



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

DTS
25881 Meadowbrook Rd
Novi, MI 48375
Jim Platte Phone: 248 513 6050

CALIBRATION

Valid To: May 31, 2018

Certificate Number: 3007.01

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

I. Dimensional

Parameter/Equipment	Range	CMC ² (±)	Comments
Velocity Measurement System ³ – Length (1D)	(0.05 to 60) in	0.022 in	Vernier calipers

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2,4,5} (±)	Comments
DC Voltage ³ – Measure	(0.1 to 1) mV (1 to 10) mV (10 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V	8.6 µV 5.9 µV 24 µV 4.6 mV 4.6 mV 5.6 mV	Agilent 34420A
DC Voltage ³ – Generate	(1 to 10) V	0.20 mV	Agilent 33120A

Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments
DC Current ³ – Measure	(1 to 10) mA (10 to 100) mA	12 µA 84 µA	Agilent 34401A
Resistance ³ – Measure	(1 to 100) Ω 100 Ω to 1 kΩ (1 to 10) kΩ (10 to 100) kΩ	0.019 Ω 0.13 Ω 1.3 Ω 13 Ω	Agilent 34401A

Parameter/Range	Frequency	CMC ^{2,5} (±)	Comments
AC Voltage ³ – Measure			
(1 to 100) mV	10 Hz to 20 kHz (20 to 50) kHz	0.43 mV 0.21 mV	Agilent 34401A
100 mV to 1 V	10 Hz to 20 kHz (20 to 50) kHz	4.9 mV 3.4 mV	
(1 to 10) V	10 Hz to 20 kHz (20 to 50) kHz	40 mV 18 mV	

III. Mechanical

Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments
Angular Rate ³	(0 to 300) °/s (300 to 1500) °/s (1500 to 8000) °/s (8000 to 12 000) °/s	0.30 °/s 0.68 °/s 0.55 °/s 0.76 °/s	Agilent 34401A DTS rate table

IV. Time & Frequency

Parameter/Range	Frequency	CMC ^{2,4,5} (±)	Comments
Frequency ³ – Measure, Fixed Points @ 1 V	20 Hz 1.0 kHz 20 kHz 50 kHz 100 kHz	0.009 Hz 0.1 Hz 2.0 Hz 5.0 Hz 11 Hz	Agilent 34401A
Frequency ³ – Measuring Equipment	100 Hz to 1 kHz	0.04 Hz	Agilent 33120A

¹ This laboratory offers commercial calibration service and field 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 Field calibration service is available for this calibration and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

⁴ The measurands stated are generated with the Agilent 33000A series of instruments. This capability is suitable for the calibration of the devices intended to measure the stated measurand in the ranges indicated. CMCs are expressed as either a specific value that covers the full range or as a fraction of the reading plus a fixed floor specification.

⁵ The measurands stated are measured with the Agilent 34000A series of instruments. This capability is suitable for the calibration of the devices intended to generate the measurand in the ranges indicated. CMCs are expressed as either a specific value that covers the full range or as a combination of the fraction of the reading/output plus a range specification.



Accredited Laboratory

A2LA has accredited

DTS

Novi, MI

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/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 20th day of April 2016.

A handwritten signature in blue ink, appearing to read 'John C. Burt', written over a horizontal line.

Senior Director of Quality and Communications
For the Accreditation Council
Certificate Number 3007.01
Valid to May 31, 2018

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