



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

ELECTRONICS TEST CENTRE-AIRDRIE (MPB TECHNOLOGIES INC.)

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MECHANICAL

Valid To: November 30, 2018

Certificate Number: 2750.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following dynamics and environmental simulation tests:

<u>Test Method</u>	<u>Parameters</u>	<u>Test Specifications/Standards¹</u>
<i>Dynamics</i>		
Vibration (Sine, Random, Sine on Random, Random on Random) UD T-1000	(5 to 2,000) Hz 1" displacement peak to peak 700 lbs, Up to 100 g's	ASAE EP455, Section 5.15; IEC 60945, Section 8.7; MIL-STD-810, Section 514; RTCA/DO-160, Section 8; CLAAS CN 050215, Section 3.5.3; UN Section 38.3.4.3; ISO 16750-3, Section 4.1.2.7, Table 12
Vibration Shock UD T-1000	6 ms, 11ms & 20 ms 30,000 lb-f Shock	ASAE EP455, Section 5.14; MIL-STD-810, Section 516; RTCA/DO-160, Section 7, Test Procedure I; CLAAS CN 050215, Section 3.5.4
Mechanical Shock UD T-1000	Terminal Velocity 400 inch/sec. Half Sine Up to 50 G, 11 ms	IEC 60068-2-27
Mechanical Shock (Drop)	1 meter - all six faces. Concrete, Wood, or Steel Surface	IEC 60945, Section 8.6.1; MIL-STD-810, Section 516, Procedure IV - Transit Drop; IEC 60068-2-31
Loose Transport Simulation	Ref Fig 514.5 C-5 Up to 1136 Kg, 285 Hz	MIL-STD-810, Section 514; IEC 60068-2-55 (1987) ²
Mechanical Shock (AVCO)	Up to 150 g's, 6 msec	UN Section 38.3.4.4

<u>Test Method</u>	<u>Parameters</u>	<u>Test Specifications/Standards¹</u>
<i>Environmental Simulation</i>		
Altitude	Altitude / Overpressure / Rapid Decompression (90,000 to 15,000) ft	ASAE EP455, Sections 5.2.1, 5.2.2; MIL-STD-810, Section 500; RTCA/DO-160, Section 4.6; UN Section 38.3.4.1
Dust	1 Meter Area ³ Volume 1.6 to 8.5 L/M Suction 2 L/M Max	IEC 60529 IP 5X, 6X
Temperature (High & Low)	(-68 to 177) °C	ASAE EP 455, Sections 5.1.1, 5.1.2; IEC 60945, Sections 8.2, 8.4; MIL-STD-810, Sections 501, 502; RTCA/DO-160, Sections 4, 5; CLAAS CN 050215, Sections 3.2, 3.4; IEC 60068-2-1; IEC 60068-2-2; ISO 9022-2, Sections 4.2.2, 4.2.3, 4.3.2; UN Section 38.3.4.2; ISO 16750-4, Section 5.2
Temperature Shock	(-68 to 177) °C	ASAE EP 455, Section 5.1.3; IEC 60945, Section 8.5; MIL-STD-810, Section 503; CLAAS CN 050215, Section 3.3; IEC 60068-2-14; ISO 9022-2, Section 4.3.3; ISO 16750-4, Section 5.3
Temperature - Humidity	(-68 to 177) °C (20 to 95) %RH	ASAE EP 455, Sections 5.13.1, 5.13.2; IEC 60945, Section 8.3; MIL-STD-810, Section 507; RTCA/DO-160, Section 6; IEC 60068-2-30; IEC 60068-2-78; ISO 9022-2, Sections 4.2.4, 4.3.4; CLAAS CN050215, Section 3.4.1
Immersion and Submersion	Up to 1.5 Meter Depth (10 to 20) °C	ASAE EP455, Section 5.5; MIL-STD-810, Section 512 <i>(test unit height up to 0.5m);</i> NEMA 250, Section 5.11 <i>(test unit height up to 0.2m);</i> IEC 60529 IP X7, IPX8

<u>Test Method</u>	<u>Parameters</u>	<u>Test Specifications/Standards¹</u>
<i>Environmental Simulation (cont.)</i>		
Water Jetting	296 LPM – Max.	ASAE EP455, Section 5.6; NEMA 250, Section 5.7; IEC 60529 IPX3, IPX4, IPX5, IPX6
Salt Exposure	NaCl 5% Solution	MIL-STD-810, Section 509

This laboratory also uses customer supplied specifications and/or methods directly related to the testing technologies and parameters listed above.

¹When the date, revision or edition of a test method standard is not identified on the scope of accreditation, the laboratory is required to be using the current version within one year of the date of publication, per part C., Section 1 of A2LA R101 - *General Requirements- Accreditation of ISO-IEC 17025 Laboratories*.

²This laboratory's scope contains withdrawn or superseded methods. As a clarifier, this indicates that the applicable method itself has been withdrawn or is now considered "historical" and not that the laboratory's accreditation for the method has been withdrawn.



Accredited Laboratory

A2LA has accredited

ELECTRONICS TEST CENTRE - AIRDRIE (MPB TECHNOLOGIES INC.)

Airdrie, Alberta, Canada

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. 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 8 January 2009).



Presented this 20th day of December 2016.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 2750.02
Valid to November 30, 2018

For the tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.