Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

2654

Accredited to ISO/IEC 17025:2017

Horiba MIRA Limited

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Testing performed at the above address only

Flexible Scope

The Flexible Scope applies to the laboratory's accreditation to ISO/IEC17025:2017 for testing activities in accordance with the standards listed in the schedule. This may also include tests on the same or similar product types against standards, or customer-specified methods, that are not specifically listed in this Schedule, providing that:

1. The method or standard does not introduce new principles of measurement.

2. The method or standard does not require measurements to be made outside the parametric boundaries defined in this Schedule.

Information about flexible scopes of accreditation is available in UKAS document GEN 4.

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
VEHICLES IN EEC & ECE CATEGORIES M1, M2, M3 N1, N2, N3		
AEROSPACE COMPONENTS AND EQUIPMENT	ENVIRONMENTAL TESTING	Documented In-House Methods, Customer Procedures and International Standards
AGRICULTURE EQUIPMENT	HIGH TEMPERATURE (Constant)	IEC 60068-2-2 :2007 BS EN 60068-2-2 :2007
AUTOMOTIVE COMPONENTS AND ASSEMBLIES	Max temp: +120 °C Limiting chamber size: 3.0 m x 3.0 m x 3.0 m	
COMPUTER AND PERIPHERAL EQUIPMENT		RTCA DO160G Section 4 MIL-STD-810G, Method 501.5 DEF STAN 00-35, Part 3, Issue 4, Test CL2, (superseded)
CONSTRUCTION PLANT EQUIPMENT	Max temp: +90 °C	
DOMESTIC APPLIANCES AND COMPONENTS	Limiting chamber size: 4.0 m x 3.0 m x 3.0 m	
ELECTRICAL/ELECTRONIC COMPONENTS	LOW TEMPERATURE (Constant)	IEC 60068-2-1 :2007
MARINE EQUIPMENT	Min temp: - 70 °C Limiting chamber size:	
MINING PLANT AND EQUIPMENT	1.0 m x 1.0 m x 1.0 m	RTCA DO160G Section 4 MIL-STD-810G, Method 501.5 DEF STAN 00-35, Part 3, Issue 4, Test CL5, (superseded)
PLASTIC COMPONENTS	Min temp: - 45 °C Limiting chamber size:	
RECORDING/INDICATING EQUIPMENT	3.0 m x 3.0 m x 3.0 m	
TELECOMMUNICATION EQUIPMENT	Min temp: - 40 °C Limiting chamber size: 4.0 m x 3.0 m x 3.0 m	

(cont'd next page)

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As Listed on Page 2 plus ELECTRIC VEHICLE COMPONENTS INCLUDING; BATTERY MANAGEMENT UNITS; BATTERY MANAGEMENT SYSTEMS; HIGH VOLTAGE JUNCTION BOXES; CONTACTORS; ONBOARD CHARGERS; DC TO DC CONVERTERS; MANUAL DISCONNECT SWITCHES; BATTERY COOLING SYSTEMS BATTERY & RECHARGEABLE ENERGY STORAGE SYSTEM (REESS) TECHNOLOGIES INCLUDING; LITHIUM-ION & SODIUM-ION CELLS IN CYLINDRICAL, PRISMATIC & POUCH FORM FACTORS LITHIUM-ION & SODIUM-ION MODULES	ENVIRONMENTAL TESTING (cont'd) HIGH/LOW TEMPERATURE, WITHOUT HUMIDITY (Cyclic) Max temp: + 120 °C Min temp: - 45 °C Limiting chamber size: 3.0 m x 3.0 m x 3.0 m HIGH/LOW TEMPERATURE CYCLING WITH HUMIDITY (Cyclic) Max temp: + 85°C with humidity. +120°C (uncontrolled humidity) Min temp: - 45 °C (uncontrolled humidity) Humidity range: 40 %RH - 95 %RH Limiting chamber size: 3.0 m x 3.0 m x 3.0 m Max temp: + 85 °C Min temp: - 40 °C (uncontrolled humidity) Humidity range: 40 %RH - 80 %RH Limiting chamber size: 4.0 m x 3.0 m x 3.0 m	IEC 60068-2-14:2009, Test Nb BS EN 60068-2-14:2009, Test Nb IEC 60068-2-38:2009 BS EN 60068-2-38:2009 DEF STAN 00-35, Part 3, Issue 4:2006, Test CL6, (superseded) RTCA DO160 G section 6. IEC / BS EN 60068-2-30:2005 MIL STD 810G Method 507.5 (superseded)
LITHIUM-ION & SODIUM-ION BATTERIES ELECTRIC VEHICLE BATTERY PACKS	HIGH HUMIDITY - STEADY STATE Max temp: + 85°C Min temp: - 45 °C Uncontrolled humidity Humidity range: 40 %RH - 95 %RH Limiting chamber size: 3.0 m x 3.0 m x 3.0 m Max temp: + 85 °C Min temp: - 40 °C (Uncontrolled humidity) Humidity range: 40 %RH - 80 %RH Limiting chamber size: 4.0 m x 3.0 m x 3.0 m	BS EN 60068-2-78:2001,TestCab BS EN 60068-2-78:2013 TestCab MIL-STD-810G, Method 507.5 DEF STAN 00-35, Part 3, Issue 4, Test CL6, (superseded)

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on Pages 2 & 3	THERMAL SHOCK (Automatic Transfer) Max temp: + 135 °C Min temp: - 45 °C Limiting chamber size: 770 mm x 610 mm x 650 mm VIBRATION Sinusoidal and Random EM Vibrators Ambient and Climatic Peakthrust Single: 350 kN Peakthrust Dual: 148 kN Frequency range: 5 Hz to 2.6 kHz Axes: Vertical and horizontal Climatic Vibration: Max temp: + 135 °C Min temp: - 60 °C Limiting chamber size: 1.0 m x 1.0 m x 1.0 m Max temp: + 135 °C Min temp: - 45 °C Humidity range: 40 %RH - 95 %RH Limiting chamber size: 3.0 m x 3.0 m x 3.0 m Max temp +100C Min temp -40C Limiting chamber size 3.0m L x 2.0m W x 2.0m H Max temp: + 90 °C Min temp: - 40 °C Humidity range: 40 %RH - 80 %RH Limiting chamber size: 4.0 m x 3.0 m x 3.0 m	IEC 60068-2-14:2009, Test Na BS EN 60068-2-14:2009, Test Na RTCA DO 160G section 5 Sinusoidal Methods IEC 60068-2-6:2008, Test Fc BS EN 60068-2-6:2008, Test Fc Mil Std 810G, method 514.6, Procedure 1 (superseded) MIL STD 810G change note 1, method 514.7 procedure 1 (vibration) DEF STAN 00-35, Part 3, issue 4, Test M1 RTCA DO160G, section 8 Random Methods IEC 60068-2-64:2008 BS EN 60068-2-64:2008 Mil Std 810G, method 514.6, Procedure 1, (superseded) MIL STD 810G change note 1, method 514.7 procedure 1 (vibration) DEF STAN 00-35, Part 3, issue 4, Test M1 (superseded) RTCA DO160G, section 8 Sine on Random Methods Random on Random Methods Mil Std 810G, method 514.6, Procedure 1, (superseded) DEF STAN 00-35, Part 3, issue 4, Test M1, (superseded) RTCA DO160G, section 8

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As listed on Pages 2 & 3	MECHANICAL SHOCK Vibration systems Peak thrust single : 900 kN Peak thrust dual : 444 kN Max accel : 248g Max displacement : 76.2mm p/p FREE FALL DROP (rough handling) Concrete or Plywood surface Max Ht: 2 m Max item mass: 200 kg DUST INGRESS PROTECTION Limiting chamber size: 1.0 m x 1.0 m x 1.0 m DIMENSIONAL MEASUREMENTS Angle: 0° to 90° Length: up to 1 m	 IEC 60068-2-27:2009 BS EN 60068-2-27:2009 BS EN 60068-2-31:2008 BS EN 60068-2-32:1993 (withdrawn) DEF STAN 00-35, Part 3, Issue 4, Test M4 & M5, (superseded) MIL-STD-810G, Method 516.6 procedures IV & VI only SAE J575 SAE J1211:1978 (Alternate Method) BS ISO 20653:2006 IP5Kk, IP6Kk BS EN 60529:1992 IP5X Cat2 & IP6X Cat 2 DIN 40050-9 IP5Kk, IP6Kk In-House Procedures Customer Procedures

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Automotive Electronic Components	<u>Associated Functional Exercising</u> Automotive Components and Assemblies using In-House Test Equipment Voltage DC: Up to 1000V Voltage AC: Up to 500V Current DC: Up to 700A (battery cycler) Resistance: 0.5 mΩ to 10 MΩ Isolation Resistance: Up to 2.2GΩ Frequency: up to 1 MHz Time: 20 μs to 10 days	Documented In-House Methods and Customer Specifications
Assemblies and Components	Force application and measurement 0 N to 500 N	In-House Procedure GE3039/0/01 and Customer Specifications
END		