



National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

NVLAP Code: 20/A01

ANSI/NCSL Z540-1-1994; Part 1

Compliant

DIMENSIONAL

NVLAP Code: 20/D01

Angular

Bubble Level Indicators

Range in minutes

(0 to 2)

Best Uncertainty (±) in minutes

0.80

Remarks

PG 7000 Base Calibration

ELECTROMAGNETICS - DC LOW FREQUENCY

NVLAP Code: 20/E01

AC/DC Difference for Low Frequency Voltage using 792A

Best Uncertainty (±) in $\mu V/V$ ^{note 1}

Frequency in Hertz

<i>Range</i>	<i>Level</i>	<i>10</i>	<i>20</i>	<i>40</i>	<i>100</i>	<i>1 k</i>	<i>10 k</i>	<i>20 k</i>	<i>50 k</i>	<i>100 k</i>	<i>300 k</i>	<i>500 k</i>	<i>800 k</i>	<i>1 M</i>
22 mV	2 mV	300	300	300	300	300	300	300	300	400	500	600	700	700
22 mV	6 mV	210	210	170	160	160	160	160	210	280	400	460	560	600
22 mV	10 mV	75	60	60	60	60	60	60	80	140	210	280	320	360
22 mV	20 mV	75	60	60	60	60	60	60	80	140	210	280	320	360
220 mV	20 mV	75	60	60	60	60	60	60	80	140	210	280	320	360

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

220 mV	60 mV	41	36	31	31	31	25	25	36	75	140	210	280	280
220 mV	100 mV	41	36	31	26	16	16	21	21	40	75	110	180	180
220 mV	200 mV	26	21	12	12	12	12	13	20	35	75	110	160	180
700 mV	200 mV	26	21	12	12	12	12	13	20	35	75	110	160	175
700 mV	600 mV	25	18	17	7	6	6	7	7	10	25	30	50	60
2.2 V	0.6 V	25	20	17	7	5	5	6	7	8	21	25	30	40
2.2V	1 V	25	20	17	7	5	5	5	7	8	20	25	30	40
2.2 V	2 V	25	20	17	7	5	5	5	5	7	20	25	30	40
7 V	2 V	25	20	17	7	5	5	5	6	7	20	25	30	40
7 V	6 V	25	20	17	7	5	5	5	6	7	20	25	30	40
22 V	6 V	25	20	17	7	5	5	5	6	7	20	25	30	40
22 V	10 V	25	20	17	7	5	5	5	6	8	20	25	30	40
22 V	20 V	25	20	17	7	6	6	6	7	9	20	25	30	40
70 V	20 V	25	20	17	7	6	6	6	7	10	25	30		
70 V	60 V	25	20	18	7	6	6	6	8	10	25	30		
220 V	60 V	25	20	18	7	6	6	6	8	10	25			
220 V	100 V	25	20	18	7	6	6	7	8	10				
220 V	200 V	36	21	19	9	8	8	8	10	15				
1000 V	200 V	40	21	19	9	8	8	8	12	30				
1000 V	600 V	50	21	21	16	11	11	11	16	35				
1000 V	1000 V	50	21	21	19	17	17	18	25	45				

AC/DC Difference using 5790A

Range	Applied	Frequency in Hertz						
		10	20	100	1 k	10 k	20 k	50 k
220 mV	200 mV	35	22	17	17	17	17	40
700 mV	600 mV	30	36	10	12	8	8	22
2.2 V	600 mV	30	36	10	11	8	8	22
2.2 V	1 V	85	34	8	10	11	9	18
2.2 V	2 V	25	20	8	6	6	6	14
7 V	2 V	25	20	8	6	6	6	14
7 V	6 V	25	20	9	7	8	7	20

2011-07-01 through 2012-06-30

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CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

22 V	20 V	25	20	9	9	9	10	10
70 V	60 V	25	22	10	10	12	10	28
220 V	200 V	40	24	18	12	12	13	15
700 V	600 V			23	15	16	18	
1000 V	1000 V			22	18	18	19	

AC/DC Difference for High Frequency Thermal Converters

Best Uncertainty (±) in percent^{note 1}
Frequency in Hertz

Range	2 M	10 M	20 M	30 M	50 M	100 M
0.5 V	0.08	0.1	0.2	0.2	0.5	1.0
1 V	0.08	0.1	0.2	0.2	0.5	1.0
2 V	0.08	0.08	0.16	0.16	0.4	0.8
3 V	0.08	0.1	0.16	0.2	0.5	1.0
5 V		0.1	0.2	0.2	0.5	1.0
10 V		0.1	0.2	0.2	0.5	1.0
20 V		0.1	0.15	0.2	0.5	1.0
30 V		0.08	0.16	0.16	0.4	0.8
50 V		0.08	0.16	0.16	0.4	0.8

AC/AC Difference, relative to 1 kHz, for TVC with 50Ω input impedance

Best Uncertainty (±) in μV/V^{note 1}
Frequency in Hertz

Range	10 -100 k	200 k	500 k	700 k - 1 M	1.2 M - 2 M	3 M - 4 M	6 M
3V	50	50	50	90	90	170	200

Best Uncertainty (±) in μV/V^{note 1}
Frequency in Hertz

Range	8 M - 10 M	12 M - 15 M	17 M	20 M	23 M	26 M	28 M	30 M
3V	225	340	400	420	650	800	900	1000

2011-07-01 through 2012-06-30

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

AC/DC Difference for Low Frequency Current Shunts with detector

Range	<i>Best Uncertainty (±) in $\mu A/A$ ^{note 1}</i>							
	<i>Frequency in Hertz ^{note 7}</i>							
	10	20 to 30	40 to 1 k	3 k	5 k	10 k	20 k	30 k
10 μA	250	250	250					
20 μA	100	80	70	110	120	150		
30 μA	150	135	85	85	90	100	120	190
100 μA	50	55	50	55	65	75	95	120
200 μA	50	35	30	50	60	70	95	120
300 μA	50	60	40	40	40	40	50	70
1 mA	30	20	20	20	20	20	25	30
2 mA	30	20	20	20	20	20	25	30
3 mA	30	20	20	20	20	20	25	30

AC/DC Difference for Low Frequency Detectors and Shunts

Range	<i>Best Uncertainty (±) in $\mu A/A$ ^{note 1}</i>										
	<i>Frequency in Hertz</i>										
	10	20	40	400	1 k	5 k	10 k	20 k	30 k	50 k	100 k
10 mA	30	30	20	20	20	20	20	25	50	40	60
20 mA	30	30	20	20	20	20	20	25	50	40	60
30 mA	30	30	20	20	20	20	20	25	55	40	60
50 mA	30	30	20	20	20	20	20	25	55	40	60
100 mA	30	30	20	20	20	20	20	25	60	50	70
200 mA	35	30	20	20	20	20	20	25	60	50	80
300 mA	35	30	25	25	25	25	25	30	65	50	80
500 mA	40	30	25	25	25	25	25	30	65	50	80
1 A	40	35	25	25	25	25	25	45	105	100	190
2 A	50	45	30	30	30	30	30	45	105	100	190
3 A	60	50	35	35	35	35	35	55	115	110	190
5 A	70	60	40	40	40	40	40	65	165	160	300

2011-07-01 through 2012-06-30

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

10 A	80	70	45	45	45	45	45	75	125	120
20 A	120	100	65	65	65	65	65	100	150	140

NVLAP Code: 20/E02

AC/DC Difference of Y5020 Shunt

Best Uncertainty (±) in $\mu A/A$ ^{note 1}
Frequency in Hertz

Range	50	100	300	1 k	3 k	4 k	5 k
10A, 20 A	50	50	50	60	60	60	60

AC Current, 1 Hz to 10 Hz

Range	<i>Best Uncertainty (±) in $\mu A/A$ ^{note 1}</i>	Remarks
100 μA - 5 mA	500	
10 mA - 500 mA	300	
1 A	350	
2A	450	
3 A	500	
5 A, 10 A	600	
20 A	1000	

AC Current, 50 Turn Coil

Applied Current	Amp- Turns	Frequency	<i>Best Uncertainty (±) in % ^{note 1}</i>
6 A	300	50 Hz, 400 Hz	0.20
12 A	600	50 Hz, 400 Hz	0.18
20 A	1000	50 Hz, 400 Hz	0.18

5500A Console

Best Uncertainty (±) in $\mu A/A$ ^{note 1}
Frequency in Hertz

Range	10	45	65	500	1 k	5 k	10 k
33 μA					300		650

2011-07-01 through 2012-06-30

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Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

190 μ A		60		60		360
329 μ A	60	60		60	150	330
330 μ A				130	160	
1.9 mA				30		60
3.29 mA	40	30		30	30	50
3.3 mA				80	100	
19 mA				50		80
32.9 mA	130	65		65	80	90
33 mA				80	80	
190 mA				50		90
329 mA	130	65		65	80	90
330 mA				85	100	
2.19 A	100	70		70	230	
2.2 A			100	100		
11 A		80	80	80	80	

5520A/5522A Console

*Best Uncertainty (\pm) in μ A/A ^{note 1}
Frequency in Hertz*

<i>Range</i>	<i>10</i>	<i>45</i>	<i>65</i>	<i>500</i>	<i>1 k</i>	<i>5 k</i>	<i>10 k</i>	<i>30 k</i>
33 μ A					300		400	500
190 μ A		50			50		100	200
329 μ A	60	50			50	50	60	150
330 μ A					80	100		200
1.9 mA					40		50	140
3.29 mA	50	40			40	40	60	140
3.3 mA					50	50		80
19 mA					50		75	120
32.9 mA	125	62			62	62	75	120
33 mA					80	80		150
190 mA					50		70	120

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

329 mA	125	62		62	62	70	120
330 mA				80	80	120	
1.09 A	125	70		70	250	600	
2.99 A	100	70		70	250	600	
3.3 A			150	150	1100		
11 A		80	80	80	200		
20 A		100	100	100	130	200	

Alternating Current, 5700A/5720A Test Console

<i>Range in Amps</i>	<i>Frequency in Hertz</i>	<i>Best Uncertainty (±) in $\mu A/A$ ^{note 1}</i>
19 μ	1 k	180
19 μ	5 k	220
19 μ	10 k	300
190 μ	40, 100, 1 k	35
190 μ	5 k	80
190 μ	10 k	200
1.9 m	1 k	30
1.9 m	5 k	60
1.9 m	10 k	200
19 m	1 k	30
19 m	5 k	80
19 m	10 k	300
190 m	40	30
190 m	100	37
190 m	1 k	30
190 m	5 k	80
190 m	10 k	300
1.9	40, 100, 1k	50
1.9	5 k	130
1.9	10 k	500

2011-07-01 through 2012-06-30

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

Alternating Current, 5725A Test Console

<i>Range in Amps</i>	<i>Frequency in Hertz</i>	<i>Best Uncertainty (±) in $\mu\text{A/A}$ ^{note 1}</i>
2.5	100	100
2.5	1 k	100
2.5	5 k	220
2.5	10 k	300
11	100	100
11	1 k	100
11	5 k	120
11	10 k	150

5520A/5522A Factory Annex
(Best uncertainty for indicated output current and frequency)

<i>Output</i>	<i>Best Uncertainty (±) in Amps ^{note 1}</i>	<i>Output</i>	<i>Best Uncertainty (±) in Amps ^{note 1}</i>
33 μA 1 kHz	4.9E-08	33 mA 1 kHz	5.2E-06
33 μA 10 kHz	5.3E-08	33 mA 5 kHz	5.3E-06
33 μA 30 kHz	6.8E-08	33 mA 30 kHz	7.0E-06
190 μA 45 Hz	2.2E-08	190 mA 1 kHz	2.2E-05
190 μA 1 kHz	2.1E-08	190 mA 10 kHz	2.8E-05
190 μA 10 kHz	5.0E-08	190 mA 30 kHz	3.4E-05
190 μA 30 kHz	2.1E-07	329 mA 10 Hz	4.6E-05
329 μA 10 Hz	2.8E-08	329 mA 45 Hz	2.8E-05
329 μA 45 Hz	2.6E-08	329 mA 1 kHz	2.7E-05
329 μA 1 kHz	2.6E-08	329 mA 5 kHz	3.1E-05
329 μA 5 kHz	3.3E-08	329 mA 10 kHz	3.6E-05
329 μA 10 kHz	5.9E-08	329 mA 30 kHz	5.0E-05
329 μA 30 kHz	3.4E-07	330 mA 1 kHz	4.0E-05
330 μA 1 kHz	5.2E-08	330 mA 5 kHz	1.2E-04
330 μA 5 kHz	5.4E-08	330 mA 10 kHz	4.5E-04
330 μA 30 kHz	9.4E-08	1.09 A 10 Hz	1.7E-04
1.90 mA 1 kHz	2.0E-07	1.09 A 45 Hz	1.2E-04
1.90 mA 10 kHz	2.8E-07	1.09 A 1 kHz	1.3E-04
1.90 mA 30 kHz	3.6E-07	1.09 A 5 kHz	3.1E-04

2011-07-01 through 2012-06-30

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

3.29 mA 10 Hz	2.5E-07	1.09 A 10 kHz	6.8E-04
3.29 mA 45 Hz	2.3E-07	2.99 A 10 Hz	3.3E-04
3.29 mA 1 kHz	2.3E-07	2.99 A 45 Hz	2.5E-04
3.29 mA 5 kHz	2.4E-07	2.99 A 1 kHz	2.6E-04
3.29 mA 10 kHz	3.0E-07	2.99 A 5 kHz	7.9E-04
3.29 mA 30 kHz	5.2E-07	2.99 A 10 kHz	1.9E-03
3.30 mA 1 kHz	5.0E-07	3.30 A 500 Hz	7.0E-04
3.30 mA 5 kHz	1.0E-06	3.30 A 5 kHz	4.2E-03
3.30 mA 30 kHz	7.8E-07	11 A 45 Hz	1.7E-03
19 mA 1 kHz	3.8E-06	11 A 65 Hz	1.6E-03
19 mA 10 kHz	6.6E-06	11 A 500 Hz	1.7E-03
19 mA 30 kHz	4.3E-06	11 A 1 kHz	1.6E-03
32.9 mA 10 Hz	4.9E-06	11 A 5 kHz	3.6E-03
32.9 mA 45 Hz	3.4E-06	20 A 45 Hz	3.7E-03
32.9 mA 1 kHz	5.7E-06	20 A 65 Hz	4.4E-03
32.9 mA 5 kHz	9.9E-06	20 A 500 Hz	4.4E-03
32.9 mA 10 kHz	1.0E-05	20 A 1 kHz	4.8E-03
32.9 mA 30 kHz	6.1E-06	20 A 5 kHz	7.5E-03

5720A Factory Annex

(Best uncertainty for indicated output, frequency, and load)

Output/Frequency/Load (Load in Ohms)	Best Uncertainty (±) in Amps^{note 1}	Output/Frequency/Load (Load in Ohms)	Best Uncertainty (±) in Amps^{note 1}
19 µA 1 kHz 1 k	4.3E-09	19.0 mA 10 kHz 10	5.7E-06
19 µA 10 kHz 1 k	5.4E-09	190 mA 40 Hz 1	5.9E-06
190 µA 40 Hz 1 k	6.4E-09	190 mA 1 kHz 1	6.2E-06
190 µA 1 kHz 1 k	6.4E-09	190 mA 10 kHz 1	5.7E-05
190 µA 10 kHz 1 k	2.9E-08	1.9 A 40 Hz 100 m	7.3E-05
1.90 mA 1 kHz 100	3.4E-08	1.9 A 1 kHz 100 m	7.5E-05
1.90 mA 10 kHz 100	2.3E-07	1.9 A 10 kHz 100 m	7.6E-04
19.0 mA 1 kHz 10	5.4E-07	19 µA 1 kHz 1 k (Aux)	5.0E-09

2011-07-01 through 2012-06-30

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

5725A Factory Annex

(Best uncertainty for indicated output, frequency, and load)

Output/Frequency/Load (Load in Ohms)	Best Uncertainty (±) in Amps^{note 1}	Output/Frequency/Load (Load in Ohms)	Best Uncertainty (±) in Amps^{note 1}
2.5 A 100 Hz 0.1	2.4E-04	11 A 100 Hz 0.02	1.2E-03
2.5 A 1 kHz 0.1	2.5E-04	11 A 1 kHz 0.02	1.1E-03
2.5 A 5000 Hz 0.1	5.3E-04	11 A 5000 Hz 0.02	1.2E-03
2.5 A 10 kHz 0.1	7.4E-04	11 A 10 kHz 0.02	1.5E-03

5500A Factory Annex

(Best uncertainty for indicated output current and frequency)

Output	Best Uncertainty (±) in Amps^{note 1}	Output	Best Uncertainty (±) in Amps^{note 1}
33 µA 1 kHz	1.4E-08	32.9 mA 1 kHz	3.2E-06
33 µA 10 kHz	2.8E-08	32.9 mA 5 kHz	3.7E-06
190 µA 45 Hz	2.5E-08	32.9 mA 10 kHz	4.0E-06
190 µA 1 kHz	2.5E-08	33 mA 1 kHz	9.6E-06
190 µA 10 kHz	7.9E-08	33 mA 5 kHz	1.1E-05
329 µA 10 Hz	3.9E-08	190 mA 1 kHz	3.0E-05
329 µA 45 Hz	3.6E-08	190 mA 10 kHz	4.0E-05
329 µA 1 kHz	4.0E-08	329 mA 10 Hz	5.1E-05
329 µA 5 kHz	7.2E-08	329 mA 45 Hz	3.8E-05
329 µA 10 kHz	1.3E-07	329 mA 1 kHz	4.0E-05
330 µA 1 kHz	7.3E-08	329 mA 5 kHz	5.3E-05
330 µA 5 kHz	8.1E-08	329 mA 10 kHz	5.7E-05
1.90 mA 1 kHz	1.9E-07	330 mA 1 kHz	9.0E-05
1.90 mA 10 kHz	2.1E-07	330 mA 5 kHz	9.2E-05
3.29 mA 10 Hz	2.7E-07	2.19 A 10 Hz	9.4E-04
3.29 mA 45 Hz	2.2E-07	2.19 A 45 Hz	3.2E-04
3.29 mA 1 kHz	2.2E-07	2.19 A 1 kHz	1.1E-03
3.29 mA 5 kHz	3.0E-07	2.19 A 5 kHz	6.9E-04
3.29 mA 10 kHz	2.9E-07	2.20 A 500 Hz	1.2E-03
3.30 mA 1 kHz	5.9E-07	2.20 A 1 kHz	8.5E-04
3.30 mA 5 kHz	6.2E-07	11 A 45 Hz	1.1E-03
19 mA 1 kHz	2.1E-06	11 A 65 Hz	1.1E-03

2011-07-01 through 2012-06-30

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Sally S. Bruce

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Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

19 mA 10 kHz	3.0E-06	11 A 500 Hz	1.2E-03
32.9 mA 10 Hz	5.3E-06	11 A 1 kHz	1.3E-03
32.9 mA 45 Hz	3.0E-06		

8845A/8846A Factory Annex

(Best uncertainty for AC current measurement at the indicated input current and frequency)

<i>Input Current/ Frequency</i>	<i>Best Uncertainty (±) in Amps ^{note 1}</i>	<i>Input Current/ Frequency</i>	<i>Best Uncertainty (±) in Amps ^{note 1}</i>
100.0 µA 10 Hz	4.1E-08	1.0 A 45 Hz	2.9E-04
100.0 µA 5000 Hz	1.1E-08	1.0 A 5000 Hz	1.2E-04
100.0 µA 10.00 kHz	1.3E-08	1.0 A 10.00 kHz	1.9E-04
1.00 mA 10 Hz	2.9E-07	1.90 A 45 Hz	6.4E-04
1.00 mA 5000 Hz	5.1E-08	1.90 A 1000 Hz	5.3E-04
1.00 mA 10.00 kHz	5.2E-08	1.90 A 10.00 kHz	1.2E-02
10.0 mA 10 Hz	2.9E-06	10.0 A 45 Hz	4.4E-03
10.0 mA 5000 Hz	8.9E-07	10.0 A 1000 Hz	1.3E-03
10.0 mA 10.00 kHz	9.6E-07	329.0 mA 10 Hz	5.7E-04
100.0 mA 10 Hz	3.0E-05	329.0 mA 1000 Hz	1.1E-04
100.0 mA 5000 Hz	1.1E-05	329.0 mA 5000 Hz	3.6E-04
100.0 mA 10.00 kHz	2.7E-05	329.0 mA 10.00 kHz	1.0E-03

NVLAP Code: 20/E05

DC Resistance

<i>Range in Ω</i>	<i>Best Uncertainty (±) in µΩ/Ω ^{note 1}</i>	<i>Remarks</i>
0.1 to < 1.0	1.0	Resistance using MI 6010B
1.0	0.17	Resistance using MI 6010B
> 1 to 130	0.2	Resistance using MI 6010B
> 130 to 1300	0.22	Resistance using MI 6010B
> 1300 to 13 k	0.25	Resistance using MI 6010B
10 k to 100 k	0.2	Resistance using MI 6000B
> 100 k to 1 M	0.25	Resistance using MI 6000B
> 1 M to 10 M	1.0	Resistance using MI 6000B
> 10 M to 100 M	5	Resistance using MI 6000B

2011-07-01 through 2012-06-30

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

100 M to 1 G	25	Resistance using MI 6000B
0.001	30	Low Ohm Method
0.01	25	Low Ohm Method

<i>Range in Ω</i>	<i>Best Uncertainty (\pm) in $\mu\Omega/\Omega$ ^{note 1,8}</i>	<i>Remarks</i>
1	12	Calibrators
1.9	10	Calibrators
10	5	Calibrators
19	4	Calibrators
100	3	Calibrators
190	2	Calibrators
1 k	2	Calibrators
1.9 k	2	Calibrators
10 k	0.5	Calibrators
19 k	1	Calibrators
100 k	2	Calibrators
190 k	2.5	Calibrators
1 M	3	Calibrators
1.9 M	3.5	Calibrators
3 M	4	Calibrators
10 M	4.5	Calibrators
19 M	6	Calibrators
30 M	15	Calibrators
100 M	25	Calibrators
300 M	60	Calibrators
0	100 $\mu\Omega$	5500A Console
2.0	55	5500A Console
10.9	25	5500A Console
11.9	25	5500A Console
19	70	5500A Console
30	70	5500A Console
33	40	5500A Console
109	21	5500A Console

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

119	17	5500A Console
190	13	5500A Console
300	12	5500A Console
330	11	5500A Console
1.09 k	10	5500A Console
1.19 k	10	5500A Console
1.9 k	13	5500A Console
3 k	12	5500A Console
3.3 k	11	5500A Console
10.9 k	10	5500A Console
11.9 k	10	5500A Console
19 k	12	5500A Console
30 k	12	5500A Console
33 k	11	5500A Console
109 k	10	5500A Console
119 k	10	5500A Console
190 k	24	5500A Console
300 k	20	5500A Console
330 k	20	5500A Console
1.09 M	15	5500A Console
1.19 M	15	5500A Console
1.9 M	10	5500A Console
3 M	10	5500A Console
3.3 M	85	5500A Console
10.9 M	60	5500A Console
11.9 M	60	5500A Console
19 M	30	5500A Console
30 M	30	5500A Console
33 M	540	5500A Console
109 M	520	5500A Console
119 M	520	5500A Console
290 M	100	5500A Console
0	30 $\mu\Omega$	5520A Console

2011-07-01 through 2012-06-30

Effective dates

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Scope Revised: 2011-11-07

2	15	5520A Console
10.9	5	5520A Console
11.9	5	5520A Console
19	3	5520A Console
30	3	5520A Console
33	3	5520A Console
109	3	5520A Console
119	3	5520A Console
190	3	5520A Console
300	3	5520A Console
330	3	5520A Console
1.09 k	3	5520A Console
1.19 k	3	5520A Console
1.9 k	3	5520A Console
3 k	3	5520A Console
3.3 k	3	5520A Console
10.9 k	3	5520A Console
11.9 k	3	5520A Console
19 k	3	5520A Console
30 k	3	5520A Console
33 k	3	5520A Console
109 k	3	5520A Console
119 k	3.5	5520A Console
190 k	3.5	5520A Console
300 k	3.5	5520A Console
330 k	3.5	5520A Console
1.09 M	4	5520A Console
1.19 M	4.5	5520A Console
1.9 M	5	5520A Console
3 M	6	5520A Console
3.3 M	6	5520A Console
10.9 M	8	5520A Console
11.9 M	8	5520A Console

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

19 M	20	5520A Console
30 M	20	5520A Console
33 M	30	5520A Console
109 M	70	5520A Console
119 M	70	5520A Console
290 M	150	5520A Console
400 M	200	5520A Console
640 M	400	5520A Console
1.09 G	600	5520A Console
0.0	2 $\mu\Omega$	5700A/5720A Test Console
1	3.5	5700A/5720A Test Console
1.9	7.0	5700A/5720A Test Console
10 to 190 k	1.5	5700A/5720A Test Console
1M	3.5	5700A/5720A Test Console
1.9M	4.5	5700A/5720A Test Console
10M	6.5	5700A/5720A Test Console
19M	13	5700A/5720A Test Console
100M	22	5700A/5720A Test Console

5520A/5522A Factory Annex
(Best uncertainty at specified output)

<i>Resistance Setting in Ohms</i>	<i>Best Uncertainty (\pm) in Ohms <small>note 1</small></i>	<i>Resistance Setting in Ohms</i>	<i>Best Uncertainty (\pm) in Ohms <small>note 1</small></i>
0	9.1E-06	33 k	1.4E-01
2	7.3E-05	109 k	4.5E-01
10.9	2.2E-04	119 k	5.2E-01
11.9	1.5E-04	190 k	9.3E-01
19	1.2E-04	300 k	1.6E+00
30	1.8E-04	330 k	1.6E+00
33	1.9E-04	1.09 M	8.7E+00
109	7.4E-04	1.19 M	5.8E+00
119	6.2E-04	1.90 M	2.3E+01
190	8.3E-04	3 M	3.3E+01
300	1.2E-03	3.30 M	3.2E+01

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

330	1.4E-03	10.9 M	1.4E+02
1.09 k	4.2E-03	11.9 M	1.2E+02
1.19 k	4.7E-03	19 M	6.0E+02
1.90 k	6.9E-03	30 M	1.1E+03
3 k	1.1E-02	33 M	1.7E+03
3.30 k	2.2E-02	109 M	1.1E+04
10.9 k	5.4E-02	119 M	1.1E+04
11.9 k	4.8E-02	290 M	7.9E+04
19 k	9.2E-02	400 M	2.0E+05
30 k	1.5E-01	640 M	4.9E+05
		1.09 G	1.1E+06

5720A Factory Annex

(Best uncertainty at indicated output)

<i>Resistance Setting in Ohms</i>	<i>Best Uncertainty (±) in Ohms ^{note 1}</i>	<i>Resistance Setting in Ohms</i>	<i>Best Uncertainty (±) in Ohms ^{note 1}</i>
0	2.1E-07	10k	4.3E-02
1.0	7.7E-06	19k	5.3E-02
1.9	3.4E-05	100 k	2.4E-01
10	3.2E-05	190 k	5.1E-01
19	6.6E-05	1.0 M	5.4E+00
100.0	3.1E-04	1.9 M	1.8E+01
190.0	4.5E-04	10 M	1.2E+02
1.0k	2.2E-03	19 M	4.1E+02
1.9k	4.1E-03	100 M	6.5E+03

5500A Factory Annex

(Best uncertainty at indicated output)

<i>Resistance Setting in Ohms</i>	<i>Best Uncertainty (±) in Ohms ^{note 1}</i>	<i>Resistance Setting in Ohms</i>	<i>Best Uncertainty (±) in Ohms ^{note 1}</i>
0	4.0E-05	30 k	4.0E-01
2	2.9E-04	33 k	3.8E-01
10.9	4.9E-04	109 k	1.2E+00
11.9	4.2E-04	119 k	1.3E+00
19	3.4E-03	190 k	4.6E+00

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

30	5.4E-03	300 k	6.2E+00
33	2.3E-03	330 k	6.7E+00
109	6.3E-03	1.09 M	1.7E+01
119	3.3E-03	1.19 M	1.8E+01
190	4.6E-03	1.90 M	2.5E+01
300	7.2E-03	3 M	4.0E+01
330	4.3E-03	3.30 M	2.8E+02
1.09 k	1.3E-02	10.9 M	6.6E+02
1.19 k	1.3E-02	11.9 M	7.2E+02
1.90 k	4.1E-02	19 M	6.1E+02
3 k	6.4E-02	30 M	1.1E+03
3.30 k	4.3E-02	33 M	1.8E+04
10.9 k	1.2E-01	109 M	5.7E+04
11.9 k	1.3E-01	119 M	6.3E+04
19 k	2.5E-01	290 M	4.0E+04

8845A/8846A Factory Annex
(Best measured uncertainty for resistance input and range indicated)

<i>Resistance Input/Range in Ohms</i>	<i>Best Uncertainty (±) in Ohms ^{note 1}</i>	<i>Resistance Input/Range in Ohms</i>	<i>Best Uncertainty (±) in Ohms ^{note 1}</i>
0 10.0	3.3E-04	100.0 k 100 k	1.4E+00
10.0 10.0	3.9E-04	0 1.0 M	1.5E+00
0 100.0	1.3E-03	1.0 M 1.0 M	1.2E+01
100.0 100.0	2.2E-03	0 10.0 M	9.3E+00
0 1.0 k	1.9E-03	10.0 M 10 M	1.6E+02
1.00 k 1.0 k	1.3E-02	0 100.0 M	5.9E+01
0 10.0 k	1.8E-02	100.0 M 100 M	4.3E+04
10.0 k 10.0 k	1.4E-01	0 1.0 G	5.8E+02
0 100.0 k	2.3E-01	1.00 G 1.0 G	3.2E+06

2011-07-01 through 2012-06-30

Effective dates

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CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

Temperature Calibration Annex – Metrology Wells
Readout Devices

Range	Best Uncertainty (\pm) ^{note 1}	Remarks
0 Ω	0.1 m Ω	Source Ohms
(25 to 400) Ω	5.0 $\mu\Omega/\Omega$	Source Ohms
(4 to 20) mA	40 $\mu A/A + 0.4 \mu A$	Source/Measure Resistance

DC Current

Range (\pm) Amperes	Best Uncertainty (\pm) in $\mu A/A$ ^{notes 1,8}	Remarks
19 μ	10	Calibrators or DMMs
100 μ to 190 μ	4	Calibrators or DMMs
1.0 m to 1.9 m	4	Calibrators or DMMs
10 m	5	Calibrators or DMMs
19 m	9	Calibrators or DMMs
100 m	5	Calibrators or DMMs
190 m	10	Calibrators or DMMs
1.0	7	Calibrators or DMMs
1.9	10	Calibrators or DMMs
10	22	Calibrators or DMMs
0	3 nA	5500A Console
190 μ	16	5500A Console
1.9 m	7	5500A Console
3.29 m	7	5500A Console
19 m	7	5500A Console
32.9 m	7	5500A Console
190 m	8	5500A Console
329 m	8	5500A Console
2.19	12	5500A Console
11	40	5500A Console
0	100 pA	5520A Console
190 μ	10	5520A Console

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

329 μ	10	5520A Console
1.9 m	8	5520A Console
3.29 m	8	5520A Console
19 m	8	5520A Console
32.9 m	8	5520A Console
190 m	8	5520A Console
329 m	8	5520A Console
1.09	17	5520A Console
2.99	18	5520A Console
11	33	5520A Console
20	75	5520A Console

Direct Current, 5700A/5720A/5725A

<i>Range in Amperes</i>	<i>Best Uncertainty (\pm) in $\mu A/A$ ^{notes 1,8}</i>	<i>Remarks</i>
0.0	0.2 nA	5700A/5720A Test Console
19 μ	10	5700A/5720A Test Console
$\pm 190 \mu$ to ± 190 m	7	5700A/5720A Test Console
1.0, ± 1.9	12	5700A/5720A Test Console
0.0	30 μA	5725A Test Console
190 m	10	5725A Test Console
1.0	40	5725A Test Console
2.5	40	5725A Test Console
11	40	5725A Test Console

5520A/5522A Factory Annex

(Best uncertainty for the indicated output and range)

<i>Output/ Range</i>	<i>Best Uncertainty (\pm) in Amps ^{note 1}</i>	<i>Output/ Range</i>	<i>Best Uncertainty (\pm) in Amps ^{note 1}</i>
0 A 300 μA	6.5E-11	-19 mA 30 mA	6.7E-07
0 A 3 mA	5.8E-10	32.9 mA 30 mA	9.1E-07
0 A 30 mA	5.7E-09	-32.9 mA 30 mA	9.3E-07
0 A 300 mA	6.2E-08	190 mA 300 mA	5.1E-06
0 A 2.90 A	8.4E-07	-190 mA 300 mA	5.5E-06

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

0 A 20 A	1.0E-05	329 mA 300 mA	8.7E-06
190 μ A 300 μ A	3.1E-09	-329 mA 300 mA	9.1E-06
-190 μ A 300 μ A	3.3E-09	1.09 A 2.90 A	4.0E-05
329 μ A 300 μ A	5.2E-09	-1.09 A 2.90 A	5.1E-05
-329 μ A 300 μ A	5.4E-09	2.99 A 2.90 A	1.0E-04
1.90 mA 3 mA	2.2E-08	-2.99 A 2.90 A	1.1E-04
-1.90 mA 3 mA	2.1E-08	11 A 20 A	1.3E-03
3.29 mA 3 mA	3.4E-08	-11 A 20 A	1.6E-03
-3.29 mA 3 mA	3.2E-08	20 A 20 A	6.9E-03
19 mA 30 mA	5.4E-07	-20 A 20 A	7.1E-03

5720A Factory Annex

(Best uncertainty at indicated output, range, and load resistance)

Output/ Range/Load (Load in Ohms)	Best Uncertainty (\pm) in Amps ^{note 1}	Output/ Range/Load (Load in Ohms)	Best Uncertainty (\pm) in Amps ^{note 1}
0 A 220 μ A 10 k	3.8E-11	19 mA 22 mA 10	1.5E-07
0 A 2.2 mA 1 k	4.3E-10	-19 mA 22 mA 10	1.7E-07
0 A 22 mA 100	3.5E-09	1.9 mA 22 mA 100	3.5E-08
0 A 220 mA 10	3.7E-08	190 mA 220 mA 1	1.6E-06
0 A 2.2 A 1	3.5E-07	-190 mA 220 mA 1	1.6E-06
190 μ A 220 μ A 1 k	2.2E-09	100 mA 220 mA 1	1.3E-06
-190 μ A 220 μ A 1 k	1.5E-09	19 mA 220 mA 10	3.2E-07
19 μ A 220 μ A 10 k	2.7E-10	1.9 A 2.2 A 100 m	2.5E-05
1.9 mA 2.2 mA 100	1.5E-08	-1.9 A 2.2 A 100 m	3.1E-05
-1.9 mA 2.2 mA 100	1.5E-08	1 A 2.2 A 100 m	1.7E-05
0.19 mA 2.2 mA 1 k	2.6E-09	190 mA 2.2 A 1	3.1E-06

5725A Factory Annex

(Best uncertainty at indicated output, range, and load resistance)

Output/ Range/Load (Load in Ohms)	Best Uncertainty (\pm) in Amps ^{note 1}	Output/ Range/Load (Load in Ohms)	Best Uncertainty (\pm) in Amps ^{note 1}
0 A 10 A 10	8.0E-05	-11 A 10 A 0.02	4.4E-04
1 A 10 A 0.1	1.3E-04	0 A 10 A 10	1.3E-04

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

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-1 A 10 A 0.1	1.3E-04	190 mA 200 mA 1	1.6E-06
11 A 10 A 0.02	4.9E-04	-190 mA 200 mA 1	1.7E-06

5500A Factory Annex
(Best uncertainty for the indicated output and range)

<i>Output/ Range</i>	<i>Best Uncertainty (±) in Amps ^{note 1}</i>	<i>Output/ Range</i>	<i>Best Uncertainty (±) in Amps ^{note 1}</i>
0 A 3 mA	2.3E-10	19 mA 30 mA	3.5E-07
0 A 30 mA	1.5E-09	-19 mA 30 mA	2.2E-07
0 A 300 mA	1.3E-08	32.9 mA 30 mA	5.2E-07
0 A 2 A	1.7E-07	-32.9 mA 30 mA	4.5E-07
0 A 11 A	1.9E-06	190 mA 300 mA	8.0E-06
190 µA 3 mA	4.1E-09	-190 mA 300 mA	9.1E-06
-190 µA 3 mA	5.1E-09	329 mA 300 mA	1.4E-05
1.90 mA 3 mA	3.9E-08	-329 mA 300 mA	1.5E-05
-1.90 mA 3 mA	3.2E-08	2.19 A 2 A	7.8E-05
3.29 mA 3 mA	6.1E-08	-2.19 A 2 A	1.0E-04
-3.29 mA 3 mA	5.7E-08	11 A 11 A	5.3E-04
		-11 A 11 A	6.4E-04

8845A/8846A Factory Annex
(Best uncertainty for measured current at the input and range indicated)

<i>Current Input/ Range</i>	<i>Best Uncertainty (±) in Amps ^{note 1}</i>	<i>Current Input/ Range</i>	<i>Best Uncertainty (±) in Amps ^{note 1}</i>
0 A 100.0 µA	1.3E-08	1.0 A 1.0 A	1.3E-04
100.0 µA 100.0 µA	1.1E-08	-1.0 A 1.0 A	1.8E-04
-100.0 µA 100.0 µA	9.4E-09	0 A 3.0 A	1.4E-04
0 A 1.0 mA	1.7E-08	1.9000 A 3.0 A	2.9E-04
1.00 mA 1.0 mA	1.8E-08	-1.9000 A 3.0 A	2.8E-04
-1.00 mA 1.0 mA	1.9E-08	0.0000 A 10.0 A	1.4E-04
10.0 mA 10.0 mA	1.3E-06	10.0000 A 10.0 A	1.0E-03
-10.0 mA 10.0 mA	1.2E-06	-10.0000 A 10.0 A	1.4E-03
0 A 100.0 mA	1.7E-06	0 A 400.0 mA	2.7E-06
100.0 mA 100.0 mA	3.2E-06	400.0 mA 400.0 mA	3.8E-05
-100.0 mA 100.0 mA	3.9E-06	-400.0 mA 400.0 mA	3.8E-05

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

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DC Voltage

Range	Best Uncertainty (\pm) in $\mu V/V$ ^{note 1}	Remarks
10 VDC on-site calibration, Ref. MET 35		
10.00 V	0.06 ^{notes 2, 6}	Direct Comparison - remote location
Well Isolated DC Sources or Voltmeters		

Range (\pm)	Best Uncertainty (\pm) in nV ^{note 1}	Remarks
0 V to 10 V	50 + 5E ^{note 3}	Direct against J Array
Calibrators or Digital Voltmeters		

Range	Best Uncertainty (\pm) in $\mu V/V$ ^{note 1}	Remarks
0 to \pm <0.1 V	4 $\mu V/V$ of reading + 0.7 μV	DMM System
0.1 V	2.0	Transfer Method
1.0 V	0.9	Transfer Method
10.0 V	0.4	Transfer Method
100.0 V	0.6	Transfer Method
1000.0 V	0.9	Transfer Method

Range (\pm) Volts	Best Uncertainty (\pm) in $\mu V/V$ ^{note 1,8}	Remarks
0	0.5 μV	5500A Console
0.329	7.0	5500A Console
3.29	5.5	5500A Console
32.9	8.0	5500A Console
50	8.0	5500A Console
329	8.5	5500A Console
334	8.5	5500A Console
900	8.0	5500A Console
1020	8.0	5500A Console
0	0.15 μV	5520A Console

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0
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0.329	2.0	5520A Console
1	1.5	5520A Console
3.29	1.0	5520A Console
7	6.0	5520A Console
10	1.0	5520A Console
32.9	1.2	5520A Console
50	2.0	5520A Console
329	2.0	5520A Console
334	2.0	5520A Console
900	2.5	5520A Console
1020	2.0	5520A Console

DC Voltage, 5700A/5720A

Range (±) Volts	Best Uncertainty (±) in $\mu V/V$ ^{note 1,8}	Remarks
0.0 V	0.17 μV	5700A/5720A Test Console
± 100 mV	2.1	5700A/5720A Test Console
± 1.0 V	0.9	5700A/5720A Test Console
± 10 V	0.4	5700A/5720A Test Console
± 100 V	0.6	5700A/5720A Test Console
± 1000 V	1.0	5700A/5720A Test Console

5520A/5522A Factory Annex

(Best Uncertainties at specified output, range, and aux output where noted)

DC Voltage / Range	Best Uncertainty (±) in Volts ^{note 1}	DC Voltage / Range	Best Uncertainty (±) in Volts ^{note 1}
Normal Output			
0 V 330 mV	1.1E-07	32.9 V 33 V	1.1E-04
0 V 3.30 V	2.7E-07	-32.9 V 33 V	7.6E-05
0 V 33 V	1.6E-06	50 V 330 V	1.7E-04
329 mV 330 mV	1.6E-06	329 V 330 V	8.6E-04
-329 mV 330 mV	1.2E-06	-50 V 330 V	1.6E-04

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

1 V 3.30 V	3.1E-06	-329 V 330 V	8.8E-04
-1 V 3.30 V	3.1E-06	334 V 1 kV	1.6E-03
3.29 V 3.30 V	6.2E-06	900 V 1 kV	3.4E-03
-3.29 V 3.30 V	6.1E-06	1.020 kV 1 kV	3.2E-03
10 V 33 V	2.4E-05	-334 V 1 kV	1.3E-03
-10 V 33 V	2.4E-05	-900 V 1 kV	2.9E-03
		-1.020 kV 1 kV	2.9E-03

Aux Output

329 mV 300 mV	3.6E-06	-3.29 V 3 V	4.4E-05
-329 mV 300 mV	3.2E-06	7 V 7 V	1.8E-04
330 mV 3 V	6.5E-06	-7 V 7 V	1.2E-04
3.29 V 3 V	3.5E-05		

5720A Factory Annex
(Best uncertainty at indicated output and range)

<i>DC Voltage / Range</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>	<i>DC Voltage / Range</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>
0 V 220 mV	4.3E-08	-1 V 2.2 V	1.6E-06
0 V 2.2 V	7.4E-08	10 V 11 V	5.2E-06
0 V 11 V	1.4E-07	-10 V 11 V	4.8E-06
0 V 22 V	2.9E-07	10 V 22 V	5.1E-06
0 V 220 V	2.8E-06	-10 V 22 V	4.9E-06
100 mV 220 mV	5.8E-07	100 V 220 V	8.3E-05
-100 mV 220 mV	6.0E-07	-100 V 220 V	9.3E-05
1 V 2.2 V	1.5E-06	1000 V 1100 V	1.4E-03
		-1000 V 1100 V	1.2E-03

5500A Factory Annex
(Best uncertainty for indicated output and range at normal output, at aux output where indicated)

<i>DC Voltage / Range</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>	<i>DC Voltage / Range</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>
0 V 330 mV	2.3E-07	50 V 330 V	5.1E-04
0 V 3.30 V	5.3E-07	329 V 330 V	3.0E-03
0 V 33 V	3.2E-06	-50 V 330 V	4.6E-04

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

0 mV 300 mV	1.5E-06	-329 V 330 V	2.9E-03
329 mV 330 mV	5.1E-06	334 V 1 kV	3.1E-03
-329 mV 330 mV	5.3E-06	900 V 1 kV	8.2E-03
3.29 V 3.30 V	2.2E-05	1.02 kV 1 kV	8.9E-03
-3.29 V 3.30 V	2.2E-05	-334 V 1 kV	3.3E-03
32.9 V 33 V	3.4E-04	-900 V 1 kV	7.7E-03
-32.9 V 33 V	3.1E-04	-1.02 kV 1 kV	8.8E-03
Aux Output			
329 mV 300 mV	1.8E-05	3.29 V 3 V	5.3E-05
-329 mV 300 mV	1.6E-05	-3.29 V 3 V	5.0E-05
330 mV 3 V	1.6E-05		

8845A/8846A Factory Annex
(Best Uncertainty for indicated voltage and range)

DC Voltage / Range	Best Uncertainty (\pm) in Volts <small>note 1</small>	DC Voltage / Range	Best Uncertainty (\pm) in Volts <small>note 1</small>
100.0 mV 100.0 mV	2.6E-06	10.0 V 10.0 V	1.6E-05
-100.0 mV 100.0 mV	2.8E-06	-10.0 V 10.0 V	1.6E-05
0 V 1.0 V	2.1E-06	0.0 V 100.0 V	2.0E-04
1.0 V 1.0 V	3.1E-06	100.0 V 100.0 V	1.2E-03
-1.0 V 1.0 V	2.9E-06	-100.0 V 100.0 V	1.2E-03
0.0 V 10.0 V	1.1E-05	0.0 V 1.0 kV	1.1E-03
5.0 V 10.0 V	1.6E-05	1.0 kV 1.0 kV	1.1E-02
-5.0 V 10.0 V	1.2E-05	-1.0 kV 1.0 kV	1.1E-02

8845A/8846A Factory Annex
(Best uncertainty for DC Voltage Ratio at the indicated input ratio and range)

Ratio / Range	Best Uncertainty (\pm) in Measured Ratio <small>note 1</small>
100.0 m 100.0 m	2.7E-05
1.0 1.0	3.5E-06
-10.0 10.0	1.2E-05

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

Temperature Calibration Annex – Metrology Wells
Readout Devices, Measure DC Voltage

Range	Best Uncertainty (\pm) ^{note 1}
(0 to 50) mV	2.5 μ V
(>50 to 100) mV	5.5 μ V

NVLAP Code: 20/E09
LF AC Voltage using 792A

Range	Best Uncertainty (\pm) in μ V/V ^{note 1}												
	Frequency in Hertz												
	10	20	40	100	1 k	10 k	20 k	50 k	100 k	300 k	500 k	800 k	1 M
2 mV	430	430	430	430	430	430	430	430	510	600	680	770	770
6 mV	240	240	200	200	200	200	200	240	300	420	480	570	610
10 mV	100	90	90	90	90	90	90	110	160	220	290	330	370
20 mV	85	70	70	70	70	70	70	90	150	220	290	330	370
60 mV	45	40	35	35	35	35	35	40	80	150	220	280	280
100 mV	45	40	35	30	20	20	25	25	45	80	115	180	180
200 mV	30	25	15	15	15	15	16	22	40	80	110	160	180
600 mV	26	21	19	10	9	9	10	10	12	26	35	55	65
1 V	26	21	18	10	8	8	8	10	10	21	30	35	45
2 V	26	21	18	9	8	8	8	8	9	21	30	35	45
6 V	26	21	18	9	7	7	7	8	9	21	30	35	45
10 V	26	21	18	9	7	7	7	8	10	21	30	35	45
20 V	26	21	18	9	8	8	8	9	10	21	30	35	45
60 V	26	21	19	10	9	9	9	11	12	26	35		
100 V	26	21	19	10	9	9	10	11	12				
200 V	37	22	20	11	10	10	10	12	16				
600 V	55	23	23	18	14	14	14	18	36				
1000 V	55	23	23	21	19	19	20	27	50				

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

AC Voltage, 1 Hz to 10 Hz

Range	Best Uncertainty (\pm) Capability $\mu V/V$ of Reading + Floor ^{note 1}	Remarks
1 mV - 12 mV	300 + 3 μV	
10 mV - 120 mV	70 + 4 μV	
100 mV - 1.2 V	70 + 40 μV	
1 V - 12 V	70 + 400 μV	
10 V - 120 V	200 + 4 mV	
100 V - 700 V	400 + 40 mV	

Absolute AC Voltage, 5790A Input 1 or Input 2

Range	Applied	Best Uncertainty (\pm) in $\mu V/V$ ^{note 1}										
		Frequency in Hertz										
		10	20	100	1 k	10 k	20 k	50 k	100 k	300 k	500 k	1M
2.2 mV	2 mV	200	200	200	200	200	200	200	200	250	350	1300
7 mV	6 mV	80	80	80	80	80	80	80	90	210	260	550
22 mV	20 mV	60	60	40	40	40	40	50	85	200	250	350
70 mV	60 mV	100	65	45	35	45	50	70	135	270	350	430
220 mV	200 mV	40	22	18	18	18	18	40	80	135	120	225
700 mV	600 mV	30	36	10	12	10	10	22	15	95	80	150
2.2 V	600 mV	30	35	10	12	8	8	22	15	95	80	150
2.2 V	1 V	85	35	10	10	11	10	18	15	75	90	250
2.2 V	2 V	25	20	8	8	8	8	15	15	90	95	250
7 V	2 V	25	20	8	6	6	6	14	12	90	95	250
7 V	6 V	25	20	9	9	9	9	20	12	90	95	260
22 V	20 V	25	22	9	9	9	10	10	14	85	95	250
70 V	60 V	25	22	10	10	12	10	28	20	75		
220 V	200 V	40	24	18	12	12	14	16	24			
700 V	600 V			23	15	17	20	40	70			
1000 V	1000 V			22	18	18	20					
1000 V	600 V							45	70			

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

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Scope Revised: 2011-11-07

Absolute Voltage, 5790A Wideband Input

Range	Frequency in Hertz	Best Uncertainty (\pm) in $\mu V/V$ ^{note 1}
7 V	10 to 500 k	300
2.2 V	10 to 500 k	300
700 mV	10 to 500 k	300
220 mV	10 to 500 k	300
70 mV	10 to 500 k	300
22 mV	10 to 500 k	300
7 mV	10 to 500 k	650
2.2 mV	10 to 500 k	1750

AC Voltage Flatness, 5790A Wideband Input Relative to 1 kHz

Range	Best Uncertainty (\pm) in $\mu V/V$ ^{note 1}							
	Frequency in Hertz							
	10	20	50 to 100 k	200 k	500 k	700 k	1 M	1.2 M
7 V	100	100	60	60	60	100	100	100
2.2 V	150	150	70	70	70	120	120	120
700 mV	150	150	80	80	80	130	130	130
220 mV	180	180	80	80	80	130	130	130
70 mV	210	210	90	90	90	140	140	140
22 mV	220	220	100	100	100	150	150	150
7 mV	260	260	110	110	110	170	170	170
2.2 mV	380	380	200	200	200	250	250	250

Range	Best Uncertainty (\pm) in $\mu V/V$ ^{note 1}							
	Frequency in Hertz							
	2 M	3 M	4 M	6 M	8 M	9 M	10 M	12 M
7 V	100	200	200	220	250	250	300	400
2.2 V	120	210	210	240	260	270	300	400
700 mV	130	220	220	250	270	270	300	400
220 mV	130	220	220	270	300	300	300	420
70 mV	140	240	240	280	300	300	300	450
22 mV	150	250	250	300	320	320	330	470

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

7 mV	170	260	260	330	330	330	340	500
2.2 mV	250	400	400	400	400	400	400	600

Best Uncertainty (\pm) in $\mu V/V$ ^{note 1}

Frequency in Hertz

Range	15 M	17 M	20 M	23 M	26 M	28 M	30 M
7 V	450	500	550	900	1000	1100	1200
2.2 V	450	500	550	900	1000	1100	1200
700 mV	450	500	550	900	1000	1100	1200
220 mV	450	500	550	900	1000	1100	1200
70 mV	450	500	570	900	1000	1200	1300
22 mV	470	550	600	900	1000	1200	1300
7 mV	500	550	700	900	1050	1200	1300
2.2 mV	600	600	700	1100	1200	1300	1400

5700A / 5720A Wideband Output
Flatness Relative to 1 kHz

Best Uncertainty (\pm) in % ^{note 1}

Frequency in Hertz

Range in V	Output V	10	30	50 - 120 k	300 k - 500 k	1.199 M	1.2 M
3.5	3	0.016	0.016	0.012	0.019	0.021	0.022
3.5	2	0.021	0.021	0.012	0.019	0.022	0.022
3.5	1.11	0.022	0.022	0.012	0.020	0.023	0.023
1.1	1	0.021	0.021	0.012	0.020	0.022	0.022
0.33	0.3	0.022	0.022	0.016	0.023	0.024	0.024
0.11	0.1	0.024	0.024	0.015	0.023	0.024	0.024
0.033	0.03	0.031	0.031	0.017	0.023	0.026	0.026
0.011	0.01	0.031	0.031	0.017	0.024	0.025	0.025
0.0033	0.003	0.037	0.036	0.021	0.030	0.030	0.030
0.0011	0.001	0.060	0.051	0.035	0.042	0.042	0.042

Best Uncertainty (\pm) in % ^{note 1}

Frequency in Hertz

Range in V	Output V	2 M	5 M	10 M	15 M	20 M	25 M	30 M
3.5	3	0.022	0.040	0.044	0.07	0.09	0.15	0.16
3.5	2	0.022	0.040	0.044	0.07	0.09	0.15	0.16
3.5	1.11	0.023	0.040	0.044	0.07	0.09	0.15	0.16

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

1.1	1	0.022	0.040	0.044	0.07	0.09	0.15	0.16
0.33	0.3	0.024	0.040	0.044	0.07	0.09	0.15	0.16
0.11	0.1	0.024	0.040	0.044	0.07	0.09	0.15	0.16
0.033	0.03	0.026	0.042	0.044	0.07	0.09	0.15	0.17
0.011	0.01	0.025	0.043	0.044	0.07	0.09	0.15	0.17
0.0033	0.003	0.030	0.050	0.050	0.07	0.09	0.17	0.17
0.0011	0.001	0.042	0.060	0.060	0.08	0.09	0.17	0.18

Absolute Voltage at 1 kHz

<i>Range in V</i>	<i>Output in V</i>	<i>Best Uncertainty (±) in %^{note 1}</i>
3.5	3	0.015
3.5	2	0.015
3.5	1.11	0.015
1.1	1	0.015
0.33	0.3	0.015
0.11	0.1	0.015
0.033	0.03	0.015
0.011	0.01	0.025
0.0033	0.003	0.065
0.0011	0.001	0.175

5700A/5720A Wideband Factory Annex
Flatness Relative to 1 kHz, Best Capability in Volts

<i>Output Volts</i>	<i>Best Uncertainty (±) in Volts^{note 1}</i>						
	<i>Frequency in Hertz</i>						
	<i>10</i>	<i>30</i>	<i>50</i>	<i>100</i>	<i>500</i>	<i>5 k</i>	<i>10 k</i>
3	1.1E-03	6.6E-04	5.0E-04	4.8E-04	4.3E-04	6.8E-04	5.4E-04
2	7.3E-04	4.7E-04	2.9E-04	2.6E-04	2.6E-04	4.1E-04	3.2E-04
1.11	3.5E-04	2.6E-04	1.5E-04	1.5E-04	1.4E-04	2.2E-04	1.5E-04
1	3.4E-04	2.3E-04	1.4E-04	1.4E-04	1.3E-04	2.0E-04	1.4E-04
0.3	9.4E-05	6.7E-05	5.0E-05	5.2E-05	5.3E-05	5.7E-05	5.2E-05
0.1	3.8E-05	2.4E-05	1.6E-05	1.6E-05	1.6E-05	1.9E-05	1.5E-05
0.03	1.6E-05	1.0E-05	5.4E-06	5.7E-06	5.7E-06	8.1E-06	5.4E-06

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

0.01	4.7E-06	3.3E-06	1.9E-06	2.1E-06	1.8E-06	2.8E-06	1.8E-06	
0.003	1.8E-06	1.3E-06	9.1E-07	9.8E-07	7.1E-07	9.2E-07	7.2E-07	
0.001	8.3E-07	7.0E-07	4.5E-07	5.4E-07	5.6E-07	4.9E-07	6.1E-07	
Output	12 k	50 k	100 k	120 k	300 k	500 k	1.199 M	
Volts								
3	5.5E-04	5.3E-04	5.8E-04	5.4E-04	7.0E-04	7.2E-04	8.2E-04	
2	3.3E-04	3.3E-04	3.2E-04	3.2E-04	4.9E-04	4.8E-04	5.9E-04	
1.11	1.6E-04	1.6E-04	1.7E-04	1.8E-04	2.6E-04	2.6E-04	3.1E-04	
1	1.5E-04	1.5E-04	1.5E-04	1.5E-04	2.3E-04	2.3E-04	2.5E-04	
0.3	6.5E-05	6.4E-05	6.5E-05	6.4E-05	8.0E-05	8.2E-05	8.8E-05	
0.1	2.0E-05	2.1E-05	2.0E-05	2.0E-05	2.6E-05	2.6E-05	2.8E-05	
0.03	6.4E-06	6.6E-06	6.7E-06	7.0E-06	8.4E-06	8.3E-06	9.6E-06	
0.01	1.9E-06	2.1E-06	2.7E-06	2.5E-06	2.9E-06	3.0E-06	3.3E-06	
0.003	7.8E-07	8.0E-07	8.8E-07	8.0E-07	1.1E-06	1.2E-06	1.4E-06	
0.001	5.3E-07	5.1E-07	5.0E-07	5.6E-07	6.5E-07	8.3E-07	9.3E-07	
Output	1.2M	2M	5 M	10 M	15 M	20 M	25 M	30 M
Volts								
3	8.0E-04	8.3E-04	1.6E-03	1.5E-03	2.2E-03	3.1E-03	5.1E-03	6.5E-03
2	5.6E-04	6.5E-04	1.1E-03	1.1E-03	1.8E-03	2.7E-03	4.0E-03	7.1E-03
1.11	3.0E-04	3.3E-04	6.3E-04	6.0E-04	8.9E-04	1.2E-03	1.9E-03	2.5E-03
1	2.6E-04	2.8E-04	5.6E-04	5.8E-04	8.7E-04	1.2E-03	1.8E-03	2.2E-03
0.3	8.5E-05	10.0E-05	2.0E-04	2.0E-04	3.3E-04	4.2E-04	5.8E-04	7.7E-04
0.1	2.8E-05	3.2E-05	5.3E-05	5.0E-05	8.2E-05	1.1E-04	1.7E-04	2.1E-04
0.03	9.6E-06	9.8E-06	1.6E-05	1.6E-05	2.4E-05	3.3E-05	4.9E-05	6.7E-05
0.01	3.3E-06	3.8E-06	5.6E-06	6.0E-06	8.4E-06	9.9E-06	1.6E-05	1.9E-05
0.003	1.8E-06	1.8E-06	2.6E-06	2.8E-06	3.0E-06	3.2E-06	5.6E-06	5.7E-06
0.001	1.3E-06	1.0E-06	9.8E-07	7.3E-07	1.0E-06	1.1E-06	2.1E-06	2.5E-06

Absolute Voltage at 12 kHz, Best Capability, Volts

Range in V	Output in V	Best Uncertainty (\pm) in Volts ^{note 1}
3.5	3	7.0E-04
3.5	2	4.7E-04
3.5	1.11	2.7E-04
1.1	1	2.4E-04

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

0.33	0.3	6.8E-05
0.11	0.1	2.7E-05
0.033	0.03	7.8E-06
0.011	0.01	3.8E-06
0.0033	.003	2.7E-06
0.0011	.001	2.1E-06

AC Voltage
Multiproduct Calibrators Similar to Fluke 5500A

Best Uncertainty (\pm) in $\mu V/V$ ^{note 1}
Frequency in Hertz

Range	9.5	10	45	1 k	5 k	8 k	10 k	18 k	20 k	50 k	90 k	100 k	450 k	500 k
0.01 V			350	350	350		350							
0.03 V	1000	70	60	60			60		60	90		120	200	
0.3 V	1000	40	30	25	30		25		25	40		60		180
3.0 V	1000	30	25	20	20		20		20	30		40	160	
30 V	1000	30	25	20			20		25	35	45			
300 V			30	25			25	25						
1000 V			30	30	35	35								

5520A/5522A Console

Best Uncertainty (\pm) in $\mu V/V$ ^{note 1}
Frequency in Hertz

Range	9.5	10	45	1 k	5 k	10 k	18 k	20 k	30 k	50 k	90 k	100 k	450 k	500 k
0.003			200			200								
0.01			250	250	250	450			1000					
0.03	1000	70	50	50		50		50		90		150	300	
0.3	1000	40	25	20		20		25		35		60		160
3.0	1000	30	20	15		15		15		30		35	150	
5.0	1000	50	45	40	40	40								
30	1000	35	22	18		18		20		35	50			
200													70	

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

300	30	22		22	22		50
1000	30	25	30	30	<i>note 4</i>		

Alternating Voltage, 5700A/5720A Test Console

Voltage	<i>Frequency in Hertz</i>							
	40	50	1k	20k	100k	300k	500k	1M
1.9mV	300		300	300	300	600		1600
19mV	60		60	60	150	250		600
190mV	20		20	20	40	100		300
500mV	20		16	16	40	80		220
600mV	18		10	10	20	40		200
1V	18		10	10	20	40		250
2V	18		10	10	20	40		250
3V	20		12	12	15	70		200
10V	18		10	10	20	60		320
20V	17		10	10	20	60		320
30V	21		12	12	20	120	500	
100V	19		12	12	30			
200V	20		12	12	30			
500V		26	15					
1000V		24	18					
1100V		25	20					

AC Voltage, 5725A Test Console

<i>Measurement Range Volts</i>	<i>Frequency Hz</i>	<i>Best Uncertainty (±) in μV/V^{note 1}</i>
300	40	27
300	1 k	20
300	20 k	35
300	50 k	65
300	100 k	100
600	40	25

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

600	1 k	20
600	20 k	35
600	50 k	65
600	100 k	100
1000	40	25
1000	1 k	22
1000	20 k	25

5520A/5522A Factory Annex

(Best uncertainties for specified output and frequency at normal output)

<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>	<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>
3 mV 45 Hz	1.1E-06	3 V 50 kHz	1.0E-04
3 mV 10 kHz	1.1E-06	3 V 100 kHz	1.4E-04
30 mV 9.5 Hz	3.0E-05	3 V 450 kHz	5.9E-04
30 mV 10 Hz	2.6E-06	3.30 V 45 Hz	3.7E-04
30 mV 45 Hz	2.0E-06	3.30 V 10 kHz	3.7E-04
30 mV 1 kHz	2.1E-06	30 V 9.5 Hz	3.0E-02
30 mV 10 kHz	2.1E-06	30 V 10 Hz	1.1E-03
30 mV 20 kHz	2.0E-06	30 V 45 Hz	8.1E-04
30 mV 50 kHz	3.1E-06	30 V 1 kHz	7.6E-04
30 mV 100 kHz	4.7E-06	30 V 10 kHz	7.1E-04
30 mV 450 kHz	9.7E-06	30 V 20 kHz	8.1E-04
33 mV 45 Hz	4.4E-06	30 V 50 kHz	1.8E-03
33 mV 10 kHz	3.5E-06	30 V 90 kHz	2.8E-03
300 mV 9.5 Hz	3.0E-04	33 V 45 Hz	3.1E-03
300 mV 10 Hz	1.3E-05	33 V 10 kHz	4.4E-03
300 mV 45 Hz	8.9E-06	300 V 45 Hz	9.9E-03
300 mV 1 kHz	7.3E-06	300 V 1 kHz	8.2E-03
300 mV 10 kHz	8.0E-06	300 V 10 kHz	1.0E-02
300 mV 20 kHz	9.5E-06	300 V 18 kHz	1.0E-02
300 mV 50 kHz	1.2E-05	300 V 50 kHz	1.7E-02
300 mV 100 kHz	2.0E-05	200 V 100 kHz	7.4E-02
300 mV 500 kHz	7.0E-05	330 V 45 Hz	1.5E-02
0.33 V 45 Hz	3.3E-05	330 V 10 kHz	1.4E-02

2011-07-01 through 2012-06-30

Effective dates

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CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

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0.33 V 10 kHz	2.9E-05	1 kV 45 Hz	3.3E-02
3 V 9.5 Hz	3.0E-03	1 kV 1 kHz	3.5E-02
3 V 10 Hz	9.9E-05	1 kV 5 kHz	4.0E-02
3 V 45 Hz	7.3E-05	1 kV 8 kHz	3.7E-02
3 V 1 kHz	6.6E-05	1.02 kV 1 kHz	3.1E-02
3 V 10 kHz	5.9E-05	1.02 kV 8 kHz	3.8E-02
3 V 20 kHz	7.1E-05		

5520A/5522A Factory Annex

(Best uncertainties for specified output and frequency at aux output)

<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>	<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>
10 mV 45 Hz	1.1E-05	3 V 10 Hz	1.3E-04
10 mV 1 kHz	1.3E-05	3 V 45 Hz	1.0E-04
10 mV 5 kHz	1.3E-05	3 V 1 kHz	9.6E-05
10 mV 10 kHz	1.4E-05	3 V 5 kHz	1.4E-04
10 mV 30 kHz	1.5E-05	3 V 10 kHz	1.7E-04
300 mV 9.5 Hz	3.6E-04	3 V 30 kHz	2.0E-04
300 mV 10 Hz	1.7E-05	5 V 9.5 Hz	5.0E-03
300 mV 45 Hz	1.1E-05	5 V 10 Hz	6.2E-04
300 mV 1 kHz	1.2E-05	5 V 45 Hz	5.5E-04
300 mV 5 kHz	1.8E-05	5 V 1 kHz	1.1E-03
300 mV 10 kHz	2.3E-05	5 V 5 kHz	2.8E-03
300 mV 30 kHz	6.0E-05	5 V 10 kHz	3.3E-03
3 V 9.5 Hz	3.0E-03		

5720A Factory Annex

(Best uncertainty at indicated output and frequency)

<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>	<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>
1.9 mV 1 kHz	6.1E-07	3 V 1 kHz	9.9E-05
1.9 mV 20 kHz	6.4E-07	3 V 20 kHz	1.0E-04
19 mV 40 Hz	1.2E-06	3 V 100 kHz	1.1E-04
19 mV 1 kHz	1.1E-06	3 V 300 kHz	2.4E-04
19 mV 20 kHz	7.6E-07	3 V 1 MHz	8.9E-04

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

19 mV 100 kHz	2.9E-06	10 V 40 Hz	3.7E-04
19 mV 300 kHz	5.1E-06	10 V 1 kHz	2.6E-04
19 mV 1 MHz	1.4E-05	10 V 20 kHz	3.2E-04
190 mV 40 Hz	3.3E-06	10 V 100 kHz	3.5E-04
190 mV 1 kHz	3.1E-06	10 V 300 kHz	6.6E-04
190 mV 20 kHz	3.4E-06	10 V 1 MHz	4.0E-03
190 mV 100 kHz	6.9E-06	20 V 1 kHz	6.6E-04
190 mV 300 kHz	2.0E-05	20 V 20 kHz	7.7E-04
190 mV 1 MHz	9.0E-05	20 V 1 MHz	8.5E-03
0.6 V 40 Hz	1.3E-05	30 V 40 Hz	1.1E-03
0.6 V 1 kHz	6.2E-06	30 V 1 kHz	1.0E-03
0.6 V 20 kHz	6.7E-06	30 V 20 kHz	1.0E-03
0.6 V 100 kHz	1.2E-05	30 V 100 kHz	1.5E-03
0.6 V 300 kHz	2.7E-05	30 V 300 kHz	5.6E-03
0.6 V 1 MHz	1.3E-04	30 V 500 kHz	1.8E-02
1 V 40 Hz	1.9E-05	100 V 40 Hz	3.9E-03
1 V 1 kHz	9.4E-06	100 V 1 kHz	3.5E-03
1 V 20 kHz	1.1E-05	100 V 20 kHz	3.7E-03
1 V 100 kHz	1.5E-05	100 V 100 kHz	4.2E-03
1 V 300 kHz	5.2E-05	200 V 40 Hz	8.1E-03
1 V 1 MHz	2.4E-04	200 V 1 kHz	7.2E-03
2 V 1 kHz	1.9E-05	200 V 100 kHz	9.2E-03
2 V 20 kHz	2.2E-05	500 V 50 Hz	1.3E-02
2 V 1 MHz	5.7E-04	500 V 1 kHz	8.5E-03
3 V 40 Hz	1.1E-04	1000 V 50 Hz	3.0E-02
		1000 V 1 kHz	2.8E-02

5725A Factory Annex

(Best uncertainty at indicated output and frequency)

<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>	<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>
300 V 40 Hz	9.3E-03	600 V 1 kHz	1.2E-02
300 V 1 kHz	7.0E-03	600 V 20 kHz	2.1E-02
300 V 20 kHz	1.1E-02	600 V 50 kHz	3.8E-02
300 V 50 kHz	2.0E-02	600 V 100 kHz	7.3E-02

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



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Scope Revised: 2011-11-07

300 V 100 kHz	4.2E-02	1000 V 40 Hz	2.6E-02
600 V 40 Hz	1.6E-02	1000 V 1 kHz	2.5E-02
		1000 V 20 kHz	2.6E-02

5500A Factory Annex
(Best uncertainty at indicated voltage and frequency at the output indicated)

<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>	<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>
Normal Output			
30 mV 9.5 Hz	3.3E-05	3 V 20 kHz	8.8E-05
30 mV 10 Hz	4.3E-06	3 V 50 kHz	1.1E-04
30 mV 45 Hz	4.1E-06	3 V 100 kHz	1.5E-04
30 mV 1 kHz	4.1E-06	3 V 450 kHz	6.3E-04
30 mV 10 kHz	4.2E-06	30 V 9.5 Hz	3.2E-02
30 mV 20 kHz	4.1E-06	30 V 10 Hz	1.2E-03
30 mV 50 kHz	4.8E-06	30 V 45 Hz	9.5E-04
30 mV 100 kHz	5.1E-06	30 V 1 kHz	8.1E-04
30 mV 450 kHz	7.5E-06	30 V 10 kHz	8.9E-04
300 mV 9.5 Hz	3.2E-04	30 V 20 kHz	9.4E-04
300 mV 10 Hz	1.5E-05	30 V 50 kHz	1.2E-03
300 mV 45 Hz	1.3E-05	30 V 90 kHz	1.8E-03
300 mV 1 kHz	1.2E-05	300 V 45 Hz	1.2E-02
300 mV 10 kHz	1.3E-05	300 V 1 kHz	1.2E-02
300 mV 20 kHz	1.4E-05	300 V 10 kHz	1.1E-02
300 mV 50 kHz	1.7E-05	300 V 10 kHz	1.6E-02
300 mV 100 kHz	2.2E-05	1 kV 45 Hz	5.1E-02
300 mV 500 kHz	7.4E-05	1 kV 1 kHz	3.5E-02
3 V 9.5 Hz	3.2E-03	1 kV 5 kHz	3.8E-02
3 V 10 Hz	1.1E-04	1 kV 8 kHz	4.0E-02
3 V 45 Hz	9.7E-05	1.02 kV 1 kHz	3.4E-02
3 V 1 kHz	8.6E-05	1.02 kV 8 kHz	4.1E-02
3 V 10 kHz	8.5E-05		

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



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NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

Aux Output

10 mV 45 Hz	8.4E-06	300 mV 5 kHz	2.3E-05
10 mV 1 kHz	7.8E-06	300 mV 10 kHz	3.7E-05
10 mV 5 kHz	8.9E-06	3 V 9.5 Hz	3.1E-03
10 mV 10 kHz	8.5E-06	3 V 10 Hz	1.5E-04
300 mV 9.5 Hz	3.1E-04	3 V 45 Hz	1.3E-04
300 mV 10 Hz	1.7E-05	3 V 1 kHz	1.2E-04
300 mV 45 Hz	1.8E-05	3 V 5 kHz	1.5E-04
300 mV 1 kHz	1.7E-05	3 V 10 kHz	2.0E-04

8845A/8846A Factory Annex

(Best uncertainty at indicated voltage and frequency)

<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>	<i>AC Voltage / Frequency</i>	<i>Best Uncertainty (±) in Volts ^{note 1}</i>
100.0 mV 10.0 Hz	3.5E-05	10.0 V 100.0 kHz	2.7E-03
100.0 mV 20.0 kHz	4.5E-06	100.0 V 45.0 Hz	1.1E-02
100.0 mV 50.0 kHz	5.8E-06	100.0 V 20.0 kHz	3.2E-03
100.0 mV 100.0 kHz	1.0E-05	100.0 V 50.0 kHz	9.6E-03
100.0 mV 300.0 kHz	3.1E-05	100.0 V 100.0 kHz	2.5E-02
1.00 V 10.0 Hz	2.9E-04	320.0 V 20.0 kHz	3.9E-02
1.00 V 20.0 kHz	2.8E-05	320.0 V 50.0 kHz	1.0E-01
1.00 V 50.0 kHz	3.8E-05	320.0 V 100.0 kHz	3.9E-01
1.00 V 100.0 kHz	8.5E-05	750.0 V 45.0 Hz	7.6E-02
1.00 V 300.0 kHz	6.9E-04	750.0 V 1.0 kHz	5.5E-02
3.00 V 300.0 kHz	3.6E-03	750.0 V 10.0 kHz	8.2E-02
10.0 V 10.0 Hz	1.0E-03	1.00 kV 45.0 Hz	1.1E-01
10.0 V 20.0 kHz	3.7E-04	1.00 kV 1.0 kHz	7.0E-02
10.0 V 50.0 kHz	8.9E-04	1.00 kV 10.0 kHz	3.8E-02

2011-07-01 through 2012-06-30

Effective dates

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NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

NVLAP Code: 20/E10

Capacitance

Three Wire

Best Uncertainty (\pm)^{note 1}
Frequency in Hertz

Range	1 k	10 k
1.0 pF to 1.1111 μ F	0.01 % + (0.002 % * C μ F) f ² kHz	0.01 % + (0.002 % * C μ F) f ² kHz
1.0 pF to 0.001 μ F	0.01 %	0.01 %
0.001 μ F to 0.01 μ F	0.01 %	0.012 %
0.01 μ F to 0.05 μ F	0.01 %	0.02 %
0.05 μ F to 0.1 μ F	0.01 %	0.03 %
0.1 μ F to 0.5 μ F	0.011 %	0.11 %
0.5 μ F to 1.11 μ F	0.012 %	0.21 %

Two Wire

10 pF to 1.1111 μ F	0.01 + (0.002 * C μ F) f ² kHz + (5 * 10 ⁻¹⁷) / C μ F %	0.01 + (0.002 * C μ F) f ² kHz + (5 * 10 ⁻¹⁷) / C μ F %
10 pF	5 %	5 %
100 pF	0.5 %	0.5 %
1000 pF	0.06%	0.06 %
0.01 μ F	0.015 %	0.017 %
0.1 μ F to 1 μ F	0.015 %	0.017 %

Capacitance, Sourcing from Fluke 5520A/5522A

Measurement Range	Frequency Range in Hz	Best Uncertainty (\pm)^{note 1}
0.19 nF to 0.3999 nF	10 to 10 k	0.38% + 10 pF
0.4 nF to 1.0999 nF	10 to 10 k	0.38% + 10 pF
1.1 nF to 3.2999 nF	10 to 3 k	0.38% + 10 pF
3.3 nF to 10.9999 nF	10 to 1 k	0.19% + 10 pF
11 nF to 32.9999 nF	10 to 1 k	0.19% + 100 pF
33 nF to 109.999 nF	10 to 1 k	0.19% + 100 pF
110 nF to 329.999 nF	10 to 1 k	0.19% + 300 pF
0.33 μ F to 1.09999 μ F	10 to 600	0.19% + 1 nF

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

1.1 uF to 3.29999 uF	10 to 300	0.19% + 3 nF
3.3 uF to 10.9999 uF	10 to 150	0.19% + 10 nF
11 uF to 32.9999 uF	10 to 120	0.3% + 30 nF
33 uF to 109.999 uF	10 to 80	0.34% + 100 nF
110 uF to 329.999 uF	0 to 50	0.34% + 300 nF
0.33 mF to 1.09999 mF	0 to 20	0.34% + 1 uF
1.1 mF to 3.29999 mF	0 to 6	0.34% + 3 uF
3.3 mF to 10.9999 mF	0 to 2	0.34% + 10 uF
11 mF to 32.9999 mF	0 to 0.6	0.7% + 30 uF
33 mF to 110 mF	0 to 0.2	1% + 100 uF

RF Capacitance, 2 wire, using 1615-P2 Coaxial Adaptor to GR900 Type Connector

<i>Range, 1 kHz – 10 MHz</i>	<i>Best Uncertainty (±) ^{note 1}</i>	<i>Remarks</i>
1 pF to 5 pF	1 %	
5 pF to 10 pF	0.2 %	
10 pF to 100 pF	0.1 %	

<i>Range</i>	<i>Best Uncertainty (±) in µF/F ^{note 1}</i>	<i>Remarks</i>
350 pF @ 1000 Hz	2520	5500A Console
480 pF @ 1000 Hz	2100	5500A Console
600 pF @ 1000 Hz	1300	5500A Console
1 nF @ 1000 Hz	1000	5500A Console
2 nF @ 1000 Hz	800	5500A Console
7 nF @ 1000 Hz	710	5500A Console
10.9 nF @ 1000 Hz	700	5500A Console
20 nF @ 1000 Hz	700	5500A Console
70 nF @ 1000 Hz	680	5500A Console
200 nF @ 1000 Hz	680	5500A Console
300 nF @ 1000 Hz	680	5500A Console
700 nF @ 100 Hz	680	5500A Console
2 µF @ 100 Hz	690	5500A Console
3 µF @ 100 Hz	690	5500A Console

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

7 μ F @ 100 Hz	690	5500A Console
10.9 μ F 100 Hz	690	5500A Console
20 μ F @ 100 Hz	700	5500A Console
30 μ F @ 100 Hz	710	5500A Console
70 μ F @ 100 Hz	740	5500A Console
200 μ F @ 100 Hz	1380	5500A Console
300 μ F @ 100 Hz	1470	5500A Console
330 μ F @ 50 Hz	1600	5500A Console
1.1 mF @ 50 Hz	2350	5500A Console
190 pF @ 5000 Hz	2000	5520A Console
350 pF @ 1000 Hz	1800	5520A Console
480 pF @ 1000 Hz	1650	5520A Console
600 pF @ 1000 Hz	1000	5520A Console
1 nF @ 1000 Hz	900	5520A Console
2 nF @ 1000 Hz	770	5520A Console
7 nF @ 1000 Hz	700	5520A Console
10.9 nF @ 1000 Hz	700	5520A Console
20 nF @ 1000 Hz	700	5520A Console
70 nF @ 1000 Hz	680	5520A Console
109 nF @ 1000 Hz	680	5520A Console
200 nF @ 1000 Hz	680	5520A Console
300 nF @ 1000 Hz	680	5520A Console
700 nF @ 100 Hz	680	5520A Console
1.09 μ F @ 100 Hz	680	5520A Console
2 μ F @ 100 Hz	680	5520A Console
3 μ F @ 100 Hz	680	5520A Console
7 μ F @ 100 Hz	685	5520A Console
10.9 μ F @ 100 Hz	685	5520A Console
20 μ F @ 100 Hz	700	5520A Console
30 μ F @ 100 Hz	700	5520A Console
70 μ F @ 50 Hz	1280	5520A Console
109 μ F @ 50 Hz	1320	5520A Console

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



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NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

Range	10 Second Charge Current	Best Uncertainty (\pm) in $\mu\text{F}/\text{F}^{\text{note 1}}$	Remarks
200 μF	60 μA	300	5520A Console
300 μF	90 μA	300	5520A Console
330 μF	100 μA	300	5520A Console
700 μF	200 μA	300	5520A Console
1.09 mF	300 μA	300	5520A Console
1.1 mF	300 μA	300	5520A Console
2 mF	600 μA	300	5520A Console
3 mF	900 μA	300	5520A Console
3.3 mF	1 mA	300	5520A Console
10.9 mF	3 mA	300	5520A Console
20 mF	6 mA	300	5520A Console
30 mF	9 mA	300	5520A Console
33 mF	10 mA	300	5520A Console
110 mF	30 mA	300	5520A Console

5520A/5522A Factory Annex

(Best uncertainty for capacitance output at the frequency or charge current indicated)

Output	Best Uncertainty (\pm) in Farads ^{note 1}	Output	Best Uncertainty (\pm) in Farads ^{note 1}
190 pF 5 kHz	3.6E-12	10.9 uF 100 Hz	7.5E-09
350 pF 1 kHz	3.7E-12	20 uF 100 Hz	1.4E-08
480 pF 1 kHz	3.0E-12	30 uF 100 Hz	2.1E-08
600 pF 1 kHz	2.8E-12	70 uF 50 Hz	9.0E-08
1 nF 1 kHz	2.9E-12	109 uF 50 Hz	1.5E-07
2 nF 1 kHz	2.9E-12	200 uF 54 μA	8.8E-08
7 nF 1 kHz	5.0E-12	300 uF 80 μA	9.8E-08
10.9 nF 1 kHz	7.7E-12	330 uF 90 μA	1.0E-07
20 nF 1 kHz	1.4E-11	700 uF 180 μA	2.2E-07
70 nF 1 kHz	4.8E-11	1.09 mF 270 μA	3.3E-07
109 nF 1 kHz	7.4E-11	1.10 mF 270 μA	3.9E-07
200 nF 1 kHz	1.4E-10	2 mF 540 μA	6.0E-07
300 nF 1 kHz	2.0E-10	3 mF 800 μA	9.3E-07
700 nF 100 Hz	4.8E-10	3.30 mF 900 μA	1.1E-06

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

1.09 uF 100 Hz	7.5E-10	10.9 mF 2.7 mA	3.3E-06
2 uF 100 Hz	1.4E-09	20 mF 5.4 mA	6.3E-06
3 uF 100 Hz	2.1E-09	30 mF 8 mA	9.3E-06
7 uF 100 Hz	4.8E-09	33 mF 9 mA	1.1E-05
		110 mF 27 mA	3.3E-05

5500A Factory Annex

(Best uncertainty for capacitance output at the frequency or charge current indicated)

Output	Best Uncertainty (\pm) in Farads^{note 1}	Output	Best Uncertainty (\pm) in Farads^{note 1}
350 pF 1 kHz	1.8E-11	2 uF 100 Hz	1.9E-09
480 pF 1 kHz	1.4E-11	3 uF 100 Hz	2.8E-09
600 pF 1 kHz	1.4E-11	7 uF 100 Hz	6.0E-09
1 nF 1 kHz	4.9E-12	10.9 uF 100 Hz	8.5E-09
2 nF 1 kHz	1.5E-11	20 uF 100 Hz	1.6E-08
7 nF 1 kHz	2.3E-11	30 uF 100 Hz	2.4E-08
10.9 nF 1 kHz	2.6E-11	70 uF 100 Hz	6.5E-08
20 nF 1 kHz	3.0E-11	200 uF 100 Hz	3.0E-07
70 nF 1 kHz	8.8E-11	300 uF 100 Hz	4.9E-07
200 nF 1 kHz	1.4E-10	330 uF 50 Hz	5.6E-07
300 nF 1 kHz	2.2E-10	1.10 mF 50 Hz	2.8E-06
700 nF 100 Hz	7.1E-10		

8845A/8846A Factory Annex

(Best uncertainty for capacitance measure at indicated input)

Input Capacitance	Best Uncertainty (\pm) in Farads^{note 1}	Input Capacitance	Best Uncertainty (\pm) in Farads^{note 1}
0 F	3.4E-12	10.0 uF	2.3E-08
1.00 nF	1.3E-11	100.0 uF	3.5E-07
10.0 nF	2.7E-11	1.00 mF	3.7E-06
100.0 nF	2.4E-10	10.0 mF	3.9E-05
1.00 uF	2.3E-09	100.0 mF	1.0E-03

2011-07-01 through 2012-06-30

Effective dates

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Scope Revised: 2011-11-07

NVLAP Code: 20/E15
Phase Standard

Best Uncertainty (\pm) in Millidegrees ^{note 1}
Frequency in Hertz

Voltage Ratio	1 k, 5 k	50 k	100 k
1:1	2.1	2.6	2.6
10:1	2.2	3.2	9
100:1	5.1	5.6	10

Phase Meter at Fixed Points

Volts	Frequency in Hertz	Phase degrees	Best Uncertainty (\pm) in degrees ^{note 1}
0.05 to 50	60 to 1 k	0, 60, 90	0.010
3	5 k	0, 60, 90	0.013
3	10 k	0, 60, 90	0.017
0.05, 3	30 k	0, 60, 90	0.017

Phase
5500A Console

Best Uncertainty (\pm) in degrees ^{note 1}
Frequency in Hertz

Range in degrees	Frequency in Hertz						Mode
	60	65	400	1 k	5 k	10 k	
0		0.02	0.02				ACV/ACC
0	0.02		0.02	0.02	0.02	0.025	ACV/ACV
60	0.02		0.02	0.02	0.02	0.025	ACV/ACV
90	0.02		0.02	0.02	0.02	0.025	ACV/ACV

2011-07-01 through 2012-06-30

Effective dates

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CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

5520A/5522A Console

<i>Range in degrees</i>	<i>Reference Volts</i>	<i>Signal Amps</i>	<i>Frequency Hertz</i>	<i>Best Uncertainty (\pm) in degrees ^{note 1}</i>	<i>Remarks</i>
0	0.03	0.3	65	0.015	ACV/ACC
0	0.03	0.3	1 k	0.030	ACV/ACC
0	0.03	0.3	30 k	0.5	ACV/ACC
0	0.2	2	65	0.016	ACV/ACC
0	0.05	5	65	0.015	ACV/ACC
0	0.05	5	400	0.030	ACV/ACC
60	0.03	0.3	65	0.015	ACV/ACC
60	0.2	2	65	0.015	ACV/ACC
60	0.2	20	65	0.016	ACV/ACC
60	0.2	20	400	0.030	ACV/ACC
0	3.3	0.3	65	0.015	ACV/ACC
0	3.3	2	65	0.020	ACV/ACC
0	3.3	5	65	0.020	ACV/ACC
0	3.3	5	400	0.030	ACV/ACC
90	3.3	0.3	65	0.015	ACV/ACC
90	3.3	2	65	0.017	ACV/ACC
90	3.3	20	65	0.018	ACV/ACC
90	3.3	20	400	0.030	ACV/ACC
0	33	0.3	65	0.016	ACV/ACC
0	33	2	65	0.017	ACV/ACC
0	33	5	65	0.016	ACV/ACC
0	33	5	400	0.030	ACV/ACC
90	33	0.3	65	0.015	ACV/ACC
90	33	2	65	0.016	ACV/ACC
90	33	20	65	0.016	ACV/ACC
90	33	20	400	0.030	ACV/ACC

2011-07-01 through 2012-06-30

Effective dates

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National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

Range in degrees	Reference Volts	Signal Volts	Frequency Hertz	Best Uncertainty (\pm) in degrees ^{note 1}	Remarks
0, 60, 90	3	3	65	0.015	ACV/ACV
0, 60, 90	3	3	400	0.020	ACV/ACV
0, 60, 90	3	3	1 k	0.020	ACV/ACV
0, 60, 90	3	3	5 k	0.025	ACV/ACV
0, 60, 90	3	3	10 k	0.025	ACV/ACV
0, 60, 90	3	3	30 k	0.300	ACV/ACV
90	30	3	65	0.015	ACV/ACV
90	50	3	65	0.015	ACV/ACV

5520A/5522A Factory Annex

(Best uncertainty for the normal output, aux output, frequency, and phase settings indicated)

Output Settings ACV/ACC	Best Uncertainty (\pm) in degrees phase ^{note 1}	Output Settings ACV/ACV	Best Uncertainty (\pm) in degrees phase ^{note 1}
30 mV 300 mA 65 Hz 0 Deg	2.9E-03	3 V 3 V 65 Hz 0 Deg	2.4E-02
30 mV 300 mA 1 kHz 0 Deg	1.2E-03	3 V 3 V 400 Hz 0 Deg	2.7E-02
30 mV 300 mA 30 kHz 0 Deg	3.6E-02	3 V 3 V 1 kHz 0 Deg	4.3E-02
200 mV 2 A 65 Hz 0 Deg	1.5E-03	3 V 3 V 5 kHz 0 Deg	3.0E-02
50 mV 5 A 65 Hz 0 Deg	2.2E-03	3 V 3 V 10 kHz 0 Deg	2.9E-01
50 mV 5 A 400 Hz 0 Deg	2.9E-03	3 V 3 V 30 kHz 0 Deg	3.9E-01
30 mV 300 mA 65 Hz 60 Deg	3.9E-03	3 V 3 V 65 Hz 60 Deg	3.1E-02
200 mV 2 A 65 Hz 60 Deg	1.4E-03	3 V 3 V 400 Hz 60 Deg	2.8E-02
200 mV 20 A 65 Hz 60 Deg	2.8E-03	3 V 3 V 1 kHz 60 Deg	3.2E-02
200 mV 20 A 400 Hz 60 Deg	3.6E-03	3 V 3 V 5 kHz 60 Deg	1.2E-01
3.30 V 300 mA 65 Hz 0 Deg	4.0E-03	3 V 3 V 10 kHz 60 Deg	2.1E-01
3.30 V 2 A 65 Hz 0 Deg	4.3E-03	3 V 3 V 30 kHz 60 Deg	4.2E-01
3.30 V 5 A 65 Hz 0 Deg	2.7E-03	3 V 3 V 65 Hz 90 Deg	4.0E-02
3.30 V 5 A 400 Hz 0 Deg	4.9E-03	3 V 3 V 400 Hz 90 Deg	3.0E-02
3.30 V 300 mA 65 Hz 90 Deg	4.7E-03	3 V 3 V 1 kHz 90 Deg	4.2E-02
3.30 V 2 A 65 Hz 90 Deg	3.3E-03	3 V 3 V 5 kHz 90 Deg	2.9E-02
3.30 V 20 A 65 Hz 90 Deg	3.4E-03	3 V 3 V 10 kHz 90 Deg	1.9E-01
3.30 V 20 A 400 Hz 90 Deg	3.9E-03	3 V 3 V 30 kHz 90 Deg	4.9E-01
33 V 300 mA 65 Hz 0 Deg	3.8E-02	30 V 3 V 65 Hz 90 Deg	3.5E-02

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

33 V 2 A 65 Hz 0 Deg	1.0E-02	50 V 3 V 65 Hz 90 Deg	5.6E-02
33 V 5 A 65 Hz 0 Deg	8.7E-03		
33 V 5 A 400 Hz 0 Deg	8.3E-03		
33 V 300 mA 65 Hz 90 Deg	1.4E-02		
33 V 2 A 65 Hz 90 Deg	1.1E-02		
33 V 20 A 65 Hz 90 Deg	1.0E-02		
33 V 20 A 400 Hz 90 Deg	1.1E-02		

5500A Factory Annex

(Best uncertainty for the normal output, aux output, frequency, and phase settings indicated)

<i>Output Settings</i>	<i>Best Uncertainty (±) in degrees phase^{note 1}</i>	<i>Output Settings</i>	<i>Best Uncertainty (±) in degrees phase^{note 1}</i>
ACV/ACC		ACV/ACV	
33 V 300 mA 65 Hz 0 Deg	3.4E-02	3 V 1 V 60 Hz 60 Deg	2.6E-02
33 V 2 A 65 Hz 0 Deg	2.9E-02	3 V 1 V 400 Hz 60 Deg	2.3E-02
33 V 5 A 65 Hz 0 Deg	5.4E-02	3 V 1 V 1 kHz 60 Deg	2.9E-02
33 V 5 A 400 Hz 0 Deg	3.3E-02	3 V 1 V 5 kHz 60 Deg	4.4E-02
ACV/ACV		3 V 1 V 10 kHz 60 Deg	8.8E-02
3 V 1 V 60 Hz 0 Deg	2.3E-02	3 V 1 V 60 Hz 90 Deg	2.5E-02
3 V 1 V 400 Hz 0 Deg	2.5E-02	3 V 1 V 400 Hz 90 Deg	2.4E-02
3 V 1 V 1 kHz 0 Deg	2.4E-02	3 V 1 V 1 kHz 90 Deg	2.8E-02
3 V 1 V 5 kHz 0 Deg	4.8E-02	3 V 1 V 5 kHz 90 Deg	3.7E-02
3 V 1 V 10 kHz 0 Deg	8.4E-02	3 V 1 V 10 kHz 90 Deg	8.8E-02

TIME AND FREQUENCY

NVLAP Code: 20/F01

Frequency

<i>Range</i>	<i>Best Uncertainty (±)^{note 1}</i>	<i>Remarks</i>
10 MHz	1 mHz	GPS Console

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

<i>Range in Hertz</i>	<i>Best Uncertainty (\pm) in $\mu\text{Hz}/\text{Hz}$ ^{note 1}</i>	<i>Remarks</i>
119 to 120	2	5500A Console
1000	2	5500A Console
100 000	2	5500A Console

Frequency, Measuring Voltage Sources and Meters, using Counter with Internal Time Base

<i>Range</i>	<i>Best Uncertainty (\pm) ^{note 1}</i>	<i>Remarks</i>
1 Hz to 30 MHz	7 ($\mu\text{Hz}/\text{Hz}$) + 20 μHz	

Frequency, Measuring Voltmeter, using Source with External Time Base

<i>Range</i>	<i>Best Uncertainty (\pm) ^{note 1}</i>	<i>Remarks</i>
1 MHz	1 $\mu\text{Hz}/\text{Hz}$	

<i>Range in Hertz</i>	<i>Best Uncertainty (\pm) in $\mu\text{Hz}/\text{Hz}$ ^{note 1}</i>	<i>Remarks</i>
119	0.30	5520A Console
120	0.30	5520A Console
1000	0.30	5520A Console
100 000	0.30	5520A Console

5520A/5522A Factory Annex

(Best uncertainty for frequency at frequency and output voltage settings indicated)

<i>Output</i>	<i>Best Uncertainty (\pm) in Hz ^{note 1}</i>
119 Hz 3 V	5.8E-05
120 Hz 3 V	5.7E-05
1 kHz 3 V	4.7E-04
100 kHz 3 V	4.5E-02

5500A Factory Annex

(Best uncertainty for frequency at frequency and output voltage settings indicated)

<i>Output</i>	<i>Best Uncertainty (\pm) in Hz ^{note 1}</i>
119 Hz 3 V	4.1E-04
120 Hz 3 V	4.2E-04

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

1 kHz 3 V	2.3E-03
100 kHz 3 V	2.2E-01

8845A/8846A Factory Annex
(Best uncertainty for frequency measure at the indicated voltage and frequency input)

<i>Input Voltage/Frequency</i>	<i>Best Uncertainty (±) in Hz^{note 1}</i>
1.0 V 10.010 Hz	2.0E-04
1.0 V 40.0 Hz	2.9E-04
100.0 mV 300.0 kHz	9.6E-01
100.0 mV 1.00 MHz	2.9E+00

ELECTROMAGNETICS – RF/MICROWAVE

NVLAP Code: 20/R13
RF/Microwave Attenuators

Fixed Attenuators, 50Ω, Flatness Relative to 1 kHz

<i>Attenuator</i>	<i>Best Uncertainty (±) in μV/V</i>				
	<i>Frequency in Hertz^{note 1}</i>				
	<i>10 - 20</i>	<i>50 - 500 k</i>	<i>>500 k - 2 M</i>	<i>>2 M - 4 M</i>	<i>>4 M - 10 M</i>
3 dB to 10 dB	80	25	50	75	100
20 dB	110	40	60	90	120

<i>Attenuator</i>	<i>Best Uncertainty (±) in μV/V</i>				
	<i>Frequency in Hertz^{note 1}</i>				
	<i>>10 - 17 M</i>	<i>>17 M - 20 M</i>	<i>>20 M - 23 M</i>	<i>>23 M - 26 M</i>	<i>>26 M - 30 M</i>
3 dB to 10 dB	140	180	200	230	300
20 dB	170	225	270	320	400

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

NVLAP Code: 20/R17
RF/Microwave Power Meters

RF Power Heads, 50Ω Flatness Relative to 50 MHz

<i>Power</i>	<i>Best Uncertainty (±) in % Frequency in Hertz ^{note 1}</i>		
	<i>10 M - 20 M</i>	<i>20 M - 1.1 G</i>	<i>1.1 G - 3.2 G</i>
1 mW	0.6	0.6	0.7
1 μW	0.9	0.7	0.8

THERMODYNAMICS

NVLAP Code: 20/T02
Humidity Source and Measure

<i>Range in % RH</i>	<i>Best Uncertainty (±) in % RH ^{note 1}</i>	<i>Remarks</i>
(10 to 20)	3.2	PG 7000 Base Calibrations
(20 to 70)	2.0	PG 7000 Base Calibrations

NVLAP Code: 20/T03
Temperature, SPRT

<i>Range in °C</i>	<i>Best Uncertainty (±) in mK ^{note 1}</i>	<i>Remarks</i>
-40 to -50, -196	11	
-1 to -40	8	
<i>Range in °C</i>	<i>Best Uncertainty (±) in mK ^{note 1}</i>	<i>Remarks</i>
-1 to 1	5	
0.01	4.5	
1 to 150	10	
150 to 350	15	

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

Temperature Calibration Annex – Metrology Wells
Reference Junction Compensation Network

25 80

Dry Well Temperature Measure

-45 to 155	20
>155 to 250	30
>250 to 425	40
>425 to 500	50
>500 to 660	60

Temperature Source and Measure

Range in °C	Best Uncertainty (±) in °C^{note 1}	Remarks
(19 to 26)	0.015	PG 7000 Base Calibrations

NVLAP Code: 20/T05
Pressure Source and Measure

Range in kPa	Best Uncertainty (±) in Pa^{note 1}	Remarks
(70 to 110)	10	PG 7000 Base Calibrations

Pressure Source and Measure

Range	Best Uncertainty (±) of reading plus offset^{note 1}	Remarks
(1.38 to 172) kPa	1.2×10^{-5} but not less than 0.07 Pa	Gauge Mode
(>172 to 190) kPa	$1.5 \times 10^{-5} + 0.01$ Pa	Gauge Mode
(>190 to 550) kPa	$1.6 \times 10^{-5} + 0.01$ Pa	Gauge Mode
(>550 to 1,100) kPa	$1.6 \times 10^{-5} + 0.02$ Pa	Gauge Mode
(>1,100 to 1,900) kPa	$1.7 \times 10^{-5} + 0.06$ Pa	Gauge Mode
(>1,900 to 3,800) kPa	$1.7 \times 10^{-5} + 0.12$ Pa	Gauge Mode
(>3,800 to 7,600) kPa	$1.7 \times 10^{-5} + 0.23$ Pa	Gauge Mode

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

(>7,600 to 10,000) kPa	$1.8 \times 10^{-5} + 0.12 \text{ Pa}$	Gauge Mode
(>10 to 11) MPa	$1.8 \times 10^{-5} + 0.23 \text{ Pa}$	Gauge Mode
(>11 to 17.5) MPa	$2.2 \times 10^{-5} + 5.8 \text{ Pa}$	Gauge Mode
(>17.5 to 35) MPa	$2.3 \times 10^{-5} + 12 \text{ Pa}$	Gauge Mode
(>35 to 50) MPa	$2.6 \times 10^{-5} + 5.8 \text{ Pa}$	Gauge Mode
(>50 to 70) MPa	$2.9 \times 10^{-5} + 23 \text{ Pa}$	Gauge Mode
(>70 to 104) MPa	$3.5 \times 10^{-5} + 23 \text{ Pa}$	Gauge Mode
(-100 to -1.38) kPa	1.2×10^{-5} but not less than 0.07 Pa	Negative Gauge Mode
(-100 to 0) kPa	$1.5 \times 10^{-5} + 0.31 \text{ Pa}$	Differential Mode
(-15 to 15) kPa	$2.9 \times 10^{-5} + 0.013 \text{ Pa}$	Bi-Directional Gauge ^{note9}
(-25 to 25) kPa	1.2×10^{-5} but not less than 0.034 Pa	Differential

Pneumatic Pressure using Primary Piston Gauge

(0 to 133) Pa	$0.35 + 0.05 \text{ Pa}$	Absolute Mode ^{note 10}
(1.38 to 172) kPa	1.2×10^{-5} but not less than 0.07 Pa	Absolute Mode ^{note 11}
(>172 to 190) kPa	$1.5 \times 10^{-5} + 0.2 \text{ Pa}$	Absolute Mode
(>190 to 760) kPa	$1.5 \times 10^{-5} + 0.2 \text{ Pa}$	Absolute Mode
(>760 to 3,800) kPa	$1.6 \times 10^{-5} + 0.23 \text{ Pa}$	Absolute Mode
(>3,800 to 7,600) kPa	$1.7 \times 10^{-5} + 0.3 \text{ Pa}$	Absolute Mode
(>7.6 to 11) MPa	$1.8 \times 10^{-5} + 10 \text{ Pa}$	Absolute Mode
(>11 to 17.5) MPa	$2.2 \times 10^{-5} + 12 \text{ Pa}$	Absolute Mode
(>17.5 to 35) MPa	$2.3 \times 10^{-5} + 15 \text{ Pa}$	Absolute Mode
(>35 to 50) MPa	$2.6 \times 10^{-5} + 12 \text{ Pa}$	Absolute Mode
(>50 to 70) MPa	$2.9 \times 10^{-5} + 25 \text{ Pa}$	Absolute Mode
(>70 to 104) MPa	$3.5 \times 10^{-5} + 25 \text{ Pa}$	Absolute Mode

Hydraulic Pressure using Primary Piston Gauge

(0.2 to 7) MPa	$1.7 \times 10^{-5} + 13 \text{ Pa}$	Gauge Mode
(>7 to 20) MPa	$2.0 \times 10^{-5} + 13 \text{ Pa}$	Gauge Mode

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0
Scope Revised: 2011-11-07

(>20 to 35) MPa	$2.3 \times 10^{-5} + 22$ Pa	Gauge Mode
(>35 to 50) MPa	$2.4 \times 10^{-5} + 16$ Pa	Gauge Mode
(>50 to 100) MPa	$2.6 \times 10^{-5} + 22$ Pa	Gauge Mode
(>100 to 200) MPa	$3.9 \times 10^{-5} + 31$ Pa	Gauge Mode
(>200 to 500) MPa	$5.8 \times 10^{-5} + 65$ Pa	Gauge Mode

Hydraulic Pressure using Primary Piston Gauge

(0.2 to 7) MPa	$1.7 \times 10^{-5} + 16$ Pa	Absolute Mode
(>7 to 20) MPa	$2.0 \times 10^{-5} + 16$ Pa	Absolute Mode
(>20 to 35) MPa	$2.3 \times 10^{-5} + 24$ Pa	Absolute Mode
(>35 to 50) MPa	$2.4 \times 10^{-5} + 18$ Pa	Absolute Mode
(>50 to 100) MPa	$2.6 \times 10^{-5} + 24$ Pa	Absolute Mode
(>100 to 200) MPa	$3.9 \times 10^{-5} + 33$ Pa	Absolute Mode
(>200 to 500) MPa	$5.8 \times 10^{-5} + 66$ Pa	Absolute Mode

NVLAP Code: 20/T08 Thermocouple Temperature

Range in °C	Best Uncertainty (±) in °C ^{note 1}	Remarks
-50 to -25	0.3	
-25 to 100	0.2	
100 to 300	0.3	

Type J, K and T Thermocouples

Range in °C	Best Uncertainty (±) in °C ^{note 1}	Remarks
Both Junctions at 22 – 25	0.02	

Simulated Thermocouple Temperature - UUT sourcing, 5500A Console measuring (10 μV/°C linear mode), voltage simulates temperature ^{note 5}

Range in mV	Best Uncertainty (±) in μV ^{note 1}	Remarks
0.0	0.3	

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

1.0	0.3
-1.0	0.3
10	0.3
-10	0.3
100	0.8
-100	0.8

Simulated Thermocouple Temperature - UUT measuring, 5500A Console sourcing (10 $\mu\text{V}/^\circ\text{C}$ linear mode), voltage simulates temperature ^{note 5}

0	0.3
100	1.0
-100	1.0
300	2.0
-300	2.0

Thermocouple temperature measurement: TYPE K

<i>Range in $^\circ\text{C}$</i>	<i>Best Uncertainty (\pm) in $^\circ\text{C}$ ^{note 1}</i>	<i>Remarks</i>
23	0.022	5500A Console

Simulated Thermocouple Temperature - UUT sourcing, 5520A Console measuring (10 $\mu\text{V}/^\circ\text{C}$ linear mode), voltage simulates temperature ^{note 5}

<i>Range in mV</i>	<i>Best Uncertainty (\pm) in μV ^{note 1}</i>	<i>Remarks</i>
0.0	0.2	
1.0	0.2	
-1.0	0.2	
10	0.25	
-10	0.25	
100	0.7	
-100	0.7	

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

Simulated Thermocouple Temperature - UUT measuring, 5520A Console sourcing (10 μ V/ $^{\circ}$ C linear mode), voltage simulates temperature ^{note 5}

0.0	0.2
100	1.0
-100	1.0
300	2.0
-300	2.0

Thermocouple Temperature Measurement: TYPE K

<i>Range in $^{\circ}$C</i>	<i>Best Uncertainty (\pm) in $^{\circ}$C ^{note 1}</i>	<i>Remarks</i>
23	0.022	5520A Console

5520A Factory Annex
Simulated Thermocouple Sourcing (DC Voltage Sourced in 10 uV/deg C mode)

<i>Output in $^{\circ}$C</i>	<i>Best Uncertainty (\pm) in $^{\circ}$C ^{note 1}</i>
0	7.0E-02
100	6.9E-02
-100	7.1E-02
1000	7.6E-02
-1000	8.5E-02
10000	9.9E-02
-10000	1.0E-01

5520A/5522A Factory Annex
Simulated Thermocouple Measurement (DC Voltage Measured in 10 uV/deg C mode)

<i>Measured in $^{\circ}$C</i>	<i>Best Uncertainty (\pm) in $^{\circ}$C ^{note 1}</i>
0	5.7E-02
10000	1.6E-01
-10000	1.5E-01

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

30000	2.2E-01
-30000	2.4E-01

5520A/5522A Factory Annex
Thermocouple (Type J) Measuring

<i>Measured in °C</i>	<i>Best Uncertainty (±) in °C ^{note 1}</i>
23	3.2 E-02

5500A Factory Annex
Simulated Thermocouple Sourcing (DC Voltage Sourced in 10 uV/deg C mode)

<i>Output in °C</i>	<i>Best Uncertainty (±) in °C ^{note 1}</i>
0	1.3E-01
100	1.3E-01
-100	1.2E-01
1000	1.2E-01
-1000	1.2E-01
10000	1.6E-01
-10000	1.8E-01

5500A Factory Annex
Simulated Thermocouple Measurement (DC Voltage Measured in 10 uV/deg C mode)

<i>Measured in °C</i>	<i>Best Uncertainty (±) in °C ^{note 1}</i>
0	8.8E-02
10000	1.5E-01
-10000	1.6E-01
30000	3.2E-01
-30000	3.1E-01

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

Scope Revised: 2011-11-07

5500A Factory Annex
Thermocouple (Type J) Measuring

Measured in °C	Best Uncertainty (±) in °C ^{note 1}
23	6.5E-02

1. Represents an expanded uncertainty at a level of confidence of 95%; coverage factor *k* is determined by the test statistics.
2. Approximate value. Actual value determined by the test statistics.
3. The symbol E is the absolute value of the DC Voltage being measured by the J Array. For example at 10 V the Best Uncertainty would be $50 + (5 \times 10) = \pm 100$ nV.
4. 1000 V Limit is 8 kHz.
5. The simulated thermocouple temperature capability of the calibrator is verified using the 10 μ V/°C linear mode (which is not an actual thermocouple mode) and a measurement with a Type K thermocouple at 23 °C. When the calibrator is used to simulate or measure a thermocouple the temperature range is limited to the range appropriate for the type of thermocouple selected.
6. Temperature range between 20 to 26 °C.
7. Traceable through PTB.
8. A fixed value of uncertainty is given for output or measured values at 0.
9. This capability using FPG8601.
10. This capability using a Capacitance Diaphragm Pressure Transducer.
11. Increase by 1.33 E+00 Pa combined in quadrature with stated level.

2011-07-01 through 2012-06-30

Effective dates

Sally S. Bruce

For the National Institute of Standards and Technology