



SCS Directory

Accreditation number: SCS 0002

International standard: ISO/IEC 17025:2005
Swiss standard: SN EN ISO/IEC 17025:2005

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Scope of accreditation see: www.sas.admin.ch
(Accredited bodies)

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Calibration laboratory for electrical quantities

Calibration and Measurement Capability (CMC)

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
DC Voltage Calibration of voltage measurement instruments	3 μ V ... < 0,22 V		4,7•10 ⁻⁶ + 0,7 μ V	
	0,1 V		5,0•10 ⁻⁶	
	0,22 V ... < 2,2 V		3,5•10 ⁻⁶ + 1,2 μ V	
	1 V		1,2•10 ⁻⁶	
	2,2 V ... < 11 V		1,8•10 ⁻⁶ + 6,0 μ V	
	10 V		0,5•10 ⁻⁶	
	11 V ... < 22 V		1,8•10 ⁻⁶ + 9,5 μ V	
	22 V ... < 275 V		3,0•10 ⁻⁶ + 120 μ V	
	100 V		1,1•10 ⁻⁶	
	275 V ... 1100 V		3,0•10 ⁻⁶ + 465 μ V	
1000 V		1,1•10 ⁻⁶		



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks	
DC Voltage	3 μ V ... < 0,12 V		$3,5 \cdot 10^{-6} + 0,6 \mu$ V		
	0,1 V		$1,5 \cdot 10^{-6} + 0,4 \mu$ V		
	0,12 V ... < 1,2 V		$2,0 \cdot 10^{-6} + 0,6 \mu$ V		
	Calibration of voltage calibrators	1 V		$1,0 \cdot 10^{-6} + 0,4 \mu$ V	
		1,2 V ... < 12 V		$1,0 \cdot 10^{-6} + 0,6 \mu$ V	
		10 V		$0,5 \cdot 10^{-6}$	
		12 V ... < 120 V		$3,0 \cdot 10^{-6} + 70 \mu$ V	
	DC Current	120 V ... 1050 V		$3,5 \cdot 10^{-6} + 300 \mu$ V	
100 V			$1,0 \cdot 10^{-6} + 55 \mu$ V		
1000 V			$2,0 \cdot 10^{-6} + 280 \mu$ V		
Calibration of ammeters		0,1 μ A ... 1 μ A		$116 \cdot 10^{-6} + 1,2$ nA	
		> 1 μ A ... 10 μ A		$14 \cdot 10^{-6} + 1,2$ nA	
		> 10 μ A ... 100 μ A		$6,8 \cdot 10^{-6} + ,2$ nA	
		> 100 μ A ... 1 mA		$7,1 \cdot 10^{-6} + 8,2$ nA	
		> 1 mA ... 10 mA		$6,7 \cdot 10^{-6} + 58$ nA	
	> 10 mA ... 100 mA		$11 \cdot 10^{-6} + 350$ nA		
	> 100 mA ... 2 A		$21 \cdot 10^{-6} + 15 \mu$ A		
	> 2 A ... 10 A		$35 \cdot 10^{-6} + 120 \mu$ A		
Calibration of current clamps	50 A ... 500 A		1,00 %		
	500 A ... 2500 A		0,90 %		
Calibration of current calibrators	0,1 μ A ... 1 μ A		$116 \cdot 10^{-6} + 0.52$ pA		
	> 1 μ A ... 10 μ A		$13 \cdot 10^{-6} + 5.7$ pA		
	> 10 μ A ... 100 μ A		$3,6 \cdot 10^{-6} + 52$ pA		
	> 100 μ A ... 1 mA		$4,2 \cdot 10^{-6} + 0.52$ nA		
	> 1 mA ... 10 mA		$3,4 \cdot 10^{-6} + 5.2$ nA		
	> 10 mA ... 100 mA		$4,7 \cdot 10^{-6} + 52$ nA		
	> 100 mA ... 1 A		$19 \cdot 10^{-6} + 0.52 \mu$ A		



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DC Current	> 1 A ... 3 A		$18 \cdot 10^{-6} + 5,2 \mu\text{A}$		
Calibration of current calibrators	> 3 A ... 10 A		$25 \cdot 10^{-6} + 52 \mu\text{A}$		
	> 10 A ... 20 A		$62 \cdot 10^{-6} + 52 \mu\text{A}$		
	> 20 A ... 200 A		$140 \cdot 10^{-6} + 520 \mu\text{A}$		
	> 200 A ... 600 A		$420 \cdot 10^{-6} + 5,2 \text{mA}$		
	DC Power	0,22 μW ... 22 kW	0,1 V ... 1100 V		
Calibration of current calibrators		2,2 μA ... 10 μA	$540 \cdot 10^{-6}$		
		> 10 μA ... 22 μA	$130 \cdot 10^{-6}$		
		> 22 μA ... 100 μA	$62 \cdot 10^{-6}$		
		> 100 μA ... 220 μA	$91 \cdot 10^{-6}$		
		> 220 μA ... 1 mA	$47 \cdot 10^{-6}$		
		> 1 mA ... 2.2 mA	$67 \cdot 10^{-6}$		
		> 2.2 mA ... 10 mA	$37 \cdot 10^{-6}$		
		> 10 mA ... 22 mA	$48 \cdot 10^{-6}$		
		> 22 mA ... 100 mA	$31 \cdot 10^{-6}$		
		> 100 mA ... 220 mA	$154 \cdot 10^{-6}$		
		> 220 mA ... 1 A	$83 \cdot 10^{-6}$		
		> 1 A ... 2,2 A	$37 \cdot 10^{-6}$		
		> 2,2 A ... 20 A	$89 \cdot 10^{-6}$		
	Calibration of current calibrators	0,01 μW ... 22 kW	0,1 V ... 1100 V		
			0,1 μA ... 1 μA	$125 \cdot 10^{-6}$	
> 1 μA ... 10 μA			$20 \cdot 10^{-6}$		
> 10 μA ... 100 mA			$15 \cdot 10^{-6}$		
> 100 mA ... 3 A			$25 \cdot 10^{-6}$		
> 3 A ... 10 A			$45 \cdot 10^{-6}$		
		> 10 A ... 20 A	$70 \cdot 10^{-6}$		



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
DC Resistance Calibration of resistance measurement instruments	0,1 m Ω	Measuring voltage [V]	19•10 ⁻⁶	Measurement uncertainties only valid for fixed values
	1 m Ω		19•10 ⁻⁶	
	0,01 Ω		20•10 ⁻⁶	
	0,1 Ω		7,2•10 ⁻⁶	
	1 Ω		3,6•10 ⁻⁶	
	10 Ω ; 100 Ω		2,5•10 ⁻⁶	
	1 k Ω		2,0•10 ⁻⁶	
	10 k Ω		1,3•10 ⁻⁶	
	100 k Ω ; 1 M Ω		4,2•10 ⁻⁶	
	10 M Ω		8,4•10 ⁻⁶	
	100 M Ω	7,7•10 ⁻⁶		
	1 G Ω	10 ... 100	91•10 ⁻⁶	
	10 G Ω	10	160•10 ⁻⁶	
	10 G Ω	100 ... 500	120•10 ⁻⁶	
	100 G Ω	10	150•10 ⁻⁶	
	100 G Ω	100 ... 500	110•10 ⁻⁶	
	1 T Ω	50	190•10 ⁻⁶	
	1 T Ω	100 ... 500	190•10 ⁻⁶	
	Calibration of resistors	10 T Ω	100	
10 T Ω		300	610•10 ⁻⁶	
10 T Ω		500	610•10 ⁻⁶	
10 T Ω		1000	320•10 ⁻⁶	
100 T Ω		100 ... 900	2,6•10 ⁻³	
0,1 m Ω			77•10 ⁻⁶	
1 m Ω			33•10 ⁻⁶	
0,01 Ω			34•10 ⁻⁶	
0,1 Ω ; 1 Ω			20•10 ⁻⁶	
10 Ω			4,2•10 ⁻⁶	
100 Ω			1,7•10 ⁻⁶	
1 k Ω			2,3•10 ⁻⁶	



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
Calibration of non decadic resistors	10 k Ω		$2,2 \cdot 10^{-6}$	
	100 k Ω		$4,6 \cdot 10^{-6}$	
	1 M Ω		$3,3 \cdot 10^{-6}$	
	10 M Ω		$9,1 \cdot 10^{-6}$	
	100 M Ω		$21 \cdot 10^{-6}$	
	1 G Ω		$120 \cdot 10^{-6}$	
	10 G Ω		$980 \cdot 10^{-6}$	
	0,01 Ω ... < 2 Ω		$6,6 \cdot 10^{-6} + 3,0 \mu\Omega$	
	2 Ω ... < 20 Ω		$3,2 \cdot 10^{-6} + 12 \mu\Omega$	
	20 Ω ... < 200 Ω		$1,7 \cdot 10^{-6} + 110 \mu\Omega$	
	0,2 k Ω ... < 2 k Ω		$2,2 \cdot 10^{-6} + 1,1 \text{ m}\Omega$	
	2 k Ω ... < 20 k Ω		$2,2 \cdot 10^{-6} + 11 \text{ m}\Omega$	
	20 k Ω ... < 200 k Ω		$4,3 \cdot 10^{-6} + 110 \text{ m}\Omega$	
	0,2 M Ω ... < 2 M Ω		$3,1 \cdot 10^{-6} + 13 \Omega$	
	2 M Ω ... < 20 M Ω		$8,6 \cdot 10^{-6} + 13 \Omega$	
20 M Ω ... < 200 M Ω		$21 \cdot 10^{-6} + 410 \Omega$		
0,2 G Ω ... < 2 G Ω		$1,7 \cdot 10^{-3} + 11,6 \text{ k}\Omega$		
2 G Ω ... < 20 G Ω		$1,7 \cdot 10^{-3} + 3,9 \text{ M}\Omega$		
AC Voltage	2 mV	10 Hz	$2,8 \cdot 10^{-3}$	$2,8 \cdot 10^{-3}$
		20 Hz; 40 Hz; 50 Hz		
		70 Hz; 100 Hz	$2,0 \cdot 10^{-3}$	$2,1 \cdot 10^{-3}$
		30 Hz; 500 Hz	$2,0 \cdot 10^{-3}$	$2,1 \cdot 10^{-3}$
		1 kHz; 10 kHz		
		20 kHz; 50 kHz	$2,0 \cdot 10^{-3}$	$2,1 \cdot 10^{-3}$
		70 kHz	$1,4 \cdot 10^{-3}$	$1,4 \cdot 10^{-3}$
		100 kHz	$2,4 \cdot 10^{-3}$	$2,4 \cdot 10^{-3}$
		200 kHz	$1,8 \cdot 10^{-3}$	$1,8 \cdot 10^{-3}$
		300 kHz	$3,5 \cdot 10^{-3}$	$3,5 \cdot 10^{-3}$
¹⁾ AC - DC Voltage transfer		500 kHz	$5,6 \cdot 10^{-3}$	$5,6 \cdot 10^{-3}$



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Calibration of voltage calibrators	6 mV	700 kHz	$3,5 \cdot 10^{-3}$	$3,6 \cdot 10^{-3}$		
		800 kHz	$5,9 \cdot 10^{-3}$	$5,9 \cdot 10^{-3}$		
		1 MHz	$6,3 \cdot 10^{-3}$	$6,3 \cdot 10^{-3}$		
		10 Hz	$1,57 \cdot 10^{-3}$	$1,57 \cdot 10^{-3}$		
		20 Hz; 30 Hz	$1,13 \cdot 10^{-3}$	$1,14 \cdot 10^{-3}$		
		40 Hz	$1,13 \cdot 10^{-3}$	$1,14 \cdot 10^{-3}$		
		50 Hz; 70 Hz; 100 Hz	$1,13 \cdot 10^{-3}$	$1,14 \cdot 10^{-3}$		
		500 Hz; 1 kHz;				
		10 kHz; 20 kHz;				
		50 kHz	$1,13 \cdot 10^{-3}$	$1,14 \cdot 10^{-3}$		
		70 kHz; 100 kHz	$1,35 \cdot 10^{-3}$	$1,36 \cdot 10^{-3}$		
		200 kHz	$1,75 \cdot 10^{-3}$	$1,76 \cdot 10^{-3}$		
		300 kHz	$2,91 \cdot 10^{-3}$	$2,91 \cdot 10^{-3}$		
		500 kHz	$3,11 \cdot 10^{-3}$	$3,12 \cdot 10^{-3}$		
		700 kHz	$3,54 \cdot 10^{-3}$	$3,54 \cdot 10^{-3}$		
AC Voltage	10 mV	800 kHz	$3,61 \cdot 10^{-3}$	$3,62 \cdot 10^{-3}$		
		1 MHz	$3,67 \cdot 10^{-3}$	$3,67 \cdot 10^{-3}$		
		10 Hz	$410 \cdot 10^{-6}$	$410 \cdot 10^{-6}$		
		20 Hz; 40 Hz	$360 \cdot 10^{-6}$	$360 \cdot 10^{-6}$		
		30 Hz; 500 Hz	$271 \cdot 10^{-6}$	$280 \cdot 10^{-6}$		
		¹⁾ AC - DC Voltage transfer	10 mV	50 Hz; 70 Hz; 100 Hz;		
				1 kHz; 10 kHz; 20 kHz	$353 \cdot 10^{-6}$	$360 \cdot 10^{-6}$
				50 kHz	$378 \cdot 10^{-6}$	$385 \cdot 10^{-6}$
				70 kHz	$231 \cdot 10^{-6}$	$245 \cdot 10^{-6}$
				100 kHz	$626 \cdot 10^{-6}$	$630 \cdot 10^{-6}$
				200 kHz	$529 \cdot 10^{-6}$	$535 \cdot 10^{-6}$
				300 kHz	$963 \cdot 10^{-6}$	$970 \cdot 10^{-6}$



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Calibration of voltage calibrators	20 mV	500 kHz	$1,5 \cdot 10^{-3}$	$1,5 \cdot 10^{-3}$
		700 kHz	$1,2 \cdot 10^{-3}$	$1,2 \cdot 10^{-3}$
		800 kHz	$1,8 \cdot 10^{-3}$	$1,8 \cdot 10^{-3}$
		1 MHz	$1,9 \cdot 10^{-3}$	$1,9 \cdot 10^{-3}$
		10 Hz	$361 \cdot 10^{-6}$	$365 \cdot 10^{-6}$
		20 Hz	$251 \cdot 10^{-6}$	$255 \cdot 10^{-6}$
		30 Hz; 500 Hz	$223 \cdot 10^{-6}$	$230 \cdot 10^{-6}$
		40 Hz; 50 Hz; 70 Hz;		
		100 Hz; 1 kHz;		
		10 kHz; 20 kHz	$214 \cdot 10^{-6}$	$220 \cdot 10^{-6}$
		50 kHz	$276 \cdot 10^{-6}$	$280 \cdot 10^{-6}$
		70 kHz	$370 \cdot 10^{-6}$	$375 \cdot 10^{-6}$
		100 kHz	$573 \cdot 10^{-6}$	$575 \cdot 10^{-6}$
		200 kHz	$529 \cdot 10^{-6}$	$530 \cdot 10^{-6}$
		300 kHz	$915 \cdot 10^{-6}$	$920 \cdot 10^{-6}$
		AC Voltage	20 mV	500 kHz
700 kHz	$1,04 \cdot 10^{-3}$			$1,04 \cdot 10^{-3}$
800 kHz	$1,6 \cdot 10^{-3}$			$1,6 \cdot 10^{-3}$
1 MHz	$1,7 \cdot 10^{-3}$			$1,7 \cdot 10^{-3}$
¹⁾ AC - DC Voltage transfer	60 mV	10 Hz	$336 \cdot 10^{-6}$	$340 \cdot 10^{-6}$
		20 Hz; 30 Hz	$206 \cdot 10^{-6}$	$210 \cdot 10^{-6}$
		40 Hz; 50 Hz; 70 Hz		
		100 Hz; 500 Hz		
		1 kHz; 10 kHz; 20 kHz	$151 \cdot 10^{-6}$	$155 \cdot 10^{-6}$
		50 kHz	$206 \cdot 10^{-6}$	$210 \cdot 10^{-6}$
		70 kHz	$342 \cdot 10^{-6}$	$345 \cdot 10^{-6}$



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Calibration of voltage calibrators	100 mV	100 kHz; 200 kHz	417•10 ⁻⁶	420•10 ⁻⁶	
		500 kHz	809•10 ⁻⁶	810•10 ⁻⁶	
		700 kHz; 800 kHz			
		1 MHz	1,35•10 ⁻³	1,35•10 ⁻³	
		10 Hz	263•10 ⁻⁶	265•10 ⁻⁶	
		20 Hz	115•10 ⁻⁶	115•10 ⁻⁶	
		30 Hz	125•10 ⁻⁶	130•10 ⁻⁶	
		40 Hz; 50 Hz;70 Hz;			
		100 Hz; 500 Hz;			
	200 mV	1 kHz; 10 kHz; 20 kHz	68•10 ⁻⁶	70•10 ⁻⁶	
		50 kHz; 70 kHz	127•10 ⁻⁶	130•10 ⁻⁶	
		100 kHz	188•10 ⁻⁶	190•10 ⁻⁶	
		200 kHz	357•10 ⁻⁶	360•10 ⁻⁶	
		300 kHz	583•10 ⁻⁶	585•10 ⁻⁶	
		500 kHz	748•10 ⁻⁶	750•10 ⁻⁶	
		700 kHz	446•10 ⁻⁶	450•10 ⁻⁶	
		800 kHz; 1 MHz	752•10 ⁻⁶	755•10 ⁻⁶	
		10 Hz	249•10 ⁻⁶	250•10 ⁻⁶	
		20 Hz	102•10 ⁻⁶	105•10 ⁻⁶	
AC Voltage	200 mV	30 Hz	123•10 ⁻⁶	125•10 ⁻⁶	
		40 Hz; 50 Hz;70 Hz;			
		100 Hz	51•10 ⁻⁶	55•10 ⁻⁶	
		AC - DC Voltage transfer	500 Hz	62•10 ⁻⁶	65•10 ⁻⁶
			1 kHz; 10 kHz; 20 kHz	51•10 ⁻⁶	55•10 ⁻⁶
			50 kHz; 70 kHz	135•10 ⁻⁶	135•10 ⁻⁶
			100 kHz	187•10 ⁻⁶	190•10 ⁻⁶
			200 kHz	352•10 ⁻⁶	355•10 ⁻⁶
			300 kHz	579•10 ⁻⁶	580•10 ⁻⁶



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Calibration of voltage calibrators	400 mV	500 kHz	744•10 ⁻⁶	745•10 ⁻⁶	
		700 kHz	492•10 ⁻⁶	495•10 ⁻⁶	
		800 kHz	707•10 ⁻⁶	710•10 ⁻⁶	
		1 MHz	752•10 ⁻⁶	755•10 ⁻⁶	
		10 Hz	210•10 ⁻⁶	210•10 ⁻⁶	
		20 Hz; 30 Hz	60•10 ⁻⁶	60•10 ⁻⁶	
		40 Hz; 50 Hz; 70 Hz			
		100 Hz; 500 Hz			
		1 kHz; 10 kHz			
		20 kHz	37•10 ⁻⁶	40•10 ⁻⁶	
		50 kHz	74•10 ⁻⁶	75•10 ⁻⁶	
		70 kHz	110•10 ⁻⁶	110•10 ⁻⁶	
		100 kHz	110•10 ⁻⁶	110•10 ⁻⁶	
		200 kHz	310•10 ⁻⁶	315•10 ⁻⁶	
		300 kHz	391•10 ⁻⁶	395•10 ⁻⁶	
		500 kHz	417•10 ⁻⁶	420•10 ⁻⁶	
700 kHz	422•10 ⁻⁶	425•10 ⁻⁶			
AC Voltage	400 mV	800 kHz	420•10 ⁻⁶	420•10 ⁻⁶	
		1 MHz	320•10 ⁻⁶	320•10 ⁻⁶	
		600 mV	10 Hz	248•10 ⁻⁶	250•10 ⁻⁶
			20 Hz	88•10 ⁻⁶	90•10 ⁻⁶
			30 Hz	57•10 ⁻⁶	60•10 ⁻⁶
	40 Hz		38•10 ⁻⁶	40•10 ⁻⁶	
	50 Hz; 70 Hz		36•10 ⁻⁶	40•10 ⁻⁶	
	¹⁾ AC - DC Voltage transfer		100 Hz	32•10 ⁻⁶	35•10 ⁻⁶
			500 Hz	22•10 ⁻⁶	25•10 ⁻⁶
			1 kHz; 10 kHz, 20 kHz	32•10 ⁻⁶	35•10 ⁻⁶
		50 kHz	57•10 ⁻⁶	60•10 ⁻⁶	



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Calibration of voltage calibrators	700 mV	70 kHz	54•10 ⁻⁶	55•10 ⁻⁶
		100 kHz	75•10 ⁻⁶	75•10 ⁻⁶
		200 kHz	103•10 ⁻⁶	105•10 ⁻⁶
		300 kHz	240•10 ⁻⁶	245•10 ⁻⁶
		500 kHz	532•10 ⁻⁶	535•10 ⁻⁶
		700 kHz; 800 kHz	648•10 ⁻⁶	650•10 ⁻⁶
		1 MHz	683•10 ⁻⁶	685•10 ⁻⁶
		10 Hz	147•10 ⁻⁶	150•10 ⁻⁶
		20 Hz	72•10 ⁻⁶	75•10 ⁻⁶
		30 Hz	62•10 ⁻⁶	65•10 ⁻⁶
		40 Hz	33•10 ⁻⁶	35•10 ⁻⁶
		50 Hz; 70 Hz; 100 Hz	31•10 ⁻⁶	35•10 ⁻⁶
		500 Hz; 1 kHz		
		10 kHz; 20 kHz	22•10 ⁻⁶	25•10 ⁻⁶
		50 kHz	41•10 ⁻⁶	45•10 ⁻⁶
AC Voltage		70 kHz	52•10 ⁻⁶	55•10 ⁻⁶
		100 kHz	54•10 ⁻⁶	55•10 ⁻⁶
		200 kHz	103•10 ⁻⁶	105•10 ⁻⁶
		300 kHz	275•10 ⁻⁶	280•10 ⁻⁶
		500 kHz	295•10 ⁻⁶	295•10 ⁻⁶
		700 kHz	396•10 ⁻⁶	400•10 ⁻⁶
		800 kHz; 1 MHz	394•10 ⁻⁶	395•10 ⁻⁶
		10 Hz	242•10 ⁻⁶	245•10 ⁻⁶
		20 Hz	79•10 ⁻⁶	80•10 ⁻⁶
		30 Hz	72•10 ⁻⁶	75•10 ⁻⁶
¹⁾ AC - DC Voltage transfer	1 V	40 Hz	41•10 ⁻⁶	45•10 ⁻⁶
		50 Hz; 70 Hz	38•10 ⁻⁶	40•10 ⁻⁶
		100 Hz; 500 Hz;		



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Calibration of voltage calibrators	2 V	1 kHz; 10 kHz; 20 kHz	26•10 ⁻⁶	30•10 ⁻⁶		
		50 kHz	52•10 ⁻⁶	55•10 ⁻⁶		
		70 kHz	49•10 ⁻⁶	50•10 ⁻⁶		
		100 kHz	68•10 ⁻⁶	70•10 ⁻⁶		
		200 kHz	109•10 ⁻⁶	110•10 ⁻⁶		
		300 kHz	230•10 ⁻⁶	230•10 ⁻⁶		
		500 kHz	536•10 ⁻⁶	540•10 ⁻⁶		
		700 kHz	341•10 ⁻⁶	345•10 ⁻⁶		
		800 kHz	535•10 ⁻⁶	535•10 ⁻⁶		
		1 MHz	569•10 ⁻⁶	570•10 ⁻⁶		
		10 Hz	242•10 ⁻⁶	245•10 ⁻⁶		
		20 Hz	79•10 ⁻⁶	80•10 ⁻⁶		
		30 Hz	72•10 ⁻⁶	75•10 ⁻⁶		
		40 Hz	35•10 ⁻⁶	40•10 ⁻⁶		
		50 Hz; 70 Hz	33•10 ⁻⁶	35•10 ⁻⁶		
AC Voltage	2 V	100 Hz	24•10 ⁻⁶	25•10 ⁻⁶		
		500 Hz	24•10 ⁻⁶	25•10 ⁻⁶		
		1 kHz; 10 kHz; 20 kHz	19•10 ⁻⁶	20•10 ⁻⁶		
		50 kHz	52•10 ⁻⁶	55•10 ⁻⁶		
		70 kHz	48•10 ⁻⁶	50•10 ⁻⁶		
		100 kHz	68•10 ⁻⁶	70•10 ⁻⁶		
		200 kHz	104•10 ⁻⁶	105•10 ⁻⁶		
		300 kHz	230•10 ⁻⁶	230•10 ⁻⁶		
		500 kHz	536•10 ⁻⁶	540•10 ⁻⁶		
		700 kHz	341•10 ⁻⁶	345•10 ⁻⁶		
		800 kHz	557•10 ⁻⁶	560•10 ⁻⁶		
		1 MHz	569•10 ⁻⁶	570•10 ⁻⁶		
		¹⁾ AC - DC Voltage transfer	2 V	1 kHz; 10 kHz; 20 kHz	19•10 ⁻⁶	20•10 ⁻⁶
				50 kHz	52•10 ⁻⁶	55•10 ⁻⁶
				70 kHz	48•10 ⁻⁶	50•10 ⁻⁶
100 kHz	68•10 ⁻⁶			70•10 ⁻⁶		
200 kHz	104•10 ⁻⁶			105•10 ⁻⁶		
300 kHz	230•10 ⁻⁶			230•10 ⁻⁶		
500 kHz	536•10 ⁻⁶			540•10 ⁻⁶		
700 kHz	341•10 ⁻⁶			345•10 ⁻⁶		
800 kHz	557•10 ⁻⁶			560•10 ⁻⁶		
1 MHz	569•10 ⁻⁶			570•10 ⁻⁶		



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Calibration of voltage calibrators	3 V	10 Hz	186•10 ⁻⁶	190•10 ⁻⁶	
		20 Hz	63•10 ⁻⁶	65•10 ⁻⁶	
		30 Hz	52•10 ⁻⁶	55•10 ⁻⁶	
		40 Hz; 50 Hz; 70 Hz	27•10 ⁻⁶	30•10 ⁻⁶	
		100 Hz	39•10 ⁻⁶	40•10 ⁻⁶	
		500 Hz; 1 kHz;	24•10 ⁻⁶	25•10 ⁻⁶	
		10 kHz; 20 kHz	24•10 ⁻⁶	25•10 ⁻⁶	
		50 kHz	39•10 ⁻⁶	40•10 ⁻⁶	
		70 kHz	50•10 ⁻⁶	50•10 ⁻⁶	
		100 kHz	54•10 ⁻⁶	55•10 ⁻⁶	
		200 kHz	94•10 ⁻⁶	95•10 ⁻⁶	
		300 kHz	286•10 ⁻⁶	290•10 ⁻⁶	
		500 kHz	306•10 ⁻⁶	310•10 ⁻⁶	
		700 kHz	337•10 ⁻⁶	340•10 ⁻⁶	
AC Voltage	3 V	800 kHz	265•10 ⁻⁶	265•10 ⁻⁶	
		1 MHz	270•10 ⁻⁶	270•10 ⁻⁶	
		4 V	10 Hz	228•10 ⁻⁶	230•10 ⁻⁶
			20 Hz	70•10 ⁻⁶	70•10 ⁻⁶
			30 Hz	54•10 ⁻⁶	55•10 ⁻⁶
			40 Hz	28•10 ⁻⁶	30•10 ⁻⁶
			50 Hz; 70 Hz; 100 Hz	27•10 ⁻⁶	30•10 ⁻⁶
			1 kHz	16•10 ⁻⁶	20•10 ⁻⁶
			500Hz; 10 kHz; 20 kHz	24•10 ⁻⁶	25•10 ⁻⁶
			50 kHz	39•10 ⁻⁶	40•10 ⁻⁶
			70 kHz	50•10 ⁻⁶	50•10 ⁻⁶
			100 kHz	54•10 ⁻⁶	55•10 ⁻⁶
			200 kHz	94•10 ⁻⁶	95•10 ⁻⁶
			300 kHz	286•10 ⁻⁶	290•10 ⁻⁶



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks		
Calibration of voltage calibrators	5 V	500 kHz	$306 \cdot 10^{-6}$	$210 \cdot 10^{-6}$		
		700 kHz	$337 \cdot 10^{-6}$	$340 \cdot 10^{-6}$		
		800 kHz	$345 \cdot 10^{-6}$	$345 \cdot 10^{-6}$		
		1 MHz	$352 \cdot 10^{-6}$	$355 \cdot 10^{-6}$		
		10 Hz	$283 \cdot 10^{-6}$	$285 \cdot 10^{-6}$		
		20 Hz	$80 \cdot 10^{-6}$	$80 \cdot 10^{-6}$		
		30 Hz	$56 \cdot 10^{-6}$	$60 \cdot 10^{-6}$		
		40 Hz	$30 \cdot 10^{-6}$	$30 \cdot 10^{-6}$		
		50 Hz	$28 \cdot 10^{-6}$	$30 \cdot 10^{-6}$		
		70 Hz; 100 Hz	$27 \cdot 10^{-6}$	$30 \cdot 10^{-6}$		
		500 Hz; 1 kHz;				
		10 kHz; 20 kHz	$24 \cdot 10^{-6}$	$25 \cdot 10^{-6}$		
		AC Voltage	5 V	50 kHz	$35 \cdot 10^{-6}$	$35 \cdot 10^{-6}$
				70 kHz; 100 kHz	$45 \cdot 10^{-6}$	$50 \cdot 10^{-6}$
200 kHz	$94 \cdot 10^{-6}$			$95 \cdot 10^{-6}$		
300 kHz	$286 \cdot 10^{-6}$			$290 \cdot 10^{-6}$		
500 kHz	$306 \cdot 10^{-6}$			$310 \cdot 10^{-6}$		
700 kHz	$337 \cdot 10^{-6}$			$340 \cdot 10^{-6}$		
¹⁾ AC - DC Voltage transfer	6 V	800 kHz	$345 \cdot 10^{-6}$	$345 \cdot 10^{-6}$		
		1 MHz	$352 \cdot 10^{-6}$	$355 \cdot 10^{-6}$		
		10 Hz	$220 \cdot 10^{-6}$	$220 \cdot 10^{-6}$		
		20 Hz	$70 \cdot 10^{-6}$	$70 \cdot 10^{-6}$		
		30 Hz	$65 \cdot 10^{-6}$	$65 \cdot 10^{-6}$		
		40 Hz	$29 \cdot 10^{-6}$	$30 \cdot 10^{-6}$		
		50 Hz; 70 Hz	$28 \cdot 10^{-6}$	$30 \cdot 10^{-6}$		
		100 Hz; 500 Hz				
		1 kHz; 10 kHz;	$15 \cdot 10^{-6}$	$15 \cdot 10^{-6}$		
		20 kHz				
50 kHz	$47 \cdot 10^{-6}$	$50 \cdot 10^{-6}$				



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
Calibration of voltage calibrators	7 V	70 kHz	55•10 ⁻⁶	55•10 ⁻⁶
		100 kHz	60•10 ⁻⁶	60•10 ⁻⁶
		200 kHz	130•10 ⁻⁶	130•10 ⁻⁶
		300 kHz	140•10 ⁻⁶	140•10 ⁻⁶
		500 kHz	500•10 ⁻⁶	500•10 ⁻⁶
		700 kHz; 800 kHz	520•10 ⁻⁶	520•10 ⁻⁶
		1 MHz	535•10 ⁻⁶	535•10 ⁻⁶
		10 Hz	404•10 ⁻⁶	405•10 ⁻⁶
		20 Hz	108•10 ⁻⁶	110•10 ⁻⁶
		30 Hz	63•10 ⁻⁶	65•10 ⁻⁶
AC Voltage	7 V	40 Hz	32•10 ⁻⁶	35•10 ⁻⁶
		50 Hz	28•10 ⁻⁶	30•10 ⁻⁶
		70 Hz	25•10 ⁻⁶	25•10 ⁻⁶
		100 Hz	24•10 ⁻⁶	25•10 ⁻⁶
		500 Hz; 1 kHz		
		10 kHz; 20 kHz	18•10 ⁻⁶	20•10 ⁻⁶
		50 kHz	32•10 ⁻⁶	35•10 ⁻⁶
		70 kHz; 100 kHz	42•10 ⁻⁶	45•10 ⁻⁶
		200 kHz	94•10 ⁻⁶	95•10 ⁻⁶
		300 kHz	286•10 ⁻⁶	290•10 ⁻⁶
¹⁾ AC - DC Voltage transfer	10 V	500 kHz	306•10 ⁻⁶	310•10 ⁻⁶
		700 kHz; 800 kHz;		
		1 MHz	337•10 ⁻⁶	340•10 ⁻⁶
		10 Hz	242•10 ⁻⁶	245•10 ⁻⁶
		20 Hz	79•10 ⁻⁶	80•10 ⁻⁶
		30 Hz	58•10 ⁻⁶	60•10 ⁻⁶
		40 Hz	45•10 ⁻⁶	45•10 ⁻⁶
		50 Hz; 70 Hz	44•10 ⁻⁶	45•10 ⁻⁶
		100 Hz	37•10 ⁻⁶	40•10 ⁻⁶
		Calibration of voltage calibrators	10 V	



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks	
AC Voltage	10 V	500 Hz	27•10 ⁻⁶	30•10 ⁻⁶	
		1 kHz; 10 kHz; 20 kHz	29•10 ⁻⁶	30•10 ⁻⁶	
		50 kHz	52•10 ⁻⁶	55•10 ⁻⁶	
		70 kHz	44•10 ⁻⁶	45•10 ⁻⁶	
		100 kHz	64•10 ⁻⁶	65•10 ⁻⁶	
		200 kHz	107•10 ⁻⁶	110•10 ⁻⁶	
		300 kHz	233•10 ⁻⁶	235•10 ⁻⁶	
	20 V	500 kHz	536•10 ⁻⁶	540•10 ⁻⁶	
		700 kHz	554•10 ⁻⁶	555•10 ⁻⁶	
		800 kHz	585•10 ⁻⁶	585•10 ⁻⁶	
		1 MHz	609•10 ⁻⁶	610•10 ⁻⁶	
		1) AC - DC Voltage transfer	10 Hz	242•10 ⁻⁶	245•10 ⁻⁶
			20 Hz	79•10 ⁻⁶	80•10 ⁻⁶
			30 Hz	67•10 ⁻⁶	70•10 ⁻⁶
40 Hz	40•10 ⁻⁶		40•10 ⁻⁶		
50 Hz	44•10 ⁻⁶		45•10 ⁻⁶		
70 Hz	43•10 ⁻⁶		45•10 ⁻⁶		
100 Hz	33•10 ⁻⁶		35•10 ⁻⁶		
Calibration of voltage calibrators	500 Hz	25•10 ⁻⁶	30•10 ⁻⁶		
	1 kHz; 10 kHz; 20 kHz	24•10 ⁻⁶	25•10 ⁻⁶		
	50 kHz	52•10 ⁻⁶	55•10 ⁻⁶		
	70 kHz	44•10 ⁻⁶	45•10 ⁻⁶		
	100 kHz	64•10 ⁻⁶	65•10 ⁻⁶		
	200 kHz	106•10 ⁻⁶	110•10 ⁻⁶		
	300 kHz	233•10 ⁻⁶	235•10 ⁻⁶		
	500 kHz	536•10 ⁻⁶	540•10 ⁻⁶		
	700 kHz	354•10 ⁻⁶	355•10 ⁻⁶		
	800 kHz	578•10 ⁻⁶	580•10 ⁻⁶		



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
AC Voltage	30 V	1 MHz	617•10 ⁻⁶	620•10 ⁻⁶
		10 Hz	187•10 ⁻⁶	190•10 ⁻⁶
		20 Hz	63•10 ⁻⁶	65•10 ⁻⁶
		30 Hz	59•10 ⁻⁶	60•10 ⁻⁶
		40 Hz; 50 Hz; 70 Hz		
	30 V	100 Hz	44•10 ⁻⁶	45•10 ⁻⁶
		500 Hz; 1 kHz;		
		10 kHz; 20 kHz	30•10 ⁻⁶	35•10 ⁻⁶
		50 kHz	45•10 ⁻⁶	50•10 ⁻⁶
		70 kHz	58•10 ⁻⁶	60•10 ⁻⁶
¹⁾ AC - DC Voltage transfer	40 V	100 kHz	67•10 ⁻⁶	70•10 ⁻⁶
		10 Hz	270•10 ⁻⁶	270•10 ⁻⁶
		20 Hz	78•10 ⁻⁶	80•10 ⁻⁶
		30 Hz	62•10 ⁻⁶	65•10 ⁻⁶
		40 Hz	45•10 ⁻⁶	50•10 ⁻⁶
	50 V	50 Hz; 70 Hz	44•10 ⁻⁶	45•10 ⁻⁶
		100 Hz	44•10 ⁻⁶	45•10 ⁻⁶
		500 Hz; 1 kHz;		
		10 kHz; 20 kHz	30•10 ⁻⁶	35•10 ⁻⁶
		50 kHz	45•10 ⁻⁶	50•10 ⁻⁶
Calibration of voltage calibrators	50 V	70 kHz	58•10 ⁻⁶	60•10 ⁻⁶
		100 kHz	67•10 ⁻⁶	70•10 ⁻⁶
		10 Hz	286•10 ⁻⁶	290•10 ⁻⁶
		20 Hz	82•10 ⁻⁶	85•10 ⁻⁶
		30 Hz	64•10 ⁻⁶	65•10 ⁻⁶
	50 V	40 Hz	46•10 ⁻⁶	50•10 ⁻⁶
		50 Hz	45•10 ⁻⁶	45•10 ⁻⁶
		70 Hz	44•10 ⁻⁶	45•10 ⁻⁶
		100 Hz	44•10 ⁻⁶	45•10 ⁻⁶



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
AC Voltage	50 V	500 Hz; 1 kHz;	$30 \cdot 10^{-6}$	$35 \cdot 10^{-6}$
		10 kHz; 20 kHz		
		50 kHz		
		70 kHz		
		100 kHz		
	60 V	10 Hz	$242 \cdot 10^{-6}$	$245 \cdot 10^{-6}$
		20 Hz	$79 \cdot 10^{-6}$	$80 \cdot 10^{-6}$
		30 Hz	$68 \cdot 10^{-6}$	$70 \cdot 10^{-6}$
		40 Hz	$40 \cdot 10^{-6}$	$45 \cdot 10^{-6}$
		50 Hz	$44 \cdot 10^{-6}$	$45 \cdot 10^{-6}$
¹⁾ AC - DC Voltage transfer	70 V	70 Hz	$43 \cdot 10^{-6}$	$45 \cdot 10^{-6}$
		100 Hz	$36 \cdot 10^{-6}$	$40 \cdot 10^{-6}$
		500 Hz	$28 \cdot 10^{-6}$	$30 \cdot 10^{-6}$
		1 kHz; 10 kHz;	$29 \cdot 10^{-6}$	$30 \cdot 10^{-6}$
		20 kHz		
		50 kHz	$64 \cdot 10^{-6}$	$65 \cdot 10^{-6}$
		70 kHz	$55 \cdot 10^{-6}$	$55 \cdot 10^{-6}$
		100 kHz	$87 \cdot 10^{-6}$	$90 \cdot 10^{-6}$
		10 Hz	$416 \cdot 10^{-6}$	$420 \cdot 10^{-6}$
		20 Hz	$114 \cdot 10^{-6}$	$115 \cdot 10^{-6}$
30 Hz	$73 \cdot 10^{-6}$	$75 \cdot 10^{-6}$		
40 Hz	$51 \cdot 10^{-6}$	$55 \cdot 10^{-6}$		
50 Hz	$46 \cdot 10^{-6}$	$50 \cdot 10^{-6}$		
70 Hz	$44 \cdot 10^{-6}$	$45 \cdot 10^{-6}$		
100 Hz	$43 \cdot 10^{-6}$	$45 \cdot 10^{-6}$		
Calibration of voltage calibrators	70 V	500 Hz; 1 kHz;	$28 \cdot 10^{-6}$	$30 \cdot 10^{-6}$
		10 kHz; 20 kHz		
		50 kHz		
		70 kHz		
		100 kHz		
50 kHz	$43 \cdot 10^{-6}$	$45 \cdot 10^{-6}$		
70 kHz	$55 \cdot 10^{-6}$	$55 \cdot 10^{-6}$		



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks	
AC Voltage	100 V	100 kHz	66•10 ⁻⁶	70•10 ⁻⁶	
		10 Hz	242•10 ⁻⁶	245•10 ⁻⁶	
		20 Hz	85•10 ⁻⁶	85•10 ⁻⁶	
		30 Hz	60•10 ⁻⁶	60•10 ⁻⁶	
		¹⁾ AC - DC Voltage transfer	40 Hz	45•10 ⁻⁶	50•10 ⁻⁶
			50 Hz; 70 Hz	44•10 ⁻⁶	45•10 ⁻⁶
			100 Hz	45•10 ⁻⁶	50•10 ⁻⁶
			500 Hz	32•10 ⁻⁶	35•10 ⁻⁶
			1 kHz; 10 kHz; 20 kHz	43•10 ⁻⁶	45•10 ⁻⁶
			50 kHz	85•10 ⁻⁶	85•10 ⁻⁶
Calibration of voltage calibrators	200 V	70 kHz	67•10 ⁻⁶	70•10 ⁻⁶	
		100 kHz	96•10 ⁻⁶	100•10 ⁻⁶	
		10 Hz	242•10 ⁻⁶	245•10 ⁻⁶	
		20 Hz	79•10 ⁻⁶	80•10 ⁻⁶	
		30 Hz	67•10 ⁻⁶	70•10 ⁻⁶	
		40 Hz	42•10 ⁻⁶	45•10 ⁻⁶	
		50 Hz	46•10 ⁻⁶	50•10 ⁻⁶	
		70 Hz	45•10 ⁻⁶	45•10 ⁻⁶	
		100 Hz	42•10 ⁻⁶	45•10 ⁻⁶	
		500 Hz	30•10 ⁻⁶	35•10 ⁻⁶	
AC Voltage	300 V	1 kHz; 10 kHz; 20 kHz	39•10 ⁻⁶	40•10 ⁻⁶	
		50 kHz	79•10 ⁻⁶	80•10 ⁻⁶	
		70 kHz	67•10 ⁻⁶	70•10 ⁻⁶	
		100 kHz	96•10 ⁻⁶	100•10 ⁻⁶	
		10 Hz	164•10 ⁻⁶	165•10 ⁻⁶	
		20 Hz; 30 Hz	77•10 ⁻⁶	80•10 ⁻⁶	
		40 Hz; 50 Hz; 70 Hz;			
		100 Hz; 500 Hz;			



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
AC - DC Voltage transfer	500 V	1 kHz; 10 kHz; 20 kHz	54•10 ⁻⁶	55•10 ⁻⁶
		50 kHz	65•10 ⁻⁶	70•10 ⁻⁶
		70 kHz	119•10 ⁻⁶	120•10 ⁻⁶
		100 kHz	145•10 ⁻⁶	145•10 ⁻⁶
		10 Hz	186•10 ⁻⁶	190•10 ⁻⁶
		20 Hz	80•10 ⁻⁶	80•10 ⁻⁶
		30 Hz	78•10 ⁻⁶	80•10 ⁻⁶
		40 Hz; 50 Hz; 70 Hz		
		100 Hz; 500 Hz;		
		1 kHz; 10 kHz; 20 kHz	42•10 ⁻⁶	45•10 ⁻⁶
Calibration of voltage calibrators	600 V	50 kHz	65•10 ⁻⁶	70•10 ⁻⁶
		70 kHz	119•10 ⁻⁶	120•10 ⁻⁶
		100 kHz	145•10 ⁻⁶	145•10 ⁻⁶
		10 Hz	210•10 ⁻⁶	210•10 ⁻⁶
		20 Hz	83•10 ⁻⁶	85•10 ⁻⁶
		30 Hz	78•10 ⁻⁶	80•10 ⁻⁶
		40 Hz; 50 Hz; 70 Hz		
		100 Hz; 500 Hz		
		1 kHz; 10 kHz; 20 kHz	55•10 ⁻⁶	55•10 ⁻⁶
		50 kHz	65•10 ⁻⁶	65•10 ⁻⁶
AC Voltage	700 V	70 kHz	119•10 ⁻⁶	120•10 ⁻⁶
		100 kHz	145•10 ⁻⁶	145•10 ⁻⁶
		10 Hz	240•10 ⁻⁶	240•10 ⁻⁶
		20 Hz	106•10 ⁻⁶	110•10 ⁻⁶
		30 Hz	100•10 ⁻⁶	100•10 ⁻⁶
		40 Hz; 50 Hz; 70 Hz; 100 Hz;		
500 Hz; 1 kHz;				
AC - DC Voltage transfer				



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
Calibration of voltage calibrators	1000 V	10 kHz; 20 kHz	79•10 ⁻⁶	80•10 ⁻⁶
		50 kHz	88•10 ⁻⁶	90•10 ⁻⁶
		70 kHz	119•10 ⁻⁶	120•10 ⁻⁶
		100 kHz	145•10 ⁻⁶	145•10 ⁻⁶
		10 Hz	339•10 ⁻⁶	340•10 ⁻⁶
		20 Hz	124•10 ⁻⁶	125•10 ⁻⁶
		30 Hz	105•10 ⁻⁶	105•10 ⁻⁶
		40 Hz	60•10 ⁻⁶	65•10 ⁻⁶
		50 Hz; 70 Hz	80•10 ⁻⁶	80•10 ⁻⁶
		100 Hz	60•10 ⁻⁶	65•10 ⁻⁶
		500 Hz	79•10 ⁻⁶	80•10 ⁻⁶
		1 kHz; 10 kHz; 20 kHz	60•10 ⁻⁶	65•10 ⁻⁶
		50 kHz	90•10 ⁻⁶	90•10 ⁻⁶
		70 kHz	119•10 ⁻⁶	120•10 ⁻⁶
		100 kHz	145•10 ⁻⁶	145•10 ⁻⁶
AC Voltage	10 mV ... < 100 mV	30 Hz	387•10 ⁻⁶ + 28 μ V	
		400 Hz	173•10 ⁻⁶ + 4 μ V	
		1000 Hz	174•10 ⁻⁶ + 4 μ V	
		20 kHz	534•10 ⁻⁶ + 4 μ V	
		50 kHz	1280•10 ⁻⁶ + 4 μ V	
		0.1 V ... < 1 V	30 Hz	326•10 ⁻⁶ + 30 μ V
	400 Hz		108•10 ⁻⁶ + 30 μ V	
	1000 Hz		110•10 ⁻⁶ + 30 μ V	
	20 kHz		516•10 ⁻⁶ + 30 μ V	
	50 kHz		1270•10 ⁻⁶ + 30 μ V	
	1 V ... < 10 V		30 Hz	292•10 ⁻⁶ + 30 μ V
		400 Hz	89•10 ⁻⁶ + 30 μ V	
1000 Hz		91•10 ⁻⁶ + 30 μ V		
Calibration of nonsinusoidal voltage (rms value)	10 mV ... < 100 mV	30 Hz	387•10 ⁻⁶ + 28 μ V	
		400 Hz	173•10 ⁻⁶ + 4 μ V	
		1000 Hz	174•10 ⁻⁶ + 4 μ V	



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks	
Calibration of voltage measurement instruments	10 V ... < 100 V	20 kHz	$513 \cdot 10^{-6} + 30 \mu\text{V}$		
		50 kHz	$1270 \cdot 10^{-6} + 30 \mu\text{V}$		
		30 Hz	$377 \cdot 10^{-6} + 30 \mu\text{V}$		
		400 Hz	$237 \cdot 10^{-6} + 30 \mu\text{V}$		
		1000 Hz	$238 \cdot 10^{-6} + 30 \mu\text{V}$		
		20 kHz	$539 \cdot 10^{-6} + 30 \mu\text{V}$		
	100 V ... 1000 V	50 kHz	$1290 \cdot 10^{-6} + 30 \mu\text{V}$		
		30 Hz	$599 \cdot 10^{-6} + 30 \mu\text{V}$		
		400 Hz	$486 \cdot 10^{-6} + 30 \mu\text{V}$		
		1000 Hz	$487 \cdot 10^{-6} + 30 \mu\text{V}$		
		20 kHz	$859 \cdot 10^{-6} + 30 \mu\text{V}$		
		50 kHz	$1850 \cdot 10^{-6} + 30 \mu\text{V}$		
	2,2 mV ... < 10 mV	10 Hz ... 20 Hz	$2,75 \cdot 10^{-3} + 6 \mu\text{V}$		
		> 20 Hz ... 30 Hz	$1,19 \cdot 10^{-3} + 6 \mu\text{V}$		
		> 30 Hz ... 40 Hz	$2,02 \cdot 10^{-3} + 6 \mu\text{V}$		
		> 40 Hz ... 100 Hz	$2,02 \cdot 10^{-3} + 3 \mu\text{V}$		
		> 100 Hz ... 500 Hz	$1,19 \cdot 10^{-3} + 3 \mu\text{V}$		
		> 500 Hz ... 50 kHz	$2,02 \cdot 10^{-3} + 3 \mu\text{V}$		
		> 50 kHz ... 70 kHz	$1,4 \cdot 10^{-3} + 4 \mu\text{V}$		
		> 70 kHz ... 100 kHz	$2,39 \cdot 10^{-3} + 4 \mu\text{V}$		
		> 100 kHz ... 200 kHz	$1,78 \cdot 10^{-3} + 6 \mu\text{V}$		
		> 200 kHz ... 300 kHz	$3,47 \cdot 10^{-3} + 6 \mu\text{V}$		
		> 300 kHz ... 500 kHz	$5,59 \cdot 10^{-3} + 12 \mu\text{V}$		
		> 500 kHz ... 700 kHz	$3,51 \cdot 10^{-3} + 18 \mu\text{V}$		
		> 700 kHz ... 800 kHz	$5,86 \cdot 10^{-3} + 18 \mu\text{V}$		
		> 800 kHz ... 1 MHz	$6,21 \cdot 10^{-3} + 18 \mu\text{V}$		
		10 mV ... < 22 mV	10 Hz ... 20 Hz	$409 \cdot 10^{-6} + 6 \mu\text{V}$	
			> 20 Hz ... 30 Hz	$157 \cdot 10^{-6} + 6 \mu\text{V}$	
> 30 Hz ... 40 Hz	$360 \cdot 10^{-6} + 6 \mu\text{V}$				



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
AC Voltage	10 mV ... < 22 mV	> 40 Hz ... 100 Hz	$360 \cdot 10^{-6} + 3 \mu\text{V}$	
		> 100 Hz ... 500 Hz	$279 \cdot 10^{-6} + 3 \mu\text{V}$	
		> 500 Hz ... 20 kHz	$360 \cdot 10^{-6} + 3 \mu\text{V}$	
		> 20 kHz ... 50 kHz	$384 \cdot 10^{-6} + 3 \mu\text{V}$	
		> 50 kHz ... 70 kHz	$241 \cdot 10^{-6} + 4 \mu\text{V}$	
		> 70 kHz ... 100 kHz	$630 \cdot 10^{-6} + 4 \mu\text{V}$	
		> 100 kHz ... 200 kHz	$533 \cdot 10^{-6} + 6 \mu\text{V}$	
		> 200 kHz ... 300 kHz	$966 \cdot 10^{-6} + 6 \mu\text{V}$	
		> 300 kHz ... 500 kHz	$1,5 \cdot 10^{-3} + 12 \mu\text{V}$	
		> 500 kHz ... 700 kHz	$1,77 \cdot 10^{-6} + 18 \mu\text{V}$	
Calibration of voltage measurement instruments	22 mV ... < 100 mV	> 700 kHz ... 800 kHz	$1,77 \cdot 10^{-3} + 18 \mu\text{V}$	
		> 800 kHz ... 1 MHz	$1,88 \cdot 10^{-3} + 18 \mu\text{V}$	
		10 Hz ... 20 Hz	$378 \cdot 10^{-6} + 24 \mu\text{V}$	
		> 20 Hz ... 30 Hz	$226 \cdot 10^{-6} + 18 \mu\text{V}$	
		> 30 Hz ... 40 Hz	$178 \cdot 10^{-6} + 18 \mu\text{V}$	
		> 40 Hz ... 20 kHz	$152 \cdot 10^{-6} + 3 \mu\text{V}$	
		> 20 kHz ... 50 kHz	$207 \cdot 10^{-6} + 3 \mu\text{V}$	
		> 50 kHz ... 70 kHz	$343 \cdot 10^{-6} + 3 \mu\text{V}$	
		> 70 kHz ... 100 kHz	$358 \cdot 10^{-6} + 3 \mu\text{V}$	
		> 100 kHz ... 200 kHz	$418 \cdot 10^{-6} + 5 \mu\text{V}$	
	100 mV ... < 220 mV	> 200 kHz ... 300 kHz	$755 \cdot 10^{-6} + 5 \mu\text{V}$	
		> 300 kHz ... 500 kHz	$817 \cdot 10^{-6} + 12 \mu\text{V}$	
		> 500 kHz ... 1 MHz	$1,37 \cdot 10^{-3} + 24 \mu\text{V}$	
		10 Hz ... 20 Hz	$315 \cdot 10^{-6} + 24 \mu\text{V}$	
		> 20 Hz ... 30 Hz	$156 \cdot 10^{-6} + 18 \mu\text{V}$	
		> 30 Hz ... 40 Hz	$115 \cdot 10^{-6} + 18 \mu\text{V}$	
		> 40 Hz ... 20 kHz	$70 \cdot 10^{-6} + 3 \mu\text{V}$	
		> 20 kHz ... 70 kHz	$128 \cdot 10^{-6} + 3 \mu\text{V}$	
		> 70 kHz ... 100 kHz	$189 \cdot 10^{-6} + 3 \mu\text{V}$	



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
AC Voltage Calibration of voltage measurement instruments	220 mV ... < 1 V	> 100 kHz...200 kHz	359•10 ⁻⁶ + 5 μ V	
		> 200 kHz...300 kHz	583•10 ⁻⁶ + 5 μ V	
		> 300 kHz...500 kHz	757•10 ⁻⁶ + 12 μ V	
		> 500 kHz...700 kHz	502•10 ⁻⁶ + 24 μ V	
		> 700 kHz ... 1 MHz	786•10 ⁻⁶ + 24 μ V	
		10 Hz ... 20 Hz	303•10 ⁻⁶ + 24 μ V	
		> 20 Hz ... 30 Hz	110•10 ⁻⁶ + 18 μ V	
		> 30 Hz ... 40 Hz	101•10 ⁻⁶ + 18 μ V	
		> 40 Hz ... 70 Hz	41•10 ⁻⁶ + 7 μ V	
		> 70 Hz ... 100 Hz	38•10 ⁻⁶ + 7 μ V	
		> 100 Hz ... 500 Hz	30•10 ⁻⁶ + 7 μ V	
		> 500 Hz ... 20 kHz	26•10 ⁻⁶ + 7 μ V	
		> 20 kHz ... 50 kHz	66•10 ⁻⁶ + 13 μ V	
		> 50 kHz ... 70 kHz	148•10 ⁻⁶ + 20 μ V	
		> 70 kHz ... 100 kHz	156•10 ⁻⁶ + 20 μ V	
		> 100 kHz...200 kHz	364•10 ⁻⁶ + 12 μ V	
		> 200 kHz...300 kHz	417•10 ⁻⁶ + 12 μ V	
		> 300 kHz...500 kHz	880•10 ⁻⁶ + 24 μ V	
		> 500 kHz ... 1 MHz	1,51•10 ⁻³ + 58 μ V	
	1 V ... < 2,2 V	10 Hz ... 20 Hz	298•10 ⁻⁶ + 24 μ V	
		> 20 Hz ... 30 Hz	118•10 ⁻⁶ + 18 μ V	
		> 30 Hz ... 40 Hz	100•10 ⁻⁶ + 18 μ V	
		> 40 Hz ... 70 Hz	38•10 ⁻⁶ + 7 μ V	
		> 70 Hz ... 100 Hz	29•10 ⁻⁶ + 7 μ V	
		> 100 Hz ... 500 Hz	29•10 ⁻⁶ + 7 μ V	
		> 500 Hz ... 20 kHz	26•10 ⁻⁶ + 7 μ V	
		> 20 kHz ... 50 kHz	66•10 ⁻⁶ + 13 μ V	
		> 50 kHz ... 70 kHz	147•10 ⁻⁶ + 20 μ V	
		> 70 kHz ... 100 kHz	156•10 ⁻⁶ + 20 μ V	



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
AC Voltage	2,2 V ... < 10 V	> 100 kHz...200 kHz	$364 \cdot 10^{-6} + 12 \mu\text{V}$	
		> 200 kHz...300 kHz	$417 \cdot 10^{-6} + 12 \mu\text{V}$	
Calibration of voltage measurement instruments	2,2 V ... < 10 V	> 300 kHz...500 kHz	$880 \cdot 10^{-6} + 24 \mu\text{V}$	
		> 500 kHz ... 1 MHz	$1,51 \cdot 10^{-3} + 58 \mu\text{V}$	
		10 Hz ... 20 Hz	$280 \cdot 10^{-6} + 33 \mu\text{V}$	
		> 20 Hz ... 30 Hz	$114 \cdot 10^{-6} + 29 \mu\text{V}$	
		> 30 Hz ... 40 Hz	$98 \cdot 10^{-6} + 29 \mu\text{V}$	
		> 40 Hz ... 70 Hz	$34 \cdot 10^{-6} + 36 \mu\text{V}$	
		> 70 Hz ... 20 kHz	$23 \cdot 10^{-6} + 36 \mu\text{V}$	
		> 20 kHz ... 50 kHz	$61 \cdot 10^{-6} + 59 \mu\text{V}$	
		> 50 kHz ... 70 kHz	$109 \cdot 10^{-6} + 94 \mu\text{V}$	
		> 70 kHz ... 100 kHz	$111 \cdot 10^{-6} + 94 \mu\text{V}$	
		> 100 kHz...200 kHz	$177 \cdot 10^{-6} + 809 \mu\text{V}$	
		> 200 kHz...300 kHz	$184 \cdot 10^{-6} + 809 \mu\text{V}$	
		> 300 kHz...500 kHz	$554 \cdot 10^{-6} + 2 \text{ mV}$	
		> 500 kHz ... 1 MHz	$891 \cdot 10^{-6} + 4 \text{ mV}$	
	10 V ... < 22 V	10 Hz ... 20 Hz	$298 \cdot 10^{-6} + 33 \mu\text{V}$	
		> 20 Hz ... 30 Hz	$115 \cdot 10^{-6} + 29 \mu\text{V}$	
		> 30 Hz ... 40 Hz	$102 \cdot 10^{-6} + 29 \mu\text{V}$	
		> 40 Hz ... 50 Hz	$48 \cdot 10^{-6} + 36 \mu\text{V}$	
		> 50 Hz ... 70 Hz	$47 \cdot 10^{-6} + 36 \mu\text{V}$	
		> 70 Hz ... 100 Hz	$38 \cdot 10^{-6} + 36 \mu\text{V}$	
		> 100 Hz ... 500 Hz	$32 \cdot 10^{-6} + 36 \mu\text{V}$	
		> 500 Hz ... 20 kHz	$31 \cdot 10^{-6} + 36 \mu\text{V}$	
		> 20 kHz ... 50 kHz	$65 \cdot 10^{-6} + 59 \mu\text{V}$	
		> 50 kHz ... 70 kHz	$104 \cdot 10^{-6} + 94 \mu\text{V}$	
		> 70 kHz ... 100 kHz	$114 \cdot 10^{-6} + 94 \mu\text{V}$	
		> 100 kHz...200 kHz	$161 \cdot 10^{-6} + 809 \mu\text{V}$	
		> 200 kHz...300 kHz	$262 \cdot 10^{-6} + 809 \mu\text{V}$	



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks	
AC Voltage Calibration of voltage measurement instruments	10 V ... < 22 V	> 300 kHz...500 kHz	589•10 ⁻⁶ + 2 mV		
		> 500 kHz...700 kHz	798•10 ⁻⁶ + 4 mV		
		> 700 kHz...800 kHz	919•10 ⁻⁶ + 4 mV		
		> 800 kHz ... 1 MHz	944•10 ⁻⁶ + 4 mV		
	22 V ... < 100 V	10 Hz ... 20 Hz	> 20 Hz ... 30 Hz	298•10 ⁻⁶ + 327 μ V	
			> 30 Hz ... 40 Hz	116•10 ⁻⁶ + 289 μ V	
			> 40 Hz ... 50 Hz	102•10 ⁻⁶ + 289 μ V	
			> 50 Hz ... 70 Hz	49•10 ⁻⁶ + 359 μ V	
			> 70 Hz ... 100 Hz	47•10 ⁻⁶ + 359 μ V	
			> 100 Hz ... 500 Hz	41•10 ⁻⁶ + 359 μ V	
			> 500 Hz ... 20 kHz	34•10 ⁻⁶ + 359 μ V	
			> 20 kHz ... 50 kHz	35•10 ⁻⁶ + 359 μ V	
			> 50 kHz ... 70 kHz	76•10 ⁻⁶ + 703 μ V	
			> 70 kHz ... 100 kHz	109•10 ⁻⁶ + 4 mV	
100 V ... < 220 V	10 Hz ... 20 Hz	> 20 Hz ... 30 Hz	128•10 ⁻⁶ + 4 mV		
		> 30 Hz ... 40 Hz	298•10 ⁻⁶ + 327 μ V		
		> 40 Hz ... 50 Hz	115•10 ⁻⁶ + 289 μ V		
		> 50 Hz ... 70 Hz	103•10 ⁻⁶ + 289 μ V		
		> 70 Hz ... 100 Hz	50•10 ⁻⁶ + 359 μ V		
		> 100 Hz ... 500 Hz	49•10 ⁻⁶ + 359 μ V		
		> 500 Hz ... 20 kHz	47•10 ⁻⁶ + 359 μ V		
		> 20 kHz ... 50 kHz	36•10 ⁻⁶ + 359 μ V		
AC Voltage	220 V ... < 500 V	> 50 kHz ... 70 kHz	44•10 ⁻⁶ + 3359 μ V		
		> 70 kHz ... 100 kHz	88•10 ⁻⁶ + 703 μ V		
		10 Hz ... 20 Hz	116•10 ⁻⁶ + 4 mV		
		> 20 Hz ... 30 Hz	135•10 ⁻⁶ + 4 mV		
		> 30 Hz ... 50 Hz	255•10 ⁻⁶ + 8 mV		
		> 50 Hz ... 70 Hz	150•10 ⁻⁶ + 8 mV		



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
Calibration of voltage measurement instruments	500 V ... 1100 V	> 50 Hz ... 1 kHz	61•10 ⁻⁶ + 1.5 mV	
		> 1 kHz ... 20 kHz	140•10 ⁻⁶ + 13 mV	
		> 20 kHz ... 50 kHz	155•10 ⁻⁶ + 13 mV	
		> 50 kHz ... 70 kHz	160•10 ⁻⁶ + 13 mV	
		> 70 kHz ... 100 kHz	166•10 ⁻⁶ + 13 mV	
		10 Hz ... 20 Hz	380•10 ⁻⁶ + 9 mV	
		> 20 Hz ... 30 Hz	158•10 ⁻⁶ + 9 mV	
		> 30 Hz ... 50 Hz	150•10 ⁻⁶ + 9 mV	
		> 50 Hz ... 1 kHz	84•10 ⁻⁶ + 1.5 mV	
		> 1 kHz ... 20 kHz	150•10 ⁻⁶ + 9 mV	
		> 20 kHz ... 50 kHz	165•10 ⁻⁶ + 9 mV	
		> 50 kHz ... 70 kHz	205•10 ⁻⁶ + 9 mV	
		> 70 kHz ... 100 kHz	240•10 ⁻⁶ + 9 mV	
		AC Current	0,01 mA ... 1 mA	20 Hz ... 40 Hz
> 40 Hz ... 5 kHz	70•10 ⁻⁶			
> 5kHz ... 10kHz	70•10 ⁻⁶			
Calibration of current calibrators	> 1 mA ... 10 mA	20 Hz ... 10 kHz	70•10 ⁻⁶	
		> 40 Hz ... 5 kHz	50•10 ⁻⁶	
		> 5kHz ... 10kHz	50•10 ⁻⁶	
	> 10 mA ... 20 mA	20 Hz ... 10 kHz	80•10 ⁻⁶	
		> 40 Hz ... 5 kHz	70•10 ⁻⁶	
		> 5kHz ... 10kHz	50•10 ⁻⁶	
> 20 mA ... 50 mA	20 Hz ... 40 Hz	80•10 ⁻⁶		
	> 40 Hz ... 5 kHz	60•10 ⁻⁶		
	> 5kHz ... 10kHz	60•10 ⁻⁶		
> 50 mA ... 100 mA	20 Hz ... 40 Hz	300•10 ⁻⁶		
	> 40 Hz ... 5 kHz	290•10 ⁻⁶		
	> 5kHz ... 10kHz	50•10 ⁻⁶		



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
AC Current	> 100 mA ... 200 mA	20 Hz ... 40 Hz	170•10 ⁻⁶	
		> 40 Hz ... 5 kHz	160•10 ⁻⁶	
		> 5kHz ... 10kHz	160•10 ⁻⁶	
	> 200 mA ... 500 mA	20 Hz ... 40 Hz	110•10 ⁻⁶	
		> 40 Hz ... 5 kHz	100•10 ⁻⁶	
		> 5kHz ... 10kHz	90•10 ⁻⁶	
	> 500 mA ... 1 A	20 Hz ... 40 Hz	90•10 ⁻⁶	
		> 40 Hz ... 5 kHz	70•10 ⁻⁶	
		> 5kHz ... 10kHz	90•10 ⁻⁶	
	> 1 A ... 2 A	20 Hz ... 40 Hz	80•10 ⁻⁶	
		> 40 Hz ... 5 kHz	60•10 ⁻⁶	
		> 5kHz ... 10kHz	60•10 ⁻⁶	
	> 2 A ... 5 A	20 Hz ... 40 Hz	120•10 ⁻⁶	
		> 40 Hz ... 5 kHz	110•10 ⁻⁶	
		> 5kHz ... 10kHz	110•10 ⁻⁶	
> 5 A ... 10 A	20 Hz ... 40 Hz	90•10 ⁻⁶		
	> 40 Hz ... 5 kHz	80•10 ⁻⁶		
	> 5kHz ... 10kHz	80•10 ⁻⁶		
Calibration of current calibrators	> 10 A ... 20 A	20 Hz ... 40 Hz	110•10 ⁻⁶	
		> 40 Hz ... 5 kHz	100•10 ⁻⁶	
		> 5 kHz ... 10 kHz	100•10 ⁻⁶	
> 20 A ... 50 A	20 Hz ... 40 Hz	280•10 ⁻⁶		
	> 40 Hz ... 5 kHz	280•10 ⁻⁶		
	> 5kHz ... 10kHz	280•10 ⁻⁶		
> 50 A ... 100 A	20 Hz ... 40 Hz	210•10 ⁻⁶		
	> 40 Hz ... 5 kHz	210•10 ⁻⁶		
	> 5kHz ... 10kHz	210•10 ⁻⁶		



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
Calibration of current measurement instruments	0,1 mA ... 0,2 mA	20 Hz ... 40 Hz	230•10 ⁻⁶	
		> 40 Hz ... 1 kHz	180•10 ⁻⁶	
		> 1 kHz ... 5 kHz	330•10 ⁻⁶	
		> 5 kHz ... 10 kHz	1,63•10 ⁻³	
	> 0,2 mA ... 1 mA	20 Hz ... 40 Hz	150•10 ⁻⁶	
		> 40 Hz ... 1 kHz	90•10 ⁻⁶	
		> 1 kHz ... 5 kHz	190•10 ⁻⁶	
		> 5 kHz ... 10 kHz	1,05•10 ⁻³	
	> 1 mA ... 2 mA	20 Hz ... 40 Hz	130•10 ⁻⁶	
		> 40 Hz ... 1 kHz	70•10 ⁻⁶	
		> 1 kHz ... 5 kHz	100•10 ⁻⁶	
		> 5 kHz ... 10 kHz	580•10 ⁻⁶	
	> 2 mA ... 3 mA	20 Hz ... 40 Hz	170•10 ⁻⁶	
		> 40 Hz ... 1 kHz	120•10 ⁻⁶	
		> 1 kHz ... 5 kHz	370•10 ⁻⁶	
		> 5 kHz ... 10 kHz	1,05•10 ⁻³	
> 3 mA ... 5 mA	20 Hz ... 40 Hz	160•10 ⁻⁶		
	> 40 Hz ... 1 kHz	120•10 ⁻⁶		
	> 1 kHz ... 5 kHz	270•10 ⁻⁶		
	> 5 kHz ... 10 kHz	860•10 ⁻⁶		
AC Current	> 5 mA ... 10 mA	20 Hz ... 40 Hz	130•10 ⁻⁶	
		> 40 Hz ... 1 kHz	70•10 ⁻⁶	
		> 1 kHz ... 5 kHz	180•10 ⁻⁶	
		> 5 kHz ... 10 kHz	700•10 ⁻⁶	
Calibration of current measurement instruments	> 10 mA ... 20 mA	20 Hz ... 40 Hz	120•10 ⁻⁶	
		> 40 Hz ... 1 kHz	80•10 ⁻⁶	
		> 1 kHz ... 5 kHz	140•10 ⁻⁶	
		> 5 kHz ... 10 kHz	580•10 ⁻⁶	



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
AC Current Calibration of current measurement instruments	> 20 mA ... 30 mA	20 Hz ... 40 Hz	140•10 ⁻⁶	
		> 40 Hz ... 1 kHz	70•10 ⁻⁶	
		> 1 kHz ... 5 kHz	240•10 ⁻⁶	
		> 5 kHz ... 10 kHz	760•10 ⁻⁶	
	> 30 mA ... 50 mA	20 Hz ... 40 Hz	140•10 ⁻⁶	
		> 40 Hz ... 1 kHz	80•10 ⁻⁶	
		> 1 kHz ... 5 kHz	190•10 ⁻⁶	
		> 5 kHz ... 10 kHz	660•10 ⁻⁶	
	> 50 mA ... 100 mA	20 Hz ... 40 Hz	130•10 ⁻⁶	
		> 40 Hz ... 1 kHz	70•10 ⁻⁶	
		> 1 kHz ... 5 kHz	140•10 ⁻⁶	
		> 5 kHz ... 10 kHz	580•10 ⁻⁶	
	> 100 mA ... 200 mA	20 Hz ... 40 Hz	310•10 ⁻⁶	
		> 40 Hz ... 1 kHz	300•10 ⁻⁶	
		> 1 kHz ... 5 kHz	310•10 ⁻⁶	
		> 5 kHz ... 10 kHz	550•10 ⁻⁶	
	> 200 mA ... 300 mA	20 Hz ... 40 Hz	140•10 ⁻⁶	
		> 40 Hz ... 1 kHz	140•10 ⁻⁶	
		> 1 kHz ... 5 kHz	230•10 ⁻⁶	
		> 5 kHz ... 10 kHz	1,22•10 ⁻³	
> 300 mA ... 500 mA	20 Hz ... 40 Hz	140•10 ⁻⁶		
	> 40 Hz ... 1 kHz	130•10 ⁻⁶		
	> 1 kHz ... 5 kHz	200•10 ⁻⁶		
	> 5 kHz ... 10 kHz	1,12•10 ⁻³		
> 500 mA ... 1 A	20 Hz ... 40 Hz	110•10 ⁻⁶		
	> 40 Hz ... 1 kHz	100•10 ⁻⁶		
	> 1 kHz ... 5 kHz	160•10 ⁻⁶		
	> 5 kHz ... 10 kHz	1,05•10 ⁻³		



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
	> 1 A ... 2,2 A	20 Hz ... 40 Hz	100•10 ⁻⁶	
		> 40 Hz ... 1 kHz	90•10 ⁻⁶	
		> 1 kHz ... 5 kHz	130•10 ⁻⁶	
		> 5 kHz ... 10 kHz	990•10 ⁻⁶	
	> 2,2 A ... 3 A	20 Hz ... 5 kHz	320•10 ⁻⁶	
		> 5 kHz ... 10 kHz	260•10 ⁻⁶	
	> 3 A ... 5 A	20 Hz ... 40 Hz	160•10 ⁻⁶	
		> 40 Hz ... 10 kHz	150•10 ⁻⁶	
	> 5 A ... 10 A	20 Hz ... 40 Hz	120•10 ⁻⁶	
		> 40 Hz ... 1 kHz	110•10 ⁻⁶	
		> 1 kHz ... 10 kHz	120•10 ⁻⁶	
	> 10 A ... 20 A	20 Hz ... 40 Hz	130•10 ⁻⁶	
> 40 Hz ... 10 kHz		120•10 ⁻⁶		
AC Current Calibration of current measurement instruments	> 20 A ... 100 A	10 Hz ... 850 Hz	310•10 ⁻⁶	
		> 850 Hz ... 3 kHz	330•10 ⁻⁶	
		> 3 kHz ... 9 kHz	380•10 ⁻⁶	
> 100 A ... 240 A	10 Hz ... 850 Hz	310•10 ⁻⁶		
	> 850 Hz ... 6 kHz	320•10 ⁻⁶		
	> 6 kHz ... 9 kHz	5.6 %		
AC Current	> 50 A ... 500 A	10 Hz ... 1 kHz	1.00 %	
		> 1 kHz ... 3 kHz	1.25 %	
Calibration of current clamps	> 500 A ... 1000 A	300 Hz ... 1 kHz	0.90 %	
	> 500 A ... 3000 A	10 Hz ... 300 Hz	0.90 %	
Calibration of rogowski coils	100 A ... 1000 A	10 Hz ... 850 Hz	0.85 %	
		> 850 Hz ... 3 kHz	1.00 %	
		> 3 kHz ... 6 kHz	1.65 %	
	100 A ... 650 A	> 6 kHz ... 10 kHz	11.75 %	
	> 1 kA ... 6 kA	10 Hz ... 600 Hz	0.80 %	
	> 1 kA ... 5.75 kA	> 600 Hz ... 1 kHz	0.80 %	



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
AC Power 50 ... 60 Hz Calibration of power measurement instruments	> 1 kA ... 4.6 kA	> 1 kHz ... 3 kHz	0.90 %	Uncertainty related to active power
	> 1 kA ... 1.25 kA	> 3 kHz ... 6 kHz	1.60 %	
		cos φ (c, i)		
		[°]		
	0,01 W ... 2.3 W	0	842 ppm	
	1 V ... 23 V	15	842 ppm	
	0,01 A ... 0,1 A	30	842 ppm	
		45	843 ppm	
		60	846 ppm	
		75	862 ppm	
		85	1023 ppm	
		0,1 W ... 1,15 kW	0	
	1 V ... 23 V	15	537 ppm	
	0,1 A ... 50 A	30	538 ppm	
45		539 ppm		
60		544 ppm		
75		570 ppm		
85		792 ppm		
0,23 W ... 100,8 W		0	683 ppm	
23 V ... 1008 V	15	683 ppm		
0,01 ... 0,1 A	30	684 ppm		
	45	685 ppm		
	60	689 ppm		
	75	709 ppm		
	85	897 ppm		
	AC Power 50 ... 60 Hz Calibration of power measurement instruments		cos φ (c, i)	
	[°]			
2,3 W ... 50,4 kW	0	217 ppm		
23 V ... 1008 V	15	217 ppm		
0,1 A ... 50 A	30	219 ppm		



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks	
Phase angle	φ	45	223 ppm		
		60	234 ppm		
		75	288 ppm		
		85	621 ppm		
		U_{AC}:16 V... 1008 V			
		I_{AC} :0.25 A ... 5 A			
		Frequency:			
		0.00° ... 360°	16 Hz ... 69 Hz		0,01°
		0.00° ... 360°	> 69 ... 180		0,01°
		0.00° ... 360°	> 180 ... 450		0,02°
Calibration of phase meters	0.00° ... 360°	> 450 ... 850	0,04°		
	0.00° ... 360°	> 850 ... 2,85 k	0,175°		
	0.00° ... 360°	> 2, 85 k ... 6 k	0,35°		
	U_{AC}:16 V... 1008 V				
	I_{AC} : 5 A ... 21.5 A				
	Frequency:				
	0.00° ... 360°	16 ... 69	0,01°		
	0.00° ... 360°	> 69 ... 180	0,015°		
	0.00° ... 360°	> 180 ... 450	0,025°		
	0.00° ... 360°	> 450 ... 850	0,05°		
0.00° ... 360°	> 850 ... 2,85 k	0,235°			
Phase angle	φ	0,1 V...10 V 50 Hz ... 60 Hz	0,065°	Same signals	
					0° ... 360°
Measurement of phase					
Capacitance					
Calibration of capacitances and measurement instruments	10 pF; 100 pF; 1000 pF	1 kHz	105•10 ⁻⁶	Only fix values	
	10 nF; 100 nF; 1 μF	1 kHz	370•10 ⁻⁶		
	10 pF ... < 100 pF	1 kHz	2,55•10 ⁻³		
	100 pF ... < 1 nF	1 kHz	520•10 ⁻⁶		
	1 nF ... < 6.4 nF	1 kHz	310•10 ⁻⁶		
	100 nF ... < 1.6 μF	1 kHz	760•10 ⁻⁶		



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
Calibration of capacitances. Constant current charging/discharging method.	220 μ F ... 110 mF		845•10 ⁻⁶	
Inductance	50 μ H	1 kHz	2,2•10 ⁻³	Only fix values
	100 μ H	1 kHz	1,4•10 ⁻³	
	500 μ H	1 kHz	425•10 ⁻⁶	
Calibration of inductances	1 mH	1 kHz	380•10 ⁻⁶	Only fix values
	5 mH	1 kHz	300•10 ⁻⁶	
	10 mH	1 kHz	290•10 ⁻⁶	
	50 mH; 100 mH; 500 mH; 1 H; 5 H; 10 H	1 kHz	280•10 ⁻⁶	
Inductance	50 μ H	1 kHz	2,2•10 ⁻³	
	100 μ H	1 kHz	1,2•10 ⁻³	
	500 μ H	1 kHz	420•10 ⁻⁶	
Calibration of inductance measurement instruments	1 mH	1 kHz	330•10 ⁻⁶	Measurement duration 24 h
	5 mH	1 kHz	255•10 ⁻⁶	
	10 mH	1 kHz	250•10 ⁻⁶	
	50 mH; 100 mH; 500 mH; 1 H; 5 H; 10 H	1 kHz	240•10 ⁻⁶	
Frequency				
Calibration of frequency counters	10 Hz ... 4 GHz		2.1•10 ⁻¹²	Amplitude 100 mV ... 1 V
Calibration of frequency generators	10 MHz		1,16•10 ⁻¹²	Measurement duration 24 h Amplitude 30 mV ... 5 V
	100 kHz ... < 1 MHz		13•10 ⁻¹² + 10 μ Hz	
	1 MHz ... < 10 MHz		13•10 ⁻¹² + 100 μ Hz	
	10 MHz...<100 MHz		13•10 ⁻¹² + 1 mHz	
	100 MHz...<2,7GHz		13•10 ⁻¹² + 10 mHz	
Time interval				
	10 μ s ... < 100 μ s		12•10 ⁻¹² + 587 ps	Amplitude 30 mV ... 5 V
	100 μ s ... < 1 ms		12•10 ⁻¹² + 587 ps	
	1 ms ... < 10 ms		12•10 ⁻¹² + 587 ps	



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
Revolution	10 ms ... < 100 ms		12•10 ⁻¹² + 587 ps	Optical
	100 ms ... 1 s		12•10 ⁻¹² + 587 ps	
Calibration of oscilloscopes	600 ... 100'000 U/min		1,0•10 ⁻⁴	Into 1 M Ω
	1 mV ... 25 mV	1 kHz	0,3•10 ⁻³ + 30 μ V	
Square wave signal amplitude	> 25 mV ... 110 mV	1 kHz	0,3•10 ⁻³ + 30 μ V	Into 50 Ω
	> 110 mV ... 2,2 V	1 kHz	0,3•10 ⁻³ + 30 μ V	
	> 2,2 V ... 11 V	1 kHz	0,3•10 ⁻³ + 31 μ V	
	> 11 V ... 130 V	1 kHz	0,3•10 ⁻³ + 302 μ V	
Time marker	1 mV ... 25 mV	1 kHz	2,9•10 ⁻³ + 47 μ V	Into 50 Ω
	> 25 mV ... 110 mV	1 kHz	2,9•10 ⁻³ + 47 μ V	
	> 110 mV ... 2,2 V	1 kHz	2,9•10 ⁻³ + 47 μ V	
	> 2,2 V ... 6,6 V	1 kHz	2,9•10 ⁻³ + 47 μ V	
Risettime of oscilloscopes	0.5 ns ... 10 μ s		0,38•10 ⁻⁶ + 29 ps	Calibrator: tr=12.8 ps \pm 17,3ps
	20 μ s ... 1 ms		0,38•10 ⁻⁶ + 0,69 ns	
	2 ms ... 10 ms		0,38•10 ⁻⁶ + 1,9 ns	
	20 ms		0,38•10 ⁻⁶ + 3,5 ns	
	50 ms ... 0,1 s		2,9•10 ⁻⁶ + 18 ns	
	0,2 s ... 5 s		2,9•10 ⁻⁶ + 1,2 μ s	
Risettime of pulsgenerators	150 ... <300 ps	50 mVpp ... 3,5 Vpp	6.09 % + 16 ps	Oszilloscope: tr = 78.6 ps \pm 3,3 ps
	0.3 ... 1000 ns	50 mVpp ... 3,5 Vpp	2.84 % + 16 ps	
Calibration of flatness of oscilloscopes	5 mVpp ... 5 Vpp	50 kHz ... 100 MHz	50 Ω 4,9 % + 300 μ V	50 Ω : VSWR \leq 1,5 calibrated to U _{INC}
		>100MHz...300MHz	5,4 % + 300 μ V	
		>300MHz...500MHz	6,6 % + 300 μ V	
		>500MHz...600MHz	7,0 % + 300 μ V	
	5 mVpp ... 3.5 Vpp	>600MHz...1,6GHz	8,5 % + 300 μ V	
		>1,6GHz...2,1 GHz	9,5 % + 300 μ V	



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty \pm ¹⁾	Remarks
Calibration of flatness of oscilloscopes	5 mVpp ... 5 Vpp	50 kHz ... 100 MHz >100MHz...200MHz	1 MΩ 7 pF 7,0 % + 300 μ V 13,5 % + 300 μ V	Unit under test: 1 M Ω : C _{IN} \leq 10 pF calibrated to U _{Last}
RF Amplitude	0,7 mVrms ... 2.2 Vrms	9 kHz ... 2 GHz	1.28 %	VSWR < 1,5
Calibration of Flickemeter	P _{st} : 1, 2, 3	120 V / 230 V 50 Hz / 60 Hz 1 – 4800 CPM	0.29%	IEC 61000-4-15, Tab. 5 Ed. 1.1, 2003 Ed. 2.0, 2010

The dimensionless parts of the measurement uncertainty are relative values, referred to the measured value.

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