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CERTIFICATE OF ACCREDITATION

This is to attest that

S&Q MART KALITE GUVENLIK SAN. VE TIC. A.S.

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ISTANBUL 34854, REPUBLIC OF TURKEY

Calibration Laboratory CL-179

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.

Effective Date September 13, 2023

Expiration Date September 1, 2024



President

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Accredited to ISO/IEC 17025:2017

Effective Date September 13, 2023

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

| MEASURED QUANTITY or DEVICE TYPE CALIBRATED | RANGE | UNCERTAINTY ^{1,2} (±) | CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL) |
|---|-----------------------------------|--|--|
| <i>Dimensional</i> | | | |
| Gauge Blocks (Up to Grade K) | 0.5 mm to 100 mm | (0.094 + 1.1·L) μm Where L is in meters | ISO 3650, VDI/VDE/DGQ 2618 Section 3.1 Calibration procedure prepared in accordance with above standards and guideline |
| Long Gauge Blocks (Gr. 2) | 100 mm to 600 mm | (0.0004 + 10 ⁻⁵ ·L) mm Where L is in millimeters | ISO 3650, VDI/VDE/DGQ 2618 Section 3.1 Calibration procedure prepared in accordance with above standards and guideline |
| Caliper (Digital / Analog Depth / Dial) | Up to 500 mm 500 mm to 1000 mm | (13·L + 8.5) μm (17·L + 6.6) μm Where L is in meters | VDI/VDE/DGQ 2618 Section 9.1 / 9.2 Calibration procedure prepared in accordance with above standards and guideline |
| Welding Gage | Up to 100 mm | 0.03 mm | DM-01 Calibration Procedure OP-03 Calibration Procedure Caliper, Ruler, Gauge Blocks Profile Projector |
| External Micrometer (Digital / Analog / Depth) | Up to 50 mm 50 mm to 500 mm | (12·L + 1.4) μm (21·L + 1) μm where L is in meters | VDI/VDE/DGQ 2618 Section 10.3 / 10.1 / 6 / 10.7 / 10.5 Calibration procedure prepared in accordance with above standards and guideline |

* 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.

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|---|---|---|---|
| Internal Micrometer (2 Point Digital / Analog / Dial Type) | Up to 300 mm | $(23 \cdot L + 2.5) \mu\text{m}$ where L is in meters | VDI/VDE/DGQ 2618 Section 14 / 10.7 Calibration procedure prepared in accordance with above standards and guideline |
| Dial Gauge (Digital/Analog) | Up to 30 mm Up to 100 mm | 1.3 μm 1.7 μm | VDI/VDE/DGQ 2618 Section 11.1 / 11.4 Calibration procedure prepared in accordance with above standards and guideline Metroscope |
| Dial Gauge (Digital) | Up to 30 mm | 0.8 μm | VDI/VDE/DGQ 2618 Section 11.1 / 11.4 Calibration procedure prepared in accordance with above standards and guideline Dial Gauge Comparator |
| Dial Gauge (Lever Type I) | Up to 2 mm | 0.9 μm | VDI/VDE/DGQ 2618 Section 11.3 Calibration procedure prepared in accordance with above standards and guideline |
| Bore Gauge | Up to 100 mm | 1.7 μm | VDI/VDE/DGQ 2618 Section 13.2 Calibration procedure prepared in accordance with above standards and guideline |
| Height Gauge (Digital / Analog) | Up to 300 mm Up to 600 mm Up to 1000 mm | 7.3 μm 14 μm 22 μm | VDI/VDE/DGQ 2618 Section 9.3 Calibration procedure prepared in accordance with above standards and guideline |
| Millimess | 0.4 mm | 0.9 μm | VDI/VDE/DGQ 2618 Section 11.2 Calibration procedure prepared in accordance with above standards and guideline |

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|---|--|--|---|
| Dial Thickness Gauge | Up to 30 mm | 1.7 µm | VDI/VDE/DGQ 2618 Section 12.1 Calibration procedure prepared in accordance with above standards and guideline |
| Micrometer Setting Rods | Up to 600 mm | (0.0004 + 10 ⁻⁵ L) mm Where L is in meters | DKD-R4-3 Section 4.4 Calibration procedure prepared in accordance with above standards and guideline |
| Plug Gauge | Up to 100 mm Ø 100 mm to 300 mm Ø | (0.4 + 9·L) µm (1.0 + 7·L) µm Where L is in meters | VDI/VDE/DGQ 2618 Section 4.1 Calibration procedure prepared in accordance with above standards and guideline |
| Ring Gauge & Snap Gauge | Up to 25 mm Ø 25 mm to 75 mm Ø 75 mm to 200 mm Ø | 0.7 µm 1.1 µm 2.2 µm | VDI/VDE/DGQ 2618 Section 4.1 DKD-R4-3 Section 4.7 Calibration procedure prepared in accordance with above standards and guideline |
| Thread Plug Gauge (Only Pitch Ø) | Up to M25 Up to M100 | 3 µm 4.1 µm | EURAMET /cg-10 Calibration procedure prepared in accordance with above standards and guideline |
| Thread Ring Gauge | M6 to M25 M25 to M100 | 3.0 µm 3.5 µm | EURAMET /cg-10 Calibration procedure prepared in accordance with above standards and guideline |
| Steel Ruler | Up to 2000 mm | 0.35 mm | OIML R 35 Calibration procedure prepared in accordance with above standards and guideline |
| Tape Measure | Up to 50 m | (0.25 + 0.12·L) mm Where L in meters | OIML R 35 Calibration procedure prepared in accordance with above standards and guideline |

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|--|---|--|---|
| Coating Thickness Gauge Foil | 5 µm to 1 mm 1 mm to 5 mm | 2 µm 5 µm | DM-07-T02 Calibration Procedure Metroscope Comparison Method |
| Coating Thickness Gauge | Up to 1 mm | 0.8 µm | DM-01-T08 Calibration Procedure Standard Foils Comparison Method |
| Feeler Gauge | Up to 2 mm | 1 µm | DIN 2275 Calibration procedure prepared in accordance with above standards and guideline |
| Radius Gauge | 1 mm ≤ R ≤ 100 mm, where R = Radius | 7 µm | DM-08 Calibration Procedure Profile Projector Unit Dro. Comparison Method |
| Ultrasonic Thickness Gauge | Up to 100 mm | 14 µm | DM-01-T09 Calibration Procedure Gage Blocks Comparison Method |
| Profile Projector | X Axes: 1 mm to 100 mm 101 mm to 200 mm Y Axes: 0 mm to 150mm | 2.3 µm 4.5 µm 1.9 µm | OP-01 Calibration Procedure Glass Graticule Comparison Method |
| Glass Graticule (Linear) | Up to 200 mm | 5.5 µm | OP-02 Calibration Procedure Profile Projector Comparison Method |
| One Axis Measurement Equipment (Can Seam Micrometer, Mechanical Single Rod Type Tubular Inside Micrometer) | Up to 300 mm | 7.1 µm | DM-01-T06 Calibration Procedure Metroscope, Gauge Block Comparison Method |
| Ultrasonic Test Block (V1, V2, V3, IIWI, DC, DCS, DS, RC, SC, MAB, Phase Array Type A and B) | 0 mm to 100 mm 100 mm to 300 mm | (0.0001·L + 0.01) mm (0.0001·L + 0.02) mm | OP-04 Calibration Procedure Direct measuring method by using Profile Projector |
| Ultrasonic Ladder Test Block - Step Test Block | Up to 25 mm 25 mm to 30 mm | 0.005 mm 0.04 mm | Caliper, Micrometer, Metroscope Comparison Method |

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|--|--|--|---|
| Mechanical | | | |
| Pressure: Hydraulic and Pneumatic (Pressure Calibrator, Digital/Analog Monometer, Pressure Transmitter/Transducer, Differential Pressure Meters, Pressure Switch, Pressure Gage, Pressure Vacuum) | -99 kPa ≤ P ≤ -4 kPa 643 Pa ≤ P ≤ 10kPa 1 kPa ≤ P ≤ 400 kPa 10 kPa ≤ P ≤ 4 MPa 1 MPa ≤ P ≤ 70 MPa | 2.2 x 10 ⁻⁴ x p + 1 Pa 7 x 10 ⁻⁵ x p + 0.085 Pa 2.1 x 10 ⁻⁴ x p + 4 Pa 1.1 x 10 ⁻⁴ x p + 9 Pa 2.5 x 10 ⁻⁴ x p + 60 Pa | EURAMET /cg-17 DKD R6-1 Calibration procedure prepared in accordance with above standards and guideline by using Dead Weight Tester |
| Pressure: Hydraulic and Pneumatic (Digital and Analog Manometer, Pressure Transmitter and Transducer, Differential Pressure Meters, Pressure Switch, Pressure Vacuum) | -7000 Pa to -500 Pa -500 Pa to -100 Pa -100 Pa to 100 Pa 100 Pa to 500 Pa 500 Pa to 7000 Pa 0.01 kPa to -95 kPa 0.01 kPa to 200 kPa 0.1 kPa to 2000 kPa 0.1 kPa to 3.5 MPa 1 kPa to 35 MPa 1 kPa to 70 MPa | 1.6 Pa 1.2 Pa 0.36 Pa 1.2 Pa 1.6 Pa 0.12 kPa 0.13 kPa 0.28 kPa 1.2 kPa 11 kPa 20 kPa | EURAMET /cg-17 DKD R6-1 Calibration procedure prepared in accordance with above standards and guideline |
| Measuring Cylinder | Up to 5 mL 5 mL to 10 mL 10 mL to 25 mL 25 mL to 50 mL 50 mL to 100 mL 100 mL to 250 mL 250 mL to 500 mL 500 mL to 1000 mL 1000 mL to 2000 mL | 35 µL 94 µL 0.24 mL 0.35 mL 0.35 mL 0.94 mL 2.4 mL 3.5 mL 9.4 mL | EURAMET /cg-19 TS ISO 4787 / TS EN ISO 4788 Calibration procedure prepared in accordance with above standards and guideline |
| Volumetric Flask | 1 mL to 25 MI 50 mL 100 mL 200 mL 250 mL 500 mL 1000 mL 2000 mL | 9 µL 24 µL 36 µL 36 µL 68 µL 110 µL 0.20 mL 0.38 mL | EURAMET /cg-19 TS ISO 4787 / TS 1491 EN ISO1042 Calibration procedure prepared in accordance with above standards and guideline |
| Burette | 1 mL 2 mL 5 mL 10 mL 20 mL 25 mL 50 mL 100 mL | 3.7 µL 3.7 µL 3.8 µL 10 µL 24 µL 24 µL 36 µL 96 µL | EURAMET /cg-19 TS ISO 4787 / TS EN ISO 385 Calibration procedure prepared in accordance with above standards and guideline |

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|--|--|---|---|
| Burette (Piston Type) | 1 mL 2 mL 5 mL 10 mL 20 mL 25 mL 50 mL 100 mL | 1.8 µL 2.3 µL 4.3 µL 8 µL 16 µL 20 µL 40 µL 81 µL | ISO / TR 20461 TS EN ISO 8655-3, 8655-6 Calibration procedure prepared in accordance with above standards and guideline |
| Pipette (Single Mark Type) | 0.5 mL 1 mL 2 mL 5 mL 10 mL 20 mL 25 mL 50 mL 100 mL 200 mL | 1.5 µL 2.0 µL 2.6 µL 3.3 µL 4.3 µL 6.6 µL 7.1 µL 11 µL 20 µL 36 µL | EURAMET /cg-19 TS ISO 4787 / TS 1489 ISO 648 Calibration procedure prepared in accordance with above standards and guideline |
| Pipette (Piston Type) | 100 µL 200 µL 500 µL 1 mL 2 mL 5 mL 10 mL 20 mL | 1.7 µL 1.7 µL 1.7 µL 1.8 µL 2.3 µL 4 µL 8 µL 16 µL | ISO / TR 20461 TS EN ISO 8655-2, 8655-6 Calibration procedure prepared in accordance with above standards and guideline |
| Pipette (With Graduations) | 100 µL 200 µL 500 µL 1 mL 2 mL 5 mL 10 mL 20 mL 25 mL 50 mL | 1.7 µL 1.7 µL 1.7 µL 1.7 µL 2.7 µL 12 µL 12 µL 36 µL 36 µL 0.24 mL | EURAMET /cg-19 TS ISO 4787 / TS EN ISO 835 Calibration procedure prepared in accordance with above standards and guideline |
| Pyknometer | 10 mL 25 mL 50 mL 100 mL | 2.0 µL 4.3 µL 10 µL 17 µL | EURAMET /cg-19 TS ISO 3507 TS EN ISO 2811-1 Calibration procedure prepared in accordance with above standards and guideline |
| Balance (Digital and Analog) (In Lab and On-Site) | 1 mg to 11 kg (E2) 1 g to 28 kg (F1) 10 kg to 800 kg (M1) | 2.2 µg/g 10 µg/g 200 µg/g | EURAMET /cg-18 Calibration procedure prepared in accordance with |

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|--|---|---|--|
| | | | above standards and guideline |
| Thermal (In Lab and Onsite) | | | |
| Room Thermometers, Temperature Data Logger, Thermograph | -35 °C to -20 °C -21 °C to 0 °C 0.1 °C to 30 °C 31 °C to 40 °C 41 °C to 50 °C 51 °C to 60 °C 61 °C to 70 °C | 0.50 °C 0.30 °C 0.20 °C 0.30 °C 0.40 °C 0.50 °C 0.60 °C | TM-07 Calibration Procedure PT100&SPRT in Humidity Chamber Comparison Method |
| Liquid in Glass Thermometer | 0 °C (Ice Point) -40 °C to 150 °C 150 °C to 250 °C | 0.02 °C 0.07 °C 0.13 °C | TM-02-T01 Calibration Procedure PT100 & SPRT ASL F300 Precision Temperature Bridge Comparison Method |
| Analog and Digital Thermometers, Thermistors, Resistance Thermometers - Transducer | 0 °C (Ice point) -40 °C to 250 °C 250 °C to 420 °C 420 °C to 600 °C 600 °C to 1000 °C 1000 °C to 1300 °C | 0.02 °C 0.05 °C 0.19 °C 0.34 °C 2.1 °C 2.8 °C | TM-01 Calibration Procedure By Comparison PT100&SPRT ASL F300 |
| Platinum Resistance Sensor (PRT) | 0 °C (Ice Point) -40 °C to 150 °C 150 °C to 420 °C 420 °C to 600 °C | 0.02 °C 0.15 °C 0.23 °C 0.49 °C | TM-06-T01 Calibration Procedure PT100&SPRT ASL F300 Precision Temperature Bridge Comparison Method |
| Thermocouples (R, S, T, E, K, N, J, B, U and L Types) | -40 °C to 250 °C 250 °C to 540 °C 540 °C to 1000 °C 1000 °C to 1300 °C | 0.40 °C 0.50 °C 1.8 °C 3.3 °C | EURAMET /cg-8 Reference S Type Thermocouples Fluke 8846A Comparison Method |
| RTD Simulators | -100 °C to 600 °C | 0.11 °C | EURAMET /cg-8 Fluke 8846A Loop Calibrator Comparison Method |
| Thermocouple Indicator J Type E Type K Type N Type R Type S Type B Type T Type | -50 °C to 1200 °C -50 °C to 1000 °C -50 °C to 1300 °C -50 °C to 1300 °C 0 °C to 1750 °C 0 °C to 1750 °C 600 °C to 1800 °C -50 °C to 400 °C | 0.40 °C 0.39 °C 0.66 °C 0.42 °C 1.5 °C 1.3 °C 1.2 °C 0.44 °C | EURAMET /cg-8 Loop Calibrator Comparison Method |

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|---|---|--|--|
| PT 100 Indicator | -20 °C to 0 °C 0.1 °C to 200 °C 201 °C to 400 °C 401 °C to 600 °C | 0.25 °C 0.50 °C 0.50 °C 0.60 °C | TM-06 Calibration Procedure Loop Calibrator, Resistance Simulator by Direct Measuring Method |
| Ovens, Incubators, Temperature Chambers - by using TC - by using PT100 | -40 °C to 100 °C 101 °C to 400 °C -40 °C to 150 °C | 0.55 °C 1.4 °C 0.25 °C | EN 60068-3-5, EN 60068-3-6 EN 60068-3-7, EN 60068-3-11, EURAMET cg20 Calibration procedure prepared in accordance with above standards and guideline Comparison Method |
| Furnaces | 400 °C to 600 °C 601 °C to 1000 °C 1001 °C to 1200 °C | 2.7 °C 3.5 °C 4.1 °C | TM-11 Calibration Procedure Direct measuring method by using K Type Thermocouple |
| Dry Block Calibrator | -40 °C to 150 °C 151 °C to 250 °C 251 °C to 400 °C 401 °C to 600 °C 601 °C to 800 °C 801 °C to 1000 °C 1001 °C to 1200 °C | 0.14 °C 0.17 °C 0.26 °C 0.40 °C 2.8 °C 4.0 °C 5.5 °C | TM-12 Calibration Method Direct measuring method by using PT100 and Thermocouple |
| Hygrometer, Palatine Humidity Meters (Capacitive Resistance, Mechanical, Digital) at 23 °C ± 3 °C | 0 % RH to 40 % RH 40 % RH to 70 % RH 70 % RH to 95 % RH | 2.4 % RH 2 % RH 3.3 % RH | EURAMET cg20, TS EN 60068-3-6 TS EN 60068-3-11 Humidity Chamber Rotronic Hygropalm 2 Temp / Humidity Data Loggers Comparison Method |
| Electrical – DC/LF | | | |
| DC Magnetic Flux Density | 1005.41 Gauss (G) (Transverse & Axial) 3.5 G to 3500 G | 7.4 Gauss G 5 x 10 ⁻³ + 0.60 G | MF-01 Calibration Procedure Lake Shore MRT-062-1K Comparison Method |
| DC Magnet Calibration | 10 G to 14.550 G | 0.3 % + 0.28 G | BS EN ISO 9934-3 Calibration procedure prepared in accordance with above standards and guideline |

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| Hand Yoke Calibration (AC) | Up to 310 G | 0.33 % + 0.16 G | BS EN ISO 9934-3 Calibration procedure prepared in accordance with above standards and guideline |
| Ultrasonic Flaw Detector On-Site Calibration | | | ISO 22232-1 Calibration procedure prepared in accordance with above standards and guideline |
| Amplifier Frequency Response | up to 15 MHz | 3.8 % | |
| Display Jitter | up to 15 MHz | 0.25 % | |
| Equivalent Input Noise | up to 15 MHz | 2 % | |
| Ultrasonic Flaw Detector (After Warm up) | Up to 15 MHz | | ISO 22232-1 Calibration procedure prepared in accordance with above standards and guideline |
| Stability | | 0.24 % | |
| Transmitter Pulse (V) | | 1.3 % | |
| Voltage Rise Time (s) | | 4.3 % | |
| Reverberation (V) | | 1.3 % | |
| Duration (s) | | 4.3 % | |
| Receiver Amplifier Frequency Response (Hz) | | 3.8 % | |
| Equivalent Input Noise | | 3 % | |
| Accuracy of Calibrated Attenuator | | 0.3 dB | |
| Linearity of vertical display | | 0.35 % | |
| Linearity of time display | | 0.35 % | |

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| Ultrasonic Flaw Detector Probe Calibration | | | ISO 22232-2 Calibration procedure prepared in accordance with above standards and guideline |
| Radio Frequency Pulse | Up to 10 Hz Up to 1000 Hz Up to 300 MHz | 10 µHz/Hz + 15 µHz 12 µHz/Hz + 93 µHz 12 µHz/Hz + 2.2 µHz | |
| Pulse Spectrum and Bandwidth | Up to 10 Hz Up to 1000 Hz Up to 300 MHz | 10 µHz/Hz + 15 µHz 12 µHz/Hz + 93 µHz 12 µHz/Hz + 2.2 µHz | |
| Relative Pulse-Echo Sensitivity | Up to 120 V | 0.29 % + 99 µV | |
| Time | 10 ns to 5 s | $2.9 \times 10^{-9} + 0.05 \text{ ns}$ | |
| Phased Array Instrument Calibration | | | ISO 18563-1 Calibration procedure prepared in accordance with above standards and guideline |
| Transmitter Pulse | Up to 15 MHz | 1.7 % | |
| Linearity of Time Delay | Up to 15 MHz | 4 % | |
| Frequency Response | Up to 15 MHz | 3.8 % | |
| Channel Gain Variation | Up to 15 MHz | 3.8 % | |
| Equivalent Input Noise | Up to 15 MHz | 1.7 % | |
| Gain Linearity | 0 dB to 10 dB 10 dB to 26 dB | 0.4 % 0.7 % | |
| Linearity of Vertical Display | 0 dB to 10 dB 10 dB to 26 dB | 0.4 % 0.7 % | |
| Linearity of Time Delay | Up to 15 MHz | 4 % | |
| Eddy Current Detector Calibration | | | ISO 15548-1 Calibration procedure prepared in accordance with above standards and guideline |
| Excitation Frequency | 1 Hz to 10 Hz 10 Hz to 1 kHz 1 kHz to 300 MHz | 10 µHz/Hz + 15 µHz 12 µHz/Hz + 93 µHz 12 µHz/Hz + 2.2 µHz | |
| Source Impedance | 0 mV to 100 mV 0.1 V to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1000 V | 67 µV/V + 10 µV 50 µV/V + 0.1 mV 13 µV/V + 0.22 mV 11 µV/V + 1.2 mV 40 µV/V + 21 mV | |

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| Harmonic Distortion | Up to 15 MHz | 4 Hz | ISO 15548-1 Calibration procedure prepared in accordance with above standards and guideline |
| Maximum Output Voltage | 0 mV to 100 mV | 67 µV/V + 10 µV | |
| | 0.1 V to 1 V | 50 µV/V + 0.1 mV | |
| | 1 V to 10 V | 0.013 % + 0.22 mV | |
| | 10 V to 100 V | 11 µV/V + 1.2 mV | |
| | 100 V to 400 V | 40 µV/V + 21 mV | |
| Maximum Output Current | Up to 100 µA | 0.012 % + 90 nA | |
| | 0.1 mA to 1 mA | 0.011 % + 0.69 µA | |
| | 1 mA to 10 mA | 0.065 % + 2.6 µA | |
| | 10 mA to 100 mA | 0.07 % + 7.6 µA | |
| | 0.1 A to 1 A | 0.12 % + 0.3 mA | |
| Maximum Allowable Input Voltage (related to saturation and nonlinearity) | Up to 10 V | 0.15 V | |
| | 10 V to 120 V | 0.29 % + 99 µV | |
| | 120 V to 500 V | 95 µV/V + 11 µV | |
| Input Impedance | Up to 400 Ω | 0.17 % + 27 mΩ | |
| Residual Output Value at Balance | 10 V | 0.15 V | |
| | 10 V to 120 V | 0.29 % + 99 µV | |
| | 120 V to 500 V | 95 µV/V + 11 µV | |
| Maximum Compensatable Input Voltage | Up to 10 V | 0.15 V | |
| | 10 V to 120 V | 0.29 % + 99 µV | |
| | 120 V to 500 V | 95 µV/V + 11 µV | |
| Harmonic Attenuation | Up to 10 V | 0.15 V | |
| | 10 V to 120 V | 0.29 % + 99 µV | |
| | 120 V to 500 V | 95 µV/V + 11 µV | |
| Frequency Response of the SP | Up to 15 MHz | 30 nHz/Hz + 7 µHz | |
| Bandwidth | Up to 10 V | 0.15 V | |
| | 10 V to 120 V | 0.29 % + 99 µV | |
| | 120 V to 500 V | 95 µV/V + 11 µV | |
| Gain Setting Accuracy | Up to 10 V | 0.15 V | |
| | 10 V to 120 V | 0.29 % + 99 µV | |
| | 120 V to 500 V | 95 µV/V + 11 µV | |
| Phase Setting Accuracy | Up to 500 V | 0.29 % + 99 µV | |

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| Eddy Current Detector Calibration (continued) | | | ISO 15548-1 Calibration procedure prepared in accordance with above standards and guideline |
| Cross-Talk | Up to 500 V | 0.29 % + 99 µV | |
| Maximum Instrument Noise | Up to 110 dB | 1 dB | |
| Bond Testers | | | Calibration procedure prepared in accordance with manufacturer's guidelines and internal methods |
| Excitation Frequency | 1 kHz to 500 kHz | 0.05 % | |
| Harmonic Distortion | 1 kHz to 10 MHz | 0.015 % | |
| Maximum Output Voltage | 1 V to 140 V | 0.5 % | |
| Time and Frequency | | | |
| Stopwatch | Up to 86400 s (24 h) | 0.12 s | TR-01 Calibration Procedure With frequency timer & analyzer |
| | 0 s to 86400 s | 0.02 s | With signal generation & frequency analyzer Comparison Method |
| Tachometer, Stroboscopes Centrifuge, Stirrers, Agitators, Contact Type Tachometer | 20 rpm to 100 rpm >100 rpm to 100000 rpm | 0.01 rpm 1 rpm | TX-01 Calibration Procedure EL-05 Calibration Procedure Frequency Meter Reference Tachometer Comparison Method |
| Optical Radiation | | | |
| Luxmeter Calibration | Up to 5000 lux | 1 % | ISO/CIE-19476 Calibration procedure prepared in accordance with above standards and guideline |
| UV Meter (UVA) Calibration | Up to 200 µW/cm ² 200 µW/cm ² to 3000 µW/cm ² | 8 % 1.2 % | ISO/CIE-19476 Calibration procedure prepared in accordance with above standards and guideline |
| Densitometer | Optical Density 0.15 to 4.78 | 0.02 | Density Step Tablets Comparison Method |
| Density Step Tablets | Optical Density 0.15 to 4.78 | 0.03 | Reference Density Step Tablets, Densitometer Comparison Method |
| Viewer (Light Box) | 10 000 cd/m ² | 5.3 % | ISO 5580 Density Step Tablets, Photometer Comparison Method |

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¹The 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.

²When 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.

Note:

1 p is equal to the pressure reading.