



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

PRECISION LABS, LLC
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CALIBRATION

Valid To: February 28, 2022

Certificate Number: 2405.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1, 6}:

I. Mechanical

Parameter/Equipment	Range ⁴	CMC ^{2, 5} (±)	Comments ³
Vibration – Magnitude/Phase for Frequency Intervals: (0.1 to < 0.2) Hz (0.2 to < 0.4) Hz (0.4 to < 1) Hz (1 to 63) Hz (> 63 to 160) Hz (5 to < 10) Hz (10 to < 20) Hz 20 Hz to 1 kHz (> 1 to 5) kHz (> 5 to 10) kHz (> 10 to 15) kHz (> 15 to 20) kHz (Accelerometers, Velocity Sensors, Vibration Meters, Vibration Calibrators, Vibration Displacement Sensors Vibration Controllers, Portable Shakers)	(0.01 to 50) m/s ² (1.0 to 500) m/s ²	1.5 %/1.5° 2.3 %/0.78° 1.0 %/0.61° 2.1 %/0.52° 1.1 %/0.78° 1.4 %/0.67° 0.88 %/0.67° 0.81 %/0.70° 0.99 %/0.86° 1.4 %/1.6° 2.5 %/2.1° 4.0 %/2.8°	Comparison method, SPEKTRA CS18 w/ Phase, APS Dynamics long stroke shaker; (0.001 to 5) g _n Comparison method, SPEKTRA CS18 w/ Phase, SE09 shaker, SE-10 or other Electroynamics shaker; (0.1 to 50) g _n

Parameter/Equipment	Range ^{3,4}	CMC ^{2,5} (\pm)	Comments ³
Accelerometers (Secondary) Charge (Charge Amplifier) 0.2 Hz to 20 kHz (> 20 to 50) kHz	(0.1 to 10 000) pC	0.34 %/0.52° 1.4 %/0.70°	Internal comparison method, SPEKTRA CS18 w/ phase
Accelerometers (Secondary) Voltage (Measuring Amplifier) 0.2 Hz to 20 kHz (> 20 to 50) kHz	1.0 mV to 30 V	0.34 %/0.52° 1.4 %/0.70°	Internal comparison method, SPEKTRA CS18 w/ phase
Accelerometers – Sensitivity/ Frequency Response (1 to 100) Hz (10 to < 100) Hz 100 Hz to > 2.5 kHz (> 2.5 to 10) kHz (> 10 to 15) kHz	(1 to 3) g_n (0.25 to 10) g_n	2.3 % 1.5 % 1.2 % 2.0 % 3.4 %	Comparison method, Endevco 68357, APS dynamics long stroke shaker Comparison method, Endevco 68357, Bouche shaker
Accelerometers ³ – Shock Amplitude	(20 to 2000) g_n (> 2000 to 10 000) g_n	1.7 % 2.7 %	Comparison method, Endevco 2925 POP system

Parameter/Equipment	Range ⁴	CMC ^{2,5} (±)	Comments ³
Acoustics – Sound Pressure Level 31.5 Hz to 2 kHz Microphones	(84 to 114) dB	0.27 dB	Comparison method, SPEKTRA CS18AK w/ acoustic coupler
Sound Level Meters		0.27 dB	
Sound pressure level 1000 Hz (Microphones, Sound Level Meters, Acoustic Calibrators)	(94 dB to 114) dB	0.30 dB	Substitution method, SPEKTRA CS18AK w/ reference microphone and reference calibrator

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 g_n is the standard gravitational acceleration due to gravity.

⁴ For sinusoidal excitation and narrow-band evaluation, the amplitudes of vibration acceleration, velocity and displacement are unambiguously linked to one another by the vibration frequency; therefore, velocity and displacement sensors are calibrated using the measurand acceleration and frequency, as stated in the table.

⁵ In the statement of CMC, percentages are to be read as percent of reading unless otherwise noted.

⁶ This scope meets A2LA's *P112 Flexible Scope Policy*.



Accredited Laboratory

A2LA has accredited

PRECISION LABS, LLC

San Juan Capistrano, CA

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/NCCL 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 24th day of February 2020.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2405.01
Valid to February 28, 2022

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