PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

Perry Johnson Laboratory Accreditation, Inc. has assessed the Laboratory of:

DynaQual Test Labs

301 Wells Fargo Drive, Suite 10, Houston, TX 77090

(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:

ISO/IEC 17025:2017

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system
(as outlined by the joint ISO-ILAC-IAF Communiqué dated April 2017):

Mechanical and Thermodynamic Stress Testing

(As detailed in the supplement)

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen
President/Operations Manager

Perry Johnson Laboratory Accreditation, Inc. (PJLA)
755 W. Big Beaver, Suite 1325
Troy, Michigan 48084

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
November 10, 2019	January 09, 2024	February 28, 2026

Accreditation No.:	*Certificate No.:*
79999	L24-35

The validity of this certificate is maintained through ongoing assessments based on a continuous accreditation cycle. The validity of this certificate should be confirmed through the PJLA website: www.pjlabs.com

Certificate of Accreditation: Supplement

DynaQual Test Labs

301 Wells Fargo Drive, Suite 10, Houston, TX 77090
Contact Name: Mr. Bob Joyce Phone: 281-773-7944

Accreditation is granted to the facility to perform the following testing:

FIELD OF TEST	ITEMS, MATERIALS OR PRODUCTS TESTED	SPECIFIC TESTS OR PROPERTIES MEASURED	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED	RANGE (WHERE APPROPRIATE) AND DETECTION LIMIT
Mechanical [F]	Electronics with or without mechanical assemblies	Pressure testing cycles and/or dwells and with or without temperature (Hyperbaric)	Customer Specific	Pressure: Up to 30 000 psi Temperature: up to 200 ºC
		Shock (Drop) testing	MIL-STD-810H Test Methods Military MIL-STD-810H (516.7) Shock Inter. IEC 60068-2-27 Env. Testing – Shock ASTM 4169 Package Testing (Sec 13) Federal ISTA-2A Package Test (Seq 5)	Shock: ½ Sine, 50 Gpeak to 1 000 Gpeak 0.5 msec to 10 msec 1 to 500 shocks typical (XYZ Axes)
		Vibration and Classic Shock Testing	Petro-API-17F Testing of Subsea Equipment (9.2.3) Qualification of subsea electronics API 17F (9.3.3.3) ESS Vibration tests ISO 13628 (9.3.3.3) ESS Vibration tests Inter. IEC 60068-2-6 Env. Testing – Vibration MIL-STD-810H, (514.7) Vibration ASTM 4169 Package Testing (Sec 12) Federal ISTA-2A Package Test (Seq 4) Federal ISTA-2A Package Test (Seq 6) MIL-STD-1312-7A Fastener Test Methods	Sine Sweeps: 0.25 Gpeak to 15 Gpeak @ 1 Oct/min., 5 Hz to 1 500 Hz Random: 1 Grms to 30 Grms, 5 Hz to 2 000 Hz., 1min to 4hrs. Shock: ½ Sine, 5 Gpeak to 75 Gpeak, 0.5 msec to 15 msec., 1 to 1 000 shocks typical All tests in XYZ Axes
Mechanical [F]		HALT (Highly Accelerated Life Test) HASS (Highly Accelerated Stress Screen)	Standard HALT/HASS process as defined by Qualmark HALT Guideline Procedure Rev 7	5 step process of thermal and vibration stress steps to minimum and maximum limits of test article in Temp: - 100 ºC to 250 ºC Vibration: 0 Grms to 75 Grms

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Thermodynamic [F]	Electronics with or without mechanical assemblies	HALT (Highly Accelerated Life Test) HASS (Highly Accelerated Stress Screen)	Standard HALT/HASS process as defined by Qualmark HALT Guideline Procedure Rev 7	5 step process of thermal and vibration stress steps to minimum and maximum limits of test article in Temp: - 100 ºC to 250 ºC Vibration: 0 Grms to 75 Grms
		Thermal cycling and thermal soak	ISO 13628 Subsea Systems Testing (9.2.3) Qualification of subsea electronics ISO 13628 (9.3.3.2) ESS Temperature tests API 17F (9.3.3.2) ESS Temperature tests MIL-STD-810H (501.6) High Temperature MIL-STD-810H (501.6) Low Temperature MIL-STD-810H (503.6) Temperature Shock MIL-STD-810H (507.6) Humidity Fed ISTA-2A Package Testing (Seq.1) Temp Fed ISTA-2A Package Testing (Seq.2) T & H	Upper and lower operating limits Typically - 70 ºC to 175 ºC Humidity 95 % at 40 ºC

1. The presence of a superscript F means that the laboratory performs testing of the indicated parameter at its fixed location.