

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation



Revised 10/26/2004

Page 1 of 7

CALIBRATION LABORATORIES

NVLAP LAB CODE 105000-0

OAK RIDGE METROLOGY CENTER

P.O. Box 2009
Oak Ridge, TN 37831-8091
W. T. (Bill) McKeethan
Phone: 865-574-2707 Fax: 865-574-2802
E-Mail: mckeethanwt@y12.doe.gov

NVLAP Code: 20/A01

ANSI/NCSL Z540-1-1994; Part 1

Compliant

DIMENSIONAL

NVLAP Code: 20/D03

Gage Blocks, Steel and Chrome Only

Range	Best Uncertainty (\pm)^{note 1}	Remarks
0.010 in to 0.090 in	2.7 μ in	Mechanical Comparison
0.01 in to 1.000 in	2.1 μ in	Mechanical Comparison
2.0 in to 4.0 in	(3.1 + 2.0L) μ in ^{note 3}	Mechanical Comparison
0.20 mm to 2.5 mm	0.069 μ m	Mechanical Comparison
2.60 mm to 25 mm	0.055 μ m	Mechanical Comparison
30 mm to 100 mm	(0.80 + 2.0L) μ m ^{note 4}	Mechanical Comparison

March 31, 2005

Effective through

For the National Institute of Standards and Technology

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation



Revised 10/26/2004

Page 2 of 7

CALIBRATION LABORATORIES

NVLAP LAB CODE 105000-0

OAK RIDGE METROLOGY CENTER

NVLAP Code: 20/D05

Length

Range in m

0 to 1.2

Best Uncertainty (\pm)^{note 1}

(0.3 + 0.4L) μm ^{note 4}

Remarks

Step and End Gages using M-48
Coordinate Measuring Machine

NVLAP Code: 20/D06

Line Standards - Line Scales

Range in mm

0 to 800

Best Uncertainty (\pm)^{note 1, 4}

(0.2 + 0.63L) μm

Remarks

CMM (optical)

NVLAP Code: 20/D08

Optical Grid Plates/Reference Planes

Range

up to 350 mm

Best Uncertainty (\pm)^{notes 1, 4}

(0.6 + 0.15L) μm

Remarks

CMM (optical), Max Length and
Width, (600 x 600) mm

350 mm to 848 mm

(0.6 + 0.39L) μm

CMM (optical), Max Length and
Width, (600 x 600) mm

Field of view^{note 5}

0.2 μm

CMM (optical), Measurements
taken within camera field of
view

March 31, 2005

Effective through

For the National Institute of Standards and Technology

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation



Revised 10/26/2004

Page 3 of 7

CALIBRATION LABORATORIES

NVLAP LAB CODE 105000-0

OAK RIDGE METROLOGY CENTER

NVLAP Code: 20/D09

Roundness

Range

to 6 inches Diameter and 4
inches Height

Best Uncertainty (\pm)^{note 1}

0.1 μm

Remarks

Roundness Instrument

NVLAP Code: 20/D12

Surface Texture

Range

41 μin to 120 μin (1.04 μm to 3.05 μm)

13 μin to 40 μin (0.33 μm to 1.02 μm)

12 μin (0.31 μm)

Best Uncertainty (\pm)^{note 1}

5.03 μin (0.13 μm)

1.74 μin (0.044 μm)

0.85 μin (0.021 μm)

Remarks

Ra (Roughness Average)

Ra (Roughness Average)

Ra (Roughness Average)

NVLAP Code: 20/D15

Two Dimensional Gages

Range in m

0.8 x 1.2

Best Uncertainty (\pm)^{note 1}

(0.45 + 0.9L) μm ^{note 4}

Remarks

M-48 CMM

March 31, 2005

Effective through

For the National Institute of Standards and Technology

Scope of Accreditation



Revised 10/26/2004

CALIBRATION LABORATORIES

NVLAP LAB CODE 105000-0

OAK RIDGE METROLOGY CENTER

NVLAP Code: 20/D18

Gears

<i>Range</i>	<i>Best Uncertainty (\pm)^{note 1}</i>	<i>Remarks</i>
to 6 inches Diameter	0.9 μm	Involute Profile
to 6 inches Diameter and Infinite Lead	0.8 μm	Helix
to 6 inches Diameter and 99 inches Lead	0.9 μm	Helix
to 6 inches Diameter and 32 inches Lead	1.1 μm	Helix
to 6 inches Diameter and 16 inches Lead	1.2 μm	Helix
to 6 inches Diameter and 11 inches Lead	1.4 μm	Helix
to 6 inches Diameter (pin offset)	0.7 μm	Pin Master
to 6 inches Diameter (pin diameter)	0.5 μm	Pin Master
to 6 inches Diameter (pin roundness)	0.3 μm	Pin Master
to 24 inches Diameter	1.6 arcseconds	Index and Runout

March 31, 2005

Effective through

For the National Institute of Standards and Technology

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation



Page 5 of 7

Revised 10/26/2004

CALIBRATION LABORATORIES

NVLAP LAB CODE 105000-0

OAK RIDGE METROLOGY CENTER

TIME AND FREQUENCY

NVLAP Code: 20/F01

Frequency Dissemination

<i>Range</i>	<i>Best Uncertainty (\pm) in Hz^{note 1}</i>	<i>Remarks</i>
1 MHz, 5 MHz, 10 MHz	1.02×10^{-10}	Comparison using FMS
1 MHz, 5 MHz, 10 MHz	5.3×10^{-10}	Comparison
1 Hz to < 1 MHz	$(1 \times 10^{-6} + 0.1 \text{ Hz})^{\text{note 2}}$	Direct Reading
1 MHz to 10 MHz	$1 \times 10^{-8 \text{note 2}}$	Direct Reading
> 10 MHz to 1 GHz	$1 \times 10^{-7 \text{note 2}}$	Direct Reading

March 31, 2005

Effective through

For the National Institute of Standards and Technology

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation



Revised 10/26/2004

Page 6 of 7

CALIBRATION LABORATORIES

NVLAP LAB CODE 105000-0

OAK RIDGE METROLOGY CENTER

THERMODYNAMIC

NVLAP Code: 20/T05

Pressure

<i>Range</i>	<i>Best Uncertainty (\pm) ppm^{note 1}</i>	<i>Remarks</i>
Pneumatic Deadweight Piston Gauge (absolute Mode) - Direct Pressure Comparison		
1.2 psia to 23.6 psia (8.3 kPa to 162.7 kPa)	500	
5.7 psia to 95.6 psia (39.3 kPa to 659.1 kPa)	101	
41.9 psia to 1001.6 psia (288.9 kPa to 6905.8 kPa)	45	
Pneumatic Deadweight Poston Gauge (Gauge Mode) - Direct Pressure Comparison		
1.2 psia to 23.6 psia (8.3 kPa to 162.7 kPa)	26	Nitrogen
5.7 psia to 95.6 psia (39.3 kPa to 659.1 kPa)	22	Nitrogen
41.9 psia to 1001.6 psia (288.9 kPa to 6905.8 kPa)	43	Nitrogen
Hydraulic Deadweight Piston Gauge (Gauge Mode) - Direct Comparison		
203 psig to 3771 psig (1.4 MPa to 26 MPa)	60	Oil
2031 psig to to 19,870 psig (14 MPa to 137 MPa)	70	Oil
4061 psig to 39,595 psig (28 MPa to 273 MPa)	70	Oil

March 31, 2005

Effective through

For the National Institute of Standards and Technology

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation



Revised 10/26/2004

Page 7 of 7

CALIBRATION LABORATORIES

NVLAP LAB CODE 105000-0

OAK RIDGE METROLOGY CENTER

NVLAP Code: 20/T07

Resistance Temperature Devices

Range in °C

Best Uncertainty (\pm)^{note 1}

Remarks

0.01 to 29.7646

0.0017 °C

Comparison

1. Represents an expanded uncertainty using a coverage factor, $k=2$, at an approximate level of confidence of 95%.
2. Realizable uncertainty depends on frequency being measured, customer requirements, and suitability of customer's equipment.
3. L is length in inches.
4. L is length in meters.
5. Glass Reticles, Stage Micrometers, Glass Magnification Scales, Orthogonality Standards, and Calibration Charts.

March 31, 2005



Effective through

For the National Institute of Standards and Technology