



## Environmental Test Laboratory

Alphatech Ltd  
Green House  
Homefield Road Industrial Estate  
Haverhill  
Suffolk  
CB9 8QP

## *Environmental Test Capabilities*



Certificate GB 03/58524

# Alphatech Environmental Test Capabilities

---

## Introduction:

This brochure describes the objectives and capabilities of Alphatech's Environmental Test Facility.

Alphatech was established in 1997 and has an excellent reputation for the sales, service and repair of both new and used Environmental test equipment.

During April of 2002, Alphatech moved into purpose built premises that included an area assigned for an environmental test facility.

This was a long-term growth plan for Alphatech, one of the objectives being to provide a 'Best In Class' Test House Facility to meet and support its ongoing Customer's test requirements.

In February of 2003, Alphatech was assessed and certified as meeting the requirements of ISO 9001:2000.

In July of 2004, Alphatech was granted UKAS Test Laboratory Accreditation to ISO/IEC 17025.

A further extension to our scope of Accreditation was granted by UKAS in April of 2006 to add Salt Spray, additional Mechanical Shock Test facilities and a 'Walk In' Temperature Chamber to our capabilities.

In October of 2007 as the result of our planned capability improvements and continuous improvement philosophy Alphatech moved into larger premises specifically designed for our Test House to meet the increasing requirements of our customers.

Copies of our ISO 9001:2000 Accreditation and UKAS Accreditation certificates are attached for your information.

Alphatech's UKAS Schedule of Accreditation can be found at the UKAS website; [www.ukas.org](http://www.ukas.org).

## Objectives:

The primary objective of Alphatech's Environmental Test and Reliability Department is to assist its Customers in improving the quality and reliability of new and existing products.

This is achieved through close co-operation with the Customer, including review of the product specification and design, assessment of environmental and system operating conditions, product design validation testing and product/process validation testing of the Customers production line or outsourced manufacturing facility.

## Responsibilities:

Alphatech's Environmental Test Facility can support its Customer's development engineering community. The facility can evaluate product design by participating in design reviews, and conduct environmental, mechanical and electrical tests. The performance of a product is thoroughly evaluated during Design Validation (DV) testing.

There are several approaches that can be taken for the DV test sequence.

Alphatech has the capability to perform Highly Accelerated Life Testing "HALT" to evaluate the product during the early development stages of the design, or can use a sequence of Environmental tests such as temperature cycling, Mechanical tests such as vibration and Electrical tests such as input and output short circuit protection and polarity reversal.

The specific conditions for each test will depend on the product and Customer requirements.

Following the product Design Validation stage further support can be given to the customer by carrying out Process Validation testing with product manufactured on the Customers own manufacturing line or it's outsourced manufacturing facility.

This can be carried out by a sequence of tests as stated before or by the use of Highly Accelerated Stress Screening "HASS" techniques. This verifies the Customer's equipment is capable of manufacturing the product without introducing manufacturing defects that would otherwise escape into the field.

## Contact Information:

For further information and guidance, please contact:

Geraint Catling  
Environmental Test and Reliability Manager  
Tel: 01440 714709  
Fax 01440 714706  
Email: [geraint@alphatech.co.uk](mailto:geraint@alphatech.co.uk)

Paul Lee  
Senior Environmental Test Engineer  
Tel: 01440 714709  
Fax 01440 714706  
Email: [paul@alphatech.co.uk](mailto:paul@alphatech.co.uk)

# Alphatech Environmental Test Capabilities

## Section A: Climatic

Facilities available now

Planned but not currently available

TEST CAPABILITY	APPLICABLE TEST STANDARDS	
<p>COLD LOW TEMPERATURE TEST Min temp: -100°C</p>	<p>BS 2011: A: 1990 IEC 68-2-1: 1990 IEC 60068-2-1: 1993 BS EN 60068-2-1: 1993: Tests Aa, Ab, Ad ETSI 300 019-2-1:2000 ETSI 300 019-2-2:1999 ETSI 300 019-2-3:2003 ETSI 300 019-2-4:2003 ETSI 300 019-2-5:2002 ETSI 300 019-2-6:2002 ETSI 300 019-2-7:2003 ETSI 300 019-2-8:1999 RTCA/DO-160D: Section 4.5</p> <p>MIL STD 810E: 1989: Method 502.3 MIL STD 810F: 2000: Method 502.4 DEF STAN 07-55: 1975: Tests B4, B5 DEF STAN 00-35: 1999: Test CL4</p>	
<p>DRY HEAT HIGH TEMPERATURE TEST Max temp: +200°C</p>	<p>BS 2011: B: 1977 (1980) IEC 68-2-2: 1974 (1976) IEC 60068-2-2: 1974 BS EN 60068-2-2: 1993: Tests Ba, Bb, Bd ETSI 300 019-2-1:2000 ETSI 300 019-2-2:1999 ETSI 300 019-2-3:2003 ETSI 300 019-2-4:2003 ETSI 300 019-2-5:2002 ETSI 300 019-2-6:2002 ETSI 300 019-2-7:2003 ETSI 300 019-2-8:1999 RTCA/DO-160D: Section 4.5</p> <p>MIL STD 202F: 1980: Method 108A MIL STD 202G: 2002: Method 108A MIL STD 810E: 1989: Method 501.3 MIL STD 810F: 2000: Method 501.4 MIL STD 1344A: 1977: Method 1005.1 DEF STAN 07-55: 1975: Tests B1, B2 DEF STAN 00-35: 1999: Test CL1</p>	
<p>CHANGE OF TEMPERATURE (AIR) Single Chamber Min temp: -100°C Max temp: +200°C Max rate of change: 60°C/min</p> <p>Two Chamber (Thermal Shock) Auto transfer between Chambers Min temp: -70°C Max temp: +220°C</p>	<p>BS 2011: Part 2.1: 1985 (1987): Tests Na, Nb IEC 60068-2-14: 1984 BS EN 60068-2-14: 2000: Tests Na, Nb ETSI 300 019-2-1:2000 ETSI 300 019-2-2:1999 ETSI 300 019-2-3:2003 ETSI 300 019-2-4:2003 ETSI 300 019-2-5:2002 ETSI 300 019-2-6:2002 ETSI 300 019-2-7:2003 ETSI 300 019-2-8:1999 RTCA/DO-160D: Section 5 UN Reg: ST/SG/AC.10/11/Rev.4: Test T2</p>	

*This table acts as a guideline only and customers should contact Alphatech to discuss their exact requirements*

# Alphatech Environmental Test Capabilities

## Section A: Climatic continued

Facilities available now

Planned but not currently available

TEST CAPABILITY	APPLICABLE TEST STANDARDS	
CHANGE OF TEMPERATURE (AIR) (continued)	MIL STD 202F: 1980: Method 107E MIL STD 202G: 2002: Method 107G MIL STD 750D: 1995: Method 1051.5, 1056.7 MIL STD 810E: 1989: Method 503.3 MIL STD 810F: 2000: Method 503.4 DEF STAN 07-55: 1975: Tests B14: Procedure A DEF STAN 00-35: 1999: Test CL14	
HUMIDITY DAMP HEAT, STEADY STATE Temperature Range: -70°C to + 180°C Humidity Range 10% to 98% RH	BS 2011: 1977: Test Ca BS 2011: 1990: Test Cb IEC 68-2-56: 1988 BS EN 60068-2-56: 1993: Tests Ca BS EN 60068-2-78: 1993: Tests Cab ETSI 300 019-2-1:2000 ETSI 300 019-2-2:1999 ETSI 300 019-2-3:2003 ETSI 300 019-2-4:2003 ETSI 300 019-2-5:2002 ETSI 300 019-2-6:2002 ETSI 300 019-2-7:2003 ETSI 300 019-2-8:1999 RTCA/DO-160D: Section 6  MIL STD 202G: 2002: Method 103, 106 MIL STD 810F: 2000: Method 507.4 DEF STAN 07-55: 1975: Tests B6, B7, B8 DEF STAN 00-35: 1999: Test CL7	
HUMIDITY DAMP HEAT, CYCLIC Temperature range: -70°C to +180°C Humidity range: 10% to 98% RH	BS 2011: 1981 (1987): Test Db BS 2011: 1977: Test Z/AD IEC 60068-2-3: 1969 IEC 60068-2-30: 1980 IEC 60068-2-38: 1974 BS EN 60068-2-30: 1999: Tests Db BS EN 60068-2-38: 1999: Tests Z/AD ETSI 300 019-2-1:2000 ETSI 300 019-2-2:1999 ETSI 300 019-2-3:2003 ETSI 300 019-2-4:2003 ETSI 300 019-2-5:2002 ETSI 300 019-2-6:2002 ETSI 300 019-2-7:2003 ETSI 300 019-2-8:1999 RTCA/DO-160D: Section 6	
LOW AIR PRESSURE ALTITUDE (Up to 70,000ft)	BS 2011: 1984: Test M IEC60068-2-13: 1983 BS EN 60068-2-13: 1999: Test M RTCA/DO-160D: Section 4.6.1  MIL STD 810F: 2000: Method 500.4	

*This table acts as a guideline only and customers should contact Alphatech to discuss their exact requirements*

# Alphatech Environmental Test Capabilities

## Section B: Dynamic

Facilities available now

Planned but not currently available

TEST CAPABILITY	APPLICABLE TEST STANDARDS	
<p style="text-align: center;">VIBRATION - Sinusoidal (Ambient temperature) Frequency range: 5 Hz to 2500 Hz Peak thrust: 26.7 kN (6000lbf) Max peak/peak displacement: 51 mm</p>	<p>BS 2011: 1983 (1986): Test Fc BS 2011: 1973 (1984): Test Fd IEC 68-2-6: 1995 BS EN 60068-2-6: 1996 ETSI 300 019-2-1:2000 ETSI 300 019-2-2:1999 ETSI 300 019-2-3:2003 ETSI 300 019-2-4:2003 ETSI 300 019-2-5:2002 ETSI 300 019-2-6:2002 ETSI 300 019-2-7:2003 ETSI 300 019-2-8:1999 RTCA/DO-160D: Section 8 UN Reg: ST/SG/AC.10/11/Rev.4: Test T3</p> <p>MIL STD 202F: 1980: Method 201A, 204D MIL STD 202G: 2002: Method 201A, 204D MIL STD 750D: 1995: Method 2046.1, 2051.1, 2056.1, 2057.1 MIL STD 810E: 1989: Method 514.4 MIL STD 810F: 2000: Method 514.5 MIL STD 883E: 1996: Method 2005.2, 2006.1, 2007.3 MIL STD 1344A: 1977: Method 2005.1 DEF STAN 00-35: 1999: Test M1</p>	
<p style="text-align: center;">VIBRATION - Random (Ambient temperature) Freq range: 5 Hz to 2500 Hz RMS thrust: 22.2 kN (5000lbf) Max peak/peak displacement: 51 mm</p>	<p>BS 2011: 1973 (1984): Test Fd, Fda, Fdb, Fdc IEC 68-2-34: 1973 IEC 68-2-37: 1973 BS EN 60068-2-34: 1993 BS EN 60068-2-64: 1995 ETSI 300 019-2-1:2000 ETSI 300 019-2-2:1999 ETSI 300 019-2-3:2003 ETSI 300 019-2-4:2003 ETSI 300 019-2-5:2002 ETSI 300 019-2-6:2002 ETSI 300 019-2-7:2003 ETSI 300 019-2-8:1999 RTCA/DO-160D: Section 8</p> <p>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 883E: 1996: Method 2026 DEF STAN 07-55: 1975: Test A2 DEF STAN 00-35: 1999: Test M1</p>	

*This table acts as a guideline only and customers should contact Alphatech to discuss their exact requirements*

# Alphatech Environmental Test Capabilities

## Section B: Dynamic continued

Facilities available now

Planned but not currently available

TEST CAPABILITY	APPLICABLE TEST STANDARDS	
<p>COMBINED VIBRATION WITH TEMPERATURE</p> <p>VIBRATION - Sine &amp; Random</p> <p>Freq range: 1 Hz to 3000 Hz</p> <p>Random RMS thrust: 8.9 kN (2000lbf)</p> <p>Sine Peak thrust: 8.9 kN (2000lbf)</p> <p>Max peak/peak displacement: 51 mm</p> <p>Temperature Range: -40°C to +85°C</p>	<p>BS 2011-2.1: 1984: Test Z/AFc</p> <p>BS 2011-2.1: 1984: Test Z/BFc</p> <p>IEC 60068-2-50: 1983</p> <p>IEC 60068-2-51: 1983</p> <p>BS EN 60068-2-50: 2000: Test Z/AFc</p> <p>BS EN 60068-2-51: 2000: Test Z/BFc</p> <p>MIL STD 810F: 2000</p>	
<p style="text-align: center;">SHOCK</p> <p>(Half Sine, Trapezoidal)</p> <p>Severity: 1g to 80g</p> <p>Duration: 0.2ms to 100ms</p> <p>(Severity &amp; Mass dependant)</p> <p>Max Mass: 500Kg</p> <p>Temperature: Ambient</p> <p>(Terminal Peak Sawtooth)</p> <p>Severity: 1g to 80g</p> <p>Duration: 0.2ms to 100ms</p> <p>(Severity &amp; Mass dependant)</p> <p>Max Mass: 500Kg</p> <p>Temperature: Ambient</p> <p>(Half Sine)</p> <p>Max Severity: 710g</p> <p>Max Duration: 16ms</p> <p>(Severity &amp; Mass dependant)</p> <p>Max Mass: 500Kg</p> <p>Temperature: Ambient</p>	<p>BS 2011: 1988: Test Ea</p> <p>IEC 68-2-27: 1987</p> <p>BS EN 60068-2-27: 1993: Test Ga</p> <p>ETSI 300 019-2-1:2000</p> <p>ETSI 300 019-2-2:1999</p> <p>ETSI 300 019-2-3:2003</p> <p>ETSI 300 019-2-4:2003</p> <p>ETSI 300 019-2-5:2002</p> <p>ETSI 300 019-2-6:2002</p> <p>ETSI 300 019-2-7:2003</p> <p>ETSI 300 019-2-8:1999</p> <p>RTCA/DO-160D: Section 7</p> <p>UN Reg: ST/SG/AC.10/11/Rev.4: Test T4</p> <p>MIL STD 202F: 1980: Method 213B</p> <p>MIL STD 202G: 2002: Method 213B</p> <p>MIL STD 750D: 1995: Method 2016.2</p> <p>MIL STD 810E: 1989: Method 516.4</p> <p>MIL STD 810F: 2000: Method 516.5</p> <p>MIL STD 883E: 1996: Method 2002.4</p> <p>MIL STD 1344A: 1977: Method 2004.1</p> <p>DEF STAN 07-55: 1975: Test A3</p> <p>DEF STAN 00-35: 1999: Test M1</p>	
<p style="text-align: center;">BUMP</p> <p>(Half Sine)</p> <p>Severity: 1g to 75g</p> <p>Duration: 1ms to 50ms</p> <p>(Severity &amp; Mass dependant)</p> <p>Max Mass: 500Kg</p> <p>Temperature: Ambient</p>	<p>BS 2011: 1973 (1984): Test Eb</p> <p>IEC 68-2-29: 1987</p> <p>BS EN 60068-2-29: 1993: Test Eb</p> <p>ETSI 300 019-2-1:2000</p> <p>ETSI 300 019-2-2:1999</p> <p>ETSI 300 019-2-3:2003</p> <p>ETSI 300 019-2-4:2003</p> <p>ETSI 300 019-2-5:2002</p> <p>ETSI 300 019-2-6:2002</p> <p>ETSI 300 019-2-7:2003</p> <p>ETSI 300 019-2-8:1999</p> <p>DEF STAN 07-55: 1975: Test A5</p> <p>DEF STAN 00-35: 1999: Test M12</p>	
<p style="text-align: center;">FREE FALL</p> <p>(Drop Test)</p>	<p>BS 2011: 1987: Test Ed</p> <p>BS EN 60068-2-32: 1993: Test Ed</p>	

*This table acts as a guideline only and customers should contact Alphatech to discuss their exact requirements*

# Alphatech Environmental Test Capabilities

## Section C: Specialised Tests

Facilities available now

Planned but not currently available

TEST CAPABILITY	APPLICABLE TEST STANDARDS	
HIGHLY ACCELERATED LIFE TEST (HALT) Temperature Range: -100°C to +200°C Max Ramp Rate: 60°C/min Max Vibration: 60Grms 6 DOF	General Motors – GMW 8287  Highly Accelerated Life Testing – QualMark HALT Guideline  Design Validation tool for reducing test times from months to days	
HIGHLY ACCELERATED STRESS SCREEN (HASS) Temperature Range: -100°C to +200°C Max Ramp Rate: 60°C/min Max Vibration: 60Grms 6 DOF	General Motors – GMW 8287  Highly Accelerated Life Testing – QualMark HALT Guideline  Design Validation tool for reducing test times from months to days	
DEWING TEST	BMW 601 22.0: Part 4	
RESISTANCE TO SOLVENTS/CONTAMINATING FLUIDS	IEC 68-2-45: 1980 BS EN 60068-2-45: 1993  MIL STD 202F: 1980: Method 215J MIL STD 202G: 2002: Method 215K MIL STD 750D: 1995: Method 1022.5 MIL STD 883E: 1996: Method 2015.12	
SALT SPRAY (MIST)	BS 2011: 1982: Test Ka IEC 68-2-11: 1981 BS EN 60068-2-11: 1999: Test Ka ASTM B117-03 RTCA/DO-160D: Section 14  MIL STD 202F: 1980: Method 101D MIL STD 202G: 2002: Method 1001E MIL STD 750D: 1995: Method 1041.3 MIL STD 810E: 1989: Method 509.3 MIL STD 810F: 2000: Method 509.4 MIL STD 1344A: 1977: Method 1001.1	
SALT CORROSION	BS 2011: 1987: Test Kb IEC 68-2-52: 1996 BS EN 60068-2-52: 1996: Test Kb  MIL STD 750D: 1995: Method 1046.2 MIL STD 883E: 1996: Method 1009.8	
IMMERSION	BS 2011: 1990: Test Rc IEC 68-2-18: 2000 BS EN 60068-2-18: 2001: Test R	
SEALING	BS 2011: 1981 (1990): Test Qc IEC 60068-2-17: 1994 BS EN 60068-2-17: 1994: Test Q	

*This table acts as a guideline only and customers should contact Alphatech to discuss their exact requirements*

# Alphatech Environmental Test Capabilities

## Section C: Specialised Tests continued

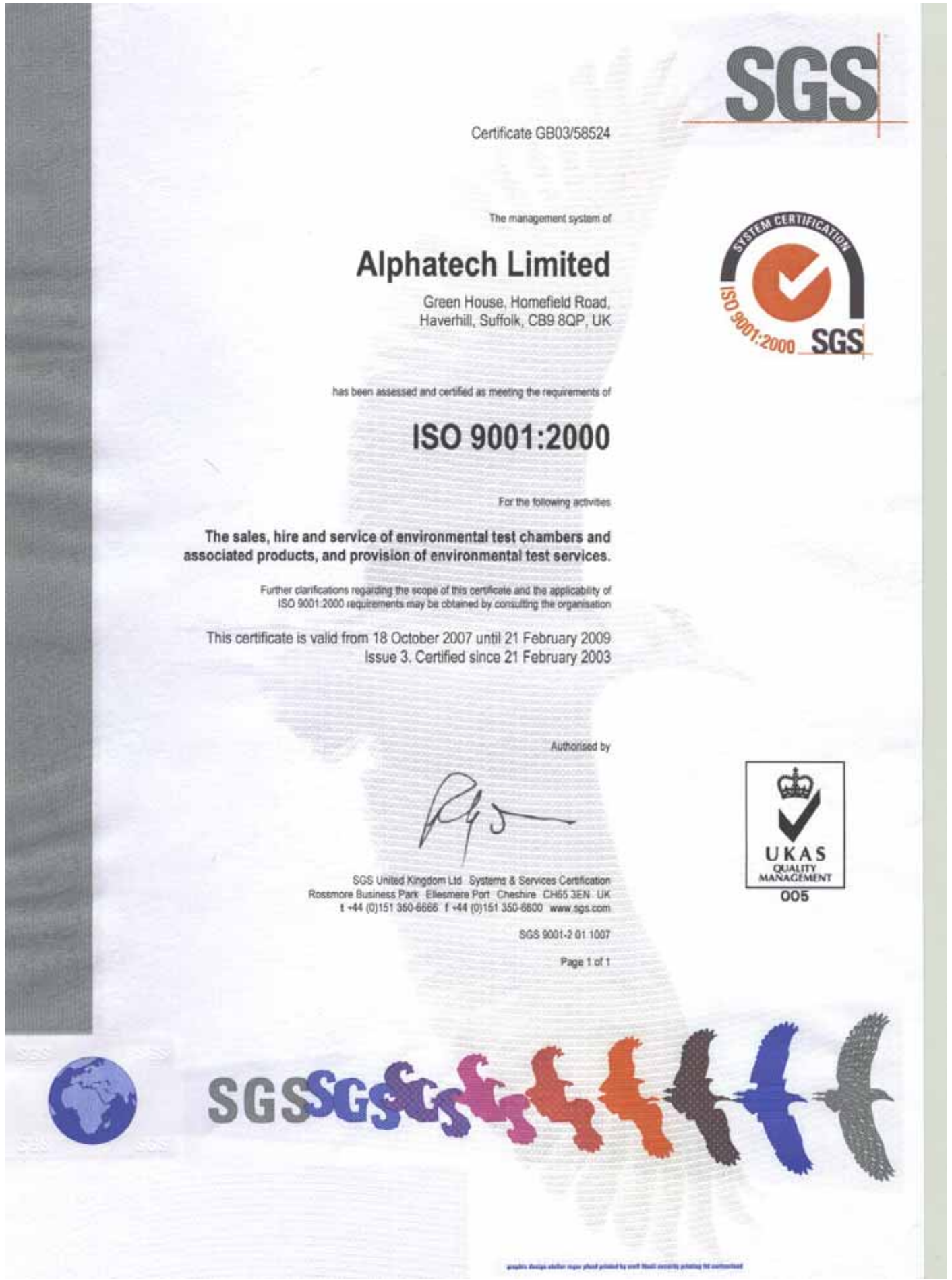
Facilities available now

Planned but not currently available

TEST CAPABILITY	APPLICABLE TEST STANDARDS	
<b>INGRESS PROTECTION TESTS</b>		
IP1X Protected against solid objects greater than 50 mm diameter	IEC 60529: 1989 EN 60529: 1991 BS EN 60529: 1992 (2000) DIN 40050: Part 9	
IP2X Protected against solid objects greater than 12.5 mm diameter		
IP3X Protected against solid objects greater than 2.5 mm diameter		
IP4X Protected against solid objects greater than 1 mm diameter		
IP5X Dust protected	IEC 60529: 1989 IEC 60068-2-68: 1996 BS EN 60068-2-68: 1996: Test L DIN 40050: Part 9	
IP6X Dust tight		
IPX1 Protected against dripping water	IEC 60529: 1989 EN 60529: 1991 BS EN 60529: 1992 (2000) DIN 40050: Part 9	
IPX2 Protected against dripping water when tilted up to 15°		
IPX3 Protected against spraying water		
IPX4 Protected against splashing water		
IPX5 Protected against water jets		
IPX6 Protected against powerful water jets		
IPX7 Protected against the effects of immersion		
IPX8 Protected against submersion		
IPX9K High pressure / high temperature		DIN 40050: Part 9

*This table acts as a guideline only and customers should contact Alphatech to discuss their exact requirements*

Section D: ISO 9001:2000 Certificate



**SGS**

Certificate GB03/58524

The management system of

**Alphatech Limited**

Green House, Homefield Road,  
Haverhill, Suffolk, CB9 8QP, UK



has been assessed and certified as meeting the requirements of

**ISO 9001:2000**

For the following activities

**The sales, hire and service of environmental test chambers and associated products, and provision of environmental test services.**

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organisation

This certificate is valid from 18 October 2007 until 21 February 2009  
Issue 3. Certified since 21 February 2003

Authorised by

SGS United Kingdom Ltd Systems & Services Certification  
Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN, UK  
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com



SGS 9001-2 01 1007

Page 1 of 1



graphics design: sheldon major photo: printed by swiff (small security printing for certification)

Section E: ISO/IEC 17025:2005 Certificate

**United Kingdom Accreditation Service**

**ACCREDITATION CERTIFICATE**



**TESTING LABORATORY  
No. 2645**

**Alphatech Limited**

is accredited in accordance with the recognised International Standard ISO/IEC 17025:2005  
*General Requirements for the competence of testing and calibration laboratories.*

This accreditation demonstrates technical competence for a defined scope as detailed in and at the locations specified in the schedule to this certificate, and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated 18 June 2005).

The schedule to this certificate is an essential accreditation document and from time to time may be revised and reissued by the United Kingdom Accreditation Service. The most recent issue of the schedule of accreditation, which bears the same accreditation number as this certificate, is available from the UKAS website [www.ukas.org](http://www.ukas.org).

This accreditation is subject to continuing conformity with United Kingdom Accreditation Service requirements. The absence of a schedule on the UKAS website indicates that the accreditation is no longer in force.

  
\_\_\_\_\_  
*Accreditation Manager, United Kingdom Accreditation Service*

**Initial Accreditation date**  
01 July 2004

**This certificate issued on**  
13 April 2006

The Department of Trade and Industry (DTI) has entered into a memorandum of understanding with the United Kingdom Accreditation Service (UKAS) through which UKAS is recognised as the national body responsible for assessing and accrediting the competence of organisations in the fields of calibration, testing, inspection and certification of systems, products and persons