



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

TSI INC.
1060 Corporate Center Drive
Oconomowoc, WI 53066
Dan Taubenheim Phone: 262 354 6143

CALIBRATION

Valid To: December 31, 2023

Certificate Number: 1326.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1,5}:

I. Acoustics

Parameter/Equipment	Range	CMC ² (±)	Comments
Sound Level Calibrators – 125 Hz to 2 kHz	(70 to 120) dB	0.19 dB	B&K 5935 microphone power supply, B&K 2673 microphone preamplifier, B&K 4144 microphone, B&K 4160 reference microphone, National Instruments PXI-4071 DMM/counter
Acoustical Levels – Sound Level Meters, Noise Dosimeters 125 Hz to 2 kHz	(70 to 120) dB (dB re: 20 mPa)	0.19 dB	Quest-Cal calibrator, B&K 5935 microphone power supply, B&K 2673 microphone preamplifier, B&K 4144 microphone, B&K 4160 reference microphone, National Instruments PXI-4071 DMM/counter

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2,3,6} (±)	Comments
DC Voltage – Measure	10 mV to 200 V	0.1 %	Fluke 45
Resistance – Measure	20 Ω to 2 kΩ	0.11 Ω	Fluke 8842A
AC Voltage – Measure (10 mV to 750 V) rms	50 Hz to 10 kHz	1.4 %	Fluke 45

III. Thermodynamic

Parameter/Equipment	Range	CMC ² (±)	Comments
Temperature – Heat Stress Monitors	(35 to 40) °C	0.06 °C	Fluke 1524 w/ probe

IV. Time & Frequency

Parameter/Equipment	Range	CMC ^{2,3,4} (±)	Comments
Frequency – Measure	1 Hz to 500 kHz	0.058 %	National Instruments PXI-4071 DMM/counter

¹ This laboratory offers commercial calibration services.

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 CMC, % represents percent of reading unless otherwise noted.

⁴ The type of instrument or material being calibrated is defined by the parameter. This indicates the

laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.

⁵ This scope meets A2LA's *P112 Flexible Scope Policy*.

⁶ The stated measured values are determined using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure or generate the measured value in the ranges indicated. CMC's are expressed as either a specific value that covers the full range or as a percent or fraction of the reading plus a fixed floor specification.



Accredited Laboratory

A2LA has accredited

TSI INC.

Oconomowoc, WI

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSL 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 April 2017).



Presented this 22nd day of December 2021.

A blue ink signature of a person, likely the Vice President of Accreditation Services, written over a horizontal line.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1326.01
Valid to December 31, 2023

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