


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>0115</p> <p>Accredited to ISO/IEC 17025:2017</p>	<h3>API Microelectronics Ltd</h3> <p>Issue No: 037 Issue date: 03 March 2021</p>	
	<p>Test House Services South Denes Great Yarmouth Norfolk NR30 3PX</p>	<p>Contact: Mr J Ellero Tel: +44 (0)1493 743149 Fax: +44 (0)1493 856133 E-Mail: john.ellero@apitech.com Website: http://micro.apitech.co.uk</p>
<p>Testing performed at the above address only</p>		

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
AEROSPACE EQUIPMENT ELECTRICAL/ELECTRONIC COMPONENTS ELECTRICAL/ELECTRONIC CONNECTORS ELECTRICAL/ELECTRONIC PRODUCTS ELECTRO-MECHANICAL DEVICES MICRO-ELECTRONIC CIRCUITS AND COMPONENTS MISSILE COMPONENTS MOTOR VEHICLE ACCESSORIES AND COMPONENTS	<p>ENVIRONMENT TESTS (non-explosive items)</p> <p>CLIMATIC - Single Parameters</p> <p>HIGH TEMPERATURE Max temp: +250 °C Max chamber size: 0.6 m x 0.6 m x 0.4 m</p> <p>LOW TEMPERATURE Min temp: -80 °C Max chamber size: 1 m x 0.6 m x 0.4 m</p>	BS EN 60068-2-2:2007 Tests Ba, Bb IEC 68-2-2:1974 (1976) MIL-STD 202H:2015 Method 108 MIL-STD 202G:2002 Method 108A MIL-STD 202F:1980 Method 108A MIL-STD 883K:CN3:2018 TM1005.11 MIL-STD 810H:2019 Method 501.7 MIL-STD 810G:CN1:2014 Method 501.6 MIL-STD 810G:2008 Method 501.5 MIL-STD 810F:2000 Method 501.4 MIL-STD 810E:1989 Method 501.4 MIL-STD 1344A:1977 Method 1005.1 BS EN 60068-2-1:2007 Tests Aa, Ab IEC 68-2-1:1990 MIL-STD 810H:2019 Method 502.7 MIL-STD 810G:CN1:2014 Method 502.6 MIL-STD 810G:2008 Method 502.5 MIL-STD 810F:2000 Method 502.4 MIL-STD 810E:1989 Method 502.3



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As listed on Page 1	<p>ENVIRONMENT TESTS (non-explosive items) (cont'd)</p> <p>CLIMATIC - Single Parameters (cont'd) TEMPERATURE CHANGE (Thermal Shock)</p> <p>Rapid - Air to Air Temp range: -70 °C to +200 °C Max chamber size: 0.6 m x 0.6 m x 0.4 m</p> <p>Gradual Temp range: -70 °C to +200 °C Max chamber size: 0.5 m x 0.5 m x 0.3 m</p> <p>Rapid - Liquid to Liquid Temp range: -74 °C to +160 °C Max chamber size: 0.15 m x 0.15 m x 0.15 m</p> <p>HIGH HUMIDITY - steady state Temp range: +10 °C to +85 °C Humidity range: 10 % rh to 98 % rh Max chamber size: 0.7 m x 0.5 m x 0.8 m</p>	<p>BS EN 60068-2-14:2009 BS EN 60068-2-14:2000 BS 2011:N:1985 (1987) Tests Na, Nb, Nc IEC 68-2-14:1984 IEC 6008-2-14:1984 MIL-STD 202H:2015 Method 107G MIL-STD 202G:2002 Method 107G MIL-STD 202F:1980 Method 107G MIL-STD 750:1A CN2:2016 Methods 1051.9, 1056.8 MIL-STD 750D:1995 Methods 1051.5, 1056.7 MIL-STD 810H:2019 Method 503.7 MIL-STD 810G:CN1:2014 Method 503.6 MIL-STD 810G:2008 Method 503.5 MIL-STD 810F:2000 Method 503.4 MIL-STD 810E:1989 Method 503.3 MIL-STD 883K:CN3:2018 Methods 1010.9, 1011.9 MIL-STD 883G:2006 Methods 1010.8, 1011.9 MIL-STD 883F:2004 MIL-STD 1344A:1977 Method 1003.1 JESD22-A104E October 2014</p> <p>BS EN 60068-2-78:2013 Cab BS 2011:Ca:1977 (1987) BS 2011:Cb:1990 IEC 68-2-3:1969 IEC 68-2-56:1988 MIL-STD 202H:2015 Method 103 MIL-STD 202G:2002 Method 103B MIL-STD 202F:1980 Method 103B</p>



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As listed on Page 1	<p>ENVIRONMENT TESTS (cont'd)</p> <p>CLIMATIC - Single Parameters (cont'd) HIGH HUMIDITY - cyclic Temp range: +10 °C to +85 °C Humidity range: 10 % rh to 98 % rh Max chamber size: 0.6 m x 0.6 m x 0.4 m</p> <p>PRESSURE, LOW Min pressure: 1000 Pa (equiv altitude 31,200 m) Max chamber size: 0.3 m x 0.2 m x 0.2 m</p>	<p>BS EN 60068-2-30:1999 BS EN 60068-2-30:2005 BS 2011:Db:1981 (1987) IEC 68-2-30:1980 MIL-STD 202H:2015 Method 106 MIL-STD 202G:2002 Method 106G MIL-STD 202F:1980 Method 106F MIL-STD 750:1A CN2:2016 Method 1021.4 MIL-STD 750D:1995 Method 1021.2 MIL-STD 810H:2019 Method 507.7 MIL-STD 810:CN1:2014 Method 507.6 MIL-STD 810G:2008 Method 507.5 MIL-STD 810F:2000 Method 507.4 MIL-STD 810E:1989 Method 507.3 MIL-STD 883K:CN3:2018 Method 1004.7 MIL-STD 883F:2004 Method 1004.7 MIL-STD 1344A:1977 Method 1002.2</p> <p>BS EN 60068-2-13:1999 BS 2011:M:1984 IEC 68-2-13:1983 MIL-STD 202H:2015 Method 105 MIL-STD 202G:2002 Method 105C MIL-STD 202F:1980 Method 105C MIL-STD 750:1A CN2:2016 Method 1001.4 MIL-STD 750D:1995 Method 1001.1 MIL-STD 750E:2006 Method 1001.2</p>



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As listed on Page 1	<p>ENVIRONMENT TESTS (non-explosive items) (cont'd)</p> <p>CLIMATIC - Single Parameters (cont'd)</p> <p>SALT CORROSION Max chamber size: 0.8 m x 0.6 m x 0.6 m</p> <p>Combined Parameters</p> <p>HIGH TEMPERATURE/LOW TEMPERATURE/LOW PRESSURE Max temp: +160 °C Min temp: -70 °C Min pressure: 1000 Pa (equivalent altitude 31,200 m) Max chamber size: 0.3 m x 0.2 m x 0.2 m</p>	<p>BS EN 60068-2-52:1996 IEC 68-2-52:1996 MIL-STD 750:1A CN2:2016 Method 1046.3 MIL-STD 750D:1995 Method 1046.2 MIL-STD 883F:2004 Method 1009.8 MIL-STD 883K:CN3:2018 Method 1009.8</p> <p>BS EN 60068-2-40:2000 BS 2011:Z/AM:1977(1986) IEC 68-2-40:1976 BS 2011:Z/BM:1977 BS EN 60068-2-41:2000 IEC 68-2-41:1976 MIL-STD 1344A:1977 Method 1011</p>
	<p>DYNAMIC - Single Parameters</p> <p>VIBRATION - sinusoidal Freq range: 5 to 5000 Hz Peak thrust: 7.6 kN Max pk/pk displacement: ± 12.5 mm Slip table: 0.61 m x 0.61 m Temp range: -55°C to +150°C - including cyclic Chamber size: 0.4 m x 0.4 m x 0.3 m</p> <p>Freq range: 2 to 2500 Hz Peak thrust: 20 kN Max pk/pk displacement: ± 25 mm Slip table: 0.7 m x 0.7 m</p>	<p>BS 2011:Fc:1983 BS EN 60068-2-6:2008 IEC 68-2-6:1982 BS 2011:Z/AFC:1984 BS EN 60068-2-50:2000 IEC 68-2-50:1983 BS 2011:Z/BFC:1984 BS EN 60068-2-51:2000 IEC 68-2-51:1983 MIL-STD 202H:2015 Method 201, 204 MIL-STD 202G:2002 Method 201A, 204D MIL-STD 202F:1980 Methods 201A, 204D MIL-STD 750:1A CN2:2016 Method 2046.2, 2051.1, 2056.3,2057.4</p>



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	<p>MISCELLANEOUS PARAMETERS</p> <p>RESISTANCE TO SOLVENTS/ CONTAMINATING FLUIDS</p> <p>Solvents and contamination fluids as specified</p>	<p>BS EN 60068-2-45:1993 IEC 68-2-45:1980 MIL-STD 202H:CN1 2018 Method 215 MIL-STD 202H:2015 Method 215 MIL-STD 202G:2002 Method 215K MIL-STD 202F:1980 Method 215J MIL-STD 750:1A CN2:2016 Method 1022.7 MIL-STD 750D:1995 Method 1022.5 MIL-STD 883F:2004 Method 2015.12 MIL-STD 883G:2006 Method 2015.13 MIL-STD 883K:CN3:2018 Method 2015.14</p>



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As listed on Page 1	<p>ENVIRONMENT TESTS (non-explosive items) (cont'd)</p> <p>MISCELLANEOUS PARAMETERS (cont'd)</p> <p>SOLDERABILITY (Soldering heat)</p> <p>Soldering baths and soldering irons as specified steam ageing equipment</p> <p>ROBUSTNESS OF TERMINATIONS</p> <p>Tensile Bending Torsion Torque Solderpad adhesion</p>	<p>BS EN 60068-2-44:1995 BS 2011:T:1981 Tests Ta, Tb IEC 68-2-20:1979 MIL-STD 202H;2015 Method 208, 210 MIL-STD 202G:2002 Method 208H, 210F MIL-STD 202F:1980 Methods 208H, 210D MIL-STD 750:1A CN2:2016 Methods 2026.12, 2031.5 MIL-STD 750D:1995 Methods 2026.10, 2031.2 MIL-STD 883K:CN3:2018 Method 2003.13 MIL-STD 883F:2004 Method 2003.8 MIL-STD 883G:2006 Method 2003.8 BS EN 60068-2-20:2008</p> <p>BS 2011:U:1984 (1990) BS EN 60068-2-21:1999 IEC 68-2-21:1983 MIL-STD 202H;2015 Method 211 MIL-STD 202G:2002 Method 211A MIL-STD 202F:1980 Method 211A MIL-STD 750:1A CN2:2016 Method 2036.5 MIL-STD 750D:1995 Method 2036.4 MIL-STD 883F:2004 Method 2004.5 MIL-STD 883G:2006 Method 2004.5 MIL-STD 883K:CN3:2018 Method 2004.7</p>



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<p>ELECTRICAL/ELECTRONIC COMPONENTS, CONNECTORS AND PRODUCTS</p> <p>(45 Hz to 100 Hz)</p>	<p>ELECTRICAL TESTS</p> <p>Insulation resistance</p> <p>DC Voltage: 1 mV to 1 kV up to 1TΩ</p> <p>AC Voltage: 1 mV to 200 V 200 V to 1 kV (45 Hz to 20 kHz)</p> <p>DC Current: 1 μA to 10 A</p> <p>AC Current: 1 μA to 2 A (45 Hz to 5 kHz) 2 A to 10 A (45 Hz to 1 kHz)</p> <p>DC Resistance: 100 $\mu\Omega$ to 20 MΩ 20 MΩ to 1 TΩ (1 V to 999 V)</p> <p>Capacitance: 200 pF to 1.9 F (100 Hz/120 Hz) up to 200 mF at 1 kHz up to 2000 μF at 10 kHz up to 20 μF at 100 kHz up to 2048 pF at 1 MHz</p> <p>Inductance: up to 1 kH (100 Hz/120 Hz) up to 6.4 kH at 1 kHz up to 20 H at 10 kHz up to 2 H at 100 kHz up to 2 mH at 1 MHz</p>	<p>MIL-STD 1344A:1977 Method 3003.1 MIL-STD 883F:2004 Method 1003 MIL-STD 883G:2006 Method 1003 MIL-STD 883K:CN3:2018 Method 1003</p> <p>Documented In-House Procedure QAP7:Issue 3:2005</p>



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ELECTRICAL/ELECTRONIC COMPONENTS, CONNECTORS AND PRODUCTS (cont'd)	<p>ELECTRICAL TESTS (cont'd)</p> <p>Dissipation factor: 0 to 1 (100 Hz to 100 kHz) 0 to 0.1 at 1 MHz</p> <p>Conductance: 0.1 μS to 100 S (100 Hz to 1 MHz)</p> <p>Frequency: 5 Hz to 100 MHz</p>	
END		