

# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p><b>UKAS TESTING</b> 2654</p> <p>Accredited to <b>ISO/IEC 17025:2005</b></p>	<p><b>MIRA Limited</b></p> <p>Issue No: 013    Issue date: 08 April 2011</p>	
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<p><b>Testing performed at the above address only</b></p>		

### 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		
AUTOMOTIVE COMPONENTS AND ASSEMBLIES	HIGH TEMPERATURE (Constant)	IEC 60068-2-2 :2007 BS EN 60068-2-2 :2007 GME 5034 (Sun Blinds) GME 01124 GME 01125 GME 01143
COMPUTER AND PERIPHERAL EQUIPMENT	Max temp: 135 °C Limiting chamber size: 3.0 m x 3.0 m x 3.0 m	
CONSTRUCTION PLANT EQUIPMENT	Max temp: 90 °C Limiting chamber size: 4.0 m x 3.0 m x 3.0 m	
DOMESTIC APPLIANCES AND COMPONENTS		
ELECTRICAL/ELECTRONIC COMPONENTS		
MARINE EQUIPMENT		
MINING PLANT AND EQUIPMENT	LOW TEMPERATURE (Constant)	IEC 60068-2-1 :2007 GME 5034 (Sun Blinds) GME 01124 GME 01125 GME 01143
PLASTIC COMPONENTS	Min temp: - 70 °C Limiting chamber size: 1.0 m x 1.0 m x 1.0 m	
RECORDING/INDICATING EQUIPMENT		



2654

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<p>Continued from Page 1</p> <p>TELECOMMUNICATION EQUIPMENT</p>	<p>ENVIRONMENTAL TESTING (cont'd)</p> <p>Min temp: - 45 °C Limiting chamber size: 3.0 m x 3.0 m x 3.0 m</p> <p>Min temp: - 40 °C Limiting chamber size: 4.0 m x 3.0 m x 3.0 m</p> <p>HIGH/LOW TEMPERATURE, WITHOUT HUMIDITY (Cyclic)</p> <p>Max temp: + 135 °C Min temp: - 45 °C Limiting chamber size: 3.0 m x 3.0 m x 3.0 m</p> <p>HIGH/LOW TEMPERATURE CYCLING WITH HUMIDITY (Cyclic)</p> <p>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</p> <p>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</p>	<p>IEC 60068-2-14:2009, Test Ng BS EN 60068-2-14:2009, Test Ng</p> <p>IEC 60068-2-38:2009 BS EN 60068-2-38:2009 GMW 14109 GMW 14113 (draft)</p>



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As listed on Pages 1 and 2	<p><b>HIGH HUMIDITY - STEADY STATE</b></p> <p>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</p> <p>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</p> <p><b>THERMAL SHOCK</b> (Automatic Transfer)</p> <p>Max temp: + 135 °C Min temp: - 45 °C Limiting chamber size: 770 mm x 610 mm x 650 mm</p> <p><b>VIBRATION</b> Sinusoidal and Random EM Vibrators Ambient and Climatic</p> <p>Max vector thrust: 54.5 kN Frequency range: 5 Hz to 2.0 kHz Axes: Vertical and horizontal</p> <p>Climatic Vibration:</p> <p>Max temp: + 135 °C Min temp: - 60 °C Limiting chamber size: 1.0 m x 1.0 m x 1.0 m</p> <p>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</p>	<p>BS EN 60068-2-78:2001, TestCab</p> <p>IEC 60068-2-14:2009, Test Na BS EN 60068-2-14:2009, Test Na</p> <p>Sinusoidal</p> <p>IEC 60068-2-6:2008, Test Fc BS EN 60068-2-6:2008, Test Fc Mil Std 810G, method 514.6, Procedure 1 DEF STAN 00-35, Part 3, issue 4, Test M1 RTCA DO160F, section 8</p> <p>Random</p> <p>IEC 60068-2-64:2008 BS EN 60068-2-64:2008 GMW 7293 Mil Std 810G, method 514.6, Procedure 1 DEF STAN 00-35, Part 3, issue 4, Test M1 RTCA DO160F, section 8</p>



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As listed on Pages 1 and 2	<p><b>VIBRATION (cont'd)</b></p> <p>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</p> <p><b>MECHANICAL SHOCK</b></p> <p>Vertical drop test Max deceleration: 100 g Max pulse width: 30 ms Table dimensions: 0.65 m x 0.81 m Max component mass: 227 kg</p> <p><b>FREE FALL DROP (rough handling)</b></p> <p>Concrete or Plywood surface Max Ht: 2 m Max item mass: 200 kg</p> <p><b>DUST INGRESS PROTECTION</b></p> <p>Limiting chamber size: 1.0 m x 1.0 m x 1.0 m</p> <p><b>SALT SPRAY CORROSION</b> Temperature range Ambient to 50 °C (normal conditions 35 °C)</p> <p><b>DIMENSIONAL MEASUREMENTS</b></p> <p>Angle: 0° to 90° Length: up to 1 m</p>	<p>Sine on Random Random on Random</p> <p>Mil Std 810G, method 514.6, Procedure 1 DEF STAN 00-35, Part 3, issue 4, Test M1 RTCA DO160F, section 8</p> <p>IEC 60068-2-27:2009 BS EN 60068-2-27:2009 GMW 14093</p> <p>BS EN 60068-2-31:1993 (superseded) BS EN 60068-2-32:2008</p> <p>SAE J575 SAE J1211(Alternate Method)</p> <p>ASTM B117-03 (superseded) BS EN 60068-2-11:1999, Test Ka IEC 60068-2-11:1981, Test Ka BS EN 60068-2-52:1996, Method Kb DEF STAN 00-35, Part 3, issue 4, Test CN2</p> <p>In-House Procedures Customer Procedures</p>



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As listed on Pages 1 and 2	MECHANICAL CYCLING  Pneumatic actuators Max stroke: 320 mm Max static thrust: 25 kN	FORD CEPT 00.00-L-412
VEHICLE TACHOGRAPHS	ACCURACY TESTS - Visual Indication - Recorded Speed (40 to 120 km/hr) - Recorded Distance (minimum 5 km in 1 hr) - Acceleration Response (minimum 20 km/hr in 5 s) - Time Indication (up to 100 hr)	Authorised Repairers' Tachograph Manual Ref Number: 371/363 Issue 08: July 2007 (Annex A)
Automotive Electronic Components	ENDURANCE TESTS  FUNCTIONAL TESTS  <u>Associated Functional Exercising</u>  Automotive Components and Assemblies using In-House Test Equipment  Voltage DC: 10 mV to 65V Current DC: 30 mA to 10 A Resistance: 0.1 Ω to 10 MΩ Frequency: up to 1 MHz Time: 20 μs to 10 days	Customer Specifications  EC 3314/90  Documented In-House Methods and Customer Specifications
	END	