	up to		150 $t \cdot h^{-1}$		(10 to 30) °C	0.10 %			
	volume or volume flow rate	0.002 $m^3 \cdot h^{-1}$	up to		0.005 $m^3 \cdot h^{-1}$		(10 to 90) °C	0.25 %			
		0.005 $m^3 \cdot h^{-1}$	up to		0.012 $m^3 \cdot h^{-1}$			0.16 %			
		0.012 $m^3 \cdot h^{-1}$	up to		0.025 $m^3 \cdot h^{-1}$			0.09 %			
		0.025 $m^3 \cdot h^{-1}$	up to		0.050 $m^3 \cdot h^{-1}$			0.07 %			
		0.050 $m^3 \cdot h^{-1}$	up to		10 $m^3 \cdot h^{-1}$			0.05 %			
	volume or volume flow rate	0.002 $m^3 \cdot h^{-1}$	up to		0.1 $m^3 \cdot h^{-1}$		(10 to 30) °C	0.10 %	Volume method with a piston		
							(30 to 90) °C	0.12 %			
		0.1 $m^3 \cdot h^{-1}$	up to		6 $m^3 \cdot h^{-1}$		(10 to 30) °C	0.06 %			
							(30 to 90) °C	0.08 %			
	volume or volume flow rate	0.7 $m^3 \cdot h^{-1}$	up to		60 $m^3 \cdot h^{-1}$		(10 to 30) °C	0.10 %	Gravimetric method		
							(30 to 90) °C	0.12 %			
10	Volume flow rate or volume / Flow meters for liquids other than water	3 $dm^3 \cdot min^{-1}$	up to		1,000 $dm^3 \cdot min^{-1}$		Hydrocarbons based liquids	0.10 %	Volume method with a piston	615-MP-C143	7

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
11*	Volume or mass flow rate or volume or mass / meters and measuring systems of road tankers	85 $dm^3 \cdot min^{-1}$		up to	460 $dm^3 \cdot min^{-1}$		Cryogenic liquids	0.50 %	Volume method with a measuring loop	615-MP-C148	7
12	Mass or mass flow rate / Micro-flow meters	1 $g \cdot h^{-1}$		to	50 $g \cdot h^{-1}$		Distilled water (20 to 30) °C	0.30 %	Gravimetric method	615-MP-C158	7
		50 $g \cdot h^{-1}$		to	6, 000 $g \cdot h^{-1}$			0.16 %			
	Volume or volume flow rate / Micro-flow meters	1 $ml \cdot h^{-1}$		to	50 $ml \cdot h^{-1}$			0.30 %	Volumetric method with a flow meter or a piston		
		50 $ml \cdot h^{-1}$		to	6 ,000 $ml \cdot h^{-1}$			0.16 %			

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v velocity in $m \cdot s^{-1}$

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CMC for the field of measured quantity: Mass

Ord. number [1]	Calibrated quantity / Subject of calibration	Nominal range		Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min. unit	max. unit					
1	Mass of weights	1 mg up to	20 mg		0.0010 mg	Loading using a reference weight	612-MP-C131	1 to 11
			50 mg		0.0013 mg			
			100 mg		0.0016 mg			
			200 mg		0.0020 mg			
			500 mg		0.0026 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			
			1,000 kg		500 mg			

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Ord. number [1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand		Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit						
2*	Balances with non-automatic and automatic function								Loading using a reference weight	612-MP-C132	1-11
		0 g	up to	20 kg		weight	E_2	$5 \cdot 10^{-7}$			
		20 kg	up to	50 kg			F_1	$1.6 \cdot 10^{-6}$			
		50 kg	up to	600 kg			F_2	$5 \cdot 10^{-6}$			
		600 kg	up to	200,000 kg			M	$1.6 \cdot 10^{-5}$			

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CMC for the field of measured quantity: Mechanical motion

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
1*	Acceleration of linear harmonic mechanical vibrations / vibration sensors	0.01	$m \cdot s^{-2}$	up to	400	$m \cdot s^{-2}$	0.1 Hz to 5 kHz 5 to 20 kHz	1.0 % 1.5 %	Comparison with a standard sensor	812-MP-C207	12
2*	Sensitivity of vibration sensors / vibration transducers[4)]	0.01	$pC/m \cdot s^{-2}$	up to	1,000	$pC/m \cdot s^{-2}$	0.1 Hz to 5 kHz 5 to 20 kHz	1.0 % 1.5 %	Comparison with a standard sensor	812-MP-C207	12
		0.01	$mV/m \cdot s^{-2}$	up to	10,000	$mV/m \cdot s^{-2}$	0.1 Hz to 5 kHz 5 to 20 kHz	1.0 % 1.5 %			
		0.1	$mV/m \cdot s^{-1}$	up to	10,000	$mV/m \cdot s^{-1}$	0.1 Hz to 5 kHz 5 to 20 kHz	1.0 % 1.5 %			
3*	Transmission / amplifiers and filetrs	10^{-7}	V/V	up to	10^{7}	V/V	0.1 Hz to 100 kHz	0.5 % or[6] 0.1 dB	By simulated electrical signal	812-MP-C207	12
		0.001	mV/pC	up to	1,000	mV/pC					
4*	Acceleration / vibrometers without a sensor[4]	0.01	$m \cdot s^{-2}$	up to	10,000	$m \cdot s^{-2}$	0.1 Hz to 100 kHz	0.5 %	By simulated electrical signal	812-MP-C207	12
	Velocity / vibrometers without a sensor4	0.01	$m \cdot s^{-1}$	up to	1,000	$mm \cdot s^{-1}$	0.1 Hz to 100 kHz	0.5 %			
5*	Maximum value of half-sine wave mechanical shock / acceleration sensors[4]	1	$m \cdot s^{-2}$	up to	100,000	$m \cdot s^{-2}$		1.2 %	Comparison with a standard sensor	812-MP-C208	12
6*	Vibration frequency	0.1	Hz	up to	10	kHz		0.01 %	Measurement using a counter	812-MP-C207 812-MP-C210	12
7*	Velocity of transport vehicles and objects	1	$km \cdot h^{-1}$	up to	999	$km \cdot h^{-1}$		0.2 $km \cdot h^{-1}$	Comparison with a standard speedometer	812-MP-C209	
		0.1	$km \cdot h^{-1}$	up to	320	$km \cdot h^{-1}$		0.01 %	Measurement using an optoelectronic delay line		

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
8*	Revolution – impulse generators and meters[5]	0.01 0.01	min^{-1} s^{-1}	up to up to	100,000 10,000,000	min^{-1} s^{-1}		1 % 10^{-10}	Contact method Contactless method	812-MP-C212	12
9*	Linear motion velocity / velocity meters for mechanical parts	0.01	$mm \cdot s^{-1}$	up to	1,000	$m \cdot s^{-1}$		0.01 %	Measurement of time and distance using an electric, optoelectronic or electronic delay line	812-MP-C201	12
10*	Linear motion acceleration / acceleration meters for mechanical parts	-200	$m \cdot s^{-2}$	up to	200	$m \cdot s^{-2}$		0.01 %	Measurement of time and distance using an electric, optoelectronic or electronic delay line	812-MP-C201	12

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[2] The expanded measurement uncertainty is in accordance with ILAC-P14 and EA-4/02 M a part of CMC and it is the lowest value of the respective uncertainty. If not stated otherwise, its coverage probability is approx. 95 %. If not stated otherwise, the uncertainty values stated without a unit are relative to the measured value. The uncertainty value stated herein is based on the best conditions achievable by the laboratory; the uncertainty value of a specific calibration may be higher depending on the conditions of such a calibration. For identical extreme values of adjacent ranges, the lower uncertainty value always applies.

[3] If the document identifying the calibration procedure is dated, only these specific procedures are used. If the document identifying the calibration procedure is not dated, the latest edition of the specified procedure is used (including any changes).

[4] Acceleration can be specified also in g, sensor sensitivity in pC/g, resp. mV/g units, where 1 g = 9.81 $m.s^{-2}$

[5] Revolutions - impulses can be specified also in Hz as the number of revolutions - impulses per 1 s.

[6] Acc. To the type of transmission expression

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CMC for the field of measured quantity: Force, mechanical tests

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
1	Force / force-proving instruments	1 N 20 kN	up to up to	20 kN 1 MN			0.00004 0.0002	Calibration using a standard instrument or by suspending weights (ČSN EN ISO 376)	811-MP-C101	12
2*	Force / force-proving instruments	0.02 N 5 N	up to up to	5 N 2 MN			0.002 0.001	Calibration by a force transmission standard (force-proving instrument) or by suspending weights	811-MP-C111	1,4,6,9, 10
3*	Torque / torque measuring instruments	0.02 N·m 0.2 N·m 1 N·m 100 N·m 1 kN·m	up to up to up to up to up to	0.2 N·m 1 N·m 100 N·m 1 kN·m 10 kN·m			0.001 0.000 09 0.00008 0.000 1 0.0004	Calibration by a standard torque measuring instrument, torque transmission standard (torque sensor) or using weights and torque arms	811-MP-C102	4,9,12
4*	Torque / torque wrenches	0.02 N·m	up to	3 kN·m			0.005	Calibration by a torque transmission standard (torque sensor) (ČSN EN ISO 6789-1, ČSN EN ISO 6789-2)	811-MP-C103	4, 9, 12

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
5*	Torque / equipment for the calibration of torque wrenches	0.02	N·m	500	N·m		0.001	Calibration by reference torque wrench, torque transmission standard (torque sensor) or by means of weights and torque arms	811-MP-C104	9, 12
		500	N·m	10	kN·m		0.0007			
6*	Torque / tightening tools and systems	0.5	N·m	10	kN·m		0.005	Calibration by a calibration device for torque wrenches, torque screwdrivers and tighteners	411-MP-C103	4, 9
7*	Machines for mechanical testing of materials	0.02	N	5	MN	Pressure	0.28 %	Calibration by a force transmission standard (force-proving instrument) or weights (ASTM E4, ČSN EN ISO 7500)	151-MP-C001 151-MP-C004	1, 4, 6, 10
		0.02	N	2	MN	tension	0.28 %			
		200	kN	2	MN	self-setting of the upper pressure plate	0.34 %	ČSN EN 12390-4 Annex A	151-MP-C001	1, 4 ,6, 10
		0.01	kN/s	150	kN/s	increase in force	0.7 %	Direct comparison with force and time standards, program AED PANEL32	151-MP-C006	6

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
8*	Pendulum hammers for notch impact strength testing of materials	0.01 J	up to	2.5 kJ			0.42 % + 0.1 J	Calibration by a force transmission standard (force-proving instrument) and length standard (ČSN EN ISO 148-2, ČSN EN ISO 13802, ASTM E23, BS 131-4)	151-MP-C002	1, 6, 10
9*	Hardness plates and products	10 HRA	up to	100 HRA		Rockwell A	0.2 HR	ČSN EN ISO 6508-3, ASTM E18	813-MP-C301	12
		10 HRB	up to	110 HRB		Rockwell B				
		10 HRC	up to	80 HRC		Rockwell C				
		10 HRD	up to	90 HRD		Rockwell D				
		10 HREW	up to	110 HREW		Rockwell E				
		10 HRFW	up to	110 HRFW		Rockwell F				
		10 HRGW	up to	100 HRGW		Rockwell G				
		10 HRHW	up to	110 HRHW		Rockwell H				
		6 HRKW	up to	110 HRKW		Rockwell K				
		10 HR15N	up to	100 HR15N		Rockwell 15N	0.26 HR			
		10 HR30N	up to	100 HR30N		Rockwell 30N				
		10 HR45N	up to	90 HR45N		Rockwell 45N				
		10 HR15TW	up to	100 HR15TW		Rockwell 15T				
		10 HR30TW	up to	90 HR30TW		Rockwell 30T				
		6 HR45TW	up to	80 HR45TW		Rockwell 45T				
		20 HV	up to	3,000 HV		Vickers HV0.01 to HV0.5	0.59 %	ČSN EN ISO 6507-3, ASTM E384	813-MP-C301	12
						HV0.5 to HV1	0.51 %			
						HV1 to HV5	0.44 %			
						HV5 to HV10	0.44 %			

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							HV10 to HV30 HV30 to HV50 HV50 and more	0.38 % 0.36 % 0.34 %			
		20 HBW	up to		650 HBW		Brinell scale with 2.5mm and 1mm balls Scale with a 5mm ball Scale with a 10 mm ball	0.24 % 0.20 % 0.20 %	ČSN EN ISO 6506-3, ASTM E10	813-MP-C301	12
		1 ShA			110 ShA		Shore	0.26 Sh	Direct measurement using a standard hardness tester	813-MP-C308	12
		1 °IRHD			110 °IRHD		IRHD N, H, L	0.44 °IRHD			
		1 °IRHD			110 °IRHD		IRHD M	0.70 °IRHD			
10	Rockwell penetrating bodies - cone angle - radius of curvature	 118 ° 100 µm	 up to up to		 122 ° 300 µm			 0.04° 0.08 µm	ČSN EN ISO 6508-2	813-MP-C301	12
11	Vickers penetrating bodies - angle of opposite walls	134 °	up to		138 °			0.04°	ČSN EN ISO 6507-2	813-MP-C301	12
12*	Hardness – hardness testers	10 HRA 10 HRBW 10 HRC 10 HRD 10 HREW 10 HRFW	up to up to up to up to up to up to		100 HRA 110 HRBW 80 HRC 90 HRD 110 HREW 100 HRFW		Rockwell A Rockwell B Rockwell C Rockwell D Rockwell E Rockwell F	0.38 HR	ČSN EN ISO 6508-2, ASTM E18	813-MP-C307	7, 10

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
		10	HRGW	up to 100	HRGW	Rockwell G				
		10	HRHW	up to 110	HRHW	Rockwell H				
		6	HRKW	up to 110	HRKW	Rockwell K				
		10	HR15N	up to 100	HR15N	Rockwell 15N	0.57 HR			
		10	HR30N	up to 100	HR30N	Rockwell 30N				
		10	HR45N	up to 90	HR45N	Rockwell 45N				
		10	HR15TW	up to 100	HR15TW	Rockwell 15T				
		10	HR30TW	up to 90	HR30TW	Rockwell 30T				
		6	HR45TW	up to 80	HR45TW	Rockwell 45T				
		20	HV	up to 225	HV	Vickers	0.32 %	ČSN EN ISO 6507-2, ASTM E384		
		225	HV	up to 700	HV					
		700	HV	up to 3,000	HV					
		20	HBW	200	HBW	Brinell	0.30 %	ČSN EN ISO 6506-2, ASTM E10		
		200	HBW	500	HBW					
		500	HBW	650	HBW					
		1	ShA	110	ShA	Shore A	0.22 ShA	Combined measurement (force, hardness, penetration of the penetrating body)	813-MP-C308 (chap. 5.1.)	12
		1	ShB	110	ShB	Shore B	0.22 ShB			
		1	ShC	110	ShC	Shore C	0.22 ShC			
		1	ShD	110	ShD	Shore D	0.22 ShD			
		1	ShD	110	ShD	Shore DO	0.22 ShDO			
		1	ShDO	110	ShDO	IRHD M	0.42 °IRHD M			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range		Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min. unit	max. unit					
		1 °IRHD M	110 °IRHD M	IRHD N	0.22 °IRHD N			
		1 °IRHD N	110 °IRHD N	IRHD H	0.22 °IRHD H			
		1 °IRHD H	110 °IRHD H	IRHD L	0.22 °IRHD L			

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[3] If the document identifying the calibration procedure is dated, only these specific procedures are used. If the document identifying the calibration procedure is not dated, the latest edition of the specified procedure is used (including any changes).

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CMC for the field of measured quantity: Pressure, mechanical stress

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		Nominal range max.	unit	Parameter(s) of the measurand		Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
1	Deformation pressure gauges; digital pressure gauges; piston pressure gauges						absolute pressure	gas		Cross-floating method, determination of the effective area of the pressure gauge and the mass of weights	133-MP-C007 601-MP-C046 601-MP-C047	1, 6, 10
		1 Pa	up to		20 Pa				10 %			
		20 Pa	up to		5,000 Pa				3.5 Pa			
		5 kPa	up to		18 kPa				3.8 Pa			
		18 kPa	up to		2,000 kPa				$9 \cdot 10^{-5} \cdot p$			
		2 MPa	up to		8 MPa				$2.3 \cdot 10^{-5} \cdot p$ + 56 Pa			
							positive gauge pressure	gas				
		-100 kPa	up to		-10 kPa				$8.5 \cdot 10^{-5} \cdot \lvert p_e \rvert$			
		-10 kPa	up to		-3.45 kPa				$9.3 \cdot 10^{-5} \cdot \lvert p_e \rvert$			
		-3.45 kPa	up to		-2 kPa				32 Pa			
		-2,000 Pa	up to		-6 Pa				$1.3 \cdot 10^{-4} \cdot \lvert p_e \rvert$ + 48 Pa			
		-6 Pa	up to		6 kPa				1.5 Pa			
		6 Pa	up to		2,000 Pa				$1.3 \cdot 10^{-4} \cdot p_e$ + 48 Pa			
		2 kPa	up to		3.45 kPa				32 Pa			
		3.45 kPa	up to		10 kPa				$9.3 \cdot 10^{-5} \cdot p_e$			
		10 kPa	up to		100 kPa				$8.5 \cdot 10^{-5} \cdot p_e$			
		100 kPa	up to		345 kPa				$8.8 \cdot 10^{-5} \cdot p_e$			
		345 kPa	up to		2,000 kPa				$9 \cdot 10^{-5} \cdot p_e$ + 1 Pa			
		2 MPa	up to		8 kPa				$2.3 \cdot 10^{-5} \cdot p_e$ +55 Pa			
							absolute pressure $p = p_e + p_{amb}$	liquid				
		20 kPa	up to		600 kPa				49 Pa			
		0.6 MPa	up to		40 MPa				$8.2 \cdot 10^{-5} \cdot p_e$ + 10 Pa			
		40 MPa	up to		100 MPa				$8.7 \cdot 10^{-5} \cdot p_e$ + 10 Pa			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range			Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min. unit		max. unit					
		100 MPa	up to	120 MPa		$1.2\cdot10^{-4}\cdot p_e$ + 10 Pa			
					positive gauge				
		20 kPa	up to	600 kPa	pressure liquid	48 Pa			
		0.6 MPa	up to	40 MPa		$8.2\cdot10^{-5}\cdot p_e$			
		40 MPa	up to	100 MPa		$8.7\cdot10^{-5}\cdot p_e$			
		100 MPa	up to	120 MPa		$1.2\cdot10^{-4}\cdot p_e$			
2*	Pressure sensors and transducers[4]						Comparison with a reference pressure gauge	601-MP-C049	1
		1 Pa	to	20 Pa	absolute gas	10 %			
		20 Pa	up to	5,000 Pa	pressure	$2\cdot10^{-5}\cdot p$ + 3.5 Pa			
		5 kPa	up to	18 kPa		$2\cdot10^{-5}\cdot p$ + 3.8 Pa			
		18 kPa	up to	2,000 kPa		$9\cdot10^{-5}\cdot p$			
		2 MPa	up to	8 MPa		$3\cdot10^{-5}\cdot p$ + 56 Pa			
					positive gauge				
		-100 kPa	up to	-10 kPa	pressure gas	$8.6\cdot10^{-5}\cdot\lvert p_e\rvert$			
		-10 kPa	up to	-3.45 kPa		$9.4\cdot10^{-5}\cdot\lvert p_e\rvert$			
		-3.45 kPa	up to	-2 kPa		$2\cdot10^{-5}\cdot\lvert p_e\rvert$ + 32 Pa			
		-2,000 Pa	up to	-6 Pa		$1.3\cdot10^{-4}\cdot\lvert p_e\rvert$ + 48 Pa			
		-6 Pa	up to	+6 Pa		1.5 Pa			
		6 Pa	up to	2,000 Pa		$1.3\cdot10^{-4}\cdot p_e$ + 48 Pa			
		2 kPa	up to	3.45 kPa		$2\cdot10^{-5}\cdot p_e$ + 32 Pa			
		3.45 kPa	up to	10 kPa		$9.4\cdot10^{-5}\cdot p_e$			
		10 kPa	up to	100 kPa		$8.6\cdot10^{-5}\cdot p_e$			
		100 kPa	up to	345 kPa		$8.9\cdot10^{-5}\cdot p_e$			
		345 kPa	up to	2,000 kPa		$9\cdot10^{-5}\cdot p_e$ + 1 Pa			
		2 MPa	up to	8 MPa		$3\cdot10^{-5}\cdot p_e$ +55 Pa			
		20 kPa	up to	600 kPa	absolute liquid	$2\cdot10^{-5}\cdot p_e$ + 49 Pa			
		0.6 MPa	up to	40 MPa	pressure	$8.3\cdot10^{-5}\cdot p_e$ + 10 Pa			
		40 MPa	up to	100 MPa	$p = p_e + p_{amb}$	$8.8\cdot10^{-5}\cdot p_e$ + 10 Pa			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
		100	MPa	up to 120	MPa		$1.2 \cdot 10^{-4} \cdot p_e + 10$ Pa			
		20	kPa	up to 600	kPa	positive gauge pressure liquid	$2 \cdot 10^{-5} \cdot p_e + 48$ Pa			
		0.6	MPa	up to 40	MPa		$8.3 \cdot 10^{-5} \cdot p_e$			
		40	MPa	up to 100	MPa		$8.8 \cdot 10^{-5} \cdot p_e$			
		100	MPa	up to 120	MPa		$1.2 \cdot 10^{-4} \cdot p_e$			

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[2] The expanded measurement uncertainty is in accordance with ILAC-P14 and EA-4/02 M a part of CMC and it is the lowest value of the respective uncertainty. If not stated otherwise, its coverage probability is approx. 95 %. If not stated otherwise, the uncertainty values stated without a unit are relative to the measured value. The uncertainty value stated herein is based on the best conditions achievable by the laboratory; the uncertainty value of a specific calibration may be higher depending on the conditions of such a calibration. For identical extreme values of adjacent ranges, the lower uncertainty value always applies.

[3] If the document identifying the calibration procedure is dated, only these specific procedures are used. If the document identifying the calibration procedure is not dated, the latest edition of the specified procedure is used (including any changes).

[4] The uncertainties stated apply to the measurement of analogue output signals of pressure sensors and transducers. For digital output, the uncertainties for digital pressure gauges apply.

p absolute pressure value
p_{amb} ambient pressure value
p_e gauge pressure value, $p_e = (p - p_{amb})$

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CMC for the field of measured quantity: Temperature

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
1	Glass thermometers	-90 °C	up to		100 °C		division < 0.1 °C	0.015 °C	Comparison with a reference resistance temperature sensor in liquid bath.	133-MP-C001	1, 6, 7
		100 °C	up to		150 °C			0.020 °C			
		150 °C	up to		210 °C			0.040 °C			
		210 °C	up to		360 °C			0.050 °C			
		360 °C	up to		420 °C		0.1 °C ≤ division < 1 °C	0.15 °C			
		420 °C	up to		550 °C			0.20 °C			
2*	Resistance temperature sensors				0.01 °C			0.002 °C	Direct measurement at triple point of water	133-MP-C002	1, 7
					660.32 °C			0.05 °C	Comparison with a reference resistance temperature sensor at a fixed point		
					-196 °C			0.03 °C	Comparison with a reference resistance temperature sensor near the boiling point of nitrogen		
		-100 °C	up to		-90 °C			0.2 °C	Comparison with a reference resistance temperature sensor in a vertical furnace		
		-90 °C	up to		-80 °C			0.015 °C	Comparison with a reference resistance temperature sensor in liquid bath.		
		-80 °C	up to		160 °C			0.01 °C			
		160 °C	up to		300 °C			0.02 °C			
		300 °C	up to		420 °C			0.03 °C			
		420 °C	up to		550 °C			0.05 °C			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		Nominal range max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		550 °C	up to		660 °C			0.09 °C	Comparison with a reference resistance temperature sensor in a vertical furnace		
3	Thermocouple temperature sensors (TC)	0 °C	up to		220 °C		Noble metals	0.4 °C	Comparison with a reference resistance temperature sensor in liquid bath.	133-MP-C003	1, 7
		220 °C	up to		550 °C			0.5 °C			
		550 °C	up to		1,100 °C			0.8 °C	Comparison with a reference thermoelectric temperature sensor in a horizontal furnace		
		1,100 °C	up to		1,300 °C			1.3 °C			
		1,300 °C	up to		1,600 °C			2.1 °C			
					-196 °C		Base metals	0.3 °C	Comparison with a reference resistance temperature sensor near the boiling point of nitrogen		
		-100 °C	up to		-90 °C			0.3 °C	Comparison with a reference resistance temperature sensor in a vertical furnace		
		-90 °C	up to		220 °C			0.2 °C	Comparison with a reference resistance temperature sensor in liquid bath.		
		220 °C	up to		550 °C			0.4 °C			
		550 °C	up to		1,100 °C			1.0 °C	Comparison with a reference thermoelectric temperature sensor in a horizontal furnace		
		1,100 °C	up to		1,300 °C			1.4 °C			
4*	Indication thermometers including temperature measuring				0.01 °C			0.002 °C	Direct measurement at triple point of water	133-MP-C004	1, 6, 7

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
	chains, their temperature probes and characterization of thermal chambers									
				660.32	°C		0.05 °C	Comparison with a reference resistance temperature sensor at a fixed point		
				-196	°C		0.03 °C	Comparison with a reference resistance temperature sensor near the boiling point of nitrogen		
		-196	°C up to	-100	°C		0.3 °C	Comparison with a reference resistance temperature sensor on customer equipment		
		-100	°C up to	-90	°C		0.2 °C	Comparison with a reference resistance temperature sensor in a vertical furnace		
		-90	°C up to	-80	°C		0.015 °C	Comparison with a reference resistance temperature sensor in liquid bath.		
		-80	°C up to	160	°C		0.01 °C			
		160	°C up to	300	°C		0.02 °C			
		300	°C up to	420	°C		0.03 °C			
		420	°C up to	550	°C		0.05 °C			
		550	°C up to	660	°C		0.09 °C	Comparison with a reference resistance temperature sensor in a vertical furnace		
		660	°C up to	1,100	°C		0.8 °C	Comparison with a reference thermoelectric temperature sensor in a horizontal furnace		

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		Nominal range max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		1,100 °C	up to		1,200 °C			1.3 °C			
		1,200 °C	up to		1,600 °C			2.1 °C			
5*	Infrared non-contact thermometers and measuring chains of infrared non-contact thermometers						measuring chains with range limited to (-15 to 500) °C		Comparison with the standard	133-MP-C005	1, 7
		-30 °C	up to		-15 °C			2.2 °C			
		-15 °C	up to		0 °C			1.6 °C			
		0 °C	up to		20 °C			1.1 °C			
		20 °C	up to		100 °C			0.8 °C			
		100 °C	up to		200 °C			1.1 °C			
		200 °C	up to		300 °C			1.4 °C			
		300 °C	up to		400 °C			1.7 °C			
		400 °C	up to		500 °C			2.2 °C			
		500 °C	up to		600 °C			2.6 °C			
		600 °C	up to		700 °C			2.9 °C			
6*	Measuring chains						"K" [4] type thermoelectric temperature sensor		Simulation of sensor electrical input signal	133-MP-C006	1.7
		-200 °C	up to		0 °C			0.1 % + 0.1 °C			
		0 °C	up to		1,000 °C			0.007 % + 0.1 °C			
		1,000 °C	up to		1,372 °C			0.017 %			
							"J" [4] type thermoelectric temperature sensor				
		-200 °C	up to		0 °C			0.06 % + 0.08 °C			
		0 °C	up to		1,200 °C			0.006 % + 0.08 °C			
							"N" [4] type thermoelectric temperature sensor				
		-200 °C	up to		-100 °C			0.2 %			
		-100 °C	up to		0 °C			0.05 % + 0.15 °C			
		0 °C	up to		800 °C			0.15 °C			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit	Nominal range max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		800 °C	up to	1 300 °C			0.01 % + 0.07 °C			
		0 °C	up to	100 °C		"S" [4] type thermoelectric temperature sensor	0.7 °C			
		100 °C	up to	300 °C			0.55 °C			
		300 °C	up to	1,768 °C			0.45 °C			
		-200 °C	up to	0 °C		"T" type thermoelectric temperature sensor[4]	0.1 % + 0.1 °C			
		0 °C	up to	400 °C			0.1 °C			
		200 °C	up to	500 °C		"B" type thermoelectric temperature sensor[4]	2 °C			
		500 °C	up to	800 °C			0.8 °C			
		800 °C	up to	1,820 °C			0.5 °C			
		0 °C	up to	150 °C		"R" type thermoelectric temperature sensor[4]	0.7 °C			1
		150 °C	up to	400 °C			0.45 °C			
		400 °C	up to	1,768 °C			0.4 °C			
		-200 °C	up to	0 °C		Pt 100 resistance temperature sensor	0.05 °C			1, 7
		0 °C	up to	850 °C			0.014 % + 0.05 °C			
		-200 °C	up to	-150 °C		Pt 1000 resistance temperature sensor	0.011 °C			1
		-150 °C	up to	-50 °C			0.03 °C			
		-50 °C	up to	0 °C			0.043 °C			
		0 °C	up to	850 °C			+ 0.043 0.019 % °C			
		-1 V	up to	1 V		voltage output of transducers	0.007 % + 4 µV			1, 7
		1 V	up to	24 V			0.007 % + 0.1 mV			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		max.	unit	Parameter(s) of the measurand		Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		0 mA	up to		25 mA		current output of transducers		0.01 % + 1 μA			
		25 mA	up to		55 mA				0.01 % + 2 μA			
7	Platinum resistance thermometers				-189.3442 °C		temperature scale definition points ITS-90 – triple point Ar		0.9 mK	Direct measurement at a fixed point	112-MP-C001	1
8	Thermocouple temperature sensors				1153 °C			Fe-C	1.2 °C	Comparison with a standard at eutectic fixed point	112-MP-C002	1
					1324 °C			Co-C	0.9 °C			
9	Contactless thermometers (TC)				156.5985 °C		measuring point diameter less than 5 mm	In	0.2 °C	Direct measurement at a fixed point	112-MP-C003	1
					231.928 °C			Sn	0.2 °C			
					660.323 °C			Al	0.15 °C			
					1,084.62 °C			Cu	0.10 °C			
		100 °C	up to		300 °C				0.5 °C	Comparison with a reference standard		
		300 °C	up to		600 °C				0.7 °C			
		600 °C	up to		1,000 °C				0.8 °C			
		1,000 °C	up to		1,300 °C				1.0 °C			
		1,300 °C	up to		1,800 °C				1.5 °C			
10*	Black bodies	-30 °C	up to		45 °C				0.2 °C	Direct comparison of two black bodies using a transfer thermometer	112-MP-C004	1
		45 °C	up to		230 °C				0.22 °C			
		230 °C	up to		600 °C				0.21 °C			
		600 °C	up to		1,000 °C				0.5 °C	Comparison with a reference standard		
		1,000 °C	up to		1,300 °C				0.6 °C			
		1,300 °C	up to		1,800 °C				1.0 °C			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		Nominal range max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
11*	Thermal cameras	-30 °C	up to		500 °C			0.8 °C	Comparison with the standard	112-MP-C005	1, 7
		500 °C	up to		1,000 °C			1.0 °C			
		1,000 °C	up to		1,300 °C			1.5 °C			
		1,300 °C	up to		1,800 °C			2.0 °C			
12	Temperature calibrators								Comparison with a calibrator or electrical measurement with a multimeter	611-MP-C130	1.7
		-50 °C	up to		1,760 °C		TC - R	0.12 °C			
		-50 °C	up to		1,760 °C		TC - S	0.16 °C			
		0 °C	up to		1,820 °C		TC - B	0.14 °C			
		-210 °C	up to		1,200 °C		TC - J	0.04 °C			
		-270 °C	up to		400 °C		TC - T	0.04 °C			
		-270 °C	up to		1,000 °C		TC - E	0.04 °C			
		-270 °C	up to		1,370 °C		TC - K	0.05 °C			
		-270 °C	up to		1,300 °C		TC - N	0.05 °C			
		-200 °C	up to		100 °C		TC - M	0.03 °C			
		-200 °C	up to		800 °C		TC - L	0.03 °C			
		0 °C	up to		2,500 °C		TC - A	0.24 °C			
		-200 °C	up to		900 °C		TC – Fe-ko	0.04 °C			
		-200 °C	up to		850 °C		RTD - Pt100	0.02 °C			
		-200 °C	up to		850 °C		RTD - Pt200	0.02 °C			
		-200 °C	up to		850 °C		RTD - Pt500	0.03 °C			
		-200 °C	up to		850 °C		RTD-Pt1000	0.02 °C			
		-60 °C	up to		250 °C		RTD - Ni100	0.01 °C			
		-60 °C	up to		250 °C		RTD-Ni1000	0.01 °C			

[1] Asterisk at the ordinal number identifies the calibrations, which the Laboratory is qualified to carry out outside the permanent laboratory premises.

[2] The expanded measurement uncertainty is in accordance with ILAC-P14 and EA-4/02 M a part of CMC and it is the lowest value of the respective uncertainty. If not stated otherwise, its coverage probability is approx. 95 %. If not stated otherwise, the uncertainty values stated without a unit are relative to the measured value. The uncertainty value stated herein is based on the best conditions achievable by the laboratory; the uncertainty value of a specific calibration may be higher depending on the conditions of such a calibration. For identical extreme values of adjacent ranges, the lower uncertainty value always applies.

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[3] If the document identifying the calibration procedure is dated, only these specific procedures are used. If the document identifying the calibration procedure is not dated, the latest edition of the specified procedure is used (including any changes).

[4] Applies to the CJC temperature = 0 °C.

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CMC for the field of measured quantity: Humidity

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range			Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min. unit		max. unit					
1*	Relative humidity / hygrometers and humidity measuring chains including humidity probes, characterization of climatic chambers	5 % RH	up to	30 % RH	air temperature (10 to 90) °C	0.6 % RH	Comparison with a standard hygrometer	636-MP-C119	1, 7
		30 % RH	up to	50 % RH		0.7 % RH			
		50 % RH	up to	70 % RH		0.8 % RH			
		70 % RH	up to	80 % RH		0.9 % RH			
		80 % RH	up to	90 % RH		1.0 % RH			
		90 % RH	up to	95 % RH		1.5 % RH			
2	Dew point temperature / hygrometers	-75 °C	up to	-65 °C		0.24 °C	Comparison with a standard thermometer	636-MP-C120	7
		-65 °C	up to	-50 °C		0.16 °C			
		-50 °C	up to	-30 °C		0.10 °C			
		-30 °C	up to	60 °C		0.08 °C			
		60 °C	up to	80 °C		0.10 °C			
		80 °C	up to	90 °C		0.15 °C			

[1] Asterisk at the ordinal number identifies the calibrations, which the Laboratory is qualified to carry out outside the permanent laboratory premises.

[2] The expanded measurement uncertainty is in accordance with ILAC-P14 and EA-4/02 M a part of CMC and it is the lowest value of the respective uncertainty. If not stated otherwise, its coverage probability is approx. 95 %. If not stated otherwise, the uncertainty values stated without a unit are relative to the measured value. The uncertainty value stated herein is based on the best conditions achievable by the laboratory; the uncertainty value of a specific calibration may be higher depending on the conditions of such a calibration. For identical extreme values of adjacent ranges, the lower uncertainty value always applies.

[3] If the document identifying the calibration procedure is dated, only these specific procedures are used. If the document identifying the calibration procedure is not dated, the latest edition of the specified procedure is used (including any changes).

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CMC for the field of measured quantity: Electrical quantities

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
1*	DC voltage / DC voltage sources and meters							Direct comparison with a calibrator or direct measurement with a multimeter	611-MP-C097, 611-MP-C098	1.7
		0 mV	up to	20 mV			$15 \cdot 10^{-6} \cdot U + 0.05\ \mu V$			
		20 mV	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 V		20 V			$2.1 \cdot 10^{-6} \cdot U$			
		10 V	up to	10 V			1.5 µV			
		20 V		1,100 V			$2.9 \cdot 10^{-6} \cdot U$			
2	DC voltage / DC voltage sources and meters							Comparison with a voltage reference using a resistor divider	611-MP-C005	7
		0 V	up to	2 V			$1.5 \cdot 10^{-6} \cdot U + 0.05\ \mu V$			
		2 V	up to	20 V			$0.8 \cdot 10^{-6} \cdot U$			
		20 V	up to	1,100 V			$1.6 \cdot 10^{-6} \cdot U$			
3*	AC voltage / AC voltage sources and meters							Direct comparison with a calibrator or direct measurement with a multimeter	611-MP-C097 611-MP-C098	1.7
		0.9 mV	to	2 mV		10 Hz to 75 kHz	0.20 %			
						75 kHz to 400 kHz	0.31 %			
						400 kHz to 750 kHz	0.33 %			
						750 kHz to 1 MHz	0.35 %			
		2 mV	up to	20 mV		10 Hz to 25 kHz	$360 \cdot 10^{-6} \cdot U$			
						25 Hz to 75 kHz	$330 \cdot 10^{-6} \cdot U$			
						75 kHz to 200 kHz	$530 \cdot 10^{-6} \cdot U$			
						200 kHz to 400 kHz	$710 \cdot 10^{-6} \cdot U$			
						400 kHz to 750 kHz	$790 \cdot 10^{-6} \cdot U$			
						750 kHz to 1 MHz	$1100 \cdot 10^{-6} \cdot U$			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
		20	mV	200	mV	10 Hz to 25 kHz	$98 \cdot 10^{-6} \cdot U$			
						25 Hz to 75 kHz	$190 \cdot 10^{-6} \cdot U$			
						75 kHz to 200 kHz	$370 \cdot 10^{-6} \cdot U$			
						200 kHz to 400 kHz	$590 \cdot 10^{-6} \cdot U$			
						400 kHz to 750 kHz	$650 \cdot 10^{-6} \cdot U$			
						750 kHz to 1 MHz	$1{,}000 \cdot 10^{-6} \cdot U$			
		200	mV	2	V	10 Hz to 35 Hz	$37 \cdot 10^{-6} \cdot U$			
						35 Hz to 40 kHz	$26 \cdot 10^{-6} \cdot U$			
						40 Hz to 75 kHz	$37 \cdot 10^{-6} \cdot U$			
						75 kHz to 200 kHz	$48 \cdot 10^{-6} \cdot U$			
						200 kHz to 400 kHz	$120 \cdot 10^{-6} \cdot U$			
						400 kHz to 750 kHz	$230 \cdot 10^{-6} \cdot U$			
						750 kHz to 1 MHz	$590 \cdot 10^{-6} \cdot U$			
		2	V	20	V	10 Hz to 35 Hz	$37 \cdot 10^{-6} \cdot U$			
						35 Hz to 40 kHz	$26 \cdot 10^{-6} \cdot U$			
						40 Hz to 75 kHz	$33 \cdot 10^{-6} \cdot U$			
						75 kHz to 200 kHz	$40 \cdot 10^{-6} \cdot U$			
						200 kHz to 400 kHz	$110 \cdot 10^{-6} \cdot U$			
						400 kHz to 750 kHz	$210 \cdot 10^{-6} \cdot U$			
						750 kHz to 1 MHz	$560 \cdot 10^{-6} \cdot U$			
		20	V	200	V	10 Hz to 35 Hz	$42 \cdot 10^{-6} \cdot U$			
						35 Hz to 175 Hz	$37 \cdot 10^{-6} \cdot U$			
						175 Hz to 40 kHz	$28 \cdot 10^{-6} \cdot U$			
						40 kHz to 75 kHz	$40 \cdot 10^{-6} \cdot U$			
						75 kHz to 150 kHz	$71 \cdot 10^{-6} \cdot U$			
						150 kHz to 200 kHz	$240 \cdot 10^{-6} \cdot U$			

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		min.	unit	max. unit						
		200 V	up to	1,100 V		10 Hz to 5 kHz	$40 \cdot 10^{-6} \cdot U$			
						5 kHz to 25 kHz	$45 \cdot 10^{-6} \cdot U$			
						25 kHz to 40 kHz	$76 \cdot 10^{-6} \cdot U$			
						40 kHz to 750 kHz	$120 \cdot 10^{-6} \cdot U$			
					Generation only up to 750 V	75 kHz to 100 kHz	$350 \cdot 10^{-6} \cdot U$			
4	Low AC voltage / AC voltage meters	0.1 µV	up to	1 µV		50 Hz to 200 Hz	0.50 %	Comparison or measurement using an impedance divider	611-MP-C061	7
						200 Hz to 10 kHz	0.20 %			
						10 Hz to 100 kHz	0.70 %			
		1 µV	up to	1 mV		50 Hz to 200 Hz	0.20 %			
						200 Hz to 10 kHz	0.07 %			
						10 Hz to 100 kHz	0.30 %			
5	DC voltage / Low DC current generators	0 pA	up to	1 pA			1 fA	Direct measurement with a picoammeter	611-MP-C034	7
		1 pA	up to	20 pA			0.13 %			
		20 pA	up to	200 pA			0.11 %			
		0.2 nA	up to	2 nA			0.08 %			
		2 nA	up to	20 nA			0.06 %			
		20 nA	up to	200 nA			0.05 %			
		0.2 µA	up to	2 µA			0.04 %			
	DC current / Low DC current meters	0 pA	up to	1 pA				Indirect generation using DC voltage source and reference resistors	611-MP-C034	
		1 pA	up to	20 pA			0.11 %			
		20 pA	up to	200 pA			0.06 %			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range			Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max. unit					
		0.2 nA	up to	2 nA		0.03 %			
		2 nA	up to	20 nA		0.025 %			
		20 nA	up to	200 nA		0.020 %			
		0.2 µA	up to	2 µA		0.008 %			
6*	DC current / DC current generators						Direct measurement with a multimeter or indirect measurement with a current shunt	611-MP-C097	1.7
		0 µA	up to	1 µA		0.10 nA			
		1 µA	up to	100 µA		$21 \cdot 10^{-6} \cdot I$			
		100 µA	up to	200 µA		$12 \cdot 10^{-6} \cdot I$			
		200 µA	up to	2 A		$6.0 \cdot 10^{-6} \cdot I$			
		2 A	up to	20 A		$15 \cdot 10^{-6} \cdot I$			
		20 A	up to	100 A		$20 \cdot 10^{-6} \cdot I$			
	DC current / DC current meters						Direct generation with a calibrator	611-MP-C098	1.7
		0 µA		1 µA		0.10 nA			
		1 µA	up to	100 µA		$21 \cdot 10^{-6} \cdot I$			
		100 µA	up to	200 µA		$15 \cdot 10^{-6} \cdot I$			
		200 µA	up to	20 mA		$6.0 \cdot 10^{-6} \cdot I$			
		20 mA	up to	200 mA		$8.0 \cdot 10^{-6} \cdot I$			
		200 mA	up to	2 A		$15 \cdot 10^{-6} \cdot I$			
		2 A	up to	100 A		$30 \cdot 10^{-6} \cdot I$			
7*	AC current / AC current generators						Direct measurement with a multimeter or indirect measurement with current shunts	611-MP-C097	1.7
		9 µA	to	2 mA	10 Hz to 20 Hz	$100 \cdot 10^{-6} \cdot I$			
					20 Hz to 40 Hz	$90 \cdot 10^{-6} \cdot I$			
					40 Hz to 5 kHz	$70 \cdot 10^{-6} \cdot I$			
					5 kHz to 10 kHz	$80 \cdot 10^{-6} \cdot I$			
					10 kHz to 30 kHz	$300 \cdot 10^{-6} \cdot I$			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range			Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max. unit					
		2 mA	up to	20 mA	10 Hz to 20 Hz	$90 \cdot 10^{-6} \cdot I$			
					20 Hz to 40 Hz	$75 \cdot 10^{-6} \cdot I$			
					40 Hz to 1 kHz	$65 \cdot 10^{-6} \cdot I$			
					1 kHz to 10 kHz	$70 \cdot 10^{-6} \cdot I$			
					10 kHz to 30 kHz	$300 \cdot 10^{-6} \cdot I$			
		20 mA	up to	200 mA	10 Hz to 20 Hz	$80 \cdot 10^{-6} \cdot I$			
					20 Hz to 1 kHz	$65 \cdot 10^{-6} \cdot I$			
					1 kHz to 5 kHz	$70 \cdot 10^{-6} \cdot I$			
					1 kHz to 10 kHz	$80 \cdot 10^{-6} \cdot I$			
					10 kHz to 30 kHz	$300 \cdot 10^{-6} \cdot I$			
		200 mA	up to	2 A	10 Hz to 20 Hz	$120 \cdot 10^{-6} \cdot I$			
					20 Hz to 40 Hz	$100 \cdot 10^{-6} \cdot I$			
					40 Hz to 1 kHz	$90 \cdot 10^{-6} \cdot I$			
					1 kHz to 5 kHz	$100 \cdot 10^{-6} \cdot I$			
					1 kHz to 10 kHz	$120 \cdot 10^{-6} \cdot I$			
					10 kHz to 30 kHz	$500 \cdot 10^{-6} \cdot I$			
		2 A	up to	20 A	10 Hz to 20 Hz	$180 \cdot 10^{-6} \cdot I$			
					20 Hz to 40 Hz	$160 \cdot 10^{-6} \cdot I$			
					40 Hz to 1 kHz	$110 \cdot 10^{-6} \cdot I$			
					1 kHz to 5 kHz	$140 \cdot 10^{-6} \cdot I$			
					1 kHz to 10 kHz	$160 \cdot 10^{-6} \cdot I$			
		20 A	up to	100 A	10 Hz to 20 Hz	$250 \cdot 10^{-6} \cdot I$			
					20 Hz to 40 Hz	$160 \cdot 10^{-6} \cdot I$			
					40 Hz to 1 kHz	$120 \cdot 10^{-6} \cdot I$			
					1 kHz to 5 kHz	$150 \cdot 10^{-6} \cdot I$			
					1 kHz to 10 kHz	$200 \cdot 10^{-6} \cdot I$			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		max.	unit	Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
	AC current / AC current meters	9	µA	to	200	µA	10 Hz to 35 Hz	$130 \cdot 10^{-6} \cdot I$	Direct generation with a calibrator	611-MP-C098	1,7
							35 Hz to 1 kHz	$100 \cdot 10^{-6} \cdot I$			
							1 kHz to 5 kHz	$160 \cdot 10^{-6} \cdot I$			
							5 kHz to 10 kHz	$800 \cdot 10^{-6} \cdot I$			
							10 kHz to 30 kHz	$2000 \cdot 10^{-6} \cdot I$			
		200	µA	up to	2	mA	10 Hz to 35 Hz	$120 \cdot 10^{-6} \cdot I$			
							35 Hz to 1 kHz	$90 \cdot 10^{-6} \cdot I$			
							1 kHz to 10 kHz	$140 \cdot 10^{-6} \cdot I$			
							10 kHz to 30 kHz	$700 \cdot 10^{-6} \cdot I$			
		2	mA	up to	200	mA	10 Hz to 35 Hz	$120 \cdot 10^{-6} \cdot I$			
							35 Hz to 1 kHz	$75 \cdot 10^{-6} \cdot I$			
							1 kHz to 5 kHz	$130 \cdot 10^{-6} \cdot I$			
							5 kHz to 10 kHz	$140 \cdot 10^{-6} \cdot I$			
							10 kHz to 30 kHz	$700 \cdot 10^{-6} \cdot I$			
		200	mA	up to	2	A	10 Hz to 35 Hz	$170 \cdot 10^{-6} \cdot I$			
							35 Hz to 1 kHz	$120 \cdot 10^{-6} \cdot I$			
							1 kHz to 10 kHz	$220 \cdot 10^{-6} \cdot I$			
		2	A	up to	20	A	10 Hz to 35 Hz	$310 \cdot 10^{-6} \cdot I$			
							35 Hz to 1 kHz	$200 \cdot 10^{-6} \cdot I$			
							1 kHz to 5 kHz	$300 \cdot 10^{-6} \cdot I$			
							5 kHz to 10 kHz	$690 \cdot 10^{-6} \cdot I$			
		20	A	up to	100	A	10 Hz to 35 Hz	$350 \cdot 10^{-6} \cdot I$			
							35 Hz to 1 kHz	$200 \cdot 10^{-6} \cdot I$			
							1 kHz to 5 kHz	$300 \cdot 10^{-6} \cdot I$			
							5 kHz to 10 kHz	$950 \cdot 10^{-6} \cdot I$			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range		Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min. unit	max. unit					
8	DC resistance / DC resistance standards and electrical resistance meters					Comparison by the ratio method – measurement of voltage drops at constant measuring current or direct measurement of reference resistance	131-MP-C003 131-MP-C005 611-MP-C097 611-MP-C098	1.7
		100 μΩ			0.72 nΩ			
		1 mΩ			3.5 nΩ			
		10 mΩ			26 nΩ			
		20 mΩ			44 nΩ			
		100 mΩ			86 nΩ			
		1 Ω			0.76 μΩ			
		10 Ω			7.1 μΩ			
		25 Ω			16 μΩ			
		100 Ω			35 μΩ			
		1 kΩ			0.35 mΩ			
		10 kΩ			3.8 mΩ			
		100 kΩ			59 mΩ			
		1 MΩ			4.0 Ω			
		10 MΩ			70 Ω			
		100 MΩ			160 Ω			
		1 GΩ			100 kΩ			
		10 GΩ			5.0 MΩ			
		100 GΩ			25 MΩ			
		1 TΩ			200 MΩ			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
9*	DC resistance / DC resistance standards and electrical resistance meters							Comparison by the ratio method – measurement of voltage drops at constant measuring current or direct measurement of reference resistance	131-MP-C003 131-MP-C005 611-MP-C097 611-MP-C098	1.7
		0	μΩ	100	μΩ		$3.5 \cdot 10^{-6} \cdot R + 0.5$ nΩ			
		100	μΩ	200	μΩ		$7.2 \cdot 10^{-6} \cdot R$			
		200	μΩ	1	mΩ		$6.0 \cdot 10^{-6} \cdot R$			
		1	mΩ	2	mΩ		$3.5 \cdot 10^{-6} \cdot R$			
		2	mΩ	10	mΩ		$5.6 \cdot 10^{-6} \cdot R$			
		10	mΩ	20	mΩ		$2.6 \cdot 10^{-6} \cdot R$			
		20	mΩ	100	mΩ		$1.6 \cdot 10^{-6} \cdot R$			
		100	mΩ	200	mΩ		$0.86 \cdot 10^{-6} \cdot R$			
		200	mΩ	1	Ω		$1.6 \cdot 10^{-6} \cdot R$			
		1	Ω	2	Ω		$0.73 \cdot 10^{-6} \cdot R$			
		2	Ω	10	Ω		$1.6 \cdot 10^{-6} \cdot R$			
		10	Ω	20	Ω		$0.71 \cdot 10^{-6} \cdot R$			
		20	Ω	100	Ω		$1.2 \cdot 10^{-6} \cdot R$			
		100	Ω	200	Ω		$0.35 \cdot 10^{-6} \cdot R$			
		200	Ω	1	kΩ		$0.93 \cdot 10^{-6} \cdot R$			
		1	kΩ	2	kΩ		$0.35 \cdot 10^{-6} \cdot R$			
		2	kΩ	10	kΩ		$1.2 \cdot 10^{-6} \cdot R$			
		10	kΩ	20	kΩ		$0.38 \cdot 10^{-6} \cdot R$			
		20	kΩ	100	kΩ		$0.86 \cdot 10^{-6} \cdot R$			
		100	kΩ	200	kΩ		$0.59 \cdot 10^{-6} \cdot R$			
		200	kΩ	1	MΩ		$4.1 \cdot 10^{-6} \cdot R$			
		1	MΩ	2	MΩ		$4.0 \cdot 10^{-6} \cdot R$			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
		2	MΩ	up to 10	MΩ		$7.4 \cdot 10^{-6} \cdot R$			
		10	MΩ	up to 20	MΩ		$7.0 \cdot 10^{-6} \cdot R$			
		20	MΩ	up to 200	MΩ		$16 \cdot 10^{-6} \cdot R$			
		200	MΩ	up to 1	GΩ		$520 \cdot 10^{-6} \cdot R$			
		1	GΩ	up to 2	GΩ		$120 \cdot 10^{-6} \cdot R$			
		2	GΩ	up to 10	GΩ		0.52 %			
		10	GΩ	up to 20	GΩ		0.12 %			
10	Resistance ratio / Thermometer bridges 0 Hz to 400 Hz	0		up to 4			$1.6 \cdot 10^{-8}$	Measurement with a set of reference resistors or a simulated resistance ratio generated by an inductive divider	611-MP-C045	1, 7
11	DC Power / DC Power Meters for 1 V to 1,000 V and 1 mA to 120 A	1	mW	up to 120	kW		0.0025 %	Measurement by a digital sampling wattmeter	611-MP-C042	7

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the meas. quantity		Lowest expanded measurement uncertainty specified[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit						
12	Single-phase and three-phase AC active power / Active electrical power meters for voltage 1 V to 1,000 V, current 1 mA to 200 A, power factor 0 to 1, frequency 15 Hz to 1,000 Hz	1 mW	up to	600 kW				25 µW/VA	Measurement by a digital sampling wattmeter	611-MP-C042	7
13	Single-phase and three-phase AC reactive power / Reactive electrical power meters for voltage 1 V to 1,000 V, current 1 mA to 200 A, power factor 0 to 1, frequency 15 Hz to 1,000 Hz	1 mvar	up to	600 kvar				25 µvar/VA	Measurement by a digital sampling wattmeter	611-MP-C042	7
14	Phase angle / Phase angle meters	0 °	up to	360 °		0.1 µV to 1 µV	400 Hz to 1.592 kHz	0.10°	Measurement on a phase calibrator and impedance divider	611-MP-C061	7
						1 µV to 100 µV		0.050°			
						0.1 mV to 1 mV		0.10°			
						1 mV to 10 mV		0.050°			
						10 mV to 560 V	1 Hz to 6 kHz	0.0010°	Digital signal sampling	611-MP-C060	
						10 mV to 560 V	6 kHz to 50 kHz	0.0020°			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range		Parameter(s) of the meas. quantity		Lowest expanded measurement uncertainty specified[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min. unit	max. unit						
				10 mV to 100 V	50 kHz to 100 kHz	0.050°			
				10 mV to 1 V	100 kHz to 1 MHz	0.050°			
				10 mV to 1 V	1 MHz to 10 MHz	0.10°			
15	Electrical energy single-phase and three-phase / DC and AC power meters for voltage 1 V to 1,000 V, current 1 mA to 120 A, power factor 0 to 1, frequency 0 Hz and 15 Hz to 800 Hz, time 1 s to 3,600 s	1 Ws	to 1296 MWs			0.010 %	Comparison with a reference energy meter Measurement by a digital sampling wattmeter	611-MP-C042	7
16	Flicker / Flicker meters	0.5 Pst	up to 10 Pst		50 Hz	0.003·Pst	Using digital sampling of a signal	611-MP-C043	7
17	pH / pH meters	0 pH	up to 14 pH			0.001 pH	Comparison with a calibrator (electric method)	611-MP-C129	7
		-1,000 mV	up to 1,000 mV			0.010 mV			
18	Capacity / Electrical capacity meters		10 pF		1 kHz	5 aF	Comparison with a standard using impedance bridge	611-MP-C030 611-MP-C041	7
			100 pF		1 kHz	50 aF			
		1 pF	up to 10 pF		50 Hz to 200 Hz	0.015 %			
					200 Hz to 1 kHz	0.0070 %			
					1 kHz	0.0015 %			
					1 kHz to 10 kHz	0.0050 %			
					10 kHz to 1 MHz	0.010 %			

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		min.	unit	max.	unit						
							1 MHz to 10 MHz	0.20 %			
		10	pF	up to	1 nF		50 Hz to 1 kHz	0.0050 %			
							1 kHz	0.0007 %			
							1 kHz to 10 kHz	0.0050 %			
							10 kHz to 1 MHz	0.010 %			
							1 MHz to 10 MHz	0.20 %			
		1	nF	up to	10 nF		50 Hz to 1 kHz	0.0070 %			
							1 kHz	0.0010 %			
							1 kHz to 10 kHz	0.0050 %			
							10 kHz to 1 MHz	0.010 %			
							1 MHz to 10 MHz	0.20 %			
		10	nF	up to	100 nF		50 Hz to 200 Hz	0.010 %			
							200 Hz to 1 kHz	0.0030 %			
							1 kHz to 10 kHz	0.0070 %			
							10 kHz to 100 kHz	0.010 %			
							100 kHz to 1 MHz	0.030 %			
		100	nF	up to	1 µF		50 Hz to 200 Hz	0.0070 %			
							200 Hz to 10 kHz	0.0050 %			
							10 kHz to 100 kHz	0.015 %			
							100 kHz to 1 MHz	0.050 %			
		1	µF	up to	10 µF		20 Hz to 50 Hz	0.010 %			
							50 Hz to 1 kHz	0.0070 %			
							1 kHz	0.0050 %			
							1 kHz to 10 kHz	0.0060 %			
							10 kHz to 20 kHz	0.015 %			
							20 kHz to 100 kHz	0.050 %			
		10	µF	up to	100 µF		20 Hz to 50 Hz	0.010 %			
							50 Hz to 1 kHz	0.0050 %			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min. unit	Nominal range max. unit	Parameter(s) of the meas. quantity		Lowest expanded measurement uncertainty specified[2]	Calibration principle	Calibration procedure identification[3]	Work-place
					1 kHz to 10 kHz	0.0060 %			
					10 kHz to 20 kHz	0.020 %			
		100 µF	up to 1 mF		20 Hz to 200 Hz	0.010 %			
					200 Hz to 1 kHz	0.015 %			
					1 kHz to 5 kHz	0.020 %			
		1 mF	up to 3 mF		20 Hz to 200 Hz	0.020 %			
					200 Hz to 1 kHz	0.025 %			
		3 mF	up to 10 mF		20 Hz to 200 Hz	0.030 %			
		100 µF	up to 1 F		0.1 Hz	0.10 %			
19	Loss factor D / Loss factor meters	-0.001	up to 0.001	1 pF to 10 pF	50 Hz to 200 Hz	$57 \cdot 10^{-6}$ (abs.)	Comparison with a standard using impedance bridge	611-MP-C030 611-MP-C041	7
					200 Hz to 1 kHz	$8 \cdot 10^{-6}$ (abs.)			
					1 kHz	$3 \cdot 10^{-6}$ (abs.)			
					1 kHz to 5 kHz	$17 \cdot 10^{-6}$ (abs.)			
					5 kHz to 10 kHz	$42 \cdot 10^{-6}$ (abs.)			
					10 kHz to 20 kHz	$120 \cdot 10^{-6}$ (abs.)			
					20 kHz to 100 kHz	$150 \cdot 10^{-6}$ (abs.)			
					100 kHz to 200 kHz	$300 \cdot 10^{-6}$ (abs.)			
					200 kHz to 500 kHz	$450 \cdot 10^{-6}$ (abs.)			
					500 kHz to 1 MHz	$900 \cdot 10^{-6}$ (abs.)			
				10 pF to 100 pF	50 Hz to 200 Hz	$13 \cdot 10^{-6}$ (abs.)			
					200 Hz to 1 kHz	$4 \cdot 10^{-6}$ (abs.)			
					1 kHz	$3 \cdot 10^{-6}$ (abs.)			
					1 kHz to 5 kHz	$9 \cdot 10^{-6}$ (abs.)			
					5 kHz to 10 kHz	$18 \cdot 10^{-6}$ (abs.)			
					10 kHz to 20 kHz	$39 \cdot 10^{-6}$ (abs.)			

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		min.	unit	max.	unit						
							20 kHz to 100 kHz	$70 \cdot 10^{-6}$ (abs.)			
							100 kHz to 200 kHz	$150 \cdot 10^{-6}$ (abs.)			
							200 kHz to 500 kHz	$350 \cdot 10^{-6}$ (abs.)			
							500 kHz to 1 MHz	$700 \cdot 10^{-6}$ (abs.)			
						100 pF to 1,000 pF	50 Hz to 200 Hz	$9 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$4 \cdot 10^{-6}$ (abs.)			
							1 kHz	$3 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$7 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$12 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$23 \cdot 10^{-6}$ (abs.)			
							20 kHz to 100 kHz	$70 \cdot 10^{-6}$ (abs.)			
							100 kHz to 200 kHz	$150 \cdot 10^{-6}$ (abs.)			
							200 kHz to 500 kHz	$350 \cdot 10^{-6}$ (abs.)			
							500 kHz to 1 MHz	$700 \cdot 10^{-6}$ (abs.)			
						1 nF to 10 nF	50 Hz to 200 Hz	$79 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$7 \cdot 10^{-6}$ (abs.)			
							1 kHz	$9 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$24 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$41 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$79 \cdot 10^{-6}$ (abs.)			
		0.001	up to	0.01		1 pF to 10 pF	50 Hz to 200 Hz	$61 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$18 \cdot 10^{-6}$ (abs.)			
							1 kHz	$5 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$26 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$50 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$130 \cdot 10^{-6}$ (abs.)			
						10 pF to 100 pF	50 Hz to 200 Hz	$20 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$13 \cdot 10^{-6}$ (abs.)			

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		min.	unit	max.	unit						
							1 kHz	$5 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$15 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$23 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$43 \cdot 10^{-6}$ (abs.)			
						100 pF to 1,000 pF	50 Hz to 200 Hz	$12 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$7 \cdot 10^{-6}$ (abs.)			
							1 kHz	$5 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$9 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$14 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$25 \cdot 10^{-6}$ (abs.)			
						1 nF to 10 nF	50 Hz to 200 Hz	$82 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$7 \cdot 10^{-6}$ (abs.)			
							1 kHz	$9 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$24 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$41 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$79 \cdot 10^{-6}$ (abs.)			
		0.01	up to	0.1		1 pF to 10 pF	50 Hz to 200 Hz	$150 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$120 \cdot 10^{-6}$ (abs.)			
							1 kHz	$30 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$110 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$130 \cdot 10^{-6}$ (abs.)			
						10 pF to 100 pF	50 Hz to 200 Hz	$61 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$52 \cdot 10^{-6}$ (abs.)			
							1 kHz	$30 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$48 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$58 \cdot 10^{-6}$ (abs.)			
						100 pF to 1,000 pF	50 Hz to 200 Hz	$140 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$74 \cdot 10^{-6}$ (abs.)			

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		min.	unit	max.	unit						
							1 kHz	$30 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$70 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$61 \cdot 10^{-6}$ (abs.)			
						1 nF to 10 nF	50 Hz to 200 Hz	$100 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$7 \cdot 10^{-6}$ (abs.)			
							1 kHz	$9 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$24 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$41 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$79 \cdot 10^{-6}$ (abs.)			
		0.1	up to	1		1 pF to 1,000 pF	1 kHz	$300 \cdot 10^{-6}$ (abs.)			
						1 nF to 10 nF	50 Hz to 200 Hz	$100 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$7 \cdot 10^{-6}$ (abs.)			
							1 kHz	$9 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$24 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$41 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$79 \cdot 10^{-6}$ (abs.)			
		-1	up to	1		10 nF to 100 nF	50 Hz to 200 Hz	$30 \cdot 10^{-6}$ (abs.)			
							200 Hz to 1 kHz	$15 \cdot 10^{-6}$ (abs.)			
							1 kHz	$15 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$21 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$30 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$67 \cdot 10^{-6}$ (abs.)			
							20 kHz to 100 kHz	$70 \cdot 10^{-6}$ (abs.)			
							100 kHz to 200 kHz	$150 \cdot 10^{-6}$ (abs.)			
							200 kHz to 500 kHz	$350 \cdot 10^{-6}$ (abs.)			
							500 kHz to 1 MHz	$700 \cdot 10^{-6}$ (abs.)			
						100 nF to 1,000 nF	20 Hz to 50 Hz	$100 \cdot 10^{-6}$ (abs.)			
							50 Hz to 5 kHz	$30 \cdot 10^{-6}$ (abs.)			

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		min.	unit	max.	unit						
							5 kHz to 10 kHz	$60 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$80 \cdot 10^{-6}$ (abs.)			
							20 kHz to 100 kHz	$90 \cdot 10^{-6}$ (abs.)			
							100 kHz to 200 kHz	$200 \cdot 10^{-6}$ (abs.)			
							200 kHz to 500 kHz	$450 \cdot 10^{-6}$ (abs.)			
							500 kHz to 1 MHz	$900 \cdot 10^{-6}$ (abs.)			
						1 µF to 10 µF	20 Hz to 50 Hz	$100 \cdot 10^{-6}$ (abs.)			
							50 Hz to 5 kHz	$30 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$60 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$80 \cdot 10^{-6}$ (abs.)			
							20 kHz to 100 kHz	$120 \cdot 10^{-6}$ (abs.)			
						10 µF to 100 µF	20 Hz to 50 Hz	$100 \cdot 10^{-6}$ (abs.)			
							50 Hz to 200 Hz	$30 \cdot 10^{-6}$ (abs.)			
							200 Hz to 5 kHz	$50 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$100 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$220 \cdot 10^{-6}$ (abs.)			
							20 kHz to 100 kHz	$500 \cdot 10^{-6}$ (abs.)			
						100 µF to 1,000 µF	20 Hz to 50 Hz	$100 \cdot 10^{-6}$ (abs.)			
							50 Hz to 1 kHz	$50 \cdot 10^{-6}$ (abs.)			
							1 kHz to 5 kHz	$100 \cdot 10^{-6}$ (abs.)			
							5 kHz to 10 kHz	$160 \cdot 10^{-6}$ (abs.)			
							10 kHz to 20 kHz	$350 \cdot 10^{-6}$ (abs.)			
						1 mF to 3 mF	20 Hz to 50 Hz	$100 \cdot 10^{-6}$ (abs.)			
							50 Hz to 200 Hz	$50 \cdot 10^{-6}$ (abs.)			
							200 Hz to 5 kHz	$100 \cdot 10^{-6}$ (abs.)			
						3 mF to 10 mF	20 Hz to 1 kHz	$100 \cdot 10^{-6}$ (abs.)			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range		Parameter(s) of the meas. quantity		Lowest expanded measurement uncertainty specified[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min. unit	max. unit						
20	AC resistance / AC resistance meters	1 mΩ up to	10 mΩ	1 mΩ to 10 mΩ	20 Hz to 50 Hz 50 Hz to 20 kHz	0.015 % 0.010 %	Comparison with a standard using impedance bridge	611-MP-C040 611-MP-C041	7
					20 kHz to 100 kHz	0,015 %			
		10 mΩ up to	100 mΩ		20 Hz to 50 Hz 50 Hz to 100 kHz 100 kHz to 1 MHz	0.010 % 0.0070 % 0.10 %			
		100 mΩ up to	1 Ω		20 Hz to 50 Hz 50 Hz to 100 kHz 100 kHz to 200 kHz 200 kHz to 500 kHz 500 kHz to 1 MHz	0.0070 % 0.0050 % 0,0070 % 0,015 % 0.10 %			
		1 Ω up to	10 kΩ		20 Hz to 20 kHz 20 kHz to 200 kHz 200 kHz to 500 kHz 500 kHz to 1 MHz 1 MHz to 10 MHz	0.0020 % 0,0050 % 0,010 % 0,015 % 0.20 %			
		10 kΩ up to	100 kΩ		20 Hz to 50 Hz 50 Hz to 20 kHz 20 kHz to 100 kHz 100 kHz to 200 kHz 200 kHz to 500 kHz 500 kHz to 1 MHz 1 MHz to 10 MHz	0.0070 % 0.0050 % 0,0070 % 0,010 % 0,015 % 0.025 % 5.0 %			
		100 kΩ up to	1 MΩ		20 Hz to 50 Hz 50 Hz to 20 kHz	0.015 % 0.0080 %			

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		min. unit	max. unit						
					20 kHz to 100 kHz	0,020 %			
					100 kHz to 1 MHz	0.10 %			
					1 MHz to 10 MHz	5.0 %			
		1 MΩ	up to 10 MΩ		20 Hz to 50 Hz	0.030 %			
					50 Hz to 20 kHz	0.015 %			
					20 kHz to 1 MHz	0.30 %			
		10 MΩ	up to 100 MΩ		20 Hz to 50 Hz	0.070 %			
					50 Hz to 5 kHz	0.030 %			
					5 kHz to 10 kHz	0.050 %			
					10 kHz to 100 kHz	0.30 %			
21	Secondary component of impedance Z expressed as phase angle φ / AC resistance meters	-π	up to +π	1 mΩ to 10 mΩ	20 Hz to 200 Hz	3.5 µrad	Comparison with a standard using impedance bridge	611-MP-C040 611-MP-C041 611-MP-C099	7
					200 Hz to 1 kHz	$17 \cdot f^4$ µrad			
					1 kHz to 100 kHz	17·f µrad			
				10 mΩ to 100 mΩ	20 Hz to 1 kHz	2,5 µrad			
					1 kHz to 100 kHz	4·f µrad			
				100 mΩ to 500 mΩ	20 Hz to 1 kHz	1,5 µrad			
					1 kHz to 1 MHz	1,5·f µrad			
				500 mΩ to 1 Ω	20 Hz to 1 kHz	1,0 µrad			
					1 kHz to 1 MHz	0,9·f µrad			
				1 Ω to 1 kΩ	20 Hz až 1 kHz	0,7 µrad			
					1 kHz až 1MHz	0,7·f µrad			
				1 kΩ to 10 kΩ	20 Hz to 120 Hz	0,9 µrad			
					120 Hz to 100 kHz	0,9·f µrad			

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				10 kΩ to 100 kΩ	20 Hz to 1 kHz	1,2 µrad			
					1 kHz to 1 MHz	1,2·f µrad			
				100 kΩ to 10 MΩ	50 Hz to 200 Hz	50 µrad			
					200 Hz to 5 kHz	8.0 µrad			
					5 kHz to 10 kHz	20 µrad			
					10 kHz to 20 kHz	30 µrad			
					20 kHz to 100 kHz	1,2·f µrad			
22	Inductance / Inductance meters		10 mH		1 kHz	0.15 µH	Comparison with a standard using impedance bridge	611-MP-C099 611-MP-C041	7
			100 mH		1 kHz	1.5 µH			
		1 µH up to	10 µH		100 kHz to 1 MHz	0.10 %			
					1 kHz to 10 kHz	0,10 %			
					10 kHz to 20 kHz	0,050 %			
					20 kHz to 100 kHz	0,020 %			
		10 µH up to	100 µH		50 Hz to 200 Hz	0.10 %			
					200 Hz to 1 kHz	0.015 %			
					1 kHz to 20 kHz	0.020 %			
					20 kHz to 100 kHz	0,015 %			
					100 kHz to 1 MHz	0,050 %			
		100 µH up to	1 mH		20 Hz to 50 Hz	0.30 %			
					50 Hz to 1 kHz	0.015 %			
					1 kHz to 100 kHz	0.010 %			
					100 kHz to 1 MHz	0.050 %			
		1 mH up to	10 mH		20 Hz to 50 Hz	0.30 %			
					50 Hz to 200 Hz	0.015 %			
					200 Hz to 1 kHz	0.0080 %			

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		min. unit	max. unit						
					1 kHz	0.0050 %			
					1 kHz to 20 kHz	0.0080 %			
					20 kHz to 100 kHz	0,015 %			
					100 kHz to 1 MHz	0.050 %			
		10 mH	up to 100 mH		20 Hz to 50 Hz	0.30 %			
					50 Hz to 1 kHz	0.0080 %			
					1 kHz	0.0050 %			
					1 kHz to 20 kHz	0.015 %			
					20 kHz to 100 kHz	0,030 %			
					100 kHz to 1 MHz	0.050 %			
		100 mH	up to 1 H		50 Hz to 1 kHz	0.0080 %			
					1 kHz	0.0050 %			
					1 kHz to 10 kHz	0.020 %			
					10 kHz to 100 kHz	0.050 %			
		1 H	up to 10 H		20 Hz to 50 Hz	0.30 %			
					50 Hz to 1 kHz	0.020 %			
					1 kHz to 1 MHz	0.050 %			
		10 H	up to 100 H		20 Hz to 50 Hz	0.30 %			
					50 Hz to 1 kHz	0.030 %			
					1 kHz to 100 kHz	0.050 %			
		100 H	up to 1 kH		20 Hz to 50 Hz	0.30 %			
					50 Hz to 10 kHz	0.10 %			

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		min. unit	max. unit						
23	Digital electrical inspection equipment and associated standards / insulation resistance	10 kΩ up to	10 MΩ			0.0012 %	Indirect measurement using a voltage calibrator, reference resistor and voltmeter	131-MP-C006	1.7
		10 MΩ up to	100 MΩ			0.0020 %			
		100 MΩ up to	1 GΩ			0.010 %			
		1 GΩ up to	10 GΩ			0.025 %			
		10 GΩ up to	100 GΩ			0.050 %			
		100 GΩ up to	1 TΩ			$0.002 \cdot R^2 + 0.001 \cdot R$ [Note 5]			
			100 MΩ			0.0017 %			
			1 GΩ			0.0030 %			
			10 GΩ			0.010 %			
		10 kΩ up to	1 GΩ			0.020 %	Direct generation of resistance with a calibrator of inspection instruments, resistance decade or resistance reference standards		
		1 GΩ up to	10 GΩ			1.0 %			
		10 GΩ up to	100 GΩ			1.5 %			
		100 GΩ up to	1 TΩ			2.5 %			
		1 TΩ up to	10 TΩ			4.0 %			

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		min. unit	max. unit						
			100 MΩ			0.0030 %			
			1 GΩ			0.0050 %			
			10 GΩ			0.020 %			
			100 GΩ			0.10 %			
			1 TΩ			0.50 %			
	Digital electrical inspection equipment and associated standards / protective loop, network impedance and ground loop						Direct generation of resistance with a calibrator of inspection instruments, resistance decade or resistance reference standards		
			25 mΩ			5.0 mΩ			
			50 mΩ			5.0 mΩ			
			100 mΩ			5.0 mΩ			
			330 mΩ			7.0 mΩ			
			500 mΩ			8.0 mΩ			
			1 Ω			10 mΩ			
			1.8 Ω			18 mΩ			
			5 Ω			30 mΩ			
			10 Ω			60 mΩ			
			18 Ω			100 mΩ			
			50 Ω			300 mΩ			
			100 Ω			500 mΩ			
			180 Ω			1.0 Ω			
			500 Ω			2.5 Ω			

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		min. unit	max. unit						
			1 kΩ 1.8 kΩ			5.0 Ω 10 Ω			
	Digital electrical inspection equipment and associated standards / RCD tripping current	3 mA up to	3 A		50 Hz	0.20 %	Simulation of a residual current device and direct measurement of tripping current by a calibrator of inspection instruments		
		3 mA up to	3 A		50 Hz	1.0 %			
	Digital electrical inspection equipment and associated standards / RCD tripping time	10 ms up to	5 s		50 Hz	0.05 ms	Simulation of a residual current device and direct measurement of tripping time by a calibrator of inspection instruments		
		10 ms up to	5 s		50 Hz	0.020 % + 0.25 ms			
	Digital electrical inspection equipment and associated standards / passive leak current	0.1 mA up to	30 mA		50 Hz	0.30 % + 2 µA	Direct comparison with a calibrator of inspection instruments		
	Digital electrical inspection equipment and associated standards / differential leak current	0.1 mA up to	30 mA		50 Hz	0.30 % + 2 µA			

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		min.	unit	max.	unit						
	Digital electrical inspection equipment and associated standards / differential leak current	0.1	mA	up to 30	mA		50 Hz	0.30 % + 2 µA			
	Digital electrical inspection equipment and associated standards / active leak current	0.1	mA	up to 30	mA		50 Hz	0.30 % + 1 µA			
		0.1	mA	up to 300	mA		DC + 20 Hz to 400 Hz	0.20 %			
	Digital electrical inspection equipment and associated standards / DC voltage	0	V	up to 10	kV			0.30 % + 5 V	Direct measurement of high voltage with a calibrator of inspection instruments or a voltmeter and voltage probe		
	Digital electrical inspection equipment and associated standards / AC voltage	0	V	up to 10	kV		50 Hz	0.50 % + 5 V			
	Digital electrical inspection equipment and associated standards / DC current	1	A	up to 1	kA	Current clamp		0.80 %	Current simulation with a calibrator and current coil		
	Digital electrical inspection equipment and associated standards / AC current	1	A	up to 1	kA	Current clamp	50 Hz	0.50 %			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand		Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit						
24	Oscilloscope vertical deflection coefficient	-222 V	up to	222 V			0 Hz	0.025 % + 25 µV	Direct voltage generation with an oscilloscope calibrator	113-MP-C008	1
		1 mV	up to	21 mV			10 Hz to 10 kHz	0.1 % + 15 µV			
		21 mV	up to	556 mV				0.1 % + 1 µV			
		556 mV	up to	210 V				0.05 % + 1 µV			
25	Oscilloscope time base	1 ns	up to	50 s				$0.25 \cdot 10^{-6}$	Direct generation by an oscilloscope calibrator	113-MP-C008	1
26	Oscilloscope bandwidth	0.1 Hz	up to	300 MHz			drop -3 dB	4 %	Measurement using oscilloscope calibrator	113-MP-C008	1
		300 MHz	up to	550 MHz				5 %			
		550 MHz	up to	1.1 GHz				7 %			
		1.1 GHz	up to	3.2 GHz				8 %			
	Relative decrease of oscilloscope frequency response	-6 dB	up to	6 dB			0.1 Hz to 300 MHz	0.18 dB			
							300 MHz to 550 MHz	0.22 dB			
							550 MHz to 1.1 GHz	0.31 dB			
							1.1 GHz to 3.2 GHz	0.35 dB			
27	Oscilloscope rise time	300 ps	up to	1 s				12 ps	Calibrator signal measurement with an oscilloscope and correction	113-MP-C008	1

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28	Input resistance / oscilloscopes, counters, etc.	800 kΩ 40 Ω		to to	1.2 MΩ 90 Ω			0.1 % 0.1 %	Measurement using an oscilloscope calibrator	113-MP-C008	1
29	Voltage/oscilloscopic probe split ratio	0.9 : 1		to	1,100 : 1		up to 222 V 0 Hz to 10 kHz	0.5 %	Direct voltage generation with an oscilloscope calibrator	113-MP-C008	1
30*	RF power calibration factor / power sensors	0.05		to	1.1		0 GHz to 1 GHz 1 GHz to 18 GHz 18 GHz to 40 GHz 40 GHz to 50 GHz	0.9 % 1.5 % 2.0 % 3.0 %	Direct comparison of reference and calibrated meter reading	113-MP-C014	1
	RF power level *L*/level meters,	44 20 10 -10 -30	dB(mW) dB(mW) dB(mW) dB(mW) dB(mW)	up to up to up to up to up to	55 dB(mW) 44 dB(mW) 20 dB(mW) 10 dB(mW) -10 dB(mW)		9 kHz to 2.5 GHz 9 kHz to 6 GHz 6 GHz to 18 GHz 9 kHz to 1 GHz 1 GHz to 10 GHz 10 GHz to 18 GHz 18 GHz to 40 GHz 40 GHz to 50 GHz 9 kHz to 10 GHz 10 GHz to 18 GHz 18 GHz to 40 GHz 40 GHz to 50 GHz 9 kHz to 1 GHz	0.12 dB 0.09 dB 0.14 dB 0.06 dB 0.07 dB 0.1 dB 0.13 dB 0,15 dB 0.05 dB 0.09 dB 0.13 dB 0,15 dB 0.06 dB			

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		min.	unit	max.	unit					
						1 GHz to 10 GHz	0.07 dB			
						10 GHz to 18 GHz	0.1 dB			
						18 GHz to 40 GHz	0.13 dB			
						40 GHz to 50 GHz	0,15 dB			
		-60 dB(mW)	up to	-30 dB(mW)		9 kHz to 1 GHz	0.07 dB			
						1 GHz to 10 GHz	0.09 dB			
						10 GHz to 18 GHz	0.1 dB			
						18 GHz to 40 GHz	-0,001·(*L*+30) + 0,13 dB			
						40 GHz to 50 GHz	-0,001·(*L*+30) + 0,15 dB			
		-100 dB(mW)	up to	-60 dB(mW)		0.1 MHz to 1 GHz	-0,001·(*L*+60) + 0,07 dB			
						1 GHz to 10 GHz	-0,001·(*L*+60) + 0,07 dB			
						10 GHz to 18 GHz	-0,0015·(*L*+60) + 0,11 dB			
						18 GHz to 26.5 GHz	-0,002·(*L*+60) + 0,15 dB			
	RF voltage at a defined location on the coaxial line/probes, transducers	1 mV	to	2 V		0 GHz to 2 GHz	1 %	Power measurements and recalculations with vector corrections		
		2 V	to	100 V			1.7 %			
	RF current at a defined location on the coaxial line/probes, transducers	20 µA	to	40 mA		0 GHz to 2 GHz	1 %			
		40 mA	to	2 A			1.7 %			
	ΔL level difference of power, voltage and current/amplifiers, attenuators, level meters, signal sources	0 dB	to	65 dB		9 kHz to 1 MHz	0,0006ΔL + 0,02 dB	Power ratio measurement		

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	and other test equipment										
		65 dB	up to		75 dB			0.14dB			
		75 dB	up to		85 dB			0.21dB			
		0 dB	up to		85 dB		1 MHz to 13.2 GHz	0,0006ΔL + 0,02 dB			
		85 dB	up to		95 dB			0.14dB			
		95 dB	up to		105 dB			0.21dB			
		105 dB	up to		110 dB			0.56dB			
		0 dB	up to		75 dB		13.2 GHz to 26.5 GHz	0,0006ΔL + 0,02 dB			
		75 dB	up to		85 dB			0.14dB			
		85 dB	up to		95 dB			0.21dB			
		95 dB	up to		100 dB			0.56dB			
		0 dB	up to		40 dB		26.5 GHz to 50 GHz	0.1dB			
31	Voltages / equipment used mainly in testing (EMC)	0.5 mV	up to		1,000 V		0 Hz	0.1 %	Measurement by a reference standard multimeter	113-MP-C014	1
		1 mV	up to		100 V		10 Hz to 100 kHz	0.15 % +3 μV			
		100 V	up to		500 V		10 Hz to 100 kHz	0.32 %			
	Voltage/ESD simulators	500 V	up to		35 kV		0 Hz	2 % +5 V	Direct measurement by a standard HV voltmeter	113-MP-C017	
32	Current / equipment for testing (EMC)	0.1 mA	up to		1 A		0 Hz	0.1 %	Measurement by a reference standard multimeter	113-MP-C014	1
	Current / excitation of frame antenna	1 A	up to		40 A		40 Hz to 60 Hz	1.5 %	Measurement using a shunt	113-MP-C017	
		40 A	up to		400 A		40 Hz to 60 Hz	1.8 %			

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	Current / current probes, shunts	50 mA	up to		1.9999 A		10 Hz to 5 kHz		0.5 %			
33	Transfer impedance / current probes	-65 dB (Ω)	to		+35 dB (Ω)		10 Hz to 100 MHz		0.2 dB	Input current generation and output voltage measurement	113-MP-C017	1
							100 MHz to 300 MHz		0.35 dB			
							300 MHz to 400 MHz		0.5 dB			
34	Amplitude modulation depth *m* / signal sources, modulation meters	5 %	to		99 %		fc: 100 kHz to 10 MHz	fmod: 50 Hz to 10 kHz	0.0075·*m*	Measurement by ref. modulation analyzer, direct comparison with a reference standard	113-MP-C014	1
		5 %	to		20 %		fc:10 MHz to 3 GHz	fmod: 50 Hz to 100 kHz	0.025·*m*			
		20 %	to		99 %				0.005·*m*			
35	Impedance/ coupling networks	3 Ω	to		200 Ω		9 kHz to 400 MHz	module	6 %	Measurement by a vector circuit analyzer and recalculations	113-MP-C017	1
								phase	4°			
36	Reflection coefficient modulus *r* / equipment used mainly in testing (EMC)	0	to		1		BNC connector	9 kHz to 1 GHz	$0{,}015r^2 + 0{,}01$	Measurement by a vector circuit analyzer	113-MP-C017	1
								1 GHz to 2 GHz	$0{,}025r^2 + 0{,}02$			
								2 GHz to 3 GHz	$0{,}035r^2 + 0{,}03$			

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							N connector 5 kHz to 2 GHz	$0,07r^2 + 0,015$	Measurements with directional bridges or taps		
							2 GHz to 8 GHz	$0,08r^2 + 0,02$			
							8 GHz to 18 GHz	$0,12r^2 + 0,03$			
37	Current/pulse generators, ESD simulators	1 A		to	130 A			4 %	Measurement using an oscilloscope with an ESD target	113-MP-C017	1
38	Short circuit current, peak value / pulse generators	1 A		to	3 kA		rise time > 0.2 µs	4 %	Measurement with an oscilloscope with shunt or current transformer	113-MP-C017	1
39	No-load voltage, peak value / pulse generators	20 V		to	8 kV		rise time > 0.2 µs	3.5 %	Measurement using an oscilloscope with a HV probe	113-MP-C017	1
40	Voltage up to the load 2 Ω, 10 Ω , 20 Ω, 50 Ω, peak value / pulse generators	10 V		to	1 kV		rise time > 0.2 µs	3.8 %	Measurement using an oscilloscope with a HV differential probe	113-MP-C017	1
41	Voltage, peak value/pulse generators EFT/burst, US defectoscopes,	10 V		to	4 kV		up to 50 Ω load	3 %	Measurement with an oscilloscope with a HV divider or with attenuation cells	113-MP-C017	1
		200 V		to	6 kV		up to 1 kΩ load	4 %			

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		min.	unit	max.	unit					
42	Pulse area/pulse generators for EMI receiver calibration, ČSN EN 55016-1-1 ed.4	0.1	µVs	30	µVs	9 kHz to 150 kHz	2.8 %	Measurement with an oscilloscope with attenuation cells and subsequent calculations and corrections	113-MP-C017	1
		0.01	µVs	1	µVs	150 kHz to 30 MHz	2.8 %			
		1	nVs	100	nVs	30 MHz to 1 GHz	3 %			

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Okružní 772/31, 638 00 Brno

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand		Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit						
43*	Measuring current transformers / AC current ratio	0.1 1,000	up to up to	5,000 30,000		0.5 A to 5,000 A/ 5 A and 1 A 5 kA to 30 kA/5 A and 1 A	50 Hz	0.002 % (abs.) 0.003 % (abs.)	Comparison with a measuring transformer	817-MP-C701	1, 12
	Measuring current transformers / Current phase shift	-600 ′	up to	600 ′		0.5 A to 5,000 A/ 5 A and 1 A	50 Hz	0.07 ′ 0.1 ′	Comparison with a measuring transformer		
44*	Measuring current transformers / AC voltage ratio			50 100 220		5 kV /100 V 10 kV /100 V 22 kV/100 V	50 Hz	0.006 % (abs.) 0.006 % (abs.) 0.006 % (abs.)	Comparison with a measuring transformer	817-MP-C701	1, 12
		0.4	up to	80,000		100 V to 400 kV/5 V to 250 V	50 Hz	0.007 % (abs.)	Comparison with a HV divider		
	Measuring voltage transformers / Voltage phase shift	-600 ′	up to	600 ′		5 kV; 10 kV and 22 kV/100 V 100 V to 400 kV/5 V to 250 V	50 Hz	0,21′ 0,24′	Comparison with a HV divider	817-MP-C701	12
45*	Rogowski coils / AC current	0 A 0 A	up to up to	10 kA 30 kA		1 thread 10 threads		(0,021 to 0,100) %	Comparison with a measuring current transformer	817-MP-C705	12

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		min.	unit	max.	unit						
46	Antenna factor / antennas	-10	dB/m	up to +60	dB/m	3m distance	30 MHz to 100 MHz	2.8 dB	Three antenna method	851-MP-C004, chap. 5.1 (ANSI C63.5 chap. 5)	13
							100 MHz to 300 MHz	2.8 dB			
							300 MHz to 1 GHz	3.0 dB			
							1 GHz to 18,000 MHz	2.0 dB			
						10 m distance	30 MHz to 100 MHz	2.2 dB			
							100 MHz to 300 MHz	1.5 dB			
							300 MHz to 1 GHz	1.4 dB			
							1 GHz to 18 GHz	2.0 dB			
47	Antenna factor / antennas	-10	dB/m	up to +60	dB/m	3m distance	30 MHz to 100 MHz	3.3 dB	Substitution method	851-MP-C004, chap. 5.2 (ANSI C63.5 chap. 6)	13
							100 MHz to 300 MHz	3.3 dB			
							300 MHz to 1 GHz	3.5dB			
							1 GHz to 18 GHz	2.2 dB			
						10 m distance	30 MHz to 100 MHz	2.5 dB			
							100 MHz to 300 MHz	1.7 dB			
							300 MHz to 1 GHz	1.7 dB			
							1 GHz to 18 GHz	2.2 dB			
48	Antenna factor / antennas	-10	dB/m	up to +60	dB/m	1 m distance	30 MHz to 1 GHz	3.5 dB	Measurement of transmission of two identical antennas	851-MP-C004, chap. 5.4 (SAE ARP 958, Rev.D, chap 3 and 4)	13
							1 GHz to 18 GHz	3.1 dB			
49	Antenna factor / frame antennas	-10	dBS/m	up to +60	dBS/m	1 m distance	10 kHz to 30 MHz	2.2 dB	Measurement of the magnetic field intensity of a standard antenna	851-MP-C004, chap. 5.5 (SAE ARP 958, Rev.D, chap. 6 and 7)	13

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Ord. num-ber[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the meas. quantity		Lowest expanded measurement uncertainty specified[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit						
50	Antenna factor / rod antennas	-10 dB/m	up to	+60 dB/m			9 kHz to 30 MHz	2.1 dB	Adaptive circuit measurement	851-MP-C004, chap. 5.3 (ČSN EN 55016-1-4)	13

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[4] **f** is the frequency value in kHz

[5] R is the resistance value in TΩ

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CMC for the field of measured quantity: Magnetic quantities

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
1	Magnetic induction / Reference magnets	0.3	mT	up to 2	T		(0.21 to 1) %	Comparison with a standard teslameter	817-MP-C607	12

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CMC for the field of measured quantity: Optical quantities

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand		Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work place
		min.	unit	max.	unit						
1	Spectral reflection coefficient R Spectrophotometers	0	%	up to 100	%	8°/t, 8°/d 0°/45°	380 nm to 460 nm 465 nm to 780 nm 380 nm to 780 nm	(0.1 + 0.010·R) % (abs.) (0.12 + 0.008·R) % (abs.) (0.17 + 0.014·R) % (abs.)	Comparison with a colorimetric standard	818-MP-C802	12
	Colorimetric standard	0	%	up to 100	%	8°/t, 8°/d 0°/45°	380 nm to 460 nm 465 nm to 780 nm 380 nm to 780 nm	(0.1 + 0.010·R) % (abs.) (0.12 + 0.008·R) % (abs.) (0.17 + 0.014·R) % (abs.)	Measurement by a reference spectrophotometer		
2	Surface colour, colorimetric coordinates Spectrophotometers, colorimeters								Comparison with a colorimetric standard	818-MP-C802	12
	L*	2		up to 99		8°/t, 8°/d, 0°/45°		0.35 (abs.)			
	a*	-110		up to 110				0.25 (abs.)			
	b*	-110		up to 110				0.25 (abs.)			
	Colorimetric standard								Measurement by a reference spectrophotometer		
	L*	2		up to 99		8°/t, 8°/d, 0°/45°		0.40 (abs.)			
	a*	-110		up to 110				0.30 (abs.)			
	b*	-110		up to 110				0.30 (abs.)			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range			Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work place
		min. unit		max. unit					
3	Surface colour, colorimetric coordinates							818-MP-C802	12
	Spectrophotometers, colorimeters						Comparison with a colorimetric standard		
	Y	0.3	up to	100	8°/t, 8°/d, 0°/45	0.25 (abs.)			
	x	0.002	up to	0.7		0.0005 (abs.)			
	y	0.002	up to	0.8		0.0005 (abs.)			
	Colorimetric standard						Measurement by a reference spectrophotometer		
	Y	0.3	up to	100	8°/t, 8°/d, 0°/45	0.35 (abs.)			
	x	0.002	up to	0.7		0.0007 (abs.)			
	y	0.002	up to	0.8		0.0007 (abs.)			
4	Surface colour, colorimetric coordinates							818-MP-C802	12
	Spectrophotometers, colorimeters						Comparison with a colorimetric standard		
	L	2	up to	99	8°/t, 8°/d, 0°/45	0.35 (abs.)			
	u´	0.002	up to	0.6		0.0005 (abs.)			
	v´	0.002	up to	0.6		0.0005 (abs.)			
	Colorimetric standard						Measurement by a reference spectrophotometer		
	L	2	up to	99	8°/t, 8°/d, 0°/45	0.40 (abs.)			
	u´	0.002	up to	0.6		0.0008 (abs.)			
	v´	0.002	up to	0.6		0.0008 (abs.)			

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		min. unit		max. unit					
5	Gloss / Gloss meters, gloss standards	0.1 GU	up to	150 GU	20°, 60°, 85°	1.8 GU	ISO 2813	818-MP-C808	12
6*	Illumination / Light sources	5 lx	up to	50,000 lx		2.2 %	Measurement by a reference photometer	818-MP-C801	12
	Illumination / Luxmeters	1 lx	up to	50,000 lx		0.8 %	Comparison with a reference photometer	818-MP-C811	12
7*	Irradiance / colorimetric boxes	0.1 $\mu W \cdot cm^{-2}$	up to	1,000 $mW \cdot cm^{-2}$	230 nm to 470 nm	5 %	Comparison with a reference photometer	818-MP-C801	12
8*	Replacement colour temperature / colorimetric (light) boxes	2,000 K	up to	10,000 K		30 K	Measurement by a reference spectrophotometer	818-MP-C801	12
9*	Perpendicular spectral transmission / Transmission spectrophotometers, standard filters	0.1	up to	1	$(200 \leq \lambda < 380)$ nm	0.0012 (abs.)	Comparison with a reference photometer	818-MP-C810	12
		0.001	up to	0.1	$(200 \leq \lambda < 380)$ nm	0.0001 (abs.)			
		0.6	up to	1	$(380 \leq \lambda < 1{,}000)$ nm	0.0008 (abs.)			
		0.3	up to	0.6	$(380 \leq \lambda < 400)$ nm	0.0041 (abs.)			
		0.3	up to	0.6	$(400 \leq \lambda < 700)$ nm	0.00056 (abs.)			
		0.3	up to	0.6	$(700 \leq \lambda \leq 1{,}000)$ nm	0.0017 (abs.)			
		0.02	up to	0.3	$(380 \leq \lambda < 400)$ nm	0.0015 (abs.)			
		0.02	up to	0.3	$(400 \leq \lambda \leq 1{,}000)$ nm	0.00022 (abs.)			
		0.001	up to	0.02	$(380 \leq \lambda < 400)$ nm	0.0002 (abs.)			
		0.001	up to	0.02	$(400 \leq \lambda \leq 1{,}000)$ nm	0.00008 (abs.)			

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		min. unit		max. unit					
10*	Perpendicular spectral absorbance / Transmission spectrophotometers, standard filters	0.00	up to	1.00 -	(200 ≤ λ < 380) nm	0.0005 to 0.0052 (abs.)	Comparison with a reference photometer	818-MP-C810	12
		1.00	up to	3.00	(200 ≤ λ < 380) nm	0.0004 to 0.046 (abs.)			
		0.00	up to	0.22	(380 ≤ λ < 1,000) nm	0.0003 to 0.0006 (abs.)			
		0.22	up to	0.52	(380 ≤ λ < 400) nm	0.0030 to 0.0060 (abs.)			
		0.22	up to	0.52	(400 ≤ λ < 700) nm	0.0004 to 0.0008 (abs.)			
		0.22	up to	0.52	(700 ≤ λ ≤ 1,000) nm	0.0012 to 0.0025 (abs.)			
		0.52	up to	1.70	(380 ≤ λ < 400) nm	0.0022 to 0.034 (abs.)			
		0.52	up to	1.70	(400 ≤ λ ≤ 1,000) nm	0.0003 to 0.0048 (abs.)			
		1.70	up to	3.00	(380 ≤ λ < 400) nm	0.0044 to 0.097 (abs.)			
		1.70	up to	3.00	(400 ≤ λ ≤ 1,000) nm	0.0017 to 0.036 (abs.)			
11*	Wavelength λ / Transmission spectrophotometers	200 nm	up to	1,700 nm		0.2 nm	Comparison with a standard filter	818-MP-C810	12
	Wavelength λ / Standard filters	200 nm	up to	1,700 nm		0.2 nm	Measurement by a reference spectrophotometer	818-MP-C810	12
12	Transmission optical density / Optical densitometers	0	up to	4.5		0.0038 (abs.)	Comparison with an optical density standard	818-MP-C812	12
	Transmission optical density D / Optical density standards	0	up to	4.5		0.0038 (abs.)	Measurement by a reference densitometer	818-MP-C812	12
13	Optical power / Optical radiometers, fiber power meters	$1 \cdot 10^{-9}$ W	up to	10 W	800 nm to 920 nm 920 nm to 960 nm	0.40 % 0.50 %	Comparison with a reference detector[4]	818-MP-C813	12

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				960 nm to 1,000 nm 1,000 nm to 1,580 nm 1,580 nm to 1,650 nm	0.45 % 0.47 % 0.60 %			
14	Optical attenuation / Attenuators	0 dB	up to 65 dB	800 nm to 1,650 nm	0.052 dB (abs.)	Comparison with a reference attenuators	818-MP-C813	12
15	Linearity / Fiber power meters	0 dB	up to 0.5 dB	Power level 800 nm to 0 dBm to -65 dBm 1,650 nm	0.004 dB	Comparison with a reference detector[4]	818-MP-C813	12
16	Wavelength / Fiber spectrum analyzers	800 nm	up to 1,650 nm		$4 \cdot 10^{-9}$ nm	Comparison with a reference radiation source, spectrometer / wavemeter	818-MP-C813	12
17	Luminous intensity / Standard light sources	1 cd	up to 20,000 cd		0.8 %	Measurement by a reference photometer	818-MP-C811	12
18	Brightness / Brightness meters	1 cd m^{-2}	up to 30,000 cd m^{-2}		1.1 %	Comparison with a reference brightness meter	818-MP-C805	12
19	Luminous flux / Standard light sources	10 lm	up to 20,000 lm		1.0 %	Comparison with a standard light source in the integration sphere or on a reference goniophotometer	818-MP-C807	12
20	Spectral irradiance / Spectroradiometers	0.65 mW m^{-2} nm^{-1}	up to 300 mW m^{-2} nm^{-1}	300 nm to 400 nm 400 nm to 1,700 nm 1,700 nm to 2,500 nm	3.4 % 3.0 % 4.5 %	Comparison with a standard source of optical radiation	818-MP-C806	12

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21	Spectral radiance / Spectroradiometers	1.12 mW $sr^{-1}m^{-2}$ nm^{-1} up to 1.50 mW $sr^{-1}m^{-2}$ nm^{-1} up to	10.00 mW $sr^{-1}m^{-2}$ nm^{-1} 95.00 mW $sr^{-1}m^{-2}$ nm^{-1}	370 nm to 800 nm 800 nm to 1,000 nm 1,000 nm to 1,700 nm	3.2 % 3.6 % 3.0 %	Comparison with a standard source and standard of spectral reflectance	818-MP-C806	12
22	Wavelength λ / spectroradiometer	365 nm up to	923 nm		0.4 nm	Comparison with a standard source	818-MP-C806	12
23	Spectral integral parameters / Sources of optical radiation					Measurement by a reference spectrophotometer	818-MP-C806	12
	Replacement colour temperature T_c	2,000 K	10,000 K		20 K			
	Colour rendering index R_a	1 up to	100		1.2 (abs.)			
	Light colour, colorimetric coordinates x	0.002 up to	0.7		0.0025 (abs.)			
	y	0.002 up to	0.8		0.0020 (abs.)			
	Light colour, colorimetric coordinates u´	0.002 up to	0.6		0.0017 (abs.)			
	v´	0.002 up to	0.6		0.0015 (abs.)			

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	Spectral integral parameters / Spectrophotometers						Comparison with a standard source of optical radiation or a reference spectroradiometer	818-MP-C806	12
	Replacement colour temperature T_c	2,000 K		10,000 K		20 K			
	Colour rendering index R_a	1	up to	100		0.7 (abs.)			
	Light colour, colorimetric coordinates								
	x	0.002	up to	0.7		0.0014 (abs.)			
	y	0.002	up to	0.8		0.0010 (abs.)			
	Light colour, colorimetric coordinates								
	u´	0.002	up to	0.6		0.0009 (abs.)			
	v´	0.002	up to	0.6		0.0006 (abs.)			

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[4] Expressed in dBm: P[dBm]=10.log(P[W]/0,001); uncertainty U[dB]=10.log(1/(1-U[-])).

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CMC for the field of measured quantity: Time and frequency quantities

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
1*	Frequency / signal sources, frequency meters	0.01 Hz	up to	3 GHz			$1 \cdot 10^{-11}$	Measurement by ref. counter, direct comparison with a reference standard alternatively using frequency dividers	113-MP-C007	1, 7
		3 GHz	up to	18 GHz			$1 \cdot 10^{-11}$			1
		18 GHz	up to	46 GHz			3 Hz			
2*	Period / signal sources, time interval meters	5 ns	up to	10^5 s			$1 \cdot 10^{-11}$	Measurement by ref. counter, direct comparison with a reference standard	113-MP-C007	1, 7
3*	Time interval / signal sources, time interval meters	0 s	up to	10^5 s			$(1.1 \cdot 10^{-9} + 1 \cdot 10^{-11}\, t)$s	Measurement using a counter	113-MP-C007	1, 7
		0 s	up to	10 s			$(10 \cdot 10^{-12} + 2 \cdot 10^{-3}\, t)$ s	Measurement by an oscilloscope		
4*	Simple pulse counting / pulse sources, pulse counters	0	up to	$1 \cdot 10^7$		f_{max}= 50 MHz	0	Measurement by ref. counter, direct comparison with a reference standard	113-MP-C007	1, 7

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		min.	unit	max.	unit					
5	FM frequency deviation / signal sources, modulation meters	0.2 kHz	up to	40 kHz		f_c=250 kHz to 10 MHz f_{mod}=20 Hz to 10 kHz $\Delta f/ f_{mod}$>0.2	1.5 %	Measurement by ref. modulation meter, direct comparison with a reference standard	113-MP-C007	1
						$\Delta f/ f_{mod}$>1.2	1%			
		0.25 kHz	up to	400 kHz		f_c=10 MHz to 6.6 GHz f_{mod}=50 Hz to 200 kHz $\Delta f/ f_{mod}$>0.2	1.5 %			
						$\Delta f/ f_{mod}$>0.45	1%			
6	Time interval / mechanically operated stopwatch	0.1 s	up to	35,999.99 s			16 ms	Direct comparison with a reference standard	113-MP-C013	1, 2, 7
7	Relative frequency error of time base / stopwatch with LCD	$-1\cdot10^{-3}$	up to	$1\cdot10^{-3}$			$3\cdot10^{-7}$	Frequency measurement – capacitive coupling to LCD	113-MP-C013	1, 2, 7

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CMC for the field of measured quantity: Acoustic quantities and mechanical vibration

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range		Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min. unit	max. unit					
1	Sound pressure level / Acoustic calibrators	60 dB	up to 134 dB	re $20 \cdot 10^{-6}$ Pa	0.09 dB	Comparison with a standard microphone in relation to frequency and total distortion (ČSN EN 60942)	812-MP-C211	12
2	Microphone sensitivity / Laboratory standard microphones	-40 dB	up to -24 dB	re $1 V \cdot Pa^{-1}$	0.05 dB	Reciprocal calibration method according to nominal sensitivity of 1“ standard microphone (ČSN EN 61094-1, ČSN EN 61094-2)	812-MP-C216	12

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CMC for the field of measured quantity: Physicochemical quantities

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work place
		min.	unit	max.	unit					
1*	Humidity of solids / relative humidity meters	4 %	up to	50 %		cereals, and oil seeds	0.25 %	Comparison with reference determination	511-MP-C001	6
		0.001 %	up to	20 %		plastics	0.005 %	Comparison with reference determination	511-MP-C009	6
2*	Humidity / absolute / relative humidity gauges	4 %	up to	110 %		solids	0.31 %	Comparison with reference determination	511-MP-C003	6
3*	Multi-parameter analyzers - relative humidity	4 %	up to	50 %			0.27 %	Comparison with reference determination	511-MP-C001	6
	- content of N-substances	5 %	up to	40 %			0.30 %			
	- oil content	10 %	up to	80 %			0.29 %			
	- Zeleny test	10 ml	up to	75 ml			1.3 ml			
4	Refractive index / refractometers	1.3	up to	1.7			$9 \cdot 10^{-5}$	Comparison with reference determination	512-MP-C003	6
5	Kinematic viscosity / efflux time	30 s	up to	100 s		efflux cup with a nozzle D4	0.91 s	Comparison with a calibration liquid	616-MP-C001	7
						C3	0.83 s			
						C4	0.72 s			
						C5	0.56 s			
						C6	0.84 s			
						A4	0.47 s			

Accredited entity according to ČSN EN ISO/IEC 17025:2018:

Český metrologický institut
CAB number 2202, CMI Calibration Laboratory
Okružní 772/31, 638 00 Brno

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work place
		min.	unit	max.	unit					
6	Kinematic viscosity / capillary viscometer constant			0.001	$mm^2 \cdot s^{-2}$		$1.8 \cdot 10^{-6}$ $mm^2 \cdot s^{-1}$	Comparison with a standard viscometer	616-MP-C002	7
				0.003	$mm^2 \cdot s^{-2}$		$7.6 \cdot 10^{-6}$ $mm^2 \cdot s^{-1}$			
				0.01	$mm^2 \cdot s^{-2}$		$2.9 \cdot 10^{-5}$ $mm^2 \cdot s^{-1}$			
				0.03	$mm^2 \cdot s^{-2}$		$9.6 \cdot 10^{-5}$ $mm^2 \cdot s^{-1}$			
				0.1	$mm^2 \cdot s^{-2}$		$3.5 \cdot 10^{-4}$ $mm^2 \cdot s^{-1}$			
				0.3	$mm^2 \cdot s^{-2}$		$1.1 \cdot 10^{-3}$ $mm^2 \cdot s^{-1}$			
				1	$mm^2 \cdot s^{-2}$		$3.9 \cdot 10^{-3}$ $mm^2 \cdot s^{-1}$			
				3	$mm^2 \cdot s^{-2}$		$1.7 \cdot 10^{-2}$ $mm^2 \cdot s^{-1}$			
				10	$mm^2 \cdot s^{-2}$		$5.0 \cdot 10^{-2}$ $mm^2 \cdot s^{-1}$			
				30	$mm^2 \cdot s^{-2}$		$1.6 \cdot 10^{-1}$ $mm^2 \cdot s^{-1}$			
7	Kinematic viscosity / calibration liquids	0.6	$mm^2 \cdot s^{-1}$ up to	6	$mm^2 \cdot s^{-1}$		0.21 %	Direct measurement using a standard viscometer	616-MP-C002	7
		6	$mm^2 \cdot s^{-1}$ up to	60	$mm^2 \cdot s^{-1}$		0.32 %			
		60	$mm^2 \cdot s^{-1}$ up to	600	$mm^2 \cdot s^{-1}$		0.35 %			
		600	$mm^2 \cdot s^{-1}$ up to	6,000	$mm^2 \cdot s^{-1}$		0.42 %			
		6,000	$mm^2 \cdot s^{-1}$ up to	30,000	$mm^2 \cdot s^{-1}$		0.52 %			
8	Dynamic viscosity / calibration liquids	0.6	mPa·s up to	6	mPa·s		0.21 %	Direct measurement with standard viscometer and standard densimeter	616-MP-C002	7
		6	mPa·s up to	60	mPa·s		0.32 %			
		60	mPa·s up to	600	mPa·s		0.35 %			
		600	mPa·s up to	6,000	mPa·s		0.42 %			
		6,000	mPa·s up to	30,000	mPa·s		0.52 %			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded mesurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work place
		min.	unit	max.	unit					
9	Dynamic viscosity / rotary viscometers	10	mPa·s	150	mPa·s		0.91 %	Comparison with a calibration liquid	616-MP-C003	7
		150	mPa·s	400	mPa·s		0.92 %			
		400	mPa·s	1,300	mPa·s		1.1 %			
		1,300	mPa·s	30,000	mPa·s		1.4 %			
10	Liquid density / glass density meters	620	$kg \cdot m^{-3}$	1,850	$kg \cdot m^{-3}$		0.022 $kg \cdot m^{-3}$	Comparison with a standard density meter	616-MP-C004	7
		0	% vol.	100	% vol.		0.019 % vol.			
		0	% wt.	90	% wt.		0.019 % wt.			
		10	$kg \cdot hl^{-1}$	30	$kg \cdot hl^{-1}$		0.019 $kg \cdot hl^{-1}$			
11	Conductometers	0.005	$S \cdot m^{-1}$	0.015	$S \cdot m^{-1}$		from 5.6 % to 0.64 %	Comparison with a standard conductometer	616-MP-C005	6
		0.015	$S \cdot m^{-1}$	0.15	$S \cdot m^{-1}$		from 0.64 % to 0.19 %			
		0.15	$S \cdot m^{-1}$	1.5	$S \cdot m^{-1}$		from 0.19 % to 1.5 %			
		1.5	$S \cdot m^{-1}$	10	$S \cdot m^{-1}$		1.5 %			
12	Ethanol concentration / breath alcohol analyzers	0	mg/l	1,400	mg/l	gas phase	from 0.006 mg/l to 0.028 mg/l	By dry gas	114-MP-C004, chap no. 5.3.1	1, 10
13	Ethanol concentration / breath alcohol analyzers	0	mg/l	0.480	mg/l	gas phase	from 0.008 mg/l from 0.013 mg/l	Simulation method	114-MP-C004, chap no. 5.3.2	1, 10

[1] Asterisk at the ordinal number identifies the calibrations, which the Laboratory is qualified to carry out outside the permanent laboratory premises.

[2] The expanded measurement uncertainty is in accordance with ILAC-P14 and EA-4/02 M a part of CMC and it is the lowest value of the respective uncertainty. If not stated otherwise, its coverage probability is approx. 95 %. If not stated otherwise, the uncertainty values stated without a unit are relative to the measured value. The uncertainty value stated herein is based on the best conditions achievable by the laboratory; the uncertainty value of a specific calibration may be higher depending on the conditions of such a calibration. For identical extreme values of adjacent ranges, the lower uncertainty value always applies.

[3] If the document identifying the calibration procedure is dated, only these specific procedures are used. If the document identifying the calibration procedure is not dated, the latest edition of the specified procedure is used (including any changes).