



National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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CALIBRATION LABORATORIES

NVLAP LAB CODE 200502-0

NVLAP Code: 20/A01

ANSI/NCSL Z540-1-1994; Part 1

Compliant

DC/LOW FREQUENCY

NVLAP Code: 20/E05

DC Resistance

<i>Range in ohms</i>	<i>Best Uncertainty (\pm) in ohms ^{note 1}</i>	<i>Remarks</i>
1	0.006	Simulated
10	0.007	Simulated
100	0.018	Simulated
1 k	0.122	Simulated
10 k	4	Simulated
100 k	35	Simulated
1 M	347	Simulated
10 M	4 k	Simulated
100 M	35 k	Simulated
10	0.0008	Measured
100	0.0075	Measured
1 k	0.06	Measured
10 k	0.6	Measured
100 k	8.3	Measured
1 M	85	Measured
10 M	4.7 k	Measured

2008-10-01 through 2009-09-30

Effective dates

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100 M 174 k Measured

NVLAP Code: 20/E05
DC Current

<i>Range</i>	<i>Best Uncertainty (±) ^{note 1}</i>	<i>Remarks</i>
0 to 100 mA	0.005 mA	Simulated
0 to 25 mA	0.003 mA	Measured
100 mA	0.005 mA	Measured

NVLAP Code: 20/E06
DC Voltage

<i>Range</i>	<i>Best Uncertainty (±) in mV ^{note 1}</i>	<i>Remarks</i>
0 to 100 mV	0.003	Simulated
100 mV	0.0058	Measured
1 V	0.031	Measured
10 V	0.32	Measured

THERMODYNAMICS

NVLAP Code: 20/T07
Resistance Thermometry

<i>Range in °C</i>	<i>Best Uncertainty (±) ^{note 1}</i>	<i>Min. Overall Length</i>	<i>Remarks</i>
-196	0.03 °C	12 in	Comparison Measurement against PRT
-75	0.03 °C	12 in	Comparison Measurement against PRT
-40 to 230	0.04 °C	6 in	Comparison Measurement against PRT
230 to 420	0.04 °C	18 in	Comparison Measurement against PRT
420 to 660	0.52 °C	18 in	Comparison Measurement against S Thermocouple
-196	0.013 °C	12 in	Comparison Measurement against SPRT
-75	0.014 °C	12 in	Comparison Measurement against SPRT

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-40 to 230	0.026 °C	6 in	Comparison Measurement against SPRT
230 to 420	0.026 °C	18 in	Comparison Measurement against SPRT
0.01	2.8 mK	18 in	Fixed Point (TPW)
29.7646	3.5 mK	12 in	Fixed point (MPGa)

NVLAP Code: 20/T07

Resistance Thermometry/Digital/Analog Temperature Indicators

Range in °C	Best Uncertainty (±) in °C ^{note 1}	Type	Remarks
-200 to 660	0.02	PT100	Simulated
-270 to 1000	0.06	E	Simulated
-210 to 1200	0.07	J	Simulated
-270 to 1372	0.08	K	Simulated
-270 to 1300	0.12	N	Simulated
-270 to 400	0.08	T	Simulated
0 to 1820	0.28	B	Simulated
-50 to 1768	0.46	R	Simulated
-50 to 1768	0.43	S	Simulated
-200 to 660	0.02	PT100	Measured
-270 to 1000	0.04	E	Measured
-210 to 1200	0.05	J	Measured
-270 to 1372	0.08	K	Measured
-270 to 1300	0.11	N	Measured
-270 to 400	0.07	T	Measured
0 to 1820	0.04	B	Measured
-50 to 1768	0.36	R	Measured
-50 to 1768	0.11	S	Measured

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NVLAP Code: 20/T08

Thermocouples - Type E

Range in °C	Best Uncertainty (\pm) in °C ^{note 1}	Min. Overall Length	Remarks
-196	0.55	12 in	Comparison Measurement against PRT
-75	0.55	12 in	Comparison Measurement against PRT
-40 to 230	0.55	6 in	Comparison Measurement against PRT
230 to 420	0.55	18 in	Comparison Measurement against PRT
420 to 1000	0.79	20 in	Comparison Measurement against S Thermocouple

Thermocouples - Type J

-196	0.72	12 in	Comparison Measurement against PRT
-75	0.72	12 in	Comparison Measurement against PRT
-40 to 230	0.72	6 in	Comparison Measurement against PRT
230 to 420	0.72	18 in	Comparison Measurement against PRT
420 to 1100	0.89	20 in	Comparison Measurement against S Thermocouple
1100 to 1200	1.07	20 in	Comparison Measurement against S Thermocouple

Thermocouples - Type K

-196	0.72	12 in	Comparison Measurement against PRT
-75	0.71	12 in	Comparison Measurement against PRT
-40 to 230	0.71	6 in	Comparison Measurement against PRT
230 to 420	0.71	18 in	Comparison Measurement against PRT
420 to 1100	0.89	20 in	Comparison Measurement against S Thermocouple
1100 to 1200	1.08	20 in	Comparison Measurement against S Thermocouple
1200 to 1372	1.64	30 in	Comparison Measurement against B Thermocouple

Thermocouples - Type N

-196	0.73	12 in	Comparison Measurement against PRT
-75	0.73	12 in	Comparison Measurement against PRT

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-40 to 230	0.73	6 in	Comparison Measurement against PRT
230 to 420	0.73	18 in	Comparison Measurement against PRT
420 to 1100	0.90	20 in	Comparison Measurement against S Thermocouple
1100 to 1200	1.08	20 in	Comparison Measurement against S Thermocouple
1200 to 1300	1.34	30 in	Comparison Measurement against B Thermocouple
Thermocouples - Type T			
-196	0.35	12 in	Comparison Measurement against PRT
-75	0.34	12 in	Comparison Measurement against PRT
-40 to 230	0.72	6 in	Comparison Measurement against PRT
230 to 420	0.72	18 in	Comparison Measurement against PRT
Thermocouples - Type B			
200 to 420	1.00	18 in	Comparison Measurement against PRT
420 to 1100	0.84	20 in	Comparison Measurement against S Thermocouple
1100 to 1200	0.92	20 in	Comparison Measurement against S Thermocouple
1200 to 1450	1.72	30 in	Comparison Measurement against B Thermocouple
Thermocouples - Type R			
-40 to 230	0.71	6 in	Comparison Measurement against PRT
230 to 420	0.71	18 in	Comparison Measurement against PRT
420 to 1100	0.81	20 in	Comparison Measurement against S Thermocouple
1100 to 1200	0.99	20 in	Comparison Measurement against S Thermocouple
1200 to 1450	1.76	30 in	Comparison Measurement against B Thermocouple

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Thermocouples - Type S

-40 to 230	0.69	6 in	Comparison Measurement against PRT
230 to 420	0.69	18 in	Comparison Measurement against PRT
420 to 1100	0.87	20 in	Comparison Measurement against S Thermocouple
1100 to 1200	1.14	20 in	Comparison Measurement against S Thermocouple
1200 to 1450	1.80	30 in	Comparison Measurement against B Thermocouple

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1. Represents an expanded uncertainty using a coverage factor, $k = 2$, at an approximate level of confidence of 95 %.

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