



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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CALIBRATION

Valid to: February 9, 2013

Certificate Number: AC-1375

I. Electromagnetic - DC/Low Frequency

PARAMETER / EQUIPMENT	RANGE	CALIBRATION & MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY(±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
DC Voltage - Source	Up to 220 mV 220 mV to 2.2 V (2.2 to 11) V (11 to 22) V (22 to 220) V 220 V to 1.1 kV	8 µV/V + 400 nV 5.5 µV/V + 700 nV 4 µV/V + 2.5 µV 4 µV/V + 4 µV 5.5 µV/V + 40 µV 7 µV/V + 500 µV	Fluke 5720A/ Fluke 5700A/EP	OEM and GIDEP Sourced Calibration Procedures
Fixed Values	(1 and 1.018) V 10 V	3.5 µV/V 1.4 µV/V	Fluke 732A	
DC Voltage - Measure	Up to 100 mV 100 mV to 1 V (1 to 10) V (10 to 100) V 100 V to 1 kV (1.1 to 20) kV (20 to 35) kV (35 to 40) kV	5.5 µV/V + 300 nV 5.1 µV/V + 300 nV 4.6 µV/V + 500 nV 6.5 µV/V + 30 µV 16.5 µV/V + 100 µV 23 mV/V 14.4 mV/V 23 mV/V	HP 3458A Opt 002 Fluke 80K40 with HP 3458A	
DC Current - Source	200 nA to 220 µA 220 µA to 2.2 mA (2.2 to 22) mA (22 to 220) mA 220 mA to 2.2 A (2.2 to 11) A	40 µA/A + 8 nA 35 µA/A + 8 nA 35 µA/A + 80 nA 60 µA/A + 800 µA 80 µA/A + 25 µA 360 µA/A + 480 µA	Fluke 5720A/ Fluke 5700A/EP Fluke 5720A/ Fluke 5700A/EP with Fluke 5725A	



PARAMETER / EQUIPMENT	RANGE	CALIBRATION & MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY(±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
DC Resistance - Source (cont.) Fixed Values	(1 and 50) mΩ 1 Ω 1.9 Ω 10 Ω 19 Ω 100 Ω 190 Ω 1 kΩ 1.9 kΩ 10 kΩ 19 kΩ 100 kΩ 190 kΩ 1 MΩ 1.9 MΩ 10 MΩ 19 MΩ 100 MΩ	400 μΩ/Ω 95 μΩ 181 μΩ 230 μΩ 437 μΩ 1 mΩ 1.9 mΩ 8.5 mΩ 16.2 mΩ 85 mΩ 162 mΩ 1.1 Ω 2.1 Ω 20 Ω 38 Ω 400 Ω 893 Ω 10 kΩ	Weston 315 Shunts Fluke 5700A	OEM and GIDEP Sourced Calibration Procedures
AC Voltage - Source	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 500 kHz to 1 MHz (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 500 kHz to 1 MHz	240 μV/V + 4 μV 90 μV/V + 4 μV 80 μV/V + 4 μV 200 μV/V + 4 μV 500 μV/V + 5 μV 1.1 mV/V + 10 μV 1.4 mV/V + 20 μV 2.7 mV/V + 20 μV 240 μV/V + 4 μV 90 μV/V + 4 μV 80 μV/V + 4 μV 200 μV/V + 4 μV 500 μV/V + 5 μV 1.1 mV/V + 10 μV 1.4 mV/V + 20 μV 2.7 mV/V + 20 μV	Fluke 5720A/ Fluke 5700A/EP	



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AC Voltage - Measure	<p>(1 to 10) mV (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz</p> <p>(10 to 100) mV (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz (1 to 2) MHz</p> <p>100 mV to 1 V (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz (1 to 2) MHz</p> <p>(1 to 10) V (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz (1 to 2) MHz</p> <p>(10 to 100) V (1 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz</p>	<p>300 μV/V + 3 μV 200 μV/V + 2 μV 300 μV/V + 2 μV 1.2 mV/V + 2 μV 5.8 mV/V + 2 μV 46 mV/V + 2 μV</p> <p>80 μV/V + 4 μV 80 μV/V + 2 μV 200 μV/V + 2 μV 300 μV/V + 2 μV 900 μV/V + 2 μV 3.5 mV/V + 10 μV 12 mV/V + 10 μV 17 mV/V + 10 μV</p> <p>80 μV/V + 40 μV 80 μV/V + 20 μV 200 μV/V + 20 μV 300 μV/V + 20 μV 900 μV/V + 20 μV 3.5 mV/V + 100 μV 12 mV/V + 100 μV 17 mV/V + 100 μV</p> <p>80 μV/V + 400 μV 80 μV/V + 200 μV 200 μV/V + 200 μV 300 μV/V + 200 μV 900 μV/V + 200 μV 3.5 mV/V + 1 mV 12 mV/V + 1 mV 17 mV/V + 1 mV</p> <p>200 μV/V + 4 mV 200 μV/V + 2 mV 400 μV/V + 2 mV 1.4 mV/V + 2 mV 4.6 mV/V + 10 mV 17 mV/V + 10 mV</p>	HP 3458A Opt 002	OEM and GIDEP Sourced Calibration Procedures

PARAMETER / EQUIPMENT	RANGE	CALIBRATION & MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY(±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
AC Voltage - Measure (cont.)	(100 to 700) V (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz	500 $\mu\text{V/V} + 40 \text{ mV}$ 500 $\mu\text{V/V} + 20 \text{ mV}$ 700 $\mu\text{V/V} + 20 \text{ mV}$ 1.4 $\text{mV/V} + 20 \text{ mV}$ 3.5 $\text{mV/V} + 20 \text{ mV}$	HP 3458A Opt 002	
AC Current - Source	(9 to 220) μA (10 to 20) Hz (20 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz 220 μA 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 (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 (22 to 220) mA (10 to 20) Hz (20 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz 220 mA to 2.2 A 20 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (2.2 to 11 A) 40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	250 $\mu\text{A/A} + 16 \text{ nA}$ 160 $\mu\text{A/A} + 10 \text{ nA}$ 120 $\mu\text{A/A} + 8 \text{ nA}$ 280 $\mu\text{A/A} + 12 \text{ nA}$ 1.1 $\text{mA/A} + 65 \text{ nA}$ 250 $\mu\text{A/A} + 40 \text{ nA}$ 160 $\mu\text{A/A} + 35 \text{ nA}$ 120 $\mu\text{A/A} + 35 \text{ nA}$ 200 $\mu\text{A/A} + 110 \text{ nA}$ 1.1 $\text{mA/A} + 650 \text{ nA}$ 250 $\mu\text{A/A} + 400 \text{ nA}$ 160 $\mu\text{A/A} + 350 \text{ nA}$ 120 $\mu\text{A/A} + 350 \text{ nA}$ 200 $\mu\text{A/A} + 600 \text{ nA}$ 1.1 $\text{mA/A} + 5 \mu\text{A}$ 250 $\mu\text{A/A} + 4 \mu\text{A}$ 160 $\mu\text{A/A} + 3.5 \mu\text{A}$ 120 $\mu\text{A/A} + 2.5 \mu\text{A}$ 200 $\mu\text{A/A} + 3.5 \mu\text{A}$ 1.1 $\text{mA/A} + 10 \mu\text{A}$ 260 $\mu\text{A/A} + 35 \mu\text{A}$ 450 $\mu\text{A/A} + 80 \mu\text{A}$ 7 $\text{mA/A} + 160 \mu\text{A}$ 460 $\mu\text{A/A} + 170 \mu\text{A}$ 950 $\mu\text{A/A} + 380 \mu\text{A}$ 3.6 $\text{mA/A} + 750 \mu\text{A}$	Fluke 5720A/ Fluke 5700A/EP w/ HP 5725A	OEM and GIDEP Sourced Calibration Procedures



PARAMETER / EQUIPMENT	RANGE	CALIBRATION & MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY(+)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Oscilloscopes DC Signal into 50 Ω Load into 1 MΩ Load	0 V to ± 6.6 V 0 V to ± 130 V	2.5 mV/V + 40 μV 500 μV/V + 40 μV	Fluke 5520A/SC1100	OEM and GIDEP Sourced Calibration Procedures
Amplitude Square Wave 50 Ω Load	1 mV to 6.6 V p-p (10 Hz to 10 kHz)	2.5 mV/V + 40 μV		
1 MΩ Load	1 mV to 130 V p-p (10 Hz to 10 kHz)	1 mV/V + 40 μV		
Leveled Sine Wave – Flatness Relative to 50 kHz	5 mV to 5.5 V 50 kHz to 100 MHz (100 to 300) MHz (300 to 600) MHz 5 mV to 3.5 V 600 MHz to 1.1 GHz	15 mV/V + 100 μV 20 mV/V + 100 μV 40 mV/V + 100 μV 50 mV/V + 100 μV		
Time Marker into 50 Ω Load	5 s to 50 ms 20 ms to 100 ns (50 to 20) ns 10 ns (5 to 1) ns	(25 + 1 000t) μs/s 2.5 μs/s 2.5 μs/s 2.5 μs/s 2.5 μs/s		
Edge Specs into 50 Ω Load Rise Time Amplitude (Peak to Peak)	≤300 ps 5 mV to 2.5 V	+ 0 ps/-100 ps 20 mV/V + 200 μV		
Frequency	1 kHz to 10 MHz	2.5 μs/s of setting		
Wave Generator – Source: Amplitude (10 Hz to 10 kHz) Square,Sine,Triangle into 1 MΩ	1.8 mV to 55 V p-p	30 mV/V + 100 μV		
Square,Sine,Triangle into 50 MΩ	1.8 mV to 2.5 V p-p	30 mV/V + 100 μV		
Frequency	10 Hz to 100 kHz	25 μs/s + 15 mHz		
Rise Time Source and Measure	≥ 350 ps	3.5 %	Tektronix TDS 684C	

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AC Level Flatness (cont.) 1 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 80 MHz 100 MHz	0.011 % 0.007 % 0.007 % 0.007 % 0.007 % 0.010 % 0.010 % 0.083 % 0.087 % 0.085 % 0.18 % 0.25 % 0.55 % 0.82 % 1.1 % 1.3 %	HP 11050A	OEM and GIDEP Sourced Calibration Procedures
Distortion - Measure 5 Hz to 600 kHz Fundamental Frequency (0.3 to 100) % Distortion < 30 V (30 to 300) V 0.1 % Distortion < 30 V 0.1 % Distortion (30 to 300) V (0 to 99.9) dB Distortion 50 Hz to 500 kHz	10 Hz to 1 MHz (1 to 3) MHz 10 Hz to 300 kHz (300 to 500) kHz 500 kHz to 3 MHz 10 Hz to 300 kHz (300 to 500) kHz 500 kHz to 3 MHz 30 Hz to 300 kHz (300 to 500) kHz 500 kHz to 1.2 MHz 20 Hz to 20 kHz (20 to 100) kHz	3.5 % 7 % 3.5 % 7 % 14 % 3.5 % 7 % 14 % 3.6 % 7 % 14 % 1.2 dB 2.3 dB	HP 332A HP 8903A	
Inductance - Measure 100 μH to 10 H	50 Hz to 20 kHz	1.2 mH/H	Fluke PM6304 RCL Meter	



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Capacitance - Source Fixed Values (cont.)	10 pF		HP 16380C and HP 16380A Standard Capacitor Sets	OEM and GIDEP Sourced Calibration Procedures
	100 Hz to 1 kHz	0.001 pF		
	1 kHz to 1 MHz	0.002 pF		
	(1 to 2) MHz	0.002 pF		
	(2 to 3) MHz	0.003 pF		
	(3 to 4) MHz	0.004 pF		
	(4 to 5) MHz	0.005 pF		
	(5 to 10) MHz	0.011 pF		
	(10 to 13) MHz	0.014 pF		
	100 pF			
	100 Hz to 1 kHz	0.01 pF		
	1 kHz to 1 MHz	0.02 pF		
	(1 to 2) MHz	0.02 pF		
	(2 to 3) MHz	0.03 pF		
	(3 to 4) MHz	0.04 pF		
	(4 to 5) MHz	0.05 pF		
	(5 to 10) MHz	0.11 pF		
	(10 to 13) MHz	0.14 pF		
	1 nF			
	100 Hz to 1 kHz	0.1 pF		
	1 kHz to 1 MHz	0.4 pF		
	(1 to 2) MHz	0.4 pF		
	(2 to 3) MHz	0.7 pF		
	(3 to 4) MHz	1 pF		
(4 to 5) MHz	1.4 pF			
(5 to 10) MHz	3.4 pF			
(10 to 13) MHz	4.8 pF			
10 nF				
(100 to 120) Hz	0.002 nF			
120 Hz to 1 kHz	0.001 nF			
(1 to 10) kHz	0.002 nF			
(10 to 100) kHz	0.004 nF			
100 nF				
(100 to 120) Hz	0.03 nF			
120 Hz to 1 kHz	0.01 nF			
(1 to 10) kHz	0.03 nF			
(10 to 100) kHz	0.04 nF			



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Capacitance - Source Fixed Values (cont.)	1 μ F (100 to 120) Hz 120 Hz to 1 kHz (1 to 10) kHz (10 to 100) kHz	670 μ F/F 620 μ F/F 670 μ F/F 910 μ F/F	HP 16380C and HP 16380A Standard Capacitor Sets	OEM and GIDEP Sourced Calibration Procedures
Phase - Source (0 to 180) °	(10 to 65) Hz (65 to 500) Hz 500 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.14 ° 0.28 ° 0.52 ° 3 ° 5.4 ° 10 °	Fluke 5520A	
Phase - Measure 10 Hz to 10 MHz	(0 to 360) °	0.07 °	Krohn - Hite 6610 Phase Meter	
AC Power - Source (45 to 65) Hz PF = 1	(1 to 100) mW 100 mW to 890 W 890 W to 3 kW (3 to 11) kW (11 to 20.5) kW	2.3 mW/W 1.4 mW/W 1.3 mW/W 1.5 mW/W 1.3 mW/W	Fluke 5520A	
Electrical Simulation of Thermocouple Indicators Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1 000) °C	0.5 °C 0.16 °C 0.14 °C 0.16 °C 0.21 °C		
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1 200) °C	0.27 °C 0.16 °C 0.14 °C 0.17 °C 0.23 °C		
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1 000) °C (1 000 to 1 372) °C	0.33 °C 0.18 °C 0.16 °C 0.26 °C 0.4 °C		

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Electrical Simulation of Thermocouple Indicators (cont.)				
Type R	(0 to 250) °C (250 to 400) °C (400 to 1 000) °C (1 000 to 1 767) °C	0.57 °C 0.35 °C 0.33 °C 0.4 °C		
Type S	(0 to 250) °C (250 to 1 000) °C (1 000 to 1 400) °C (1 400 to 1 767) °C	0.47 °C 0.36 °C 0.37 °C 0.46 °C		
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.63 °C 0.24 °C 0.16 °C 0.14 °C		
Electrical Simulation of RTDs				
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	0.05 °C 0.05 °C 0.07 °C 0.09 °C 0.1 °C 0.1 °C 0.23 °C	Fluke 5520A	OEM and GIDEP Sourced Calibration Procedures
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	0.04 °C 0.04 °C 0.04 °C 0.05 °C 0.12 °C 0.13 °C 0.14 °C 0.16 °C		
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	0.04 °C 0.05 °C 0.05 °C 0.06 °C 0.08 °C 0.08 °C 0.09 °C 0.11 °C		

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Electrical Simulation of RTDs (cont.)				
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	0.05 °C 0.05 °C 0.07 °C 0.09 °C 0.1 °C 0.12 °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	0.25 °C 0.04 °C 0.05 °C 0.06 °C 0.07 °C 0.08 °C 0.09 °C 0.1 °C 0.23 °C	Fluke 5520A	OEM and GIDEP Sourced Calibration Procedures
Pt 385, 1 kΩ	(-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	0.03 °C 0.03 °C 0.04 °C 0.05 °C 0.06 °C 0.07 °C 0.07 °C 0.23 °C		
Ni 120, 120 Ω	(-80 to 0) °C (0 to 100) °C (100 to 260) °C	0.08 °C 0.08 °C 0.14 °C		
Cu 427, 10 Ω	(-100 to 260) °C	0.3 °C		



II. Electromagnetic - RF/Microwave

PARAMETER / EQUIPMENT	RANGE	CALIBRATION & MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY(±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
RF Power - Source (-120 to +13) dBm (-127 to +13) dBm	10 kHz to 20 MHz 20 MHz to 26.5 GHz	1.2 dB 0.7 dB	Fluke 6060B HP 8340B	OEM and GIDEP Sourced Calibration Procedures
Amplitude Modulation - Source Rate: 50 Hz to 100 kHz Depths: (5 to 95) %	10 kHz to 13.5 MHz	1 %	HP 11715A	
Rate: 50 Hz to 100 kHz Depths: (95 to 99) %	10 kHz to 13.5 MHz	0.2 %		
Rate: 50 Hz to 100 kHz Depths: (5 to 95) %	10 kHz to 13.5 MHz	0.1 %		
Rate: 50 Hz to 100 kHz Depths: (95 to 99) %	10 kHz to 13.5 MHz	0.2 %		
Rate: 1 kHz; Depth: 30 %	10 MHz to 26.5 GHz	5.82 %		
Rate: DC to 100 kHz Depth: (0 to 90) %	10 MHz to 26.5 GHz	5.85 %		
Rate: 50 kHz to 10 MHz Dev: ≤10 MHz	10 MHz to 26.5 GHz	11.6 %		
RF Power - Measure (-20 to +30) dBm	100 kHz to 26.5 GHz	2.9 %	HP 8902A and 11722A, 11793A	
(-30 to +20) dBm	(2.6 to 26.5) GHz	2.9 %	HP 436A w/ HP 8485A sensor	
Phase Modulation - Measure (Peak Phase Deviation 0.1 to 400 radians)				
Rate: (0.2 to 10) kHz	150 kHz to 10 MHz	4.6 % reading + 1 digit	HP 8902A and 11722A	
Rate: (0.2 to 20) kHz	10 MHz to 1.3 GH	3.5 % reading + 1 digit		

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Amplitude Modulation – Measure Rate: 50 Hz to 10 kHz Depths: 5 % to 99 %	150 kHz to 10 MHz	2 % + 1 digit	HP 8902A	OEM and GIDEP Sourced Calibration Procedures
Rate: 20 Hz to 10 kHz Depths: to 99 %	150 kHz to 10 MHz	3 % + 1 digit		
Rate: 50 Hz to 50 kHz Depths: 5 % to 99 %	10 MHz to 1.3 GHz	1 % + 1 digit		
Rate: 20 Hz to 100 kHz Depths: to 99 %	10 MHz to 1.3 GHz	3 % + 1 digit		
Rate: 50 Hz to 50 kHz Depths: to 99 %	(1.3 to 26.5) GHz	1.5 % + 1 digit	HP 8902A	
Rate: 20 Hz to 100 kHz Depths: to 99 %	(1.3 to 26.5) GHz	3 % + 1 digit		
RF Attenuation	2.5 MHz to 1.3 GHz -1 dBm (-1 to -10) dBm (-10 to -20) dBm (-20 to -30) dBm (-30 to -40) dBm (-40 to -50) dBm (-50 to -60) dBm (-60 to -70) dBm (-70 to -80) dBm (-80 to -90) dBm (-90 to -100) dBm (-100 to -110) dBm (-110 to -120) dBm (1.3 to 26.5) GHz -1 dBm (-1 to -10) dBm (-10 to -20) dBm (-20 to -30) dBm (-30 to -40) dBm (-40 to -50) dBm (-50 to -60) dBm (-60 to -70) dBm (-70 to -80) dBm	0.01 dB 0.02 dB 0.05 dB 0.07 dB 0.11 dB 0.13 dB 0.15 dB 0.19 dB 0.22 dB 0.24 dB 0.26 dB 0.31 dB 0.37 dB 0.05 dB 0.05 dB 0.07 dB 0.09 dB 0.12 dB 0.14 dB 0.16 dB 0.2 dB 0.22 dB	HP 8902A	

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RF Attenuation (cont.)	(1.3 to 26.5) GHz (cont.) (-80 to -90) dBm (-90 to -100) dBm (-100 to -110) dBm (-110 to -120) dBm	0.24 dB 0.26 dB 0.31 dB 0.37 dB	HP 8902A	OEM and GIDEP Sourced Calibration Procedures
Frequency Modulation - Measure Rate: 20 Hz to 10 kHz Dev.: ≤ 40 kHz peak Rate: 50 Hz to 100 kHz Dev.: ≤ 400 kHz peak Rate: 20 Hz to 200 kHz Dev.: ≤ 400 kHz peak Rate: 50 Hz to 100 kHz Dev.: ≤ 400 kHz peak Rate: 20 Hz to 200 kHz Dev.: ≤ 400 kHz peak	250 kHz to 10 MHz 10 MHz to 1.3 GHz 10 MHz to 1.3 GHz (1.3 to 26.5) GHz (1.3 to 26.5) GHz	2 % + 1 digit 1 % + 1 digit 5 % + 1 digit 1 % + 1 digit 5 % + 1 digit	HP 8902A	
Frequency Modulation - Source Rate: 20 Hz to 10 kHz Dev.: 40 kHz peak	10 kHz to 432 MHz	0.12 %	HP 8902A w/ HP 11715A	

III. Time & Frequency

PARAMETER / EQUIPMENT	RANGE	CALIBRATION & MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY(±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Time Interval	1 s to 3 hrs	0.5 s	HP 53132A	OEM and GIDEP Sourced Calibration Procedures
Frequency - Source	10 MHz 10 kHz to 1050 MHz (1.05 to 26) GHz	5 parts in 10 ¹² 5 parts in 10 ¹² 5 parts in 10 ¹²	True Time GPS Fluke 6060B HP 8340B	
Frequency - Measure	DC to 18 GHz	5 parts in 10 ¹²	HP 5345A	

IV. Thermodynamic

PARAMETER / EQUIPMENT	RANGE	CALIBRATION & MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY(±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Temperature - Source	0 °C (50 to 400) °C	0.05 °C 0.68 °C	Hart 9101 Zero Point	OEM and GIDEP Sourced Calibration Procedures
	(400 to 650) °C (Probe diameter ≤ 6.5 mm) (Probe diameter > 6.5 mm)	1.2 °C 2.4 °C	Hart 9141 Drywell	
Temperature - Measure	(-180 to -100) °C (-100 to 180) °C (180 to 240) °C	0.16 °C 0.04 °C 0.07 °C	Guildline 9540	
IR Temperature - Source	(33 to 100) °C (100 to 250) °C (250 to 400) °C	1.2 °C 1.6 °C 1.7 °C	Ametek 400R	
Relative Humidity - Measure	(5 to 99) %RH	2 %RH	Rotronic HK25	

V. Mechanical

PARAMETER / EQUIPMENT	RANGE	CALIBRATION & MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY(±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Torque	10 in-lb to 250 ft-lb	0.32 %	CDI 950 w/ TPPM 441	OEM and GIDEP Sourced Calibration Procedures
Pressure	(5 to 10 000) psig	0.1 %	Ametek Deadweight Tester	

VI. Dimensional

PARAMETER / EQUIPMENT	RANGE	CALIBRATION & MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY(±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Micrometers	Up to 40 in	(97 + 1.6L) μin	Grade 2 Gage Blocks	OEM and GIDEP Sourced Calibration Procedures
Calipers	Up to 40 in	(620 + 1.6L) μin		
Indicators	Up to 2 in	(97 + 1.6L) μin		
Height & Depth Gages	Up to 40 in	(97 + 1.6L) μin		
Rulers	Up to 40 in	0.009 in		

Notes:

1. Calibration and Measurement Capabilities (CMC) (Expanded Uncertainties) are based on approximately a 95% confidence interval, using a coverage of $k=2$.
2. This laboratory offers calibration services in its laboratory and on-site at customer-designated locations. Since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
3. CMC displayed as percentage (%) are percent of reading unless indicated otherwise.
4. The use of (F) signifies an expression of Frequency in kHz.
5. The use of (t) signifies an expression of Time in seconds.
6. The use of (L) refers to Length in inches.
7. The use of (R) refers to the Resolution of the unit under test.
8. This scope is part of and must be included with the Certificate of Accreditation No. AC- 1375.



Vice President