International Accreditation Service, Inc.

CERTIFICATE OF ACCREDITATION

This is to signify that

ARCHITECTURAL TESTING, INC.
130 DERRY COURT
YORK, PENNSYLVANIA 17406

Calibration Laboratory CL-118
(*Revised June 12, 2009*)

has demonstrated compliance with the ANS/ISO/IEC Standard 17025:2005, *General criteria for the competence of testing and calibration laboratories*, and has been accredited commencing October 1, 2008, for the calibration discipline(s) listed in the approved scope of accreditation. The laboratory meets the IAS program requirements in the field of calibration.

Patrick V. McCullen
Vice President

C. P. Ramani, P.E.
President

(see attached scope of accreditation for measurement area or type of test, range or quantity, best measurement capability, technique reference, standard equipment or unique conditions)

International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

Architectural Testing, Inc.
130 Derry Court
York, PA 17406

Timothy A. Donnan
Calibration Laboratory Manager
717-764-7700

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Dimensional			
Length			
Calipers	Up to 3 in/0.001 in >3 to 6 in/0.001 in	600 µin 650 µin	Gage blocks
Indicator	Up to 0.5 in/0.001 in >0.5 to 1in/0.001 in >1 to 2 in/0.001 in	800 µin 850 µin 900 µin	Gage blocks

October 1, 2008
Commencement Date

C. P. Ramani, P.E.
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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Dimensional (continued)			
Micrometer	Up to 0.5in/0.001 in >0.5 to 1 in/0.001 in >1 to 3 in/0.001 in >3 to 4 in /0.001 in	600 µin 650 µin 800 µin 850 µin	Gage blocks
Thickness gage	Up to 0.5 in/0.001 in >0.5 to 1 in/0.001 in	600 µin 650 µin	Gage blocks
Steel rulers	Up to 100 in/0.010 >39 to 117 in	0.0025 in 30 µin/in + (L/39) (0.0025 in)	Linear calibrator, gage blocks
Steel Tapes	Up to 117 in/0.062	0.031 in	Linear calibrator, gage blocks
Linear Transducers (0 to 40 in) (0-40 in)	4-20 mA/0.001 mA	0.001 mA	Linear calibrator

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Mechanical			
Force			
Load Cells (Compression)	10 to 1000 lbf 1000 to 25000 lbf 25000 to 50000 lbf	0.0015% 0.0023% 0.0025%	ASTM E 74, Calibration fixture
Load Cells (Tension)	10 to 1000 lbf 1000 to 25000 lbf 25000 to 50000 lbf	0.0015% 0.0023% 0.0025%	ASTM E 74, Calibration fixture
Force Gages (Compression)	Up to 25 lb >25 to 150 lb >150 to 200 lb	0.04% 0.05% 0.35%	Weights
Force Gages (Tension)	Up to 25 lb >25 to 150 lb >150 to 200 lb	0.04% 0.05% 0.35%	Weights

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Mechanical (continued)			
Ring force gage (Compression)	10 to 1000 lbf 1000 to 25000 lbf 25000 to 50000 lbf	0.0015% 0.0023% 0.0025%	ASTM E 74, Calibration fixture
Ring force gage (Tension)	10 to 1000 lbf 1000 to 25000 lbf 25000 to 50000 lbf	0.0015% 0.0023% 0.0025%	ASTM E 74, Calibration fixture

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

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Mechanical (continued)			
Pressure	Up to 10 psi	0.6%	Druck DPI 104
Pressure gages	>10 to 30 psi	0.52%	
	>30 to 60 psi	0.7%	
Pressure loop calibrators/transducers/ transmitters (Positive)	Up to 1 psi	0.058%	Ruska 7250i
	>1 to 5 psi	0.002%	
Pressure loop calibrators/transducers/ transmitters (Negative)	Up to 1 psi	0.03%	Ruska 7250i
	>1 to 5 psi	0.013%	

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Mechanical (continued)			
Bench Scale	Up to 100 lb	0.02%	Class F weights
	>100 to 200 lb	0.02%	
	>200 to 250 lb	0.02%	
	>250 to 300 lb	0.02%	
	>300 to 500 lb	0.18%	
Electrical		ppm of output + µV	
DC Voltage – Generate	(0 to 329.9999 mV)	20 + 1	Fluke 5520A
	(0 to 3.299999 V)	11 + 2	
	(0 to 32.99999 V)	12 + 20	
	(30 to 329.9999 V)	18 + 150	
	(100 to 1000.000 V)	18 + 1500	

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Electrical (continued) AC Voltage – Generate		ppm of output + µV	Fluke 5520A
	1.0 to 32.999 mV		
	(10 to 45 Hz)	800 + 6	
	(45 Hz to 10 kHz)	150 + 6	
	(10 to 20 kHz)	200 + 6	
	(20 to 50 kHz)	1000 + 6	
	(50 to 100 kHz)	3500 + 12	
	(100 to 500 kHz)	8000 + 50	

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
AC Voltage – Generate (continued)			Fluke 5520A
	33 to 329.999 mV		
	(10 to 45 Hz)	300 + 8	
	(45 Hz to 10 kHz)	145 + 8	
	(10 to 20 kHz)	160 + 8	
	(20 to 50 kHz)	350 + 8	
	(50 to 100 kHz)	800 + 32	
	(100 to 500 kHz)	2000 + 70	
	0.33 to 3.29999 V		
	(10 to 45 Hz)	300 + 50	
	(45 Hz to 10 kHz)	150 + 60	
	(10 to 20 kHz)	190 + 60	
	(20 to 50 kHz)	300 + 50	
	(50 to 100 kHz)	700 + 125	
	(100 to 500 kHz)	2400 + 600	

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
AC Voltage – Generate (continued)	3.3 to 32.9999 V		Fluke 5520A
	(10 to 45 Hz)	300 + 650	
	(45 Hz to 10 kHz)	150 + 600	
	(10 to 20 kHz)	240 + 600	
	(20 to 50 kHz)	350 + 600	
	(50 to 100 kHz)	900 + 1600	
	33 to 329.999 V		
	(45 Hz to 1 kHz)	190 + 2000	
	(1 to 10 kHz)	200 + 6000	
	(10 to 20 kHz)	250 + 6000	
	(20 to 50 kHz)	300 + 6000	
	(50 to 100 kHz)	2000 + 50000	
	330 to 1020 V		
	(45 Hz to 1 kHz)	300 + 10000	
	(1 to 5 kHz)	250 + 10000	
	(5 to 10 kHz	300 + 10000	

October 1, 2008
Commencement Date

C. P. Ramani, P.E.
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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
DC Current – Generate		ppm of output + µA	Fluke 5520A
	(0 to 329.999 µA)	150 + 0.02	
	(0 to 3.29999 mA)	100 + 0.05	
	(0 to 32.9999 mA)	100 + 0.25	
	(0 to 329.999 mA)	100 + 2.5	
	(0 to 1.09999 A)	200 + 40	
	(1.1 to 2.99999 A)	380 + 40	
	(0 to 10.9999 A on 20 A Range)	500 + 500	
	(11 to 20.5 A)[2]	1000 + 750	

October 1, 2008
Commencement Date

C. P. Ramani, P.E.
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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
AC Current – Generate		% of output + µA	Fluke 5520A
	29.00 to 329.99 µA		
	(10 to 20 Hz)	0.2 + 0.1	
	(20 to 45 Hz)	0.15 + 0.1	
	(45 Hz to 1 kHz)	0.125 + 0.1	
	(1 to 5 kHz)	0.3 + 0.15	
	(5 to 10 kHz)	0.8 + 0.2	
	(10 to 30 kHz)	1.6 + 0.4	
	0.33 to 3.2999 mA		
	(10 to 20 Hz)	0.2 + 0.15	
	(20 to 45 Hz)	0.125 + 0.15	
	(45 Hz to 1 kHz)	0.1+ 0.15	
	(1 to 5 kHz)	0.2 + 0.2	
	(5 to 10 kHz)	0.5 + 0.3	
	(10 to 30 kHz)	1.0 + 0.6	

October 1, 2008
Commencement Date

C. P. Ramani, P.E.
President

International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
AC Current – Generate (continued)			Fluke 5520A
	3.3 to 32.999 mA		
	(10 to 20 Hz)	0.18 + 2	
	(20 to 45 Hz)	0.09 + 2	
	(45 Hz to 1 kHz)	0.04 + 2	
	(1 to 5 kHz)	0.08 + 2	
	(5 to 10 kHz)	0.2 + 3	
	(10 to 30 kHz)	0.4 + 4	
	33 to 329.99 mA		
	(10 to 20 Hz)	0.18 + 20	
	(20 to 45 Hz)	0.09 + 20	
	(45 Hz to 1 kHz)	0.04 + 20	
	(1 to 5 kHz)	0.10 + 50	
	(5 to 10 kHz)	0.2 + 100	
	(10 to 30 kHz)	0.4 + 200	

October 1, 2008
Commencement Date

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President

International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
AC Current – Generate (continued)			Fluke 5520A
	0.33 to 1.09999 A		
	(10 to 45 Hz)	0.18 + 100	
	(45 Hz to 1 kHz)	0.05 + 100	
	(1 to 5 kHz)	0.6 + 1000	
	(5 to 10 kHz)	2.5 + 5000	
	1.1 to 2.99999 A		
	(10 to 45 Hz)	0.18 + 100	
	(45 Hz to 1 kHz)	0.06 + 100	
	(1 to 5 kHz)	0.6 + 1000	
	(5 to 10 kHz)	2.5 + 5000	
	3 to 10.9999 A		
	(45 to 100 Hz)	0.06 + 2000	
	(100 Hz to 1 kHz)	0.10 + 2000	
	(1 to 5 kHz)	3.0 + 2000	

October 1, 2008
Commencement Date

C. P. Ramani, P.E.
President

International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
AC Current – Generate (continued)			Fluke 5520A
	11 to 20.5 A		
	(45 to 100 Hz)	0.12 + 5000	
	(100 Hz to 1 kHz)	0.15 + 5000	
	(1 to 5 kHz)	3.0 + 5000	
Ohms – Generate	(0 to 11) Ω	40 μΩ/Ω + 0.001 Ω	
	(11 to 33) Ω	30 μΩ/Ω + 0.0015 Ω	
	(33 to 110) Ω	28 μΩ/Ω + 0.0014 Ω	
	(110 to 330) Ω	28 μΩ/Ω + 0.002 Ω	
	(330 to 1100) Ω	28 μΩ/Ω + 0.002 Ω	
	(1.1 to 3.3) kΩ	28 μΩ/Ω + 0.02 Ω	
	(3.3 to 11) kΩ	28 μΩ/Ω + 0.02 Ω	
	(11 to 33) kΩ	28 μΩ/Ω + 0.2 Ω	

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Ohms – Generate (continued)	(33 to 110 kΩ	28 μΩ/Ω + -0.2 Ω	
	(110 to 330) kΩ	32 μΩ/Ω + 2 Ω	
	(330 to 1100) kΩ	32 μΩ/Ω + 2 Ω	
	(1.1 to 3.3) MΩ	60 μΩ/Ω + 30 Ω	
	(3.3 to 11) MΩ	130 μΩ/Ω + 50 Ω	
	(11 to 33) MΩ	250 μΩ/Ω + 2.5 kΩ	
	(33 to 110) MΩ	500 μΩ/Ω + 3 kΩ	
	(110 to 330) MΩ	3 mΩ/Ω + 100 kΩ	
	(330 to 1100) MΩ	15 mΩ/Ω + 500 kΩ	
Thermal Temperature - Generate/Measure Thermocouple Type B			Fluke 5520A
	600°C to 800°C	0.44°C	
	>800°C to 1000°C	0.34°C	
	>1000°C to 1550°C	0.30°C	
	>1550°C to 1820°C	0.33°C	

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Thermal Temperature - Generate/Measure Thermocouple (continued) Type C	0 to 150°C >150°C to 650°C >650°C to 1000°C >1000°C to 1800°C >1800°C to 2316°C	0.30°C 0.26°C 0.31°C 0.50°C 0.84°C	Fluke 5520A
Type E	-250°C to -100°C >-100°C to -25°C >-25°C to 350°C >350°C to 650°C >650°C to 1000°C	0.50°C 0.16°C 0.14°C 0.16°C 0.21°C	

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Thermal			
Temperature - Generate/Measure			
Thermocouple (continued)			Fluke 5520A
Type J	-210°C to -100°C	0.27°C	
	>-100°C to -30°C	0.16°C	
	>-30°C to 150°C	0.14°C	
	>150°C to 760°C	0.17°C	
	>760°C to 1200°C	0.23°C	
Type K	-200°C to -100°C	0.33°C	
	>-100°C to -25°C	0.18°C	
	>-25°C to 120°C	0.16°C	
	>120°C to 1000°C	0.26°C	
	>1000°C to 1372°C	0.40°C	
Type L	-200°C to -100°C	0.37°C	
	>-100°C to 800°C	0.26°C	
	>800°C to 900°C	0.17°C	

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

MEASUREMENT AREA	RANGE & RESOLUTION	BEST MEASUREMENT CAPABILITY[1] (BMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Thermal			
Temperature - Generate/Measure			
Thermocouple (continued)			Fluke 5520A
Type N	-200°C to -100°C	0.40°C	
	>-100°C to -25°C	0.22°C	
	>-25°C to 120°C	0.19°C	
	>120°C to 410°C	0.18°C	
	>410°C to 1300°C	0.27°C	
Type R	0°C to 250°C	0.57°C	
	>250°C to 400°C	0.35°C	
	>400°C to 1000°C	0.33°C	
	>1000°C to 1767°C	0.40°C	
Type S	0°C to 250°C	0.47°C	
	>250°C to 1000°C	0.36°C	
	>1000°C to 1400°C	0.37°C	
	>1400°C to 1767°C	0.46°C	

October 1, 2008
Commencement Date

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International Accreditation Service, Inc.

SCOPE OF ACCREDITATION

Architectural Testing, Inc. CL-118
(Revised October 9, 2008)

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Thermal Temperature - Generate/Measure Thermocouple (continued) Type T	-250°C to -150°C >-150°C to 0°C >0°C to 120°C >120°C to 400°C	0.63°C 0.24°C 0.16°C 0.14°C	Fluke 5520A
Type U	-200°C to 0°C >0°C to 600°C	0.56°C 0.27°C	

[1] "Best Measurement Capability" 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 of nearly ideal measuring instruments. Best Measurement Capabilities are expressed as uncertainties at approximately the 95% level of confidence, usually using a coverage factor of k=2. The measurement uncertainty of a specific calibration performed by the laboratory may be greater than the least uncertainty due to the behavior of the customer's device, to the environment (if the calibration is performed in the field), and to influences from the circumstances of the specific calibration.

NOTE: Calibration parameters are performed primarily on-site at customer locations. The uncertainty of scale/balance calibration is highly dependent on local conditions, such as scale resolution and sensitivity, scale cleanliness, local gravity, temperature and humidity, dust, vibration, etc.; therefore, any statement of uncertainty is misleading. The class of the best weights used by the laboratory is shown in the Technique column. Use of weights in combination, whether in the same class or different classes, will increase measurement uncertainty resulting from the additive effect of weight tolerances, as defined in ASTM E 617.

October 1, 2008
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