



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017,
ANSI/NCSL Z540-1-1994 & ANSI/NCSL Z540.3-2006

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CALIBRATION

Valid To: June 30, 2022

Certificate Number: 2357.08

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations⁷:

I. Dimensional

Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments
Gage Blocks	Up to 1 in (>1 to 2) in (>2 to 3) in (>3 to 4) in (>4 to 5) in (>5 to 6) in (>6 to 7) in (>7 to 8) in (>8 to 10) in (>10 to 12) in (>12 to 16) in (>16 to 20) in	3.3 μin 3.6 μin 4.0 μin 4.5 μin 11 μin 11 μin 12 μin 13 μin 15 μin 17 μin 21 μin 25 μin	Labmaster and gage blocks Grade 0.5 ≤ 4 in, (100 mm); Grade 1 (5 to 20) in, (500 mm)
Linear Measuring Machines ³	Up to 4 in (> 4 to 8) in	(4.4 + 2.0L) μin (11 + 2.1L) μin	Grade 0.5 gage blocks, Grade 1 gage blocks
Micrometers ³	(0.05 to 4) in (> 4 to 12) in (>12 to 48) in	(36 + 7.3L) μin (56 + 1.0L) μin (64 + 21L) μin	Grade 0.5 gage blocks, Grade 1 gage blocks
Calipers ³	(0.05 to 4) in (> 4 to 12) in (> 12 to 48) in	(58 + 0.25L) μin (57 + 0.88L) μin (43 + 2.0L) μin	Grade 0.5 gage blocks, Grade 1 gage blocks

Parameter/Equipment	Range	CMC ^{2,5} (\pm)	Comments
Indicators ³	Up to 4 in (> 4 to 6) in	(29 + 1.5L) μ in (35 + 1.0L) μ in	UMM and gage blocks
Height Gages ³	(0.05 to 4) in (> 4 to 12) in (> 12 to 48) in	(58 + 0.25L) μ in (57 + 0.88L) μ in (43 + 2.0L) μ in	Surface Plate and Grade 0.5 gage blocks, Grade 1 gage blocks
Cylindrical Pins & Plugs ³	Up to 2 in	(5.9 + 0.75L) μ in	Labmaster and gage blocks
Thread Wires	(4 to 90) TPI	11 μ in	Labmaster and gage blocks
Length Standards and End Rods ³	(0.05 to 4) in (> 4 to 12) in (> 12 to 39) in	(29 + 1.5L) μ in (31 + 1.3L) μ in (27 + 1.5L) μ in	UMM and gage blocks
Threaded Plugs ³ – Pitch Diameter	Up to 8 in	(67 + 0.16L) μ in	Labmaster, gage blocks, thread wires
Major Diameter	Up to 4 in (>4 to 8) in	(42 + 12L) μ in 120 μ in	
Torque Arms	2.5 in 5 in 10 in	0.46 x 10 ⁻³ in 1.2 x 10 ⁻³ in 1.4 x 10 ⁻³ in	Gage blocks, surface plate, height gage
Flatness ³	Up to 1 in	4.8 μ in	Optical flat
Tape Measures/Rulers ³	Up to 400 ft	0.0026 in	Optical ruler

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
DC Voltage – Generate ³	0 µV Up to 100 mV (0.1 to 1) V (1 to 10) V (10 to 100) V (100 to 1000) V (1000 to 1100) V	27 nV 1.7 µV/V 1.6 µV/V 1.5 µV/V 1.6 µV/V 1.6 µV/V 4.4 µV/V	Reference short Fluke 732B w/ 752A / 720A dividers Fluke 8508A w/ 752A, 5720A
DC Voltage – Measure ³ Fixed Points	(0 to 200) mV (0.2 to 2) V (2 to 20) V (20 to 200) V (200 to 1050) V 1 V 1.018 V 10 V	9.3 µV/V + 100 nV 4.0 µV/V + 0.40 µV 3.8 µV/V + 4.0 µV 6.8 µV/V + 40 µV 7.5 µV/V + 0.53 mV 1.5 µV 1.5 µV 5.1 µV	Fluke 8508A Dataproof scanner w/ Fluke 732B & Agilent 34420A
DC Voltage – Generate ³	100 mV 1 V 1.018 V 10 V 100 V 1000 V 1100 V (0 to 220) mV 220 mV to 2.2 V (2.2 to 11) V (11 to 22) V (22 to 220) V (220 to 1100) V	1.5 µV 1.5 µV 1.5 µV 1.0 µV 1.7 µV 1.8 µV 4.4 µV/V 11 µV/V + 0.39 µV 4.9 µV/V + 0.62 µV 3.5 µV/V + 2.3 µV 3.6 µV/V + 3.9 µV 5.0 µV/V + 39 µV 6.4 µV/V + 0.39 mV	732B w/ 720A, 752A, 34420A, 5720A Fluke 5720A w/ 5725A

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Electrical Simulation of Thermocouples ³ – (cont)			
Type J	(-210 to -180) °C (-180 to -120) °C (-120 to -50) °C (-50 to 990) °C (990 to 1200) °C	0.19 °C 0.17 °C 0.15 °C 0.082 °C 0.086 °C	Ectron 1140A
Type K	(-270 to -255) °C (-255 to -195) °C (-195 to -115) °C (-115 to -55) °C (-55 to 1000) °C (1000 to 1372) °C	2.6 °C 0.82 °C 0.18 °C 0.14 °C 0.082 °C 0.10 °C	
Type R	(-50 to -30) °C (-30 to 45) °C (45 to 160) °C (160 to 380) °C (380 to 775) °C (775 to 1768) °C	0.76 °C 0.65 °C 0.49 °C 0.37 °C 0.36 °C 0.30 °C	
Type S	(-50 to -30) °C (-30 to 45) °C (45 to 105) °C (105 to 310) °C (310 to 615) °C (615 to 1768) °C	0.73 °C 0.66 °C 0.49 °C 0.41 °C 0.37 °C 0.32 °C	
Type T	(-270 to -255) °C (-255 to -240) °C (-240 to -210) °C (-210 to -150) °C (-150 to -40) °C (-40 to 100) °C (100 to 400) °C	2.1 °C 0.60 °C 0.40 °C 0.22 °C 0.15 °C 0.094 °C 0.083 °C	
DC Current – Simulate ³	(16.5 to 149.999) A (150 to 1025) A	3.9 mA/A + 0.11 mA 3.9 mA/A + 0.39 mA	Fluke 5520A w/ 50 turn coil

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments	
AC Voltage – Generate and Measure ³	2 mV	1 kHz	0.90 μV	Fluke 5720A and 5790A characterized w/ 792A
		20 kHz	1.0 μV	
		50 kHz	0.98 μV	
		100 kHz	1.4 μV	
		300 kHz	2.0 μV	
		500 kHz	2.9 μV	
		1 MHz	4.1 μV	
		40 Hz	0.93 μV	
		20 Hz	0.94 μV	
		10 Hz	1.0 μV	
	3 mV	45 Hz	1.5 μV	
		10 kHz	1.5 μV	
	10 mV	1 kHz	1.0 μV	
		20 kHz	1.0 μV	
		100 kHz	4.4 μV	
		300 kHz	9.5 μV	
	20 mV	1 kHz	1.6 μV	
		20 kHz	1.7 μV	
		50 kHz	2.1 μV	
		100 kHz	3.2 μV	
		300 kHz	4.8 μV	
		500 kHz	6.9 μV	
		1 MHz	8.5 μV	
		40 Hz	1.5 μV	
		20 Hz	1.6 μV	
		10 Hz	1.9 μV	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Generate and Measure ³ (cont)			
30 mV	9.5 Hz	25 µV	Fluke 5720A and 5790A characterized w/ 792A
	10 Hz	3.5 µV	
	45 Hz	2.3 µV	
	1 kHz	2.3 µV	
	10 kHz	2.3 µV	
	20 kHz	2.5 µV	
	50 kHz	4.9 µV	
	100 kHz	8.4 µV	
	450 kHz	23 µV	
	33 mV	45 Hz	
10 kHz		3.1 µV	
100 mV	20 Hz	3.4 µV	
	55 Hz	2.4 µV	
	1 kHz	2.5 µV	
	3 kHz	2.6 µV	
	10 kHz	2.4 µV	
	20 kHz	3.2 µV	
	30 kHz	7.6 µV	
	60 kHz	15 µV	
	100 kHz	16 µV	
	300 kHz	24 µV	
200 mV	1 kHz	4.2 µV	
	20 kHz	5.9 µV	
	50 kHz	7.8 µV	
	100 kHz	11 µV	
	300 kHz	17 µV	
	500 kHz	24 µV	
	1 MHz	48 µV	
	40 Hz	5.3 µV	
	20 Hz	7.8 µV	
	10 Hz	13 µV	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Generate and Measure ³ (cont)			
300 mV	9.5 Hz	0.24 mV	Fluke 5720A and 5790A characterized w/792A
	10 Hz	19 µV	
	45 Hz	11 µV	
	1 kHz	9.6 µV	
	10 kHz	9.9 µV	
	20 kHz	11 µV	
	50 kHz	18 µV	
	100 kHz	26 µV	
	500 kHz	90 µV	
	0.33 V	45 Hz	
10 kHz		21 µV	
1 V	20 Hz	21 µV	
	55 Hz	29 µV	
	1 kHz	21 µV	
	3 kHz	21 µV	
	10 kHz	20 µV	
	20 kHz	20 µV	
	30 kHz	37 µV	
	60 kHz	74 µV	
	100 kHz	56 µV	
	300 kHz	0.13 mV	
	500 kHz	0.20 mV	
1 MHz	0.70 mV		
2 V	1 kHz	24 µV	
	20 kHz	23 µV	
	50 kHz	24 µV	
	100 kHz	33 µV	
	300 kHz	57 µV	
	500 kHz	78 µV	
	1 MHz	0.20 mV	
	40 Hz	23 µV	
	20 Hz	45 µV	
	10 Hz	0.13 mV	
	2.3 V	1 kHz	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Generate and Measure ³ (cont)			
3 V	9.5 Hz	2.4 mV	Fluke 5720A and 5790A characterized w/ 792A
	10 Hz	1.9 mV	
	45 Hz	90 µV	
	1 kHz	67 µV	
	10 kHz	72 µV	
	20 kHz	67 µV	
	50 kHz	0.12 mV	
	100 kHz	0.20 mV	
	450 kHz	1.0 mV	
	3.3 V	45 Hz	
10 kHz		0.18 mV	
10 V	10 Hz	0.28 mV	
	20 Hz	0.18 mV	
	40 Hz	0.11 mV	
	55 Hz	0.28 mV	
	1 kHz	0.24 mV	
	3 kHz	0.24 mV	
	10 kHz	0.24 mV	
	20 kHz	0.23 mV	
	30 kHz	0.42 mV	
	50 kHz	0.42 mV	
	60 kHz	0.67 mV	
	100 kHz	0.68 mV	
	300 kHz	1.5 mV	
	500 kHz	3.1 mV	
1 MHz	9.4 mV		
19 V	1 kHz	0.40 mV	
20 V	1 kHz	0.23 mV	
	20 kHz	0.22 mV	
	50 kHz	0.23 mV	
	100 kHz	0.31 mV	
	300 kHz	0.53 mV	
	500 kHz	0.80 mV	
	1 MHz	6.3 mV	
	40 Hz	0.25 mV	
	20 Hz	0.36 mV	
	10 Hz	0.55 mV	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Generate and Measure ³ (cont)			
30 V	9.5 Hz	24 mV	Fluke 5720A and 5790A characterized w/ 792A
	10 Hz	1.8 mV	
	45 Hz	0.99 mV	
	1 kHz	0.84 mV	
	10 kHz	0.82 mV	
	20 kHz	0.83 mV	
	50 kHz	1.4 mV	
	90 kHz	2.3 mV	
33 V	45 Hz	1.1 mV	
	10 kHz	1.6 mV	
100 V	20 Hz	1.9 mV	
	55 Hz	1.6 mV	
	1 kHz	1.4 mV	
	3 kHz	2.6 mV	
	10 kHz	2.6 mV	
	20 kHz	2.6 mV	
	30 kHz	5.5 mV	
	50 kHz	5.4 mV	
	60 kHz	7.9 mV	
	100 kHz	7.8 mV	
200 V	1 kHz	2.7 mV	
	20 kHz	2.8 mV	
	50 kHz	2.9 mV	
	100 kHz	4.5 mV	
	40 Hz	3.1 mV	
	20 Hz	5.5 mV	
	10 Hz	7.6 mV	
300 V	45 Hz	11 mV	
	1 kHz	11 mV	
	10 kHz	11 mV	
	18 kHz	11 mV	
	50 kHz	18 mV	
330 V	45 Hz	13 mV	
	10 kHz	12 mV	
500 V	50 Hz	19 mV	
	1 kHz	17 mV	
	3 kHz	17 mV	
	10 kHz	17 mV	
	30 kHz	17 mV	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Generate and Measure ³ (cont)			
700 V	1 kHz	27 mV	Fluke 5720A and 5790A characterized w/ 792A
1000 V	45 Hz	16 mV	
	50 Hz	48 mV	
	300 Hz	48 mV	
	1 kHz	17 mV	
	5 kHz	40 mV	
	8 kHz	35 mV	
	30 kHz	22 mV	
1020 V	1 kHz	35 mV	
	8 kHz	63 mV	
AC Voltage – Measure ³			
Up to 2.2 mV	(1 to 10) Hz	0.64 mV/V + 14 µV	Fluke 8508A, Fluke 5790A
	(10 to 20) Hz	1.3 mV/V + 1.0 µV	
	(20 to 40) Hz	0.58 mV/V + 1.0 µV	
	40 Hz to 20 kHz	0.34 mV/V + 1.0 µV	
	(20 to 50) kHz	0.63 mV/V + 1.6 µV	
	(50 to 100) kHz	0.94 mV/V + 2.5 µV	
	(100 to 300) kHz	1.8 mV/V + 3.1 µV	
	(300 to 500) kHz	1.9 mV/V + 6.2 µV	
(0.5 to 1) MHz	2.7 mV/V + 6.2 µV		
(2.2 to 7) mV	(1 to 10) Hz	0.64 mV/V + 14 µV	
	(10 to 20) Hz	0.66 mV/V + 1.0 µV	
	(20 to 40) Hz	0.29 mV/V + 1.0 µV	
	40 Hz to 20 kHz	0.17 mV/V + 1.0 µV	
	(20 to 50) kHz	0.31 mV/V + 1.6 µV	
	(50 to 100) kHz	0.47 mV/V + 2.5 µV	
	(100 to 300) kHz	0.95 mV/V + 3.1 µV	
	(300 to 500) kHz	1.0 mV/V + 6.2 µV	
(0.5 to 1) MHz	1.6 mV/V + 6.2 µV		

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Measure ³ (cont)			
(7 to 22) mV	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.64 mV/V + 14 µV 0.23 mV/V + 1.0 µV 0.16 mV/V + 1.0 µV 94 µV/V + 1.0 µV 0.17 mV/V + 1.6 µV 0.25 mV/V + 2.5 µV 0.65 mV/V + 3.1 µV 0.73 mV/V + 6.2 µV 1.4 mV/V + 6.2 µV	Fluke 8508A, Fluke 5790A
(22 to 70) mV	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.64 mV/V + 14 µV 0.19 mV/V + 1.0 µV 0.10 mV/V + 1.0 µV 60 µV/V + 1.0 µV 0.11 mV/V + 1.6 µV 0.22 mV/V + 2.5 µV 0.42 mV/V + 3.1 µV 0.56 mV/V + 6.2 µV 0.90 mV/V + 6.2 µV	
(70 to 220) mV	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.64 mV/V + 14 µV 0.17 mV/V + 1.0 µV 72 µV/V + 1.0 µV 33 µV/V + 1.0 µV 59 µV/V + 1.6 µV 0.13 mV/V + 2.5 µV 0.21 mV/V + 3.1 µV 0.31 mV/V + 6.2 µV 0.80 mV/V + 6.2 µV	
(220 to 700) mV	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.93 mV/V + 0.12 mV 0.16 mV/V + 1.0 µV 62 µV/V + 1.0 µV 27 µV/V + 1.0 µV 40 µV/V + 1.6 µV 63 µV/V + 2.5 µV 0.14 mV/V + 3.1 µV 0.23 mV/V + 6.2 µV 0.75 mV/V + 6.2	
(0.7 to 2.2) V	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz	0.93 mV/V + 0.12 mV 0.16 mV/V 55 µV/V	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Measure ³ (cont)			
(0.7 to 2.2) V	40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	20 µV/V 36 µV/V 56 µV/V 0.13 mV/V 0.20 mV/V 0.70 mV/V	Fluke 8508A, Fluke 5790A
(2.2 to 7) V	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.69 mV/V + 1.2 mV 0.16 mV/V 56 µV/V 20 µV/V 39 µV/V 65 µV/V 0.15 mV/V 0.31 mV/V 0.93 mV/V	
(7 to 22) V	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.69 mV/V + 1.2 mV 0.16 mV/V 56 µV/V 23 µV/V 42 µV/V 67 µV/V 0.15 mV/V 0.31 mV/V 0.93 mV/V	
(22 to 70) V	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz 500 kHz to 1 MHz	0.82 mV/V + 12 mV 0.16 mV/V 56 µV/V 26 µV/V 45 µV/V 74 µV/V 0.16 mV/V 0.32 mV/V 0.93 mV/V	
(70 to 220) V	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz (40 Hz to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	0.82 mV/V + 12 mV 0.16 mV/V 57 µV/V 26 µV/V 54 µV/V 78 µV/V 0.16 mV/V 0.39 mV/V	
(70 to 200) V	(0.5 to 1) MHz	10 mV/V + 2.0 mV	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Measure ³ (cont)			
(220 to 700) V	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz	0.15 mV/V + 70 mV 0.16 mV/V 78 μV/V 34 μV/V 0.10 mV/V 0.39 mV/V	Fluke 8508A, Fluke 5790A
(700 to 1050) V	(1 to 10) Hz (10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz	0.15 mV/V + 70 mV 0.16 mV/V 79 μV/V 35 μV/V 0.10 mV/V 0.39 mV/V	Fluke 5790A wideband option
Wideband Up to 2.2 mV	(0.5 to 1.2) MHz (1.2 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	0.61 mV/V + 0.78 μV 0.97 mV/V + 0.78 μV 1.6 mV/V + 0.78 μV 2.9 mV/V + 0.78 μV 5.8 mV/V + 1.6 μV	Note: uncertainty of wideband is for flatness relative to 1 kHz
Wideband (2.2 to 7) mV	(0.5 to 1.2) MHz (1.2 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	0.58 mV/V + 0.78 μV 0.71 mV/V + 0.78 μV 1.1 mV/V + 0.78 μV 2.2 mV/V + 0.78 μV 3.4 mV/V + 0.78 μV	
Wideband (7 to 22) mV	(0.5 to 1.2) MHz (1.2 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	0.58 mV/V 0.71 mV/V 1.1 mV/V 2.2 mV/V 3.4 mV/V	
Wideband (22 to 70) mV	(0.5 to 1.2) MHz (1.2 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	0.45 mV/V 0.60 mV/V 1.1 mV/V 2.1 mV/V 3.3 mV/V	
Wideband (70 to 220) mV	(1 to 1.2) MHz (1.2 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	0.43 mV/V 0.60 mV/V 1.1 mV/V 2.1 mV/V 3.3 mV/V	
Wideband (220 to 700) mV	(1 to 1.2) MHz (1.2 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	0.43 mV/V 0.60 mV/V 1.1 mV/V 2.1 mV/V 3.2 mV/V	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Measure ³ (cont)			
Wideband (0.7 to 2.2) V	(1 to 1.2) MHz (1.2 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	0.43 mV/V 0.59 mV/V 1.1 mV/V 2.1 mV/V 3.2 mV/V	Fluke 5790A wideband option Note: uncertainty of wideband is for flatness relative to 1 kHz
Wideband (2.2 to 7) V	(1 to 1.2) MHz (1.2 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	0.43 mV/V 0.59 mV/V 1.1 mV/V 1.2 mV/V 2.7 mV/V	
AC Voltage – Generate ³			
Up to 2.2 mV	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	1.1 mV/V + 3.9 μV 0.86 mV/V + 3.9 μV 0.85 mV/V + 3.9 μV 1.4 mV/V + 3.9 μV 2.1 mV/V + 4.7 μV 3.5 mV/V + 9.3 μV 5.1 mV/V + 19 μV 6.5 mV/V + 19 μV	Fluke 5720A
(2.2 to 22) mV	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.30 mV/V + 3.9 μV 0.18 mV/V + 3.9 μV 0.16 mV/V + 3.9 μV 0.30 mV/V + 3.9 μV 0.65 mV/V + 4.7 μV 1.3 mV/V + 9.3 μV 1.6 mV/V + 19 μV 3.0 mV/V + 19 μV	
(22 to 220) mV	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.36 mV/V + 12 μV 91 μV/V + 6.2 μV 80 μV/V + 6.2 μV 0.19 mV/V + 6.2 μV 0.44 mV/V + 16 μV 0.73 mV/V + 19 μV 1.2 mV/V + 23 μV 2.4 mV/V + 47 μV	
(0.22 to 2.2) V	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz	0.49 mV/V + 39 μV 81 μV/V + 16 μV 46 μV/V + 7.8 μV 75 μV/V + 9.3 μV	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Generate ³ (cont)			
(0.22 to 2.2) V	(50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.14 mV/V + 31 μV 0.38 mV/V + 78 μV 0.88 mV/V + 0.19 mV 1.6 mV/V + 0.47 mV	Fluke 5720A
(2.2 to 22) V	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.37 mV/V + 0.39 mV 87 μV/V + 0.16 mV 45 μV/V + 54 μV 80 μV/V + 93 μV 0.11 mV/V + 0.19 mV 0.29 mV/V + 0.62 mV 0.91 mV/V + 1.9 mV 1.6 mV/V + 3.1 mV	
(22 to 220) V	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (0.5 to 1) MHz	0.43 mV/V + 3.9 mV 83 μV/V + 1.6 mV 54 μV/V + 0.54 mV 92 μV/V + 0.93 mV 0.15 mV/V + 2.3 mV 0.95 mV/V + 16 mV 4.3 mV/V + 39 mV 9.0 mV/V + 78 mV	
(220 to 1100) V	(15 to 50) Hz 50 Hz to 1 kHz	0.25 mV/V + 16 mV 71 μV/V + 3.1 mV	Fluke 5720A w/5725A
(220 to 1100) V	40 Hz to 1 kHz (1 to 20) kHz (20 to 30) kHz	77 μV/V + 3.1 mV 0.11 mV/V + 4.7 mV 0.32 mV/V + 8.5 mV	
(220 to 750) V	(30 to 50) kHz (50 to 100) kHz	0.34 mV/V + 8.5 mV 1.1 mV/V + 35 mV	
Wideband Option: Absolute			
Up to 1.1 mV	30 Hz to 500 kHz	6.4 mV/V + 1.6 μV	Fluke 5700-3
(1.1 to 3) mV	30 Hz to 500 kHz	5.5 mV/V + 2.3 μV	wideband
(3 to 11) mV	30 Hz to 500 kHz	5.5 mV/V + 6.2 μV	
(11 to 33) mV	30 Hz to 500 kHz	4.7 mV/V + 12 μV	
(33 to 110) mV	30 Hz to 500 kHz	4.7 mV/V + 31 μV	
(110 to 330) mV	30 Hz to 500 kHz	3.9 mV/V + 78 μV	
330 mV to 1.1 V	30 Hz to 500 kHz	3.9 mV/V + 0.31 mV	
(1.1 V to 3.5) V	30 Hz to 500 kHz	3.1 mV/V + 0.39 mV	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Generate ³ (cont)			
Wideband Option: Flatness Up to 1.1 mV	(10 to 30) Hz 30 Hz to 120 kHz (0.12 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	2.4 mV/V 0.98 mV/V 2.2 mV/V + 2.3 μV 3.7 mV/V + 2.3 μV 5.5 mV/V + 2.3 μV 13 mV/V + 12 μV	Fluke 5700-3 wideband
(1.1 to 3) mV	(10 to 30) Hz 30 Hz to 120 kHz (0.12 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	2.4 mV/V 0.94 mV/V 1.3 mV/V + 2.3 μV 2.2 mV/V + 2.3 μV 4.9 mV/V + 2.3 μV 13 mV/V + 2.3 μV	
(3 to 11) mV	(10 to 30) Hz 30 Hz to 120 kHz (0.12 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	2.4 mV/V 0.94 mV/V 1.1 mV/V + 2.3 μV 2 mV/V + 2.3 μV 3.9 mV/V + 2.3 μV 8.6 mV/V + 2.3 μV	
(11 to 33) mV	(10 to 30) Hz 30 Hz to 120 kHz (0.12 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	2.4 mV/V 0.91 mV/V 1 mV/V + 2.3 μV 2 mV/V + 2.3 μV 3.8 mV/V + 2.3 μV 8.5 mV/V + 2.3 μV	
(33 to 110) mV	(10 to 30) Hz 30 Hz to 120 kHz (0.12 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	2.4 mV/V 0.87 mV/V 1 mV/V + 2.3 μV 2 mV/V + 2.3 μV 3.8 mV/V + 2.3 μV 8.1 mV/V + 2.3 μV	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage – Generate ³ (cont)			
Wideband Option: Flatness (110 to 330) mV	(10 to 30) Hz 30 Hz to 120 kHz (0.12 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	2.3 mV/V 0.84 mV/V 1 mV/V + 2.3 μV 2 mV/V + 2.3 μV 3.8 mV/V + 2.3 μV 8.5 mV/V + 2.3 μV	Fluke 5700-3 wideband
330 mV to 1.1 V	(10 to 30) Hz 30 Hz to 120 kHz (0.12 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	2.3 mV/V 0.84 mV/V 1.0 mV/V + 2.3 μV 2.0 mV/V + 2.3 μV 3.8 mV/V + 2.3 μV 8.5 mV/V + 2.3 μV	
(1.1 to 3.5) V	(10 to 30) Hz 30 Hz to 120 kHz (0.12 to 2) MHz (2 to 10) MHz (10 to 20) MHz (20 to 30) MHz	2.3 mV/V 0.84 mV/V 1.0 mV/V + 2.3 μV 2.0 mV/V + 2.3 μV 3.8 mV/V + 2.3 μV 8.5 mV/V + 2.3 μV	
DC Power – Generate ³			
33 mV to 1020 V: (0.33 to 330) mA (0.33 to 3) A (3 to 20.5) A	0.01 mW to 337 W (0.01 to 3060) W (0.1 to 20 910) W	0.18 mW/W 0.18 mW/W 0.57 mW/W	Fluke 5520A

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC DC Difference –			
Fixed Points @ 2 mV	10 Hz	0.049 %	Fluke 5720A w/792A and 8508A
	20 Hz	0.048 %	
	40 Hz	0.048 %	
	100 Hz	0.050 %	
	1 kHz	0.050 %	
	10 kHz	0.048 %	
	20 kHz	0.049 %	
	50 kHz	0.047 %	
	100 kHz	0.064 %	
	300 kHz	0.079 %	
	500 kHz	0.093 %	
	800 kHz	0.11 %	
	1 MHz	0.11 %	
Fixed Points @ 6 mV	10 Hz	0.033 %	
	20 Hz	0.033 %	
	100 Hz	0.025 %	
	1 kHz	0.025 %	
	10 kHz	0.025 %	
	20 kHz	0.025 %	
	50 kHz	0.033 %	
	100 kHz	0.044 %	
	300 kHz	0.063 %	
	500 kHz	0.074 %	
	1 MHz	0.092 %	
Fixed Points @ 10 mV	10 Hz	0.013 %	
	20 Hz	0.011 %	
	40 Hz	0.012 %	
	100 Hz	0.011 %	
	1 kHz	0.011 %	
	10 kHz	0.012 %	
	20 kHz	0.011 %	
	50 kHz	0.013 %	
	100 kHz	0.022 %	
	300 kHz	0.033 %	
	500 kHz	0.043 %	
	800 kHz	0.049 %	
	1 MHz	0.055 %	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC DC Difference – (cont)			
Fixed Points @ 20 mV	10 Hz	0.015 %	Fluke 5720A w/792A and 8508A
	20 Hz	0.013 %	
	40 Hz	0.012 %	
	100 Hz	0.010 %	
	1 kHz	0.010 %	
	10 kHz	0.010 %	
	20 kHz	0.010 %	
	50 kHz	0.012 %	
	100 kHz	0.022 %	
	300 kHz	0.034 %	
	500 kHz	0.047 %	
	800 kHz	0.057 %	
	1 MHz	0.056 %	
	Fixed Points @ 60 mV	10 Hz	
20 Hz		0.0055 %	
40 Hz		0.0048 %	
100 Hz		0.004 %	
1 kHz		0.0025 %	
10 kHz		0.0025 %	
20 kHz		0.0037 %	
50 kHz		0.0037 %	
100 kHz		0.0061 %	
300 kHz		0.012 %	
500 kHz		0.018 %	
800 kHz		0.028 %	
1 MHz		0.028 %	
Fixed Points @ 200 mV		10 Hz	0.0040 %
	20 Hz	0.0032 %	
	40 Hz	0.0019 %	
	100 Hz	0.0018 %	
	1 kHz	0.0018 %	
	10 kHz	0.0019 %	
	20 kHz	0.0020 %	
	50 kHz	0.0031 %	
	100 kHz	0.0061 %	
	300 kHz	0.011 %	
	500 kHz	0.017 %	
	800 kHz	0.025 %	
	1 MHz	0.028 %	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC DC Difference – (cont)			
Fixed Points @ 600 mV	10 Hz	0.0039 %	Fluke 5720A w/792A and 8508A
	20 Hz	0.0028 %	
	40 Hz	0.0026 %	
	100 Hz	0.0011 %	
	1 kHz	0.000 93 %	
	10 kHz	0.000 93 %	
	20 kHz	0.0011 %	
	50 kHz	0.0011 %	
	100 kHz	0.0018 %	
	300 kHz	0.0039 %	
	500 kHz	0.0046 %	
	800 kHz	0.0086 %	
	1 MHz	0.0094 %	
Fixed Points @ 1 V & 2 V	10 Hz	0.0039 %	
	20 Hz	0.0031 %	
	40 Hz	0.0026 %	
	100 Hz	0.0011 %	
	1 kHz	0.0008 %	
	10 kHz	0.0013 %	
	20 kHz	0.0015 %	
	50 kHz	0.0016 %	
	100 kHz	0.0018 %	
	300 kHz	0.0031 %	
	500 kHz	0.0042 %	
	800 kHz	0.0053 %	
	1 MHz	0.0067 %	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC DC Difference – (cont)			
Fixed Points @ 6 V	10 Hz	0.0039 %	Fluke 5720A w/792A and 8508A
	20 Hz	0.0031 %	
	40 Hz	0.0026 %	
	100 Hz	0.0011 %	
	1 kHz	0.000 77 %	
	10 kHz	0.000 82 %	
	20 kHz	0.000 83 %	
	50 kHz	0.0011 %	
	100 kHz	0.0011 %	
	300 kHz	0.0032 %	
	500 kHz	0.0043 %	
	800 kHz	0.0047 %	
	1 MHz	0.0065 %	
Fixed Points @ 10 V & 20 V	10 Hz	0.0039 %	Fluke 5720A w/792A and 8508A
	20 Hz	0.0031 %	
	40 Hz	0.0026 %	
	100 Hz	0.0011 %	
	1 kHz	0.000 92 %	
	10 kHz	0.000 94 %	
	20 kHz	0.000 94 %	
	50 kHz	0.0011 %	
	100 kHz	0.0015 %	
	300 kHz	0.0031 %	
	500 kHz	0.0040 %	
	800 kHz	0.0054 %	
	1 MHz	0.0063 %	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC DC Difference – (cont)			
Fixed Points @ 60 V	10 Hz	0.0038 %	Fluke 5720A w/792A and 8508A
	20 Hz	0.0031 %	
	40 Hz	0.0028 %	
	100 Hz	0.0011 %	
	1 kHz	0.000 93 %	
	10 kHz	0.000 93 %	
	20 kHz	0.000 95 %	
	50 kHz	0.0013 %	
	100 kHz	0.0016 %	
	300 kHz	0.0047 %	
Fixed Points @ 100 V	10 Hz	0.0039 %	Fluke 5720A w/792A and 8508A
	20 Hz	0.0031 %	
	40 Hz	0.0028 %	
	100 Hz	0.0011 %	
	1 kHz	0.000 93 %	
	10 kHz	0.0010 %	
	20 kHz	0.0011 %	
	50 kHz	0.0014 %	
	100 kHz	0.0025 %	
	Fixed Points @ 200 V	10 Hz	
20 Hz		0.0032 %	
40 Hz		0.0029 %	
100 Hz		0.0014 %	
1 kHz		0.0012 %	
10 kHz		0.0012 %	
20 kHz		0.0012 %	
50 kHz		0.0016 %	
100 kHz		0.0025 %	
Fixed Points @ 600 V		10 Hz	0.0062 %
	20 Hz	0.0032 %	
	40 Hz	0.0029 %	
	100 Hz	0.0016 %	
	1 kHz	0.0013 %	
	10 kHz	0.0013 %	
	20 kHz	0.0013 %	
	50 kHz	0.002 %	
	100 kHz	0.0047 %	
	Fixed Points @ 1000 V	40 Hz	0.0032 %
100 Hz		0.0029 %	
1 kHz		0.0026 %	
10 kHz		0.0026 %	
20 kHz		0.0028 %	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments	
AC Current – Measure and Generate ³				
33 µA	(1 to <10) kHz (10 to <30) kHz 30 kHz	5.0 nA 5.1 nA 7.5 nA	5790A w/ metal film resistors	
190 µA	45 Hz to 10 kHz (>10 to 30) kHz	18 nA 22 nA		
200 µA	(10 to 40) Hz	26 nA		
329 µA	10 Hz 45 Hz to 10 kHz 30 kHz	76 nA 40 nA 26 nA		
1.9 mA	(1 to 20) kHz 30 kHz	0.19 µA 0.28 µA		
2.0 mA	(10 to 40) Hz	16 µA		
3.29 mA	10 Hz 45 Hz to 5 kHz (10 to 30) kHz	0.77 µA 0.40 µA 0.54 µA		
Up to 33 µA	(1 to 30) kHz	0.86 mA/A		Fluke 5720A characterized w/ 5790A and AC shunts
(33 to 200) µA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 10 kHz	82 µA/A 52 µA/A 49 µA/A		
(200 to 329.99) µA	10 Hz to 10 kHz (10 to 30) kHz	0.25 mA/A 0.34 mA/A		
330 µA	(1 to 30) kHz	0.29 mA/A		
(0.33 to 2) mA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 10 kHz (10 to 30) kHz	77 µA/A 69 µA/A 86 µA/A 0.16 mA/A		
(2 to 3.29) mA	(10 to 40) Hz 40 Hz to 10 kHz	0.21 mA/A 0.15 mA/A		
3.3 mA	(1 to 30) kHz	0.15 mA/A		
(3.3 to 20) mA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 10 kHz (10 to 30) kHz	64 µA/A 57 µA/A 58 µA/A 65 µA/A		
(5 to 26) mA	(30 to 50) kHz	94 µA/A		
(20 to 32.9) mA	(10 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 30) kHz	65 µA/A 65 µA/A 66 µA/A 0.23 mA/A		

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments	
AC Current – Measure and Generate ³ (cont)				
33 mA	(1 to 30) kHz	0.14 mA/A	Fluke 5720A characterized w/ 5790A and AC shunts	
(33 to 200) mA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 10 kHz (10 to 30) kHz	69 µA/A 57 µA/A 56 µA/A 0.33 mA/A		
(50 to 260) mA	(30 to 50) kHz	97 µA/A		
(200 to 329.99) mA	(10 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 30) kHz	0.10 mA/A 83 µA/A 70 µA/A 0.20 mA/A		
330 mA	(1 to 30) kHz	0.13 mA/A		
(125 to 650) mA	(30 to 50) kHz	0.10 mA/A		
(0.33 to 2) A	(10 to 40) Hz 40 Hz to 10 kHz	70 µA/A 68 µA/A		
(0.5 to 2.6) A	(10 to 20) kHz (20 to 50) kHz	68 µA/A 0.15 mA/A		Fluke 5520A characterized w/ 5790A and AC shunts
(2 to 2.99999) A	(10 to 45) Hz 45 Hz to 5 kHz (5 to 10) kHz	0.12 mA/A 0.18 mA/A 0.33 mA/A		
3.3 A	500 Hz to 5 kHz	0.17 mA/A		
(1.25 to 6) A	(5 to 20) kHz (20 to 50) kHz	73 µA/A 0.13 mA/A		
(3.3 to 10.9999) A	(10 to 500) Hz (0.5 to 1) kHz (1 to 5) kHz	0.13 mA/A 0.16 mA/A 0.37 mA/A		
(2.5 to 13) A	(5 to 20) kHz (20 to 50) kHz	82 µA/A 0.15 mA/A		

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Current – Measure and Generate ³ (cont)			
(10.9999 to 20.5) A	(10 to 500) Hz (0.5 to 1) kHz (1 to 5) kHz	0.19 mA/A 0.20 mA/A 0.49 mA/A	Fluke 5520A characterized w/ 5790A and AC shunts
(5 to 20) A	(5 to 20) kHz (20 to 50) kHz	0.18 mA/A 0.24 mA/A	
(20 to 30) A (30 to 50) A (50 to 80) A	60 Hz 60 Hz 60 Hz	0.32 mA/A 0.25 mA/A 0.25 mA/A	Holt HCS-1 w/ Fluke 5790A
(16.5 to 149.999) A	(45 to 65) Hz (65 to 440) Hz	0.39 % 0.84 %	Fluke 5520A w/coil
(150 to 1025) A	(45 to 65) Hz (65 to 440) Hz	0.38 % 0.84 %	
AC Current – Generate ³			
Up to 220 µA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.48 mA/A + 16 nA 0.28 mA/A + 9.3 nA 0.25 mA/A + 7.8 nA 0.36 mA/A + 12 nA 1.0 mA/A + 62 nA 12 mA/A + 0.31 µA	Fluke 5720A Fluke 5520A
(0.22 to 2.2) mA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.43 mA/A + 39 nA 0.21 mA/A + 31 nA 0.15 mA/A + 31 nA 0.24 mA/A + 0.10 µA 1.0 mA/A + 0.62 µA 7.8 mA/A + 0.47 µA	Fluke 5720A Fluke 5520A
(2.2 to 22) mA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.42 mA/A + 0.39 µA 0.20 mA/A + 0.31 µA 0.14 mA/A + 0.31 µA 0.21 mA/A + 0.54 µA 1.0 mA/A + 4.7 µA 3.4 mA/A + 3.1 µA	Fluke 5720A Fluke 5520A

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Current – Generate ³ (cont)			
(22 to 220) mA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 1 kHz	0.42 mA/A + 3.9 µA 0.19 mA/A + 3.1 µA 0.13 mA/A + 2.3 µA	Fluke 5720A
(22 to 220) mA	(1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.20 mA/A + 3.1 µA 1.0 mA/A + 9.3 µA 3.1 mA/A + 0.16 mA	
(0.22 to 2.2) A	20 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.33 mA/A + 31 µA 0.45 mA/A + 78 µA 6.2 mA/A + 0.16 mA	
(2.2 to 11) A	40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.41 mA/A + 0.13 mA 0.76 mA/A + 0.29 mA 2.9 mA/A + 0.58 mA	
AC Current – Measure ³			
Up to 199.99 µA	(1 to 10) Hz 10 Hz to 10 kHz (10 to 30) kHz (30 to 100) kHz	0.58 mA/A + 20 nA 0.52 mA/A + 20 nA 0.65 mA/A + 20 nA 3.1 mA/A + 20 nA	Fluke 8508A
(0.2 to 1.9999) mA	(1 to 10) Hz 10 Hz to 10 kHz (10 to 30) kHz (30 to 100) kHz	0.42 mA/A + 0.20 µA 0.31 mA/A + 0.20 µA 0.63 mA/A + 0.20 µA 3.1 mA/A + 0.20 µA	
(2 to 19.999) mA	(1 to 10) Hz 10 Hz to 10 kHz (10 to 30) kHz (30 to 100) kHz	0.41 mA/A + 2.0 µA 0.31 mA/A + 2.0 µA 0.63 mA/A + 2.0 µA 3.7 mA/A + 2.0 µA	
(20 to 199.99) mA	(1 to 10) Hz 10 Hz to 10 kHz (10 to 30) kHz	0.42 mA/A + 20 µA 0.3 mA/A + 20 µA 0.68 mA/A + 20 µA	
(0.2 to 1.9999) A	(1 to 10) Hz 10 Hz to 10 kHz (10 to 30) kHz	0.57 mA/A + 0.20 mA 0.85 mA/A + 0.20 mA 2.4 mA/A + 0.20 mA	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Current – Measure ³ (cont) (2 to 19.999) A	10 Hz to 2 kHz (2 to 10) kHz	0.74 mA/A + 0.20 mA 2.1 mA/A + 0.20 mA	Fluke 8508A
AC Power – Generate ³ (45 to 65) Hz, PF = 1 (33 to 330) mV: (3.3 to 9) mA (9 to 33) mA (33 to 90) mA (90 to 330) mA (330 to 900) mA 900 mA to 2.2 A (2.2 to 4.5) A (4.5 to 20) A 330 mV to 1020 V: (3.3 to 9) mA (9 to 33) mA (33 to 90) mA (90 to 330) mA (330 to 900) mA 900 mA to 2.2 A (2.2 to 4.5) A (4.5 to 20) A	(0.1089 to 2.97) mW (0.297 to 10.89) mW (1.089 to 29.7) mW (2.97 to 108.9) mW (10.89 to 297) mW (29.7 to 726) mW 72.6 mW to 1.485 W 148.5 mW to 6.76 W 1.089 mW to 9.179 W 2.97 mW to 33.6 W 10.89 mW to 91.8 W 29.7 mW to 336.6 W 108.9 mW to 918 W 297 mW to 2244 W 72.6 mW to 4590 W 1.49 W to 20910 W	2.3 mW/W 1.4 mW/W 1.1 mW/W 1.3 mW/W 1.0 mW/W 1.0 mW/W 1.1 mW/W 1.0 mW/W 3.4 mW/W 0.65 mW/W 0.94 mW/W 0.62 mW/W 0.88 mW/W 0.71 mW/W 0.94 mW/W 0.77 mW/W	Fluke 5520A
AC Level Flatness – Measure, Fixed Points 0.45 V	10 Hz 100 Hz 10 kHz 30 kHz 100 kHz 300 kHz 1 MHz 3 MHz 8 MHz 10 MHz 20 MHz 30 MHz 50 MHz 70 MHz	0.013 % 0.0083 % 0.0077 % 0.0081 % 0.0087 % 0.011 % 0.017 % 0.031 % 0.045 % 0.057 % 0.080 % 0.10 % 0.18 % 0.30 %	(0.45, 1 and 3) V thermal converters w/ HP 34420A and AFG3101C

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Level Flatness – Measure, Fixed Points (cont)			
0.45 V	80 MHz	0.32 %	(0.45, 1 and 3) V thermal converters w/ HP 34420A and AFG3101C
	100 MHz	0.39 %	
1.0 V	10 Hz	0.018 %	
	100 Hz	0.010 %	
	10 kHz	0.0079 %	
	30 kHz	0.0082 %	
	100 kHz	0.0091 %	
	300 kHz	0.012 %	
	1 MHz	0.016 %	
	3 MHz	0.029 %	
	8 MHz	0.066 %	
	10 MHz	0.059 %	
	20 MHz	0.097 %	
	30 MHz	0.13 %	
	50 MHz	0.25 %	
	70 MHz	0.35 %	
80 MHz	0.45 %		
100 MHz	0.44 %		
3.0 V	10 Hz	0.014 %	
	100 Hz	0.0077 %	
	1 kHz	0.0080 %	
	10 kHz	0.0073 %	
	30 kHz	0.0073 %	
	100 kHz	0.0071 %	
	300 kHz	0.0087 %	
	1 MHz	0.012 %	
	3 MHz	0.034 %	
	8 MHz	0.054 %	
	10 MHz	0.059 %	
	20 MHz	0.099 %	
	30 MHz	0.12 %	
	50 MHz	0.20 %	
70 MHz	0.23 %		
80 MHz	0.25 %		
100 MHz	0.55 %		

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Resistance – Generate ³	(0 to 10.9999) Ω (11 to 32.9999) Ω (33 to 109.9999) Ω (110 to 329.9999) Ω (0.33 to 1.099 999) kΩ (1.1 to 3.299 999) kΩ (3.3 to 10.999 99) kΩ (11 to 32.999 99) kΩ (33 to 109.9999) kΩ (110 to 329.9999) kΩ (0.33 to 1.099 999) MΩ (1.1 to 3.299 999) MΩ (3.3 to 10.999 99) MΩ (11 to 32.999 99) MΩ (33 to 109.9999) MΩ (110 to 329.9999) MΩ (330 to 1100) MΩ	46 μΩ/Ω + 0.78 mΩ 52 μΩ/Ω + 1.2 mΩ 34 μΩ/Ω + 1.1 mΩ 29 μΩ/Ω + 1.6 mΩ 27 μΩ/Ω + 1.6 mΩ 28 μΩ/Ω + 16 mΩ 27 μΩ/Ω + 16 mΩ 29 μΩ/Ω + 0.16 Ω 27 μΩ/Ω + 0.16 Ω 25 μΩ/Ω + 1.6 Ω 26 μΩ/Ω + 1.6 Ω 49 μΩ/Ω + 23 Ω 0.11 mΩ/Ω + 39 Ω 0.20 mΩ/Ω + 1.9 kΩ 0.40 mΩ/Ω + 2.3 kΩ 2.4 mΩ/Ω + 78 kΩ 12 mΩ/Ω + 0.39 MΩ	Fluke 5520A
DC Resistance – Generate, Fixed Points	0.1 Ω 1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 1 GΩ	7.6 μΩ/Ω 1.8 μΩ/Ω 3.1 μΩ/Ω 2.6 μΩ/Ω 3.2 μΩ/Ω 1.9 μΩ/Ω 12 μΩ/Ω 4.0 μΩ/Ω 7.0 μΩ/Ω 15 μΩ/Ω 0.16 mΩ/Ω	Standard resistors Fluke 8508A – 7000K
Resistance – Measure and Generate ³	0 Ω (2 to 20) MΩ (20 to 200) MΩ 200 MΩ to 2 GΩ (2 to 20) GΩ (20 to 200) GΩ 200 GΩ to 2 TΩ (2 to 20) TΩ (20 to 200) TΩ	6.4 μΩ 0.20 μΩ 0.30 mΩ/Ω 0.19 mΩ/Ω 0.26 mΩ/Ω 0.73 mΩ/Ω 0.97 mΩ/Ω 1.3 mΩ/Ω 4.1 mΩ/Ω 7.5 mΩ/Ω	Fluke 8508A w/: open short Guildline 6520A

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
DC Resistance – Measure and Generate	(0 to 0.01) mΩ (0.01 to 0.1) mΩ (0.1 to 1) mΩ (0.001 to 0.1) Ω	3.5 μΩ 0.020 % 90 μΩ/Ω 0.71 μΩ/Ω	MI 6010B/2000 and standard resistors
	(0.1 to 10) Ω (>10 to 100) Ω (>100 to 1000) Ω (>1 to 10) kΩ (>10 to 100) kΩ >100 kΩ to 1 MΩ (>1 to 10) MΩ (>10 to 100) MΩ 100 MΩ to 1 GΩ	0.68 μΩ/Ω 0.80 μΩ/Ω 1.0 μΩ/Ω 1.2 μΩ/Ω 1.4 μΩ/Ω 3.5 μΩ/Ω 4.0 μΩ/Ω 15 μΩ/Ω 19 μΩ/Ω	MI 6010B and standard resistors
DC Resistance – Measure ³	(0 to 2) Ω (2 to 20) Ω (20 to 200) Ω (0.2 to 2) kΩ (2 to 20) kΩ (2 to 200) kΩ (0.2 to 2) MΩ (2 to 20) MΩ (20 to 200) MΩ (0.2 to 2) GΩ (2 to 20) GΩ	21 μΩ/Ω + 4.0 μΩ 15 μΩ/Ω + 14 μΩ 12 μΩ/Ω + 50 μΩ 11 μΩ/Ω + 0.50 mΩ 9.2 μΩ/Ω + 5.0 mΩ 12 μΩ/Ω + 50 mΩ 17 μΩ/Ω + 1.0 Ω 20 μΩ/Ω + 10 Ω 77 μΩ/Ω + 1.00 kΩ 0.22 mΩ/Ω + 0.10 MΩ 1.5 mΩ/Ω + 10 MΩ	Fluke 8508A: true ohms mode 8508A normal mode 8508A high voltage mode

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Capacitance – Generate ³			General radio:
0.001 pF	1 kHz	0.89 mF/F	1403V
0.01 pF	1 kHz	0.51 mF/F	1403R
0.1 pF	1 kHz	0.50 mF/F	1403N
1 pF	1 kHz	24 μF/F	1403K
10 pF	1 kHz	24 μF/F	1404C
100 pF	1 kHz	24 μF/F	1404B
1 nF	1 kHz	24 μF/F	1404A
10 nF	1 kHz	0.14 mF/F	1409L
100 nF	1 kHz	0.14 mF/F	509T
1 μF	1 kHz	0.14 mF/F	509Y
(220 to 399.9) pF	10 Hz to 10 kHz	5.2 mF/F + 7.8 pF	Fluke 5520A
(0.4 to 1.0999) nF	10 Hz to 10 kHz	4.2 mF/F + 7.8 pF	
(1.1 to 3.2999) nF	10 Hz to 3 kHz	4.1 mF/F + 7.8 pF	
(3.3 to 10.9999) nF	(0.01 to 1) kHz	2.4 mF/F + 7.8 pF	
(11 to 32.9999) nF	(0.01 to 1) kHz	2.3 mF/F + 78 pF	
(33 to 109.999) nF	(0.01 to 1) kHz	2.4 mF/F + 78 pF	
(110 to 329.999) nF	(0.01 to 1) kHz	2.3 mF/F + 0.23 nF	
(0.33 to 1.099 99) μF	(10 to 600) Hz	2.4 mF/F + 0.78 nF	
(1.1 to 3.29999) μF	(10 to 300) Hz	2.3 mF/F + 2.3 nF	
(3.3 to 10.9999) μF	(10 to 150) Hz	2.4 mF/F + 7.8 nF	
(11 to 32.9999) μF	(10 to 120) Hz	3.4 mF/F + 23 nF	
(33 to 109.999) μF	(10 to 80) Hz	3.8 mF/F + 78 nF	
(110 to 329.999) μF	(0 to 50) Hz	3.5 mF/F + 0.23 μF	
(0.33 to 1.099 99) mF	(0 to 20) Hz	3.5 mF/F + 0.78 μF	
(1.1 to 3.299 99) mF	(0 to 6) Hz	3.5 mF/F + 2.3 μF	
(3.3 to 10.9999) mF	(0 to 2) Hz	3.5 mF/F + 7.8 μF	
(11 to 32.9999) mF	(0 to 0.6) Hz	5.8 mF/F + 23 μF	
(33 to 110) mF	(0 to 0.2) Hz	8.5 mF/F + 78 μF	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
<p>Capacitance – Measure³</p> <p>Up to 10 pF (10 to 100) pF 100 pF to 1 nF (1 to 10) nF (10 to 100) nF (0.1 to 1) μF</p> <p>(0.1 to 100) pF 100 pF to 25 μF (25 to 100) μF 100 μF to 1 mF</p> <p>Up to 329.999 μF (0.33 to 1.099 99) mF (1.1 to 3.29999) mF (3.3 to 10.9999) mF (11 to 32.9999) mF (33 to 110) mF</p>	<p>1 kHz 1 kHz 1 kHz 1 kHz 1 kHz 1 kHz</p> <p>12 Hz to 100 kHz</p> <p>DC DC DC DC DC DC</p>	<p>6.9 μF/F 6.0 μF/F 7.1 μF/F 18 μF/F 41 μF/F 80 μF/F</p> <p>0.63 mF/F 0.52 mF/F 1.3 mF/F 10 mF/F</p> <p>0.24 F/F 0.14 mF/F 0.12 mF/F 0.13 mF/F 0.16 mF/F 0.32 mF/F</p>	<p>Andeen Hagerling 2500A</p> <p>GenRad 1689 (CMC valid @ 1 kHz only)</p> <p>Fluke 8508A w/ 5790A</p>
<p>Inductance – Generate³</p> <p>100 μH 1 mH 10 mH 100 mH 1 H 10 H</p>	<p>100 Hz to 1 kHz 100 Hz to 1 kHz 100 Hz to 1 kHz 100 Hz to 1 kHz 100 Hz to 1 kHz 100 Hz to 1 kHz</p>	<p>0.26 % 0.024 % 0.042 % 0.044 % 0.40 % 0.066 %</p>	<p>General Radio 1482</p>
<p>Inductance – Measure³</p> <p>100 μH to 10 H</p> <p>Fixed:</p> <p>100 μH 1 mH 10 mH 100 mH 1 H 10 H</p>	<p>12 Hz to 100 kHz</p> <p>100 Hz to 1 kHz 100 Hz to 1 kHz 100 Hz to 1 kHz 100 Hz to 1 kHz 100 Hz to 1 kHz 100 Hz to 1 kHz</p>	<p>1.2 mH/H</p> <p>0.26 % 0.024 % 0.042 % 0.044 % 0.40 % 0.066 %</p>	<p>GenRad 1689 (CMC valid @ 1 kHz only)</p> <p>GenRad 1689 w/ GenRad 1482</p>

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
Sine Wave Flatness ³ – Absolute Power (10 to 100) mV 100 mV to 5.5 V	50 kHz to 6 GHz 50 kHz to 6 GHz	4.2 % 2.6 %	Agilent E4418B and E9304A, Fluke 5790A
Sine Wave Flatness ³ – Relative Power (5 to 40) mV (5 to 40) mV 40 mV to 5.5 V 40 mV to 5.5 V	(50 to 100) MHz 100 MHz to 1 GHz (50 to 100) MHz 100 MHz to 1 GHz	2.6 % 4.2 % 2.5 % 4.2 %	Agilent E4418B and E9304A, Fluke 5790A
Phase – Measure ³ (0 to 360)°	(5 to 100) Hz 100 Hz to 1 kHz (1 to 30) kHz	0.035° + (0.0058° * <i>f</i>) 0.039° + (0.0058° * <i>f</i>) 0.068° + (0.0058° * <i>f</i>)	North Atlantic 2000 <i>f</i> is frequency in kHz
Rise Time – Measure ³	16.8 ps to 1.2 ns Positive/Negative	5.2 ps	TEK TDS 8200 w/80E03
Leveled Sine Wave – Harmonic Amplitude	(-30 to -80) dBm 100 kHz to 5 GHz	2.3 dB	HP 8596E

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Oscilloscopes			
Amplitude – DC ³ 50 Ω 1 MΩ	(-6.6 to 6.6) V (-130 to 130) V	1.9 mV/V + 24 μV 0.37 mV/V + 24 μV	Fluke 5520A/SC1100
Amplitude – Square Wave ³ 50 Ω	±1 mV to ±6.6 V _{p-p} 10 Hz to 10 kHz	1.9 mV/V + 24 μV	
1 MΩ	±1 mV to ±130 V _{p-p} 10 Hz to 1 kHz	0.78 mV/V + 24 μV	
Leveled Sine Wave ³ (ref 50 kHz) [5 mV to 5.5 V] _{p-p}	50 kHz to 100 MHz (100 to 300) MHz (300 to 600) MHz 600 MHz to 1.1 GHz	3.0 % + 78 μV 3.4 % + 78 μV 4.3 % + 78 μV 4.9 % + 78 μV	
Time Marker ³	5 s to 50 ms 20 ms to 1 ns Non Cardinal Points	7.8 ms/s + 0.0019 % 6.2 μs/s 39 μs/s	
Rise Time ³	> 300 ps	33 ps	
Electrical Simulation of RTD Indicators ³ –			
Pt 385 (100 Ω)	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C (630 to 800) °C	0.085 °C 0.12 °C 0.12 °C 0.11 °C 0.097 °C 0.11 °C 0.20 °C	Fluke 5520A
Pt 3926 (100 Ω)	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C	0.064 °C 0.076 °C 0.075 °C 0.089 °C 0.095 °C 0.17 °C	
Pt 3916 (100 Ω)	(-200 to -190) °C (-190 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.21 °C 0.060 °C 0.068 °C 0.070 °C 0.077 °C 0.084 °C 0.090 °C 0.13 °C 0.19 °C	

Parameter/Equipment	Range	CMC ² (±)	Comments
Electrical Simulation of RTD Indicators ³ – (cont)			
Pt 385 (200 Ω)	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.041 °C 0.043 °C 0.044 °C 0.051 °C 0.098 °C 0.11 °C 0.11 °C 0.13 °C	Fluke 5520A
Pt 385, 500 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.036 °C 0.043 °C 0.044 °C 0.051 °C 0.066 °C 0.066 °C 0.073 °C 0.088 °C	
Pt 385, 1000 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.029 °C 0.029 °C 0.036 °C 0.042 °C 0.050 °C 0.18 °C 0.057 °C 0.18 °C	
PtNi 385, 120 Ω (Ni120)	(-80 to 0) °C (0 to 100) °C (100 to 260) °C	0.081 °C 0.11 °C 0.11 °C	
Cu 427, 10 Ω	(-100 to 260) °C	0.69 °C	

III. Mechanical

Parameter/Equipment	Range	CMC ^{2, 8} (±)	Comments
Mass	Up to 1 mg	1.1 µg	UMX5
	(1 to 2) mg	1.1 µg	UMX5
	(2 to 5) mg	1.2 µg	UMX5
	(5 to 10) mg	1.4 µg	UMX5
	(10 to 20) mg	1.4 µg	UMX5
	(20 to 50) mg	1.5 µg	UMX5
	(50 to 100) mg	1.8 µg	UMX5
	(100 to 200) mg	1.5 µg	UMX5
	(200 to 500) mg	2.1 µg	UMX5
	(0.5 to 1) g	2.2 µg	UMX5
	(1 to 2) g	2.5 µg	UMX5
	(2 to 3) g	2.9 µg	UMX5
	(3 to 5) g	4.0 µg	UMX5
	(5 to 10) g	10 µg	AX106
	(10 to 50) g	19 µg	AX106
	(50 to 100) g	36 µg	AX106
	(100 to 200) g	50 µg	AT1005
	(200 to 300) g	58 µg	AT1005
	(300 to 500) g	73 µg	AT1005
	(0.5 to 1) kg	0.12 mg	AT1005
	(1 to 2) kg	0.47 mg	PR2004
	(2 to 3) kg	1.8 mg	XPE26003LC
	(3 to 5) kg	1.0 mg	XPE26003LC
	(5 to 10) kg	1.7 mg	XPE26003LC
	(10 to 20) kg	8.7 mg	XPE26003LC
	(20 to 26) kg	13 mg	XPE26003LC
Fixed Points	1 mg	1.1 µg	Master weights
	2 mg	1.1 µg	
	3 mg	1.1 µg	
	5 mg	1.2 µg	
	10 mg	1.4 µg	
	20 mg	1.4 µg	
	30 mg	1.5 µg	
	50 mg	1.5 µg	
	100 mg	1.8 µg	
	200 mg	1.5 µg	
	300 mg	1.7 µg	
	500 mg	2.1 µg	
	1 g	2.2 µg	
	2 g	2.5 µg	
	3 g	2.9 µg	
5 g	4.0 µg		

Parameter/Equipment	Range	CMC ^{2, 8} (±)	Comments
Mass, Fixed Points (cont)	10 g 20 g 30 g 50 g 100 g 200 g 300 g 500 g 1 kg 2 kg 3 kg 5 kg 10 kg 20 kg	10 µg 15 µg 12 µg 19 µg 36 µg 50 µg 58 µg 73 µg 0.12 mg 0.47 mg 1.8 mg 1.0 mg 1.7 mg 8.7 mg	Master weights
Scales and Balances ³	Up to 2 mg (2 to 10) mg (10 to 20) mg (20 to 30) mg (30 to 50) mg (50 to 300) mg (300 to 500) mg (0.5 to 1) g (1 to 2) g (2 to 3) g (3 to 5) g (5 to 10) g (10 to 20) g (20 to 30) g (30 to 50) g (50 to 100) g (100 to 200) g (200 to 300) g (300 to 500) g (0.5 to 1) kg (1 to 2) kg (2 to 3) kg (3 to 5) kg (5 to 10) kg (10 to 26) kg	1.7 µg 1.8 µg 1.9 µg 1.8 µg 1.7 µg 1.8 µg 1.9 µg 2.9 µg 3.3 µg 3.0 µg 3.8 µg 12 µg 17 µg 18 µg 16 µg 30 µg 71 µg 89 µg 0.10 mg 0.19 mg 0.91 mg 6.6 mg 3.0 mg 3.8 mg 13 mg	Master weights

Parameter/Equipment	Range	CMC ^{2, 6, 8} (±)	Comments
Scales and Balances ³ (cont)	(0 to 0.5) lb (>0.5 to 10) lb (>10 to 25) lb (>25 to 50) lb (>50 to 100) lb (>100 to 250) lb (>250 to 500) lb (>500 to 1000) lb	0.13 g (0.00029 lb) 0.54 g (0.0012 lb) 1.1 g (0.0023 lb) 2.7 g (0.0059 lb) 5.5 g (0.012 lb) 13 g (0.029 lb) 27 g (0.059 lb) 110 g (0.230 lb)	Class F weights
Torque Wrenches ³	(40 to 400) in·ozf (5 to 50) in·lbf (40 to 400) in·lbf (100 to 1000) in·lbf (20 to 250) ft·lbf (60 to 600) ft·lbf (200 to 2000) ft·lbf	0.32 % 0.30 % 0.31 % 0.46 % 0.43 % 0.65 % 0.43 % + 1 LSD	CDI 4-in-1 2000-400-02 torque transducer CDI 2000-12-02 CDI 2000-14-02
Force Measuring Instruments	0.2 ozf to 500 lbf	0.041 %	Class F weights Morehouse Instruments 63300 force calibrator
Pressure ³ –			
Hydraulic	(Up to 12 500) psi (700 to 30 000) psi	0.0035 % 0.021 %	Ruska 2400HL PG 7300
Pneumatic	(0.2 to 1000) psi (0 to 3) in·H ₂ O (3 to 30) in·H ₂ O	0.0020 % 0.012 % 0.010 %	Ruska 2465 /Autoprompt Fluke 7250LP
Vacuum Gages ³	(0.01 to 0.1) Torr (>0.1 to 1) Torr (>1 to 10) Torr (>10 to 100) Torr (>100 to 1000) Torr	0.11 % 0.10 % 0.059 % 0.061 % 0.10 %	MKS 690 Baratron

IV. Thermodynamic

Parameter/Equipment	Range	CMC ^{2,8} (±)	Comments
Temperature – Measure ³	(-196 to 420) °C (420 to 660) °C (660 to 950) °C	0.0075 °C 0.016 °C 0.066 °C	Hart 1590 w/ SPRT Hart 1590 w/5699 Hart 1590 w/5624
Temperature – Measuring Equipment	(-200 to 420) °C (420 to 660) °C (660 to 950) °C	0.011 °C 0.060 °C 0.35 °C	Bath with Hart 1590 w/ SPRT
Relative Humidity ³	(5 to 95) % RH	0.31 % RH	Thunder Scientific 9000

V. Time & Frequency

Parameter/Equipment	Range	CMC ^{2,6,8} (±)	Comments
Frequency ³ – Measuring Equipment	10 MHz 0.01 Hz to 2 MHz	0.58 nHz/Hz + 0.60R 1.9 µHz/Hz + 5.0 µHz	Datum 9390 Fluke 5520A
Measure	10 MHz	0.59 nHz/Hz	Datum 9390 and Agilent 53132A

¹ This laboratory offers commercial calibration service and field calibration service.

² Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

- ³ Field calibration service is available for this calibration and this laboratory meets A2LA *R104 – General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.
- ⁴ The stated measured values are determined using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure or generate the measured value in the ranges indicated. CMC's are expressed as either a specific value that covers the full range or as a percent or fraction of the reading plus a fixed floor specification.
- ⁵ In the statement of CMC, *L* is the numerical value of the nominal length of the device measured in inches. In the statement of CMC, *R* is the resolution of the unit under test.
- ⁶ In the statement of CMC, percentages are to be read as percent of reading unless otherwise noted.
- ⁷ This scope meets A2LA's *P112 Flexible Scope Policy*.
- ⁸ The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.



Accredited Laboratory

A2LA has accredited

TEKTRONIX, INC.

Rome, NY

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSLI Z540-1-1994 and the requirements of ANSI/NCSLI Z540.3-2006 and R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).



Presented this 23rd day of July 2020.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2357.08
Valid to June 30, 2022

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.