

Schedule

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Certificate No. : LA-1999-0172-E-2

Issue No. : 7

Date : 23 April 2018

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FIELD OF TESTING : Electrical Testing

MATERIAL / PRODUCT TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES / EQUIPMENT
Any Electronic Products or Components	1. Vibration Testing	<p>MIL-STD-810C Method 514.2 (Except for ambient conditions) Method 516.2, applicable only to:</p> <ul style="list-style-type: none"> • Procedure 1 & 5 (for terminal peak sawtooth pulse) • Procedure 2, trapezoidal pulse up to 10g, 10ms <p>MIL-STD-810 D Method 514.3 (Except for ambient Conditions) Method 516.3, applicable only to:</p> <ul style="list-style-type: none"> • Procedure 1 & 5 (for terminal peak sawtooth pulse) • Procedure 2, trapezoidal pulse up to 10g, 10ms <p>MIL-STD-810E Method 514.4 (Except for ambient condition) Method 516.4, applicable only to:</p> <ul style="list-style-type: none"> • Procedure 1 & 5 (for terminal peak sawtooth pulse) • Procedure 2, trapezoidal pulse up to 10g, 10ms <p>MIL-STD-810F Method 514.5 (Except for ambient condition) Method 516.5 applicable only to:</p> <ul style="list-style-type: none"> • Procedure 1 & 5 (for terminal peak sawtooth pulse) • Procedure 2, trapezoidal pulse up to 10g, 10ms <p>MIL-STD-810G Method 514.6 – Vibration Method 516.6 – Shock, applicable only to:</p> <ul style="list-style-type: none"> • Procedure 1 & 5 (Terminal peak sawtooth pulse) • Procedure 2, trapezoidal pulse up to 10g, 10ms

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	<p>2. Climatic Testing (-50°C to 150°C) Burn-in Testing (up to 200°C only)</p>	<p>MIL-STD-883G Method 2026 – Random Vibration (Test Condition A to K)</p> <p>MIL-STD-202G Method 213B (up to 100g at vertical configuration only) Method 201A Method 204D (all tests except F) Method 214A (test conditions up to G)</p> <p>IEC 60068-2-6 Test Fc: Vibration (Sinusoidal) IEC 60068-2-27 Test Ea: Shock</p> <p>RTCA / DO-160D & G Section 7 – Operational Shock Section 8 – Vibration</p> <p>MIL-STD-167-1A Mechanical Vibrations of shipboard equipment (Type I - Environmental Vibration)</p> <p>ISTA Procedure 3A: 2006 (Vibration) ISTA Procedure 1A, 2A: 2001 (Vibration)</p> <p>SAE USCAR 2 Rev 4 Method 5.4.6 Vibration / Mechanical Shock ETSI EN 300019-2-3 (Stationary use at weather protected locations) *Min starting frequency 5Hz</p> <p>GMW 3172 *Min starting frequency 5Hz IEC 61373:1999 Ed 1 *Min starting frequency 5Hz</p> <p>MIL-STD-810C Method 501.1 High Temperature (RH 10% or Higher) Method 502.1 Low Temperature Method 507.1 Humidity</p> <p>MIL-STD-810D Method 501.2 High Temperature (RH 10% or Higher) Method 502.2 Low Temperature Method 507.2 Humidity</p>

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		<p>MIL-STD-810E Method 501.3 High Temperature (RH 10% or Higher) Method 502.3 Low Temperature Method 507.3 Humidity</p> <p>MIL-STD-810F Method 501.4 High Temperature (RH 10% or Higher) Method 502.4 Low Temperature Method 507.4 Humidity</p> <p>MIL-STD-810G Method 501.5 - High Temperature (RH 10% or Higher) Method 502.5 - Low Temperature Method 503.5 - Temperature Shock Method 507.5 - Humidity</p> <p>IEC 60068-2-1: 2007 (Cold Test A) IEC 60068-2-2: 2007 (Dry Heat, steady state) IEC 60068-2-3: 1969 (Damp Heat, steady) IEC 60068-2-14: 2009 (only for Test Na) IEC 60068-2-30: 2005 (Damp Heat, cyclic) IEC 60068-2-78: 2012 (Damp Heat, steady state, Test Cab)</p> <p>RTCA / DO -160D Section 5: Temperature Variation Section 6: Humidity</p> <p>ISTA Procedure 1A, 2A: 2001 (Climatic)</p> <p>EIA JES D22- A105B Power & Temperature Cycling (Temperature cycling only) EIA JES D22- A104B Temperature Cycling SAE USCAR 2 Rev 4 Method 5.6.1 Thermal Shock Method 5.6.3 High Temperature Exposure Method 5.6.2 Temperature/Humidity Cycling</p> <p>EIA-364-31B Humidity test procedure for Electrical Connectors and Sockets</p>

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	3. Dust Testing	MIL-STD-202G Method 107G Thermal Shock Method 106G Moisture Resistance Method 103B Humidity (steady state) Method 108A Life Elevated Temperature (up to 200°C) IEC 60529 IP 5X IEC 60529 IP 6X (with under pressure)
	4. Water Ingress Protection Testing	IEC 60529 IP X3 IEC 60529 IP X4 IEC 60529 IP X5 IEC 60529 IP X6 IEC 60529 IP X7 IEC 60529 IP X8
	5. Drop Testing	IEC 60068-2-32: 1990 ISTA Procedure 3A: 2006 ISTA Procedure 1A, 2A: 2001

Approved Signatories:

Edward Choong – All tests
Ryan Chua – For item 2
Alvin Teo – For item 1
Allan Wu – For item 2, 3, 4 and 5
Dennis Tan – For item 2, 3, 4 and 5
Winnie Tan (Ms) – For item 2, 3, 4 and 5

Note :

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. A laboratory's fulfilment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid test results. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.