RAAD VOOR ACCREDITATIE

Dutch Accreditation Council RvA
PO Box 2768 NL-3500 GT Utrecht

The Dutch Accreditation Council RvA, by law appointed as the national accreditation body for The Netherlands, hereby declares that accreditation has been granted to:

TRESCAL Zoetermeer B.V.
Technical Operations
Zoetermeer

The organisation has demonstrated to be able to generate technical valid results in a competent way and work according to a management system.

This accreditation is based on an assessment against the requirements as laid down in EN ISO/IEC 17025:2017.

The accreditation covers the activities as specified in the authorized annex bearing the registration number.

The accreditation is valid provided that the organisation continues to meet the requirements.

The accreditation with registration number:

K 052

is granted on 12 September 1989

This declaration is valid until

1 December 2028

The board of the Dutch Accreditation Council,
on its behalf,

mr. J.A.W.M. de Haas

Annex to declaration of accreditation (scope of accreditation)
Normative document: EN ISO/IEC 17025:2017
Registration number: **K 052**

of **TRESCAL Zoetermeer B.V.**
Technical Operations

This annex is valid from: **10-06-2026** to **01-12-2028** Replaces annex dated: **24-09-2025**

Location(s) where activities are performed under accreditation

Head Office

Storkstraat 2 - 4
2722 NN
Zoetermeer
Nederland

Location	Abbreviation/ location code
Storkstraat 2 – 4 2722 NN Zoetermeer The Netherlands	ZTM
On Site	OS

HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
LF 0 0	DC/LF Electricity				
LF 1 0	Direct Voltage				ZTM
	0 µV – 10 µV		$3 \cdot 10^{-6} \cdot U$ + 0.1 µV	Measurement	
	10 µV – 100 µV		$5 \cdot 10^{-3} \cdot U$		
	100 µV – 1 mV		$5 \cdot 10^{-4} \cdot U$		
	1 mV – 10 mV		$1 \cdot 10^{-4} \cdot U$		
	10 mV – 100 mV		$3 \cdot 10^{-5} \cdot U$		
	100 mV – 2 V		$7 \cdot 10^{-6} \cdot U$		

[1] Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range. Measurement uncertainty, *U*, is calculated according to EA-4/02 "Evaluation of the Uncertainty of Measurement in calibration".

This annex has been approved by the Board of the Dutch Accreditation Council, on its behalf,

J.A.W.M. de Haas

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	2 V – 20 V		$3 \cdot 10^{-6} \cdot U$		
	20 V – 1 kV		$6 \cdot 10^{-6} \cdot U$		
	0 mV – 10 mV		$5.5 \cdot 10^{-5} \cdot U$ + 0.5 µV	Measurement	OS
	10 mV – 100 mV		$4 \cdot 10^{-5} \cdot U$		
	100 mV – 1 kV		$1 \cdot 10^{-5} \cdot U$		
	0.1 V		$1 \cdot 10^{-6} \cdot U$	Measurement and generation	
	1 V		$9 \cdot 10^{-7} \cdot U$		
	1.018 V		$9 \cdot 10^{-7} \cdot U$		
	10 V		$7 \cdot 10^{-7} \cdot U$		
	100 V		$7 \cdot 10^{-7} \cdot U$		
	1000 V		$1.2 \cdot 10^{-6} \cdot U$		
	0 mV – 10 mV		$4 \cdot 10^{-6} \cdot U$ + 0.5 µV	Generation	
	10 mV – 100 mV		$6 \cdot 10^{-5} \cdot U$		
	100 mV – 2.2 V		$1.5 \cdot 10^{-5} \cdot U$		
	2.2 V – 22 V		$7 \cdot 10^{-6} \cdot U$		
	22 V – 1 kV		$1 \cdot 10^{-5} \cdot U$		
	0 mV – 10 mV		$2 \cdot 10^{-5} \cdot U$ + 1 µV	Generation	OS
	10 mV – 330 mV		$3 \cdot 10^{-5} \cdot U$		
	330 mV - 1 kV		$2 \cdot 10^{-5} \cdot U$		
	Conversion factor (0.001 – 1) V/V		$1 \cdot 10^{-3} \cdot U/U$	also on site	
LF 1 2	Direct Voltage ratio			Measurement	ZTM
	(0.001 – 1) V/V		$1 \cdot 10^{-3} \cdot U/U$	primary voltage 100 mV to 1000 V, secondary voltage 0.1 mV to 1000 V	ZTM, OS

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
LF 1 3	Direct High Voltage				ZTM
	1 kV – 30 kV		$8 \cdot 10^{-4} \cdot U$	Measurement	ZTM, OS
	1 kV – 30 kV		$1 \cdot 10^{-3} \cdot U$	Generation	ZTM, OS
LF 1 4	Pulse Amplitude				ZTM
	2mV	10 Hz	$1 \cdot 10^{-3} \cdot U$	Generation in 1MΩ	
	2mV	100Hz/1kHz	$5 \cdot 10^{-4} \cdot U$		
	5mV – 100V	10Hz/100Hz/1kHz	$5 \cdot 10^{-4} \cdot U$		
	2mV – 100V	10 Hz – 1 kHz	$5 \cdot 10^{-4} \cdot U$	Measurement	
LF 2 0	Direct Current			Measurement and generation	ZTM
	0 A – 10 µA		$2 \cdot 10^{-5} \cdot I$ + 0.4 nA		
	10 µA – 1 mA		$1 \cdot 10^{-5} \cdot I$		
	1 mA – 150 mA		$2.5 \cdot 10^{-5} \cdot I$		
	0.15 A – 15 A		$2 \cdot 10^{-5} \cdot I$		
	15 A – 20 A		$5 \cdot 10^{-5} \cdot I$		
	20 A – 100 A		$1.2 \cdot 10^{-4} \cdot I - 4 \cdot 10^{-5} \cdot I$		
	10 µA – 100 µA		$4 \cdot 10^{-4} \cdot I$	Generation	OS
	100 µA – 10 mA		$2 \cdot 10^{-4} \cdot I$		
	10 mA – 100 mA		$2 \cdot 10^{-4} \cdot I$		
	0.1 A – 1 A		$3 \cdot 10^{-4} \cdot I$		
	1 A – 10 A		$5 \cdot 10^{-4} \cdot I$		
	10 A – 20 A		$1 \cdot 10^{-3} \cdot I$		
	10 µA – 100 µA		$4 \cdot 10^{-5} \cdot I$	Measurement	OS
	100 µA – 10 mA		$4 \cdot 10^{-5} \cdot I$		
	10 mA – 100 mA		$5 \cdot 10^{-5} \cdot I$		
	0.1 A – 1 A		$1 \cdot 10^{-4} \cdot I$		
	1 A – 20 A		$1.3 \cdot 10^{-4} \cdot I$		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	100 mA – 20 A		$3.5 \cdot 10^{-3} \cdot I$	Generation, only for current clamps / probes	ZTM, OS
	20 A – 1000 A		$8 \cdot 10^{-3} \cdot I$		
	Conversion factor (0.001 – 1) V/A		$3.5 \cdot 10^{-3} \cdot U/U$		ZTM, OS
LF 2 2	Direct Current Ratio				ZTM
	(0.001 – 1) V/A		$3.5 \cdot 10^{-3} \cdot U/I$	primary current 100 mA to 1000 A, secondary voltage 0.1 mV to 1000 V	ZTM, OS
LF 3 0	Alternating Voltage			Measurement and generation	ZTM
	0.7 mV – 2 mV	10 Hz – 20 Hz	$1.4 \cdot 10^{-3} \cdot U$ + 1 µV	Generation > 200V at 50 Hz – 1 kHz	
		20 Hz – 40 Hz	$5.8 \cdot 10^{-4} \cdot U$ + 1 µV		
		40 Hz – 20 kHz	$3.3 \cdot 10^{-4} \cdot U$ + 1 µV		
		20 kHz – 50 kHz	$6.3 \cdot 10^{-4} \cdot U$ + 1.6 µV		
		50 kHz – 100 kHz	$9.4 \cdot 10^{-4} \cdot U$ + 3.1 µV		
		100 kHz – 500 kHz	$1.9 \cdot 10^{-3} \cdot U$ + 6.2 µV		
		500 kHz – 1 MHz	$2.8 \cdot 10^{-3} \cdot U$ + 6.2 µV		
	2 mV – 7 mV	10 Hz – 20 Hz	$6.7 \cdot 10^{-4} \cdot U$ + 1 µV		
		20 Hz – 40 Hz	$2.9 \cdot 10^{-4} \cdot U$ + 1 µV		
		40 Hz – 20 kHz	$1.7 \cdot 10^{-4} \cdot U$ + 1 µV		
		20 kHz – 50 kHz	$3.2 \cdot 10^{-4} \cdot U$ + 1.6 µV		
		50 kHz – 100 kHz	$4.7 \cdot 10^{-4} \cdot U$ + 3.1 µV		
		100 kHz – 500 kHz	$1.1 \cdot 10^{-3} \cdot U$ + 6.2 µV		
		500 kHz – 1 MHz	$2.0 \cdot 10^{-3} \cdot U$ + 6.2 µV		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	7 mV – 20 mV	10 Hz – 20 Hz	$2.0 \cdot 10^{-4} \cdot U + 1$ µV		
		20 Hz – 40 Hz	$1.0 \cdot 10^{-4} \cdot U + 1$ µV		
		40 Hz – 20 kHz	$6 \cdot 10^{-5} \cdot U + 1$ µV		
		20 kHz – 50 kHz	$1.1 \cdot 10^{-4} \cdot U + 1.6$ µV		
		50 kHz – 100 kHz	$2.1 \cdot 10^{-4} \cdot U + 3.1$ µV		
		100 kHz – 500 kHz	$6 \cdot 10^{-4} \cdot U + 6.2$ µV		
		500 kHz – 1 MHz	$1.1 \cdot 10^{-3} \cdot U + 6.2$ µV		
	20 mV – 70 mV	10 Hz – 20 Hz	$2.0 \cdot 10^{-4} \cdot U + 1.2$ µV		
		20 Hz – 40 Hz	$1.0 \cdot 10^{-4} \cdot U + 1.2$ µV		
		40 Hz – 20 kHz	$6.0 \cdot 10^{-5} \cdot U + 1.2$ µV		
		20 kHz – 50 kHz	$1.1 \cdot 10^{-4} \cdot U + 1.6$ µV		
		50 kHz – 100 kHz	$2.1 \cdot 10^{-4} \cdot U + 2.4$ µV		
		100 kHz – 500 kHz	$4.0 \cdot 10^{-4} \cdot U + 6.2$ µV		
		500 kHz – 1 MHz	$1.5 \cdot 10^{-3} \cdot U + 6.2$ µV		
	70 mV – 200 mV	10 Hz – 20 Hz	$1.7 \cdot 10^{-4} \cdot U + 1.2$ µV		
		20 Hz – 40 Hz	$7 \cdot 10^{-5} \cdot U + 1.2$ µV		
		40 Hz – 20 kHz	$4.0 \cdot 10^{-5} \cdot U + 1.2$ µV		
		20 kHz – 50 kHz	$6 \cdot 10^{-5} \cdot U + 1.6$ µV		
		50 kHz – 100 kHz	$1.3 \cdot 10^{-4} \cdot U + 2.4$ µV		
		100 kHz – 500 kHz	$3.0 \cdot 10^{-4} \cdot U + 6.2$ µV		
		500 kHz – 1 MHz	$1.1 \cdot 10^{-3} \cdot U + 6.2$ µV		
	200 mV – 700 mV	10 Hz – 20 Hz	$1.7 \cdot 10^{-4} \cdot U + 1.2$ µV		
		20 Hz – 40 Hz	$6 \cdot 10^{-5} \cdot U + 1.2$ µV		
		40 Hz – 20 kHz	$4.0 \cdot 10^{-5} \cdot U + 1.2$ µV		
		20 kHz – 50 kHz	$5 \cdot 10^{-5} \cdot U + 1.6$ µV		
		50 kHz – 100 kHz	$7 \cdot 10^{-5} \cdot U + 2.4$ µV		
		100 kHz – 500 kHz	$3.0 \cdot 10^{-4} \cdot U + 6.2$ µV		
		500 kHz – 1 MHz	$1.1 \cdot 10^{-3} \cdot U + 6.2$ µV		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	700 mV – 2 V	10 Hz – 20 Hz	$1.6 \cdot 10^{-4} \cdot U$		
		20 Hz – 40 Hz	$6 \cdot 10^{-5} \cdot U$		
		40 Hz – 20 kHz	$3 \cdot 10^{-5} \cdot U$		
		20 kHz – 50 kHz	$5 \cdot 10^{-5} \cdot U$		
	700 mV – 2 V	50 kHz – 100 kHz	$7 \cdot 10^{-5} \cdot U$		
		100 kHz – 500 kHz	$3 \cdot 10^{-4} \cdot U$		
		500 kHz – 1 MHz	$1.0 \cdot 10^{-3} \cdot U$		
	2 V – 20 V	10 Hz – 20 Hz	$1.6 \cdot 10^{-4} \cdot U$		
		20 Hz – 40 Hz	$6 \cdot 10^{-5} \cdot U$		
		40 Hz – 20 kHz	$3 \cdot 10^{-5} \cdot U$		
		20 kHz – 50 kHz	$5 \cdot 10^{-5} \cdot U$		
		50 kHz – 100 kHz	$7 \cdot 10^{-5} \cdot U$		
		100 kHz – 500 kHz	$4 \cdot 10^{-4} \cdot U$		
		500 kHz – 1 MHz	$1.2 \cdot 10^{-3} \cdot U$		
	20 V – 200 V	10 Hz – 20 Hz	$1.6 \cdot 10^{-4} \cdot U$		
		20 Hz – 40 Hz	$8 \cdot 10^{-5} \cdot U$		
		40 Hz – 20 kHz	$5 \cdot 10^{-5} \cdot U$		
		20 kHz – 50 kHz	$6 \cdot 10^{-5} \cdot U$		
		50 kHz – 100 kHz	$8 \cdot 10^{-5} \cdot U$		
	200 V – 1000 V	10 Hz – 20 Hz	$1.6 \cdot 10^{-4} \cdot U$	Generation > 200V at 50 Hz – 1 kHz	
		20 Hz – 40 Hz	$8 \cdot 10^{-5} \cdot U$		
		40 Hz – 20 kHz	$5 \cdot 10^{-5} \cdot U$		
		20 kHz – 50 kHz	$1.1 \cdot 10^{-4} \cdot U$		
		50 kHz – 100 kHz	$4 \cdot 10^{-4} \cdot U$		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	1 mV – 10 mV	1 Hz – 40 Hz	$2 \cdot 10^{-3} \cdot U$	Measurement	OS
		40 Hz – 1 kHz	$2 \cdot 10^{-3} \cdot U$		
		1 kHz – 20 kHz	$2 \cdot 10^{-3} \cdot U$		
		20 kHz – 50 kHz	$3 \cdot 10^{-3} \cdot U$		
		50 kHz – 100 kHz	$6 \cdot 10^{-3} \cdot U$		
		100 kHz – 300 kHz	$4 \cdot 10^{-2} \cdot U$		
	10 mV – 10 V	1 Hz – 20 kHz	$3 \cdot 10^{-4} \cdot U$	Measurement	OS
		20 kHz – 50 kHz	$5 \cdot 10^{-4} \cdot U$		
		50 kHz – 100 kHz	$9 \cdot 10^{-4} \cdot U$		
		100 kHz – 300 kHz	$3 \cdot 10^{-3} \cdot U$		
		300 kHz – 1 MHz	$9 \cdot 10^{-2} \cdot U$		
		1 MHz – 2 MHz	$1.3 \cdot 10^{-2} \cdot U$		
	10 V – 100 V	1 Hz – 20 kHz	$4 \cdot 10^{-4} \cdot U$	Measurement	OS
		20 kHz – 50 kHz	$5 \cdot 10^{-4} \cdot U$		
		50 kHz – 100 kHz	$1.3 \cdot 10^{-3} \cdot U$		
		100 kHz – 300 kHz	$4 \cdot 10^{-3} \cdot U$		
		300 kHz – 1 MHz	$1.3 \cdot 10^{-2} \cdot U$		
	100 V – 1000 V	1 Hz – 1 kHz	$5.5 \cdot 10^{-4} \cdot U$	Measurement	OS
		1 kHz – 20 kHz	$7 \cdot 10^{-4} \cdot U$		
		20 kHz – 50 kHz	$1.3 \cdot 10^{-3} \cdot U$		
		50 kHz – 100 kHz	$2.6 \cdot 10^{-2} \cdot U$		
	1 mV – 33 mV	10 Hz – 45 Hz	$1 \cdot 10^{-3} \cdot U$	Generation	OS
		45 Hz – 20 kHz	$5 \cdot 10^{-4} \cdot U$		
		20 kHz – 50 kHz	$1 \cdot 10^{-3} \cdot U$		
		50 kHz – 100 kHz	$4 \cdot 10^{-3} \cdot U$		
		100 kHz – 500 kHz	$8 \cdot 10^{-3} \cdot U$		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	33 mV – 330 mV	10 Hz – 45 Hz	$5 \cdot 10^{-4} \cdot U$	Generation	OS
		45 Hz – 20 kHz	$3 \cdot 10^{-4} \cdot U$		
		20 kHz – 50 kHz	$5 \cdot 10^{-4} \cdot U$		
		50 kHz – 100 kHz	$1 \cdot 10^{-3} \cdot U$		
		100 kHz – 500 kHz	$2 \cdot 10^{-3} \cdot U$		
	330 mV – 3.3 V	10 Hz – 45 Hz	$5 \cdot 10^{-4} \cdot U$	Generation	OS
		45 Hz – 20 kHz	$3 \cdot 10^{-4} \cdot U$		
		20 kHz – 50 kHz	$5 \cdot 10^{-4} \cdot U$		
		50 kHz – 100 kHz	$1 \cdot 10^{-3} \cdot U$		
		100 kHz – 500 kHz	$3 \cdot 10^{-3} \cdot U$		
	3.3 V – 33 V	10 Hz – 45 Hz	$5 \cdot 10^{-4} \cdot U$	Generation	OS
		45 Hz – 20 kHz	$3 \cdot 10^{-4} \cdot U$		
		20 kHz – 50 kHz	$5 \cdot 10^{-4} \cdot U$		
		50 kHz – 100 kHz	$1 \cdot 10^{-3} \cdot U$		
	33 V – 330 V	45 Hz – 20 kHz	$3 \cdot 10^{-4} \cdot U$	Generation	OS
		20 kHz – 50 kHz	$5 \cdot 10^{-4} \cdot U$		
		50 kHz – 100 kHz	$2 \cdot 10^{-3} \cdot U$		
	330 V – 1000 V	45 Hz – 10 kHz	$3 \cdot 10^{-4} \cdot U$	Generation	OS
	Conversion factor (0.001 – 1) V/V	10 Hz – 100 kHz	$(1 \cdot 10^{-3} - 2 \cdot 10^{-3}) \cdot U/U$		ZTM, OS
LF 3 2	Alternating Voltage Ratio				ZTM
	(0.001 – 1) V/V	10 Hz – 100 kHz	$(1 \cdot 10^{-3} – 2 \cdot 10^{-3}) \cdot U/U$	primary voltage 100 mV to 1000 V, secondary voltage 0.1 mV to 1000 V	ZTM, OS
LF 3 3	Alternating High voltage			Measurement and generation	ZTM
	1 kV – 30 kV	50 Hz	$4.5 \cdot 10^{-3} \cdot U$		ZTM, OS

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
LF 4 0	Alternating current				ZTM
	10 µA – 100 µA	10 Hz – 40 Hz	$3 \cdot 10^{-4} \cdot I$	Measurement	
		40 Hz – 1 kHz	$1.5 \cdot 10^{-3} \cdot I$		
		1 kHz – 10 kHz	$4 \cdot 10^{-3} \cdot I$		
		10 kHz – 30 kHz	$1.5 \cdot 10^{-2} \cdot I$		
	100 µA – 1 mA	10 Hz – 1 kHz	$2 \cdot 10^{-4} \cdot I$		
		1 kHz – 10 kHz	$4 \cdot 10^{-4} \cdot I$		
		10 kHz – 30 kHz	$7 \cdot 10^{-4} \cdot I$		
	1 mA – 20 A	20 Hz – 10 kHz	$2 \cdot 10^{-4} \cdot I$		
		10 kHz – 30 kHz	$2.5 \cdot 10^{-4} \cdot I$		
	20 A – 100 A	20 Hz – 30 kHz	$7 \cdot 10^{-4} \cdot I$	Measurement	
	10 µA – 100 µA	10 Hz – 40 Hz	$3 \cdot 10^{-4} \cdot I$	Generation	
		40 Hz – 1 kHz	$1.5 \cdot 10^{-3} \cdot I$		
		1 kHz – 10 kHz	$4 \cdot 10^{-3} \cdot I$		
		10 kHz – 30 kHz	$1.5 \cdot 10^{-2} \cdot I$		
	100 µA – 1 mA	10 Hz – 1 kHz	$2.5 \cdot 10^{-4} \cdot I$	Generation	
		1 kHz – 10 kHz	$4 \cdot 10^{-4} \cdot I$		
		10 kHz – 30 kHz	$7 \cdot 10^{-4} \cdot I$		
	1 mA – 100 mA	20 Hz – 30 kHz	$2.5 \cdot 10^{-4} \cdot I$		
	100 mA – 11 A	20 Hz – 10 kHz	$2.5 \cdot 10^{-4} \cdot I$		
	11 A – 20 A	20 Hz – 5 kHz	$2.5 \cdot 10^{-4} \cdot I$		
	20 A – 100 A	20 Hz – 30 kHz	$7 \cdot 10^{-4} \cdot I$		
	6 µA – 120 µA	10 – 20 Hz	$5 \cdot 10^{-3} \cdot I$	Measurement	OS
		20 – 45 Hz	$3 \cdot 10^{-3} \cdot I$		
		45 – 5 kHz	$2 \cdot 10^{-3} \cdot I$		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	0.12 mA – 120 mA	10 – 20 Hz	$5 \cdot 10^{-3} \cdot I$	Measurement	OS
		20 – 45 Hz	$3 \cdot 10^{-3} \cdot I$		
		45 – 100 Hz	$2 \cdot 10^{-3} \cdot I$		
		100 Hz – 5 kHz	$1 \cdot 10^{-3} \cdot I$		
		5 kHz – 20 kHz	$2 \cdot 10^{-3} \cdot I$		
		20 kHz – 50 kHz	$5 \cdot 10^{-3} \cdot I$		
		50 kHz – 100 kHz	$8 \cdot 10^{-3} \cdot I$		
	0.12 A – 1.2 A	10 – 20 Hz	$5 \cdot 10^{-3} \cdot I$	Measurement	OS
		20 – 45 Hz	$3 \cdot 10^{-3} \cdot I$		
		45 Hz – 5 kHz	$2 \cdot 10^{-3} \cdot I$		
		5 kHz – 20 kHz	$4 \cdot 10^{-3} \cdot I$		
		20 kHz – 50 kHz	$1.5 \cdot 10^{-2} \cdot I$		
	29 µA – 330 µA	10 Hz – 1 kHz	$2 \cdot 10^{-3} \cdot I$	Generation	OS
		1 kHz – 5 kHz	$3 \cdot 10^{-3} \cdot I$		
		5 kHz – 10 kHz	$8 \cdot 10^{-4} \cdot I$		
		10 kHz – 30 kHz	$1.5 \cdot 10^{-2} \cdot I$		
	0.33 mA – 3.3 mA	10 Hz – 45 Hz	$2 \cdot 10^{-3} \cdot I$	Generation	OS
		45 Hz – 1 kHz	$1 \cdot 10^{-3} \cdot I$		
		1 – 5 kHz	$2 \cdot 10^{-3} \cdot I$		
		5 – 10 kHz	$5 \cdot 10^{-3} \cdot I$		
		10 – 30 kHz	$9 \cdot 10^{-3} \cdot I$		
	3.3 mA – 33 mA	10 – 20 Hz	$2 \cdot 10^{-3} \cdot I$	Generation	OS
		20 – 45 Hz	$1 \cdot 10^{-3} \cdot I$		
		45 Hz – 1 kHz	$5 \cdot 10^{-4} \cdot I$		
		1 kHz – 5 kHz	$8 \cdot 10^{-4} \cdot I$		
		5 kHz – 10 kHz	$2 \cdot 10^{-3} \cdot I$		
		10 kHz – 30 kHz	$4 \cdot 10^{-3} \cdot I$		

HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	33 mA – 330 mA	10 – 20 Hz	$2 \cdot 10^{-3} \cdot I$	Generation	OS
		20 – 45 Hz	$1 \cdot 10^{-3} \cdot I$		
		45 Hz – 1 kHz	$5 \cdot 10^{-4} \cdot I$		
		1 – 5 kHz	$1 \cdot 10^{-3} \cdot I$		
		5 – 10 kHz	$2 \cdot 10^{-3} \cdot I$		
		10 – 30 kHz	$4 \cdot 10^{-3} \cdot I$		
	0.33 A – 1.1 A	10 – 45 Hz	$2 \cdot 10^{-3} \cdot I$	Generation	OS
		45 Hz – 1 kHz	$6 \cdot 10^{-4} \cdot I$		
		1 – 5 kHz	$6 \cdot 10^{-3} \cdot I$		
		5 – 10 kHz	$2.5 \cdot 10^{-2} \cdot I$		
	1.1 A – 3 A	40 – 45 Hz	$2 \cdot 10^{-3} \cdot I$	Generation	OS
		45 Hz – 1 kHz	$6 \cdot 10^{-4} \cdot I$		
		1 kHz – 5 kHz	$6 \cdot 10^{-3} \cdot I$		
		5 kHz – 10 kHz	$2.2 \cdot 10^{-2} \cdot I$		
	3 A – 11 A	45 Hz – 5 kHz	$1 \cdot 10^{-3} \cdot I$	Generation	OS
		5 kHz – 10 kHz	$2.5 \cdot 10^{-2} \cdot I$		
	11 A – 20.5 A	45 Hz – 5 kHz	$2 \cdot 10^{-3} \cdot I$	Generation	OS
		5 kHz – 10 kHz	$2.5 \cdot 10^{-2} \cdot I$		
	100 mA – 20 A	20 Hz – 1000 Hz	$4 \cdot 10^{-3} \cdot I$	Generation, only for current clamps / probes	ZTM, OS
	20 A – 1000 A	30 Hz – 60 Hz	$8 \cdot 10^{-3} \cdot I$		
	Conversion factor (0.001 – 1) V/A	20 Hz – 1000 Hz	$4 \cdot 10^{-3} \cdot U/I$		ZTM, OS
LF 4 2	Alternating Current Ratio				ZTM, OS
	(0.001 – 1) V/A	20 Hz – 1000 Hz	$4 \cdot 10^{-3} \cdot U/I$	primary current 100 mA to 1000 A, secondary voltage 0.1 mV to 1000 V, >20 A 30 – 60 Hz	

HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
LF 5 0	Power and Energy			Calibration (generation)	ZTM
	1 mW - 1 kW 1 V – 1000 V, 0.001 A – 1 A	DC	$1.5 \cdot 10^{-4} \cdot P$		
	1 kW – 10 kW 1 V – 1000 V, 1 A – 10 A		$3.0 \cdot 10^{-4} \cdot P$		
	10 kW - 30 kW 1 V – 1000 V, 10 A – 30 A		$1.0 \cdot 10^{-3} \cdot P$		
	10 W – 30 kW 1 V – 1000 V, 0.001 A – 30 A		$3.5 \cdot 10^{-3} \cdot P$	Current clamp and coil	
	30 kW – 1.5 MW 1 V – 1000 V, 0.001 A– 30 A		$4.5 \cdot 10^{-3} \cdot P$		
	1.5 MW - 5 MW 1 V – 1000 V, 30 A – 100 A		$6.0 \cdot 10^{-3} \cdot P$		
	Apparent power				
	0.1 V – 1000 V, 0.01 A – 120 A	50 Hz – 60 Hz			
	1 VA – 10 kVA		$1.2 \cdot 10^{-4} \cdot P$		
	10 kVA – 50 kVA		$1.0 \cdot 10^{-4} \cdot P$		
	50 kVA – 120 kVA		$1.5 \cdot 10^{-4} \cdot P$		
	0,1 V – 1000 V, 0,01 A – 1500 A	50 Hz – 60 Hz		Clamps and coil	
	1 VA – 20 kVA		$3.0 \cdot 10^{-3} \cdot P$		
	20 kVA – 300 kVA		$6.0 \cdot 10^{-3} \cdot P$		
	300 kVA – 1500 kVA		$6.0 \cdot 10^{-3} \cdot P$		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	Active / true power				
	0.1 V – 1000 V, 0,01 A – 50 A	50 Hz – 60 Hz			
	1 W – 50 kW		$1.0 \cdot 10^{-4} \cdot P$	φ = 0° (PF=1)	
	1 W – 50 kW / 43 kW		$1.5 \cdot 10^{-4} \cdot P$	φ= > 0° – 60° (PF 0,5 – < 1)	
	1 W – 25 kW / 12,5 kW		$2.0 \cdot 10^{-4} \cdot P$	φ= > 60° – 75,5° (PF 0,25 – < 0,5)	
	0,2 W – 12,5 kW / 900 W		$2.5 \cdot 10^{-3} \cdot P$	φ= > 75,5° – 89° (PF 0,017452 – < 0,25)	
	1 mW – 900 W / 90 W		$2.5 \cdot 10^{-3} \cdot P$	φ= > 89° – 89,9° (PF 0,0017453 – < 0,017452)	
	0.1 V – 1000 V, 0,001 A – 1500 A	50 Hz – 60 Hz		Clamps and coil	
	1 W – 1,5 MW		$4.0 \cdot 10^{-3} \cdot P$	φ = 0° (PF = 1)	
	1 W – 1,3 MW / 750 kW		$1.4 \cdot 10^{-3} \cdot P$ – $3.0 \cdot 10^{-2} \cdot P$	φ= > 0° – 60° (PF 0,5 – < 1)	
	1 W – 750 kW / 375 kW		$3.0 \cdot 10^{-2} \cdot P$ – $6.7 \cdot 10^{-2} \cdot P$	φ= > 60° – 75,5° (PF 0,25 – < 0,5)	
	Reactive power				
	0.1 V – 1000 V, 0,01 A – 120 A	50 Hz – 60 Hz			
	1 VAr – 50 kVAr		$1.0 \cdot 10^{-4} \cdot P$	φ = 90° (PF=0) φ = 270° (PF=0)	
	50 kVAr – 120 kVAr		$2.0 \cdot 10^{-4} \cdot P$	φ = 90° (PF=0) φ = 270° (PF=0)	
	1 VAr – 50 kVAr / 43 kVAr		$1.5 \cdot 10^{-4} \cdot P$	φ= 60° – < 90°, > 90° – 120° (PF 0 – < 0,5) φ= 240° – < 270°, > 270° – 300° (PF 0 – < 0,5)	

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	1 VAr – 25 kVar / 12.5 kVAr		$2.0 \cdot 10^{-4} \cdot P$	φ= 14,477° – < 60°, > 120° – 165,523° φ= 194,477° – < 240°, > 300° – 345,523° (PF 0,5 – < 0,968)	
	0.2 VAr – 12.5 kVAr / 900 VAr		$2.5 \cdot 10^{-3} \cdot P$	φ= 1° – < 14,48°, φ= 179° – < 165.523° (PF 0,968 – < 0,999) φ= 181° – < 194,48°, φ= 354.52° – < 359° (PF 0,968 – < 0,999)	
	0.1 V – 1000 V, 0.001 A – 1500 A	50 Hz – 60 Hz		Clamps and coil	
	1 var – 1.5 Mvar		$4.0 \cdot 10^{-3} \cdot P$		
	1 var – 1.3 Mvar / 750 kvar		$1.4 \cdot 10^{-2} \cdot P$ – $3.0 \cdot 10^{-2} \cdot P$		
	1 var – 750 kvar / 375 kvar		$3.0 \cdot 10^{-2} \cdot P$ – $6.7 \cdot 10^{-2} \cdot P$		
LF 6 1	Resistance				ZTM
	0.08 mΩ		$1.5 \cdot 10^{-4} \cdot R$	Generation	
	0.2 mΩ; 0.4 mΩ; 0.8 mΩ		$1 \cdot 10^{-4} \cdot R$		
	1 mΩ		$3.5 \cdot 10^{-5} \cdot R$		
	10 mΩ		$1.5 \cdot 10^{-5} \cdot R$		
	100 mΩ		$5 \cdot 10^{-6} \cdot R$		
	1 Ω; 10 Ω; 100 Ω; 1000 Ω		$3 \cdot 10^{-6} \cdot R$		
	10 kΩ		$1 \cdot 10^{-6} \cdot R$		
	100 kΩ		$4 \cdot 10^{-6} \cdot R$		
	1 MΩ		$6 \cdot 10^{-6} \cdot R$		
	10 MΩ		$8 \cdot 10^{-6} \cdot R$		
	100 MΩ		$5.5 \cdot 10^{-5} \cdot R$		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	0 Ω		$1 \cdot 10^{-3}$ Ω	Generation	ZTM, OS
	0.1 mΩ – 11 Ω		$3.2 \cdot 10^{-5} \cdot R + 1 \cdot 10^{-3}$ Ω		
	11 Ω – 33 Ω		$6 \cdot 10^{-5} \cdot R$		
	33 Ω – 110 Ω		$3.3 \cdot 10^{-5} \cdot R$		
	110 Ω – 110 kΩ		$2.8 \cdot 10^{-5} \cdot R$		
	0.1 MΩ – 1.1 MΩ		$3 \cdot 10^{-5} \cdot R$		
	1.1 MΩ – 3.3 MΩ		$6 \cdot 10^{-5} \cdot R$		
	3.3 MΩ – 11 MΩ		$1.2 \cdot 10^{-4} \cdot R$		
	11 MΩ – 33 MΩ		$3 \cdot 10^{-4} \cdot R$		
	33 MΩ – 110 MΩ		$5 \cdot 10^{-4} \cdot R$		
	110 MΩ – 330 MΩ		$3 \cdot 10^{-3} \cdot R$		
	0.33 GΩ – 1.1 GΩ		$1.2 \cdot 10^{-2} \cdot R$		
	0.08 mΩ		$1.5 \cdot 10^{-4} \cdot R$	Measurement	
	1 mΩ		$6 \cdot 10^{-5} \cdot R$		
	10 mΩ		$5 \cdot 10^{-5} \cdot R$		
	100 mΩ		$3 \cdot 10^{-5} \cdot R$		
	1 Ω		$6 \cdot 10^{-6} \cdot R$		
	10 Ω; 100 Ω; 1 kΩ		$3 \cdot 10^{-6} \cdot R$		
	10 kΩ		$1 \cdot 10^{-6} \cdot R$		
	100 kΩ		$4 \cdot 10^{-6} \cdot R$		
	1 MΩ		$6 \cdot 10^{-6} \cdot R$		
	10 MΩ		$1 \cdot 10^{-5} \cdot R$		
	100 MΩ		$6 \cdot 10^{-5} \cdot R$		
	0.08 mΩ – 1 mΩ		$1.5 \cdot 10^{-4} \cdot R$		
	1 mΩ – 1 Ω		$3.5 \cdot 10^{-5} \cdot R$		
	1 Ω – 2 Ω		$3 \cdot 10^{-5} \cdot R$		
	2 Ω – 20 Ω		$2 \cdot 10^{-5} \cdot R$		
	20 Ω – 200 kΩ		$5 \cdot 10^{-6} \cdot R$		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	200 kΩ – 2 MΩ		$1 \cdot 10^{-5}\ R$		
	2 MΩ – 20 MΩ		$5 \cdot 10^{-5} \cdot R$		
	20 MΩ – 200 MΩ		$5 \cdot 10^{-4} \cdot R$		
	0.1 Ω – 10 Ω		$2 \cdot 10^{-5} \cdot R$	Measurement	OS
	10 Ω – 100 Ω		$1.5 \cdot 10^{-5} \cdot R$		
	0.1 kΩ – 1 kΩ		$1 \cdot 10^{-5} \cdot R$		
	1 kΩ – 10 kΩ		$1 \cdot 10^{-5} \cdot R$		
	10 kΩ – 100 kΩ		$1 \cdot 10^{-5} \cdot R$		
	0.1 MΩ – 1 MΩ		$1.5 \cdot 10^{-5} \cdot R$		
	1 MΩ – 10 MΩ		$5 \cdot 10^{-5} \cdot R$		
	10 MΩ – 100 MΩ		$4 \cdot 10^{-4} \cdot R$		
	100 MΩ – 200 MΩ		$4 \cdot 10^{-3} \cdot R$		
LF 6 4	Capacitance				ZTM
	1 pF	1 kHz	$1.5 \cdot 10^{-4} \cdot C$	Generation	
	10 pF	1 kHz	$4.10^{-5} \cdot C$		
	100 pF; 1 nF	1 kHz	$1.5 \cdot 10^{-5} \cdot C$		
	10 nF	1 kHz	$1 \cdot 10^{-4} \cdot C$		
	100 nF	1 kHz	$1 \cdot 10^{-4} \cdot C$		
	1 µF	1 kHz	$2.5 \cdot 10^{-4} \cdot C$		
	1 pF – 10 pF	1 kHz	$1.2 \cdot 10^{-5} \cdot C$	Measurement, D <0.01	
	10 pF – 1 nF	1 kHz	$4 \cdot 10^{-5} \cdot C$		
	1 nF – 10 nF	1 kHz	$7 \cdot 10^{-5} \cdot C$		
	10 nF – 100 nF	1 kHz	$1.5 \cdot 10^{-4} \cdot C$		
	100 nF – 1 µF	1 kHz	$3.3 \cdot 10^{-4} \cdot C$		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
LF 6 7	Inductance			Measurement and generation	ZTM
	100 µH	1 kHz	$2 \cdot 10^{-3} \cdot L$		
	1 mH	1 kHz	$5 \cdot 10^{-4} \cdot L$		
	10 mH	1 kHz	$5 \cdot 10^{-4} \cdot L$		
	100 mH	1 kHz	$5 \cdot 10^{-4} \cdot L$		
	1 H	1 kHz	$5 \cdot 10^{-4} \cdot L$		
	1 H	400 Hz	$5 \cdot 10^{-4} \cdot L$		
RF 0 0	HIGH FREQUENCY ELECTRICITY				
RF 2 1	Reflection coefficient				ZTM, OS
	linear magnitude $\|\Gamma\|$	0.05 GHz – 2 GHz	$0.005 + 0.004 \cdot \|\Gamma\|$	Measurement N connector. Best accuracy for a test object VSWR of maximum 1.04	
		>2 GHz – 18 GHz	$0.012 + 0.020 \cdot \|\Gamma\|$		
		0.05 GHz – 2 GHz	$0.006 + 0.007 \cdot \|\Gamma\|$	Measurement PC 3.5 connector. Best accuracy for a test object VSWR of maximum 1.06	
		>2 GHz – 18 GHz	$0.017 + 0.022 \cdot \|\Gamma\|$		
		>18 GHz – 26.5 GHz	$0.029 + 0.021 \cdot \|\Gamma\|$		
	VSWR				
		0.05 GHz – 2 GHz	0.011	Measurement N connector. Best accuracy for a test object VSWR of maximum 1.04	
		>2 GHz – 18 GHz	0.024		
		0.05 GHz – 2 GHz	0.011	Measurement PC 3.5 connector. Best accuracy for a test object VSWR of maximum 1.06	

HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
		>2 GHz – 18 GHz	0.034		
		>18 GHz – 26.5 GHz	0.06		
RF 2 2	Attenuation				ZTM, OS
	10 dB – 30 dB	0.05 GHz – <1 GHz	0.05 dB	3) Measurement with measuring receiver, N or PC 7 connector	
		1 GHz – 14GHz	0.10 dB		
		>14 GHz – 18 GHz	0.15 dB		
	> 30 dB – 60 dB	0.05 GHz – <1 GHz	0.07 dB		
		1 GHz – 16 GHz	0.10 dB		
		>16 GHz – 18 GHz	0.15 dB		
	3 dB – 10 dB	0.05 GHz – <1 GHz	0.07dB	4) Measurement with VNA, N connector	
		1 GHz – 18 GHz	0.14 dB		
	>10 dB – 20 dB	0.05 GHz – <1 GHz	0.09 dB		
		1 GHz – 18 GHz	0.15 dB		
	>20 dB – 40 dB	0.05 GHz – <1 GHz	0.12 dB		
		1 GHz – 18 GHz	0.17 dB		
	>40 dB – 50 dB	(0.05 – 18) GHz	0.22 dB		
	>50 dB – 60 dB	0.05 GHz	0.32 dB		
		>0.05 GHz – 18 GHz	0.26 dB		
	3 dB – 20 dB	0.05 GHz – <1 GHz	0.08 dB	4) Measurement with VNA, PC 3.5 connector	
		1 GHz – 20 GHz	0.15 dB		
		>20 GHz – 26.5 GHz	0.17 dB		
	>20 dB – 40 dB	0.05 GHz – 20 GHz	0.17 dB		
		>20 GHz – 26.5 GHz	0.19 dB		

HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	>40 dB – 50 dB	0.05 GHz – 20 GHz	0.19 dB		
		>20 GHz – 26.5 GHz	0.21 dB		
	>50 dB– 60 dB	0.05 GHz	0.32 dB		
		>0.05 GHz – 0.5 GHz	0.24 dB		
		>0.5 GHz – 20 GHz	0.22 dB		
		>20 GHz – 26.5 GHz	0.24 dB		
	10 dB – 50 dB	0.05 GHz – 1 GHz	0.04 dB	Generation with a step attenuator, relative to 0 dB (e.g. netwerk analyzer)	
	>50 dB – 60 dB	0.05 GHz – 1 GHz	0.05 dB		
	>60 dB – 70 dB	0.05 GHz – 1 GHz	0.10 dB		
	>70 dB – 80 dB	0.05 GHz – 1 GHz	0.20 dB		
RF 3 0	High frequency Power				ZTM, OS
	Calibration factor	100 kHz – 500 kHz	1.3 % – 1.0 %	1), 2), N connector. Nominal 1 mW, Calibration of a power sensor	
		500 kHz – 18 GHz	1.0 % – 2.0 %		
		10 MHz – 50 MHz	2.7 % – 2.1 %	1), 2), N connector. Nominal 1 µW, Calibration of a power sensor	
		50 MHz – 18 GHz	2.1 % – 3.6 %		
		10 MHz – 33 GHz	1.5 % – 3.0 %	1), 2). PC 3.5 connector. Nominal 1 mW, Calibration of a power sensor	

HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
		10 MHz – 40 GHz	1.6 % – 5.0 %	1), 2). PC 2.92 connector. Nominal 1 mW, Calibration of a power sensor	
	Absolute power 1 mW	50 MHz	0.004 mW	N connector, measurement and generation	
	Absolute power 0 dBm	50 MHz	0.018 dB		
	Absolute power 0 to -10 dBm	100 kHz – 1 GHz	0.10 dB	4) BNC connector. Measurement with power sensor (e.g. generator)	
		100 kHz – 8 GHz	0.07 dB	4) N female or PC 7 connector. Measurement with power sensor (e.g. generator)	
		>8 GHz – 18 GHz	0.10 dB		
		10 MHz – 8 GHz	0.08 dB	4) PC 3.5 male or female connector. Measurement with power sensor (e.g. generator)	
		>8 GHz – 18 GHz	0.12 dB		
		>18 GHz – 26.5 GHz	0.15 dB		
		> 26.5 GHz – 33 GHz	0.22 dB		
	Absolute power -10 to -90 dBm	2.5 MHz – 1000 MHz	0.20 dB	4) BNC connector. Measurement with measuring receiver (e.g. generator)	
	Absolute power -90 to -110 dBm	2.5 MHz – 1000 MHz	0.20 dB		

HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	Absolute power -10 to -90 dBm	2.5 MHz – 1300 MHz	0.20 dB	4) N female or PC 7 connector. Measurement with measuring receiver (e.g. generator)	
		>1.3 GHz – 2.6 GHz	0.25 dB		
	Absolute power -90 to -110 dBm	2.5 MHz – 1300 MHz	0.20 dB		
		>1.3 GHz – 2.6 GHz	0.25 dB		
	Absolute power -10 to -90 dBm	10 MHz – 1300 MHz	0.20 dB	4) PC 3.5 male or female connector. Measurement with measuring receiver (e.g. generator)	
		>1.3 GHz – 10 GHz	0.25 dB		
		>10 GHz – 21 GHz	0.35 dB		
		>21 GHz – 24 GHz	0.40 dB		
		>24 GHz – 26 GHz	0.60 dB		
	Absolute power -90 to -110 dBm	10 MHz – 1300 MHz	0.25 dB		
		>1.3 GHz – 10 GHz	0.30 dB		
		>10 GHz – 21 GHz	0.35 dB		
		>21 GHz – 24 GHz	0.40 dB		
		>24 GHz – 26 GHz	0.60 dB		
	Absolute power 0 to -10 dBm	100 kHz – 1 GHz	0.10 dB	4) BNC connector. Generation with splitter and power sensor (e.g. spectrum analyser)	
		100 kHz – 8 GHz	0.08 dB	4) N male or female or PC 7 connector. Generation with splitter and power sensor (e.g. spectrum analyser)	
		>8 GHz – 18 GHz	0.12 dB		

HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
		10 MHz – 8 GHz	0.10 dB	4) PC 3.5 male connector. Generation with splitter and power sensor (e.g. spectrum analyser)	
		>8 GHz – 18 GHz	0.16 dB		
		>18 GHz – 26.5 GHz	0.20 dB		
		>26.5 GHz – 30 GHz	0.24 dB		
		>30 GHz – 33 GHz	0.30 dB		
	Absolute power -10 to -90 dBm	50 MHz	0.25 dB	4) BNC connector. Generation with splitter and measuring receiver (e.g. spectrum analyser)	
	Absolute power -90 to -100 dBm	50 MHz	0.30 dB		
	Absolute power -10 to -90 dBm	50 MHz	0.25 dB	4) N male or female or PC 7 connector. Generation with splitter and measuring receiver (e.g. spectrum analyser)	
	Absolute power -90 to -100 dBm	50 MHz	0.30 dB		
	Absolute power -10 to -90 dBm	50 MHz	0.25 dB	4) PC 3.5 male connector. Generation with splitter and measuring receiver (e.g. spectrum analyser)	
	Absolute power -90 to -100 dBm	50 MHz	0.30 dB		
TF 0 0	TIME AND FREQUENCY				
TF 2 1	Frequency				ZTM
	100 kHz		$1 \cdot 10^{-11} \cdot f$	Measurement measuring time $\tau \geq 1000$ s	
	1 MHz		$1 \cdot 10^{-11} \cdot f$		

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	5 MHz		$1 \cdot 10^{-11} \cdot f$		
	10 MHz		$1 \cdot 10^{-11} \cdot f$		
	0.1 Hz – 1 Hz		12 µHz	Measurement. Generation measuring time $\tau \geq 20$ s	
	1 Hz – 10 Hz		12 µHz		
	10 Hz – 100 Hz		12 µHz – 1.2 µHz	Measurement. Generation	
	100 Hz – 1 kHz		1.2 µHz		
	1 kHz – 10 kHz		1.2 µHz		
	10 kHz – 100 kHz		1.2 µHz		
	100 kHz – 1 MHz		1.2 µHz – 12 µHz		
	1 MHz – 10 MHz		12 µHz – 0.12 mHz		
	10 MHz – 100 MHz		0.12 mHz – 1.2 mHz		
	100 MHz – 1 GHz		1.2 mHz – 12 mHz		
	1 GHz – 3 GHz		12 mHz – 14 mHz		
	3 GHz – 27.5 GHz		1.2 Hz		
TF 2 2	Time interval			Measurement	ZTM
	100 ps – 1 ns		$1.2 \cdot 10^{-9} \cdot T$		
	1 ns – 10 ns		$1.2 \cdot 10^{-9} \cdot T$		
	10 ns – 100 ns		$1.2 \cdot 10^{-9} \cdot T$		
	100 ns – 1µs		$1.2 \cdot 10^{-9} \cdot T$		
	1 µs – 10 µs		$1.2 \cdot 10^{-9} \cdot T$		
	10 µs – 100 µs		$1.2 \cdot 10^{-9} \cdot T$		
	100 µs – 1 ms		$1.2 \cdot 10^{-9} \cdot T$		
	1 ms – 10 ms		$1.2 \cdot 10^{-9} \cdot T$		
	10 ms – 100 ms		$1.2 \cdot 10^{-8} \cdot T$ – $1.2 \cdot 10^{-6} \cdot T$		
	100 ms – 1 s		$1.2 \cdot 10^{-6} \cdot T$ – $1.2 \cdot 10^{-5} \cdot T$		

HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	1 s – 10 s		$1.2 \cdot 10^{-5} \cdot T$ – $1.2 \cdot 10^{-4} \cdot T$		
TF 2 2	Time interval			Measurement	ZTM
	0.1 µs – 100 ms		$1 \cdot 10^{-6} \cdot T$ + 10 ns	Equipment with separated electrical start and stop inputs.	
	100 ms – 1 s		$1 \cdot 10^{-5} \cdot T$ + 10 ns		
	1 s – 10 s		$1 \cdot 10^{-4} \cdot T$ + 10 ns		

HCS code	Measured quantity, Instrument, Measure	Range	CMC[2]	Remarks	Location
OQ 0 0	OPTICAL QUANTITIES				
OQ 1 3	Optical system properties				ZTM
	Optical wavelength	1511 – 1542 nm	0.2 pm	Generation of wavelength with a wavelength reference cell, fixed wavelengths	
		840 – 860 nm	0.4 pm	Generation of wavelength in combination with a reference wavelength meter	
		1270 – 1650 nm	0.4 pm		
		840 – 860 nm	0.4 pm	Measurement of wavelength with a reference wavelength meter	
		1270 – 1650 nm	0.4 pm		
		600 – 1530 nm	300 pm	Measurement of wavelength with an optical spectrum analyser	
		1530 – 1570 nm	50 pm		
		1570 – 1750 nm	300 pm		

[2] Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range. Measurement uncertainty, *U*, is calculated according to EA-4/02 "*Evaluation* of the Uncertainty of Measurement in Calibration".

HCS code	Measured quantity, Instrument, Measure	Range	CMC[2]	Remarks	Location
OQ 1 5	Optical Power				ZTM
	-5 dBm to -55 dBm (316 μW – 3.16 nW)	850 nm	0.09 dB	Measurement with a power meter (e.g. optical source) and generation with a source and reference power meter (e.g. optical power meter)	
	-5 dBm to -55 dBm (316 μW – 3.16 nW)	1300 nm	0.13 dB		
	+3 dBm to -55 dBm (2 mW – 3.16 nW)	1310 nm	0.09 dB		
	+3 dBm to -55 dBm (2 mW – 3.16 nW)	1550 nm	0.09 dB		
	-5 dBm to -55 dBm (316 μW – 3.16 nW)	1625 nm	0.10 dB		
OQ 1 5	Linearity of optical power meters				ZTM
	-5 dBm to -55 dBm (316 μW – 3.16 nW)	850 nm	0.05 dB	Linearity calibration relative to -10 dBm (e.g. optical power meter)	
	-5 dBm to -55 dBm (316 μW – 3.16 nW)	1300 nm	0.05 dB		
	+3 dBm to -55 dBm (2 mW – 3.16 nW)	1310 nm	0.05 dB		
	+3 dBm to -55 dBm (2 mW – 3.16 nW)	1550 nm	0.05 dB		
	-5 dBm to -55 dBm (316 μW – 3.16 nW)	1625 nm	0.05 dB		

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HCS code	Measured quantity, Instrument, Measure	Range	CMC[2]	Remarks	Location
OQ 1 5	Optical attenuator				ZTM
	0 dB to 45 dB	850 nm	0.06 dB	Measurement of incremental loss (e.g. optical step attenuator)	
	0 dB to 45 dB	1300 nm	0.06 dB		
	0 dB to 55 dB	1310 nm	0.05 dB		
	0 dB to 55 dB	1550 nm	0.05 dB		
	0 dB to 50 dB	1625 nm	0.05 dB		
TE 0 0	TEMPERATURE				
TE 15 0	Cold junction compensation				ZTM
TE 15 1	Compensation wires for reference junction	0 °C	0.25 °C	Cold junction compensation, thermocouple J and K	

Electrical and optical calibrations are performed at nominal 23 °C.

The CMC in RF and Microwave measurements are applicable to instruments with a characteristic impedance of nominal 50 Ω
1. Measurements are performed at a fixed set of measurement frequencies;
2. Calibration factor is applicable to measurements relative to 50 MHz;
3. CMC is calculated for a test object VSWR of 1.01 and the maximal VSWR for the uncertainty calculation is 1.35;
4. CMC is calculated for a test object with a typical VSWR of 1 to 1.27;