

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: 010 Issue date: 30 April 2010</p>	
	<p>Green House Homefield Road Industrial Estate Haverhill Suffolk CB9 8QP</p>	<p>Contact: Mr G E J Catling 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> (non explosive items)	
COMPUTERS AND PERIPHERALS	<u>DYNAMIC</u>	
ELECTRICAL/ELECTRONIC PRODUCTS AND COMPONENTS	Vibration - Sinusoidal Freq range: 5 - 2000 Hz	BS 2011:Fc:1983(1986) BS 2011:Fd:1973(1984) BS EN 60068-2-6:2008 BS EN 60068-2-6:1996 IEC 68-2-6:1995
ELECTRICAL/ELECTRONIC CONNECTORS	Peak thrust: 26.7 kN	BS EN 60068-2-50:2000 IEC 68-2-50:1983
ELECTRO-MECHANICAL DEVICES	Max displacement: ± 25.5 mm Temp range: Ambient	BS EN 60068-2-51:2000 IEC 68-2-51:1983
MARINE EQUIPMENT	Axes: Vertical only	MIL STD 202F:1980
MEDICAL EQUIPMENT	Peak thrust: 8.9 kN	Methods 201A, 204D
MICRO-ELECTRONIC CIRCUITS AND COMPONENTS	Max displacement: ± 25.4 mm Temp range: -40 °C to +100 °C (max ramp rate 10 °C/min)	MIL STD 202G:2002 Methods 201A, 204D MIL STD 750D:1995
MOTOR VEHICLE ACCESSORIES AND COMPONENTS	Chamber size: 0.75 m x 0.65 m x 0.65 m	Methods 2046.2, 2051.1, 2056, and 2057.2 MIL STD 750E:2006 Methods 2046.2, 2051.1, 2056, and 2057.2
RADAR EQUIPMENT		MIL STD 810E:1989:Method 514.4 MIL STD 810F:2000:Method 514.5 MIL STD 883F:2004
RADIO AND TELEVISION EQUIPMENT		Methods 2005.2, 2006.1, 2007.3 MIL STD 1344A:1977
SATELLITES AND SUB-ASSEMBLIES		Method 2005.1 DEF STAN 00-35:1999:Test M1 MIL STD 167-1A:2005
SECURITY DEVICES AND ALARMS		RTCA/DO-160D:Section 8



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Continued from Page 1 TELECOMMUNICATIONS EQUIPMENT	<u>ENVIRONMENTAL TESTS</u> (cont'd) (non explosive items) (cont'd) <u>DYNAMIC</u> (cont'd) Vibration - Sinusoidal (cont'd)	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
	Vibration - Random Freq range: 5 - 2000 Hz RMS thrust: 22.24 kN Max displacement: ± 25.5 mm Temp range: Ambient Axes: Vertical only Freq range: 5 - 2000 Hz 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	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 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



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As listed on Pages 1 and 2	<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</p> <p>Duration: 0.2 ms to 100 ms (severity dependent)</p> <p>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>Shock (Half sine)</p> <p>Max severity: 200 g Max duration: 16 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>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 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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	<p>Rough Handling Shock</p> <p>Drop and Topple</p> <p>Drop surface: concrete only* 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:Iss4:Test M4 DEF STAN 07-55:1975:Test A4</p>
	<p>Free Fall</p> <p>Drop surface: concrete only* Max item mass: 45 kg Max item size: 0.5 m x 0.5 m x 0.5 m Max drop height: 1 m</p>	<p>BS EN 60068-2-31:2008* BS EN 60068-2-32:1993 BS 2011:Ed:1992:Procedure 1 IEC 68-2-32:1975 DEF STAN 00-35:Pt3:Iss4:Test M5 DEF STAN 07-55:1975:Test A9</p>



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As listed on Pages 1 and 2	<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: +150 °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</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>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</p>
	<p>Low Temperature (Constant and cyclic) (cont'd)</p> <p>Min temp: -60 °C Max chamber: 1.20 m x 1.10 m x 2.40 m</p>	<p>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</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>Max chamber size: 1.2 m x 1.10 m x 2.4 m</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 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 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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	<p>Pressure, Low (Altitude)</p> <p>Min pressure : 4.49 kPa (equivalent altitude 70,000 ft) Max chamber size: 0.3 m diameter x 0.5 m deep</p>	<p>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 Method1001.1 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</p>
	<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>BS EN 60529:1992(2000) EN 60529:1991 IEC 60529:1989</p>

