



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
& ANSI/NCSL Z540-1-1994

CIH EQUIPMENT COMPANY, INC.
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CALIBRATION

Valid To: October 31, 2017

Certificate Number: 3035.01

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

I. Acoustical Quantities

Parameter/Range	Frequency	CMC ^{2,3} (±)	Comments
Calibrate Acoustical Calibrator –			
Sound Pressure Level	(74 to 134) dB 125 Hz to 5 kHz	0.32 dB	Acoustical calibrator Calibration system
Frequency	125 Hz to 5 kHz	0.4 Hz	
Total Harmonic Distortion	(0.0005 to 100) % THD 125 Hz to 5 kHz	0.48 % THD	

Parameter/Range	Frequency	CMC ² (±)	Comments
Microphone Frequency Response – Electrostatic Excitation (Condenser Microphone with removable grid)	20 Hz to 20 kHz	1.0 dB	dB Range are relative to 1 V / Pa
Microphone - Open Circuit Sensitivity	250Hz, 1kHz	1.8 dB	dB Range are relative to 1 V / Pa
Sound Level Meters –			
Acoustic Calibration	(50 to 140) dB 512 Hz, 1 kHz, 2 kHz	0.37 dB	Acoustical calibrator
Electrical Calibration	(40 to 140) dB 20 Hz to 20 kHz	0.31 dB	Signal generator

II. Fluid Quantities

Parameter/Equipment	Range	CMC ^{2, 3} (±)	Comments
Multichannel Particle Counters –			
Counting Efficiency	(0.3 to 5.0) μm	24 %	Particle counter comparison
Velocity – Measure & Generate	(600 to 4000) fpm	2.6 %	Wind tunnel with thermo-anemometer



Parameter/Equipment	Range	CMC ^{2,3} (±)	Comments
ISO Standard Dust Concentration – Generate and Measure	(1.25 to 100) mg/m ³	1.7 mg/m ³	Laminar dust chamber system, gravimetric measurement
Calibrate Flow Calibrators	5 mLPM to 500 LPM 50 mLPM to 30 LPM (0.3 to 30) LPM	1.0 % 0.9 % 1.9 %	Piston Prover – Definer 220L low flow Definer 220M medium flow Definer 220H high flow
Calibration of Air Sampling Pump – Air Flow	5 mLPM to 500 LPM 50 mLPM to 30 LPM (0.3 to 30) LPM	1.0 % 0.9 % 0.9 %	Piston Prover – Definer 220L low flow Definer 220M medium flow Definer 220H high flow
Mass Flow Meters	(30 to 200) LPM	2.2 %	Mass flow meter - TSI



III. Mechanical

Parameter/Equipment	Range	CMC ^{2,3} (\pm)	Comments
Pressure – Generate	(4 to 654) in H ₂ O	0.56 in H ₂ O	Ametek pressure balance
Vibration – Accelerometer Sensitivity	10 Hz to 10 kHz	2.3 %	Back to back comparison

IV. Thermodynamics

Parameter/Equipment	Range	CMC ^{2,3} (\pm)	Comments
Temperature – Generate and Measure	0 °C to 100 °C	0.36 °C	Environmental chamber w/ RTD and display unit
Temperature – Measure	0 °C to 100 °C	0.08 °C	Thermometer
Humidity – Generate and Measure	(20 to 90) % RH	2.0 % RH	Humidity chamber w/ Vaisala HMT 333
Humidity – Measure	(10 to 90) % RH	2.0 % RH	Vaisala HMT 333

¹ This laboratory offers commercial calibration service.

² Calibration and Measurement Capability Uncertainty (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. CMCs 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 In the statement of Calibration and Measurement Capability expressed as percentages are percentages of the reading/output, unless otherwise noted.





Accredited Laboratory

A2LA has accredited

CIH EQUIPMENT CO, INC.

Clearwater, FL

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 the requirements of ANSI/NCSLI Z540-1-1994 and 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 2nd day of September 2015.

A handwritten signature in black ink, appearing to read "L. S. ...", positioned above a horizontal line.

President & CEO
For the Accreditation Council
Certificate Number 3035.01
Valid to October 31, 2017
Revised August 17, 2017



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