CERTIFICATE OF ACCREDITATION

This is to attest

UL LLC

333 PFINGSTEN RD
NORTHBROOK, ILLINOIS, 60062, U.S.A.

Calibration Laboratory CL-310

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation.

Expiration Date January 1, 2030
Effective Date March 27, 2026

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SCOPE OF ACCREDITATION

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UL LLC

www.website.com

Location	Address	Contact Name	Contact Phone	Scope pages
CL-310 (Main location)	333 Pfingsten Rd. Northbrook, IL 60062, USA	Rick A. Titus Dario Rivoltella	+1-847-664-3281 +39-0292526427	Management System only
CL-163	Via delle Industrie, 6 20061 Carugate (MI), Italy	Giancarlo Alzate	+39-0292526435	2-69
CL-171	Admiral - Rosendahl - Strasse 23 Neu-Isenburg, 63263, Germany	Tobias Berg	+49-69489810231	70-74

Accredited to ISO/IEC 17025:2017 *Effective Date March 27, 2026*

CL-163

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

METERS[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U1	**U2**	
DC Voltage – Generate[3]	1 mV to 330 mV 330 mV to 3.3 V 3.3 V to 33 V 33 V to 330 V 330 V to 1000 V	2.0E-05 rel 1.1E-05 rel 1.2E-05 rel 1.8E-05 rel 1.8E-05 rel	1.0 µV/U 2.6 µV/U 26 µV/U 0.19 mV/U 1.5 mV/U	PT-TAR-M-VDC1 Direct Method (Note 1s, 2s)
DC Current - Generate[3]	29 µA to 330 µA 330 µA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 100 A	1.5E-04 rel 1.0E-04 rel 1.0E-04 rel 1.0E-04 rel 2.0E-04 rel 3.8E-04 rel 5.0E-04 rel 1.0E-03 rel 1.6E-04 rel 1.6E-04 rel	20 nA/I 51 nA/I 0.26 µA/I 2.6 µA/I 40 µA/I 41 µA/I 0.50 mA/I 0.75 mA/I 9.6 mA/I 9.6 mA/I	PT-TAR-M-IDC1 Direct Method (Note 1s, 3s)

** If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.*

METERS[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U1	**U2**	
DC Resistance – Generate[3] DC Resistance – Generate[3] continued	10 mΩ	2.0E-03 rel	0.0 mΩ/R	PT-TAR-M-RDC2W1 PT-TAR-M-RDC4W1 Direct Method (Note 1s, 4s)
	20 mΩ	2.0E-03 rel	0.0 mΩ/R	
	50 mΩ	2.0E-03 rel	0.0 mΩ/R	
	100 mΩ	3.0E-04 rel	0.0 mΩ/R	
	200 mΩ	3.0E-04 rel	0.0 mΩ/R	
	500 mΩ	3.0E-04 rel	0.0 mΩ/R	
	1 Ω to 11 Ω	4.0E-05 rel	1.0 mΩ/R	
	11 Ω to 33 Ω	3.0E-05 rel	1.5 mΩ/R	
	33 Ω to 110 Ω	2.8E-05 rel	1.4 mΩ/R	
	110 Ω to 330 Ω	2.8E-05 rel	2 mΩ/R	PT-TAR-M-RDC2W1 PT-TAR-M-RDC4W1 Direct Method (Note 1s, 4s)
	330 Ω to 1.1 kΩ	2.8E-05 rel	2 mΩ/R	
	1.1 kΩ to 3.3 kΩ	2.8E-05 rel	20 mΩ/R	
	3.3 kΩ to 11 kΩ	2.8E-05 rel	20 mΩ/R	
	11 kΩ to 33 kΩ	2.8E-05 rel	0.2 Ω/R	
	33 kΩ to 110 kΩ	2.8E-05 rel	0.2 Ω/R	
	110 kΩ to 330 kΩ	3.2E-05 rel	2 Ω/R	
	330 kΩ to 1.1 MΩ	3.2E-05 rel	2 Ω/R	
	1.1 MΩ to 3.3 MΩ	6.0E-05 rel	30 Ω/R	
	3.3 MΩ to 11 MΩ	1.3E-04 rel	50 Ω/R	
	11 MΩ to 33 MΩ	2.5E-04 rel	2.5 kΩ/R	
	33 MΩ to 110 MΩ	5.0E-04 rel	3.0 kΩ/R	
	110 MΩ to 330 MΩ	3.0E-03 rel	0.1 MΩ/R	

POWER METERS[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**U1**	**U2**	
DC Power – Generate[3]	3.3 V to 33 V	29 µA to 330 µA	1.5E-04 rel	5.8 µW/P	PT-TAR-M-PDC2 Direct Method (Note 1s, 8s)
		330 µA to 3.3 mA	1.0E-04 rel	6.0 µW/P	
		3.3 mA to 33 mA	1.0E-04 rel	9.9 µW/P	
		33 mA to 330 mA	1.0E-04 rel	99 µW/P	
		330 mA to 1.1 A	2.0E-04 rel	1.3 mW/P	
		1.1 A to 3 A	3.8E-04 rel	1.3 mW/P	
		3 A to 11 A	5.0E-04 rel	17 mW/P	
		11 A to 20 A	1.0E-03 rel	25 mW/P	
		20 A to 33 A	4.1E-04 rel	1.2 W/P	
		33 A to 100 A	4.1E-04 rel	1.2 W/P	
	33 V to 330 V	29 µA to 330 µA	1.5E-04 rel	8.8 µW/P	
		330 µA to 3.3 mA	1.0E-04 rel	18 µW/P	

POWER METERS[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**U1**	**U2**	
DC Power – Generate[3] continued		3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 100 A	1.0E-04 rel 1.0E-04 rel 2.0E-04 rel 3.8E-04 rel 5.0E-04 rel 1.0E-03 rel 4.1E-04 rel 4.1E-04 rel	0.10 mW/P 1.0 mW/P 13 mW/P 13 mW/P 0.17 W/P 0.25 W/P 12 W/P 12 W/P	
	330 V to 1000 V 330 V to 1000 V	29 µA to 330 µA 330 µA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 100 A	1.5E-04 rel 1.0E-04 rel 1.0E-04 rel 1.0E-04 rel 2.0E-04 rel 3.8E-04 rel 5.0E-04 rel 1.0E-03 rel 4.1E-04 rel 4.1E-04 rel	13 µW/P 31 µW/P 0.17 mW/P 1.7 mW/P 24 mW/P 25 mW/P 0.30 W/P 0.46 W/P 22 W/P 22 W/P	

Thermocouple Meters /Temperature DataLogger[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Meters - Type B – Generate[3]	600 °C to 800 °C 800 °C to 1550 °C 1550 °C to 1820 °C	0.35 °C 0.28 °C 0.22 °C	PT-TAR-M-TEMP1 Direct Method (Note 17s)
Meters - Type C - Generate[3]	0 °C to 1000 °C 1000 °C to 1800 °C 1800 °C to 2000 °C 2000 °C to 2316 °C	0.16 °C 0.23 °C 0.26 °C 0.35 °C	
Meters - Type E - Generate[3]	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 0 °C 0 °C to 600 °C 600 °C to 1000 °C	0.25 °C 0.12 °C 91 m°C 81 m°C 0.10 °C	
Meters - Type J - Generate[3]	-210 °C to -100 °C -100 °C to 800 °C 800 °C to 1200 °C	0.14 °C 91 m°C 0.10 °C	

POWER METERS[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**U1**	**U2**	
Meters - Type K - Generate[3]	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 500 °C 500 °C to 800 °C 800 °C to 1372 °C		0.46 °C 0.16 °C 0.10 °C 0.10 °C 0.13 °C		
Meters - Type L - Generate[3]	-200 °C to -100 °C -100 °C to 900 °C		0.10 °C 91 m°C		

Thermocouple Meters /Temperature DataLogger[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Meters - Type N - Generate[3]	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 0 °C 0 °C to 100 °C 100 °C to 800 °C 800 °C to 1300 °C	0.73 °C 0.23 °C 0.12 °C 0.11 °C 0.10 °C 0.12 °C	PT-TAR-M-TEMP1 Direct Method (Note 17s)
Meters - Type R - Generate[3]	-50 °C to -25 °C -25 °C to 0 °C 0 °C to 100 °C 100 °C to 400 °C 400 °C to 600 °C 600 °C to 1000 °C 1000 °C to 1600 °C 1600 °C to 1767 °C	0.55 °C 0.45 °C 0.39 °C 0.28 °C 0.22 °C 0.21 °C 0.19 °C 0.23 °C	
Meters - Type S - Generate[3]	-50 °C to -25 °C -25 °C to 0 °C 0 °C to 100 °C 100 °C to 400 °C 400 °C to 600 °C 600 °C to 1000 °C 1000 °C to 1600 °C 1600 °C to 1767 °C	0.51 °C 0.43 °C 0.38 °C 0.29 °C 0.23 °C 0.22 °C 0.22 °C 0.26 °C	
Meters - Type T - Generate[3]	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 0 °C 0 °C to 200 °C 200 °C to 400 °C	0.35 °C 0.16 °C 0.11 °C 91 m°C 91 m°C	

Thermocouple Meters /Temperature DataLogger[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Meters - Type U - Generate[3]	-200 °C to 0 °C 0 °C to 200 °C 200 °C to 600 °C	0.16 °C 0.10 °C 0.10 °C	

Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	CAPACITANCE	**FREQUENCY**	**U1**	**U2**	
Capacitance – Generate[3]	220 pF to 399.9 pF 0.4 nF to 1.0999 nF 1.1 nF to 3.2999 nF 3.3 nF to 10.9999 nF 11 nF to 32.9999 nF 33 nF to 109.999 nF 110 nF to 329.999 nF 0.33 µF to 1.09999 µF 1.1 µF to 3.29999 µF 3.3 µF to 10.9999 µF 11 µF to 32.9999 µF 33 µF to 109.999 µF 110 µF to 329.999 µF	10 Hz to 10 kHz 10 Hz to 10 kHz 10 Hz to 3 kHz 10 Hz to 1 kHz 10 Hz to 1 kHz 10 Hz to 1 kHz 10 Hz to 1 kHz 10 Hz to 600 Hz 10 Hz to 300 Hz 10 Hz to 150 Hz 10 Hz to 120 Hz 10 Hz to 80 Hz 0 Hz to 50 Hz	5.0E-03 rel 5.0E-03 rel 5.0E-03 rel 2.5E-03 rel 2.5E-03 rel 2.5E-03 rel 2.5E-03 rel 2.5E-03 rel 2.5E-03 rel 2.5E-03 rel 4.0E-03 rel 4.5E-03 rel 4.5E-03 rel	0.01 nF 0.01 nF 0.01 nF 0.01 nF 0.12 nF 0.12 nF 0.65 nF 1.2 nF 6.5 nF 12 nF 65 nF 0.12 µF 0.65 µF	PT-TAR-M-C1 Direct Method (Note 1s, 25s, 27s)

Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Frequency**	**U1**	**U2**	
AC Voltage – Generate[3]	10 mV to 33 mV	45 Hz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 4 MHz 4 MHz to 20 MHz	1.5E-04 rel 2.0E-04 rel 1.0E-03 rel 3.5E-03 rel 2.0E-02 rel 2.0E-02 rel	6.0 µV/U 6.0 µV/U 6.0 µV/U 12 µV/U 5.8 µV/U 5.8 µV/U	PT-TAR-M-VAC1 Direct Method

Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Frequency**	**U1**	**U2**	
AC Voltage – Generate[3] continued	33 mV to 330 mV	45 Hz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 4 MHz 4 MHz to 20 MHz	3.0E-04 rel 3.6E-04 rel 3.5E-04 rel 8.0E-04 rel 2.0E-02 rel 2.0E-02 rel	8.1 µV/U 8.1 µV/U 8.1 µV/U 32 µV/U 58 µV/U 58 µV/U	(Note 1s, 2s)
	330 mV to 3.3 V	45 Hz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 500 kHz 500 kHz to 4 MHz 4 MHz to 20 MHz	8.9E-01 rel 1.9E-04 rel 3.0E-04 rel 7.0E-04 rel 2.4E-03 rel 2.0E-02 rel 2.0E-02 rel	61 µV/U 61 µV/U 51 µV/U 0.13 mV/U 0.60 mV/U 0.58 mV/U 0.58 mV/U	
	3.3 V to 33 V	45 Hz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz	1.5E-04 rel 2.4E-04 rel 3.5E-04 rel 9.0E-04 rel	0.61 mV/U 0.61 mV/U 0.61 mV/U 1.6 mV/U	PT-TAR-M-VAC1 Direct Method
	33 V to 330 V	45 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz	1.9E-04 rel 2.0E-04 rel 2.5E-04 rel 3.0E-04 rel 2.0E-03 rel	2.1 mV/U 6.1 mV/U 6.1 mV/U 6.1 mV/U 50 mV/U	(Note 1s, 2s)
	330 V to 1000 V	45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz	3.0E-04 rel 2.5E-04 rel 3.0E-04 rel	10 mV/U 10 mV/U 10 mV/U	

Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Current	**Frequency**	**U1**	**U2**	
AC Current – Generate[3]	29 µA to 330 µA	45 Hz to 1 kHz	1.3E-03 rel	0.10 µA/I	PT-TAR-M-IAC1 Direct Method
	330 µA to 3.3 mA	45 Hz to 1 kHz 1 kHz to 5 kHz	1.0E-03 rel 2.0E-03 rel	0.15 µA/I 0.20 µA/I	
	3.3 mA to 33 mA	45 Hz to 1 kHz 1 kHz to 5 kHz	4.0E-04 rel 8.0E-04 rel	2.0 µA/I 2.0 µA/I	(Note 1s, 3s)

Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Current	**Frequency**	**U1**	**U2**	
AC Current – Generate[3] (continued)	33 mA to 330 mA	45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 6 kHz 6 kHz to 10 kHz	4.0E-04 rel 1.0E-03 rel 7.8E-03 rel 1.5E-02 rel	20 µA/I 50 µA/I 25 mA/I 62 mA/I	PT-TAR-M-IAC1 Direct Method (Note 1s, 3s)
	330 mA to 1.1 A	45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 6 kHz 6 kHz to 10 kHz	5.0E-04 rel 6.0E-03 rel 7.8E-03 rel 1.5E-02 rel	0.10 mA/I 1.0 mA/I 25 mA/I 62 mA/I	
	1.1 A to 3 A	45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 6 kHz 6 kHz to 10 kHz	6.0E-04 rel 6.0E-03 rel 7.8E-03 rel 1.5E-02 rel	0.10 mA/I 1.0 mA/I 25 mA/I 62 mA/I	
	3 A to 11 A	45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 6 kHz 6 kHz to 10 kHz	6.0E-04 rel 1.0E-03 rel 7.8E-03 rel 2.3E-02 rel	2.0 mA/I 2.0 mA/I 62 mA/I 94 mA/I	
	11 A to 20 A	45 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 6 kHz 6 kHz to 10 kHz	1.2E-03 rel 1.5E-03 rel 7.8E-03 rel 2.3E-02 rel	5.0 mA/I 5.0 mA/I 62 mA/I 94 mA/I	
	20 A to 33 A	45 Hz to 65 Hz 65 Hz to 300 Hz 300 Hz to 1 kHz 1 kHz to 3 kHz 3 kHz to 6 kHz 6 kHz to 10 kHz	1.9E-04 rel 2.8E-04 rel 8.0E-04 rel 2.3E-03 rel 7.8E-03 rel 3.1E-02 rel	19 mA/I 28 mA/I 94 mA/I 0.23 A/I 0.42 A/I 0.70 A/I	
	33 A to 120 A	45 Hz to 65 Hz 65 Hz to 300 Hz 300 Hz to 1 kHz 1 kHz to 3 kHz 3 kHz to 6 kHz 6 kHz to 10 kHz	1.9E-04 rel 2.8E-04 rel 8.0E-04 rel 2.3E-03 rel 7.8E-03 rel 3.1E-02 rel	19 mA/I 28 mA/I 94 mA/I 0.23 A/I 0.42 A/I 0.70 A/I	

Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Frequency	**Voltage**	**U1**	**U2**	

Frequency (Voltage) – Generate[3]	0.01 Hz to 10 Hz	1 mV to 3.3 V	2.6E-06 rel	7.7 µHz/f	PT-TAR-M-F1 Direct Method
	10 Hz to 45 Hz	1 mV to 33 V	2.5E-06 rel	7.7 µHz/f	
	45 Hz to 100 Hz	1 mV to 1000 V	2.5E-06 rel	7.7 µHz/f	
	100 Hz to 1199.9 Hz		2.5E-06 rel	7.7 µHz/f	(Note 1s, 5s)
	1.2 kHz to 10 kHz		2.6E-06 rel	5.8 mHz/f	
	10 kHz to 100 kHz	1 mV to 329.99 V	2.5E-06 rel	5.8 mHz/f	
	100 kHz to 1199.9 kHz	1 mV to 3.3 V	2.5E-06 rel	5.8 mHz/f	
	1.2 MHz to 2 MHz 2 MHz to 20 MHz		5.1E-06 rel 1.5E-03 rel	5.8 Hz/f 5.8 kHz/f	

Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Frequency**	**Crest Factor**	**U1**	**U2**	
AC Voltage Crest Factor – Measure[4]	6 V to 60 V	50 Hz to 60 Hz	1.0 to 2.0	1.7 E-02 rel	5.8E-07 Unit	PT-TAR-M-CF1 Direct Method
	60 V to 270 V	50 Hz to 60 Hz	1.0 to 1.6	1.9 E-02 rel	5.8E-07 Unit	(Note 1s)

Power meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**PF**	**U1**	**U2**	
Power Factor @ 50/60 Hz – Generate[3]	3.3 V to 1000 V	29 µA to 20 A	0.10 0.35 0.50 0.70 0.90 1.00	0.0E+00 rel 0.0E+00 rel 0.0E+00 rel 0.0E+00 rel 0.0E+00 rel 0.0E+00 rel	2.6E-03 unit/PF 2.5E-03 unit/PF 2.3E-03 unit/PF 1.9E-03 unit/PF 1.1E-03 unit/PF 5.8E-06 unit/PF	PT-TAR-M-PF2 Direct Method (Note 1s, 7s, 20s, 24s)

Power meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**cos(φ)**	**U1**	**U2**	
AC Active Power @ 50/60 Hz – Generate[3]	3.3 V to 33 V	29 µA to 330 µA	0.1 0.5 1.0	1.7E-02 rel 3.3E-03 rel 1.3E-03 rel	0.32 µW/P 1.6 µW/P 3.2 µW/P	PT-TAR-M-PAC2 Direct Method (Note 1s, 8s)
		330 µA to 3.3 mA	0.1 0.5 1.0	1.7E-02 rel 3.2E-03 rel 1.0E-03 rel	0.52 µW/P 2.6 µW/P 5.3 µW/P	
		3.3 mA to 33 mA	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 4.3E-04 rel	8.9 µW/P 34 µW/P 68 µW/P	
		33 mA to 330 mA	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 4.3E-04 rel	68 µW/P 0.34 mW/P 0.68 mW/P	
		330 mA to 1.1 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 5.2E-04 rel	0.33 mW/P 1.6 mW/P 3.3 mW/P	
		1.1 A to 3 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 6.2E-04 rel	0.37 mW/P 1.8 mW/P 3.7 mW/P	
		3 A to 11 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 6.2E-04 rel	8.7 mW/P 33 mW/P 65 mW/P	
		11 A to 20 A	0.1 0.5 1.0	1.7E-02 rel 3.3E-03 rel 1.2E-03 rel	17 mW/P 81 mW/P 0.16 W/P	
		20 A to 33 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.0E-03 rel	0.15 W/P 0.75 W/P 1.5 W/P	
		33 A to 50 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 9.3E-04 rel	0.17 W/P 0.86 W/P 1.7 W/P	

Power meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**cos(φ)**	**U1**	**U2**	
AC Active Power @ 50/60 Hz – Generate[3]	33 V to 330 V	29 µA to 330 µA	0.1 0.5 1.0	1.8E-02 rel 3.3E-03 rel 1.3E-03 rel	6.7 µW/P 18 µW/P 34 µW/P	PT-TAR-M-PAC2 Direct Method (Note 1s, 8s)
		330 µA to 3.3 mA	0.1 0.5 1.0	1.7E-02 rel 3.2E-03 rel 1.0E-03 rel	7.6 µW/P 26 µW/P 50 µW/P	
		3.3 mA to 33 mA	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 4.5E-04 rel	67 µW/P 0.33 mW/P 0.67 mW/P	
		33 mA to 330 mA	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 4.5E-04 rel	0.67 mW/P 3.3 mW/P 6.7 mW/P	
		330 mA to 1.1 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 5.4E-04 rel	3.3 mW/P 17 mW/P 33 mW/P	
		1.1 A to 3 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 6.3E-04 rel	3.4 mW/P 17 mW/P 34 mW/P	
		3 A to 11 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 6.3E-04 rel	66 mW/P 0.33 W/P 0.66 W/P	
		11 A to 20 A	0.1 0.5 1.0	1.7E-02 rel 3.3E-03 rel 1.2E-03 rel	0.17 W/P 0.83 W/P 1.7 W/P	
		20 A to 33 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.0E-03 rel	1.6 W/P 7.8 W/P 16 W/P	
		33 A to 50 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 9.4E-04 rel	1.8 W/P 8.8 W/P 18 W/P	

Power meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**cos(φ)**	**U1**	**U2**	
AC Active Power @ 50/60 Hz – Generate[3]	330 V to 1000 V	29 µA to 330 µA	0.1 0.5 1.0	1.8E-02 rel 3.3E-03 rel 1.3E-03 rel	8.4 µW/P 31 µW/P 61 µW/P	PT-TAR-M-PAC2 Direct Method (Note 1s, 8s)
		330 µA to 3.3 mA	0.1 0.5 1.0	1.7E-02 rel 3.2E-03 rel 1.0E-03 rel	11 µW/P 49 µW/P 96 µW/P	
		3.3 mA to 33 mA	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 5.0E-04 rel	0.13 mW/P 0.63 mW/P 1.3 mW/P	
		33 mA to 330 mA	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 5.0E-04 rel	1.3 mW/P 6.3 mW/P 13 mW/P	
		330 mA to 1.1 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 5.9E-04 rel	6.1 mW/P 31 mW/P 61 mW/P	
		1.1 A to 3 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 6.7E-04 rel	8.8 mW/P 34 mW/P 67 mW/P	
		3 A to 11 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 6.7E-04 rel	0.12 W/P 0.61 W/P 1.2 W/P	
		11 A to 20 A	0.1 0.5 1.0	1.7E-02 rel 3.3E-03 rel 1.2E-03 rel	0.30 W/P 1.5 W/P 3.0 W/P	
		20 A to 33 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.1E-03 rel	2.8 W/P 14 W/P 28 W/P	
		33 A to 50 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 9.7E-04 rel	3.2 W/P 16 W/P 32 W/P	

Power Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**cos(φ)**	**U1**	**U2**	
AC Active Energy @ 50/60Hz – PF @ 1.0 or 0.5 – 10min Integration - Generate[3]	3.3 V to 33 V	29 µA to 330 µA	1.0 0.5	1.3E-03 rel 3.3E-03 rel	0.54 µWh/E 0.27 µWh/E	PT-TAR-M-E2 Direct Method (Note 1s, 11s)
		330 µA to 3.3 mA	1.0 0.5	1.0E-03 rel 3.2E-03 rel	0.87 µWh/E 0.43 µWh/E	
		3.3 mA to 33 mA	1.0 0.5	4.3E-04 rel 3.1E-03 rel	13 µWh/E 8.1 µWh/E	
		33 mA to 330 mA	1.0 0.5	4.3E-04 rel 3.1E-03 rel	0.11 mWh/E 56 µWh/E	
		330 mA to 1.1 A	1.0 0.5	5.2E-04 rel 3.1E-03 rel	0.55 mWh/E 0.27 mWh/E	
		1.1 A to 3 A	1.0 0.5	6.2E-04 rel 3.1E-03 rel	0.61 mWh/E 0.31 mWh/E	
		3 A to 11 A	1.0 0.5	6.2E-04 rel 3.1E-03 rel	12 mWh/E 7.9 mWh/E	
		11 A to 20 A	1.0 0.5	1.2E-03 rel 3.3E-03 rel	27 mWh/E 15 mWh/E	
		20 A to 33 A	1.0 0.5	1.0E-03 rel 6.2E-03 rel	0.25 Wh/E 0.13 Wh/E	
		33 A to 50 A	1.0 0.5	9.3E-04 rel 6.2E-03 rel	0.29 Wh/E 0.14 Wh/E	
	33 V to 330 V	29 µA to 330 µA	1.0 0.5	1.3E-03 rel 3.3E-03 rel	8.0 µWh/E 6.4 µWh/E	
		330 µA to 3.3 mA	1.0 0.5	1.0E 03 rel 3.2E-03 rel	10 µWh/E 7.1 µWh/E	
		3.3 mA to 33 mA	1.0 0.5	4.5E-04 rel 3.1E-03 rel	0.11 mWh/E 56 µWh/E	
		33 mA to 330 mA	1.0 0.5	4.5E-04 rel 3.1E-03 rel	1.1 mWh/E 0.55 mWh/E	
		330 mA to 1.1 A	1.0 0.5	5.4E-04 rel 3.1E-03 rel	5.5 mWh/E 2.8 mWh/E	
		1.1 A to 3 A	1.0 0.5	6.3E-04 rel 3.1E-03 rel	5.6 mWh/E 2.8 mWh/E	
		3 A to 11 A	1.0 0.5	6.3E-04 rel 3.1E-03 rel	0.11 Wh/E 55 mWh/E	
		11 A to 20 A	1.0 0.5	1.2E-03 rel 3.3E-03 rel	0.28 Wh/E 0.14 Wh/E	

Power Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**cos(φ)**	**U1**	**U2**	
AC Active Energy @ 50/60Hz – PF @ 1.0 or 0.5 – 10min Integration - Generate[3] (continued)	33 V to 330 V	20 A to 33 A	1.0 0.5	1.0E-03 rel 6.2E-03 rel	2.6 Wh/E 1.3 Wh/E	PT-TAR-M-E2 Direct Method (Note 1s, 11s)
		33 A to 50 A	1.0 0.5	9.4E-04 rel 6.2E-03 rel	2.9 Wh/E 1.5 Wh/E	
	330 V to 1000V	29 µA to 330 µA	1.0 0.5	1.3E-03 rel 3.3E-03 rel	12 µWh/E 7.7 µWh/E	
		330 µA to 3.3 mA	1.0 0.5	1.0E-03 rel 3.2E-03 rel	17 µWh/E 9.9 µWh/E	
		3.3 mA to 33 mA	1.0 0.5	5.0E-04 rel 3.1E-03 rel	0.21 mWh/E 0.10 mWh/E	
		33 mA to 330 mA	1.0 0.5	5.0E-04 rel 3.1E-03 rel	2.1 mWh/E 1.0 mWh/E	
		330 mA to 1.1 A	1.0 0.5	5.9E-04 rel 3.1E-03 rel	10 mWh/E 5.1 mWh/E	
		1.1 A to 3 A	1.0 0.5	6.7E-04 rel 3.1E-03 rel	13 mWh/E 8.0 mWh/E	
		3 A to 11 A	1.0 0.5	6.7E-04 rel 3.1E-03 rel	0.20 Wh/E 0.10 Wh/E	
		11 A to 20 A	1.0 0.5	1.2E-03 rel 3.3E-03 rel	0.50 Wh/E 0.25 Wh/E	
		20 A to 33 A	1.0 0.5	1.1E-03 rel 6.2E-03 rel	4.7 Wh/E 2.4 Wh/E	
		33 A to 50 A	1.0 0.5	9.7E-04 rel 6.2E-03 rel	5.4 Wh/E 2.7 Wh/E	

Power meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**sin(φ)**	**U1**	**U2**	
AC Reactive Power @ 50/60 Hz – Generate[3]	3.3 V to 33 V	33 mA to 330 mA	0.1 0.5 0.9	4.6E-04 rel 1.1E-03 rel 3.6E-03 rel	68 µvar/Q 0.34 mvar/Q 0.61 mvar/Q	PT-TAR-M-Q2 Direct Method (Note 1s, 9s)
		330 mA to 1.1 A	0.1 0.5 0.9	5.5E-04 rel 1.1E-03 rel 3.7E-03 rel	0.33 mvar/Q 1.6 mvar/Q 3.0 mvar/Q	
		1.1 A to 3 A	0.1 0.5 0.9	6.5E-04 rel 1.2E-03 rel 3.7E-03 rel	0.37 mvar/Q 1.8 mvar/Q 3.3 mvar/Q	
		3 A to 11 A	0.1 0.5 0.9	6.5E-04 rel 1.2E-03 rel 3.7E-03 rel	8.7 mvar/Q 33 mvar/Q 58 mvar/Q	
		11 A to 20 A	0.1 0.5 0.9	1.2E-03 rel 1.6E-03 rel 3.8E-03 rel	17 mvar/Q 81 mvar/Q 0.15 var/Q	
		20 A to 33 A	0.1 0.5 0.9	1.1E-03 rel 2.3E-03 rel 7.3E-03 rel	0.15 var/Q 0.75 var/Q 1.4 var/Q	
		33 A to 50 A	0.1 0.5 0.9	1.0E-03 rel 2.2E-03 rel 7.3E-03 rel	0.17 var/Q 0.86 var/Q 1.6 var/Q	
	33 V to 330 V	29 µA to 330 µA	0.1 0.5 0.9	1.3E-03 rel 1.6E-03 rel 3.8E-03 rel	6.7 µvar/Q 18 µvar/Q 30 µvar/Q	PT-TAR-M-Q2 Direct Method (Note 1s, 9s)
		330 µA to 3.3 mA	0.1 0.5 0.9	1.0E-03 rel 1.4E-03 rel 3.8E-03 rel	7.6 µvar/Q 26 µvar/Q 45 µvar/Q	
		3.3 mA to 33 mA	0.1 0.5 0.9	4.8E-04 rel 1.1E-03 rel 3.7E-03 rel	67 µvar/Q 0.33 mvar/Q 0.60 mvar/Q	
		33 mA to 330 mA	0.1 0.5 0.9	4.8E-04 rel 1.1E-03 rel 3.7E-03 rel	0.67 mvar/Q 3.3 mvar/Q 6.0 mvar/Q	
		330 mA to 1.1 A	0.1 0.5 0.9	5.7E-04 rel 1.1E-03 rel 3.7E-03 rel	3.3 mvar/Q 17 mvar/Q 30 mvar/Q	
		1.1 A to 3 A	0.1 0.5 0.9	6.6E-04 rel 1.2E-03 rel 3.7E-03 rel	3.4 mvar/Q 17 mvar/Q 30 mvar/Q	

Power meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**sin(φ)**	**U1**	**U2**	
AC Reactive Power @ 50/60 Hz – Generate[3] (continued)	33 V to 330 V	3 A to 11 A	0.1 0.5 0.9	6.6E-04 rel 1.2E-03 rel 3.7E-03 rel	66 mvar/Q 0.33 var/Q 0.60 var/Q	PT-TAR-M-Q2 Direct Method (Note 1s, 9s)
		11 A to 20 A	0.1 0.5 0.9	1.2E-03 rel 1.6E-03 rel 3.8E-03 rel	0.17 var/Q 0.83 var/Q 1.5 var/Q	
		20 A to 33 A	0.1 0.5 0.9	1.1E-03 rel 2.3E-03 rel 7.3E-03 rel	1.6 var/Q 7.8 var/Q 14 var/Q	
		33 A to 50 A	0.1 0.5 0.9	1.0E-03 rel 2.2E-03 rel 7.3E-03 rel	1.8 var/Q 8.8 var/Q 16 var/Q	
	330 V to 1000 V	29 µA to 330 µA	0.1 0.5 0.9	1.3E-03 rel 1.6E-03 rel 3.8E-03 rel	8.4 µvar/Q 31 µvar/Q 55 µvar/Q	
		330 µA to 3.3 mA	0.1 0.5 0.9	1.1E-03 rel 1.5E-03 rel 3.8E-03 rel	11 µvar/Q 49 µvar/Q 87 µvar/Q	
		3.3 mA to 33 mA	0.1 0.5 0.9	5.3E-04 rel 1.1E-03 rel 3.7E-03 rel	0.13 mvar/Q 0.63 mvar/Q 1.1 mvar/Q	
		33 mA to 330 mA	0.1 0.5 0.9	5.3E-04 rel 1.1E-03 rel 3.7E-03 rel	1.3 mvar/Q 6.3 mvar/Q 11 mvar/Q	
		330 mA to 1.1 A	0.1 0.5 0.9	6.1E-04 rel 1.2E-03 rel 3.7E-03 rel	6.1 mvar/Q 31 mvar/Q 55 mvar/Q	
		1.1 A to 3 A	0.1 0.5 0.9	7.0E-04 rel 1.2E-03 rel 3.7E-03 rel	8.8 mvar/Q 34 mvar/Q 61 mvar/Q	
		3 A to 11 A	0.1 0.5 0.9	7.0E-04 rel 1.2E-03 rel 3.7E-03 rel	0.12 var/Q 0.61 var/Q 1.1 var/Q	
		11 A to 20 A	0.1 0.5 0.9	1.3E-03 rel 1.6E-03 rel 3.8E-03 rel	0.30 var/Q 1.5 var/Q 2.7 var/Q	
		20 A to 33 A	0.1 0.5 0.9	1.1E-03 rel 2.3E-03 rel 7.3E-03 rel	2.8 var/Q 14 var/Q 25 var/Q	

Power meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**sin(φ)**	**U1**	**U2**	
AC Reactive Power @ 50/60 Hz – Generate[3] (continued)	330 V to 1000 V	33 A to 50 A	0.1 0.5 0.9	1.0E-03 rel 2.2E-03 rel 7.3E-03 rel	3.2 var/Q 16 var/Q 29 var/Q	PT-TAR-M-Q2 Direct Method Fluke 5522A, Fluke 52120A, Clarke Hess 6000AClarke Hess 650 Clarke Hess 610 (Note 1s, 9s)

Power Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**U1**	**U2**	
AC Apparent Power @ 50/60 Hz – PF @ 0.1 to 1.0 Generate[3]	3.3 V to 33 V	29 µA to 330 µA 330 µA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 120 A	1.3E-03 rel 1.0E-03 rel 4.3E-04 rel 4.3E-04 rel 5.2E-04 rel 6.2E-04 rel 6.2E-04 rel 1.2E-03 rel 1.0E-03 rel 9.2E-04 rel	3.2 µVA/S 5.3 µVA/S 68 µVA/S 0.68 mVA/S 3.3 mVA/S 3.7 mVA/S 65 mVA/S 0.16 VA/S 1.3 VA/S 1.6 VA/S	PT-TAR-M-S2 Direct Method (Note 1s, 10s)
	33 V to 330 V	29 µA to 330 µA 330 µA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 120 A	1.3E-03 rel 1.0E-03 rel 4.5E-04 rel 4.5E-04 rel 5.4E-04 rel 6.3E-04 rel 6.3E-04 rel 1.2E-03 rel 1.0E-03 rel 9.3E-04 rel	34 µVA/S 50 µVA/S 0.67 mVA/S 6.7 mVA/S 33 mVA/S 34 mVA/S 0.66 VA/S 1.7 VA/S 14 VA/S 16 VA/S	
	330 V to 1000 V	29 µA to 330 µA 330 µA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 1.1 A	1.3E-03 rel 1.0E-03 rel 5.0E-04 rel 5.0E-04 rel 5.9E-04 rel	61 µVA/S 96 µVA/S 1.3 mVA/S 13 mVA/S 61 mVA/S	

Power Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**U1**	**U2**	
AC Apparent Power @ 50/60 Hz – PF @ 0.1 to 1.0 Generate[3]	330 V to 1000 V	1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 120 A	6.7E-04 rel 6.7E-04 rel 1.2E-03 rel 1.1E-03 rel 9.6E-04 rel	67 mVA/S 1.2 VA/S 3.0 VA/S 25 VA/S 30 VA/S	PT-TAR-M-S2 Direct Method (Note 1s, 10s)

Voltage Harmonics, Interharmonics and THD meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Par	**IHRM Amplitude**	**IHRM Frequency**	**U1**	**U2**	
AC Voltage Harmonics and Interharmonics – Measure[4]	Fund	30 V to 1000 V	50 Hz/60 Hz	5.0E-03 rel	58 µV/U	PT-TAR-M-HRMV1 PT-TAR-M-HRMV2 IEC 61000-4-7 (Note 1s, 2s, 12s)
	IHRM11 to IHRM2000	0.3 V to 60 V	55 Hz to 12 kHz	1.0E-02 rel	58 µV/U	
	THD_V	Fund: 30 V to 1000 V	55 Hz to 12 kHz	7.5E-03 rel	58 $\mu\%_{THD}/THD_V$	

Current Harmonics, Interharmonics and THD meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Par	**IHRM Amplitude**	**IHRM Frequency**	**U1**	**U2**	
AC Current Harmonics and Interharmonics – Measure[4]	Fund	50 mA to 100 A	50 Hz/60 Hz	2.0E-02 rel	0.58 µA/I	PT-TAR-M-HRMI1 PT-TAR-M-HRMI2 IEC 61000-4-7 (Note 1s, 3s, 12s)
	IHRM11 to IHRM2000	4.5 mA to 135 mA (TotRMSmax: 500 mA)	55 Hz to 3 kHz	2.5E-02 rel	0.58 µA/I	
			3 kHz to 12 kHz	6.0E-02 rel	0.58 µA/I	
		50 mA to 1.35 A (TotRMSmax: 5 A)	55 Hz to 3 kHz	2.5E-02 rel	0.58 µA/I	
			3 kHz to 12 kHz	6.0E-02 rel	0.58 µA/I	
		300 mA to 9 A (TotRMSmax: 32 A)	55 Hz to 3 kHz	2.5E-02 rel	0.58 µA/I	

			3 kHz to 12 kHz	6.0E-02 rel	0.58 µA/I	
		1 A to 30 A (TotRMSmax: 100 A)	55 Hz to 3 kHz	2.5E-02 rel	0.58 µA/I	
			3 kHz to 12 kHz	9.0E-02 rel	0.58 µA/I	
	THD_I	Fund: 50 mA to 100 A	55 Hz to 12 kHz	2.5E-02 rel	58 $\mu\%_{THD}/THD_I$	

Current Clamps[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U1	**U2**	
DC Current - Generate[3]	330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 100 A 100 A to 150 A 150 A to 550 A 550 A to 1000 A 1000 A to 2500 A	8.1E-03 rel 3.5E-03 rel 1.4E-03 rel 1.3E-03 rel 8.6E-04 rel 8.6E-04 rel 9.3E-04 rel 5.7E-04 rel 1.0E-03 rel 8.6E-04 rel	16 mA/I 17 mA/I 17 mA/I 17 mA/I 40 mA/I 40 mA/I 0.67 A/I 0.68 A/I 0.67 A/I 1.2 A/I	PT-TAR-M-PA-IDC1 PT-TAR-M-PA-IDC2 Direct Method (Note 1s, 3s)

Clamp-on power meters - Power meters chained with current clamp[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**U1**	**U2**	
DC Power – Generate[3]	3.3 V to 33 V	330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 100 A 100 A to 150 A 150 A to 550 A 550 A to 1000 A 1000 A to 2500 A	2.0E-04 rel 3.8E-04 rel 5.0E-04 rel 1.0E-03 rel 4.1E-04 rel 4.1E-04 rel 4.6E-03 rel 1.3E-03 rel 1.2E-03 rel 4.7E-04 rel	1.3 mW/P 1.3 mW/P 18 mW/P 25 mW/P 1.2 W/P 1.2 W/P 66 mW/P 0.83 W/P 1.2 W/P 30 W/P	PT-TAR-M-PA-PDC1 Direct Method (Note 1s, 8s)

	33 V to 330 V	330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 100 A 100 A to 150 A 150 A to 550 A 550 A to 1000 A 1000 A to 2500 A	2.0E-04 rel 3.8E-04 rel 5.0E-04 rel 1.0E-03 rel 4.3E-04 rel 4.3E-04 rel 4.6E-03 rel 1.3E-03 rel 1.2E-03 rel 4.9E-04 rel	13 mW/P 13 mW/P 0.17 W/P 0.25 W/P 12 W/P 12 W/P 0.66 W/P 8.3 W/P 12 W/P 0.31 kW/P	
	330 V to 1000 V	330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 100 A 100 A to 150 A 150 A to 550 A 550 A to 1000 A 1000 A to 2500 A	2.0E-04 rel 3.8E-04 rel 5.0E-04 rel 1.0E-03 rel 4.3E-04 rel 4.3E-04 rel 4.6E-03 rel 1.3E-03 rel 1.2E-03 rel 4.9E-04 rel	24 mW/P 25 mW/P 0.30 W/P 0.46 W/P 23 W/P 23 W/P 1.2 W/P 15 W/P 23 W/P 0.6 kW/P	

Current Clamps[5] –					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Current	**Frequency**	**U1**	**U2**	
AC Current - Generate[3]	330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 100 A 100 A to 150 A 150 A to 550 A 550 A to 1000 A 1000 A to 3000 A	50 Hz to 60 Hz 50 Hz to 60 Hz 50 Hz to 60 Hz 50 Hz to 60 Hz 50 Hz to 60 Hz 50 Hz to 60 Hz 50 Hz to 60 Hz 50 Hz to 60 Hz 50 Hz to 60 Hz 50 Hz to 60 Hz	8.1E-03 rel 2.9E-03 rel 1.0E-03 rel 1.3E-03 rel 1.1E-03 rel 1.1E-03 rel 1.3E-03 rel 1.2E-03 rel 1.2E-03 rel 1.1E-03 rel	5.8 mA/I 5.8 mA/I 6.1 mA/I 7.1 mA/I 53 mA/I 53 mA/I 59 mA/I 0.16 A/I 0.12 A/I 1.3 A/I	PT-TAR-M-PA-IAC1 PT-TAR-M-PA-IAC2 Direct Method (Note 1s,3s)

Clamp-on power meters - Power meters chained with current clamp[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**PF**	**U1**	**U2**	
Power Factor @ 50/60 Hz – Generate[3]	33 V to 330 V	1 A to 1250 A	0.10 ind 0.35 ind 0.50 ind 0.70 ind 0.90 ind 1.00 0.90 cap 0.70 cap 0.50 cap 0.35 cap 0.10 cap	4.0E-03 rel 3.4E-03 rel 8.0E-04 rel 1.1E-03 rel 4.4E-04 rel 4.0E-04 rel 4.4E-06 rel 5.7E-06 rel 8.0E-06 rel 2.3E-05 rel 4.0E-05 rel	3.5E-03 unit/PF 3.3E-03 unit/PF 3.0E-03 unit/PF 2.5E-03 unit/PF 1.5E-03 unit/PF 5.8E-05 unit/PF 1.5E-03 unit/PF 2.5E-03 unit/PF 3.0E-03 unit/PF 3.3E-03 unit/PF 3.5E-03 unit/PF	PT-TAR-M-PA-PF1 Direct Method (Note 1s, 7s, 20s)

Clamp-on power meters - Power meters chained with current clamp [5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**cos(φ)**	**U1**	**U2**	
AC Active Power @ 50/60 Hz – Generate[3]	33 V to 330 V	330 mA to 1.1 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 5.4E-04 rel	3.3 mW/P 17 mW/P 33 mW/P	PT-TAR-M-PA-PAC1 Direct Method (Note 1s, 8s)
		1.1 A to 3 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 6.3E-04 rel	3.4 mW/P 17 mW/P 34 mW/P	
		3 A to 11 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 6.3E-04 rel	66 mW/P 0.33 W/P 0.66 W/P	
		11 A to 20 A	0.1 0.5 1.0	1.7E-02 rel 3.3E-03 rel 1.2E-03 rel	0.17 W/P 0.83 W/P 1.7 W/P	
		20 A to 33 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.0E-03 rel	1.6 W/P 7.8 W/P 16 W/P	
		33 A to 50 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 9.4E-04 rel	1.8 W/P 8.8 W/P 18 W/P	

		50 A to 150 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.3E-03 rel	0.33 W/P 1.7 W/P 3.3 W/P	
		150 A to 550 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.3E-03 rel	3.3 W/P 17 W/P 33 W/P	
		550 A to 1000 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.3E-03 rel	3.3 W/P 17 W/P 33 W/P	
		1000 A to 1250 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 9.4E-04 rel	44 kW/P 0.22 kW/P 0.44 kW/P	

Clamp-on power meters - Power meters chained with current clamp[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**cos(φ)**	**U1**	**U2**	
AC Active Power @ 50/60 Hz – Generate[3]	330 V to 1000 V	330 mA to 1.1 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 5.9E-04 rel	6.1 mW/P 31 mW/P 61 mW/P	PT-TAR-M-PA-PAC1 Direct Method (Note 1s, 8s)
		1.1 A to 3 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 6.7E-04 rel	8.8 mW/P 34 mW/P 67 mW/P	
		3 A to 11 A	0.1 0.5 1.0	1.7E-02 rel 3.1E-03 rel 6.7E-04 rel	0.12 W/P 0.61 W/P 1.2 W/P	
		11 A to 20 A	0.1 0.5 1.0	1.7E-02 rel 3.3E-03 rel 1.2E-03 rel	0.30 W/P 1.5 W/P 3.0 W/P	
		20 A to 33 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.1E-03 rel	2.8 W/P 14 W/P 28 W/P	
		33 A to 50 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 9.7E-04 rel	3.2 W/P 16 W/P 32 W/P	
		50 A to 150 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.3E-03 rel	0.62 W/P 3.1 W/P 6.2 W/P	
		150 A to 550 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.3E-03 rel	6.1 W/P 30 W/P 61 W/P	
		550 A to 1000 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 1.3E-03 rel	6.1 W/P 31 W/P 61 W/P	

		1000 A to 1250 A	0.1 0.5 1.0	3.5E-02 rel 6.2E-03 rel 9.7E-04 rel	81 kW/P 0.40 kW/P 0.81 kW/P	

Clamp-on power meters - Power meters chained with current clamp[5]						
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**			**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**cos(φ)**	**U1**	**U2**	
AC Active Energy @ 50/60 Hz – PF @ 1.0 or 0.5– 10min Integration - Generate[3]	33 V to 330 V	330 mA to 1.1 A	1.0 0.5	5.4E-04 rel 3.1E-03 rel	5.5 mWh/E 2.8 mWh/E	PT-TAR-M-PA-E1 Direct Method (Note 1s, 11s)
		1.1 A to 3 A	1.0 0.5	6.3E-04 rel 3.1E-03 rel	5.6 mWh/E 2.8 mWh/E	
		3 A to 11 A	1.0 0.5	6.3E-04 rel 3.1E-03 rel	0.11 Wh/E 55 mWh/E	
		11 A to 20 A	1.0 0.5	1.2E-03 rel 3.3E-03 rel	0.28 Wh/E 0.14 Wh/E	
		20 A to 33 A	1.0 0.5	1.0E-03 rel 6.2E-03 rel	2.6 Wh/E 1.3 Wh/E	
		33 A to 100 A	1.0 0.5	9.4E-04 rel 6.2E-03 rel	2.9 Wh/E 1.5 Wh/E	
		100 A to 150 A	1.0 0.5	1.3E-03 rel 6.2E-03 rel	0.55 Wh/E 0.28 Wh/E	
		150 A to 550 A	1.0 0.5	1.3E-03 rel 6.2E-03 rel	5.5 Wh/E 2.8 Wh/E	
		550 A to 1000 A	1.0 0.5	1.3E-03 rel 6.2E-03 rel	5.5 Wh/E 2.8 Wh/E	
		1000 A to 1250 A	1.0 0.5	9.4E-04 rel 6.2E-03 rel	74 Wh/E 37 Wh/E	
	330 V to 1000 V	330 mA to 1.1 A	1.0 0.5	5.9E-04 rel 3.1E-03 rel	10 mWh/E 5.1 mWh/E	
		1.1 A to 3 A	1.0 0.5	6.7E-04 rel 3.1E-03 rel	13 mWh/E 8.0 mWh/E	
		3 A to 11 A	1.0 0.5	6.7E-04 rel 3.1E-03 rel	0.20 Wh/E 0.10 Wh/E	
		11 A to 20 A	1.0 0.5	1.2E-03 rel 3.3E-03 rel	0.50 Wh/E 0.25 Wh/E	
		20 A to 33 A	1.0 0.5	1.1E-03 rel 6.2E-03 rel	4.7 Wh/E 2.4 Wh/E	
		33 A to 100 A	1.0 0.5	9.7E-04 rel 6.2E-03 rel	5.4 Wh/E 2.7 Wh/E	

		100 A to 150 A	1.0 0.5	1.3E-03 rel 6.2E-03 rel	1.0 Wh/E 0.52 Wh/E	
		150 A to 550 A	1.0 0.5	1.3E-03 rel 6.2E-03 rel	10 Wh/E 5.1 Wh/E	
		550 A to 1000 A	1.0 0.5	1.3E-03 rel 6.2E-03 rel	10 Wh/E 5.1 Wh/E	
Clamp-on power meters - Power meters chained with current clamp[5]						
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**			**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**cos(φ)**	**U1**	**U2**	
AC Active Energy @ 50/60 Hz – PF @ 1.0 or 0.5– 10min Integration - Generate[3] continued	330 V to 1000 V	1000 A to 1250 A	1.0 0.5	9.7E-04 rel 6.2E-03 rel	0.13 kWh/E 67 Wh/E	PT-TAR-M-PA-E1 Direct Method (Note 1s, 11s)

Clamp-on power meters - Power meters chained with current clamp[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**sin(φ)**	**U1**	**U2**	
AC Reactive Power @ 50/60 Hz – Generate[3]	33 V to 330 V	330 mA to 1.1 A	0.1 0.5 0.9	5.7E-04 rel 1.1E-03 rel 3.7E-03 rel	3.4 mvar/Q 17 mvar/Q 30 mvar/Q	PT-TAR-M-PA-Q1 Direct Method (Note 1s, 9s)
		1.1 A to 3 A	0.1 0.5 0.9	6.6E-04 rel 1.2E-03 rel 3.7E-03 rel	3.4 mvar/Q 17 mvar/Q 30 mvar/Q	
		3 A to 11 A	0.1 0.5 0.9	6.6E-04 rel 1.2E-03 rel 3.7E-03 rel	66 mvar/Q 0.33 var/Q 0.60 var/Q	
		11 A to 20 A	0.1 0.5 0.9	1.2E-03 rel 1.6E-03 rel 3.8E-03 rel	0.17 var/Q 0.83 var/Q 1.5 var/Q	
		20 A to 33 A	0.1 0.5 0.9	1.1E-03 rel 2.3E-03 rel 7.3E-03 rel	1.6 var/Q 7.8 var/Q 14 var/Q	
		33 A to 50 A	0.1 0.5 0.9	1.0E-03 rel 2.2E-03 rel 7.3E-03 rel	1.8 var/Q 8.8 var/Q 16 var/Q	

		50 A to 150 A	0.1 0.5 0.9	1.3E-03 rel 2.4E-03 rel 7.3E-03 rel	0.34 var/Q 1.7 var/Q 3.0 var/Q	
		150 A to 550 A	0.1 0.5 0.9	1.3E-03 rel 2.4E-03 rel 7.3E-03 rel	3.4 var/Q 17 var/Q 30 var/Q	

Clamp-on power meters - Power meters chained with current clamp[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**sin(φ)**	**U1**	**U2**	
AC Reactive Power @ 50/60 Hz – Generate[3]	33 V to 330 V	550 A to 1000 A	0.1 0.5 0.9	1.3E-03 rel 2.4E-03 rel 7.3E-03 rel	3.4 var/Q 17 var/Q 30 var/Q	PT-TAR-M-PA-Q1 Direct Method (Note 1s, 9s)
		1000 A to 1250 A	0.1 0.5 0.9	1.0E-03 rel 2.2E-03 rel 7.3E-03 rel	44 var/Q 0.22 kvar/Q 0.40 kvar/Q	
	330 V to 1000 V	330 mA to 1.1 A	0.1 0.5 0.9	6.1E-04 rel 1.2E-03 rel 3.7E-03 rel	6.1 mvar/Q 31 mvar/Q 55 mvar/Q	
		1.1 A to 3 A	0.1 0.5 0.9	7.0E-04 rel 1.2E-03 rel 3.7E-03 rel	8.8 mvar/Q 34 mvar/Q 61 mvar/Q	
		3 A to 11 A	0.1 0.5 0.9	7.0E-04 rel 1.2E-03 rel 3.7E-03 rel	0.12 var/Q 0.61 var/Q 1.1 var/Q	
		11 A to 20 A	0.1 0.5 0.9	1.3E-03 rel 1.6E-03 rel 3.8E-03 rel	0.31 var/Q 1.5 var/Q 2.7 var/Q	
		20 A to 33 A	0.1 0.5 0.9	1.1E-03 rel 2.3E-03 rel 7.3E-03 rel	2.8 var/Q 14 var/Q 25 var/Q	
		33 A to 50 A	0.1 0.5 0.9	1.0E-03 rel 2.2E-03 rel 7.3E-03 rel	3.2 var/Q 16 var/Q 29 var/Q	
		50 A to 150 A	0.1 0.5 0.9	1.3E-03 rel 2.4E-03 rel 7.4E-03 rel	0.62 var/Q 3.1 var/Q 5.6 var/Q	
		150 A to 550 A	0.1 0.5 0.9	1.3E-03 rel 2.4E-03 rel 7.3E-03 rel	6.1 var/Q 30 var/Q 55 var/Q	

		550 A to 1000 A	0.1 0.5 0.9	1.3E-03 rel 2.4E-03 rel 7.3E-03 rel	6.1 var/Q 31 var/Q 55 var/Q	
		1000 A to 1250 A	0.1 0.5 0.9	1.0E-03 rel 2.2E-03 rel 7.3E-03 rel	81 var/Q 0.40 kvar/Q 0.73 kvar/Q	

Clamp-on power meters - Power meters chained with current clamp[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**U1**	**U2**	
AC Apparent Power @ 50/60Hz – PF @ 0.1 to1.0 Generate[3]	33 V to 330 V	330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 100 A 100 A to 150 A 150 A to 550 A 550 A to 1000 A 1000 A to 3000 A	5.4E-04 rel 6.3E-04 rel 6.3E-04 rel 1.2E-03 rel 1.0E-03 rel 9.3E-04 rel 1.3E-03 rel 1.3E-03 rel 1.3E-03 rel 9.3E-04 rel	33 mVA/S 34 mVA/S 0.66 VA/S 1.7 VA/S 14 VA/S 16 VA/S 3.3 VA/S 33 VA/S 33 VA/S 3.9 kVA/S	PT-TAR-M-PA-S1 Direct Method (Note 1s, 10s)
	330 V to 1000 V	330 mA to 1.1 A 1.1 A to 3 A 3 A to 11 A 11 A to 20 A 20 A to 33 A 33 A to 100 A 100 A to 150 A 150 A to 550 A 550 A to 1000 A 1000 A to 3000 A	5.9E-04 rel 6.7E-04 rel 6.7E-04 rel 1.2E-03 rel 1.1E-03 rel 9.6E-04 rel 1.3E-03 rel 1.3E-03 rel 1.3E-03 rel 9.6E-04 rel	61 mVA/S 67 mVA/S 1.2 VA/S 3.0 VA/S 25 VA/S 30 VA/S 6.2 VA/S 61 VA/S 61 VA/S 7.1 kVA/S	

Built-in Meters[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U1	**U2**	
DC Voltage - Measure[4]	0.3 V to 3 V 3 V to 6 V 6 V to 12.5 V 12.5 V to 25 V 25 V to 60 V 60 V to 130 V 130 V to 250 V 250 V to 400 V 400 V to 600 V 600 V to 1000 V	8.0E-04 rel 8.0E-04 rel 8.1E-04 rel 8.1E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel	10 mV/U 14 mV/U 30 mV/U 60 V/U 0.14 V/U 0.31 V/U 0.60 V/U 0.96 V/U 1.5 V/U 3.5 V/U	PT-TAR-M-VDC2 Comparison Method (Note 1s, 2s)

Built-in Meters[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U1	**U2**	
DC Current - Measure[4]	0.15 mA to 1.5 mA 1.5 mA to 3.0 mA 3 mA to 5 mA 5 mA to 10 mA 10 mA to 20 mA 20 mA to 40 mA 40 mA to 80 mA 80 mA to 150 mA 0.15 A to 0.3 A 0.3 A to 0.6 A 0.6 A to 1.2 A 1.2 A to 2.5 A 2.5 A to 5 A 5 A to 10 A 10 A to 20 A 20 A to 32 A	6.1E-03 rel 6.1E-03 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel 8.0E-04 rel	3.6 µA/I 7.2 µA/I 18 µA/I 36 µA/I 72 µA/I 150 µA/I 290 µA/I 540 µA/I 1.1 mA/I 2.2 mA/I 4.3 mA/I 9.0 mA/I 18 mA/I 36 mA/I 72 mA/I 120 mA/I	PT-TAR-M-IDC2 Comparison Method ZES Zimmer LMG95 ZES Zimmer LMG-SH020 ZES Zimmer LMG640/LMG611 (Note 1s, 3s, 16s)

Built-in Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Current	**Frequency**	**U1**	**U2**	
AC Current – Measure[4]	0.5 mA to 5 mA	50 Hz to 60 Hz	4.0E-04 rel	4.0 µA/I	PT-TAR-M-IAC2 Comparison Method (Note 1s, 3s, 16s)
	5 mA to 10 mA	50 Hz to 60 Hz	4.0E-04 rel	8.0 µA/I	
	10 mA to 20 mA	50 Hz to 60 Hz	4.0E-04 rel	16 µA/I	
	20 mA to 40 mA	50 Hz to 60 Hz	4.0E-04 rel	32 µA/I	
	40 mA to 80 mA	50 Hz to 60 Hz	4.0E-04 rel	64 µA/I	
	80 mA to 150 mA	50 Hz to 60 Hz	4.0E-04 rel	120 µA/I	
	0.15 A to 0.3 A	50 Hz to 60 Hz	4.0E-04 rel	0.24 mA/I	
	0.3 A to 0.6 A	50 Hz to 60 Hz	4.0E-04 rel	0.48 mA/I	
	0.6 A to 1.2 A	50 Hz to 60 Hz	4.0E-04 rel	0.96 mA/I	
	1.2 A to 2.5 A	50 Hz to 60 Hz	4.0E-04 rel	2.0 mA/I	
	2.5 A to 5 A	50 Hz to 60 Hz	4.0E-04 rel	4.0 mA/I	
	5 A to 10 A	50 Hz to 60 Hz	4.0E-04 rel	8.0 mA/I	
	10 A to 20 A	50 Hz to 60 Hz	4.0E-04 rel	16 mA/I	
	20 A to 32 A	50 Hz to 60 Hz	4.0E-04 rel	26 mA/I	
	32 A to 60 A	50 Hz to 60 Hz	1.6E-03 rel		
	60 A to 100 A	50 Hz to 60 Hz	1.6E-03 rel		

Built-in Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Fequency	**Voltage**	**U1**	**U2**	
Frequency (Voltage) – Measure[4]	1 Hz to 10 Hz	1 V to 10 V	4.0E-04 rel	5.8 µHz/f	PT-TAR-M-F2 Comparison Method (Note 1s, 5s)
	10 Hz to 100 Hz	1 V to 600 V	4.0E-04 rel	5.8 µHz/f	
	100 Hz to 1000 Hz	1 V to 600 V	4.0E-04 rel	5.8 µHz/f	
	1 kHz to 10 kHz	1 V to 600 V	4.0E-04 rel	5.8 mHz/f	
	10 kHz to 100 kHz	1 V to300 V	4.0E-04 rel	5.8 mHz/f	
	100 kHz to 499.9 kHz	1 V to 3 V	4.0E-04 rel	5.8 mHz/f	

Built-in Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**PF**	**U1**	**U2**	
Power Factor @ 50/60 Hz – Measure[4]	60 V to 1000 V	0.6 A to 50 A	0.10 ind 0.35 ind 0.50 ind 0.70 ind 0.90 ind 1.00 0.90 cap 0.70 cap 0.50 cap 0.35 cap 0.10 cap	4.0E-05 rel 1.1E-05 rel 8.0E-06 rel 5.7E-06 rel 8.9E-06 rel 0.0E+00 rel 8.9E-06 rel 5.7E-06 rel 8.0E-06 rel 2.3E-05 rel 8.0E-05 rel	2.7E-03 unit/PF 3.1E-03 unit/PF 3.5E-03 unit/PF 4.1E-03 unit/PF 4.8E-03 unit/PF 5.2E-03 unit/PF 2.7E-03 unit/PF 2.7E-03 unit/PF 2.7E-03 unit/PF 2.7E-03 unit/PF 2.7E-03 unit/PF	PT-TAR-M-PF1 Comparison Method (Note 1s, 7s, 20s)

Built-in Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**PF**	**U1**	**U2**	
AC Active Power @ 50/60 Hz – Measure[4]	25 V to 60 V	0.15 mA to 1.5 mA 1.5 mA to 3.0 mA 3 mA to 5 mA 5 mA to 10 mA 10 mA to 20 mA 20 mA to 40 mA 40 mA to 80 mA 80 mA to 150 mA 0.15 A to 0.3 A 0.3 A to 0.6 A 0.6 A to 1.2 A 1.2 A to 2.5 A 2.5 A to 5 A 5 A to 10 A 10 A to 20 A 20 A to 32 A 32 A to 50 A	0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1	1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 2.4E-03 rel	0.11 mW/P 0.22 mW/P 0.36 mW/P 0.72 mW/P 1.5 mW/P 2.9 mW/P 5.8 mW/P 11 mW/P 22 mW/P 43 mW/P 87 mW/P 0.18 W/P 0.36 W/P 0.72 W/P 1.5 W/P 2.3 W/P 4.3 W/P	PT-TAR-M-PAC1 Comparison Method (Note 1s, 8s, 16s)

	60 V to 130 V	0.15 mA to 1.5 mA	0.1 to 1	1.8E-03 rel	0.24 mW/P	
		1.5 mA to 3.0 mA	0.1 to 1	1.8E-03 rel	0.47 mW/P	
		3 mA to 5 mA	0.1 to 1	1.8E-03 rel	0.78 mW/P	
		5 mA to 10 mA	0.1 to 1	1.8E-03 rel	1.6 mW/P	
		10 mA to 20 mA	0.1 to 1	1.8E-03 rel	3.1 mW/P	
		20 mA to 40 mA	0.1 to 1	1.8E-03 rel	6.3 mW/P	
		40 mA to 80 mA	0.1 to 1	1.8E-03 rel	13 mW/P	
		80 mA to 150 mA	0.1 to 1	1.8E-03 rel	24 mW/P	
		0.15 A to 0.3 A	0.1 to 1	1.8E-03 rel	47 mW/P	
		0.3 A to 0.6 A	0.1 to 1	1.8E-03 rel	94 mW/P	
		0.6 A to 1.2 A	0.1 to 1	1.8E-03 rel	0.19 W/P	
		1.2 A to 2.5 A	0.1 to 1	1.8E-03 rel	0.39 W/P	
		2.5 A to 5 A	0.1 to 1	1.8E-03 rel	0.78 W/P	
		5 A to 10 A	0.1 to 1	1.8E-03 rel	1.6 W/P	
		10 A to 20 A	0.1 to 1	1.8E-03 rel	3.1 W/P	
		20 A to 32 A	0.1 to 1	1.8E-03 rel	5.0 W/P	
		32 A to 50 A	0.1 to 1	2.4E-03 rel	9.4 W/P	

Built-in Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**PF**	**U1**	**U2**	
AC Active Power @ 50/60 Hz – Measure[4]	130 V to 250 V	0.15 mA to 1.5 mA	0.1 to 1	1.8E-03 rel	0.45 mW/P	PT-TAR-M-PAC1 Comparison Method (Note 1s, 8s, 16s)
		1.5 mA to 3.0 mA	0.1 to 1	1.8E-03 rel	0.90 mW/P	
		3 mA to 5 mA	0.1 to 1	1.8E-03 rel	1.5 mW/P	
		5 mA to 10 mA	0.1 to 1	1.8E-03 rel	3.0 mW/P	
		10 mA to 20 mA	0.1 to 1	1.8E-03 rel	6.0 mW/P	
		20 mA to 40 mA	0.1 to 1	1.8E-03 rel	12 mW/P	
		40 mA to 80 mA	0.1 to 1	1.8E-03 rel	24 mW/P	
		80 mA to 150 mA	0.1 to 1	1.8E-03 rel	45 mW/P	
		0.15 A to 0.3 A	0.1 to 1	1.8E-03 rel	90 mW/P	
		0.3 A to 0.6 A	0.1 to 1	1.8E-03 rel	0.18 W/P	
		0.6 A to 1.2 A	0.1 to 1	1.8E-03 rel	0.36 W/P	
		1.2 A to 2.5 A	0.1 to 1	1.8E-03 rel	0.75 W/P	
		2.5 A to 5 A	0.1 to 1	1.8E-03 rel	1.5 W/P	
		5 A to 10 A	0.1 to 1	1.8E-03 rel	3.0 W/P	
		10 A to 20 A	0.1 to 1	1.8E-03 rel	6.0 W/P	
		20 A to 32 A	0.1 to 1	1.8E-03 rel	9.7 W/P	
		32 A to 50 A	0.1 to 1	2.4E-03 rel	18 W/P	

Built-in Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**PF**	**U1**	**U2**	
	250 V to 400 V	0.15 mA to 1.5 mA	0.1 to 1	1.8E-03 rel	0.72 mW/P	
		1.5 mA to 3.0 mA	0.1 to 1	1.8E-03 rel	1.4 mW/P	
		3 mA to 5 mA	0.1 to 1	1.8E-03 rel	2.4 mW/P	
		5 mA to 10 mA	0.1 to 1	1.8E-03 rel	4.8 mW/P	
		10 mA to 20 mA	0.1 to 1	1.8E-03 rel	9.7 mW/P	
		20 mA to 40 mA	0.1 to 1	1.8E-03 rel	19 mW/P	
		40 mA to 80 mA	0.1 to 1	1.8E-03 rel	39 mW/P	
		80 mA to 150 mA	0.1 to 1	1.8E-03 rel	72 mW/P	
		0.15 A to 0.3 A	0.1 to 1	1.8E-03 rel	0.14 W/P	
		0.3 A to 0.6 A	0.1 to 1	1.8E-03 rel	0.29 W/P	
		0.6 A to 1.2 A	0.1 to 1	1.8E-03 rel	0.58 W/P	
		1.2 A to 2.5 A	0.1 to 1	1.8E-03 rel	1.2 W/P	
		2.5 A to 5 A	0.1 to 1	1.8E-03 rel	2.4 W/P	
		5 A to 10 A	0.1 to 1	1.8E-03 rel	4.8 W/P	
		10 A to 20 A	0.1 to 1	1.8E-03 rel	9.7 W/P	
		20 A to 32 A	0.1 to 1	1.8E-03 rel	15 W/P	
		32 A to 50 A	0.1 to 1	2.4E-03 rel	29 W/P	

Built-in Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**PF**	**U1**	**U2**	
AC Active Power @ 50/60 Hz – Measure[4] continued	400 V to 600 V	0.15 mA to 1.5 mA	0.1 to 1	1.8E-03 rel	1.1 mW/P	PT-TAR-M-PAC1 Comparison Method (Note 1s, 8s, 16s)
		1.5 mA to 3.0 mA	0.1 to 1	1.8E-03 rel	2.2 mW/P	
		3 mA to 5 mA	0.1 to 1	1.8E-03 rel	3.6 mW/P	
		5 mA to 10 mA	0.1 to 1	1.8E-03 rel	7.2 mW/P	
		10 mA to 20 mA	0.1 to 1	1.8E-03 rel	14 mW/P	
		20 mA to 40 mA	0.1 to 1	1.8E-03 rel	29 mW/P	
		40 mA to 80 mA	0.1 to 1	1.8E-03 rel	58 mW/P	
		80 mA to 150 mA	0.1 to 1	1.8E-03 rel	0.11 W/P	
		0.15 A to 0.3 A	0.1 to 1	1.8E-03 rel	0.22 W/P	
		0.3 A to 0.6 A	0.1 to 1	1.8E-03 rel	0.43 W/P	
		0.6 A to 1.2 A	0.1 to 1	1.8E-03 rel	0.87 W/P	
		1.2 A to 2.5 A	0.1 to 1	1.8E-03 rel	1.8 W/P	
		2.5 A to 5 A	0.1 to 1	1.8E-03 rel	3.6 W/P	
		5 A to 10 A	0.1 to 1	1.8E-03 rel	7.2 W/P	
		10 A to 20 A	0.1 to 1	1.8E-03 rel	14 W/P	
		20 A to 32 A	0.1 to 1	1.8E-03 rel	23 W/P	
		32 A to 50 A	0.1 to 1	2.4E-03 rel	43 W/P	

Built-in Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**PF**	**U1**	**U2**	
AC Active Power @ 50/60 Hz – Measure[4]	600 V to 1000 V	0.5 mA to 5 mA	0.1 to 1	1.8E-03 rel	6.6 mW/P	PT-TAR-M-PAC1 Comparison Method (Note 1s, 8s, 16s)
		5 mA to 10 mA	0.1 to 1	1.8E-03 rel	13 mW/P	
		10 mA to 20 mA	0.1 to 1	1.8E-03 rel	27 mW/P	
		20 mA to 40 mA	0.1 to 1	1.8E-03 rel	53 mW/P	
		40 mA to 80 mA	0.1 to 1	1.8E-03 rel	0.11 W/P	
		80 mA to 150 mA	0.1 to 1	1.8E-03 rel	0.20 W/P	
		0.15 A to 0.3 A	0.1 to 1	1.8E-03 rel	0.40 W/P	
		0.3 A to 0.6 A	0.1 to 1	1.8E-03 rel	0.80 W/P	
		0.6 A to 1.2 A	0.1 to 1	1.8E-03 rel	1.6 W/P	
		1.2 A to 2.5 A	0.1 to 1	1.8E-03 rel	3.3 W/P	
		2.5 A to 5 A	0.1 to 1	1.8E-03 rel	6.6 W/P	
		5 A to 10 A	0.1 to 1	1.8E-03 rel	13 W/P	
		10 A to 20 A	0.1 to 1	1.8E-03 rel	27 W/P	
		20 A to 32 A	0.1 to 1	1.8E-03 rel	42 W/P	
		32 A to 50 A	0.1 to 1	2.4E-03 rel	80 W/P	

Built-in Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**PF**	**U1**	**U2**	
AC Active Energy @ 50/60 Hz – Measure[4]	60 V to 130 V	0.6 A to 1.2 A	0.1 to 1	1.8E-03 rel	0.19 Wh/E	PT-TAR-M-E1 Comparison Method (Note 1s, 11s)
		1.2 A to 2.5 A	0.1 to 1	1.8E-03 rel	0.39 Wh/E	
		2.5 A to 5 A	0.1 to 1	1.8E-03 rel	0.78 Wh/E	
		5 A to 10 A	0.1 to 1	1.8E-03 rel	1.6 Wh/E	
	130 V to 250 V	0.6 A to 1.2 A	0.1 to 1	1.8E-03 rel	0.36 Wh/E	
		1.2 A to 2.5 A	0.1 to 1	1.8E-03 rel	0.75 Wh/E	
		2.5 A to 5 A	0.1 to 1	1.8E-03 rel	1.5 Wh/E	
		5 A to 10 A	0.1 to 1	1.8E-03 rel	3.0 Wh/E	
	250 V to 400 V	0.6 A to 1.2 A	0.1 to 1	1.8E-03 rel	0.58 Wh/E	
		1.2 A to 2.5 A	0.1 to 1	1.8E-03 rel	1.2 Wh/E	
		2.5 A to 5 A	0.1 to 1	1.8E-03 rel	2.4 Wh/E	
		5 A to 10 A	0.1 to 1	1.8E-03 rel	4.8 Wh/E	

Built-in Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Current**	**PF**	**U1**	**U2**	
AC Active Energy @ 50/60 Hz – Measure[4] continued	400 V to 600 V	0.6 A to 1.2 A 1.2 A to 2.5 A 2.5 A to 5 A 5 A to 10 A	0.1 to 1 0.1 to 1 0.1 to 1 0.1 to 1	1.8E-03 rel 1.8E-03 rel 1.8E-03 rel 1.8E-03 rel	0.87 Wh/E 1.8 Wh/E 3.6 Wh/E 7.2 Wh/E	PT-TAR-M-E1 Comparison Method (Note 1s, 11s)

Generators[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U1	**U2**	
DC Voltage – Measure[4]	1 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1000 V 1000 V to 10 kV 10 kV to 30 kV	1.3E-05 rel 9.0E-06 rel 9.0E-06 rel 1.4E-05 rel 1.4E-05 rel 1.3E-05 rel 1.5E-02 rel	0.24 µV/U 1.0 µV/U 10 µV/U 0.10 mV/U 1.2 mV/U 0.24 µV/U	PT-TAR-G-VDC1 Direct Method (Note 1s, 2s)

Generators[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Signal under evaluation	**U**	
DC Ripple – Measure[4]	1 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1000 V	9.3E-4 %Vmean 6.4E-4 %Vmean 6.4E-4 %Vmean 1.0E-3 %Vmean 1.0E-3 %Vmean	PT-TAR-G-VDCrip1 Direct Method

Generators[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U1	**U2**	
DC Current - Measure[4]	20 µA to 200 µA 200 µA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A 2 A to 20 A	3.2E-05 rel 3.2E-05 rel 3.6E-05 rel 1.2E-04 rel 4.5E-04 rel 1.0E-03 rel	0.80 nA/I 8.0 nA/I 80 nA/I 1.6 µA/I 32 µA/I 0.80 mA/I	PT-TAR-G-IDC1 Direct Method (Note 1s, 3s, 16s)

RTD Simulator[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**TECHNIQUE, REFERENCE STANDARD, EQUIPMENT**
		U	
Meters - PT385, 100 Ohm – Generate[3] (Simulated)	-200 °C to -80 °C -80 °C to 100 °C 100 °C to 300 °C 300 °C to 400 °C 400 °C to 630 °C 630 °C to 800 °C	13 m°C 20 m°C 24 m°C 26 m°C 33 m°C 38 m°C	PT-TAR-G-TEMP1 Direct Method (Note 17s)
Meters - PT385, 1000 Ohm – Generate[3] (Simulated)	-200 °C to 0 °C 0 °C to 100 °C 100 °C to 300 °C 300 °C to 400 °C 400 °C to 630 °C	15 m°C 18 m°C 24 m°C 26 m°C 33 m°C	PT-TAR-G-TEMP1 Direct Method (Note 17s)
Thermocouple Simulators[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Meters - Type B – Measure[4]	600 °C to 800 °C 800 °C to 1550 °C 1550 °C to 1820 °C	0.35 °C 0.28 °C 0.22 °C	PT-TAR-G-TEMP1 Direct Method (Note 17s)
Meters - Type C - Measure[4]	0 °C to 1000 °C 1000 °C to 1800 °C 1800 °C to 2000 °C 2000 °C to 2316 °C	0.16 °C 0.23 °C 0.26 °C 0.35 °C	
Meters - Type E - Measure[4]	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 0 °C 0 °C to 600 °C 600 °C to 1000 °C	0.25 °C 0.12 °C 91 m°C 81 m°C 0.10 °C	

Thermocouple Simulators continued[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Meters - Type J - Measure[4]	-210 °C to -100 °C -100 °C to 800 °C 800 °C to 1200 °C	0.14 °C 91 m°C 0.10 °C	PT-TAR-G-TEMP1 Direct Method (Note 17s)
Meters - Type K - Measure[4]	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 500 °C 500 °C to 800 °C 800 °C to 1372 °C	0.46 °C 0.16 °C 0.10 °C 0.10 °C 0.13 °C	
Meters - Type L - Measure[4]	-200 °C to -100 °C -100 °C to 900 °C	0.10 °C 91 m°C	
Meters - Type N - Measure[4]	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 0 °C 0 °C to 100 °C 100 °C to 800 °C 800 °C to 1300 °C	0.73 °C 0.23 °C 0.12 °C 0.11 °C 0.10 °C 0.12 °C	
Meters - Type R - Measure[4]	-50 °C to -25 °C -25 °C to 0 °C 0 °C to 100 °C 100 °C to 400 °C 400 °C to 600 °C 600 °C to 1000 °C 1000 °C to 1600 °C 1600 °C to 1767 °C	0.55 °C 0.45 °C 0.39 °C 0.28 °C 0.22 °C 0.21 °C 0.19 °C 0.23 °C	

Thermocouple Simulators continued[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
Meters - Type S - Measure[4]	-50 °C to -25 °C -25 °C to 0 °C 0 °C to 100 °C 100 °C to 400 °C 400 °C to 600 °C 600 °C to 1000 °C 1000 °C to 1600 °C 1600 °C to 1767 °C	0.51 °C 0.43 °C 0.38 °C 0.29 °C 0.23 °C 0.22 °C 0.22 °C 0.26 °C	PT-TAR-G-TEMP1 Direct Method (Note 17s)
Meters - Type T - Measure[4]	-250 °C to -200 °C -200 °C to -100 °C -100 °C to 0 °C 0 °C to 200 °C 200 °C to 400 °C	0.35 °C 0.16 °C 0.11 °C 91 m°C 91 m°C	
Meters - Type U - Measure[4]	-200 °C to 0 °C 0 °C to 200 °C 200 °C to 600 °C	0.16 °C 0.10 °C 0.10 °C	

Generators[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Frequency**	**U1**	**U2**	
AC Voltage – Measure[4]	1 mV to 200 mV	10 Hz to 40 Hz 40 Hz to 100 Hz 100 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz	3.2E-04 rel 2.7E-04 rel 2.7E-04 rel 3.3E-04 rel 7.9E-04 rel 1.7E-03 rel	50 µV /U 50 µV/U 24 µV/U 50 µV/U 0.10 mV/U 0.24 mV/U	PT-TAR-G-VAC1 Direct Method (Note 1s, 2s)
	200 mV to 2 V	10 Hz to 40 Hz 40 Hz to 100 Hz 100 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 1 MHz	2.7E-04 rel 2.2E-04 rel 1.8E-04 rel 2.7E-04 rel 5.2E-04 rel 1.3E-03 rel 6.0E-03 rel 2.0E-02 rel	24 µV/U 24 µV/U 24 µV/U 24 µV/U 50 µV/U 0.24 mV/U 2.4 mV/U 24 mV/U	
	2 V to 20 V	10 Hz to 40 Hz 40 Hz to 100 Hz 100 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 1 MHz	2.7E-04 rel 2.2E-04 rel 1.8E-04 rel 2.7E-04 rel 5.2E-04 rel 1.3E-03 rel 6.0E-03 rel 2.0E-02 rel	24 µV/U 24 µV/U 24 µV/U 24 µV/U 50 µV/U 0.24 mV/U 2.4 mV/U 24 mV/U	
	20 V to 200 V	10 Hz to 40 Hz 40 Hz to 100 Hz 100 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz 100 kHz to 300 kHz 300 kHz to 1 MHz	2.7E-04 rel 2.2E-04 rel 1.8E-04 rel 2.7E-04 rel 5.2E-04 rel 1.3E-03 rel 6.0E-03 rel 2.0E-02 rel	24 µV/U 24 µV/U 24 µV/U 24 µV/U 50 µV/U 0.24 mV/U 2.4 mV/U 24 mV/U	
	200 V to 1000 V	10 Hz to 40 Hz 40 Hz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz	2.9E-04 rel 2.8E-04 rel 5.3E-04 rel 1.4E-03 rel	50 µV/U 50 µV/U 0.10 mV/U 0.10 mV/U	
	1000 V to 10 kV	50 Hz to 60 Hz	1.2E-0.2 rel	3.0 V/U	
	10 kV to 20 kV	50 Hz to 60 Hz	1.5E-0.2 rel		

Generators[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Current	**Frequency**	**U1**	**U2**	
AC Current – Measure[4]	20 µA to 200 µA	10 Hz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz	7.4E-04 rel 1.6E-03 rel 8.0E-03 rel	4.8 µA/I 4.8 µA/I 4.8 µA/I	PT-TAR-G-IAC1 Direct Method (Note 1s, 3s, 16s)
	200 µA to 2mA	10 Hz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz	7.4E-04 rel 1.6E-03 rel 8.0E-03 rel	4.8 µA/I 4.8 µA/I 4.8 µA/I	
	2 mA to 20 mA	10 Hz to 10 kHz 10 kHz to 30 kHz 30 kHz to 100 kHz	7.4E-04 rel 1.6E-03 rel 8.0E-03 rel	4.8 µA/I 4.8 µA/I 4.8 µA/I	
	20 mA to 200 mA	10 Hz to 10 kHz 10 kHz to 30 kHz	7.2E-04 rel 1.5E-03 rel	48 µA/I 48 µA/I	
	200 mA to 2 A	10 Hz to 2 kHz 2 kHz to 10 kHz 10 kHz to 30 kHz	1.5E-03 rel 1.7E-03 rel 6.0E-03 rel	0.48 mA/I 0.48 mA/I 0.48 mA/I	
	2 A to 20 A	10 Hz to 2 kHz 2 kHz to 10 kHz	1.8E-03 rel 5.0E-03 rel	4.8 mA/I 4.8 mA/I	
	20 A to 30 A	50 Hz to 60 Hz	1.0E-02 rel	24 mA/I	
	30 A to 60 A	50 Hz to 60 Hz	1.0E-02 rel	48 mA/I	
	60 A to 100 A	50 Hz to 60 Hz	1.0E-02 rel	96 mA/I	
	100 A to 1000 A	50 Hz to 60 Hz	5.0E-03 rel		

Generators[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Fequency	**Voltage**	**U1**	**U2**	
Frequency (Voltage) – Measure[4]	10 Hz to 100 Hz 100 Hz to 1000 Hz 1 kHz to 10 kHz 10 kHz to 100 kHz 100 kHz to 1 MHz	1 mV to 1000 V	2.0E-05 rel 2.0E-05 rel 2.0E-05 rel 2.0E-05 rel 2.0E-05 rel	0.40 mHz/f 4.0 mHz/f 40 mHz/f 0.40 Hz/f 4.0 Hz/f	PT-TAR-G-FV1 Direct Method (Note 1s, 5s)

Generators[5]				
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Frequency**	**U**	
AC Voltage Crest Factor – Measure[4]	6 V to 60 V	50 Hz to 60 Hz	1.7E-02 rel	PT-TAR-G-CF1 Direct Method (Note 1s)
	60 V to 300 V	50 Hz to 60 Hz	1.9E-02 rel	

Generators[5]				
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Time	**Amplitude**	**U**	
Rise Time (Voltage) – Measure[4]	1 µs to 500 ms	5 mV to 7 kV	24E-05 rel	PT-TAR-G-TRFV1 Direct Method (Note 1s)
Rise Time (Current) – Measure[4]	1 µs to 500 ms	50 mA to 5 kA	27E-06 rel	PT-TAR-G-TRFI1 Direct Method (Note 1s, 16s)
Pulse duration (Voltage) – Measure[4]	1 µs to 1 s	5 mV to 7 kV	10E-03 rel	PT-TAR-G-TDV1 Direct Method (Note 1s, 6s)

Generators[5]				
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Time	**Amplitude**	**U**	
Pulse duration (Current) – Measure[4]	1 µs to 1 s	50 mA to 5 kA	10E-03 rel	PT-TAR-G-TDI1 Direct Method (Note 1s)

Current Generators[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Inrush Current - Generate[3]	20 mA to 1 A 1.5 A to 6600 A	1.5E-02 rel 3.8E-02 rel	PT-TAR-G-IAC1 Direct Method (Note 1s)

Generators[5]				
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Degrees**	**U**	
Phase Shifting (Voltage – Sinusoidal @ 50/60 Hz) – Measure[4]	6 V to 300 V	0° to 360°	27E-03°	PT-TAR-G-DSPV1 Direct Method (Note 1s, 6s)

Power Sources[5]					
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Channel 1	**Channel 2**	**φ**	**U**	
Phase Displacement @ 50/60 Hz – Measure[4]	10 V to 300 V	3 mA to 100 A	0° to 360°	0.20°	PT-TAR-Q-PD1 PT-TAR-Q-PD2 Direct Method

Voltage Generators[5]					
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Par	**IHRM Amplitude**	**IHRM Frequency**	**U**	
AC Voltage Harmonics and Interharmonics – Measure[4]	Fund	30 V to 1000 V	50 Hz/60 Hz	5.0E-03 rel	PT-TAR-G-HRMV1 Direct Method IEC 61000-4-7
	IHRM2 to IHRM2000	0.3 V to 60 V	55 Hz to 12 kHz	1.0E-02 rel	
	THD_V	Fund: 30 V to 1000 V	55 Hz to 12 kHz	7.5E-03 rel	

					(Note 1s, 2s, 12s)

Calibrators/Resistors[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U1	**U2**	
DC Resistance – Measure[4]	10 mΩ to 1 Ω 1 Ω to 2 Ω 2 Ω to 20 Ω 20 Ω to 200 Ω 200 Ω to 2 kΩ 2 kΩ to 20 kΩ 20 kΩ to 200 kΩ 200 kΩ to 2 MΩ 2 MΩ to 20 MΩ 20 MΩ to 200 MΩ 200 MΩ to 2 GΩ	3.8E-04 rel 4.4E-05 rel 2.4E-05 rel 2.0E-05 rel 2.0E-05 rel 2.0E-05 rel 2.0E-05 rel 2.4E-05 rel 5.0E-05 rel 3.0E-04 rel 3.6E-03 rel	15 µΩ/R 10 µΩ/R 36 µΩ/R 0.12 mΩ/R 1.2 mΩ/R 12 mΩ/R 0.12 Ω/R 2.4 Ω/R 0.24 kΩ/R 24 kΩ/R 2.4 MΩ/R	PT-TAR-G-RDC2W1 PT-TAR-G-RDC4W1 PT-TAR-Q-RDC1 Direct Method (Note 1s, 4s)

Impedance module[5]				
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Resistance	**Frequency**	**U**	
Impedance module – Measure[4]	30 mΩ to 70 mΩ	20 Hz to 9 kHz	2.0E-02 rel	PT-TAR-Q-Z1 Direct Method (Note 1s)
	70 mΩ to 200 mΩ	20 Hz to 9 kHz	1.0E-02 rel	
	200 mΩ to 400 mΩ	20 Hz to 9 kHz 9 kHz to 100 kHz	4.0E-03 rel 2.0E-02 rel	
	400 mΩ to 1 Ω	20 Hz to 9 kHz 9 kHz to 100 kHz	2.0E-03 rel 2.0E-02 rel	
	1 Ω to 2 Ω	20 Hz to 100 Hz 100 Hz to 9 kHz 9 kHz to 100 kHz	2.0E-03 rel 1.0E-03 rel 1.0E-02 rel	
	2 Ω to 6 Ω	20 Hz to 9 kHz 9 kHz to 100 kHz 100 kHz to 1 MHz	1.0E-03 rel 4.0E-03 rel 2.0E-02 rel	
	6 Ω to 10 Ω	20 Hz to 9 kHz 9 kHz to 100 kHz 100 kHz to 1 MHz 1 MHz to 3 MHz	1.0E-03 rel 2.0E-03 rel 1.0E-02 rel 2.0E-02 rel	
	10 Ω to 30 Ω	20 Hz to 9 kHz 9 kHz to 100 kHz 100 kHz to 1 MHz 1 MHz to 3 MHz	1.0E-03 rel 2.0E-03 rel 4.0E-03 rel 2.0E-02 rel	
	30 Ω to 5 kΩ	20 Hz to 100 kHz 100 kHz to 1 MHz 1 MHz to 3 MHz	1.0E-03 rel 2.0E-03 rel 2.0E-02 rel	
	5 kΩ to 10 kΩ	20 Hz to 100 kHz 100 kHz to 1 MHz	1.0E-03 rel 2.0E-03 rel	
	10 kΩ to 30 kΩ	20 Hz to 100 kHz 100 kHz to 1 MHz	1.0E-03 rel 4.0E-03 rel	
	30 kΩ to 100 kΩ	20 Hz to 100 kHz 100 kHz to 1 MHz	1.0E-03 rel 1.0E-02 rel	
	100 kΩ to 200 kΩ	20 Hz to 9 kHz 9 kHz to 100 kHz 100 kHz to 1 MHz	1.0E-03 rel 2.0E-03 rel 2.0E-02 rel	
	200 kΩ to 400 kΩ	20 Hz to 9 kHz 9 kHz to 100 kHz	1.0E-03 rel 2.0E-03 rel	
	400 kΩ to 1 MΩ	20 Hz to 100 Hz 100 Hz to 9 kHz 9 kHz to 100 kHz	2.0E-03 rel 1.0E-03 rel 4.0E-03 rel	
	1 MΩ to 3 MΩ	20 Hz to 100 Hz 100 Hz to 9 kHz	4.0E-03 rel 2.0E-03 rel	

Impedance module[5]				
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Resistance	**Frequency**	**U**	
Impedance module – Measure[4] continued		9 kHz to 100 kHz	1.0E-02 rel	PT-TAR-Q-Z1 Direct Method (Note 1s)
	3 MΩ to 5 MΩ	20 Hz to 100 Hz 100 Hz to 9 kHz 9 kHz to 100 kHz	1.0E-02 rel 2.0E-03 rel 2.0E-02 rel	
	5 MΩ to 9 MΩ	20 Hz to 100 Hz 100 Hz to 9 kHz	1.0E-02 rel 2.0E-03 rel	
	9 MΩ to 20 MΩ	20 Hz to 100 Hz 100 Hz to 10 kHz	2.0E-02 rel 1.0E-02 rel	
	20 MΩ to 50 MΩ	100 Hz to 10 kHz	2.0E-02 rel	

Capacitance[5]				
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Capacitance	**Frequency**	**U**	
Capacitance – Measure[4]	3 pF to 5 pF	1 kHz to 100 kHz	2.0E-02 rel	PT-TAR-Q-C1 Direct Method (Note 1s)
	5 pF to 10 pF	1 kHz to 100 kHz	1.0E-02 rel	
	10 pF to 30 pF	1 kHz to 100 kHz	4.0E-03 rel	
	30 pF to 100 pF	1 kHz to 100 kHz	2.0E-03 rel	
	100 pF to 10 nF	1 kHz to 100 kHz	1.0E-03 rel	
	10 nF to 100 nF	40 Hz to 100 kHz	1.0E-03 rel	
	100 nF to 10 µF	40 Hz to 10 kHz	1.0E-03 rel	
	10 µF to 1 mF	40 Hz to 1 kHz	4.0E-03 rel	
	1 mF to 10 mF	20 Hz to 100 Hz	4.0E-03 rel	
	1 mF to 10 mF	100 Hz to 400 Hz 400 Hz to 1 kHz	1.0E-02 rel 2.0E-02 rel	
	10 mF to 100 mF	20 Hz to 100 Hz	2.0E-02 rel	

Inductance[5]				
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Inductance	**Frequency**	**U**	
Inductance – Measure[4]	2 µH to 10 µH	1 kHz to 10 kHz	2.0E-02 rel	PT-TAR-Q-L1 Direct Method (Note 1s)
	10 µH to 30 µH	100 Hz to 1 kHz	2.0E-02 rel	
	10 µH to 30 µH	1 kHz to 10 kHz	1.0E-02 rel	
	30 µH to 100 µH	50 Hz to 1 kHz	2.0E-02 rel	
	30 µH to 100 µH	1 kHz to 10 kHz	1.0E-02 rel	
	100 µH to 1 mH	50 Hz to 1 kHz	1.0E-02 rel	
	100 µH to 1 mH	1 kHz to 10 kHz	1.0E-03 rel	
	1 mH to 10 mH	40 Hz to 1 kHz	2.0E-03 rel	
		1 kHz to 10 kHz	1.0E-03 rel	
	10 mH to 1 H	40 Hz to 10 kHz	1.0E-03 rel	

AC Dielectric Strength Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Amplitude	**Frequency**	**U1**	**U2**	
AC High Voltage –Measure[4]	0.1 kV to 1 kV 1 kV to 10 kV	50 Hz to 60 Hz 50 Hz to 60 Hz	2.0E-03 rel 5.0E-03 rel	0.55 V/U 5.0 V/U	PT-TAR-DIEL1 Direct Method (Note 1s, 2s)
AC Voltage waveform – Measure[4]	0.1 kV to 2 kV	50 Hz to 60 Hz	1.7E-02 rel	59 mV/U	PT-TAR-DIEL1 Direct Method (Note 1s, 2s)
AC Voltage THD	@ 1 kV	55 Hz to 2.4 kHz	4.0E-03 rel	58 µ%$_{THD}$/THD$_V$	PT-TAR-DIEL1 Direct Method (Note 1, 12)
Test Time – Measure[4]	0.1 s to 120 s 10 s to 999 s	50 Hz to 60 Hz 50 Hz to 60 Hz	3.0E-03 rel 2.0E-04 rel	20 ms/T	PT-TAR-DIEL1 Direct Method (Note 1, 6)
AC Voltage Rise ramp – Measure[4]	0.1 kV to 2 kV	50 Hz to 60 Hz	1.7E-02 rel	12 mV/U	PT-TAR-DIEL1 Direct Method (Note 1s, 2s)

AC Dielectric Strength Meters[5] continued					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
AC Trip current and Leakage current Threshold – Measure[4]	1 µA to 300 µA 0.3 mA to 3 mA 3 mA to 30 mA 30 mA to 300 mA	50 Hz to 60 Hz 50 Hz to 60 Hz 50 Hz to 60 Hz 50 Hz to 60 Hz	3.7E-03 rel 3.3E-03 rel 4.5E-03 rel 2.4E-03 rel	0.61 µA/I 6.0 µA/I 60 µA/I 0.6 mA/I	PT-TAR-DIEL1 Direct Method (Note 1s, 3s, 16s)
AC Short-Circuit current – Measure[4]	20 mA to 1 A @ 1 kV to 5 kV	50 Hz to 60 Hz	1.5E-02 rel		PT-TAR-DIEL1 Direct Method (Note 1s)
500 VA Transformer capability – Measure[4]	100 mA @ 5 kV	50 Hz to 60 Hz	5.7E-03 rel	2.1 V/U	PT-TAR-DIEL1 Direct Method (Note 1s, 2s)

DC Dielectric Strength Meters[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Amplitude	**U1**	**U2**	
DC High Voltage – Measure[4]	0.1 kV to 1 kV 1 kV to 10 kV	2.4E-03 rel 3.0E-03 rel	0.55 V/U 5.0 V/U	PT-TAR-DIEL1 Direct Method (Note 1s, 2s)
DC Voltage ripple – Measure[4]	0.1 kV to 7 kV	1.7E-02 rel	12 mV/U	PT-TAR-DIEL1 Direct Method (Note 1, 2)

DC Dielectric Strength Meters[5] continued				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Amplitude	**U1**	**U2**	
Test Time – Measure[4]	0.1 s to 120 s 10 s to 999 s	3.0E-03 rel 2.0E-04 rel	2.0 ms/T	PT-TAR-DIEL1 Direct Method (Note 1s, 6s)
DC Voltage Rise ramp – Measure[4]	0.1 kV to 2 kV	1.7E-02 rel	12 mV/U	PT-TAR-DIEL1 Direct Method (Note 1s, 2s)
DC Trip current and Leakage current Threshold – Measure[4]	1 µA to 300 µA 0.3 mA to 3 mA 3 mA to 30 mA 30 mA to 300 mA	5.1E-03 rel 2.6E-03 rel 4.3E-03 rel 2.3E-03 rel	0.61 µA/I 6.0 µA/I 60 µA/I 0.16 mA/I	PT-TAR-DIEL1 Direct Method (Note 1s, 3s, 16s)
DC Short-Circuit current – Measure[4]	20 mA to 1 A @ 1 kV to 5 kV	1.5E-02 rel		PT-TAR-DIEL1 Direct Method (Note 1s)

Ground Bond Resistance Meters[5]						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Current	**Voltage**	**Resistance**	**U1**	**U2**	
AC Current @ 50/60 Hz – Measure[4]	5 A to 10 A 10 A to 20 A 20 A to 30 A 30 A to 60 A 60 A to 100 A			4.0E-04 rel 4.0E-04 rel 1.0E-02 rel 1.0E-02 rel 1.0E-02 rel	8.0 mA/I 16 mA/I 24 mA/I 48 mA/I 96 mA/I	PT-TAR-GBR1 Direct Method (Note 1s, 3s)
Resistance and Threshold @ 50/60 Hz – Measure[4]	5 A to 10 A		1 mΩ to 20 mΩ 10 mΩ to 200 mΩ 100 mΩ to 2 Ω 1 Ω to 2.4 Ω	7.2E-04 rel 7.2E-04 rel 7.2E-04 rel 7.2E-04 rel	9.0 µΩ/R 86 µΩ/R 0.86 mΩ/R 3.2 mΩ/R	PT-TAR-GBR1 Comparison Method (Note 1s, 4s, 16s)
	10 A to 20 A		0.5 mΩ to 10 mΩ 5 mΩ to 100 mΩ 50 mΩ to 1 Ω 500 mΩ to 1.2 Ω	7.2E-04 rel 7.2E-04 rel 7.2E-04 rel 7.2E-04 rel	4.5 µΩ/R 43 µΩ/R 0.43 mΩ/R 1.6 mΩ/R	
	20 A to 30 A		0.3 mΩ to 5 mΩ 3.3 mΩ to 50 mΩ 33.3 mΩ to 0.5 mΩ 333.3 mΩ to 0.6 Ω	1.0E-02 rel 1.0E-02 rel 1.0E-02 rel 1.0E-02 rel	3.1 µΩ/R 29 µΩ/R 0.29 mΩ/R 1.1 mΩ/R	
	30 A to 60 A		0.2 mΩ to 3.3 mΩ 1.7 mΩ to 33.3 mΩ 16.7 mΩ to 0.33 Ω 166.7 mΩ to 0.4 Ω	1.0E-02 rel 1.0E-02 rel 1.0E-02 rel 1.0E-02 rel	1.6 µΩ/R 14 µΩ/R 0.14 mΩ/R 0.53 mΩ/R	
	60 A to 100A		0.1 mΩ to 1.7 mΩ 1 mΩ to 16.7 mΩ 10 mΩ to 0.17 Ω 100 mΩ to 0.2 Ω	1.0E-02 rel 1.0E-02 rel 1.0E-02 rel 1.0E-02 rel	1.2 µΩ/R 10 µΩ/R 0.10 mΩ/R 0.32 mΩ/R	
AC Voltage and Threshold @ 50/60 Hz – Measure[4]		10 mV to 0.1 V 0.1 V to 1 V 1 V to 10 V 10 V to 12 V		6.0E-04 rel 6.0E-04 rel 6.0E-04 rel 6.0E-04 rel	40 µV/U 0.30 mV/U 3.0 mV/U 30 mV/U	PT-TAR-GBR1 Comparison Method (Note 1s, 2s, 16s)

Ground Bond Resistance Meters[5] continued						
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Current	**Voltage**	**Resistance**	**U1**	**U2**	
Test Time @ 50/60 Hz – Measure[4]	0.1 s to 120 s 10 s to 999 s			3.0E-03 rel 2.0E-04 rel	20 ms/T	PT-TAR-GBR1 Direct Method (Note 1s, 6s)

Insulation Resistance Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Voltage	**Resistance**	**U1**	**U2**	
DC Voltage – Measure[4]	10 V to 100 V 100 V to 1000 V		1.9E-04 rel 1.6E-04 rel	40 mV/U 40 mV/U	PT-TAR-IR1 Direct Method (Note 1s, 2s)
Resistance and Threshold – Generate[3]	10 V to 500 V	200 kΩ to 999.9 kΩ 1 MΩ to 10 MΩ 10 MΩ to 999.9 MΩ 1 GΩ to 10 GΩ	2.0E-03 rel 3.0E-03 rel 5.0E-03 rel 1.0E-02 rel	58 Ω/R 0.58 kΩ/R 5.8 kΩ/R 0.58 MΩ/R	PT-TAR-IR1 Direct Method (Note 1s, 4s)
	500 V to 1000 V	200 kΩ to 999.9 kΩ 1 MΩ to 10 MΩ 10 MΩ to 999.9 MΩ 1 GΩ to 10 GΩ	4.0E-03 rel 5.0E-03 rel 7.0E-03 rel 1.2E-02 rel	58 Ω/R 0.58 kΩ/R 5.8 kΩ/R 0.58 MΩ/R	
Test Time – Measure[4]	0.1 s to 120 s 10 s to 999 s		3.0E-03 rel 2.0E-04 rel	20 ms/T	PT-TAR-IR1 Direct Method (Note 1s, 6s)

Glow Wire test apparatus[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Amplitude	**Frequency**	**U1**	**U2**	
AC Current – Measure[4]	10 A to 100 A 100 A to 200 A	50 Hz to 60 Hz 50 Hz to 60 Hz	7.5E-03 rel 7.5E-03 rel	5.8 mA/I 58 mA/I	PT-TAR-GLOW_WIRE1 Comparison Method (Note 1s, 3s)

AC Current – Silver foil melting – Measure[4]	120 A to 150 A	50 Hz to 60 Hz	7.5E-03 rel		PT-TAR-GLOW_WIRE1 Direct Method (Note 1s)
Temperature Simulation (K type) - Generate[3]	120 °C to 1000 °C			0.13 °C	PT-TAR-GLOW_WIRE1 Direct Method
Temperature – Silver foil melting	950 °C to 970 °C			1.2 °C	PT-TAR-GLOW_WIRE1 Direct Method
Push force - carriage – Measure[4]	0.9 N to 1.1 N		4.0E-03 rel		PT-TAR-GLOW_WIRE1 Direct Method (Note 1s)
Dimensional – millimeter scale – Measure[4]	5 mm to 150 mm			0.29 mm	PT-TAR-GLOW_WIRE1 Direct Method
Ambient light – test chamber – Measure[4]	2.5 Lux to 4000 Lux		3.1E-02 rel		PT-TAR-GLOW_WIRE1 Direct Method

Tracking test apparatus[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Amplitude	**Frequency**	**U1**	**U2**	
AC Voltage – Measure[4]	60 V to 130 V 130 V to 250 V 250 V to 400 V 400 V to 600 V	45 Hz to 65 Hz 45 Hz to 65 Hz 45 Hz to 65 Hz 45 Hz to 65 Hz	4.0E-04 rel 4.0E-04 rel 4.0E-04 rel 4.0E-04 rel	0.10 V/U 0.20 V/U 0.32 V/U 0.48 V/U	PT-TAR-TRACKING1 Comparison Method (Note 1s, 2s)
AC Current and Current Threshold – Measure[4]	15 mA to 0.15 A 0.15 A to 0.3 A 0.3 A to 0.6 A 0.6 A to 1.2 A	45 Hz to 65 Hz 45 Hz to 65 Hz 45 Hz to 65 Hz 45 Hz to 65 Hz	4.1E-04 rel 4.0E-04 rel 4.0E-04 rel 4.0E-04 rel	0.16 mA/I 0.24 mA/I 0.48 mA/I 0.96 mA/I	PT-TAR-TRACKING1 Comparison Method (Note 1s, 3s)
Current Threshold – Time – Measure[4]	0.1 s to 120 s		3.0E-03 rel		PT-TAR-TRACKING1 Direct Method (Note 1s)
Dimensional - Electrodes – Measure[4]	1 mm to 150 mm 0.1 mm to 25 mm 0 mm to 0.1 mm			30 µm 3.0 µm 5 µm	PT-TAR-TRACKING1 Direct Method
Angles – Electrodes – Measure[4]	30° to 60°			2.1E-2°	PT-TAR-TRACKING1 Direct Method
Push force - Electrodes – Measure[4]	0.9 N to 1.1 N		4.2E-03 rel		PT-TAR-TRACKING1 Direct Method AEP Transducers TCA AEP Transducers DFI (Note 1s)
Drops – Mass – Measure[4]	0.5 g to 100 g			4.0 Mg	PT-TAR-TRACKING1 Direct Methodf
Drops – Erogation time – Measure[4]	1350 s to 1590 s			80 µs	PT-TAR-TRACKING1 Direct Method
Draught proof – test chamber – Measure[4]	0 m/s to 0.99 m/s			0.10 m/s	PT-TAR-TRACKING1 Direct Method

Leakage Current Built-in Meters[5]					
CALIBRATION AREA	**RANGE**		**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Current	**Frequency**	**U1**	**U2**	
Leakage current –Measure[4]	10 µA to 100 µA 0.1 mA to 1 mA 1 mA to 10 mA 10 mA to 100 mA	50 Hz to 60 Hz	2.3E-03 rel 1.1E-03 rel 1.0E-03 rel 1.0E-03 rel	0.10 µA/I 0.70 µA/I 4.1 µA/I 40 µA/I	PT-TAR-LEAK1 Direct Method (Note 1s, 3s, 16s)

Leakage Current Networks/Other Networks[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Frequency	**U**	
Input impedance – Measure[4]	DC	2.0E-05 rel	PT-TAR-Q-TRANSIMP2 Direct Method (Note 1s)
	20 Hz to 1 MHz	4.0E-03 rel	PT-TAR-Q-TRANSIMP2 Direct Method (Note 1s)
Transfer Impedance – Measure[4]	DC	1.5E-04 rel	PT-TAR-Q-TRANSIMP2 Direct Method (Note 1s)
	20 Hz to 100 kHz	2.2E-02 rel	PT-TAR-Q-TRANSIMP2 Direct Method (Note 1s)
	100 kHz to 1 MHz	4.2E-02 rel	

Leakage Current Meters not built on power sources[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Frequency	**U**	
Volt per milliampere indication – Generate[3]	DC	1.5E-04 rel	PT-TAR-LEAK1 Direct Method (Note 1s)

Volt per milliampere indication – Generate[3]	20 Hz to 100 kHz 100 kHz to 1 MHz	1.5E-02 rel 2.0E-02 rel	PT-TAR-LEAK1 Direct Method (Note 1s, 21s)

Digital Calipers[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
External measurement	1 mm to 1500 mm (r = 0.01 mm)	13 µm	PT-TAR-CALIPER1 Direct Method (Note 18s)
Internal measurement	1 mm to 1500 mm (r = 0.01 mm)	13 µm	
Depth measurement	1 mm to 1500 mm (r = 0.01 mm)	12 µm	

Vernier and Dial Calipers[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
External measurement	1 mm to 1500 mm (r = 0.02 mm)	24 µm	PT-TAR-CALIPER1 Direct Method (Note 18s)
Internal measurement	1 mm to 1500 mm (r = 0.02 mm)	24 µm	
Depth measurement	1 mm to 1500 mm (r = 0.02 mm)	24 µm	

Digital micrometers[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
External measurement	1 mm to 25 mm (r = 0.001 mm)	1.5 µm	PT-TAR-MICROMETER1 Direct Method
	25 mm to 50 mm (r = 0.001 mm)	1.9 µm	

Analog micrometers[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
	1 mm to 25 mm	3.1 µm	

External measurement	(r = 0.0025 mm)		PT-TAR-MICROMETER1 Direct Method
	25 mm to 50 mm (r = 0.0025 mm)	3.3 µm	

Climatic Chambers[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Temperature - Measure[4]	-45 °C to 0 °C (r=0.01 °C)	1.0 °C	PT-TAR-CLIMCHAMBER1 PT-TAR-CLIMCHAMBER2 PT-TAR-CLIMCHAMBER3 Comparison Method (Note 19s)
	0 °C to 50 °C (r=0.01 °C)	0.40 °C	
	50 °C to 180 °C (r=0.01 °C)	1.0 °C	
	180 °C to 260 °C (r=0.01 °C)	0.80 °C	
Relative Humidity - Measure[4]	20 %RH to 95 %RH (r=0.01 %RH) @10 °C to 22 °C	2.1 %RH	
	20 %RH to 95 %RH (r=0.01 %RH) @ 22 °C to 24 °C	1.2 %RH	
	20 %RH to 95 %RH (r=0.01 %RH) @ 24 °C to 50 °C	2.1 %RH	

Temperature sensors – chained with indicator[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Temperature - Measure[4]	-45 °C to 120 °C	0.06 °C	PT-TAR-M-TEMP2 Comparison Method
	120 °C to 140 °C	0.15 °C	
	140 °C to 650 °C	0.40 °C	

Platinum resistance PRT PT100 385 – without indicator - Customer			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Temperature - Measure[4]	-45 °C to 120 °C	0.06 °C	PT-TAR-M-TEMP3 Comparison Method (Note 22s)
	120 °C to 140 °C	0.15 °C	
	140 °C to 650 °C	0.40 °C	

Thermocouple - without indicator[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Temperature - Type B – Measure[4]	-45 °C to 120 °C 120 °C to 140 °C 140 °C to 650 °C	0.36 °C 0.38 °C 0.53 °C	PT-TAR-M-TEMP3 Comparison Method (Note 22s)
Temperature - Type C - Measure[4]	-45 °C to 120 °C 120 °C to 140 °C 140 °C to 650 °C	0.17 °C 0.22 °C 0.43 °C	
Temperature - Type E - Measure[4]	-45 °C to 0 °C 0 °C to 120 °C 120 °C to 140 °C 140 °C to 650 °C	0.11 °C 0.10 °C 0.17 °C 0.41 °C	
Temperature - Type J - Measure[4]	-45 °C to 120 °C 120 °C to 140 °C 140 °C to 650 °C	0.11 °C 0.18 °C 0.41 °C	
Temperature - Type K - Measure[4]	-45 °C to 120 °C 120 °C to 140 °C 140 °C to 650 °C	0.12 °C 0.18 °C 0.41 °C	
Temperature - Type N - Measure[4]	-45 °C to 120 °C 120 °C to 140 °C 140 °C to 650 °C	0.13 °C 0.18 °C 0.41 °C	
Temperature - Type R - Measure[4]	-45 °C to 0 °C 0 °C to 120 °C 120 °C to 140 °C 140 °C to 650 °C	0.46 °C 0.40 °C 0.32 °C 0.45 °C	
Temperature - Type S - Measure[4]	-45 °C to 0 °C 0 °C to 120 °C 120 °C to 140 °C 140 °C to 650 °C	0.44 °C 0.39 °C 0.33 °C 0.46 °C	
Temperature - Type T - Measure[4]	-45 °C to 0 °C 0 °C to 120 °C 120 °C to 140 °C 140 °C to 400 °C	0.13 °C 0.11 °C 0.18 °C 0.41 °C	

Temperature source – temperature evaluation of one/multiple points inside a conditioned environment[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Temperature - Measure[4]	-45 °C to 0 °C 0 °C to 50 °C 50 °C to 180 °C 180 °C to 260 °C	1.0 °C 0.40 °C 1.0 °C 0.80 °C	PT-TAR-M-TEMP4 Direct Method

Climatic central units – T, RH and Barometric Pressure[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Temperature - Measure[4]	10 °C to 60 °C	0.20 °C	PT-TAR-M-CCU1 Comparison Method
Relative Humidity - Measure[4]	10 %RH to 95 %RH	1.0 %RH	
Barometric Pressure - Measure[4]	800 mbar to 1100 mbar	0.60 mbar	PT-TAR-M-BARP1 Comparison Method (Note 16s)

Non-automatic weighing instruments[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Weight	10 mg to 1 g	13 µg	PT-TAR-M-SCALE1 Direct Method
	1 g to 10 g	29 µg	
	10 g to 100 g	0.19 mg	
	100 g to 1 kg	0.97 mg	
	1 kg to 10 kg	9.0 mg	
	10 kg to 100 kg	90 mg	
	100 kg to 300 kg	0.14 g	

Manometer and pressure gauge[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U1**	**U2**	
Pressure - Generate[3]	1 mbar to 100 mbar		0.05 mbar	PT-TAR-M-PRE1 PT-TAR-M-PRE2 Comparison Method (Note 1s)
	-0.8 bar to 1 bar	5.0E-04	0.40 mbar	
	1 bar to 2 bar	1.5E-03 rel	0.70 mbar	
	2 bar to 5 bar		5.0 mbar	
	5 bar to 20 bar		7.0 mbar	
	20 bar to 50 bar		30 mbar	
	50 bar to 350 bar		0.18 bar	
	350 bar to 700 bar		0.50 bar	

Absolute Manometer[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U1**	**U2**	PT-TAR-M-PRE3 Comparison Method (Note 1s, 26s)
Absolute Pressure - Generate[3]	0.2 bar to 20 bar		0.013 bar	
	21 bar to 51 bar		30 mbar	
	51 bar to 351 bar		0.18 bar	
	351 bar to 701 bar		0.50 bar	

Torque meter/Slip Torque Meter				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U1**	**U2**	
Torque meter/Slip Torque Meter - Measure[4]	0.1 N·m to 2.5 N·m	1.0E-02 rel	5 mN·m /Tq	PT-TAR-M-TRQ1 Comparison Method (Note 1s, 14s)
	2.5 N·m to 25 N·m	5.0E-03 rel	13 mN·m /Tq	

Torque meter[5]					
CALIBRATION AREA	**RANGE**			**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Weight	**Lever**	**Torque**	**U**	
Torque meter - Measure[4]	0 g to 100 g	0 cm to 50 cm 50 cm to 100 cm 100 cm to 200 cm	0 N·m to 0.49 N·m 0 N·m to 0.98 N·m 0.1 N·m to 1.96 N·m	0.58 mN·m 0.59 mN·m 0.61 mN·m	PT-TAR-M-TRQ2 Direct Method
	100 g to 1 kg	0 cm to 20 cm 20 cm to 100 cm 100 cm to 200 cm	0 N·m to 1.96 N·m 0.2 N·m to 9.82 N·m 0.98 N·m to 19.63 N·m	0.97 mN·m 0.98 mN·m 0.99 mN·m	
	1 kg to 10 kg	0 cm to 100 cm 100 cm to 200 cm	0 N·m to 98.17 N·m 9.82 N·m to 196.34 N·m	7.9 mN·m 8.1 mN·m	
	10 kg to 20 kg	0 cm to 200 cm	0 N·m to 392.68 N·m	79 mN·m	
	20 kg to 115 kg	0 cm to 200 cm	0 N·m to 2257.9 N·m	0.16 N·m	

Linear Dimension[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U1**	**U2**	
Linear dimension - Measure[4] in contact	0.1 mm to 25 mm 25 mm to 150 mm 150 mm to 200 mm 200 mm to 600 mm 600 mm to 2000 mm 2000 mm to 3000 mm		3.0 µm 30 µm 30 µm 50 µm 0.4 mm 0.5 mm	PT-TAR-Q-LENGTH1 Direct Method
Linear dimension - Measure[4] in contact/Optical	217 mm x 217 mm x 160 mm	50E-6 rel	6.0 µm	
Degrees	0° to 90°		0.2°	

Digital Inclinometer			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Degrees - Measure[4]	0° to 90°	0.20°	PT-TAR-M-ANGLE1 Comparison Method

Tape Measure			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Tape Measure – Tick distance	1 mm to 2000 mm	0.40 mm	PT-TAR-M-TAPE1 Comparison Method
	2000 mm to 3000 mm	0.50 mm	

Dynamometer[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Dynamometer - Measure[4]	0 N to 10 N 10 N to 100 N 100 N to 1000 N	0.18 mN 2.6 mN 25 mN	PT-TAR-M-FRC1 Direct Method

Impact Hammer				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U1**	**U2**	
Energy	0.2 J to 1 J		0.013 J	PT-TAR-IMPHAM1
Linear Dimension	0 mm to 230 mm		5.0 µm	Direct Method
Releasing Force	≤10 N	2.0E-3 rel	5.0 mN/F	
Striking element Mass	250 g		1.0 g	(Note 1s, 15s)

Weight			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Weight – Measure	0.5 g to 220 g 220 g to 5700 g 5700 g to 30000 g	20 mg 2.0 g 14 g	PT-TAR-Q-MASS1 Direct Method

Stopwatch - Manual Start/Stop[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Stopwatch - Measure[4]	10 s to 600 s 600 s to 10000 s 10000 s to 30000 s	5.0 ms 50 ms 52 ms	PT-TAR-M-TIME1 Comparison Method

Stopwatch - Electrical Start/Stop[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Stopwatch - Measure[4]	10 s to 600 s 600 s to 10000 s 10000 s to 30000 s	5.0 ms 21 ms 25 ms	PT-TAR-M-TIME1 Comparison Method

Angular Velocity[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Angular Velocity - Measure[4]	6 rpm to 30000 rpm	0.21 rpm	PT-TAR-M-RPM2 Comparison Method

Angular Velocity – Manual count[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Angular Velocity - Measure[4]	1 rpm to 10 rpm 10 rpm to 100 rpm	3.3E-03 rpm 33E-03 rpm	PT-TAR-Q-RPM1 Comparison Method

Tachometer[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Angular Velocity - Generate[3]	6 rpm to 30000 rpm	95E-03 rpm	PT-TAR-M-RPM1 Direct Method

Chamber - Air velocity[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U**	
Air Velocity measure[4]	0.0 m/s to 0.55 m/s 0.55 m/s to 2.00 m/s 2.00 m/s to 5.00 m/s	30 mm/s 0.10 m/s 0.25 m/s	PT-TAR-Q-AIRVEL1 Direct Method

Chamber - Ambient light[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U1**	**U2**	
Ambient light measure[4]	2.5 lx to 40 lx 40 lx to 400 lx 400 lx to 4000 lx	3.0E-02 rel 3.0E-02 rel 3.0E-02 rel	0.20 lx 2.0 lx 20 lx	PT-TAR-Q-LUX1 Direct Method

Flow Meters[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U1**	**U2**	
Water Flow - Measure[4]	0 L/min to 10 L/min 10 L/min to 20 L/min 20 L/min to 38 L/min 38 L/min to 380 L/min	5.0E-03 rel 5.0E-03 rel 5.0E-03 rel 2.0E-02 rel	0.75 mL/min 1.4 mL/min 0.49 mL/min 10 mL/min	PT-TAR-M-FLW1 Comparison Method

Water Counter[5]				
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**		**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
	Value	**U1**	**U2**	
Water Count - Measure[4]	0.2 L/min to 2 L/min 2 L/min to 10 L/min	5.0E-03 rel 5.0E-03 rel	0.75 mL 1.4 mL	PT-TAR-M-WCNT1 Comparison Method

Fast Transient/Burst – Generator[5] -			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Peak Voltage into 50 Ω - Measure[4]	0.25 kV to 8 kV	43E-03 rel	PT-TAR-G-BURST IEC 61000-4-4 (Note 1s)
Peak Voltage into 1000 Ω - Measure[4]	0.25 kV to 8 kV	43E-03 rel	
Rise Time into 50 Ω - Measure[4]	5 ns	20 ps	
Rise Time into 1000 Ω - Measure[4]	5 ns	35 ps	
Pulse Width into 50 Ω - Measure[4]	50 ns	18 ps	
Pulse Width into 1000 Ω - Measure[4]	50 ns to 150 ns	4.0 ps	
Frequency - Measure[4]	5 kHz and 100 kHz	10E-09 rel	
Duration @ 5 kHz - Measure[4]	15 ms	18 ns	
Duration @ 100 kHz - Measure[4]	0.75 ms	18 ns	
Period - Measure[4]	300 ms	18 ns	

Fast Transient/Burst - Coupling Decoupling Network[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Peak Voltage into 50 Ω - Measure[4]	0.25 kV to 8 kV	43E-03 rel	PT-TAR-G-BURSTIEC 61000-4-4 (Note 1s)
Rise Time into 50 Ω - Measure[4]	5.5 ns	20 ps	
Pulse Width into 50 Ω - Measure[4]	45 ns	18 ps	

Fast Transient/Burst - Capacitive Clamp[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Peak Voltage into 50 Ω - Measure[4]	2 kV	43E-03 rel	PT-TAR-G-BURST IEC 61000-4-4 (Note 1s)
Rise Time into 50 Ω - Measure[4]	5 ns	20 ps	
Pulse Width into 50 Ω - Measure[4]	50 ns	18 ps	

Surge Generator[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Open Circuit Peak Voltage - Measure[4]	0.25 kV to 7 kV	12E-03 rel	PT-TAR-G-SURGE IEC 61000-4-5 (Note 1s)
Front Time Voltage - Measure	1.2 µs	24E-05 rel	
Time to half value Voltage - Measure[4]	50 µs	35E-06 rel	
Short Circuit Peak Current - Measure[4]	20 A to 3.5 kA	38E-03 rel	
Front Time Current - Measure[4]	8 µs	27E-06 rel	
Time to half value Current - Measure[4]	20 µs	10E-06 rel	
Output Impedance	2 Ω to 12 Ω	5E-02 rel	

Surge Generator - Coupling Decoupling Network[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Open Circuit Peak Voltage - Measure[4]	0.25 kV to 7 kV	12E-03 rel	PT-TAR-G-SURGE IEC 61000-4-5 (Note 1s)
Front Time Voltage - Measure[4]	1.2 µs	24E-05 rel	
Time to half value Voltage - Measure[4]	50 µs	35E-06 rel	
Short Circuit Peak Current - Measure[4]	8 A to 3.5 kA	38E-03 rel	

Front Time Current - Measure[4]	2.5 µs to 8 µs	27E-06 rel	
Time to half value Current - Measure[4]	20 µs to 25 µs	10E-06 rel	

Ring Wave Generator[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Open Circuit Peak Voltage - Measure[4]	0.25 kV to 7 kV	12E-03 rel	PT-TAR-G-RINGWAVE IEC 61000-4-12 (Note 1s)
Rise Time Voltage - Measure[4]	0.500 µs	24E-05 rel	
Frequency - Measure[4]	100 kHz	16E-06 rel	
Decaying - Measure[4]	Ratio from Peak voltage	0.02 Unit	
Short Circuit Peak Current - Measure[4]	up to 500 A	38E-03 rel	
Rise Time Current - Measure[4]	1 µs	27E-06 rel	
Output Impedance	12 Ω to 30 Ω	5E-02 rel	

Flicker[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
P_{st} - Measure[4]	P_{st}=1	30E-03 Unit	PT-TAR-M-FLICKER IEC 61000-3-3, IEC 61000-3-11, IEC 61000-4-15
$\Delta U/U$ - Measure[4]	0.4 % to 3.2 %	150E-03 %$\Delta U/U$	
Flicker Impedance Resistive Part - Measure[4]	0.032 Ω to 0.400 Ω	0.9E-03 Ω	
Flicker Impedance Imaginary Part - Measure[4]	0.020 j to 0.250 j	0.5E-03 j	

ElectroStatic Discharge			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)**
		U	
Air discharge DC output voltage- Measure[4]	2 kV to 30 kV	15E-03 rel	PT-TAR-G-ESD IEC 61000-4-2, ISO 10605 (Note 1s)
Peak Current - Measure[4] Discharge Circuit	7.5 A to 112.50 A	58E-03 rel	
Current @ 30 ns - Measure[4] Discharge Circuit	4 A to 60 A	58E-03 rel	
Current @ 60 ns - Measure[4] Discharge Circuit	2 A to 30 A	58E-03 rel	
Rise Time - Measure[4] Discharge Circuit	600 ps to 1000 ps	80 ps	

Power frequency magnetic field immunity – Generator/Antenna[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**TECHNIQUE, REFERENCE STANDARD, EQUIPMENT**
		U	
Magnetic Field	1 A/m to 100 A/m @ 50-60 Hz	1.0E-01 rel	PT-TAR-Q-MAGNETIC_FIELD IEC 61000-4-8
Magnetic Field Uniformity	1 A/m to 100 A/m @ 50-60 Hz	1.2E-01 rel	
THD	100A total rms Fund @ 50-60 Hz	2.5E-02 rel	
Coil Factor	1 A/m to 100 A/m @ 50-60 Hz	1.0E-01 rel	

S-Parameters[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**TECHNIQUE, REFERENCE STANDARD, EQUIPMENT**
		U	
Transmission Measurements - Measure[4]	9 kHz to 50 MHz -50 dB to 0 dB -360° to 360°	0.20 dB 2.8°	PT-TAR-Q-S_PARAMETERS Direct Method
	50 MHz to 3 GHz -70 dB to -50 dB -360° to 360°	0.30 dB 3.6°	
	50 MHz to 3 GHz -50 dB to 0 dB -360° to 360°	0.20 dB 2.8°	
	3 GHz to 6 GHz -70 dB to -50 dB	0.31 dB	

	-360° to 360°	3.6°	
	3 GHz to 6 GHz -50 dB to 0 dB -360° to 360°	0.21 dB 2.8°	

S-Parameters[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**TECHNIQUE, REFERENCE STANDARD, EQUIPMENT**
		U	
Transmission Measurements - Measure[4]	100 kHz to 200 MHz -60 dB to -50 dB -360° to 360°	0.20 dB 2.1°	PT-TAR-Q-S_PARAMETERS Direct Method
	100 kHz to 200 MHz -50 dB to -40 dB -360° to 360°	0.11 dB 1.8°	
	100 kHz to 200 MHz -40 dB to -20 dB -360° to 360°	0.089 dB 1.7°	
	100 kHz to 200 MHz -20 dB to 0 dB -360° to 360°	0.083 dB 1.6°	
	200 MHz to 4 GHz -60 dB to -50 dB -360° to 360°	0.24 dB 2.3°	
	200 MHz to 4 GHz -50 dB to -40 dB -360° to 360°	0.12 dB 1.8°	
	200 MHz to 4 GHz -40 dB to -20 dB -360° to 360°	0.094 dB 1.7°	
	200 MHz to 4 GHz -20 dB to 0 dB -360° to 360°	0.088 dB 1.6°	
	4 GHz to 10 GHz -60 dB to -50 dB -360° to 360°	0.25 dB 3.9°	
	4 GHz to 10 GHz -50 dB to -40 dB -360° to 360°	0.13 dB 3.7°	
	4 GHz to 10 GHz -40 dB to -20 dB -360° to 360°	0.10 dB 3.6°	
	4 GHz to 10 GHz -20 dB to 0 dB -360° to 360°	0.096 dB 3.6°	

S-Parameter[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**TECHNIQUE, REFERENCE STANDARD, EQUIPMENT**
Transmission Measurements - Measure[4]	10 GHz to 20 GHz -60 dB to -50 dB -360° to 360°	0.26 dB 4.9°	PT-TAR-Q-S_PARAMETERS Direct Method
	10 GHz to 20 GHz -50 dB to -40 dB -360° to 360°	0.14 dB 4.7°	
	10 GHz to 20 GHz -40 dB to -20 dB -360° to 360°	0.12 dB 4.6°	
	10 GHz to 20 GHz -20 dB to 0 dB -360° to 360°	0.11 dB 4.6°	
	20 GHz to 26.5 GHz -60 dB to -50 dB -360° to 360°	0.34 dB 5.2°	
	20 GHz to 26.5 GHz -50 dB to -40 dB -360° to 360°	0.17 dB 4.8°	
	20 GHz to 26.5 GHz -40 dB to -20 dB -360° to 360°	0.13 dB 4.7°	
	20 GHz to 26.5 GHz -20 dB to 0 dB -360° to 360°	0.12 dB 4.7°	
	26.5 GHz to 35 GHz -60 dB to -50 dB -360° to 360°	0.34 dB 5.6°	
	26.5 GHz to 35 GHz -50 dB to -40 dB -360° to 360°	0.17 dB 5.2°	
	26.5 GHz to 35 GHz -40 dB to -20 dB -360° to 360°	0.14 dB 5.2°	
	26.5 GHz to 35 GHz -20 dB to 0 dB -360° to 360°	0.13 dB 5.1°	
	35 GHz to 40 GHz -60 dB to -50 dB -360° to 360°	0.99 dB 8.3°	
	35 GHz to 40 GHz -50 dB to -40 dB -360° to 360°	0.34 dB 5.6°	
	35 GHz to 40 GHz -40 dB to -20 dB -360° to 360°	0.17 dB 5.2°	
	35 GHz to 40 GHz -20 dB to 0 dB -360° to 360°	0.14 dB 5.2°	

S-Parameters[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**TECHNIQUE, REFERENCE STANDARD, EQUIPMENT**
Reflection Measurements - Measure[4]	9 kHz to 6 GHz 0 dB to -15 dB -360° to 360°	0.41 dB 3.6°	PT-TAR-Q-S_PARAMETERS Direct Method
	9 kHz to 6 GHz -15 dB to -25 dB -360° to 360°	1.0 dB 6.4°	
	9 kHz to 6 GHz -25 dB to -35 dB -360° to 360°	3.0 dB 20°	
	100 kHz to 10 GHz 0 dB to -15 dB -360° to 360°	0.13 dB 3.6°	
	100 kHz to 10 GHz -15 dB to -25 dB -360° to 360°	0.30 dB 3.9°	
	100 kHz to 10 GHz -25 dB to -35 dB -360° to 360°	0.89 dB 7.5°	
	10 GHz to 20 GHz 0 dB to -15 dB -360° to 360°	0.20 dB 4.7°	
	10 GHz to 20 GHz -15 dB to -25 dB -360° to 360°	0.49 dB 5.3°	
	10 GHz to 20 GHz -25 dB to -35 dB -360° to 360°	1.3 dB 12°	
	20 GHz to 40 GHz 0 dB to -15 dB -360° to 360°	0.27 dB 5.3°	
	20 GHz to 40 GHz -15 dB to -25 dB -360° to 360°	0.62 dB 6.3°	
	20 GHz to 40 GHz -25 dB to -35 dB -360° to 360°	1.8 dB 15°	

Normalized Site Attenuation and Site Voltage Standing Wave Ratio[5]			
CALIBRATION AREA	**RANGE**	**EXPANDED UNCERTAINTY[1,2] (±)**	**TECHNIQUE, REFERENCE STANDARD, EQUIPMENT**
		U	
Normalized Site Attenuation Horizontal	30 MHz to 200 MHz -10 dB to 10 dB	0.74 dB	PT-TAR-Q-NSA PT-TAR-Q-SVSWR Direct Method CISPR 16-1-4
Normalized Site Attenuation Vertical	30 MHz to 200 MHz -10 dB to 10 dB	0.90 dB	
Normalized Site Attenuation Horizontal	200 MHz to 1 GHz -10 dB to 10 dB	0.70 dB	
Normalized Site Attenuation Vertical	200 MHz to 1 GHz -10 dB to 10 dB	0.70 dB	
Site Voltage Standing Wave Ratio Horizontal and Vertical	1 GHz to 6 GHz 0 dB to 10 dB	1.9 dB	
Site Voltage Standing Wave Ratio Horizontal and Vertical	6 GHz to 18 GHz 0 dB to 10 dB	1.9 dB	

General Notes:

[1]The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

[2]When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated. When Calibration and Measurement Capability (CMC) is expressed in two parts as **U1** and **U2,** the total CMC is the root sum squared of U1 and U2. Given below is an example calculation of total CMC expressed in % of reading for DC Voltage at a calibration point of 50 mV:

$$CMC_{[\%rdg]} = 100 \cdot \sqrt{U1^2{}_{[rel]} + \left(\frac{U2_{[V]}}{Calpoint_{[V]}}\right)^2}$$

$$CMC_{[\%rdg]} = 100 \cdot \sqrt{(1.5 \cdot 10^{-3})^2{}_{[rel]} + \left(\frac{1.4 \cdot 10^{-6}{}_{[V]}}{50 \cdot 10^{-3}{}_{[V]}}\right)^2} = 0.15_{[\%rdg]}$$

[3]Capability is suitable for the calibration of measuring devices in the stated ranges.

[4]Capability is suitable for the calibration of devices intended to generate the indicated quantity in the stated ranges.

[5]Also available as site calibration. Note that actual measurement uncertainties achievable at a customer's site can normally be expected to be larger than the uncertainties listed on this Scope of Accreditation.

Specific Notes:

1s rel is value declared in relative form.
2s *U* indicates voltage expressed in Volt.
3s *I* indicates current expressed in Ampere.
4s *R* indicates resistance expressed in Ohm.

5s *f* indicates frequency expressed in Hertz.
6s *T* indicates time expressed in second.
7s *PF* indicates power factor expressed in unit.
8s *P* indicates active power expressed in Watt.
9s *Q* indicates reactive power expressed in var.
10s *S* indicates apparent power expressed in VA.
11s *E* indicates active energy expressed in Wh.
12s *THD* indicates THD expressed in $\%_{THD.}$
13s *L* indicates Length expressed in meter.
14s *Tq* indicates Torque expressed in Nm
15s *F Indicates Force* expressed in N
16s Ranges are defined considering the measurement capability of reference standards. If the quantity is obtained using auxiliary equipment (e.g. resistive loads) there could be limitations on measuring points definition.
17s Uncertainties do not take into account temperature sensor uncertainty contributors.
18s The coverage factor k is 1.83 (trapezoidal distribution).
19s Uncertainty includes contributors of fluctuation, uniformity, repeatability and resolution.
20s The waveform applied is perfectly sinusoidal $P = S \cdot \cos(\varphi)$ and $PF = \cos(\varphi)$ so $PF = {}^{P}/_{S}$ where P is Real Power and S is Apparent Power.
21s Uncertainty does not include resolution
22s Measurements are performed considering nominal constants to transduce temperature
23s Uncertainties are evaluated for each measurement
24s Power factor values are intended for both inductive and capacitive measurement
25s *C* indicates Capacitance in F
26s *P_amp* indicates Ambient pressure in bar
27s Stated uncertainties are valid for the ranges of frequencies given, but the actual frequency applied by the calibrator may be dependent on the measurement device under calibration.

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MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
Calibration of steel balls	0 mm to 60 mm	62 µm	Cal procedure – ULID-003973 Using Digital Caliper by direct method
Mechanical			
Measurement of weights	500 g to 4000 g	2.9 g	Cal procedure – ULID-003974 Using Weights and Measuring Scale by comparison method
Tension meter calibration (for Surface Tension)	48 mN/m to 250 mN/m	0.18 mN/m	Cal procedure – ULID-008346 Using Reference weights & Thermometer by comparison method
Water flow meters	0.5 L/min to 5 L/min 5 L/min to 22 L/min	0.05 L/min 0.36 L/min	Cal procedure – ULID-003972 Using master water flow meter by comparison methods
Sound Level Meters	94 dB 114 dB	0.3 dB 0.6 dB	Cal Procedure – ULID-003968 Using Sound Level Calibrator by direct method (Fixed point)
Thermal			
Thermocouple	-40 °C to 140 °C 140 °C to 300 °C 300 °C to 700 °C	0.4 °C 1.8 °C 2.6 °C	Cal Procedure – ULID-005825 Using Dry Block Calibrator & Pt-100 / Type N reference sensor
Electrical – DC/LF			
Thermocouple Simulation Generate and Measure			Cal Procedure – ULID-003960 Using Multifunction Calibrator by direct method
Type J	-210 °C to -100 °C -100 °C to -30 °C -30 °C to 150 °C 150 °C to 760 °C 760 °C to 1200 °C	0.6 °C 0.5 °C 0.71 °C 0.71 °C 0.71 °C	
Type T	-250 °C to -150 °C -150 °C to 0 °C 0 °C to 120 °C 120 °C to 400 °C	0.73 °C 0.29 °C 0.33 °C 0.33 °C	
Type K	-200 °C to -100 °C	0.39 °C	

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	-100 °C to -25 °C -25 °C to 120 °C 120 °C to 1000 °C 1000 °C to 1372 °C	0.22 °C 0.20 °C 0.31 °C 0.69 °C	
AC Current generate	15 A to 50 A (45 Hz to 1 kHz) 55 A to 120 A (45 Hz to 1 kHz)	700 x 10^{-6} + 2.4 mA x 5 1400 x 10^{-6} + 5.8 mA x 5	Cal Procedure –- ULID-003961 and ULID-003962 Using Multifunction Calibrator with Current coil of 5/10/20 turns by direct method
AC Current generate	30 A to 100 A (45 Hz to 1 kHz) 110 A to 200 A (45 Hz to 100 Hz)	700 x 10^{-6} + 2.4 mA x 10 1400 x 10^{-6} + 5.8 mA x 10	
AC Current generate	60 A to 200 A (45 Hz to 100 Hz) 220 A to 400 A (45 Hz to 100 Hz)	700 x 10^{-6} + 2.4 mA x 20 1400 x 10^{-6} + 5.8 mA x 20	
Shunt Calibration	1.00 A to 99.00 A	0.13 A	Cal Procedure – ULID-003963 Using Shunt Calibration Unit by direct method
Fixed Reference DC Resistances (4-wire reference resistance)	1 mΩ 5 mΩ 10 mΩ 20 mΩ 100 mΩ	2.4 % 1.2 % 1.2 % 1.2 % 1.2 %	Cal Procedure – ULID-003960 Using Reference Resistance Unit by direct method
Fixed Reference DC Resistances (2-wire reference resistance)	1.8 Ω 3 Ω 9 Ω 18 Ω 100 Ω 200 Ω 1.5 kΩ 10 kΩ 20 kΩ 90 kΩ 180 kΩ	1.2 % 1.2 % 1.2 % 1.2 % 1.2 % 1.2 % 1.2 % 1.2 % 1.2 % 1.2 % 1.2 %	Cal Procedure – ULID-003960 Using Reference Resistance Unit by direct method Cal Procedure – ULID-003960 Using Reference Resistance Unit by direct method
DC Resistance - Measure[4] (3-wire method)	0 Ω to 500 Ω 500 Ω to 5 kΩ 5 kΩ to 50 kΩ	0.064 % + 0.087 Ω 0.064 % + 0.87 Ω 0.064 % + 12 Ω	Cal Procedure – ULID-003960 Using Reference Resistance Unit by direct method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
DC Resistance - Measure[4] (4-wire method)	(50 mA & 500 mV) 1 Ω to 10 Ω (DC) (50 Hz) (1 kHz) (10 kHz) (50 mA & 5 V) 10 Ω to 100 Ω (DC) (50 Hz) (1 kHz) (10 kHz) (5 mA & 5 V) 100 Ω to 1000 Ω (DC) (50 Hz) (1 kHz) (10 kHz) (0.5 mA & 5 V) 1 kΩ to 10 kΩ (DC) (50 Hz) (1 kHz) (10 kHz)	 0.032 % + 10 mΩ 0.35 % + 12 mΩ 0.46 % + 16 mΩ 0.52 % + 26 mΩ 0.032 % + 7.6 mΩ 0.35 % + 74 mΩ 0.69 % + 61 mΩ 0.73 % + 110 mΩ 0.032 % + 130 mΩ 0.35 % + 750 mΩ 0.69 % + 750 mΩ 0.73 % + 910 mΩ 0.032 % + 10 Ω 0.37 % + 12 Ω 0.70 % + 12 Ω 0.90 % + 13 Ω	Cal Procedure – ULID-003960 Using Fluke 5520A as current source, Fluke 289 to measure voltage drop V/I method
DC Voltage - Measure[4]	0 mV to 50 mV 0 mV to 500 mV 0 V to 5 V 0 V to 50 V 0 V to 500 V 0 V to 1000 V	0.059 % + 0.024 mV 0.03 % + 0.024 mV 0.03 % + 0.24 mV 0.031 % + 2.4 mV 0.035 % + 24 mV 0.036 % + 240 mV	Cal Procedure – ULID-019807 Using Multimeter by direct method.
DC Current - Measure[4]	0 µA to 500 µA 0 µA to 5000 µA 0 µA to 50 mA 0 mA to 400 mA 0 A to 5 A 0 A to 10 A	0.095 % + 0.24 µA 0.089 % + 0.24 µA 0.062 % + 0.012 mA 0.18 % + 0.024 mA 0.36 % + 1.2 mA 0.36 % + 2.4 mA	Cal Procedure – ULID-003966 Using Multimeter by direct method
AC Voltage - Measure[4] AC Voltage - Measure[4] (continued)	0 mV to 50 mV (45 Hz to 65 Hz) (65 Hz to 10 kHz) (10 kHz to 20 kHz) (20 kHz to 100 kHz)	 3500 x 10^{-6} + 29 µV 4700 x 10^{-6} + 29 µV 8100 x 10^{-6} + 47 µV 41 x 10^{-3} + 47 µV	Cal Procedure – ULID-003966 Using Multimeter by direct method Cal Procedure – ULID-003966 Using Multimeter by direct method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	0 mV to 500 mV (45 Hz to 65 Hz) (65 Hz to 10 kHz) (10 kHz to 20 kHz) (20 kHz to 100 kHz) 0 V to 5 V (45 Hz to 65 Hz) (65 Hz to 10 kHz) 0 V to 50 V (45 Hz to 65 Hz) (65 Hz to 10 kHz) 0 V to 500 V (45 Hz to 65 Hz) 0 V to 500 V (65 Hz to 10 kHz) 0 V to 1000 V (45 Hz to 65 Hz) (65 Hz to 10 kHz)	 $3500 \times 10^{-6} + 290$ µV $4700 \times 10^{-6} + 290$ µV $8100 \times 10^{-6} + 470$ µV $41 \times 10^{-3} + 470$ µV $3500 \times 10^{-6} + 2.9$ mV $7000 \times 10^{-6} + 2.9$ mV $3500 \times 10^{-6} + 29$ mV $4700 \times 10^{-6} + 29$ mV $3500 \times 10^{-6} + 290$ mV $4700 \times 10^{-6} + 290$ mV $3500 \times 10^{-6} + 2.9$ V $4700 \times 10^{-6} + 2.9$ V	
AC Current - Measure[4]	0.01 mA to 5 mA (45 Hz to 1 kHz) (1 kHz to 20 kHz) 5 mA to 50 mA (45 Hz to 1 kHz) (1 kHz to 20 kHz) 50 mA to 400 mA (45 Hz to 1 kHz) (1 kHz to 20 kHz) 400 A to 5 A (45 Hz to 1 kHz)	 $7100 \times 10^{-6} + 0.59$ µA $8300 \times 10^{-6} + 1.2$ µA $7300 \times 10^{-6} + 24$ µA $7700 \times 10^{-6} + 24$ µA $7 \times 10^{-3} + 59$ µA $36 \times 10^{-3} + 120$ µA $9500 \times 10^{-6} + 2.4$ mA	Cal Procedure – ULID-003966 Using Multimeter by direct method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	5 A to 10 A (45 Hz to 1 kHz)	9500 x 10^{-6} + 5.9 mA	
Sine Frequency - Measure[4]	0 Hz to 99.999 Hz 0 Hz to 999.99 Hz 0 kHz to 9.9999 kHz 0 kHz to 99.999 kHz 0 kHz to 999.99 kHz	240 x 10^{-6} + 5.9 mHz 59 x 10^{-6} + 0.059 Hz 59 x 10^{-6} + 0.59 Hz 59 x 10^{-6} + 5.9 Hz 59 x 10^{-6} + 59 Hz	Cal Procedure – ULID-003966 Using Multimeter by direct method
Chemical & Gas			
Conductivity meter	1413 uS/cm 12.88 mS/cm	1.3% 1.3%	Cal Procedure – ULID-008347 Using Omega CA 150 Ref. electrolytic solution by direct method

[1]The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

[2]When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.

[3]Capability is suitable for the calibration of measuring devices in the stated ranges.

[4]Capability is suitable for the calibration of devices intended to generate the indicated quantity in the stated ranges.