



**SCOPE OF ACCREDITATION TO
ISO/IEC 17025:2005 & ANSI/NCSL Z540-1-1994**

Davis Calibration

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CALIBRATION

Valid to: April 8, 2012

Certificate Number: AC-1131

I. Electromagnetic DC/Low Frequency

PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
DC Volts - Source	(0 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 (1.1 to 10) kV	8 µV/V + 600 nV 7 µV/V + 1 µV 7 µV/V + 3.5 µV 7 µV/V + 6.5 µV 8 µV/V + 80 µV 9 µV/V + 500 µV 2.9 mV/V	Fluke 5700A/5725A Fluke 410B with HP 3458A Opt 002	OEM and GIDEP Sourced Calibration Procedures
DC Volts - Measure	(10 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V 100 V to 1 kV (1 to 10) kV (10 to 120) 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 116 µV/V 1mV/V	HP 3458A OPT 002 Fluke 80E-10 with HP 3458A Opt 002 Ross VD120-6.2Y	
DC Current - Source	(0 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 20) A (20 to 100) A	50 µA/A + 8 nA 50 µA/A + 8 nA 50 µA/A + 80 nA 60 µA/A + 800 nA 80 µA/A + 25 µA 257 µA/A + 4 mA 280 µA/A + 20 mA	Fluke 5700A/5725A Ballantine 1620A Opt 04-60	



PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (\pm)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
DC Current - Measure	(10 to 100) μ A 100 μ A to 1 mA (1 to 10) mA (10 to 100) mA 100 mA to 1 A (1 to 20) A (20 to 300) A	20 μ A/A + 800 pA 20 μ A/A + 5 nA 20 μ A/A + 50 nA 35 μ A/A + 500 nA 105 μ A/A + 10 μ A 120 μ A/A 460 μ A/A	HP 3458A OPT 002 Fluke Y5020 with HP 3458A Opt 002 L&N 4363	OEM and GIDEP Sourced Calibration Procedures
AC Volts – Source	(0 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 500 kHz to 1 MHz (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 500 kHz to 1 MHz (0.22 to 2.2) V (10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz	550 μ V/V + 4.5 μ V 210 μ V/V + 4.5 μ V 105 μ V/V + 4.5 μ V 370 μ V/V + 4.5 μ V 850 μ V/V + 7 μ V 1.1 mV/V + 13 μ V 1.7 mV/V + 25 μ V 3.4 mV/V + 25 μ V 550 μ V/V + 5 μ V 210 μ V/V + 5 μ V 105 μ V/V + 5 μ V 370 μ V/V + 5 μ V 850 μ V/V + 7 μ V 1.1 mV/V + 12 μ V 1.7 mV/V + 25 μ V 3.4 mV/V + 25 μ V 550 μ V/V + 13 μ V 210 μ V/V + 8 μ V 105 μ V/V + 8 μ V 320 μ V/V + 8 μ V 850 μ V/V + 25 μ V 1.1 mV/V + 25 μ V 1.7 mV/V + 35 μ V 3.4 mV/V + 80 μ V 500 μ V/V + 80 μ V 160 μ V/V + 25 μ V 75 μ V/V + 6 μ V	Fluke 5700A/5725A	

PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (\pm)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
AC Volts – Source (cont.)	(0.22 to 2.2) V (cont.) (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) 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 500 kHz to 1 MHz (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	120 $\mu\text{V}/\text{V} + 16 \mu\text{V}$ 250 $\mu\text{V}/\text{V} + 70 \mu\text{V}$ 430 $\mu\text{V}/\text{V} + 130 \mu\text{V}$ 1.1 $\text{mV}/\text{V} + 350 \mu\text{V}$ 2.2 $\text{mV}/\text{V} + 850 \mu\text{V}$ 500 $\mu\text{V}/\text{V} + 800 \mu\text{V}$ 160 $\mu\text{V}/\text{V} + 250 \mu\text{V}$ 75 $\mu\text{V}/\text{V} + 60 \mu\text{V}$ 120 $\mu\text{V}/\text{V} + 160 \mu\text{V}$ 250 $\mu\text{V}/\text{V} + 350 \mu\text{V}$ 500 $\mu\text{V}/\text{V} + 1.5 \text{mV}$ 1.3 $\text{mV}/\text{V} + 4.3 \text{mV}$ 2.7 $\text{mV}/\text{V} + 8.5 \text{mV}$ 500 $\mu\text{V}/\text{V} + 8 \text{mV}$ 160 $\mu\text{V}/\text{V} + 2.5 \text{mV}$ 80 $\mu\text{V}/\text{V} + 800 \mu\text{V}$ 220 $\mu\text{V}/\text{V} + 3.5 \text{mV}$ 500 $\mu\text{V}/\text{V} + 8 \text{mV}$	Fluke 5700A/5725A	OEM and GIDEP Sourced Calibration Procedures
AC Volts – Measure	(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 300 kHz to 1MHz (1 to 4) MHz (4 to 8) MHz	300 $\mu\text{V}/\text{V} + 3 \mu\text{V}$ 200 $\mu\text{V}/\text{V} + 1.1 \mu\text{V}$ 300 $\mu\text{V}/\text{V} + 1.1 \mu\text{V}$ 1 $\text{mV}/\text{V} + 1.1 \mu\text{V}$ 5 $\text{mV}/\text{V} + 1.1 \mu\text{V}$ 40 $\text{mV}/\text{V} + 2 \mu\text{V}$ 12 $\text{mV}/\text{V} + 5 \mu\text{V}$ 70 $\text{mV}/\text{V} + 7 \mu\text{V}$ 200 $\text{mV}/\text{V} + 8 \mu\text{V}$	HP 3458A OPT 002	



PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (\pm)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
AC Volts – Measure (cont.)	<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 4) MHz (4 to 8) MHz (8 to 10) 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 4) MHz (4 to 8) MHz (8 to 10) 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 4) MHz (4 to 8) MHz (8 to 10) MHz</p>	<p>72 μV/V + 4 μV 72 μV/V + 2 μV 142 μV/V + 2 μV 302 μV/V + 2 μV 802 μV/V + 2 μV 30 mV/V + 10 μV 10 mV/V + 10 μV 15 mV/V + 10 μV 40 mV/V + 8 μV 150 mV/V + 100 μV</p> <p>72 μV/V + 40 μV 72 μV/V + 20 μV 142 μV/V + 20 μV 302 μV/V + 20 μV 802 μV/V + 20 μV 3 mV/V + 100 μV 1 mV/V + 100 μV 15 mV/V + 100 μV 40 mV/V + 800 μV 150 mV/V + 1 mV</p> <p>72 μV/V + 400 μV 72 μV/V + 200 μV 142 μV/V + 200 μV 302 μV/V + 200 μV 802 μV/V + 200 μV 3 mV/V + 1 mV 1 mV/V + 1 mV 15 mV/V + 1 mV 40 mV/V + 8 mV 150 mV/V + 10 mV</p>	HP 3458A OPT 002	OEM and GIDEP Sourced Calibration Procedures



PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (\pm)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
AC Volts – Measure (cont.)	<p>(10 to 100) 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</p> <p>(100 to 1 000) V (1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz</p> <p>(1 to 80) kV 60 Hz</p>	<p>200 μV/V + 4 mV 200 μV/V + 2 mV 200 μV/V + 2 mV 350 μV/V + 2 mV 1.2 mV/V + 2 mV 4 mV/V + 10 mV 15 mV/V + 10 mV</p> <p>400 μV/V + 40 mV 400 μV/V + 20 mV 600 μV/V + 20 mV 1.2 mV/V + 20 mV 3 mV/V + 20 mV</p> <p>5 mV/V</p>	<p>Fluke 5700A/5725A</p> <p>Ross VD120-6.2Y</p>	<p>OEM and GIDEP Sourced Calibration Procedures</p>
AC Current - Source	<p>(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</p> <p>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</p> <p>(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</p>	<p>700 μA/A + 25 nA 350 μA/A + 20 nA 140 μA/A + 16 nA 600 μA/A + 40 nA 1.6 mA/A + 80 nA</p> <p>700 μA/A + 40 nA 350 μA/A + 35 nA 140 μA/A + 35 nA 600 μA/A + 400 nA 1.6 mA/A + 800 nA</p> <p>700 μA/A + 400 nA 350 μA/A + 350 nA 140 μA/A + 350 nA 600 μA/A + 4 μA 1.6 mA/A + 8 μA</p>	<p>Fluke 5700A/5725A</p>	



PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
AC Current – Source (cont.)	(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 (11 to 40) A (1 to 5) kHz (11 to 100) A DC to 1 kHz	700 µA/A + 4 µA 350 µA/A + 3.5 µA 140 µA/A + 3.5 µA 600 µA/A + 40 µA 1.6 mA/A + 80 µA 650 µA/A + 35 µA 750 µA/A + 80 µA 8.5 mA/A + 160 µA 460 µA/A + 170 µA 950 µA/A + 380 µA 3.6 mA/A + 750 µA 4.5 mA/A + 7.5 mA 2 mA/A + 100 mA	Fluke 5700A/5725A Fluke 5520A Ballantine 1620A Opt 04-60	OEM and GIDEP Sourced Calibration Procedures
AC Current - Measure	(5 to 100) µA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 1 kHz 100 µA to 1 mA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz (50 to 100) kHz (1 to 10) mA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz	4 mA/A + 30 nA 1.5 mA/A + 30 nA 600 µA/A + 30 nA 600 µA/A + 30 nA 4 mA/A + 200 nA 1.5 mA/A + 200 nA 600 µA/A + 200 nA 300 µA/A + 200 nA 600 µA/A + 200 nA 4 mA/A + 400 nA 5.5 mA/A + 1.5 µA 4 mA/A + 2 µA 1.5 mA/A + 2 µA 600 µA/A + 2 µA 300 µA/A + 2 µA 600 µA/A + 2 µA 4 mA/A + 4 µA	HP 3458A OPT 002	



PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
AC Current – Measure (cont.)	(5 to 100) μA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 1 kHz 100 μA to 1 mA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz (50 to 100) kHz (1 to 10) mA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz (10 to 100) mA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz (50 to 100) kHz 100 mA to 1 A (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz	4 mA/A + 30 nA 1.5 mA/A + 30 nA 600 μA/A + 30 nA 600 μA/A + 30 nA 4 mA/A + 200 nA 1.5 mA/A + 200 nA 600 μA/A + 200 nA 300 μA/A + 200 nA 600 μA/A + 200 nA 4 mA/A + 400 nA 5.5 mA/A + 1.5 μA 4 mA/A + 2 μA 1.5 mA/A + 2 μA 600 μA /A + 2 μA 300 μA/A + 2 μA 600 μA/A + 2 μA 4 mA/A + 4 μA 4 mA/A + 20 μA 1.5 mA/A + 20 μA 600 μA/A + 20 μA 300 μA/A + 20 μA 600 μA/A + 20 μA 4 mA/A + 40 μA 5.5 mA/A + 150 μA 4 mA/A + 200 μA 1.6 mA/A + 200 μA 800 μA/A + 200 μA 1 mA/A + 200 μA 3 mA/A + 200 μA 10 mA/A + 400 μA	HP 3458A OPT 002	OEM and GIDEP Sourced Calibration Procedures



PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
AC Current - Measure (cont.)	(1 to 20) A DC to 1 kHz (1 to 5) kHz	310 µA/A 450 µA/A	Fluke Y5020 with HP 3458A Opt 002	OEM and GIDEP Sourced Calibration Procedures
Clamp On Ammeters DC AC (45 to 65) Hz AC (65 to 440) Hz	(0 to 550) A (110 to 550) A (0 to 110) A	2.6 mA/A + 50 mA 2.6 mA/A + 110 mA 2.7 mA/A + 110 mA	Fluke 5500A/Coil	
Resistance - Source	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	95 µΩ 181 µΩ 280 µΩ 513 µΩ 1.7 mΩ 3.3 mΩ 13 mΩ 24.7 mΩ 120 mΩ 228 mΩ 1.4 Ω 2.7 Ω 20 Ω 40 Ω 400 Ω 893 Ω 11 kΩ	Fluke 5700A/5725A	
Resistance - Measure	(0 to 10) Ω (10 to 100) Ω 100 Ω to 1 kΩ (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	18 µΩ/ Ω + 50 µΩ 13 µΩ/ Ω + 500 µΩ 11 µΩ/ Ω + 500 µΩ 11 µΩ/ Ω + 5 mΩ 11 µΩ/ Ω + 50 mΩ 15 µΩ/ Ω + 2 Ω 53 µΩ/ Ω + 100 Ω 503 µΩ/ Ω + 1 kΩ 5 mΩ/ Ω + 10 kΩ	HP 3458A OPT 002	



PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Electrical Simulation of Thermocouple Indicators			Fluke 5500A-SC600	OEM and GIDEP Sourced Calibration Procedures
Type "B"	(600 to 800) °C	0.51 °C		
	(800 to 1 000) °C	0.39 °C		
	(1 000 to 1 550) °C	0.35 °C		
	(1 550 to 1 820) °C	0.38 °C		
Type "C"	(0 to 150) °C	0.35 °C		
	(150 to 650) °C	0.3 °C		
	(650 to 1 000) °C	0.36 °C		
	(1 000 to 1 800) °C	0.58 °C		
	(1 800 to 2 316) °C	0.97 °C		
Type "E"	(-250 to -100) °C	0.58 °C		
	(-100 to -25) °C	0.19 °C		
	(-25 to 350) °C	0.16 °C		
	(350 to 650) °C	0.19 °C		
	(650 to 1 000) °C	0.24 °C		
Type "J"	(-210 to -100) °C	0.32 °C		
	(-100 to -30) °C	0.19 °C		
	(-30 to 150) °C	0.17 °C		
	(150 to 760) °C	0.2 °C		
	(760 to 1 200) °C	0.27 °C		
Type "K"	(-200 to -100) °C	0.38 °C		
	(-100 to -25) °C	0.21 °C		
	(-25 to 120) °C	0.19 °C		
	(120 to 1 000) °C	0.3 °C		
	(1 000 to 1 372) °C	0.46 °C		
Type "L"	(-200 to -100) °C	0.43 °C		
	(-100 to 800) °C	0.3 °C		
	(800 to 900) °C	0.2 °C		



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Electrical Simulation of Thermocouple Indicators (Cont.)			Fluke 5500A-SC600	OEM and GIDEP Sourced Calibration Procedures
Type “N”	(-200 to -100) °C	0.46 °C		
	(-100 to -25) °C	0.25 °C		
	(-25 to 120) °C	0.22 °C		
	(120 to 410) °C	0.21 °C		
	(410 to 1 300) °C	0.31 °C		
Type “R”	(0 to 250) °C	0.66 °C		
	(250 to 400) °C	0.4 °C		
	(400 to 1 000) °C	0.38 °C		
	(1 000 to 1 767) °C	0.46 °C		
Type “S”	(0 to 250) °C	0.54 °C		
	(250 to 1 000) °C	0.42 °C		
	(1 000 to 1 400) °C	0.43 °C		
	(1 400 to 1 767) °C	0.53 °C		
Type “T”	(-250 to -150) °C	0.73 °C		
	(-150 to 0) °C	0.28 °C		
	(0 to 120) °C	0.19 °C		
	(120 to 400) °C	0.17 °C		
Type “U”	(-200 to 0) °C	0.65 °C		
	(0 to 600) °C	0.31 °C		
Electrical Simulation of RTDs				
Pt 385 (100 Ω)	(-200 to 0) °C	0.06 °C		
	(0 to 100) °C	0.08 °C		
	(100 to 300) °C	0.1 °C		
	(300 to 400) °C	0.12 °C		
	(400 to 630) °C	0.14 °C		
	(630 to 800) °C	0.27 °C		
Pt 3926 (100 Ω)	(-200 to 0) °C	0.06 °C		
	(0 to 100) °C	0.08 °C		
	(100 to 300) °C	0.1 °C		
	(300 to 400) °C	0.12 °C		
	(400 to 630) °C	0.14 °C		



PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Electrical Simulation of RTDs (Cont.)			Fluke 5500A-SC600	OEM and GIDEP Sourced Calibration Procedures
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	0.29 °C 0.05 °C 0.06 °C 0.07 °C 0.08 °C 0.09 °C 0.1 °C 0.12 °C 0.27 °C		
Pt 385 (200 Ω)	(-200 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.05 °C 0.06 °C 0.14 °C 0.15 °C 0.16 °C 0.18 °C		
Pt 385 (500 Ω)	(-200 to -80) °C (-80 to 100) °C (100 to 260) °C (260 to 400) °C (400 to 600) °C (600 to 630) °C	0.05 °C 0.06 °C 0.07 °C 0.09 °C 0.1 °C 0.13 °C		
Pt 385 (1 000 Ω)	(-200 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 600) °C (600 to 630) °C	0.03 °C 0.05 °C 0.06 °C 0.07 °C 0.08 °C 0.27 °C		
PtNi 385 (120 Ω)	(-80 to 100) °C (100 to 260) °C	0.09 °C 0.16 °C		



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Oscilloscope Calibration			Fluke 5520A-SC600	OEM and GIDEP Sourced Calibration Procedures
Amplitude DC Signal				
into 50 Ω Load	(-6.6 to 6.6) V	2.5 mV/V + 40 μV		
into 1 MΩ Load	(-130 to 130) V	500 μV/V + 40 μV		
Amplitude Square wave				
50 Ω Load	1 mV to 6.6 Vp-p 10 Hz to 10 kHz	2.5 mV/V + 40 μV		
1 MΩ Load	1 mV to 130 Vp-p 10 Hz to 1 kHz (1 to 10) kHz	1 mV/V + 40 μV 2.5 mV/V + 40 μV		
Rise Time	≥ 300 ps	+ 0 ps/ -100ps		
Leveled Sine Wave - Flatness Relative to 50 kHz [5 mV to 5.5 V]				
	50 kHz to 100 MHz	35 mV/V + 300 μV		
	(100 to 300) MHz	40 mV/V + 300 μV		
	(300 to 600) MHz	60 mV/V + 300 μV		
Time Marker into 50 Ω Load-Source	5 s to 50 ms 20 ms to 2 ns	(25 + 1 000t) parts in 10 ⁶ 2.5 parts in 10 ⁶		
Edge Specs into 50Ω Load-Source				
Rise Time	350 ps	0 ps /-100 ps		
Amplitude	5 mV to 2.5V	20 mV/V + 200 μV		
Wave Generator - Source Amplitude (10 Hz to 10 kHz)				
Square, Sine, Triangle into 1 MΩ	1.8 mV to 55 Vp-p	30 mV/V + 100 μV		
Square, Sine, Triangle into 50 Ω	1.8 mV to 2.5 Vp-p	30 mV/V + 100 μV		



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DC Power – Source 33 mV to 1 000 V	(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 11) A	300 μV/V of Watts Output 400 μV/V of Watts Output 300 μV/V of Watts Output 800 μV/V of Watts Output 600 μV/V of Watts Output 1.2 mV/V of Watts Output 900 μV/V of Watts Output	Fluke 5520A-SC600	OEM and GIDEP Sourced Calibration Procedures
AC Power (45 to 65) Hz Source 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 11) A	4 mV/V of Watts Output 2.5 mV/V of Watts Output 3.5 mV/V of Watts Output 2.5 mV/V of Watts Output 3.5 mV/V of Watts Output 2.5 mV/V of Watts Output 3.5 mV/V of Watts Output 2.5 mV/V of Watts Output		
330 mV to 1 000 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 11) A	2.5 mV/V of Watts Output 1.5 mV/V of Watts Output 2.5 mV/V of Watts Output 1.5 mV/V of Watts Output 2.5 mV/V of Watts Output 1.5 mV/V of Watts Output 2 mV/V of Watts Output 1.5 mV/V of Watts Output		



II. Time & Frequency

PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (\pm)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Frequency - Source	10 MHz 10 mHz to 120 Hz 120 Hz to 1.2 kHz (1.2 to 12) kHz (12 to 120) kHz 120 kHz to 1.2 MHz (1.2 to 2) MHz	5.77 parts in 10^{10} 25 parts in $10^6 + 1$ mHz 26 parts in $10^6 + 1$ mHz 27 parts in $10^6 + 1$ mHz 28 parts in $10^6 + 15$ mHz 29 parts in $10^6 + 15$ mHz 30 parts in $10^6 + 15$ mHz	Datum 9390-6000 Fluke 5500A-SC600	OEM and GIDEP Sourced Calibration Procedures
Frequency - Measure	DC to 225MHz	0.035 parts in 10^8	HP 53131A OPT 010	

III. Thermodynamic

PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (\pm)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Temperature - Measure	(-100 to -38.834) °C (-38.834 to 0.01) °C (0.01 to 156.6) °C (156.6 to 231.928) °C (231.928 to 419.527) °C (419.527 to 660.323) °C	0.011 °C 0.008 °C 0.015 °C 0.022 °C 0.029 °C 0.031 °C	Platinum Resistance Thermometers Hart 5628 w/ 1529-R	OEM and GIDEP Sourced Calibration Procedures
Infrared Non-contact	(25 to 100) °C (100 to 300) °C (300 to 400) °C	0.7 °C 0.9 °C 1 °C	Hart 9132	
Relative Humidity - Source* - Measure	(10 to 95) %RH (10 to 95) %RH	0.35 %RH 0.35 %RH	Thunder Scientific 2500	

IV. Mechanical

PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (\pm)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Sound level Meters, Type 2 125 Hz 250 Hz 500 Hz 1 kHz 1 kHz 2 kHz	114 dB 114 dB 114 dB 110 dB 114 dB 114 dB	0.42 dB 0.42 dB 0.42 dB 0.31 dB 0.42 dB 0.42 dB	Genrad 1562-A Genrad 1562-A Genrad 1562-A Quest CA-12 Genrad 1562-A Genrad 1562-A	OEM and GIDEP Sourced Calibration Procedures
Pressure	(5 to 10) in H ₂ O (10 to 15) in H ₂ O (15 to 55) in H ₂ O (55 to 105) in H ₂ O (105 to 205) in H ₂ O (4 to 8) psi (8 to 13) psi (13 to 53) psi (53 to 103) psi (103 to 203) psi (203 to 303) psi (303 to 403) psi (403 to 500) psi (-30 to 0) in Hg (0 to 500) psi (0 to 500) psia 500 psig to 1 200 psi 1 200 to 2 200 psi 2 200 to 4 200 psi 4 200 to 6 200 psi 6 200 to 10 000 psi (1 to 3) in Hg (3 to 11) in Hg (11 to 30) in Hg	0.002 in H ₂ O 0.003 in H ₂ O 0.011 in H ₂ O 0.020 in H ₂ O 0.039 in H ₂ O 0.0015 psi 0.0024 psi 0.011 psi 0.021 psi 0.041 psi 0.061 psi 0.081 psi 0.1 psi 0.009 % of reading 0.009 % of reading 0.009 % of reading 0.24 psi 0.44 psi 0.84 psi 1.24 psi 2.0 psi 0.001 in Hg 0.002 in Hg 0.006 in Hg	Ruska T9000 Deadweight Tester Ruska T3500/3 Deadweight Tester Ruska 7250xi Ruska W2200/3 Deadweight Tester Ruska T3500/3 Deadweight Tester	

PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (±)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Force	Up to 1 lb (1 to 2) lb (2 to 5) lb (5 to 10) lb (10 to 20) lb (20 to 50) lb (50 to 100) lb (100 to 250) lb (250 to 500) lb	0.001 lb 0.003 lb 0.006 lb 0.012 lb 0.026 lb 0.062 lb 0.124 lb 0.311 lb 0.622 lb	Class F Weights	OEM and GIDEP Sourced Calibration Procedures
Durometers	Type A, B, and O Type C, D, and DO	0.8 Duro 0.5 Duro	Precision Scale or Gage Blocks with RDC-1 Durometer Calibrator	ASTM D2240-05
Torque Tools	(0.5 to 215) in-oz 4 in-lb to 1 000 ft-lb	0.8 % of reading 0.3 % of reading	Waters Torque Calibrator CDI Suretest	OEM and GIDEP Sourced Calibration Procedures
Torque Transducers	(2.5 to 17.5) in-lb (17.5 to 100) in-lb (1 to 291) ft-lb	0.017 % 0.012 % 0.002 %	Class 6 Weights	
Scales and Balances	Up to 100 g (100 to 200) g (200 to 300) g (300 to 500) g 500 g to 1 kg (1 to 2) kg Up to 300 lb (300 to 500) lb (500 to 1 000) lb	0.33 mg 0.34 mg 2.58 mg 2.59 mg 47.26 mg 32.68 mg 0.03 lb 0.38 lb 0.52 lb	Class 1 Weights Class F Weights	
Tachometer Testers	(55 to 40 000) RPM	1.76 parts in 10 ⁸ of Hz Reading	HP 53131A OPT 010	
Tachometers Optical	(55 to 200 000) RPM	0.0012 %	HP 3325B with LED	
Mechanical	(55 to 100) RPM (100 to 1 000) RPM (1 000 to 30 000) RPM	0.023 % 0.015 % 0.006 %	GEC H8224-837837	



V. Dimensional

PARAMETER / EQUIPMENT	RANGE	BEST MEASUREMENT CAPABILITY [EXPRESSED AS UNCERTAINTY (\pm)]	REFERENCE STANDARD OR EQUIPMENT	METHOD(S)
Micrometers	(1 to 6) in (6 to 48) in	(52.3 + 6.8L) μ in (12.6 + 17.6L) μ in	Grade 1 or 2 Gage Blocks with Optical Flats	OEM and GIDEP Sourced Calibration Procedures
Calipers	(1 to 6) in (6 to 48) in	(577.2 + 0.8L) μ in (520.7 + 10.2L) μ in	Grade 1 or 2 Gage Blocks	
Height Gages	(1 to 6) in (6 to 48) in	(52.3 + 6.8L) μ in (12.6 + 17.6L) μ in		
Indicator Gages	(1 to 6) in	(52.3 + 6.8L) μ in		
Pin & Plug Gages	Up to 2 in	(46 + 5.5L) μ in	Helios UMG50	
Inside and Outside Diameter	Up to 12 in	(13 + 6.4L) μ in	Federal 136B-3 w/ Grade 1 Gage Blocks	
Surface Plate Flatness	Up to 24 x 36 in Up to 48 x 96 in	63 μ in 85 μ in	Rahn Planekator	
Repeatability		28.5 μ in	Repeatometer	

Notes:

1. Best Measurement Capabilities (Expanded Uncertainties) are based on approximately a 95% confidence interval, using a coverage of $k=2$
2. This laboratory's capabilities include in-laboratory and (field) on-site calibration services. Since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected in the on-site than what is reported on the accredited scope.
3. Capabilities denoted by an asterisk (*) are in-laboratory only, not available for on-site calibration activity.
4. The use of (L) signifies an expression of Length in inches.
5. The use of (t) signifies an expression of Time in seconds.
6. This scope is part of and must be included with the Certificate of Accreditation No. AC-1131



Vice President