


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>UKAS TESTING 2645</p> <p>Accredited to ISO/IEC 17025:2005</p>	<h3>Alphatech Limited</h3> <p>Issue No: 014 Issue date: 17 January 2014</p>	
	<p>Green House Homefield Road Industrial Estate Haverhill Suffolk CB9 8QP</p>	<p>Contact: Mr Paul Lee Tel: +44 (0)1440 714709 Fax: +44 (0)1440 714706 E-Mail: info@alphatech.co.uk Website: www.alphatech.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 COMPONENTS AND EQUIPMENT	<u>ENVIRONMENTAL TESTS</u>	
COMPUTERS AND PERIPHERALS	(non explosive items)	
ELECTRICAL/ELECTRONIC PRODUCTS AND COMPONENTS	<u>DYNAMIC</u>	
ELECTRICAL/ELECTRONIC CONNECTORS	Vibration - Sinusoidal	BS 2011:Fc:1983(1986)
ELECTRO-MECHANICAL DEVICES	Freq range: 2 - 2000 Hz	BS 2011:Fd:1973(1984)
MARINE EQUIPMENT	Peak thrust: 26.7 kN	BS EN 60068-2-6:2008
MEDICAL EQUIPMENT	Max displacement: ± 25.5 mm	BS EN 60068-2-6:1996
MICRO-ELECTRONIC CIRCUITS AND COMPONENTS	Temp range: Ambient	IEC 68-2-6:1995
MOTOR VEHICLE ACCESSORIES AND COMPONENTS	Axes: Vertical only	BS EN 60068-2-50:2000
RADAR EQUIPMENT	Peak thrust: 8.9 kN	IEC 68-2-50:1983
RADIO AND TELEVISION EQUIPMENT	Max displacement: ± 25.4 mm	BS EN 60068-2-51:2000
SATELLITES AND SUB-ASSEMBLIES	Temp range: -40 °C to +100 °C (max ramp rate 10 °C/min)	IEC 68-2-51:1983
SECURITY DEVICES AND ALARMS	Chamber size:	MIL-STD-202F:1980
TELECOMMUNICATIONS EQUIPMENT	0.75 m x 0.65 m x 0.65 m	Methods 201A, 204D
		MIL-STD-202G:2002
		Methods 201A, 204D
		MIL-STD-750D:1995
		Methods 2046.2, 2051.1, 2056, and 2057.2
		MIL-STD-750E:2006
		Methods 2046.2, 2051.1, 2056, and 2057.2
		MIL-STD-810E:1989:Method 514.4
		MIL-STD-810F:2000:Method 514.5
		MIL-STD-810G:2008:Method 514.6
		MIL-STD-883F:2004
		Methods 2005.2, 2006.1, 2007.3
		MIL-STD-1344A:1977
		Method 2005.1
		DEF STAN 00-35:1999:Test M1
		MIL-STD-167-1A:2005
		RTCA/DO-160D:Section 8



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As listed on Page 1	<p><u>ENVIRONMENTAL TESTS</u> (cont'd)</p> <p>(non explosive items) (cont'd)</p> <p><u>DYNAMIC</u> (cont'd)</p> <p>Vibration - Sinusoidal (cont'd)</p>	<p>UN Reg: ST/SG/AC.10/11/Rev.4: Test T.3 ETSI EN 300 019-2-1:2000 ETSI EN 300 019-2-2:1999 ETSI EN 300 019-2-3:2003 ETSI EN 300 019-2-4:2003 ETSI EN 300 019-2-5:2002 ETSI EN 300 019-2-6:2002 ETSI EN 300 019-2-8:1999</p>
	<p>Vibration - Random</p> <p>Freq range: 2 - 2000 Hz RMS thrust: 22.24 kN</p> <p>Max displacement: ± 25.5 mm</p> <p>Temp range: Ambient</p> <p>Axes: Vertical only</p> <p>Freq range: 2 - 2000 Hz</p> <p>RMS thrust: 8.9 kN Max displacement: ± 25.4 mm Temp range: -40 °C to +100 °C (max ramp rate 10 °C/min) Chamber size: 0.75 m x 0.65 m x 0.65 m</p>	<p>BS 2011:F:1973(1984) Tests Fd, Fda, Fdb and Fdc IEC 68-2-34:1973 IEC 68-2-37:1973 BS EN 60068-2-64:1995 BS EN 60068-2-64:2008 BS EN 61373:1999 DEF STAN 00-35:1999:Test M1 MIL-STD-202F:1980:Method 214A MIL-STD-202G:2002:Method 214A MIL-STD-810E:1989:Method 514.4 MIL-STD-810F:2000:Method 514.5 MIL-STD-810G:2008:Method 514.6 MIL-STD-883F:2004:Method 2026 RTCA/DO-160D:Section 8 ETSI EN 300 019-2-1:2000 ETSI EN 300 019-2-2:1999 ETSI EN 300 019-2-3:2003 ETSI EN 300 019-2-4:2003 ETSI EN 300 019-2-5:2002 ETSI EN 300 019-2-6:2002 ETSI EN 300 019-2-7:2003 ETSI EN 300 019-2-8:1999</p>



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As listed on Page 1	<p><u>ENVIRONMENTAL TESTS</u> (cont'd)</p> <p>(non explosive items) (cont'd)</p> <p><u>DYNAMIC</u> (cont'd)</p> <p>Shock (vibrator induced, and in vertical axis only)</p> <p>(Half sine, trapezoidal)</p> <p>Severity: 1 g to 80 g Duration: 0.2 ms to 100 ms (severity dependent) Max mass: 500 kg Temp range: Ambient</p> <p>(Terminal peak saw tooth)</p> <p>Severity: 1 g to 75 g Duration: 1 ms to 100 ms (severity dependent) Max mass: 500 kg Temp range: Ambient</p> <p>(Half sine, sawtooth, trapezoidal)</p> <p>Max severity: 50 g Max mass: 75 kg Temp range: -40 °C to +100 °C Chamber size: 0.75 m x 0.65 m x 0.65 m</p> <p>Shock (MTS System)</p> <p>(Half sine)</p> <p>Max severity: 200 g Max duration: 16 ms (severity dependent) Max mass: 500 kg Temp range: Ambient</p>	<p>BS 2011:Ea:1988 BS EN 60068-2-27:1993 IEC 68-2-27:1987 BS EN 61373:1999 DEF STAN 00-35:1999:Test M3 MIL-STD-202G:2002:Method 213B MIL-STD-202F:1980:Method 213B MIL-STD-750D:1995:Method 2016.2 MIL-STD-750E:2006:Method 2016.2 MIL-STD-810G:2008:Method 516.6 MIL-STD-810F:2000:Method 516.5 MIL-STD-810E:1989:Method 516.5 MIL-STD-883F:2004:Method 2002.4 MIL-STD-1344A:1997:Method 2004.1 RTCA/DO-160D:Section 7 UN Reg: ST/SG/AC.10/11/Rev.4: Test T.4 ETSI EN 300 019-2-1:2000 ETSI EN 300 019-2-3:2003 ETSI EN 300 019-2-4:2003 ETSI EN 300 019-2-5:2002 ETSI EN 300 019-2-6:2002 ETSI EN 300 019-2-7:2003 ETSI EN 300 019-2-8:1999</p>



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As listed on Page 1	<p><u>ENVIRONMENTAL TESTS</u> (cont'd)</p> <p>(non explosive items) (cont'd)</p> <p><u>DYNAMIC</u> (cont'd)</p> <p>Bump (vibrator induced, and in vertical axis only)</p> <p>Severity: 1 g to 75 g Duration: 1 ms to 50 ms (severity dependent)</p> <p>Max mass: 500 kg Temp range: Ambient</p> <p>Max severity: 50 g Max mass: 75 kg Temp range: -40 °C to +100 °C Chamber size: 0.75 m x 0.65 m x 0.65 m</p>	<p>BS 2011:Ec:1977(1983) BS EN 60068-2-29:1993 IEC 68-2-29:1987 DEF STAN 00-35:1999:Test M12 ETSI EN 300 019-2-2:1999 ETSI EN 300 019-2-3:2003 ETSI EN 300 019-2-4:2003 ETSI EN 300 019-2-5:2002 ETSI EN 300 019-2-6:2002 ETSI EN 300 019-2-7:2003 ETSI EN 300 019-2-8:1999</p>
	<p>Rough Handling Shock</p> <p>Drop and Topple</p> <p>Max item mass: 45 kg Max item size: 1 m x 1 m x 1 m</p>	<p>BS EN 60068-2-31:2008 BS EN 60068-2-31:1993 BS 2011:Ec:1977 IEC 68-2-31:1969 DEF STAN 00-35:Pt3:Iss 4:Test M4 DEF STAN 07-55:1975:Test A4</p>
	<p>Free Fall</p> <p>Max item mass: 45 kg Max item size: 0.5 m x 0.5 m x 0.5 m Max drop height: 1.5 m</p>	<p>BS EN 60068-2-31:2008 Excluding repeated free fall procedure 2 BS EN 60068-2-32:1993 BS 2011:Ed:1992:Procedure 1 IEC 68-2-32:1975 DEF STAN 00-35:Pt3:Iss 4:Test M5 DEF STAN 07-55:1975:Test A9 MIL-STD-810G:2008:Method 516.6 Proc IV</p>



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As listed on Page 1	<p><u>ENVIRONMENTAL TESTS</u> (cont'd)</p> <p>(non explosive items) (cont'd)</p> <p><u>CLIMATIC</u></p> <p>High Temperature (Constant and cyclic)</p> <p>Max temp: +180 °C Max chamber size: 0.85 m x 0.83 m x 0.85 m</p> <p>Max temp +80 °C Max chamber size: 1.20 m x 1.10 m x 2.40 m</p>	<p>BS 2011:B:1977(1980) BS EN 60068-2-2:2007 BS EN 60068-2-2:1993 Tests Ba, Bb, Bd IEC 68-2-2:1974(1976) IEC60068-2-2:1974 ETSI EN 300 019-2-1:2000 ETSI EN 300 019-2-2:1999 ETSI EN 300 019-2-3:2003 ETSI EN 300 019-2-4:2003 ETSI EN 300 019-2-5:2002 ETSI EN 300 019-2-6:2002 ETSI EN 300 019-2-7:2003 ETSI EN 300 019-2-8:1999 DEF STAN 00-35:1999:Test CL1 MIL-STD-810F:2000:Method 501.4 MIL-STD-810G:2008:Method 501.5</p>
	<p>Low Temperature (Constant and cyclic)</p> <p>Min temp: -70 °C Max chamber: 0.85 m x 0.83 m x 085 m</p> <p>Min temp: -60 °C Max chamber: 1.20 m x 1.10 m x 2.40 m</p>	<p>BS 2011:A:1990 BS EN 60068-2-1:2007 BS EN 60068-2-1:1993 Tests Aa, Ab, Ad IEC 68-2-1:1990 IEC60068-2-1:1993 ETSI EN 300 019-2-1:2000 ETSI EN 300 019-2-2:1999 ETSI EN 300 019-2-3:2003 ETSI EN 300 019-2-4:2003 ETSI EN 300 019-2-5:2002 ETSI EN 300 019-2-6:2002 ETSI EN 300 019-2-7:2003 ETSI EN 300 019-2-8:1999 DEF STAN 00-35:1999:Test CL4 DEF STAN 00-35:1999:Test CL5 MIL-STD-810F:2000:Method 502.4 MIL-STD-810G:2008:Method 502.5</p>



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	<p>High Humidity (Constant and cyclic)</p> <p>Humidity/temperature ranges: 50% RH to 95% RH 20 °C to 85 °C</p> <p>Max chamber size: 0.85 m x 0.83 m x 0.85 m</p> <p>Humidity/temperature ranges: 50% RH to 95% RH 20 °C to 60 °C</p>	<p>BS 2011:Ca:1977(1987) BS 2011:Cb:1990 BS 2011:Db:1981(1987) BS EN 60068-2-30:1999 BS EN 60068-2-78:2001 IEC 68-2-3:1969 IEC 68-2-30:1980 IEC 68-2-56:1988 DEF STAN 00-35:1999:Test CL7 MIL-STD-810F:2000:Method 507.4 MIL-STD-810G:2008:Method 507.5 RTCA/DO-160D:Section 6 ETSI EN 300 019-2-1:2000 ETSI EN 300 019-2-2:1999 ETSI EN 300 019-2-3:2003</p>



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As listed on Page 1	<u>ENVIRONMENTAL TESTS</u> (cont'd) (non explosive items) (cont'd) <u>CLIMATIC</u> (cont'd) Max chamber size: 1.2 m x 1.10 m x 2.4 m Salt Spray Corrosion Chamber size: 1.46 m x 1.04 m x 0.72 m	ETSI EN 300 019-2-4:2003 ETSI EN 300 019-2-5:2002 ETSI EN 300 019-2-6:2002 ETSI EN 300 019-2-7:2003 ETSI EN 300 019-2-8:1999 MIL-STD-810G:2008:Method 507.5 Proc 1 excluding Induced tests B2 & B3 BS EN ISO 9227:2006:NSS Test BS EN 60068-2-11 Test Ka BS EN 60068-2-52 Test Kb ASTM B117-03 (superseded) Fog ASTM B117-07 Fog DEF STAN 00-35:1999:Test CN2 MIL STD 810F:2000:Method 509.4 RTCA/DO-160D:Section 14 ASTM B117-09
	Pressure, Low (Altitude) Min pressure : 4.49 kPa (equivalent altitude 70,000 ft) Max chamber size: 0.3 m diameter x 0.5 m deep	BS EN 60068-2-13:1999 BS 2011:M:1984 IEC 68-2-13:1983 MIL-STD-202G:2002:Method 105C MIL-STD-202F:1980:Method 105C MIL-STD-750D:1995 Method 1001.1 MIL-STD-750E:2006:1001.2 MIL-STD-810F:2000:Method 500.4 MIL-STD-810E:1989:Method 500.3 MIL-STD-883F:2004:Method 1001 UN Reg: ST/SG/AC.10/11/Rev4: Test T1 MIL-STD-810G:2008:Method 500.5



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As listed on Page 1	<p><u>Ingress Protection Tests</u></p> <p>IP1X Protected against solid objects >50 mm diameter</p> <p>IP2X Protected against solid objects >12.5 mm diameter</p> <p>IP3X Protected against solid objects >2.5 mm diameter</p> <p>IP4X Protected against solid objects >1.0 mm diameter</p> <p>IP5X Dust protected</p> <p>IP6X Dust tight</p> <p>IPX1 Protected against dripping water</p> <p>IPX2 Protected against dripping water when tilted up to 15 ° (angle)</p> <p>IPX3 Protected against spraying water</p> <p>IPX4 Protected against splashing water</p> <p>IPX5 Protected against water jets</p> <p>IPX6 Protected against powerful water jets</p> <p>IPX7 Protected against the effects of immersion</p> <p>IPX8 Protected against submersion</p> <p>IPX9 Protected against water with high pressure/steam jet cleaning</p>	<p>BS EN 60529:1992(2000) EN 60529:1991 IEC 60529:1989</p> <p>DIN 40 050 Part 9 (1993)</p> <p>DIN 40 050 Part 9 (1993) only</p>

