

# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

|   |  |   |
|---|--|---|
|  <p>Accredited to<br/>ISO/IEC 17025:2005</p> | <h3>Airbus UK</h3> <p><b>Issue No:</b> 015    <b>Issue date:</b> 22 January 2009</p> |   |
|   | <p>PO Box 77<br/>Bristol<br/>BS99 7AR</p>  | <p><b>Contact:</b> Mr M Silcock<br/><b>Tel:</b> +44 (0)117-9366126 / (0) 117 9362903<br/><b>Fax:</b> +44 (0)117-9362432<br/><b>E-Mail:</b> malcolm.silcock@airbus.com<br/><b>Website:</b></p> |
| <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   |
|--|--|--|
| <p>MATERIALS LABORATORY</p> <p>Metals, Alloys and Metal Products</p> | <p><u>Mechanical Tests</u></p> <p>Tensile<br/>( Up to 250 kN)</p> <p>Compression<br/>(up to 250 kN)</p> <p>Hardness Vickers<br/>(HV 5 &amp; 10)</p> <p>Bend Tests</p> <p><u>Metallurgical Tests</u></p> <p>Grain Size</p> <p>Test on Welds:-<br/>Visual examination, Macro-<br/>examination and Micro-examination</p> <p><u>Chemical Tests</u></p> <p>Elemental Analysis</p> | <p>BS EN 2002-1:2005<br/>BS EN 10002-1:2001<br/>BS 4A4:1966</p> <p>ASTM E9-89a</p> <p>BS EN ISO 6507-1:1998<br/>(Superseded)<br/>LT 15.07.15</p> <p>BS EN ISO 7438:2005<br/>BS 4A4-Part 3:1966</p> <p>ASTM E112-96(04)<sup>e2</sup> (Comparison<br/>method)</p> <p>BCAR A8-10<br/>ABP 2-4099<br/>LT 15.01.19</p> <p>Documented In-House Procedure<br/>LT19.18 using Atomic Absorption<br/>Spectrometry</p> |



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| MATERIALS LABORATORY (cont'd)   | <u>Chemical Tests</u> (cont'd)   |  |
| Metals, Alloys and Metal Products (cont'd)  | Elemental analysis of Microstructural constituents and particulate materials > 5 um diam | Documented In-House Procedure LT 15.07.25 using Scanning Electron Microscopy with Energy Dispersive X-Ray Analysis |
| Non-Metallic Materials and Products   | <u>Mechanical Tests</u>  |  |
| Adhesives   | a) <u>Ambient Temperature</u>  |  |
|   | Tensile Shear (Single lap shear) (ambient temperature, 223K to 573K)                     | BS EN 2243-1 :2005   |
| Phenolic Mouldings, Reinforced Lamintes, Phenolic Epoxy and Polyester/and Rubbers | Tensile  | BS EN 2561:1995  |
|   | Flexural Strength  | BS EN 2562:1997  |
|   | Tension<br>Compression<br>Inter-laminar Shear  | AITM 1,0007 June 1994 Issue 2<br>AITM 1,0008 June 1994 Issue 2<br>BS EN 2563:1997                                  |
|   | Hardness   | BS 903:Part A26:1995 (Withdrawn)   |
|   | <u>Chemical/Physical Tests</u>   |  |
| Resins, Plastics  | Thermal Characterisation   | AITM 1,0003<br>AITM 3,0002<br>LT 19.15   |
|   | Comparative Identification   | Documented In-House Procedures using Infra-Red Spectrometry<br>LT 19.21.00   |
| Rubbers and Rubber Products   | Resistance to Fluids   | BS 903:Part A16:1999   |
| Sealants  | Peel   | AITM2-0013<br>AITM7-0006   |
| Paints, Varnishes and Temporary Protectives                                       | Bend Test  | BS EN ISO 1519:2002 (Cylindrical mandrel)  |
|   | Scratch Resistance   | BS EN ISO 1518:2001  |



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| MATERIALS LABORATORY (cont'd)                        | <u>Chemical/Physical Tests (cont'd)</u>                                      |  |
| Paints, Varnishes and Temporary Protectives (cont'd) | Cross Cut Test   | BS EN ISO 2409:1995 (Withdrawn)<br>BS 3900:Part E6:1992 (Withdrawn)              |
|  | Determination of Resistance to Humidity under Cyclic Condensation Conditions | BS 3900:Part F2:1973(1989) (excluding clause 6.4)                                |
|  | Resistance to Liquids  | BS EN ISO 2812-1:1995 (Withdrawn)<br>BS 3900:Part G5:1993 (Withdrawn)            |
|  | Resistance to Continuous Salt Spray  | ASTM B117- 07<br>BS EN ISO 9227:2006<br>BS 7479:1991(Superseded)                 |
| Hydraulic and Insultation Oils                       | Particulate Contamination  | HIAC 8000 Particle Counting Equipment. Fluids tested on IP 327/81<br>LT 07.07.05 |
| Hydraulic and Insultation Oils                       | Qualitative Analysis   | Documented In-House Procedure using Infra-Red Spectrometry<br>LT 19.21.00        |
| Machine Tool Cutting Fluids                          | Quantitative Analysis of Contamination of Micro-organisms                    | LT 10.01.05  |
| Solvents   | Qualitative Analysis by infra-red spectroscopy                               | LT 19.21.00  |
| <u>Industrial Pollutants in Air</u>                  |  |  |
| Organic Vapours                                      | Chemical Analysis  | LT 19.19.02  |
| Metallic Dusts and Vapours                           | Chemical Analysis  | LT 19.18.01  |
| <u>Metal Coatings</u>                                |  |  |
| Anodic Films   | Coating mass determination   | BS EN 12373-2:<br>LT 15.01. 21   |
|  | Corrosion resistance   | BS 1224:1970(Withdrawn)<br>ASTM:B117- 07<br>BS 7479:1991                         |



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| <p><b>STRUCTURAL TEST DOMAIN</b></p> <p>Aerospace Equipment<br/>Aerospace Structures<br/>Castings<br/>Forgings<br/>Metal Products<br/>Structural Components<br/>Structures</p> <p>Aerospace Materials<br/>Aerospace Structures<br/>Castings<br/>Composite Materials<br/>Fasteners<br/>Forgings<br/>Laminates and Fibre Composites<br/>Metal Products<br/>Metals and Alloys<br/>Structural Components<br/>Structures</p> | <p><u>Mechanical Testing</u></p> <p>1 <u>Custom Built Rigs for Individual Test Specimens</u></p> <p>a) Static Loading</p> <p>Single/Multi Channel loading, currently up to 800 tonf (8000 KN)*</p> <p>*Higher loads may be engineered to customer's requirements</p> <p>b) Programmed Fatigue Loading</p> <p>Single/Multi Channel loading, currently up to 800 tonf (8000 KN)*</p> <p>*Higher loads may be engineered to customer's requirements</p> <p>2 <u>Strong Floor Facility</u></p> <p>66 ft x 33 ft (20 x 10 m) with 24 ft (7.3 m) headroom<br/>Up to 20 tonf (200 kN) point load on any one of 13 floor beams or a distributed load of 100 tonf (1000 kN)</p> <p>3 <u>Test Machines</u></p> <p>a) Tension/Compression</p> <p>Tensile/Compressive tests up to 150 tonf (1500 kN) at ambient temperature</p> <p>NOTE:<br/>Max test piece sizes (150 tonf machines):<br/>Compression 15 ft (4.57 m) (between platens), Tension 9 ft (2.74 m) (plus Jack Stroke 1 ft 8 inches (0.5 m)</p> | <p>Documented In-House Procedures B24 Procedures Handbook, Sections 4 and 6 using DEC PDP 11/34 based control systems with an Intercole Systems Data Logger</p> <p>Documented In-House Procedures B24 Procedures Handbook, Sections 4 and 6<br/>Note: Photoelastic Coatings analysed using a Polariscope</p> <p>Documented In-House Procedures B24 Procedures Handbook, Section 5.25</p> <p>Documented In-House Procedures B24 Procedures Handbook, Section 5 using:</p> <p>i) Avery 150 tonf tension and 150 tonf (1500 kN) compression machines</p> <p>ii) Universal Avery Machine 60,000 lbf (267 kN) compression</p> <p>iii) Mayes Machine (150kN)</p> |



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| <p>STRUCTURAL TEST DOMAIN (cont'd)</p> <p>Aerospace Materials<br/>Aerospace Structures<br/>Castings<br/>Composite Materials<br/>Fasteners<br/>Forgings<br/>Laminates and Fibre Composites<br/>Metal Products<br/>Metals and Alloys<br/>Structural Components<br/>Structures (cont'd)</p> | <p><u>Mechanical Testing</u> (cont'd)</p> <p>3 <u>Test Machines</u> (cont'd)</p> <p>b) R Curve<br/>Testing up to a capacity of 7500 kN at ambient temperature</p> <p>c) Fatigue Crack growth rates<br/>Testing under constant amplitude and programmed random loading up to dynamic capacity of 2000 kN</p> <p>d) Fatigue<br/>Testing under constant amplitude and programmed random loading up to dynamic capacity of 2000 kN</p> | <p>Documented In-House Procedure<br/>Group Note 04-1497 Issue 4</p> <p>Documented In-House Procedure<br/>PP0600744 Issue 1</p> <p>Documented In-House Procedures<br/>04/1576 Issue 2</p> |
| END  |  |  |