



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

DYTRAN INSTRUMENTS INC.
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 Chatsworth, CA 91311
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CALIBRATION

Valid To: May 31, 2018

Certificate Number: 2672.01

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

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2,3,4} (±)	Comments
DC Voltage – Measure	(0 to 30) V	0.11 %	Fluke 45
Capacitance – Measure	330 pF to 15 µF	0.16 %	Capacitance meter, 1 kHz
Resistance – Measure	(0 to 300) kΩ 300 kΩ to 1 MΩ	0.12 % 0.13 %	Fluke 45

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Measure (0 to 5) V	(20 to 50) Hz 50 Hz to 10 kHz	1.6 % 0.53 %	Data acquisition card

II. Mechanical

Parameter/Equipment	Range ⁵	CMC ^{2,4} (±)	Comments
Acceleration Sensitivity/Frequency Response	1 Hz @ 0.25G (2 to 20) Hz @ 1G (20 to 100) Hz @ 1G (100 to 2500) Hz @ 1G (2500 to 10 000) Hz @ 1G	1.8 % 1.8 % 1.6 % 1.4 % 2.8 %	Data acquisition card
Acceleration Sensitivity Deviation Due to Temperature	(-55 to 270) °C @ 100 Hz, 1G	4.3 %	Mini-shaker
Transverse Sensitivity	328 Hz @ 1G	3.7 %	Back-to-back comparison using electrodynamic shaker
Acoustic Pressure	160 dB @ 1000 Hz	2.5 %	Comparison to standard microphone
Static Force – Fixed Points	(10 to 500) lbf (500 to 1000) lbf (1000 10 000) lbf (10 000 to 100 000) lbf (1.876, 2.840, 3.290, 4.170) lbf	0.95 % 1.3 % 1.1 % 1.2 % 0.67 %	Ring dynamometer, strain gage, load cell, Ring dynamometer, load cell Dead weights
Shock	Up to 5000G	3.0 %	Load cell
Static Pressure	(5 to 1000) psig (1000 to 15 000) psig	0.90 % 0.90 %	Back-to-back comparison in pressure pump
Impulse Force	Up to 1000 lbf (1000 to 5000) lbf	3.8 % 1.0 %	Load cell

Parameter/Range ⁵	Frequency	CMC ^{2,4} (±)	Comments
Acceleration Amplitude Linearity Vibration – (1 to 80)G	100 Hz 400 Hz 1000 Hz	1.6 % 1.8 % 2.9 %	Back-to-back comparison using electrodynamic shaker

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 The measurands stated are generated with the Fluke 45 series of instruments. This capability is suitable for the calibration of the devices intended to measure the stated measurand in the ranges indicated. CMC's are expressed as either a specific value that covers the full range or as a fraction of the reading plus a fixed floor specification.

⁴ In the statement of CMC, % denotes percentage of reading.

⁵ In the statement of the Range, G represents the gravitational acceleration.



Accredited Laboratory

A2LA has accredited

DYTRAN INSTRUMENTS INC.

Chatsworth, CA

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 for ANSI/NCSL 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 23rd day of August 2016.



A handwritten signature in blue ink, reading "Jim C. Bunt".

Senior Director of Quality and Communications
For the Accreditation Council
Certificate Number 2672.01
Valid to May 31, 2018

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