CERTIFICATE OF ACCREDITATION

ANSI-ASQ National Accreditation Board
500 Montgomery Street, Suite 625, Alexandria, VA 22314, 877-344-3044

This is to certify that

Clark Dynamic Testing Laboratory, Inc.
1801 Route 51 South
Jefferson Hills, PA 15025

has been assessed by ANAB
and meets the requirements of international standard

ISO/IEC 17025:2005

while demonstrating technical competence in the field of

TESTING

Refer to the accompanying Scope of Accreditation for information regarding the types of tests to which this accreditation applies.

AT-2508
Certificate Number

ANAB Approval

Certificate Valid: 09/14/2018-10/03/2020
Version No. 004 Issued: 09/14/2018

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. 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).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Clark Dynamic Testing Laboratory, Inc.

1801 Route 51 South
Jefferson Hills, PA 15025
Michelle Felicetti 412-387-1661

TESTING

Valid to: **October 3, 2020** Certificate Number: **AT-2508**

Testing performed in support of FCC DoC and certification approval procedures

Type of Device Examples	Scope of Accreditation	Supporting FCC Guidance	Comments
Unintentional Radiators (FCC Part 15, Subpart B)	ANSI C63.4-2014		
Industrial, Scientific, and Medical Equipment (FCC Part 18) Consumer ISM equipment	FCC MP-5, (February 1986)		

Electromagnetic Compatibility

Test Method	Test Specification(s)	Range	Comments
Conducted Emissions	MIL-STD-461E, CE101 MIL-STD-461F, CE101 30 Hz – 10 kHz	Power Leads	
	MIL-STD-461E, CE102 MIL-STD-461F, CE102 10 kHz – 10 MHz		
	MIL-STD-461E, CS101 MIL-STD-461F, CS101 30 Hz – 150 kHz		
Conducted Susceptibility	MIL-STD-461E, CS101 MIL-STD-461F, CS101 30 Hz – 150 kHz	Power Leads, Bulk Cable Injections	
	MIL-STD-461E, CS114 MIL-STD-461F, CS114 10 kHz – 200 MHz		
Radiated Emissions	MIL-STD-461E, RE101 MIL-STD-461F, RE101 30 Hz – 100 kHz	Magnetic Field	

Electromagnetic Compatibility

Test Method	Test Specification(s)	Range	Comments
	MIL-STD-461E, RE102 MIL-STD-461F, RE102 10 kHz – 18 GHz	Electric Field	
Radiated Susceptibility	MIL-STD-461E, RS101 MIL-STD-461F, RS101 30 Hz – 100 kHz (Excluding sec. 5.19.4)	Magnetic Field	
Radiated Susceptibility	MIL-STD-461E, RS103 MIL-STD-461F, RS103 2 MHz – 18 GHz to 50 V/m at 3 m Distance (Excluding sec. 5.20.4)	Electric Field	
Electromagnetic Compatibility	EN 61000-6-3 (2001)	Residential, Commercial, and Light Industrial Environments	
	EN 61000-6-4 (2007) + A1 (2011)	Emission Standard for Industrial Environments	
	EN 50121-4 (2001)	Railway Applications – Emission and Immunity of the Signaling and Telecommunications Apparatus	
	EN 50121-5 (2006)		
	EN 55011-5 (2009) + A1 (2010)	Industrial, Scientific, and Medical Radio Frequency Equipment	
	CISPR 11:2005	ISM Radio frequency disturbance characteristics Limits and Methods of measurement	
Emissions	47 CFR Part 15, Subpart B using ANSI C63.4 (2009, 2014)	Unintentional Radiators	
	47 CFR Part 15, Subpart B using ANSI C63.4 (2009, 2014)	ISM Equipment	
Immunity	IEC/EN 61000-6-1 (2007)	Electromagnetic Compatibility – Part 6-1: Generic Standards – Immunity for residential, Commercial, and Light Industrial Environments	

Electromagnetic Compatibility

Test Method	Test Specification(s)	Range	Comments
Immunity	IEC/EN 61000-6-2 (2005)	Electromagnetic Compatibility – Part 6-2: Generic Standards – Immunity for residential, Commercial, and Light Industrial Environments	
	IEC/EN 61000-4-2 (2009-05) 4 kV	Electromagnetic Compatibility – Part 4-4: Testing and Measurement Techniques – Electrostatic Discharge Immunity Test	
	IEC/EN 61000-4-6 (2009) 150 kHz – 80 MHz (140 dBµV)	Electromagnetic Compatibility – Part 4-6: Testing and Measurement Techniques – Immunity to Conduct Disturbances, Induced by Radio-Frequency Fields	
	IEC/EN 61000-4-3 (2006) + A1 (2008) + A2 (2010) 2 MHz – 18 GHz (50 V/m at 3 m Distance)	Electromagnetic Compatibility – Part 4-6: Testing and Measurement Techniques – Radiated Radio - Frequency, Electromagnetic Field Immunity Test	
	IEC/EN 61000-4-5 (2006) 4 kV	Electromagnetic Compatibility – Testing and Measurement Techniques – Surge Immunity Test	
	IEC/EN 61000-4-4 (2004) + A1 (2010) 4 kV	Electromagnetic Compatibility – Testing and Measurement Techniques – Electrical Fast Transient/Burst Immunity Test	
	IEC/EN 61000-4-8 (2010) 100 A/m	Electromagnetic Compatibility – Testing and Measurement Techniques – Power Frequency Magnetic Field Immunity Test	

Electromagnetic Compatibility

Test Method	Test Specification(s)	Range	Comments
Immunity	IEC/EN 61000-4-9 (2010) 1000 A/m	Electromagnetic Compatibility – Testing and Measurement Techniques – Pulse Magnetic Field Immunity Test	
Immunity	IEC/EN 61000-4-11 (2004)	Electromagnetic Compatibility (EMC) – Part 4-11: Testing and Measurement Techniques – Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests	
Immunity	IEC/EN 61000-4-29 (2009)	Electromagnetic Compatibility (EMC) – Part 4-29: Testing and Measurement Techniques – Voltage Dips, Short Interruptions and Voltage Variations on D.C. Input Power Port Immunity Tests	
Immunity	IEC/EN 61000-4-13 (2000)	Electromagnetic Compatibility (EMC) – Part 4-13Testing and Measurement Techniques – Harmonics and Inter-harmonics Including Mains Signaling at A.C. Power Port, Low Frequency Immunity Tests	

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Comments
Seismic	IEEE 323, IEEE 344, IEEE 693, AC 156, CBC 2013, IBC 2012	Earthquake (Electrical: Instrumentation and Controls)	
	GR-63-CORE (NEBS)	Earthquake (Network Building Equipment)	
Temperature and Humidity	RTCA / DO 160 Section 4	Environmental and Vibration Conditions (Airborne Equipment)	
	RTCA / DO 160 Section 5		
	RTCA / DO 160 Section 6		
	IEEE 323	Environmental and Vibration Conditions (Electrical: Instrumentation and Controls)	
	MIL-STD-810B, C, D, E, F, G – 501,502,503 -100°C - 400°C	Environmental and Vibration Conditions (Environmental Test Methods and Engineering Considerations and Laboratory Tests)	
	MIL-STD-810B, C, D, E, F, G – 507 10% – 95% RH		
	MIL-STD-202:103 Per Unit Test	Environmental and Vibration Conditions (Test Method Standard for Electronic and Electrical Component Parts Environmental test and Physical Characteristics Tests)	
	MIL-STD-202:106 Per Unit Test		
	MIL-STD-202:107 -70°C - 175°C		
	MIL-STD-202:108 Per Unit Test		
	GR-63 CORE -100°C - 400°C	Environmental and Vibration Conditions (Network Building Equipment)	
	IEC 60068-2-1 -100°C - 400°C	Environmental and Vibration Conditions (Equipment Transportation)	
	IEC 60068-2-3 -100°C - 400°C		
	IEC 61131-1 -70°C - 175°C	Environmental and Vibration Conditions (Programmable Controllers)	
	MIL-STD-833G/H -70°C - 175°C	Test Method Standard (Micro Circuits)	

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Comments
Temperature and Humidity	MIL-STD-833G/H -100°C - 400°C	Test Method Standard (Micro Circuits)	
Mechanical Shock	RTCA / DO 160 Section 7	Environmental and Vibration Conditions (Airborne Equipment)	
	MIL-STD-810B, C, D, E, F, G – 516 Per Unit Test	Environmental and Vibration Conditions (Environmental Test Methods and Engineering Considerations and Laboratory Tests)	
	MIL-STD-202:207 Per Unit Test	Environmental and Vibration Conditions (Test Method Standard for Electronic and Electrical Component Parts Environmental test and Physical Characteristics Tests)	
	MIL-STD-202:213 Per Unit Test		
Vibration	RTCA / DO 160 Section 8	Environmental and Vibration Conditions (Airborne Equipment)	
	MIL-STD-202:201 Per Unit Test	Environmental and Vibration Conditions (Test Method Standard for Electronic and Electrical Component Parts Environmental test and Physical Characteristics Tests)	
	MIL-STD-202:204 5 Hz – 2 000 Hz		
	MIL-STD-202:214 5 Hz – 2 000 Hz		
	MIL-STD-810B, C, D, E, F, G – 514 5 Hz – 2 000 Hz	Environmental and Vibration Conditions (Environmental Test Methods and Engineering Considerations and Laboratory Tests)	
	MIL-STD-167-1/1A Per Unit Test	Mechanical Vibrations of Shipboard Equipment (Type I Environmental and Type II Internally Excited)	
	GR-63 CORE 5 Hz – 2 000 Hz	Environmental and Vibration Conditions (Network Building Equipment)	

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Comments
Vibration	IEC 61373-99/2010 5 Hz – 2 000 Hz	Environmental and Vibration Conditions (Rolling Stock Equipment)	
	ASTM D4169, ASTM D4718, EN 61373, ISO 2631-1 5 Hz – 2 000 Hz	Environmental and Vibration Conditions (Shipping Containers)	
	AREMA C&S Part 11.5.1 5 Hz – 2 000 Hz	Environmental and Vibration Conditions (Railway Signals)	
High Impact Shock	MIL-S-901D/IC#1/IC#2 Medium Weight Shock Per Test Unit	Environmental and Vibration Conditions (Military Shipboard Equipment)	
Salt Spray/Fog	RTCA / DO 160 Section 14	Environmental and Vibration Conditions (Airborne Equipment)	
	MIL-STD-810B, C, D, E, F, G – 509 Per Unit test	Environmental and Vibration Conditions (Environmental Test Methods and Engineering Considerations and Laboratory Tests)	
	ISO 9227 IEC 60068-2-11	Environmental and Vibration Conditions (General Equipment)	
	ASTM B117	Environmental and Vibration Conditions (Sheet Metals for Shunts and Precision Resistors)	
	MIL-STD-202:101 Per Unit Test	Environmental and Vibration Conditions (Test Method Standard for Electronic and Electrical Component Parts Environmental test and Physical Characteristics Tests)	
Immersion	MIL-STD-810B, C, D, E, F, G – 512 Per Unit Test	Environmental and Vibration Conditions (Environmental Test Methods and Engineering Considerations and Laboratory Tests)	

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Comments
Immersion	MIL-STD-202:104 Per Unit Test	Environmental and Vibration Conditions (Test Method Standard for Electronic and Electrical Component Parts Environmental test and Physical Characteristics Tests)	
Altitude	MIL-STD-810B, C, D, E, F, G – 500 700 ft – 50,000 ft	Environmental and Vibration Conditions (Environmental Test Methods and Engineering Considerations and Laboratory Tests)	
	MIL-STD-202:105 Per Unit Test	Environmental and Vibration Conditions (Test Method Standard for Electronic and Electrical Component Parts Environmental test and Physical Characteristics Tests)	
Water Ingress	IEC 60529 2.2b 1Px1-8 Per Unit Test	Environmental and Vibration Conditions (Enclosure Testing)	
	NEMA 250 Per Unit Test	Enclosures for Electrical Equipment (1000V Max)	
	MIL-STD-202:203 Per Unit Test	Environmental and Vibration Conditions (Test Method Standard for Electronic and Electrical Component Parts Environmental test and Physical Characteristics Tests)	

Note:

1. This scope is formatted as part of a single document including Certificate of Accreditation No. AT-2508.

Vice President