

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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CALIBRATION

Valid To: March 31, 2012

Certificate Number: 2147.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations¹:

I. Dimensional

| Parameter/Equipment | Range | CMC ^{2,6} (±) | Comments |
|--|-------------------------------|-----------------------------|----------------------------|
| Bore Gauges | (0.25 to 1) in (1 to 6) in | 43 µin (43 + 2.4L) µin | Master ring gauges |
| Calipers ³ – Dial, Digital, Vernier | (6 to 12) in (12 to 48) in | 400 µin 560 µin | Gage blocks |
| Depth Gage ³ – Dial, Digital, Vernier | (0.001 to 6) in | 75 µin | Gage blocks |
| Gage Blocks | (Up to 1.0) in (1 to 8) in | 4.2 µin (4.2 + 0.5L) µin | P&W Labmaster, gage blocks |
| Height Gages ³ – Working Gages | (0.05 to 18) in | 84 µin | Gage blocks |
| Height Gages – Precision Gages | (0.05 to 18) in | 38 µin | Gage blocks |
| I.D. Micrometer ³ | (0 to 12) in | 260 µin | Gage blocks |
| Indicator ³ | (0.00001 to 1) in | 80 µin | Gage blocks, surface plate |

| Parameter/Equipment | Range | CMC ^{2,6} (±) | Comments |
|-------------------------------|-----------------------------------|--------------------------------------|----------------------------|
| Length Standards ³ | (0 to 24) in (24 to 48) in | 79 μin 140 μin | Gage blocks |
| Length Standards | (48 to 96) in | 240 μin | Gage blocks |
| Micrometer Master | (0 to 8) in | 28 μin | Gage blocks |
| Micrometers ³ – | | | |
| Outside | (0 to 6) in (6 to 12) in | 57 μin 170 μin | Gage blocks |
| Depth | (0 to 6) in | 190 μin | |
| Thread | (0.001 to 1) in | 130 μin | |
| Pin Gage | (0.01 to 1) in | (54 + 1.5D) μin | P&W Labmaster, gage blocks |
| Threaded Plugs | #80 to #6 | (12 + 1.5L) μin | P&W Labmaster, gage blocks |
| Plain Plug Gage | (0.04 to 1) in (1 to 4) in | (4.9 + 0.5L) μin (7.5 + 0.5L) μin | P&W Labmaster, gage blocks |
| Protractor | 1° to 180° | 0.048° | Surface plate, sine bar |
| Plain Ring Gage | (Up to 8) in | (7.0 + 0.5L) μin | P&W Labmaster, gage blocks |
| Measuring Rule ³ | (0 to 36) in (76.2 to 1000) mm | 0.002 in 73 μm | Master rule |

| Parameter/Equipment | Range | CMC ^{2,6} (\pm) | Comments |
|----------------------------|-------------------------------|------------------------------|----------------------------|
| Sine Bar | (5 to 10) in | 38 μ in | Surface plate |
| Surface Plate ³ | (8 to 48) in (49 to 72) in | 35 μ in 45 μ in | Electronic level |
| Thread Wires | #80 to #6 | (11 + 1.5D) μ in | P&W Labmaster, gage blocks |

II. Electrical – DC & Low Frequency

| Parameter/Equipment | Range | CMC ² (\pm) | Comments |
|------------------------------------|---|--|---------------------------------------|
| DC Voltage ³ – Generate | (0 to 300) mV (0 to 3) V (0 to 30) V (30 to 300) V (100 to 1000) V | 0.21 mV 0.035 mV 0.42 mV 5.6 mV 0.20 mV | Fluke 5520A |
| DC Voltage ³ – Measure | (0 to 100) mV 100 mV to 1.0 V (1 to 10) V (10 to 100) V 100 V to 1 kV 300 V to 40 kV | 0.046 mV 0.035 mV 0.28 mV 4 mV 47 mV 2.0 % of reading | Keithley 2010 DMM 80K-40 probe |
| DC Current ³ – Generate | (0 to 300) μ A (0 to 3) mA (0 to 30) mA (0 to 300) mA (0 to 1) A (1 to 3) A (0 to 10) A (11 to 20) A | 0.065 μ A 0.35 μ A 3.3 μ A 33 μ A 0.24 mA 1.2 mA 5.5 mA 21 mA | Fluke 5520A |
| Clamp Meter Only | (0 to 1000) A | 5.5 A | Fluke 550A w/coil |

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|--|---|---|---------------|
| DC Current ³ – Measure | (0 to 10) mA (10 to 100) mA 100 mA to 1.0 A (1.0 to 3.0) A | 5.4 μA 54 μA 0.84 mA 2.7 mA | Keithley 2010 |
| DC Resistance ³ – Generate | (0 to 10) Ω (10 to 30) Ω (30 to 100) Ω (100 to 300) Ω 300 Ω to 1 kΩ (1 to 3) kΩ (3 to 10) kΩ (10 to 30) kΩ (30 to 100) kΩ (100 to 300) kΩ 300 kΩ to 1 MΩ (1 to 3) MΩ (3 to 10) MΩ (10 to 30) MΩ (30 to 100) MΩ (100 to 300) MΩ 300 MΩ to 1.1 GΩ | 1.4 mΩ 2.4 mΩ 4.2 mΩ 11 mΩ 30 mΩ 0.1 Ω 0.3 Ω 1 mΩ 3 Ω 12 Ω 34 Ω 210 Ω 1.4 kΩ 10 kΩ 53 kΩ 1 MΩ 17 MΩ | Fluke 5520A |
| DC Resistance ³ – Measure | (0 to 10) Ω (10 to 100) Ω 100 Ω to 1 kΩ (1 to 100) kΩ 100 kΩ to 1 MΩ (1 to 10) MΩ (10 to 100) MΩ | 10 μΩ 100 μΩ 5.2 Ω 9.2 Ω 74 Ω 0.41 kΩ 1.5 kΩ | Keithley 2010 |

| Parameter/Range | Frequency | CMC ² (±) | Comments |
|------------------------------------|---|--|-------------|
| AC Voltage ³ – Generate | | | |
| (0 to 30) mV | (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz | 0.03 mV 0.011 mV 0.12 mV 0.036 mV 0.12 mV 0.29 mV | Fluke 5520A |
| (30 to 330) mV | (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz | 0.16 mV 0.052 mV 0.056 mV 0.11 mV 0.27 mV 0.67 mV | |
| (0.3 to 3) V | (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz | 0.95 mV 0.51 mV 0.63 mV 0.95 mV 2.2 mV 7.8 mV | |
| (3 to 30) V | (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz | 9.7 mV 5.1 mV 7.8 mV 11 mV 29 mV | |
| (30 to 300) V | 45 Hz to 1 kHz (1 to 10) kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz | 59 mV 66 mV 81 mV 96 mV 650 mV | |
| (300 to 1000) V | 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz | 310 mV 260 mV 310 mV | |

| Parameter/Range | Frequency | CMC ² (±) | Comments |
|------------------------------------|--|--|--|
| AC Voltage ³ – Measure | (0 to 100) mV 100 mV to 1.0 V (1 to 10) V (10 to 100) V (100 to 750) V 300 V to 40 kV | 0.090 mV 0.90 mV 9.1 mV 90 mV 0.65 V 5.0 % of reading | Keithley 2010 DMM 80 K-40 probe |
| AC Current ³ – Generate | | | |
| (0 to 330) µA | (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz | 0.7 µA 0.5 µA 0.4 µA 1.1 µA 2.6 µA 5.2 µA | Fluke 5520A |
| (0 to 3) mA | (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz | 6.2 µA 3.9 µA 3.2 µA 6.2 µA 15 µA 31 µA | |
| (3 to 30) mA | (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz | 56 µA 29 µA 14 µA 26 µA 63 µA 120 µA | |
| (30 to 300) mA | (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz | 0.56 mA 0.29 mA 0.14 mA 0.35 mA 0.7 mA 1.4 mA | |
| (0.3 to 3) A | (10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz | 5.5 mA 1.9 mA 19 mA 80 mA | |
| (3 to 10) A | (45 to 100) Hz (100 to 1) kHz (1 to 5) kHz | 8 mA 12 mA 300 mA | |
| (10 to 21) A | (45 to 100) Hz (100 to 1) kHz (1 to 5) kHz | 27 mA 36 mA 620 mA | |
| Clamp Meter Only | (45 to 445) Hz | 5.5 A | |

| Parameter/Range | Frequency | CMC ² (±) | Comments |
|-----------------------------------|--------------------------------|----------------------|---------------|
| AC Current ³ – Measure | (0 to 1.0) A (1.0 to 3.0) A | 1.4 mA 5.1 mA | Keithley 2010 |

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|---|--|--|-------------|
| Capacitance ³ | (0 to 0.3) nF (0 to 1) nF (1 to 3) nF (3 to 10) nF (10 to 30) nF (30 to 100) nF (100 to 300) nF (0.3 to 1) μF (1 to 3) μF (3 to 10) μF (10 to 30) μF (30 to 100) μF (100 to 300) μF (0.3 to 1) mF (1 to 3) mF (3 to 10) mF (10 to 30) mF (30 to 110) mF | 0.012 nF 0.015 nF 0.025 nF 0.035 nF 0.18 nF 0.35 nF 1.1 nF 3.5 nF 11 nF 35 nF 150 nF 550 nF 1.7 μF 5.5 μF 17 μF 55 μF 260 μF 1.4 mF | Fluke 5520A |
| Thermocouple Simulation ³ – | | | |
| Type B | (600 to 800) °C (800 to 1000) °C (1000 to 1550) °C (1550 to 1820) °C | 0.44 °C 0.34 °C 0.3 °C 0.33 °C | Fluke 5520A |
| Type C | (0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2316) °C | 0.3 °C 0.26 °C 0.31 °C 0.5 °C 0.84 °C | |
| Type E | (-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C | 0.5 °C 0.16 °C 0.14 °C 0.16 °C 0.21 °C | |

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|--|--|---|-------------|
| Thermocouple Simulation ³ (cont) – | | | |
| Type J | (-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C | 0.27 °C 0.16 °C 0.14 °C 0.17 °C 0.23 °C | Fluke 5520A |
| Type K | (-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (1000 to 1372) °C | 0.33 °C 0.18 °C 0.16 °C 0.26 °C 0.4 °C | |
| Type L | (-200 to -100) °C (-100 to -25) °C (800 to 900) °C | 0.37 °C 0.26 °C 0.17 °C | |
| Type N | (-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1300) °C | 0.4 °C 0.22 °C 0.19 °C 0.18 °C 0.27 °C | |
| Type R | (0 to 250) °C (250 to 400) °C (400 to 1000) °C (1000 to 1767) °C | 0.57 °C 0.35 °C 0.33 °C 0.4 °C | |
| Type S | (0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C | 0.47 °C 0.36 °C 0.37 °C 0.46 °C | |
| Type T | (-250 to -150) °C (150 to 0) °C (0 to 120) °C (120 to 400) °C | 0.63 °C 0.24 °C 0.16 °C 0.14 °C | |
| Type U | (-200 to 0) °C (0 to 600) °C | 0.56 °C 0.27 °C | |

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|-------------------------------|--|--|-------------|
| RTD Simulation ³ – | | | |
| Pt 385, 100 Ω | (-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C (630 to 800) °C | 0.05 °C 0.05 °C 0.07 °C 0.09 °C 0.1 °C 0.12 °C 0.23 °C | Fluke 5520A |
| Pt 3926, 100 Ω | (-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C | 0.05 °C 0.05 °C 0.07 °C 0.09 °C 0.1 °C 0.12 °C | |
| Pt 3916, 100 Ω | (-200 to -190) °C (-190 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C | 0.25 °C 0.04 °C 0.05 °C 0.06 °C 0.07 °C 0.08 °C 0.09 °C 0.1 °C 0.23 °C | |
| Pt 385, 200 Ω | (-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C | 0.04 °C 0.04 °C 0.04 °C 0.05 °C 0.12 °C 0.13 °C 0.14 °C 0.16 °C | |
| Pt 385, 500 Ω | (-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C | 0.04 °C 0.05 °C 0.05 °C 0.06 °C 0.08 °C 0.08 °C 0.09 °C 0.11 °C | |

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|--|---|--|---------------------|
| RTD Simulation ³ (cont) – Pt 385, 1000 Ω | (-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C | 0.03 °C 0.03 °C 0.04 °C 0.05 °C 0.06 °C 0.07 °C 0.07 °C 0.23 °C | Fluke 5520A |
| Ni 120, 120 Ω | (-80 to 0) °C (0 to 100) °C | 0.08 °C 0.14 °C | |
| Cu 427, 10 Ω | (100 to 260) °C | 0.3 °C | |
| Inductance ³ | 100 uH 1 mH 10 mH 100 mH 1 H | 2 % of reading 2 % of reading 1 % of reading 0.6 % of reading 0.6 % of reading | General Radio 1490D |

III. Electrical – RF/Microwave

| Parameter/Range | Frequency | CMC ² (±) | Comments |
|--|--------------------|---|-------------|
| Leveled Sine Wave ³ – Absolute Accuracy 50 Ω | | | |
| (-48 to 24) dBm (-74 to -48) dBm (-94 to 74) dBm (-130 to -94) dBm | 100 kHz to 125 MHz | 0.05 dB 0.20 dB 0.50 dB 1.5 dB | Fluke 9640A |
| (-17 to 24) dBm (-74 to -17) dBm (-94 to -74) dBm (-130 to -94) dBm | 1 GHz | 0.25 dB 0.50 dB 1.0 dB 1.5 dB | |
| (-74 to 14) dBm (-84 to -74) dBm | 4 GHz | 0.50 dB 1.0 dB | |

| Parameter/Range | Frequency | CMC ² (±) | Comments |
|---|---|--|-------------|
| Absolute Amplitude ³ – Amplitude @ 50 Ω | | | |
| (20 to 24) dBm | 9 Hz to 125 MHz | 0.05 dB | Fluke 9640A |
| (14 to 20) dBm | 9 Hz to 125 MHz (125 to 300) MHz 300 MHz to 1.4 GHz | 0.05 dB 0.1 dB 0.25 dB | |
| (-17 to 14) dBm | 9 Hz to 125 MHz (125 to 300) MHz 300 MHz to 1.4 GHz (1.4 to 3) GHz (3 to 4.024) GHz | 0.05 dB 0.1 dB 0.25 dB 0.30 dB 0.50 dB | |
| (-48 to -17) dBm | 9 Hz to 125 MHz (125 to 300) MHz 300 MHz to 4.024 GHz | 0.05 dB 0.1 dB 0.50 dB | |
| (-74 to -48) dBm | 100 kHz to 300 MHz 300 MHz to 4.024 GHz | 0.20 dB 0.50 dB | |
| (-84 to -74) dBm | 100 kHz to 300 MHz 300 MHz to 4.024 GHz | 0.50 dB 1.0 dB | |
| (-94 to -84) dBm | 100 kHz to 300 MHz 300 MHz to 3 GHz | 0.50 dB 1.0 dB | |
| (-130 to -94) dBm | 100 kHz to 3 GHz | 1.5 dB | |
| Frequency Modulation ³ | 20 Hz to 1 kHz (1 to 10) kHz (10 to 100) kHz (100 to 300) kHz | 0.01 % of reading 0.1 % of reading 1 % of reading 10 % of reading | Fluke 9640A |
| Attenuation ^{3, 4, 5} – | | | |
| (0 to 33) dB (33 to 64) dB (64 to 100) dB | 100 kHz to 100 MHz | 0.035 dB 0.04 dB 0.10 dB | Fluke 9640A |

| Parameter/Range | Frequency | CMC ² (±) | Comments |
|--|---------------------|---|-------------|
| Frequency Modulation ³ – Measure 250 kHz-10 MHz Carrier: 20 Hz to 10 kHz 10 MHz-1300 MHz Carrier: 50 Hz to 100 kHz 10 MHz Carrier: 20 Hz to 100 kHz | 10 Hz to 1300 MHz | 2% of reading +/- 1digit 1% of reading +/- 1digit 5% of reading +/- 1digit | HP 8901A |
| Amplitude Modulation ³ – Measure 150 kHz to 10MHz Carrier: 50 Hz to 10 kHz >5% depth 150 kHz to 10 MHz Carrier: 20 Hz to 10 kHz (10 to 1300) MHz Carrier: 50 Hz to 50 kHz >5% depth (10 to 1300) MHz Carrier: 20 Hz to 100 kHz 10 Hz to 1300 MHz Carrier: 20 Hz to 20 kHz | 10 Hz to 1300 MHz | 2 % of reading +/- 1digit 3 % of reading +/- 1digit 1 % of reading +/- 1digit 3 % of reading +/- 1digit 3 % of reading +/- 1digit | HP 8901A |
| Phase Modulation ³ – Measure Carrier: 20 Hz to 20 kHz | 10 Hz to 1300 MHz | 3 % of reading +/- 1 digit | HP 8901A |
| Amplitude Modulation ³ – Sine Depth (Internal) 2.0 % to 99 % | 50 kHz to 4.024 GHz | 3.0 % of setting | Fluke 9640A |

| Parameter/Range | Frequency | CMC ² (±) | Comments |
|---|--|--|----------------------|
| Amplitude Modulation ³ – Sine Distortion 10.0 % to 89.0 % | 50 kHz to 125 MHz | -40 dBc | Fluke 9640A |
| Frequency Modulation ³ – Sine Deviation 10 Hz to 1 kHz (1 to 10) kHz (10 to 100) kHz 100 kHz to 1 MHz (1 to 4.8) MHz | 50 kHz to 4.024 GHz | 3.0 % of reading 3.0 % of reading 3.0 % of reading 3.0 % of reading 3.0 % of reading | Fluke 9640A |
| Phase Modulation ³ – Sine Depth (0.0001 to 10) rad (10 to 100) rad (100 to 1000) rad | 50 kHz to 4.024 GHz | 3.0 % of reading 3.0 % of reading 3.0 % of reading | Fluke 9640A |
| RF Power ³ – Measure | 10 MHz 50 MHz 500 MHz 1000 MHz 2000 MHz 3000 MHz 4000 MHz 5000 MHz 6000 MHz 7000 MHz 8000 MHz 9000 MHz 10000 MHz 11000 MHz 12000 MHz 13000 MHz 14000 MHz 15000 MHz 16000 MHz 17000 MHz 18000 MHz | 0.02 dB + 2.5 % of reading 0.02 dB + 2.5 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.6 % of reading 0.02 dB + 2.8 % of reading 0.02 dB + 3.1 % of reading 0.02 dB + 3.5 % of reading | HP 8484A w/ HP 436A |
| Sound Pressure | 94 dB 114 dB | 0.3 % of reading 0.3 % of reading | ND9 sound calibrator |

IV. Mechanical

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|------------------------------|-----------------------------|----------------------|------------------------------|
| Tachometers ³ | (0 to 1300) rpm | 2.3 rpm | Master tachometer |
| Pressure/Vacuum ³ | -22 inHg to 100 psi | 0.03 psi | Druck DPI610PG |
| | (100 to 5000) psi | 1.3 psi | 5000 psi pressure module |
| | (0 to 1) inH ₂ O | 0.0003 psi | Inches water pressure module |

V. Thermodynamics

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|---|--------------------------------------|----------------------|--------------------------------------|
| Infrared ³ | Ambient to 315 °C | 1.1 °C | Practi-Cal PRI-1 w/ Fluke 725 |
| Thermocouples, RTDs, and Liquid Thermometers ³ | Ambient to 100 °C (100 to 375) °C | 0.25 °C 0.5 °C | Fluke 725, dry well, reference probe |

VI. Time & Frequency

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|--|---|------------------------------|-------------------|
| Timers/Stopwatches ³ | 0 s to 60 hr | 0.09 s | Master tachometer |
| Frequency ³ – Measuring Equipment | (0.1 to 110) Hz 110 Hz to 1.1 kHz (1.1 to 10) kHz | 280 µHz 2.8 mHz 25 mHz | Fluke 5520A |
| | 9 Hz to 100 MHz 100 MHz to 4.024 GHz | 0.25 µHz/Hz | Fluke 9640A |
| Frequency Out – Fixed Points | 1 MHz 10 MHz | 0.04 µHz/Hz 0.04 µHz/Hz | |

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|--------------------------------|-----------------|----------------------|----------|
| Frequency Measure ³ | (0.1 to 18) GHz | 1 Count + 24 µHz | HP 5342A |

¹ This laboratory offers commercial calibration service and field calibration service.

² Calibration and Measurement Capability (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. Calibration and Measurement Capabilities represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

³ Field calibration service is available for this calibration and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

⁴ Specifications are typical below 10 MHz.

⁵ Relative to +16 dBm output.

⁶ In the statement of CMC, L is the numerical value of the nominal length of the device measured in inches. In the statement of best uncertainty, D is the numerical value of the nominal diameter of the device measured in inches.



World Class Accreditation

The American Association for Laboratory Accreditation

Accredited Laboratory

A2LA has accredited

ENI LABS

Fort Wayne, IN

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This laboratory also meets any additional program requirements in the field of calibration. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Presented this 5th day of May 2010.



A handwritten signature in black ink, appearing to read "Peter Meyer".

President & CEO
For the Accreditation Council
Certificate Number 2147.01
Valid to March 31, 2012

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.