



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

DTS  
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CALIBRATION

Valid To: May 31, 2016

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 calibrations<sup>1</sup>:

I. Dimensional

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Velocity Measurement System <sup>3</sup> – Length (1D)	Up to 24 in (24 to 60) in	0.003 in 0.003 in	Calipers

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC <sup>2, 4, 5</sup> (±)	Comments
DC Voltage <sup>3</sup> – Measure	(0 to 1) mV	34 µV	Agilent 34420A
	(1 to 10) mV	46 µV	
	(10 to 100) mV	35 µV	
	100 mV to 1 V	170 µV	
	(1 to 10) V	0.79 mV	
	(10 to 100) V	3.6 mV	
DC Voltage <sup>3</sup> – Generate	(1 to 10) V	0.20 mV	Agilent 33120A

Parameter/Equipment	Range	CMC <sup>2.5</sup> (±)	Comments
DC Current <sup>3</sup> – Measure	(1 to 10) mA (10 to 100) mA	12 µA 84 µA	Agilent 34401A
Resistance <sup>3</sup> – 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 <sup>2.5</sup> (±)	Comments
AC Voltage <sup>3</sup> – 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. Time & Frequency

Parameter/Equipment	Range	CMC <sup>2.4</sup> (±)	Comments
Frequency <sup>3</sup> – Measure, Fixed Points  @ 1 V	20.00000 Hz 1.000000 kHz 20.00000 kHz 50.00000 kHz 100.0000 kHz	0.009 Hz 0.1 Hz 2.0 Hz 5.0 Hz 11 Hz	Agilent 34401A
Frequency <sup>3</sup> – Measuring Equipment	100 Hz to 1 kHz	0.04 Hz	Agilent 33120A

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Angular Rate <sup>3</sup>	(0 to 300) °/s (300 to 1500) °/s (1500 to 8000) °/s (8000 to 12 000) °/s (12 000 to 18 000) °/s	0.43 °/s 1.9 °/s 11 °/s 16 °/s 2.8 °/s	Agilent 34401A DTS rate table

<sup>1</sup> This laboratory offers commercial calibration service and field calibration service.

<sup>2</sup> Calibration and Measurement Capability (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. Calibration and Measurement Capabilities 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.

<sup>3</sup> 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.

<sup>4</sup> 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. Calibration and Measurement Capabilities are expressed as either a specific value that covers the full range or as a fraction of the reading plus a fixed floor specification.

<sup>5</sup> 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. Calibration and Measurement Capabilities 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.