



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

CIH EQUIPMENT COMPANY, INC.
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CALIBRATION

Valid To: August 31, 2019

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 (±)	Comments
Calibrate Acoustical Calibrator –			
Sound Pressure Level	(74 to 125) dB 125 Hz to 5kHz	0.14 dB	Acoustical calibrator Calibration system
Frequency	125 Hz to 5 kHz	0.29 Hz	
Total Harmonic Distortion	(0.0005 to 100) % THD 125 Hz to 5 kHz	0.39 % THD	

Parameter/Range	Frequency	CMC ² (±)	Comments
Microphone Frequency Response – Electrostatic Excitation (Condenser Microphone with Removable Grid)	20 Hz to 20kHz	0.4 dB	dB range are relative to 1 V / Pa
Microphone – Open Circuit Sensitivity	250Hz, 1kHz	2.1 dB	dB range are relative to 1 V / Pa
Sound Level Meters –			
Acoustic Calibration	(50 to 125) dB 512 Hz, 1 kHz, 2 kHz	0.28 dB	Acoustical calibrator
Electrical Calibration	(40 to 140) dB 20 Hz to 20kHz	0.29 dB	Signal generator

II. Fluid Quantities

Parameter/Equipment	Range	CMC ^{2,3} (±)	Comments
Multichannel Particle Counters –			
Counting Efficiency	(0.3 to 2.0) μm	16 %	ASTM Particle counter comparison method
Velocity – Measure & Measuring Equipment	(100 to 1200) fpm (1200 to 6000) fpm	5.0 % 2.2 %	Flotek 360 wind tunnel with thermo-anemometer TSI standard
	(100 to 550) fpm (500 to 1650) fpm (1600 to 9000) fpm	4.0 % 1.3 % 1.6 %	WT-4401S wind tunnel with differential pressure standard

Parameter/Equipment	Range	CMC ^{2,3} (±)	Comments
ISO Standard Dust Concentration – Generate and Measure	(1.25 to 100) mg/m ³	1.9 mg/m ³	Laminar dust chamber system, gravimetric standard
Calibrate Flow Calibrators	(5 to 500) mLPM	0.4 %	Piston Provers – ML800-10
	500 mLPM to 50 LPM	0.4 %	ML800-44
Calibration of Air Sampling Pump – Air Flow	5 ccm to 500 mLPM	1.1 %	Piston Provers – Definer 220L low flow
	50 ccm to 5 LPM	0.5 %	Definer 220M medium flow
	(0.3 to 30) LPM	1.0 %	Definer 220H high flow
	Up to 100 LPM [over (0.25 to 50) inH ₂ O]	2.4 %	MFM TSI flow measurement standard
Mass Flow Meters	Up to 100 LPM	2.4 %	Mass flow meter – TSI



III. Mechanical

Parameter/Equipment	Range	CMC ^{2,3} (±)	Comments
Pressure – Generate	(4 to 150) inH ₂ O	0.19 inH ₂ O	Ametek dead weight tester
Vibration – Accelerometer Sensitivity	10 Hz to 10 kHz	1.9 %	Back to back comparison with accelerometer standard

IV. Thermodynamics

Parameter/Equipment	Range	CMC ^{2,3} (±)	Comments
Temperature – Measuring Equipment and Measure	0 °C to 100 °C	0.38 °C	Environmental chamber w/ PRT
Temperature – Measure	0 °C to 100 °C	0.36 °C	Thermometer PRT standard
Humidity – Measuring Equipment and Measure	(20 to 90) % RH	1.1 % RH	Humidity chamber w/ Vaisala HMT 333 standard
Humidity – Measure	(10 to 90) % RH	1.1 % RH	Vaisala HMT 333 standard

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 R205 – Specific Requirements: Calibration Laboratory Accreditation Program. 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 20th day of October 2017.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 3035.01
Valid to August 31, 2019

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