

CALIBRATION LABORATORIES

NVLAP LAB CODE 105016-0

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

ELECTROMAGNETICS – DC/LOW FREQUENCY														
VOLTAGE/CURRENT CONVERTORS (to 100 MHz) (20/E01)														
Fluke 792A		Expanded uncertainties are in $\mu\text{V/V}$ for the level and range at left at indicated frequencies below												
Range	Level	10 Hz	20 Hz	40 Hz	100 Hz	1 kHz	10 kHz	20 kHz	50 kHz	100 kHz	300 kHz	500 kHz	800 kHz	1 MHz
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	80	70	70	70	70	70	70	80	140	210	280	320	360
22 mV	20 mV	75	60	60	60	60	60	60	80	140	220	300	370	360
220 mV	20 mV	85	75	75	60	60	60	60	80	140	210	280	320	360
220 mV	60 mV	60	36	31	31	31	25	25	36	75	140	210	280	280
220 mV	100 mV	40	25	12	12	12	12	12	24	40	80	120	180	180
220 mV	200 mV	25	20	10	10	10	10	10	20	40	75	110	160	180
700 mV	200 mV	25	20	10	10	10	10	10	20	40	75	110	160	180
700 mV	600 mV	25	18	6	6	6	6	6	7	12	25	30	50	60
2.2 V	0.6 V	25	15	5	5	5	5	6	7	10	21	25	30	40
2.2 V	1 V	25	15	5	5	5	5	5	7	10	20	25	30	40
2.2 V	2V	25	15	5	5	5	5	5	5	10	20	25	30	40
7 V	2 V	25	15	5	5	5	5	5	6	10	20	25	30	40
7 V	6 V	25	15	5	5	5	5	5	6	7	20	25	30	40
22 V	6 V	25	15	5	5	5	5	5	6	7	20	25	30	40
22 V	10 V	25	15	5	5	5	5	5	6	8	20	25	30	40
22 V	20 V	25	15	6	6	6	6	6	7	10	20	25	30	40
70 V	20 V	25	15	6	6	6	6	6	7	10	25			
70 V	60 V	25	15	6	6	6	6	6	8	10	25			
220 V	60 V	25	15	6	6	6	6	6	8	10	30			
220 V	100 V	25	15	6	6	6	6	6	8	15				
220 V	200 V	36	15	8	8	8	8	8	10	15				
1000 V	200 V	40	15	8	8	8	8	8	12	30				



2023-06-06 through 2024-06-30
Effective dates

For the National Voluntary Laboratory Accreditation Program

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

792A continued		Expanded uncertainties are in $\mu\text{V/V}$ for the level and range at left at indicated frequencies below												
Range	Level	10 Hz	20 Hz	40 Hz	100 Hz	1 kHz	10 kHz	20 kHz	50 kHz	100 kHz	300 kHz	500 kHz	800 kHz	1 MHz
1000 V	600 V			11	11	11	11	11	16	40				
1000 V	1000 V			11	11	11	11	11						

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

792A Continued				
Range	Level	Frequency	Uncertainty	Remarks
220 V	100 V	200 kHz	20 $\mu\text{V/V}$	These two CMCs are listed separately for readability of the table above.
1000 V	1000 V	30 kHz	11 $\mu\text{V/V}$	

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

100 Ω /1 k Ω shunt calibration in Fluke 792A or 5790B/5790A	Expanded Uncertainties are in $\mu\text{A/A}$ for level shown at left at indicated frequencies below							
	10 Hz	20 Hz & 30 Hz	40 Hz to 1 kHz	3 kHz	5 kHz	10 kHz	20 kHz	30 kHz
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

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

A40 & A40A Shunt Calibration with TVC or 792A	Expanded uncertainties are in $\mu\text{A/A}$ for level shown at left at indicated frequencies below									
	10 Hz	20 Hz	40 Hz	400 Hz	1 kHz	5 kHz	10 kHz	20 kHz	50 kHz	100 kHz
10 mA	35	32	28	26	21	23	25	26	40	60
20 mA	30	30	26	27	22	23	25	26	41	61
30 mA	30	30	27	30	25	27	29	29	41	63
50 mA	30	30	26	26	22	25	25	26	42	64
100 mA	31	30	25	27	22	23	25	27	50	75



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

A40 & A40A Shunt Calibration with TVC or 792A	Expanded uncertainties are in $\mu\text{A/A}$ for level shown at left at indicated frequencies below									
	10 Hz	20 Hz	40 Hz	400 Hz	1 kHz	5 kHz	10 kHz	20 kHz	50 kHz	100 kHz
200 mA	35	30	25	27	22	23	25	27	50	80
300 mA	35	31	29	32	27	28	30	31	51	80
500 mA	40	32	25	26	25	25	26	30	51	80
1 A	40	35	25	26	25	25	26	45	100	190
2 A	50	45	30	30	30	30	32	56	100	190
3 A	60	50	36	38	35	35	37	60	110	190
5 A	70	60	40	40	40	40	40	67	160	300
10 A	80	70	45	45	45	45	45	75	120	
20 A	120	100	65	65	65	65	65	100	140	

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

A40 & A40A Shunt Calibration with 5790A	Expanded uncertainties are in $\mu\text{A/A}$ for level shown at left at indicated frequencies below								
	10 Hz	20 Hz	40 Hz	400 Hz	1 kHz	5 kHz	10 kHz	20 kHz	30 kHz
10 mA	41	38	29	29	25	26	26	27	50
20 mA	40	36	28	29	25	26	26	27	50
30 mA	40	35	30	32	28	29	29	29	50
50 mA	40	35	28	29	25	27	26	28	55
100 mA	40	35	28	29	25	26	26	30	60
200 mA	45	40	28	29	25	26	26	30	60
300 mA	45	40	32	34	30	31	31	32	60
500 mA	45	40	27	29	27	27	27	30	65
1 A	50	40	30	30	30	30	30	45	100
2 A	55	45	30	30	30	30	30	45	100
3 A	80	55	50	50	50	50	50	55	120
5 A	90	60	50	50	50	50	50	70	190
10 A	100	75	60	60	60	60	60	100	185
20 A	140	110	75	75	75	75	75	170	371

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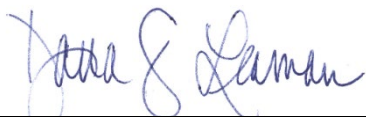
CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

A40B Shunt Calibration with TVC	Expanded uncertainties are in $\mu\text{A/A}$ for level shown at left at indicated frequencies below							
	10 Hz	55 Hz	400 Hz	1 kHz	10 kHz	30 kHz	70 kHz	100 kHz
1 mA	32	27	27	27	27	27	39	45
10 mA	29	15	15	14	16	16	23	30
20 mA	24	15	15	15	16	16	22	26
50 mA	22	16	16	15	17	18	18	26
100 mA	21	14	15	14	14	16	16	22
200 mA	21	14	15	14	14	16	16	21
500 mA	21	14	15	14	14	16	19	24
1 A	22	15	15	15	15	20	20	27
2 A	21	14	15	14	14	22	30	46
5 A	27	22	22	21	21	30	44	65
10 A	31	27	27	26	26	54	64	87
20 A	40	36	36	35	44	65	88	120
50 A	47	46	46	45	54	76	100	150
100 A	56	54	54	53	73	84	140	170

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

A55 Thermal Convertor Calibration	Expanded uncertainties are in % of reading for nominal shown at left at indicated frequencies						
	1 MHz	2 MHz	10 MHz	20 MHz	30 MHz	50 MHz	100 MHz
0.5 V	0.08	0.08	0.1	0.2	0.2	0.5	1.0
1 V	0.08	0.08	0.1	0.2	0.2	0.5	1.0
2 V	0.08	0.08	0.08	0.16	0.16	0.4	0.8
3 V	0.08	0.08	0.1	0.16	0.2	0.5	1.2
5 V	0.08	0.08	0.1	0.2	0.2	0.5	1.0
10 V	0.08	0.08	0.1	0.2	0.2	0.5	1.0
20 V	0.08	0.08	0.1	0.15	0.2	0.5	1.0
30 V		0.08	0.08	0.16	0.16	0.4	0.8
50 V		0.08	0.08	0.16	0.16	0.4	0.8

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
TVC Calibration: AC/AC Voltage Difference – Source	3 V	10 Hz to 100 kHz	50 $\mu\text{V}/\text{V}$	Relative to 1 kHz, for TVC with 50 Ω input impedance
		200 kHz	50 $\mu\text{V}/\text{V}$	
		500 kHz	50 $\mu\text{V}/\text{V}$	
		700 kHz to 1 MHz	90 $\mu\text{V}/\text{V}$	
		1.2 MHz to 2 MHz	90 $\mu\text{V}/\text{V}$	
		3 MHz to 4 MHz	170 $\mu\text{V}/\text{V}$	
		6 MHz	200 $\mu\text{V}/\text{V}$	
		8 MHz to 10 MHz	230 $\mu\text{V}/\text{V}$	
		12 MHz to 15 MHz	340 $\mu\text{V}/\text{V}$	
		17 MHz	400 $\mu\text{V}/\text{V}$	
		20 MHz	420 $\mu\text{V}/\text{V}$	
		23 MHz	650 $\mu\text{V}/\text{V}$	
		26 MHz	800 $\mu\text{V}/\text{V}$	
		28 MHz	900 $\mu\text{V}/\text{V}$	
		30 MHz	1000 $\mu\text{V}/\text{V}$	
		35 MHz	1100 $\mu\text{V}/\text{V}$	
40 MHz	1200 $\mu\text{V}/\text{V}$			
45 MHz	1300 $\mu\text{V}/\text{V}$			
50 MHz	1400 $\mu\text{V}/\text{V}$			

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
AC RESISTANCE and CURRENT (20/E02)				
AC Resistance – Source, 4-Terminal Pair	100 Ω	1 MHz	360 $\mu\Omega/\Omega$	AC Resistance Standards and HP 4192A
		2 MHz	480 $\mu\Omega/\Omega$	
		3 MHz	570 $\mu\Omega/\Omega$	
		4 MHz	550 $\mu\Omega/\Omega$	
		5 MHz	550 $\mu\Omega/\Omega$	
		10 MHz	2.1 $\text{m}\Omega/\Omega$	



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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
AC/DC Current Difference – Source	1 kΩ	13 MHz	3.1 mΩ/Ω	
		100 kHz	340 μΩ/Ω	
		1 MHz	340 μΩ/Ω	
		2 MHz	340 μΩ/Ω	
		3 MHz	350 μΩ/Ω	
		4 MHz	430 μΩ/Ω	
		5 MHz	540 μΩ/Ω	
		10 MHz	2.1 mΩ/Ω	
		13 MHz	3.1 mΩ/Ω	
		10 kΩ	100 kHz	
1 MHz	360 μΩ/Ω			
100 kΩ	100 kHz	340 μΩ/Ω		
	1 MHz	360 μΩ/Ω		
AC Current, 50 Turn Coil – Source	10 A	40 Hz	50 μA/A	Y5020 Shunt
		100 Hz	50 μA/A	
		310 Hz	50 μA/A	
		1 kHz	60 μA/A	
		3 kHz	60 μA/A	
		5 kHz	60 μA/A	
5500A/5520A/5522A: AC Current – Measure	6 A 12 A 20 A	50 Hz and 400 Hz	0.20 %	Amp-Turns: 300 Amp-Turns: 600 Amp-Turns: 1000
			0.18 %	
			0.18 %	
5500A/5520A/5522A: AC Current – Measure	33 μA	1 kHz	300 μA/A	Fluke 5790A/B with shunts
		10 kHz	400 μA/A	
		30 kHz	500 μA/A	
	190 μA	45 Hz	50 μA/A	
		1 kHz	50 μA/A	



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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
		10 kHz	150 μ A/A	
		30 kHz	350 μ A/A	
	329 μ A	10 Hz	60 μ A/A	
		45 Hz	50 μ A/A	
		1 kHz	50 μ A/A	
		5 kHz	50 μ A/A	
		10 kHz	120 μ A/A	
		30 kHz	250 μ A/A	
		330 μ A	1 kHz	
	5 kHz		150 μ A/A	
	30 kHz		300 μ A/A	
	1.9 mA	1 kHz	40 μ A/A	
		10 kHz	50 μ A/A	
		30 kHz	140 μ A/A	
	3.29 mA	10 Hz	50 μ A/A	
		45 Hz	40 μ A/A	
		1 kHz	40 μ A/A	
		5 kHz	40 μ A/A	
		10 kHz	60 μ A/A	
		30 kHz	140 μ A/A	
		3.3 mA	1 kHz	
	5 kHz		50 μ A/A	
	30 kHz		150 μ A/A	
	19 mA	1 kHz	50 μ A/A	
		10 kHz	75 μ A/A	
		30 kHz	150 μ A/A	
	32.9 mA	10 Hz	120 μ A/A	
		45 Hz	62 μ A/A	
1 kHz		62 μ A/A		

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
		5 kHz	62 μ A/A	
		10 kHz	75 μ A/A	
		30 kHz	120 μ A/A	
	33 mA	1 kHz	80 μ A/A	
		5 kHz	80 μ A/A	
		30 kHz	150 μ A/A	
	190 mA	1 kHz	50 μ A/A	
		10 kHz	70 μ A/A	
		30 kHz	120 μ A/A	
	329 mA	10 Hz	125 μ A/A	
		45 Hz	62 μ A/A	
		1 kHz	62 μ A/A	
		5 kHz	62 μ A/A	
		10 kHz	70 μ A/A	
		30 kHz	120 μ A/A	
	330 mA	1 kHz	80 μ A/A	
		5 kHz	80 μ A/A	
		10 kHz	120 μ A/A	
	1.09 A	10 Hz	130 μ A/A	
		45 Hz	70 μ A/A	
		1 kHz	70 μ A/A	
		5 kHz	250 μ A/A	
		10 kHz	600 μ A/A	
	2.19 A	10 Hz	130 μ A/A	
		45 Hz	70 μ A/A	
		1 kHz	70 μ A/A	
		5 kHz	230 μ A/A	
	2.20 A	500 Hz	100 μ A/A	
		1 kHz	100 μ A/A	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5560A, 5550A, 5540A AC Current – Measure	2.99 A	10 Hz	100 µA/A	
		45 Hz	70 µA/A	
		1 kHz	70 µA/A	
		5 kHz	250 µA/A	
		10 kHz	600 µA/A	
	3.3 A	500 Hz	150 µA/A	
		1 kHz	150 µA/A	
		5 kHz	1100 µA/A	
	11 A	45 Hz	80 µA/A	
		65 Hz	80 µA/A	
		500 Hz	80 µA/A	
		1 kHz	80 µA/A	
5 kHz		300 µA/A		
20 A	45 Hz	100 µA/A		
	65 Hz	100 µA/A		
	500 Hz	100 µA/A		
	1 kHz	130 µA/A		
	5 kHz	300 µA/A		
10 µA	3 Hz	1.0E+02 µA/A		
	45 Hz, 1 kHz, 5 kHz	2.3E+02 µA/A		
	10 kHz	3.0E+02 µA/A		
	30 kHz	4.0E+02 µA/A		
100 µA, 121 µA	3 Hz, 45 Hz,	60 µA/A		
	1 kHz, 5 kHz	1.0E+02 µA/A		
	10 kHz	1.0E+02 µA/A		
	30 kHz	2.0E+02 µA/A		
1 mA, 1.21 mA	3 Hz, 45 Hz,	60 µA/A		
	1 kHz, 5 kHz			

Fluke 5790B or
Fluke 8588A
w/shunts



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
		10 kHz 30 kHz	1.0E+02 μ A/A 2.0E+02 μ A/A	
	10 mA, 12.1 mA	3 Hz, 45 Hz, 1 kHz, 5 kHz 10 kHz 30 kHz	60 μ A/A 1.0E+02 μ A/A 2.0E+02 μ A/A	
	100 mA, 121 mA	3 Hz, 45 Hz 1 kHz 5 kHz 10 kHz 30 kHz	30 μ A/A 35 μ A/A 45 μ A/A 1.0E+02 μ A/A 2.0E+02 μ A/A	
	1 A, 1.21 A	3 Hz, 45 Hz 1 kHz 5 kHz 10 kHz	40 μ A/A 40 μ A/A 50 μ A/A 1.0E+02 μ A/A	
	1 A	30 kHz	2.0E+02 μ A/A	
	3.1 A	3 Hz 45 Hz, 1 kHz, 5 kHz 10 kHz	60 μ A/A 50 μ A/A 1.0E+02 μ A/A	
	10 A	3 Hz, 45 Hz, 1 kHz 5 kHz 10 kHz	60 μ A/A 80 μ A/A 140 μ A/A	
	12.1 A	3 Hz, 45 Hz 1 kHz 5 kHz	60 μ A/A 80 μ A/A 1.2E+02 μ A/A	
	20 A, 30 A	3 Hz, 45 Hz 1 kHz 5 kHz	1.0E+02 μ A/A 1.0E+02 μ A/A 2.0E+02 μ A/A	

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5700A/5720A/5730A AC Current – Measure	19 μ A, 20 μ A	1 kHz	180 μ A/A	Fluke 5790A/B with shunts
	19 μ A	5 kHz	220 μ A/A	
	19 μ A, 20 μ A	10 kHz	300 μ A/A	
	200 μ A	10 Hz	50 μ A/A	
		20 Hz	40 μ A/A	
	190 μ A, 200 μ A	40 Hz	35 μ A/A	
	190 μ A	100 Hz	35 μ A/A	
	190 μ A, 200 μ A	1 kHz	35 μ A/A	
		5 kHz	80 μ A/A	
		10 kHz	200 μ A/A	
	2 mA	10 Hz	50 μ A/A	
		20 Hz	40 μ A/A	
		40 Hz	30 μ A/A	
	1.9 mA, 2 mA	1 kHz	30 μ A/A	
		5 kHz	60 μ A/A	
		10 kHz	200 μ A/A	
	20 mA	10 Hz	50 μ A/A	
		20 Hz	40 μ A/A	
		40 Hz	30 μ A/A	
	19 mA, 20 mA	1 kHz	30 μ A/A	
		5 kHz	80 μ A/A	
		10 kHz	300 μ A/A	
	200 mA	10 Hz	60 μ A/A	
		20 Hz	50 μ A/A	
190 mA, 200 mA	40 Hz	31 μ A/A		
190 mA	100 Hz	37 μ A/A		
190 mA, 200 mA	1 kHz	32 μ A/A		
	5 kHz	80 μ A/A		
	10 kHz	300 μ A/A		

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5725A: AC Current – Source and Measure	2.0 A	20 Hz	60 μ A/A	Fluke 5790A/B with shunts
	1.9 A	40 Hz, 100 Hz	50 μ A/A	
	1.9 A, 2.0 A	1 kHz	50 μ A/A	
		5 kHz	130 μ A/A	
		10 kHz	500 μ A/A	
	3.0 A	40 Hz	80 μ A/A	
		1 kHz	80 μ A/A	
		5 kHz	150 μ A/A	
		10 kHz	150 μ A/A	
	10 A	40 Hz	90 μ A/A	
	1 kHz	90 μ A/A		
	5 kHz	100 μ A/A		
	10 kHz	130 μ A/A		
11 A	10 kHz	150 μ A/A		
100 Ω or 1 k Ω shunt with detector: AC Current – Source	10 μ A	10 Hz	3.0E+02 μ A/A	Fluke 792A with shunts
		20 Hz	3.0E+02 μ A/A	
		40 Hz	3.0E+02 μ A/A	
		100 Hz	3.0E+02 μ A/A	
		300 Hz	3.0E+02 μ A/A	
		400 Hz	3.0E+02 μ A/A	
		1 kHz	3.0E+02 μ A/A	
	20 μ A	10 Hz	2.5E+02 μ A/A	
		20 Hz	2.2E+02 μ A/A	
		40 Hz	1.8E+02 μ A/A	
		100 Hz	1.8E+02 μ A/A	
		300 Hz	1.8E+02 μ A/A	

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	30 μ A	400 Hz	1.8E+02 μ A/A	
		1 kHz	1.8E+02 μ A/A	
		5 kHz	2.8E+02 μ A/A	
		10 kHz	4.5E+02 μ A/A	
		10 Hz	2.0E+02 μ A/A	
		20 Hz	1.8E+02 μ A/A	
		40 Hz	1.5E+02 μ A/A	
		100 Hz	1.5E+02 μ A/A	
		300 Hz	1.5E+02 μ A/A	
		400 Hz	1.5E+02 μ A/A	
		1 kHz	1.5E+02 μ A/A	
		5 kHz	1.8E+02 μ A/A	
		10 kHz	2.5E+02 μ A/A	
		20 kHz	3.2E+02 μ A/A	
		30 kHz	4.0E+02 μ A/A	
		100 μ A	10 Hz	
	20 Hz		70 μ A/A	
	30 Hz		70 μ A/A	
	40 Hz		60 μ A/A	
	55 Hz		60 μ A/A	
	100 Hz		60 μ A/A	
	300 Hz		60 μ A/A	
	400 Hz		60 μ A/A	
	1 kHz		60 μ A/A	
	5 kHz		80 μ A/A	
	10 kHz		90 μ A/A	
	20 kHz		1.2E+02 μ A/A	
	30 kHz		1.4E+02 μ A/A	
	200 μ A		10 Hz	
		20 Hz	70 μ A/A	
30 Hz		70 μ A/A		
40 Hz		50 μ A/A		
55 Hz		50 μ A/A		

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks	
	300 μ A	100 Hz	50 μ A/A		
		300 Hz	50 μ A/A		
		400 Hz	50 μ A/A		
		1 kHz	50 μ A/A		
		5 kHz	70 μ A/A		
		10 kHz	80 μ A/A		
		20 kHz	1.1E+02 μ A/A		
		30 kHz	1.3E+02 μ A/A		
		10 Hz	70 μ A/A		
	20 Hz	70 μ A/A			
	30 Hz	70 μ A/A			
	40 Hz	50 μ A/A			
	55 Hz	50 μ A/A			
	100 Hz	50 μ A/A			
	300 Hz	50 μ A/A			
	400 Hz	50 μ A/A			
	1 kHz	50 μ A/A			
	5 kHz	60 μ A/A			
	10 kHz	70 μ A/A			
	20 kHz	90 μ A/A			
	30 kHz	1.1E+02 μ A/A			
	1 mA	1 mA	10 Hz		40 μ A/A
	20 Hz		30 μ A/A		
	30 Hz		30 μ A/A		
	40 Hz		30 μ A/A		
	55 Hz		30 μ A/A		
	100 Hz		30 μ A/A		
	300 Hz		30 μ A/A		
	400 Hz		30 μ A/A		
	1 kHz		30 μ A/A		
	5 kHz		30 μ A/A		
	10 kHz		35 μ A/A		
	20 kHz		40 μ A/A		
30 kHz	50 μ A/A				

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks	
52120A (Volts In): AC Current – Measure 2 Amp Range	2 mA	10 Hz	40 µA/A	Open Loop using 57x0A	
		20 Hz	30 µA/A		
		30 Hz	30 µA/A		
		40 Hz	30 µA/A		
		55 Hz	30 µA/A		
		100 Hz	30 µA/A		
		300 Hz	30 µA/A		
		400 Hz	30 µA/A		
		1 kHz	30 µA/A		
		5 kHz	30 µA/A		
		10 kHz	35 µA/A		
		20 kHz	40 µA/A		
		30 kHz	50 µA/A		
		3 mA	10 Hz		40 µA/A
			20 Hz		30 µA/A
	30 Hz		30 µA/A		
	40 Hz		30 µA/A		
	55 Hz		30 µA/A		
	100 Hz		30 µA/A		
	300 Hz		30 µA/A		
	400 Hz		30 µA/A		
	1 kHz		30 µA/A		
	5 kHz		30 µA/A		
	10 kHz		35 µA/A		
	20 kHz		40 µA/A		
	30 kHz		50 µA/A		
	0.4 A		10 Hz		3.1E-05 A
			50 Hz		3.0E-05 A
		57 Hz	3.1E-05 A		
		60 Hz	3.4E-05 A		

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	1.0 A	300 Hz	3.2E-05 A	
		400 Hz	3.1E-05 A	
		1 kHz	4.3E-05 A	
		3 kHz	9.7E-05 A	
		5 kHz	2.0E-04 A	
		6 kHz	2.9E-04 A	
		8 kHz	5.1E-04 A	
		9 kHz	6.4E-04 A	
		10 kHz	8.0E-04 A	
		10 Hz	7.5E-05 A	
	50 Hz	7.4E-05 A		
	57 Hz	7.4E-05 A		
	60 Hz	7.4E-05 A		
	300 Hz	7.5E-05 A		
	400 Hz	7.4E-05 A		
	1 kHz	1.1E-04 A		
	3 kHz	2.8E-04 A		
	5 kHz	5.8E-04 A		
	6 kHz	8.0E-04 A		
	8 kHz	1.3E-03 A		
	9 kHz	1.7E-03 A		
	10 kHz	1.7E-03 A		
	2.0 A	10 Hz	1.5E-04 A	
	50 Hz	1.5E-04 A		
	57 Hz	1.5E-04 A		
	60 Hz	1.5E-04 A		
	300 Hz	1.5E-04 A		
	400 Hz	1.5E-04 A		
	1 kHz	2.1E-04 A		
	3 kHz	4.8E-04 A		
	5 kHz	9.9E-04 A		
	6 kHz	1.2E-03 A		
	8 kHz	2.0E-03 A		
9 kHz	2.4E-03 A			

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
52120A LCOMP ON (Volts In): AC Current – Measure 2 Amp Range	2.0 A	10 kHz	3.0E-03 A	Open Loop using 57x0A
		10 Hz	1.5E-04 A	
		50 Hz	1.5E-04 A	
		57 Hz	1.5E-04 A	
		60 Hz	1.5E-04 A	
		300 Hz	1.6E-04 A	
		400 Hz	1.7E-04 A	
		1 kHz	3.7E-04 A	
52120A (Current In): AC Current – Measure 2 Amp Range	2.0 A	10 Hz	1.6E-04 A	Open Loop using 57x0A
		50 Hz	1.5E-04 A	
		57 Hz	1.5E-04 A	
		60 Hz	1.5E-04 A	
		300 Hz	1.5E-04 A	
		400 Hz	1.5E-04 A	
		1 kHz	2.1E-04 A	
		3 kHz	5.2E-04 A	
		5 kHz	1.1E-03 A	
		6 kHz	1.4E-03 A	
		8 kHz	2.1E-03 A	
		9 kHz	2.7E-03 A	
		10 kHz	3.3E-03 A	
		52120A (Volts In): AC Current – Measure 20 Amp Range	4.0 A	
50 Hz	2.5E-04 A			
57 Hz	2.5E-04 A			
60 Hz	2.7E-04 A			
300 Hz	2.6E-04 A			

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	10 A	400 Hz	2.5E-04 A	
		1 kHz	3.0E-04 A	
		3 kHz	5.6E-04 A	
		5 kHz	1.3E-03 A	
		6 kHz	1.6E-03 A	
		8 kHz	2.8E-03 A	
		9 kHz	3.5E-03 A	
		10 kHz	4.2E-03 A	
		10 Hz	6.4E-04 A	
		50 Hz	5.9E-04 A	
	57 Hz	5.9E-04 A		
	60 Hz	6.0E-04 A		
	300 Hz	6.0E-04 A		
	400 Hz	6.0E-04 A		
	1 kHz	7.1E-04 A		
	3 kHz	1.2E-03 A		
	5 kHz	2.5E-03 A		
	6 kHz	3.3E-03 A		
	8 kHz	5.2E-03 A		
	9 kHz	6.0E-03 A		
	10 kHz	6.5E-03 A		
	20 A	10 Hz	1.2E-03 A	
	50 Hz	1.2E-03 A		
	57 Hz	1.2E-03 A		
	60 Hz	1.2E-03 A		
	300 Hz	1.2E-03 A		
	400 Hz	1.2E-03 A		
	1 kHz	1.3E-03 A		
	3 kHz	1.9E-03 A		
	5 kHz	3.0E-03 A		
	6 kHz	3.8E-03 A		
	8 kHz	6.9E-03 A		
	9 kHz	7.5E-03 A		
	10 kHz	7.8E-03 A		

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
52120A LCOMP ON (Volts In): AC Current – Measure 20 Amp Range	2.0 A	10 Hz	1.2E-03 A	Open Loop using 57x0A
		50 Hz	1.2E-03 A	
		57 Hz	1.2E-03 A	
		60 Hz	1.2E-03 A	
		300 Hz	1.6E-03 A	
		400 Hz	2.1E-03 A	
		1 kHz	7.2E-03 A	
52120A (Current In): AC Current – Measure 20 Amp Range	2.0 A	10 Hz	1.3E-03 A	Open Loop using 57x0A
		50 Hz	1.2E-03 A	
		57 Hz	1.2E-03 A	
		60 Hz	1.2E-03 A	
		300 Hz	1.2E-03 A	
		400 Hz	1.2E-03 A	
		1 kHz	1.4E-03 A	
		3 kHz	2.0E-03 A	
		5 kHz	3.1E-03 A	
		6 kHz	4.1E-03 A	
		8 kHz	7.1E-03 A	
		9 kHz	7.5E-03 A	
		10 kHz	7.6E-03 A	
		52120A (Volts In): AC Current – Measure 120 Amp Range	20 A	
50 Hz	1.5E-03 A			
57 Hz	1.5E-03 A			
60 Hz	1.6E-03 A			
300 Hz	1.5E-03 A			
400 Hz	1.5E-03 A			
1 kHz	1.8E-03 A			

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	60 A	3 kHz	7.0E-03 A	
		5 kHz	1.4E-02 A	
		6 kHz	1.7E-02 A	
		8 kHz	2.3E-02 A	
		9 kHz	2.5E-02 A	
		10 kHz	2.7E-02 A	
		10 Hz	4.4E-03 A	
		50 Hz	4.4E-03 A	
		57 Hz	4.4E-03 A	
		60 Hz	4.5E-03 A	
		300 Hz	4.5E-03 A	
		400 Hz	4.6E-03 A	
		1 kHz	5.4E-03 A	
		3 kHz	1.6E-02 A	
		5 kHz	3.1E-02 A	
	6 kHz	3.9E-02 A		
	8 kHz	5.4E-02 A		
	9 kHz	6.1E-02 A		
	10 kHz	6.7E-02 A		
	120 A	10 Hz	9.0E-03 A	
	50 Hz	8.9E-03 A		
	57 Hz	8.9E-03 A		
	60 Hz	8.9E-03 A		
	300 Hz	8.9E-03 A		
	400 Hz	8.9E-03 A		
	1 kHz	9.2E-03 A		
	3 kHz	1.8E-02 A		
	5 kHz	3.0E-02 A		
	6 kHz	3.6E-02 A		
	8 kHz	5.0E-02 A		
	9 kHz	5.8E-02 A		
	10 kHz	6.5E-02 A		

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
52120A LCOMP ON (Volts In): AC Current – Measure 120 Amp Range	2.0 A	10 Hz 50 Hz 57 Hz 60 Hz 300 Hz 400 Hz 1 kHz	8.9E-03 A 8.9E-03 A 8.9E-03 A 8.9E-03 A 1.4E-02 A 1.8E-02 A 6.1E-02 A	Open Loop using 57x0A
52120A (Current In): AC Current – Measure 120 Amp Range	2.0 A	10 Hz 50 Hz 57 Hz 60 Hz 300 Hz 400 Hz 1 kHz 3 kHz 5 kHz 6 kHz 8 kHz 9 kHz 10 kHz	1.2E-02 A 9.5E-03 A 9.3E-03 A 9.2E-03 A 9.2E-03 A 9.2E-03 A 9.8E-03 A 2.1E-02 A 3.6E-02 A 4.1E-02 A 5.3E-02 A 6.1E-02 A 6.8E-02 A	Open Loop using 57x0A
52120A: AC Current – Measure 2 Amp Range	0.2 A 0.5 A 0.8 A 1.0 A 1.2 A 1.6 A 1.8 A	57 Hz	1.6E-05 A 3.9E-05 A 6.3E-05 A 7.9E-05 A 9.4E-05 A 1.3E-04 A 1.4E-04 A	Closed Loop using 61XXA

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
52120A: AC Current – Measure 20 Amp Range	2.0 A		1.6E-04 A	
	1.0 A	16 Hz	7.9E-05 A	
		150 Hz	7.9E-05 A	
		250 Hz	7.9E-05 A	
		350 Hz	7.8E-05 A	
		450 Hz	7.9E-05 A	
		550 Hz	9.4E-05 A	
		650 Hz	9.4E-05 A	
		750 Hz	9.5E-05 A	
		850 Hz	9.4E-05 A	
	2.0 A	50 Hz	1.6E-04 A	
		60 Hz	1.6E-04 A	
	0.32 A	57 Hz	2.5E-05 A	7th Harmonic, 0°
			3.0E-05 A	15th Harmonic, -25°
			3.1E-05 A	33rd Harmonic, 0°
			3.1E-05 A	55th Harmonic, -20°
			3.3E-05 A	84th Harmonic, 0°
	0.2 A	57 Hz	2.0E-05 A	99th Harmonic, 60° Phase
	2.0 A	57 Hz	1.3E-04 A	1 st Harmonic, 60° Phase
	18 A 20 A	57 Hz	1.1E-03 A	Closed Loop using 61XXA
1.3E-03 A				
20 A	50 Hz 60 Hz	1.3E-03 A		
		1.3E-03 A		
3.2 A	57 Hz	2.1E-04 A	7th Harmonic, 0°	

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Measured Parameter or Device Calibrated	Applied	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
52120A: AC Current – Measure 120 Amp Range			2.3E-04 A	15th Harmonic, -25°
			2.7E-04 A	33rd Harmonic, 0°
			2.7E-04 A	55th Harmonic, -20°
			2.8E-04 A	84th Harmonic, 0°
	2.0 A	57 Hz	1.8E-04 A	99th Harmonic, 60° Phase
	16 A	57 Hz	1.0E-03 A	1st Harmonic, 60° Phase
	108 A 120 A	57 Hz	8.5E-03 A 9.5E-03 A	Closed Loop using 61XXA
	120 A	50 Hz 60 Hz	9.5E-03 A 9.5E-03 A	
	20 A	57 Hz	1.6E-03 A 1.6E-03 A 2.0E-03 A 2.0E-03 A 2.0E-03 A	7th Harmonic, 0° 15th Harmonic, -25° 33rd Harmonic, 0° 55th Harmonic, -20° 84th Harmonic, 0°
	10 A	57 Hz	1.0E-03 A	99th Harmonic, 60° Phase
	100 A	57 Hz	7.9E-03 A	1st Harmonic, 60° Phase

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
DC RESISTANCE AND CURRENT (20/E05)			
DC Resistors: DC Resistance – Source and Measure	0.0001 Ω	4 μΩ/Ω	Standard Resistors, MI6010B and MI6011D/300
	0.001 Ω	2.5 μΩ/Ω	
	0.01 Ω	0.7 μΩ/Ω	
	0.1 Ω	0.5 μΩ/Ω	
	0.1 Ω to < 1.0 Ω	1.0 μΩ/Ω	Standard resistors, MI6010B and MI6000B
	1.0 Ω	0.17 μΩ/Ω	
	> 1 Ω to 130 Ω	0.2 μΩ/Ω	
	> 130 Ω to 1.3 kΩ	0.22 μΩ/Ω	
	> 1.3 kΩ to < 10 kΩ	0.25 μΩ/Ω	
	10 kΩ to 100 kΩ	0.2 μΩ/Ω	
	> 100 kΩ to 1MΩ	0.25 μΩ/Ω	
	> 1 MΩ to 10 MΩ	1.0 μΩ/Ω	
	> 10 MΩ to 100 MΩ	5 μΩ/Ω	
	> 100 MΩ to 1 GΩ	25 μΩ/Ω	
5500A/5520A/5522A: DC Resistance – Measure	0 Ω	30 μΩ	Resistance standards/transfer methods
	2 Ω	15 μΩ/Ω	
	10.9 Ω	5 μΩ/Ω	
	11.9 Ω	5 μΩ/Ω	
	19 Ω	3 μΩ/Ω	
	30 Ω	3 μΩ/Ω	
	33 Ω	3 μΩ/Ω	
	109 Ω	3 μΩ/Ω	
	119 Ω	3 μΩ/Ω	
	190 Ω	3 μΩ/Ω	
	300 Ω	3 μΩ/Ω	
	330 Ω	3 μΩ/Ω	
	1.09 kΩ	3 μΩ/Ω	
	1.19 kΩ	3 μΩ/Ω	
1.9 kΩ	3 μΩ/Ω		
3 kΩ	3 μΩ/Ω		



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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
5560A, 5550A, 5540A: DC Resistance – Measure	3.3 kΩ	3 μΩ/Ω	Resistance standards/ transfer methods
	10.9 kΩ	3 μΩ/Ω	
	11.9 kΩ	3 μΩ/Ω	
	19 kΩ	3 μΩ/Ω	
	30 kΩ	3 μΩ/Ω	
	33 kΩ	3 μΩ/Ω	
	109 kΩ	3 μΩ/Ω	
	119 kΩ	3.5 μΩ/Ω	
	190 kΩ	3.5 μΩ/Ω	
	300 kΩ	3.5 μΩ/Ω	
	330 kΩ	3.5 μΩ/Ω	
	1.09 MΩ	4 μΩ/Ω	
	1.19 MΩ	4.5 μΩ/Ω	
	1.9 MΩ	5 μΩ/Ω	
	3 MΩ	6 μΩ/Ω	
	3.3 MΩ	6 μΩ/Ω	
	10.9 MΩ	8 μΩ/Ω	
	11.9 MΩ	8 μΩ/Ω	
	19 MΩ	20 μΩ/Ω	
	30 MΩ	20 μΩ/Ω	
	33 MΩ	40 μΩ/Ω	
	109 MΩ	70 μΩ/Ω	
	119 MΩ	70 μΩ/Ω	
	290 MΩ	150 μΩ/Ω	
	400 MΩ	200 μΩ/Ω	
	640 MΩ	400 μΩ/Ω	
	1.09 GΩ	600 μΩ/Ω	
		0 Ω	
	1 Ω	40 μΩ/Ω	
	10 Ω	6.0 μΩ/Ω	
	12.1 Ω	5.0 μΩ/Ω	
	100 Ω	5.0 μΩ/Ω	
	121 Ω	5.0 μΩ/Ω	
	1 kΩ	4.0 μΩ/Ω	

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
	1.21 kΩ	4.0 μΩ/Ω	
	1.9 kΩ	4.0 μΩ/Ω	
	3 kΩ	4.0 μΩ/Ω	
	5 kΩ	4.5 μΩ/Ω	
	10 kΩ	4.5 μΩ/Ω	
	11.9 kΩ	4.5 μΩ/Ω	
	12.1 kΩ	4.5 μΩ/Ω	
	100 kΩ	4.5 μΩ/Ω	
	121 kΩ	6.4 μΩ/Ω	
	1 MΩ	5.0 μΩ/Ω	
	1.21 MΩ	7.8 μΩ/Ω	
	10 MΩ	5.0 μΩ/Ω	
	12.1 MΩ	40 μΩ/Ω	
	100 MΩ	80 μΩ/Ω	
	121 MΩ	1.3E+02 μΩ/Ω	
	300 MΩ	5.2E+02 μΩ/Ω	
	400 MΩ	4.2E+02 μΩ/Ω	
	600 MΩ	6.1E+02 μΩ/Ω	
	1 GΩ	9.0E+02 μΩ/Ω	
5700A/5720A/5730A: DC Resistance – Measure	0.0 Ω	2 μΩ	Resistance Standards/ Transfer Methods
	1 Ω	4 μΩ/Ω	
	1.9 Ω	7 μΩ/Ω	
	10 Ω to 190 kΩ	1.5 μΩ/Ω	
	1 MΩ	3.5 μΩ/Ω	
	1.9 MΩ	4.5 μΩ/Ω	
	10 MΩ	6.5 μΩ/Ω	
	19 MΩ	13 μΩ/Ω	
	100 MΩ	22 μΩ/Ω	
Metrology Well Readouts: DC Resistance – Measure	0 Ω	0.1 mΩ	
	25 Ω to 400 Ω	6.0 μΩ/Ω	
Metrology Well Readouts: DC Current – Source	4 mA to 20 mA	40 μA/A + 0.4 μA	Fluke 5700A



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
Fluke 8508A: DC Current – Source	0 A 100 µA 1 mA 10 mA 100 mA 1.0 A 10.0 A	20 pA 6.0 µA/A 5.0 µA/A 6.0 µA/A 6.0 µA/A 15 µA/A 40 µA/A	Reference DMM System Transfer Method
5500A/5520A/5522A: DC Current – Measure	0 A 190 µA 329 µA 1.9 mA 3.29 mA 19 mA 32.9 mA 190 mA 329 mA 1.09 A 2.19 A 2.99 A 11 A 20 A	200 pA 10 µA/A 10 µA/A 8 µA/A 8 µA/A 8 µA/A 8 µA/A 9 µA/A 9 µA/A 17 µA/A 12 µA/A 18 µA/A 33 µA/A 75 µA/A	DMM and shunt
5560A, 5550A, 5540A DC Current – Measure	0.0 A, -0.1 nA ±10 µA ±100 µA ±1 mA ±10 mA, ±100 mA ±1 A ±3.1 A ±10 A ±12 A ±20 A, ±30 A	1.0 nA 30 µA/A 16 µA/A 10 µA/A 9 µA/A 15 µA/A 20 µA/A 35 µA/A 40 µA/A 45 µA/A	DMM with shunts

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
5700A/5720A/5730A: DC Current – Measure	0.0 A ±10 µA 19 µA ±190 µA to ± 190 mA, ±200 µA to ± 200 mA 1.0 A ± 1.9 A, ± 2.0 A	0.2 nA 25 µA/A 10 µA/A 7 µA/A 13 µA/A 14 µA/A	DMM and shunts
5725A: DC Current – Measure	0.0 A 200 µA 190 mA 1 A 2.5 A 3.0 A 11 A	30 µA 12 µA/A 10 µA/A 40 µA/A 40 µA/A 40 µA/A 40 µA/A	DMM and shunts
Fluke 5522A Scope Card Option: DC Resistance – Measure	40 Ω 50 Ω 60 Ω 600 kΩ 1 MΩ 1.5 MΩ	2.0E-02 Ω 2.5E-02 Ω 3.0E-02 Ω 3.0E+02 Ω 5.1E+02 Ω 7.8E+02 Ω	HP 3458A
52120A: DC Current – Measure 2 Amp Input Range	Zero Offset +2.0 A -2.0 A +1.8 A -1.8 A +1.0 A -1.0 A +0.4 A	2.3E-02 mA 1.1E-04 A 1.1E-04 A 9.8E-05 A 9.8E-05 A 5.5E-05 A 5.5E-05 A 2.3E-05 A	Open Loop using 57x0A



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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks	
20 Amp Input Range	-0.4 A	2.3E-05 A		
	0 A	1.3E-05 A		
	Zero Offset	2.0E-01 A		
	+20 A	1.5E-03 A		
	-20 A	1.5E-03 A		
	+18 A	1.3E-03 A		
	-18 A	1.3E-03 A		
	+10 A	7.4E-04 A		
	-10 A	7.4E-04 A		
	+4 A	3.0E-04 A		
120 Amp Input Range	-4 A	3.0E-04 A		
	0 A	4.1E-05 A		
	100 A	3.8E-03 A		
	-100 A	3.8E-03 A		
	60 A	2.3E-03 A		
	-60 A	2.3E-03 A		
	20 A	7.9E-04 A		
	-20 A	7.9E-04 A		
52120A: DC Current – Measure 2 Amp Input Range	0 A	3.2E-05 A	Closed Loop using 61XXA	
	0.8 A	5.1E-05 A		
	-0.8 A	5.1E-05 A		
20 Amp Input Range	0 A	3.2E-04 A		
	4.0 A	3.2E-04 A		
	-4.0 A	3.2E-04 A		
120 Amp Input Range	0 A	3.5E-04 A		
	25 A	1.3E-03 A		
	-25 A	1.3E-03 A		

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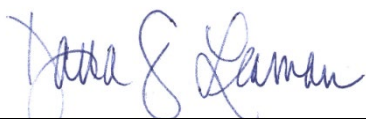
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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
DC VOLTAGE ^{Note 8} (20/E06)			
10 V Direct Voltage Maintenance Program – Measure	0.1 V 1.0 V 10.00 V	2.0 µV/V 0.2 µV/V 0.06 µV/V	732C 732C Fluke 732A. 732B. pr 732C
Isolated DC Sources or Voltmeters: DC Voltage – Source	0 V to ±10 V	5 nV/V + 50 nV	Josephson Voltage System (JVS)
Fluke 8508A: DC Voltage – Source	0 V > 0 V to < 0.1 V > -0.1 V to < 0 V ± 0.1 V ± 1.0 V ± 5.0 V ± 10.0 V ± 15.0 V ± 19.0 V ± 100.0 V ± 1000.0 V	0.01 µV 4 µV/V + 0.7 µV 4 µV/V + 0.7 µV 2.3 µV/V 1.5 µV/V 1.0 µV/V 0.8 µV/V 0.9 µV/V 1.0 µV/V 1.2 µV/V 1.7 µV/V	Reference DMM System and Transfer Methods
5500A/5520A/5522A: DC Voltage – Measure	0 V ± 0.329 V ± 1 V ± 3.29 V ± 7 V ± 10 V ± 32.9 V ± 50 V ± 329 V ± 334 V ± 900 V ± 1020 V	0.15 µV 2.0 µV/V 1.5 µV/V 1.0 µV/V 10 µV/V 1.0 µV/V 1.2 µV/V 2.0 µV/V 2.0 µV/V 2.2 µV/V 2.5 µV/V 2.0 µV/V	DMM

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
5560A, 5550A, 5540A: DC Voltage – Measure	0.0 V, -0.01 μ V \pm 10 mV \pm 100 mV \pm 1 V \pm 10 V \pm 100 V \pm 120 V \pm 500 V \pm 1 kV \pm 1.020 kV	0.17 μ V 19 μ V/V 2.8 μ V/V 1.5 μ V/V 1.0 μ V/V 1.2 μ V/V 1.5 μ V/V 1.7 μ V/V 1.2 μ V/V 1.2 μ V/V	Fluke 8588A direct and transfer methods
5700A/5720A/5730A: DC Voltage – Measure	0.0 V, -0.01 μ V \pm 100 mV \pm 1.0 V \pm 10 V \pm 19 V, \pm 100 V \pm 1 kV	0.17 μ V 2.1 μ V/V 1 μ V/V 0.4 μ V/V 0.6 μ V/V 1.0 μ V/V	DMM
Metrology Well readouts: DC Voltage – Source	-10 mV to 0 mV > 0 mV to 50 mV > 50 mV to 100 mV	2.0 μ V 3.0 μ V 5.5 μ V	Fluke 5700A
Fluke 5522A Scope Card Option: DC Voltage – Measure	0 mV to 500 mV > 500 mV to 6.6 V > 6.6 V to 70.5 V > 70.5 V to 130 V 0 mV to 109.9 mV >109.9 mV to 2.19 V >2.19 V to 6.599 V	9 μ V 90 μ V 0.7 mV 2 mV 10 μ V 0.3 mV 2 mV	HP 3458A DC signal into 1 M Ω DC signal into 50 Ω

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
LF AC VOLTAGE (20/E09)				
AC Voltage – Measure	1 mV to < 12 mV 12 mV to < 120 mV 120 mV to 1.2 V > 1.2 V to 12 V > 12 V to 30 V	1 Hz to 10 Hz	310 μ V/V + 3.0 μ V 72 μ V/V + 4.3 μ V 70 μ V/V + 43 μ V 70 μ V/V + 0.45 mV 200 μ V/V + 4.2 mV	HP 3458A in Synchronous Mode
5790A/5790B: AC Voltage – Source Applied: 2 mV	2.2 mV	10 Hz 20 Hz 100 Hz 1 kHz 10 kHz 20 kHz 50 kHz 100 kHz 300 kHz 500 kHz 1 MHz	200 μ V/V 200 μ V/V 200 μ V/V 200 μ V/V 200 μ V/V 200 μ V/V 200 μ V/V 200 μ V/V 250 μ V/V 350 μ V/V 1.3 mV/V	Fluke 792A and ACV Divider
6 mV	7 mV	10 Hz 20 Hz 100 Hz 1 kHz 10 kHz 20 kHz 50 kHz 100 kHz 300 kHz 500 kHz 1 MHz	80 μ V/V 80 μ V/V 80 μ V/V 80 μ V/V 80 μ V/V 80 μ V/V 80 μ V/V 90 μ V/V 210 μ V/V 260 μ V/V 550 μ V/V	
20 mV	22 mV	10 Hz 20 Hz	60 μ V/V 60 μ V/V	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5790A/5790B Wideband: AC Voltage – Source	2.2 mV 7 mV 22 mV 70 mV 220 mV 700 mV 2.2 V 7 V	100 Hz	40 μ V/V	Fluke 5730A Wideband
		1 kHz	40 μ V/V	
		10 kHz	40 μ V/V	
		20 kHz	40 μ V/V	
		50 kHz	50 μ V/V	
		100 kHz	85 μ V/V	
		300 kHz	200 μ V/V	
		500 kHz	250 μ V/V	
		1 MHz	400 μ V/V	
		5790B Wideband Voltage Flatness Relative to 1kHz: AC Voltage – Source	2.2 mV	
	650 μ V/V			
	300 μ V/V			
	300 μ V/V			
	300 μ V/V			
	300 μ V/V			
	300 μ V/V			
	300 μ V/V			
	300 μ V/V			
10 Hz	380 μ V/V			
20 Hz	380 μ V/V			
50 Hz to 100 kHz	200 μ V/V			
200 kHz	200 μ V/V			
500 kHz	200 μ V/V			
700 kHz	250 μ V/V			
1 MHz	250 μ V/V			
1.2 MHz	250 μ V/V			
2 MHz	250 μ V/V			
3 MHz	400 μ V/V			
4 MHz	400 μ V/V			
6 MHz	400 μ V/V			
8 MHz	400 μ V/V			



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	7 mV	9 MHz	400 μ V/V	
		10 MHz	400 μ V/V	
		12 MHz	600 μ V/V	
		15 MHz	600 μ V/V	
		17 MHz	650 μ V/V	
		20 MHz	700 μ V/V	
		23 MHz	1.1 mV/V	
		26 MHz	1.2 mV/V	
		28 MHz	1.3 mV/V	
		30 MHz	1.5 mV/V	
		35 MHz	1.7 mV/V	
		40 MHz	2.0 mV/V	
		45 MHz	2.2 mV/V	
		50 MHz	2.5 mV/V	
		10 Hz	260 μ V/V	
		20 Hz	260 μ V/V	
		50 Hz to 100 kHz	110 μ V/V	
		200 kHz	110 μ V/V	
		500 kHz	110 μ V/V	
		700 kHz	170 μ V/V	
		1 MHz	170 μ V/V	
		1.2 MHz	170 μ V/V	
		2 MHz	170 μ V/V	
		3 MHz	270 μ V/V	
		4 MHz	280 μ V/V	
		6 MHz	330 μ V/V	
		8 MHz	330 μ V/V	
		9 MHz	330 μ V/V	
		10 MHz	340 μ V/V	
		12 MHz	500 μ V/V	
		15 MHz	500 μ V/V	
		17 MHz	580 μ V/V	
		20 MHz	700 μ V/V	
23 MHz	900 μ V/V			
26 MHz	1.1 mV/V			

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	22 mV	28 MHz	1.3 mV/V	
		30 MHz	1.4 mV/V	
		35 MHz	1.6 mV/V	
		40 MHz	1.9 mV/V	
		45 MHz	2.1 mV/V	
		50 MHz	2.3 mV/V	
		10 Hz	230 μ V/V	
		20 Hz	220 μ V/V	
		50 Hz to 100 kHz	100 μ V/V	
		200 kHz	100 μ V/V	
		500 kHz	100 μ V/V	
		700 kHz	150 μ V/V	
		1 MHz	150 μ V/V	
		1.2 MHz	150 μ V/V	
	2 MHz	150 μ V/V		
	3 MHz	260 μ V/V		
	4 MHz	260 μ V/V		
	6 MHz	300 μ V/V		
	8 MHz	320 μ V/V		
	9 MHz	320 μ V/V		
	10 MHz	330 μ V/V		
12 MHz	480 μ V/V			
15 MHz	480 μ V/V			
17 MHz	560 μ V/V			
20 MHz	620 μ V/V			
23 MHz	900 μ V/V			
26 MHz	1.1 mV/V			
28 MHz	1.2 mV/V			
30 MHz	1.4 mV/V			
35 MHz	1.6 mV/V			
40 MHz	1.8 mV/V			
45 MHz	2.0 mV/V			
50 MHz	2.2 mV/V			
70 mV	10 Hz	250 μ V/V		



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	220 mV	20 Hz	210 μ V/V	
		50 Hz to 100 kHz	90 μ V/V	
		200 kHz	90 μ V/V	
		500 kHz	90 μ V/V	
		700 kHz	140 μ V/V	
		1 MHz	140 μ V/V	
		1.2 MHz	140 μ V/V	
		2 MHz	140 μ V/V	
		3 MHz	250 μ V/V	
		4 MHz	250 μ V/V	
		6 MHz	280 μ V/V	
		8 MHz	310 μ V/V	
		9 MHz	310 μ V/V	
		10 MHz	310 μ V/V	
		12 MHz	460 μ V/V	
		15 MHz	460 μ V/V	
		17 MHz	540 μ V/V	
		20 MHz	590 μ V/V	
		23 MHz	900 μ V/V	
		26 MHz	1.0 mV/V	
		28 MHz	1.2 mV/V	
		30 MHz	1.4 mV/V	
		35 MHz	1.5 mV/V	
		40 MHz	1.7 mV/V	
		45 MHz	1.9 mV/V	
		50 MHz	2.1 mV/V	
		10 Hz	220 μ V/V	
		20 Hz	180 μ V/V	
		50 Hz to 100 kHz	80 μ V/V	
		200 kHz	80 μ V/V	
		500 kHz	80 μ V/V	
		700 kHz	130 μ V/V	
		1 MHz	130 μ V/V	
1.2 MHz	130 μ V/V			
2 MHz	130 μ V/V			

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	700 mV	3 MHz	230 μ V/V	
		4 MHz	230 μ V/V	
		6 MHz	270 μ V/V	
		8 MHz	300 μ V/V	
		9 MHz	300 μ V/V	
		10 MHz	300 μ V/V	
		12 MHz	440 μ V/V	
		15 MHz	450 μ V/V	
		17 MHz	520 μ V/V	
		20 MHz	600 μ V/V	
		23 MHz	900 μ V/V	
		26 MHz	1.0 mV/V	
		28 MHz	1.2 mV/V	
		30 MHz	1.3 mV/V	
		35 MHz	1.5 mV/V	
		40 MHz	1.6 mV/V	
		45 MHz	1.8 mV/V	
		50 MHz	2.0 mV/V	
		10 Hz	180 μ V/V	
		20 Hz	150 μ V/V	
		50 Hz to 100 kHz	80 μ V/V	
		200 kHz	80 μ V/V	
		500 kHz	80 μ V/V	
		700 kHz	130 μ V/V	
		1 MHz	130 μ V/V	
		1.2 MHz	130 μ V/V	
		2 MHz	130 μ V/V	
		3 MHz	220 μ V/V	
		4 MHz	220 μ V/V	
		6 MHz	250 μ V/V	
		8 MHz	280 μ V/V	
		9 MHz	280 μ V/V	
		10 MHz	300 μ V/V	
12 MHz	410 μ V/V			
15 MHz	450 μ V/V			

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	2.2 V	17 MHz	500 μ V/V	
		20 MHz	550 μ V/V	
		23 MHz	900 μ V/V	
		26 MHz	1.0 mV/V	
		28 MHz	1.1 mV/V	
		30 MHz	1.3 mV/V	
		35 MHz	1.4 mV/V	
		40 MHz	1.6 mV/V	
		45 MHz	1.8 mV/V	
		50 MHz	2.0 mV/V	
		10 Hz	250 μ V/V	
		20 Hz	200 μ V/V	
		50 Hz to 100 kHz	70 μ V/V	
		200 kHz	70 μ V/V	
		500 kHz	70 μ V/V	
		700 kHz	120 μ V/V	
		1 MHz	120 μ V/V	
		1.2 MHz	120 μ V/V	
		2 MHz	120 μ V/V	
		3 MHz	210 μ V/V	
		4 MHz	210 μ V/V	
		6 MHz	240 μ V/V	
		8 MHz	270 μ V/V	
		9 MHz	270 μ V/V	
		10 MHz	300 μ V/V	
		12 MHz	400 μ V/V	
		15 MHz	450 μ V/V	
		17 MHz	500 μ V/V	
		20 MHz	550 μ V/V	
		23 MHz	900 μ V/V	
		26 MHz	1.0 mV/V	
		28 MHz	1.1 mV/V	
		30 MHz	1.2 mV/V	
	35 MHz	1.4 mV/V		
	40 MHz	1.5 mV/V		

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5700A/5720A/5730A Wideband Output Flatness Relative to 1 kHz: AC Voltage – Measure	7 V	45 MHz	1.7 mV/V	Fluke 5790B Wideband
		50 MHz	1.9 mV/V	
		10 Hz	250 µV/V	
		20 Hz	150 µV/V	
		50 Hz to 100 kHz	60 µV/V	
		200 kHz	60 µV/V	
		500 kHz	65 µV/V	
		700 kHz	100 µV/V	
		1 MHz	100 µV/V	
		1.2 MHz	100 µV/V	
		2 MHz	100 µV/V	
		3 MHz	200 µV/V	
		4 MHz	200 µV/V	
		6 MHz	220 µV/V	
		8 MHz	250 µV/V	
		9 MHz	250 µV/V	
		10 MHz	300 µV/V	
		12 MHz	400 µV/V	
		15 MHz	450 µV/V	
		17 MHz	500 µV/V	
		20 MHz	550 µV/V	
		23 MHz	900 µV/V	
		26 MHz	1.0 mV/V	
		28 MHz	1.1 mV/V	
30 MHz	1.2 mV/V			
35 MHz	1.3 mV/V			
40 MHz	1.5 mV/V			
45 MHz	1.6 mV/V			
50 MHz	1.8 mV/V			

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Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
Output: 1.0 mV	1.1 mV	10 Hz	0.060 %	
		30 Hz	0.051 %	
		50 Hz to 120 kHz	0.035 %	
		300 kHz to		
		500 kHz	0.042 %	
		1.199 MHz	0.042 %	
		1.2 MHz	0.042 %	
		2 MHz	0.042 %	
		5 MHz	0.060 %	
		10 MHz	0.060 %	
		15 MHz	0.08 %	
		20 MHz	0.09 %	
		25 MHz	0.17 %	
		30 MHz	0.19 %	
		35 MHz	0.21 %	
		40 MHz	0.25 %	
		3 mV	3.3 mV	
30 Hz	0.036 %			
50 Hz to 120 kHz	0.021 %			
300 kHz to				
500 kHz	0.030 %			
1.199 MHz	0.030 %			
1.2 MHz	0.030 %			
2 MHz	0.030 %			
5 MHz	0.050 %			
10 MHz	0.050 %			
15 MHz	0.07 %			
20 MHz	0.09 %			
25 MHz	0.18 %			
30 MHz	0.19 %			
35 MHz	0.21 %			
40 MHz	0.25 %			

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
10 mV	11 mV	45 MHz	0.30 %	
		50 MHz	0.40 %	
		10 Hz	0.031 %	
		30 Hz	0.031 %	
		50 Hz to 120 kHz	0.017 %	
		300 kHz to 500 kHz	0.024 %	
		1.199 MHz	0.025 %	
		1.2 MHz	0.025 %	
		2 MHz	0.025 %	
		5 MHz	0.043 %	
		10 MHz	0.044 %	
		15 MHz	0.07 %	
		20 MHz	0.09 %	
		25 MHz	0.17 %	
		30 MHz	0.18 %	
		35 MHz	0.20 %	
		40 MHz	0.22 %	
45 MHz	0.25 %			
50 MHz	0.37 %			
30 mV	33 mV	10 Hz	0.035 %	
		30 Hz	0.031 %	
		50 Hz to 120 kHz	0.017 %	
		300 kHz to 500 kHz	0.023 %	
		1.199 MHz	0.026 %	
		1.2 MHz	0.026 %	
		2 MHz	0.026 %	
		5 MHz	0.042 %	
		10 MHz	0.044 %	
		15 MHz	0.07 %	
		20 MHz	0.09 %	
		25 MHz	0.15 %	
		30 MHz	0.18 %	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
0.1 V	0.11 V	35 MHz	0.20 %	
		40 MHz	0.23 %	
		45 MHz	0.26 %	
		50 MHz	0.38 %	
		10 Hz	0.028 %	
		30 Hz	0.024 %	
		50 Hz to 120 kHz	0.015 %	
		300 kHz to 500 kHz	0.023 %	
		1.199 MHz	0.024 %	
		1.2 MHz	0.024 %	
		2 MHz	0.024 %	
		5 MHz	0.040 %	
		10 MHz	0.044 %	
		15 MHz	0.07 %	
		20 MHz	0.09 %	
		25 MHz	0.15 %	
		30 MHz	0.16 %	
35 MHz	0.18 %			
40 MHz	0.20 %			
45 MHz	0.25 %			
50 MHz	0.37 %			
0.3 V	0.33 V	10 Hz	0.026%	
		30 Hz	0.024 %	
		50 Hz to 120 kHz	0.016 %	
		300 kHz to 500 kHz	0.023 %	
		1.199 MHz	0.024 %	
		1.2 MHz	0.024 %	
		2 MHz	0.024 %	
		5 MHz	0.040 %	
		10 MHz	0.044 %	
		15 MHz	0.07 %	
		20 MHz	0.09 %	

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Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks	
1 V	1.1 V	25 MHz	0.15 %		
		30 MHz	0.17 %		
		35 MHz	0.19 %		
		40 MHz	0.22 %		
		45 MHz	0.27 %		
		50 MHz	0.38 %		
	1.11 V	3.5 V	10 Hz		0.039 %
			30 Hz		0.021 %
			50 Hz to 120 kHz		0.012 %
			300 kHz to 500 kHz		0.020 %
			1.199 MHz		0.022 %
			1.2 MHz		0.022 %
			2 MHz		0.022 %
			5 MHz		0.040 %
			10 MHz		0.044 %
			15 MHz		0.07 %
			20 MHz		0.09 %
1.11 V	3.5 V	25 MHz	0.15 %		
		30 MHz	0.16 %		
		35 MHz	0.18 %		
		40 MHz	0.19 %		
		45 MHz	0.23 %		
		50 MHz	0.36 %		
		10 Hz	0.041 %		
		30 Hz	0.022 %		
		50 Hz to 120 kHz	0.012 %		
		300 kHz to 500 kHz	0.020 %		
		1.199 MHz	0.023 %		
1.2 MHz	0.023 %				
2 MHz	0.023 %				
5 MHz	0.040 %				
10 MHz	0.044 %				

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Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
2 V	3.5 V	15 MHz	0.07 %	
		20 MHz	0.09 %	
		25 MHz	0.15 %	
		30 MHz	0.16 %	
		35 MHz	0.19 %	
		40 MHz	0.20 %	
		45 MHz	0.25 %	
		50 MHz	0.37 %	
		10 Hz	0.031 %	
		30 Hz	0.021 %	
		50 Hz to 120 kHz	0.012 %	
		300 kHz to 500 kHz	0.019 %	
		1.199 MHz	0.022 %	
		1.2 MHz	0.022 %	
		2 MHz	0.022 %	
		5 MHz	0.040 %	
		10 MHz	0.044 %	
		15 MHz	0.07 %	
		20 MHz	0.09 %	
25 MHz	0.15 %			
30 MHz	0.16 %			
35 MHz	0.18 %			
40 MHz	0.20 %			
45 MHz	0.23 %			
50 MHz	0.36 %			
3 V	3.5 V	10 Hz	0.035 %	
		30 Hz	0.023 %	
		50 Hz to 120 kHz	0.012 %	
		300 kHz to 500 kHz	0.019 %	
		1.199 MHz	0.021 %	
		1.2 MHz	0.022 %	
		2 MHz	0.022 %	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5790B Wideband Voltage: AC Voltage – Source Output:		5 MHz	0.040 %	Fluke 5730A Wideband
		10 MHz	0.044 %	
		15 MHz	0.07 %	
		20 MHz	0.09 %	
		25 MHz	0.15 %	
		30 MHz	0.16 %	
		35 MHz	0.18 %	
		40 MHz	0.20 %	
		45 MHz	0.24 %	
		50 MHz	0.37 %	
5500A/5520A/5522A: AC Voltage – Measure	3 mV	1 kHz	0.18 %	Fluke 5790A/B
		1 kHz	0.065 %	
			0.025 %	
			0.015 %	
			0.015 %	
			0.015 %	
			0.015 %	
			0.015 %	
			0.015 %	
			0.015 %	
	10 mV	45 Hz	200 μV/V	
		8 kHz	200 μV/V	
		45 Hz	350 μV/V	
		1 kHz	350 μV/V	
		5 kHz	350 μV/V	
		10 kHz	500 μV/V	
		30 kHz	1.0 mV/V	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	30 mV	9.5 Hz	1.0 mV/V	
		10 Hz	70 µV/V	
		45 Hz	50 µV/V	
		1 kHz	50 µV/V	
		10 kHz	50 µV/V	
		20 kHz	50 µV/V	
		50 kHz	90 µV/V	
		100 kHz	150 µV/V	
		450 kHz	400 µV/V	
	0.3 V	9.5 Hz	1.0 mV/V	
		10 Hz	40 µV/V	
		45 Hz	25 µV/V	
		1 kHz	20 µV/V	
		10 kHz	20 µV/V	
		20 kHz	25 µV/V	
		50 kHz	35 µV/V	
		100 kHz	60 µV/V	
		500 kHz	200 µV/V	
	3.0 V	9.5 Hz	1.0 mV/V	
		10 Hz	30 µV/V	
		45 Hz	20 µV/V	
		1 kHz	15 µV/V	
		10 kHz	15 µV/V	
		20 kHz	15 µV/V	
		50 kHz	30 µV/V	
		100 kHz	35 µV/V	
		450 kHz	250 µV/V	
	5.0 V	9.5 Hz	1.0 mV/V	
		10 Hz	50 µV/V	
		45 Hz	45 µV/V	
		1 kHz	40 µV/V	
		5 kHz	40 µV/V	
		10 kHz	40 µV/V	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks	
5560A, 5550A, 5540A: AC Voltage – Measure	30 V	9.5 Hz	1.0 mV/V		
		10 Hz	35 μV/V		
		45 Hz	22 μV/V		
		1 kHz	18 μV/V		
		10 kHz	18 μV/V		
		20 kHz	20 μV/V		
		50 kHz	35 μV/V		
		90 kHz	50 μV/V		
		200 V	100 kHz		70 μV/V
	300 V	45 Hz	30 μV/V		
		1 kHz	22 μV/V		
		10 kHz	22 μV/V		
		18 kHz	22 μV/V		
		50 kHz	50 μV/V		
	1000 V, 1020 V	45 Hz	30 μV/V		
		1 kHz	25 μV/V		
		5 kHz	30 μV/V		
		8 kHz	30 μV/V		
	1 mV	3 Hz, 5 Hz, 10 Hz 1 kHz to 100 kHz 300 kHz 500 kHz	1.4E+03 μV/V		Fluke 5790B or Fluke 8588A
			3.0E+02 μV/V		
4.0E+02 μV/V					
6.0E+02 μV/V					
10 mV, 12.1 mV	3 Hz, 5 Hz, 10 Hz 1 kHz, 20 kHz, 50 kHz 100 kHz 300 kHz 500 kHz	8.0E+01 μV/V			
		1.0E+02 μV/V			
		1.8E+02 μV/V			
		4.0E+02 μV/V			
		6.0E+02 μV/V			



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Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	100 mV, 121 mV	3 Hz	5.0E+01 μ V/V	
		5 Hz, 10 Hz	4.0E+01 μ V/V	
		1 kHz, 20 kHz	3.0E+01 μ V/V	
		50 kHz	7.0E+01 μ V/V	
		100 kHz	1.3E+02 μ V/V	
		300 kHz	1.7E+02 μ V/V	
		500 kHz	3.0E+02 μ V/V	
	1 V, 1.21 V	3 Hz	5.0E+01 μ V/V	
		5 Hz	4.0E+01 μ V/V	
		10 Hz	3.0E+01 μ V/V	
		40 Hz	1.8E+01 μ V/V	
		1 kHz, 20 kHz	1.0E+01 μ V/V	
		50 kHz	2.0E+01 μ V/V	
		100 kHz	5.0E+01 μ V/V	
		300 kHz	8.0E+01 μ V/V	
		500 kHz	1.0E+02 μ V/V	
	10 V, 12.1 V	3 Hz, 5 Hz	4.0E+01 μ V/V	
		10 Hz	3.0E+01 μ V/V	
		1 kHz, 20 kHz	20 μ V/V	
		50 kHz	40 μ V/V	
		100 kHz	60 μ V/V	
		300 kHz	80 μ V/V	
		500 kHz	1.0E+02 μ V/V	
	100 V, 121 V	3 Hz, 5 Hz	50 μ V/V	
		10 Hz	30 μ V/V	
		40 Hz, 1 kHz,	20 μ V/V	
		10 kHz, 20 kHz	40 μ V/V	
		50 kHz	50 μ V/V	
70 V	100 kHz	50 μ V/V		
	300 kHz	3.0E+02 μ V/V		
330 V, 331V	3 Hz, 5 Hz	52 μ V/V		
	10 Hz	30 μ V/V		

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5700A/5720A/5730A: AC Voltage – Measure		1 kHz, 20 kHz	20 μ V/V	Fluke 5790A/B
		50 kHz	35 μ V/V	
		100 kHz	52 μ V/V	
	1 kV	40 Hz, 1 kHz	20 μ V/V	
	1.02 kV	10 kHz	20 μ V/V	
	0.6 mV	1 kHz	7.0E+02 μ V/V	
	2 mV	10 Hz, 20 Hz	3.0E+02 μ V/V	
	1.9 mV, 2 mV	40 Hz	3.0E+02 μ V/V	
	1.9 mV, 2 mV	1 kHz, 20 kHz	3.0E+02 μ V/V	
	2 mV	50 kHz	3.0E+02 μ V/V	
	1.9 mV, 2 mV	100 kHz	3.0E+02 μ V/V	
		300 kHz	6.0E+02 μ V/V	
	2 mV	500 kHz	8.0E+02 μ V/V	
	1.9 mV, 2 mV	1 MHz	1.6 mV/V	
	20 mV	10 Hz	90 μ V/V	
		20 Hz	70 μ V/V	
	19 mV, 20 mV	40 Hz	63 μ V/V	
		1 kHz	63 μ V/V	
		20 kHz	64 μ V/V	
	20 mV	50 kHz	88 μ V/V	
19 mV, 20 mV	100 kHz	150 μ V/V		
	300 kHz	250 μ V/V		
20 mV	500 kHz	350 μ V/V		
19 mV, 20 mV	1 MHz	6.0E+02 μ V/V		
200 mV	10 Hz	40 μ V/V		
	20 Hz	30 μ V/V		
190 mV, 200 mV	40 Hz	20 μ V/V		
	1 kHz	20 μ V/V		
	20 kHz	20 μ V/V		
200 mV	50 kHz	30 μ V/V		



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Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	190 mV, 200 mV	100 kHz	50 μ V/V	
		300 kHz	100 μ V/V	
	200 mV	500 kHz	150 μ V/V	
	190 mV, 200 mV	1 MHz	3.0E+02 μ V/V	
	500 mV	40 Hz	20 μ V/V	
		1 kHz	16 μ V/V	
		20 kHz	16 μ V/V	
		100 kHz	40 μ V/V	
		300 kHz	80 μ V/V	
		1 MHz	2.2E+02 μ V/V	
	600 mV	40 Hz	18 μ V/V	
		1 kHz	10 μ V/V	
	20 kHz	10 μ V/V		
	100 kHz	20 μ V/V		
	300 kHz	40 μ V/V		
	1 MHz	200 μ V/V		
1 V	40 Hz	18 μ V/V		
	1 kHz	10 μ V/V		
	20 kHz	10 μ V/V		
	100 kHz	20 μ V/V		
	300 kHz	40 μ V/V		
	1 MHz	2.5E+02 μ V/V		
2 V	10 Hz	30 μ V/V		
	20 Hz	20 μ V/V		
	40 Hz	18 μ V/V		
	1 kHz	10 μ V/V		
	20 kHz	10 μ V/V		
	50 kHz	15 μ V/V		
	100 kHz	20 μ V/V		
	300 kHz	40 μ V/V		
	500 kHz	80 μ V/V		
	1 MHz	2.5.0E+02 μ V/V		

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	3 V	40 Hz	20 μ V/V	
		1 kHz	12 μ V/V	
		20 kHz	12 μ V/V	
		100 kHz	15 μ V/V	
		300 kHz	70 μ V/V	
		1 MHz	2.0E+02 μ V/V	
		10 V	40 Hz	
	1 kHz		10 μ V/V	
	20 kHz		10 μ V/V	
	100 kHz		20 μ V/V	
	300 kHz		60 μ V/V	
	1 MHz		3.2E+02 μ V/V	
	20 V		10 Hz	
		20 Hz	20 μ V/V	
		40 Hz	17 μ V/V	
		1 kHz	10 μ V/V	
		20 kHz	10 μ V/V	
		50 kHz	15 μ V/V	
		100 kHz	20 μ V/V	
		300 kHz	60 μ V/V	
		500 kHz	1.0E+02 μ V/V	
		1 MHz	3.2E+02 μ V/V	
		22 V	1 MHz	
	30 V	40 Hz	21 μ V/V	
		1 kHz	12 μ V/V	
		20 kHz	12 μ V/V	
		100 kHz	20 μ V/V	
		300 kHz	1.2E+02 μ V/V	
500 kHz		5.0E+02 μ V/V		
50 V		300 kHz	1.0E+02 μ V/V	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5725A: AC Voltage – Measure	100 V	40 Hz	19 μ V/V	Fluke 5790A/B
		1 kHz	12 μ V/V	
		20 kHz	12 μ V/V	
		100 kHz	30 μ V/V	
	200 V	10 Hz	40 μ V/V	
		20 Hz	25 μ V/V	
		40 Hz	20 μ V/V	
		1 kHz	12 μ V/V	
		20 kHz	12 μ V/V	
		50 kHz	15 μ V/V	
		100 kHz	30 μ V/V	
		250 V	15 Hz	
	500 V	50 Hz	26 μ V/V	
		1 kHz	15 μ V/V	
	1 kV	50 Hz	24 μ V/V	
		1 kHz	18 μ V/V	
	1.1 kV	50 Hz	25 μ V/V	
		1 kHz	20 μ V/V	
	300 V	40 Hz	20 μ V/V	
		1 kHz	20 μ V/V	
		20 kHz	21 μ V/V	
		50 kHz	60 μ V/V	
		100 kHz	110 μ V/V	
		600 V	40 Hz	
600 V	1 kHz	20 μ V/V		
	20 kHz	20 μ V/V		
	50 kHz	60 μ V/V		
	100 kHz	110 μ V/V		

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks	
Fluke 5522A Scope Card Option: Measure DC Voltage – Source	1 kV	40 Hz 1 kHz 20 kHz 30 kHz	20 µV/V 20 µV/V 20 µV/V 30 µV/V	HP 3458A; Square wave into 1 MΩ	
	1 mV to 25 mV	1 kHz	6.0E-06 V		
	> 25 mV to 110 mV	1 kHz	4.7E-05 V		
	> 110 mV to 500 mV	1 kHz	1.5E-04 V		
	> 500 mV to 2.2 V	1 kHz	4.7E-04 V		
	> 2.2 V to 11 V	1 kHz	2.5E-03 V		
	> 11 V to 130 V	1 kHz	2.7E-02 V		
	6.599 V	1 kHz	2.0E-03 V		
	5 mV	1 kHz to 100 kHz	6.0E-05 V		Fast edge into 50 Ω
	10 mV	1 kHz	6.0E-05 V		
	25 mV	1 kHz	6.0E-05 V		
	50 mV	1 kHz	6.0E-05 V		
	100 mV	1 kHz	5.0E-04 V		
250 mV	1 kHz	5.0E-04 V			
Calibration of Fluke 5522A Scope Card Option Edge TD Pulse: AC Voltage – Measure	500 mV	1 kHz	2.5E-03 V		
	1 V	1 kHz	2.5E-03 V		
	2.5 V	1 kHz	2.5E-03 V		
	11 V	100 Hz	2.5E-02 V	HP 3458A	
	55 V	100 Hz	2.5E-02 V		
	100 V	100 Hz	2.5E-02 V		
	11 V	1 kHz	2.5E-02 V		
55 V	1 kHz	2.5E-02 V			
100 V	1 kHz	2.5E-02 V			
5522A Scope Card Option, Leveled Sine Wave Amplitude: AC Voltage – Measure	5 mV to 25 mV	50 kHz	1.3E-04 V		Fluke 5790A/B Into 50 Ω



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks	
5522A Scope Card Option, Wave Generator Function: AC Voltage – Measure	> 25 mV to 70 mV	50 kHz	2.6E-04 V	HP 3458A Square wave into 1 MΩ	
	> 70 mV to 250 mV	50 kHz	5.8E-04 V		
	> 250 mV to 400 mV	50 kHz	2.0E-03 V		
	> 400 mV to 1.3 V	50 kHz	3.7E-03 V		
	> 1.3 V to 5.5 V	50 kHz	2.2E-02 V		
	1.8 mV to 56 mV	1 kHz	3.5E-05 V	Sine wave into 1 MΩ	
	57 mV to 155 mV	1 kHz	3.5E-04 V		
	> 155 mV to 3.74 V	1 kHz	1.4E-03 V		
	3.75 V to 31 V	1 kHz	1.4E-02 V		
	55 V	10 Hz to 10 kHz	2.0E-01 V		
	1.8 mV to 21.9 mV	10 Hz to 10 kHz	3.5E-05 V		
	> 21.9 mV to 899 mV	10 Hz to 10 kHz	7.0E-04 V		
	> 899 mV to 6.59 V	10 Hz to 10 kHz	2.0E-02 V		
	> 6.59 V to 55 V	10 Hz to 10 kHz	5.5E-02 V		
	1.8 mV to 21.9 mV	10 Hz to 10 kHz	1.7E-04 V		Triangle wave into 1 MΩ
	> 21.9 mV to 219 mV	10 Hz to 10 kHz	5.0E-04 V		
	> 219 mV to 6.59 V	10 Hz to 10 kHz	6.0E-03 V		
	> 6.59 V to 55 V	10 Hz to 10 kHz	8.0E-02 V		
	1.8 mV to 28 mV	10 Hz to 10 kHz	3.5E-05 V	Square wave into 50 Ω	
	29 mV to 78 mV	10 Hz to 10 kHz	1.0E-04 V		
	79 mV to 2.5 V	10 Hz to 10 kHz	8.0E-04 V		
	1.8 mV to 44.8 mV	10 Hz to 10 kHz	3.0E-05 V	Sine wave into 50 Ω	
	44.9 mV to 449 mV	10 Hz to 10 kHz	3.0E-04 V		
	> 449 mV to 2.5 V	10 Hz to 10 kHz	1.0E-03 V		
1.8 mV to 10.9 mV	10 Hz to 10 kHz	3.0E-05 V	Triangle wave into 50 Ω		
> 10.9 mV to 44.9 mV	10 Hz to 10 kHz	6.0E-05 V			
> 44.9 mV to 449 mV	10 Hz to 10 kHz	6.0E-04 V			
> 449 mV to 2.5 V	10 Hz to 10 kHz	7.5E-03 V			



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

CAPACITANCE (20/E10)								
Capacitance Low Frequency		Expanded uncertainties are in $\mu\text{F}/\text{F}$ for the capacitance and voltage level on the left at indicated frequencies below. ^{Notes 3,9}						
Nominal	Frequency	50 Hz	400 Hz	1 kHz	5 kHz	10 kHz	20 kHz	Remark Andeen-Hagerling 2700A Capacitance Bridge
	Stimulus							
1.00 μF	0.001 V	8.0E+02	1.2E+02	8.5E+01	5.0E+02	2.0E+03	5.0E+03	
100 nF	0.01 V	4.0E+02	6.0E+01	4.5E+01	1.3E+02	3.5E+02	1.2E+03	
10 nF	0.1 V	1.4E+02	2.5E+01	2.0E+01	4.5E+01	9.0E+01	2.3E+02	
1000 pF	1.5 V	2.2E+01	1.0E+01	1.0E+01	1.2E+01	1.8E+01	4.0E+01	
100 pF	15 V	2.2E+01	1.0E+01	1.0E+01	1.2E+01	1.8E+01	4.0E+01	
10 pF	15 V	3.0E+01	1.0E+01	1.0E+01	1.2E+01	2.5E+01	6.5E+01	
1 pF	15 V	1.2E+02	1.2E+01	1.0E+01	2.5E+01	6.0E+01	2.0E+02	

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
Capacitance – Measure	1 pF to 1000 pF	1 kHz to 10 MHz	0.5 % + 0.05 pF	Reference Capacitors and HP 4284A
Capacitance Meters: Capacitance – Source	0.19 nF to 0.3999 nF	10 Hz to 10 kHz	0.38 % + 10 pF	Fluke 5520A
	0.4 nF to 1.0999 nF	10 Hz to 10 kHz	0.38 % + 10 pF	
	1.1 nF to 3.2999 nF	10 Hz to 3 kHz	0.38 % + 10 pF	
	3.3 nF to 10.9999 nF	10 Hz to 1 kHz	0.19 % + 10 pF	
	11 nF to 32.9999 nF	10 Hz to 1 kHz	0.19 % + 100 pF	
	33 nF to 109.999 nF	10 Hz to 1 kHz	0.19 % + 100 pF	
	110 nF to 329.999 nF	10 Hz to 1 kHz	0.19 % + 300 pF	
	0.33 μF to 1.09999 μF	10 Hz to 600 Hz	0.19 % + 1 nF	
	1.1 μF to 3.29999 μF	10 Hz to 300 Hz	0.19 % + 3 nF	
	3.3 μF to 10.9999 μF	10 Hz to 150 Hz	0.19 % + 10 nF	
	11 μF to 32.9999 μF	10 Hz to 120 Hz	0.3 % + 30 nF	
	33 μF to 109.999 μF	10 Hz to 80 Hz	0.34 % + 100 nF	
	110 μF to 329.999 μF	0 Hz to 50 Hz	0.34 % + 300 nF	
	0.33 mF to 1.09999 mF	0 Hz to 20 Hz	0.34 % + 1 μF	



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5500A/5520A/5522A: Capacitance – Measure	1.1 mF to 3.29999 mF	0 Hz to 6 Hz	0.34 % + 3 μF	HP 4284A
	3.3 mF to 10.9999 mF	0 Hz to 2 Hz	0.34 % + 10 μF	
	11 mF to 32.9999 mF	0 Hz to 0.6 Hz	0.7 % + 30 μF	
	33 mF to 110 mF	0 Hz to 0.2 Hz	1 % + 100 μF	
	220 pF	5 kHz	2.0 mF/F	
	350 pF	1 kHz	1.8 mF/F	
	480 pF		1.6 mF/F	
	600 pF		1.0 mF/F	
	1 nF		900 μF/F	
	2 nF		770 μF/F	
	7 nF		700 μF/F	
	10.9 nF		700 μF/F	
	20 nF		700 μF/F	
	70 nF		680 μF/F	
	109 nF		680 μF/F	
	200 nF		680 μF/F	
	300 nF		680 μF/F	
	700 nF	100 Hz	680 μF/F	
	1.09 μF		680 μF/F	
	2 μF		680 μF/F	
	3 μF		680 μF/F	
	7 μF		680 μF/F	
	10.9 μF		680 μF/F	
	20 μF		700 μF/F	
30 μF		700 μF/F		
70 μF	50 Hz	1.3 mF/F		
109 μF		1.3 mF/F		
200 μF	DC 60 μA	300 μF/F	Charge Current technique, Charge time 10 seconds; HP 3458A	
300 μF	DC 90 μA	300 μF/F		



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks	
5560A, 5550A, 5540A: Capacitance – Measure	330 µF	DC 100 µA	300 µF/F	Hioki IM3533 (characterized LCR)	
	700 µF	DC 200 µA	300 µF/F		
	1.09 mF	DC 300 µA	300 µF/F		
	1.1 mF	DC 300 µA	300 µF/F		
	2 mF	DC 600 µA	300 µF/F		
	3 mF	DC 900 µA	300 µF/F		
	3.3 mF	DC 1 mA	300 µF/F		
	10.9 mF	DC 3 mA	300 µF/F		
	20 mF	DC 6 mA	300 µF/F		
	30 mF	DC 9 mA	300 µF/F		
	33 mF	DC 10 mA	300 µF/F		
	110 mF	DC 30 mA	300 µF/F		
	200 pF	1 kHz	1.5E+03 µF/F		Charge technique using DC current source and sampling DMM
	1 nF	1 kHz	6.1E+02 µF/F		
	1.21 nF	1 kHz	6.1E+02 µF/F		
	10 nF	1 kHz	5.0E+02 µF/F		
	12.1 nF	610 Hz	5.0E+02 µF/F		
	20 nF	610 Hz	5.0E+02 µF/F		
	30 nF	610 Hz	5.0E+02 µF/F		
	50 nF	610 Hz	5.0E+02 µF/F		
	100 nF	610 Hz	5.0E+02 µF/F		
	120 nF	610 Hz	5.0E+02 µF/F		
	121 nF	100 Hz	5.0E+02 µF/F		
	1 µF	100 Hz	5.0E+02 µF/F		
	1.21 µF	80 Hz	5.0E+02 µF/F		
	10 µF	80 Hz	5.0E+02 µF/F		
	12.1 µF	20 Hz	5.0E+02 µF/F		
100 µF	20 Hz	5.0E+02 µF/F			
121 µF	5 Hz	5.1E+02 µF/F			
1 mF	90 µA	3.0E+02 µF/F			

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	1.21 mF 10 mF 12.1 mF 100 mF	219.9 μA 2.1999 mA 5.5 mA 45 mA	3.0E+02 μF/F 3.0E+02 μF/F 3.0E+02 μF/F 3.0E+02 μF/F	
INDUCTANCE (20/E11)				
5560A, 5550A: Inductance – Measure	15 μH 100 μH 0.121 mH 1 mH 1.21 mH 2 mH 3 mH 5 mH 10 mH 12 mH 0.121 H 1 H 1.21 H 10 H 12.1 H 12.1 H 100 H 100 H	1 kHz 1 kHz 1 kHz 1 kHz 110 Hz 110 Hz 110 Hz 110 Hz 110 Hz 110 Hz 10 Hz 10 Hz 3 Hz 3 Hz 100 Hz 2 Hz 100 Hz 2 Hz	1.6E+03 μH/H 8.0E+02 μH/H 8.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H 6.0E+02 μH/H	Hioki IM3533 (characterized LCR)
PHASE METERS (20/E15)				
Phase Meters and Phase Standards: Phase – Source and Measure, deviation from 180°	Voltage Ratio 1:1	1 kHz 5 kHz 50 kHz 100 kHz	5.1E-03° 5.1E-03° 5.4E-03° 9.5E-03°	Clarke-Hess Phase Meter, Clarke-Hess Phase Standard and Clarke-Hess 500X Phase Bridges



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5500A/5520A/5522A Phase – Measure Ref: 0.03 V; Signal: 0.3 A Ref: 0.2 V; Signal: 2 A Ref: 0.05 V; Signal: 5 A Ref: 0.03 V; Signal: 0.3 A Ref: 0.2 V; Signal: 2 A Ref: 0.2 V; Signal: 20 A Ref: 3.3 V; Signal: 0.3 A Ref: 3.3 V; Signal: 2 A Ref: 3.3 V; Signal: 5 A Ref: 3.3 V; Signal: 0.3 A Ref: 3.3 V; Signal: 2 A Ref: 3.3 V; Signal: 20 A Ref: 33 V; Signal: 0.3 A Ref: 33 V; Signal: 2 A Ref: 33 V; Signal: 5 A	Voltage Ratio 10:1	1 kHz 5 kHz 50 kHz 100 kHz	5.1E-03° 5.1E-03° 7.0E-03° 12E-03°	Clarke-Hess 6000A, Shunts Mode: AC Voltage / AC Current
	Voltage Ratio 100:1	1 kHz 5 kHz 50 kHz 100 kHz	11E-03° 11E-03° 11E-03° 23E-03°	
	0°	65 Hz 1 k Hz 30 k Hz	0.020° 0.030° 0.5°	
	60°	65 Hz 400 Hz	0.020° 0.030°	
	0°	65 Hz 65 Hz 65 Hz 400 Hz	0.020° 0.020° 0.020° 0.030°	
	90°	65 Hz 65 Hz 65 Hz 400 Hz	0.002° 0.020° 0.020° 0.030°	
	0°	65 Hz 65 Hz 65 Hz 400 Hz	0.020° 0.020° 0.020° 0.030°	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
Ref: 33 V; Signal: 0.3 A Ref: 33 V; Signal: 2 A Ref: 33 V; Signal: 20 A	90°	65 Hz 65 Hz 65 Hz 400 Hz	0.020° 0.020° 0.020° 0.030°	Mode: AC Voltage / AC Current
Ref: 3 V; Signal: 3 V	0°	65 Hz	0.020°	
	60°		0.020°	
	90°		0.020°	
	0°	400 Hz	0.020°	
	60°		0.030°	
	90°		0.040°	
	0°	1 kHz	0.020°	
	60°		0.030°	
	90°		0.040°	
	0°	5 kHz	0.030°	
	60°		0.040°	
	90°		0.040°	
	0°	10 kHz	0.030°	
	60°		0.050°	
	90°		0.050°	
	0°	30 kHz	0.3°	
	60°		0.3°	
	90°		0.3°	
Ref: 30 V; Signal: 3 V Ref: 50 V; Signal: 3 V	90°	65 Hz	0.030°	
	90°		0.030°	

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Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5560A, 5550A: Phase – Measure				
Ref: 10 V; Signal 5 V	0°, 30°, 45°, 60°, 90°, 180°, 270°	65 Hz	0.020°	Clarke-Hess 6000A Clarke-Hess 6000A with shunts
Ref: 10 V; Signal 0.1 A	0°, 30°, 45°, 60°, 90°, 180°, 270°	65 Hz	0.020°	
Ref: 10 V; Signal: 0.1 A	90°	400 Hz	0.020°	
	90°	1 kHz	0.030°	
	90°	5 kHz	0.050°	
	90°	10 kHz	0.10°	
	90°	30 kHz	0.30°	
Ref: 10 V; signal 3.11 A	0°	65 Hz	0.020°	
	0°	400 Hz	0.030°	
Ref: 1 V; Signal 12.1 A	180°	65 Hz	0.020°	
Ref: 10 V; Signal 12.1 A	30°	65 Hz	0.020°	
Ref: 1.21 V; Signal: 20 A	0°	65 Hz	0.020°	
Ref: 10 V; Signal: 20 A	90°	400 Hz	0.030°	
Ref: 250 V; Signal 0.1 A	90°	65 Hz	0.020°	
	0°	10 kHz	0.20°	
	45°	30 kHz	0.50°	
52120A: Phase – Measure				Closed Loop using 61XXA
2 Amp Range	2 A	50 Hz 60 Hz	3.4E-03° 3.9E-03°	
20 Amp Range	10 A	50 Hz 60 Hz	3.9E-03° 3.4E-03°	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
120 Amp Range	120 A	50 Hz 60 Hz	3.4E-03° 3.9E-03°	

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Notes 3,5}	Remarks
TIME and FREQUENCY			
FREQUENCY DISSEMINATION (20/F01)			
In-House Frequency Reference: Frequency Dissemination	10 MHz	1 mHz, 24 hours	Fluke 910, GPS Locked
5500A/5520A/5522A: Frequency – Measure	119 Hz 120 Hz 1 kHz 100 kHz	0.30 µHz/Hz 0.30 µHz/Hz 0.30 µHz/Hz 0.30 µHz/Hz	Frequency Counter
5730A: Frequency – Measure	10 Hz 119.9 Hz 120 Hz 400 Hz 1.199 kHz 1.2 kHz 11.99 kHz 12 kHz 119.9 kHz 120 kHz 1 MHz 1.1999 MHz	10.0 µHz/Hz 2.0 µHz/Hz 1.0 µHz/Hz 1.0 µHz/Hz 0.5 µHz/Hz 0.5 µHz/Hz 0.3 µHz/Hz 0.3 µHz/Hz 0.3 µHz/Hz 0.3 µHz/Hz 0.3 µHz/Hz 0.3 µHz/Hz	Frequency Counter
5700A Wideband: Frequency – Source	10 Hz to 50 MHz	7 µHz/Hz reading + 20 µHz	Frequency counter
3458A: Frequency – Source	1 Hz	30 µHz/Hz	Frequency counter
8508A: Frequency – Source	1 MHz	1 µHz/Hz	



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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Notes 3,5}	Remarks
5522A Scope Option, Voltage Function: Frequency – Measure	10 Hz 100 Hz 1 kHz 10 kHz	5.0E-06 Hz 5.0E-05 Hz 5.0E-04 Hz 5.0E-03 Hz	PM6680 2.1 V square wave into 1 MΩ
5522A Scope Option, Edge Function: Frequency – Measure	1 kHz 10 kHz 100 kHz 1 MHz 10 MHz	5.0E-04 Hz 5.0E-03 Hz 5.0E-02 Hz 5.0E-01 Hz 5.0E-00 Hz	PM6680 Fast edge into 50 Ω
Fluke 5522A Scope Option, Duty Cycle: Frequency – Measure 2.5 V at 1 MHz	50 %	0.02 %	PM6680 Fast edge into 50 Ω
5522A Scope Option, Leveled Sine Wave: Frequency – Measure	5.5 V, 500 MHz 3 V, 1.10 GHz	100 Hz 200 Hz	PM6680
5522A Scope Option, Period: Time Marker – Measure	5 s 2 s 10 ms 20 ms 50 ms 10 ns 20 ns 50 ns 100 ns	9.0E-07 s 9.0E-07 s 6.4E-09 s 6.4E-09 s 6.4E-09 s 1.0E-14 s 1.0E-14 s 1.0E-14 s 1.0E-14 s	PM6680 Into 50 Ω

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Notes 3,5}	Remarks
5522A Scope Option, Pulse Generator Function: Time Marker – Measure	2 ns 5 ns (Width / period) 4 ns / 100 μs 500 ns / 10 ms 500 ns / 20 ms	1.0E-15 s 1.0E-15 s 6.0E-12 s 1.6E-09 s 2.0E -09 s	Tektronix DSA8300 2.5 V pulse into 50 Ω
5522A Scope Option: Time Interval – Measure	4 ns / 2 μs	1.0E-10 s	Tektronix DSA8300
PULSE WAVEFORM (20/F04)			
5522A Edge Function: Rise Time – Measure	> 24 ps > 24 ps > 24 ps	10 ps 30 ps 30 ps	Tektronix DSA8300 At 250 mV @ 1 MHz At 1 V @ 1 MHz At 2.5 V @ 1 MHz and @ 10 MHz

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
ELECTROMAGNETICS – RF/MICROWAVE				
RF/MICROWAVE POWER (20/R17)				
RF Power Sensors: Flatness – Measure	1 μW 1 mW	10 MHz to > 20 MHz 20 MHz to 1.1 GHz > 1.1 GHz to 3.2 GHz 10 MHz to 20 MHz 20 MHz to 1.1 GHz > 1.1 GHz to 3.2 GHz	0.9 % 0.7 % 0.8 % 0.6 % 0.6 % 0.7 %	HP 8481D 50 MHz Reference into 50 Ω HP 8482A 50 MHz Reference into 50 Ω

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
5790B RF Power – Source	1 mW	50 MHz	0.46 %	Characterized 0 dBm Source
5522A Leveled Sine Wave Function: Flatness Relative to 50 kHz – Measure	5.0 mV	1 MHz to 70 MHz	4.5E-05 V	5790A/B, HP 8481D and HP 8482A
	7.5 mV		5.5E-05 V	
	9.9 mV		6.5E-05 V	
	10 mV		6.6E-05 V	
	25 mV		2.9E-04 V	
	39 mV		2.8E-04 V	
	40 mV		3.1E-04 V	
	70 mV		4.6E-04 V	
	99 mV		6.3E-04 V	
	100 mV		6.4E-04 V	
	250 mV		1.6E-03 V	
	399 mV		2.5E-03 V	
	400 mV		2.5E-03 V	
	800 mV		4.9E-03 V	
	1.2 V		7.4E-03 V	
	1.3 V		8.6E-03 V	
	3.4 V		2.2E-02 V	
	5.5 V	3.6E-02 V		
	5.0 mV	> 70 MHz to 290 MHz	4.5E-05 V	
	7.5 mV		5.5E-05 V	
	9.9 mV		6.8E-05 V	
	10 mV		6.9E-05 V	
	25 mV		3.0E-04 V	
39 mV	3.0E-04 V			
40 mV	3.0E-04 V			
70 mV	4.7E-04 V			
99 mV	6.4E-04 V			
100 mV	6.5E-04 V			



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Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	250 mV		1.6E-03 V	
	399 mV		2.6E-03 V	
	400 mV		2.6E-03 V	
	800 mV		5.3E-03 V	
	1.2 V		8.0E-03 V	
	1.3 V		1.2E-02 V	
	3.4 V		3.2E-02 V	
	5.5 V		5.1E-02 V	
	5.0 mV	> 290 MHz to 600 MHz	4.5E-05 V	
	7.5 mV		5.5E-05 V	
	9.9 mV		6.8E-05 V	
	10 mV		6.9E-05 V	
	25 mV		3.9E-04 V	
	39 mV		3.3E-04 V	
	40 mV		3.5E-04 V	
	70 mV		7.0E-04 V	
	99 mV		9.4E-04 V	
	100 mV		9.2E-04 V	
	250 mV		1.8E-03 V	
	399 mV		4.0E-03 V	
	400 mV		4.0E-03 V	
	800 mV		8.0E-03 V	
	1.2 V		1.0E-02 V	
	1.3 V		1.2E-02 V	
	3.4 V		3.2E-02 V	
	5.5 V		4.0E-02 V	
	5.0 mV	> 600 MHz to 1100 MHz	5.0E-05 V	
	7.5 mV		7.5E-05 V	
	9.9 mV		9.5E-05 V	
	10 mV		8.2E-05 V	
	25 mV		4.2E-04 V	
	39 mV		3.7E-04 V	
	40 mV		4.0E-04 V	
	70 mV		7.0E-04 V	



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
	99 mV 100 mV 250 mV 399 mV 400 mV 800 mV 1.2 V 1.3 V 3.4 V		9.4E-04 V 1.5E-03 V 4.0E-03 V 4.0E-03 V 4.0E-03 V 8.5E-03 V 1.3E-02 V 1.2E-02 V 3.6E-02 V	
SCATTERING PARAMETERS (20/R18)				
JFW 50HFI-004N and 50HFI-010N Attenuators: Voltage Flatness relative to 1 kHz	4 dB, 10 dB	10 Hz to 20 Hz 50 Hz to 500 kHz > 500 kHz to 2 MHz > 2 MHz to 4 MHz > 4 MHz to 10 MHz > 10 MHz to 17 MHz > 17 MHz to 20 MHz > 20 MHz to 23 MHz > 23 MHz to 26 MHz > 26 MHz to 30 MHz > 30 MHz to 35 MHz > 35 MHz to 40 MHz > 40 MHz to 45 MHz > 45 MHz to 50 MHz	80 µV/V 25 µV/V 50 µV/V 75 µV/V 100 µV/V 140 µV/V 180 µV/V 200 µV/V 230 µV/V 300 µV/V 320 µV/V 350 µV/V 400 µV/V 500 µV/V	Substitution Method with Fluke A55-3V
JFW 50HFI-020N Attenuators: Voltage Flatness relative to 1 kHz	20 dB	10 Hz to 20 Hz 50 Hz to 500 kHz > 500 kHz to 2 MHz > 2 MHz to 4 MHz > 4 MHz to 10 MHz	110 µV/V 40 µV/V 60 µV/V 110 µV/V 120 µV/V	Substitution Method with Fluke A55-3V and Reference Attenuator



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Frequency	Expanded Uncertainty ^{Notes 3,5}	Remarks
		> 10 MHz to 17 MHz	190 μ V/V	
		> 17 MHz to 20 MHz	230 μ V/V	
		> 20 MHz to 23 MHz	270 μ V/V	
		> 23 MHz to 26 MHz	320 μ V/V	
		> 26 MHz to 30 MHz	400 μ V/V	
		> 30 MHz to 35 MHz	450 μ V/V	
		> 35 MHz to 40 MHz	500 μ V/V	
		> 40 MHz to 45 MHz	550 μ V/V	
		> 45 MHz to 50 MHz	600 μ V/V	

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Notes 3,5}	Remarks
THERMODYNAMIC			
LABORATORY THERMOMETERS, DIGITAL and ANALOG (20/T03)			
Metrology Wells Reference Junction Compensation Network – Measure	25 °C	0.06 °C	Fluke 1529 and Fluke 5610
Metrology Wells and Baths: Temperature – Measure	-100 °C to 155 °C > 155 °C to 250 °C > 250 °C to 425 °C > 425 °C to 500 °C > 500 °C to 660 °C	0.024 °C 0.032 °C 0.043 °C 0.05 °C 0.062 °C	Fluke 5628 and Fluke 2562-H
PG7000 Base: Temperature – Measure	20 °C to 26 °C	0.015 °C	Fluke 1504 and Fluke 5610
PRESSURE (20/T05)			
Pneumatic Gauge Mode: Pressure – Source	1.38 kPa to 172 kPa > 5 kPa to 190 kPa > 190 kPa to 390 kPa	0.0011 % but not less than 0.03 Pa 0.0014 % + 0.04 Pa 0.0015 % + 0.05 Pa	Ruska 2465 PG System Fluke PG7000 PG System



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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Notes 3,5}	Remarks		
Pneumatic Negative Gauge Mode: Pressure – Source	> 390 kPa to 760 kPa	0.0015 % + 0.1 Pa	Ruska 2465 PG System		
	> 760 kPa to 1.9 MPa	0.0017 % + 0.26 Pa			
	> 1.9 MPa to 3.8 MPa	0.0018 % + 0.53 Pa			
	> 3.8 MPa to 20.8 MPa	0.0024 % + 1 Pa			
		0.0025 % + 2.5 Pa			
	> 20.8 MPa to 52 MPa	0.0038 % + 10 Pa			
	> 52 MPa to 104 MPa				
		0.0011 % but not less than 0.03 Pa			
	Pneumatic Differential Mode: Pressure – Source	-100 kPa to -1.38 kPa			Fluke PG7000 PG System
		-94 kPa to 0 kPa		0.0013 % + 0.33 Pa	
-25 kPa to 25 kPa		0.0012 % but not less than 0.035 Pa			
Pneumatic Absolute Mode: Pressure – Source	-15 kPa to 15 kPa	0.003 % + 0.005 Pa	Fluke FPG8601 (% is the absolute value of reading.)		
	0 Pa to 133 Pa	0.35 % + 0.05 Pa	MKS 626 Capacitance Diaphragm Transducer		
	1.38 kPa to 356 kPa	0.0011 % but not less than 0.02 Pa	Ruska 2465 PG System – Absolute Mode; increase by 1.33E+00 Pa combined in quadrature with stated level		
	> 5 kPa to 190 kPa	0.0014 % + 0.39 Pa	Fluke PG7000 PG System		
	> 190 kPa to 760 kPa	0.0015 % + 0.36 Pa			
> 760 kPa to 1.9 MPa	0.0016 % + 0.40 Pa				
	> 1.9 MPa to 3.8 MPa	0.0016 % + 0.72 Pa			
	> 3.8 MPa to 20.8 MPa	0.0024 % + 16 Pa			
	> 20.8 MPa to 52 MPa	0.0025 % + 16 Pa			
	> 52 MPa to 104 MPa	0.0038 % + 10 Pa			



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CALIBRATION LABORATORIES

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Notes 3,5}	Remarks
Hydraulic Gauge Mode: Pressure – Source	> 200 kPa to 20.8 MPa > 20.8 MPa to 52 MPa > 52 MPa to 208 MPa > 208 MPa to 280 MPa	0.0019 % + 5.6 Pa 0.0023 % + 24 Pa 0.0038 % + 30 Pa 0.0055 % + 40 Pa	Fluke PG7000 PG System
Hydraulic Absolute Mode: Pressure – Source	> 200 kPa to 20.8 MPa > 20 MPa to 52 MPa > 52 MPa to 208 MPa > 208 MPa to 280 MPa	0.0019 % + 8.9 Pa 0.0023 % + 25 Pa 0.0038 % + 30 Pa 0.0056 % + 40 Pa	Fluke PG7000 PG System
TEMPERATURE INDICATORS (20/T08)			
Calibrators: Electrical Simulation of Thermocouples Measure ^{Note 7}	0.0 mV 1.0 mV, -1.0 mV 5.0 mV, - 5.0 mV 10 mV, -10 mV 100 mV, -100 mV	0.20 μV 0.20 μV 0.25 μV 0.25 μV 0.70 μV	Reference multimeter
Source ^{Note 7}	0 mV 10 mV, -10 mV 50 mV, -50 mV 100 mV, -100 mV 300 mV, -300 mV	0.20 μV 0.60 μV 1.0 μV 1.0 μV 2.0 μV	Fluke 5720A
5560A, 5550A, 5540A: Electrical Simulation of Thermocouples Measure	0.0 mV ±10 mV ±50 mV ±100 mV	0.20 μV 0.20 μV 0.25 μV 0.30 μV	Reference multimeter

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Notes 3,5}	Remarks
Source	0.0 mV ±10 mV ±50 mV ±100 mV ±300 mV	0.20 µV 0.40 µV 0.45 µV 0.45 µV 1.5 µV	Fluke 5720A
THERMOCOUPLES (20/T11)			
Type J, K, E, and T Thermocouples: Source	20 °C to 26 °C	0.022 °C	Using Oil Bath and Keithley 2182A Both Junctions at 20 °C to 26 °C
Calibrators: Type K or Type J – Source	23 °C	0.022 °C	Thermometry System and Characterized Thermocouple
END			

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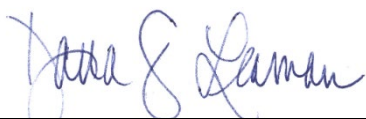

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Notes
<p>Note 1: A Calibration and Measurement Capability (CMC) is a description of the best result of a calibration or measurement (result with the smallest uncertainty of measurement) that is available to the laboratory's customers under normal conditions, when performing more or less routine calibrations of nearly ideal measurement standards or instruments. The CMC is described in the laboratory's scope of accreditation by: the measurement parameter/device being calibrated, the measurement range, the uncertainty associated with that range (see note 3), and remarks on additional parameters, if applicable.</p>
<p>Note 2: Calibration and Measurement Capabilities are traceable to the national measurement standards of the U.S. or to the national measurement standards of other countries and are thus traceable to the internationally accepted representation of the appropriate SI (Système International) unit.</p>
<p>Note 3: The uncertainty associated with a measurement in a CMC is an expanded uncertainty with a level of confidence of approximately 95 %, typically using a coverage factor of $k = 2$. However, laboratories may report a coverage factor different than $k = 2$ to achieve the 95 % level of confidence. Units for the measurand and its uncertainty are to match. Exceptions to this occur when marketplace practice employs mixed units, such as when the artifact to be measured is labeled in non-SI units and the uncertainty is given in SI units (Example: 5 lb weight with uncertainty given in mg).</p> <p>Note 3a: The uncertainty of a specific calibration by the laboratory may be greater than the uncertainty in the CMC due to the condition and behavior of the customer's device and specific circumstances of the calibration. The uncertainties quoted do not include possible effects on the calibrated device of transportation, long term stability, or intended use.</p> <p>Note 3b: As the CMC represents the best measurement results achievable under normal conditions, the accredited calibration laboratory shall not report smaller uncertainty of measurement than that given in a CMC for calibrations or measurements covered by that CMC.</p> <p>Note 3c: As described in Note 1, CMCs cover calibrations and measurements that are available to the laboratory's customers under <i>normal conditions</i>. However, the laboratory may have the capability to offer special tests, employing special conditions, which yield calibration or measurement results with lower uncertainties. Such special tests are not covered by the CMCs and are outside the laboratory's scope of accreditation. In this case, NVLAP requirements for the labeling, on calibration reports, of results outside the laboratory's scope of accreditation apply. These requirements are set out in Annex A.5 of NIST Handbook 150, Procedures and General Requirements.</p>
<p>Note 4: Uncertainties associated with field service calibration may be greater as they incorporate on-site environmental contributions, transportation effects, or other factors that affect the measurements. (This note applies only if marked in the body of the scope.)</p>
<p>Note 5: Values listed with percent (%) are percent of reading or generated value unless otherwise noted.</p>
<p>Note 6: NVLAP accreditation is the formal recognition of specific calibration capabilities. Neither NVLAP nor NIST guarantee the accuracy of individual calibrations made by accredited laboratories.</p>
<p>Note 7: The simulated thermocouple temperature capability of the calibrator is verified using the 10 $\mu\text{V}/^\circ\text{C}$ linear mode (not an actual thermocouple mode) and a measurement with a Type K thermocouple at 23 $^\circ\text{C}$. 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.</p>
<p>Note 8: Calibration and Measurement Capabilities for DC voltage are traceable to a Josephson Voltage System (JVS), an intrinsic standard.</p>
<p>Note 9: The laboratory is accredited to perform calibrations at test points not specifically listed on the scope, provided that the values are between test points established on the scope and have equal or greater measurement uncertainty than the CMC's range.</p>

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