



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105014-0

Scope Revised : 2007-04-20

200 mA		278		209		142		132
300 mA		278		209		142		132
500 mA		300		203		124		109
	10	20	40	400 to 5 k	10 k			
1A	300	203	125	110	112			
	10	20	40	400 to 10 k				
2A	305	200	127	113				
3A	305	200	127	113				
	10	20	40	400 to 5 k	10 k			
5A	309	210	134	120	123			
	10	20	40	400	1 k	5 k	10 k	
10A	318	216	140	127	127	127	128	
							400 to 10 k	
20A							135	

NVLAP Code: 20/E05
DC Current

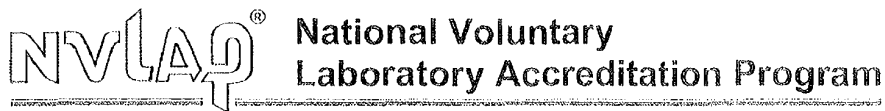
Range	Best Uncertainty ($\pm$) in ppm ^{note 1}
10 nA	4.0
100 nA	3.6
1 μ A	3.0
10 μ A	2.3
100 μ A	1.9
1 mA	1.9
10 mA	1.9
100 mA	1.9
1 A	10.4
10 A	10.4
30 A	20.6

2007-04-01 through 2008-03-31

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DC Resistance

<i>Nominal Value in Ω</i>	<i>Best Uncertainty ($\pm$) in ppm ^{note 1}</i>	<i>Remarks</i>
100 μ	6.1	Automated DC Resistance Calibration System
1 m	4.1	Automated DC Resistance Calibration System
10 m	3.1	Automated DC Resistance Calibration System
100 m	0.3	Automated DC Resistance Calibration System
1	0.2	Automated DC Resistance Calibration System
10	0.2	Automated DC Resistance Calibration System
25	0.3	Automated DC Resistance Calibration System
100	0.3	Automated DC Resistance Calibration System
1 k	0.3	Automated DC Resistance Calibration System
10 k	0.4	Automated DC Resistance Calibration System
100 k	1.2	Automated DC Resistance Calibration System
1 M	1.7	Automated DC Resistance Calibration System
10 M	2.1	Automated DC Resistance Calibration System
100 M	2.6	Automated DC Resistance Calibration System

NVLAP Code: 20/1306

DC Voltage

<i>Range</i>	<i>Best Uncertainty ($\pm$) in ppm ^{notes 1,2}</i>	<i>Remarks</i>
1.018 V	1.1	Automated DC Calibration System
10.00 V	0.4	Automated DC Calibration System
1.000 V	1.1	Automated DC Calibration System
1 mV to 100 mV	1.3 ^{note 6}	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage
100 mV	0.7	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage
1.0 V	0.4	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage

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10.0 V	0.4	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage
20.0 V	0.6	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage
100.0 V	0.4	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage
1000.0 V	0.8	Ratiometric Measurement Techniques performed by voltage transfer utilizing a high precision voltage

NVLAP Code: 20/E09
LF AC Voltage

Best Uncertainty (±) in ppm ^{notes 1,3,4}
Frequency in Hz

Range	10	20	40	100	1 k	5 kHz	10 k	15 kHz	20 k	25 kHz
2 mV	306	893	835	873	376	599	854	889	854	825
10 mV	109	166	96	176	188	180	166	169	166	175
20 mV	79	69	65	65	65	66	66	69	66	81
30 mV	131	123	84	105	65	72	86	75	70	78
100 mV	33	37	22	33	33	32	31	32	32	34
190 mV	35	27	29	21	24	23	23	20	19	22
300 mV	47	47	23	23	27	23	19	22	26	27
1 V	120	34	18	9	12	12	12	12	11	12
1.9 V	36	22	19	10	8	8	8	8	8	9
3 V	31	34	25	17	16	15	15	15	15	17
10 V	21	33	19	11	10	10	11	11	12	11
19 V	31	23	20	11	10	10	10	10	11	11
30 V	29	34	25	16	16	17	18	18	18	20
100 V	85	36	20	16	15	15	16	14	12	15
190 V	45	24	20	19	13	13	13	15	17	16
300 V			36	29	18	22	27	24	22	23
500 V			30	25	17	18	19	19	19	21

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700 V			27	23	18	18	18	18	22
1000 V			26	25	22	21	21	21	25
Range	30 kHz	50 k	60 kHz	100 k	300 k	500 K	700 kHz	800 k	1M
2 mV	730	395	529	1020	1237	2090	2308	2419	2419
10 mV	182	205	233	299	234	631	459	373	403
20 mV	94	128	167	202	301	451	371	333	373
30 mV	87	127	144	216	342	515	560	590	643
100 mV	35	42	49	76	156	201	247	271	192
190 mV	26	41	49	81	137	119	208	252	191
300 mv	29	37	42	64	120	155	172	189	152
1 V	13	18	18	11	70	90	103	95	75
1.9 V	10	15	14	14	90	95	85	81	82
3 V	19	27	24	24	90	94	96	97	112
10 V	11	11	11	12	70	95	99	104	100
19 V	11	11	12	16	84	91	89	93	104
30 V	22	31	31	31	91				
100 V	18	31	28	17					
190 V	16	18	18	21					
300 V	24	28	31	43					
500 V	24	35	37	51					
700 V	25	40	42	58					
1 kV	29								

TIME AND FREQUENCY

NVLAP Code: 20/F01

Frequency Dissemination

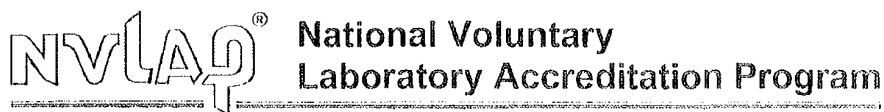
Range	Best Uncertainty ($\pm$) ^{note 1}	Remarks
10 MHz	1.2×10^{-12}	GPS Receiver

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MECHANICAL

NVLAP Code: 20/M05

Flow Rate

Nominal Flow Rate

Best Uncertainty ($\pm$) in percent ^{notes 1, 5}

(0.8 to 30) L/s

0.3

(0.1 to 800) mL/s

0.4

NVLAP Code: 20/M06

Force

Nominal Force in lb

Best Uncertainty ($\pm$) ^{note 1}

Remarks

2 to 200

0.025 %

Dead Weight

> 200 to 300

0.086 lb

Proving Ring

> 300 to 500

0.14 lb

Proving Ring

> 500 to 1000

0.28 lb

Proving Ring

> 1000 to 2000

0.55 lb

Proving Ring

> 2000 to 5000

0.84 lb

Proving Ring

> 5000 to 10 000

1.7 lb

Proving Ring

> 10 000 to 20 000

5.5 lb

Proving Ring

> 20 000 to 35 000

5.8 lb

Proving Ring

> 35 000 to 50 000

13 lb

Proving Ring

> 50 000 to 60 000

16 lb

Proving Ring

> 60 000 to 100 000

26 lb

Proving Ring

> 100 000 to 300 000

113 lb

Proving Ring

NVLAP Code: 20/M08

Mass

Range

Best Uncertainty ($\pm$) in mg ^{notes 1,2}

Remarks

10 kg

2.3

Echelon I

5 kg

0.93

Echelon I

3 kg

0.65

Echelon I

2 kg

0.43

Echelon I

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