



ExMC/249/DV
June 2005

**IEC SCHEME FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE
IN EXPLOSIVE ATMOSPHERES
(IECEx SCHEME)**

Ex Management Committee, ExMC

**TITLE: IECEx Assessment Report for an extension of in scope for existing
ExTL SIRA**

INTRODUCTION

The IECEx Assessment Team carried out an assessment for an extension of scope during SIRA's reassessment. Outcomes of the reassessment will be finalised during Buxton October 2005 series of meetings

This document contains the IECEx Assessment Report for voting on an extension of scope for existing ExTL SIRA

The report is hereby submitted for voting by ExMC

Please consider the assessment report and return the completed voting form to the Secretariat by **2005 08 28**. Your speedy response to the voting process will be very much appreciated.

You may return your completed voting form (available in Word format) via fax or e-mail. Details below.

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IECEx Secretary**

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ExMC/249/DV
June 2005

IECEx RE-ASSESSMENT AND EXTENSION OF SCOPE REPORT FORM for Accepted Ex Testing Laboratory (ExTL) SIRA

1. OBJECT AND FIELD OF APPLICATION

1.1 *Country*

United Kingdom

1.2 *ExTL under Re-Assessment*

Sira Test & Certification

1.3 *Members of the Assessment Team*

Jim Munro, Lead Assessor	1, 7 & 8 March 2005
Heinz Berger, Assessor	7 & 8 March 2005

1.4 *Place and Date of Re-Assessment*

Sira Test & Certification
South Hill
Chislehurst
Kent BR7 5EH
England

1 March 2005

Sira Test & Certification
Hazardous Area Centre
Rake Lane
Eccleston
Chester CH4 9JN
England
7-8 March 2005

1.5 *Assessment References*

Document:

- i) IECEx 02 Second Edition
- ii) IECEx Operational Document OD/009/V1
- iii) ISO/IEC 17025
- iv) IECEx Technical Guidance Documents

1.6 *Current Scope of Acceptance*

Product Category

General Requirements

Flameproof Enclosures "d"

Pressurised Enclosures "p"

Sand-filled Apparatus "q"

Oil-immersed Apparatus "o"

Increased Safety "e"

Intrinsic Safety "i"

Electrical Apparatus with Type of Protection "n"

Encapsulation "m"

Standard

IEC 60079-0

IEC 60079-1

IEC 60079-2

IEC 60079-5

IEC 60079-6

IEC 60079-7

IEC 60079-11

IEC 60079-15

IEC 60079-18



1.7 **Extension of Scope**

Intrinsically Safe Systems	IEC 60079-25
Group II Zone "0" Electrical Apparatus	IEC 60079-26
Field bus Intrinsically Safety concept (FISCO)	IEC 60079-27
Flammable Gas Detection Apparatus	IEC 61779-1, 2, 3, 4 & 5
Apparatus for combustible dusts	IEC 61241-1-1
Combustible dust - General requirements	IEC 61241-0
Combustible dust - Protection by Enclosures "tD"	IEC 61241-1
Combustible dust – Type of protection "pD"	IEC 61241-4
Combustible dust – Type of protection "mD"	IEC 61241-18
Resistance trace heating (General requirements)	IEC 62086-1
Cap lights for use in mines	IEC 62013-1

Protection Concepts listed for extension of scope, including gas detectors, are covered by UKAS Accreditation for testing and assessment See Annex C and Annex D

1.8 **ExTL Persons Interviewed**

Name	Position
David Stubbings	Certification Manager Ex Products
Brian Howard	Quality Manager
Steve Cork	Laboratory Technical Manager
Mike Wilson	Senior Technician
Tony Deaves	Senior Certification Engineer
David Holton	Senior Certification Engineer

1.9 **Any changes in Legal Status and/or national accreditation of the ExTL**

There have been no changes since last assessment. However, the management of Sira foreshadowed a possible major change involving a management buy out of the operation at Chester. This is not addressed in this report.

1.10 **Associated Certifying ExCBs**

IECEx Sira Test & Certification (SIRA)

1.11 **Financial Support**

Sira operates as a commercial company.

2. **ORGANISATION**



2.1 *Names, Titles and Experience of the Senior Executives*

Name	Title	Experience
M D Shearman D R Stubbings	General Manager Certification Manager Ex Products	Certification Manager 6 years Senior Engineer 5 years Certification Officer (EECS) 3 years Certification Officer (Alsthom) 2 years
W Thomas	Certification Manager Quality Sys.	5 years
I D Knott	Chief Executive SCS	>10 years exp in this role Chartered Engineer
S Cork	Laboratory Technical	Sira Test & Certification 25 years Testing (10 years UKAS Technical Manager)

2.2 *Name, Title and Experience of the Quality Management Representative*

Name	Title	Experience
B Howard	Quality Manager	British Telecom 28 years Telecom Engineering (6 years ISO9000 Quality Group) Sira Test & Certification 9 years Quality Manager (ISO/IEC 17025, Guide 65 & associated standards)

2.3 *Name and Title of Nominated Principal Contact*

Name	Title
D R Stubbings	Certification Manager Ex Products

2.4 *Other Employees in ExTL activity*

Name	Title	Responsibility
M Wilson	Senior Technician	UKAS signatory for testing
A R Banfield	Laboratory Manager	UKAS signatory for gas detector testing and calibration
Dr J Elks	Senior evaluation engineer	UKAS signatory for gas detectors calibration

2.5 Information about external staff (if any) working for ExTL

Sira have advised that no external staff work for the Ex TL.

2.6 Organisational Structure (Including Changes since Last Assessment)

Form 280 Issue 17 shows the detailed organisational structure at Chester. See Annex B. Annex A provides an overview of the Sira group.

3. RESOURCES

Chislehurst

The gas detector testing facility has a small group of two technicians located in Chislehurst but the final report is also overseen by Steve Cork who had many years experience in this testing before relocating from Chislehurst to Chester. Test staff still in Chislehurst also has many years of experience with this testing. The facility is part of a larger organisation which is accredited by UKAS for a range of activities, with particular emphasis on calibration. It has all facilities necessary to carry out the testing with the exception of EMC testing.

Chester

This facility is well resourced with experienced professional staff, a comprehensive range of facilities and well developed procedures.

4. TEST METHODS

4.1 Procedures

Controlled Test Procedures for Hazardous Area Concepts

4.2 Staff Work Instructions

ST&C Work Instructions to cover non-technical operations

4.3 New or upgraded laboratory equipment

The following new test equipment was noted and found to comply with the requirements of the relevant standards

- Apparatus for testing for comparative tracking index (CTI).
- Apparatus for resistance trace heating testing to IEC 62086-1.

4.4 Laboratory equipment put out of service without replacement

No major changes since last audit

4.5 Subcontracted work

Work is generally not normally sub-contracted. They do have procedures covering sub-contracting, but have undertaken to update them in line with the findings below. Sub-contracting is carried out for EMC testing for gas monitors. Further, the testing of gas monitors by Chislehurst is being treating as a form of sub-contracting by the Chester laboratory that will be issuing the ExTR.

5. TEST REPORTS AND RECORDS

IECEx Certificates or ExTRs issued during the past 2 years:

flameproof	d	11
intrinsic safety	i	20
increased safety	e	8
special	s	0
powder filled	q	0
encapsulated	m	1
type	n	0
pressurised	p	0
Gas Detectors		0
Apparatus for Dusts		0

In addition to the above, over Sira under the European ATEX Directive issues 700 certificates and reports

Test Records

Information about amount of physical testing (approximate numbers over the last two years)	
- number of thermal endurance tests	160
- number of dust ingress tests	150
- number of mechanical tests (impact, torque, pulling, ...)	140
- number of flameproof (explosion-proof) explosion tests (gas group, overpressure, transmission)	320
- number of IS explosion tests (gas group, spark ignition, small hot component ignition)	45
number of thermal tests (determination of max surface temperature)	150
Amount of witnessed testing at manufacturers' premises	Approx 30
Record keeping methods.	Internal test report



6. CALIBRATION

For both sites the equipment calibration program is managed by the Chislehurst facilities. These hold UKAS accreditation for a wide range of tests. Where they do not have capability and accreditation then the calibration is contracted to another calibration facility with the appropriate UKAS accreditation.

There is a contracted agreement between the Chester site and Chislehurst for its calibration program.

There is some internal calibration done at Chester, for example calibration of pressure transducers.

7. DOCUMENTATION

7.1 *Quality Manual*

Sira Test & Certification Hazardous Area Centre Quality Manual covers the requirements for the testing operation located in Chester.

The testing operation at Chislehurst has its own quality manual.

However, there are clear common elements between the two sites with the PROQUIS Quality Management Information System providing a common tool for both sites.

7.2 *Document Change Control*

PROQUIS Quality Management Information System is used as the system to control issued documents, including standards.

8. INTERNAL AUDIT AND PERIODIC REVIEW

Internal Audits and Management Review is described in HAZ QM clause 6. The computer based PROQUIS-SYSTEM (Quality Management Information System) is used for the control of the processes. The internal audit schedule for 2004 and 2005 was viewed for the Chester and the Chislehurst facility.

9. EXTERNAL AUDITS

Sira holds UKAS accreditation for its Ex testing activities. There is a UKAS assessment every three years with annual surveillance visits in the intervening years.

Details of the UKAS accreditations are as follows:

Chester

UKAS certificate 0327 (see Annexes C and D) covering IEC Ex protection standards IEC 60079-0, -1, -2, -5, .6, .7, -11, -15, 18; ingress protection standards



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IEC 60529; miners cap lamps to EN 62013-1 (similar to IEC standard); Category 1G (similar to IEC Zone 0) to EN 62013-1.

Chislehurst

UKAS certificate 0376 (see Annexes E and F) covering IEC 61779-1, -2, -3, -4 and -5.

The above accreditations will need updating to reflect the standards recommended by this report. Sira has provided a letter that they have sent to UKAS requesting additional standards be included in its scope. However, that letter does not address all standards being recommended for addition to the scope by this report. For Standards not covered by UKAS Accreditation these should be subject to annual surveillance by IECEx.

Sira advised that they are also subjected to audits by other bodies as follows:

CSA - 18th -20th February 2002

UL - 18th & 19th March 2002

FM - 24th & 27th March 2003

They advised that in each case no major non-compliances were raised.

10. COMPLAINTS

There were no unresolved complaints at the time of the visit. Complaints are handled according to HAZ QM Clause 8.

11. REVIEW OF ISSUED EXTRS BY ASSESSMENT TEAM

Files containing the following certificates and associated ExTRs were reviewed. These included:

1. Certificate IECEx SIR 04.0001X- Rotork Controls, Valve actuator?, ExTR UK/Sir/04/R53L 11430C, Ex d IIB
2. Certificate IECEx SIR 04.0002X - Rotork Controls, Valve actuator, ExTR UK/Sir/04/R53L, Ex d IIC
3. Certificate IECEx SIR 04.0010 - Joy Mining Machinery Ltd, Ram Transducer ExTR UK/Sir/R52L 11505B. Ex i I.
4. Certificate IECEx SIR 04.0005 – Draeger PLMS Ltd – Hand held terminal Ex ib IIC T4 and T3

12. FINDINGS FROM THE RE-ASSESSMENT

The assessment team found the following issues:

Chislehurst

- A couple of problems with recordkeeping.
- The need to have a clear system in place for subcontracting of ExMC work
- The need for procedures for reporting at Chester and subsequent certification review.

All issues were subsequently resolved to the satisfaction of the assessment team.



Comment

There has been little testing of Group I instruments but the procedures are similar to other instruments and there was a clear knowledge of the requirements and capability in the facilities.

Chester

- Need for improved contract review procedures
- Minor errors in a certificate
- Deficiencies in the ExTRs and other reports reviewed
- Minor errors in record keeping
- Need for improved document control, in particular for IECEx documents
- Need for competencies to be updated for new standards

All the above issues were subsequently resolved to the satisfaction of the assessment team.

The following issue regarding some Standards not covered by the scope of UKAS Accreditation, does not impact directly on the recommendation for extended scope but could lead to the need for surveillance visits if not resolved. Sira have indicated that the extension of UKAS Accreditation scope is under consideration and hence this report has not been held back waiting for resolution of the issue.

- A number of the standards that were requested for inclusion in the scope for IECEx were not shown on the UKAS accreditation; these were IEC 61241-0, -1, -4, -18, 60079-25, -26, -27, 67013-1 and 62086.

Relevant TGDs, site assessment report, issues raised and resolutions along with the actions taken to resolve them have been provided to the IECEx Secretariat.

13. RECOMMENDATIONS

Based on the re-assessment carried out on 1 and 7 to 8 March 2005, the Assessment Team recommends the continued acceptance of Sira as an IECEx TL with a scope as shown in Section 1.6 and additional standards listed in Section 1.7 of this report.

LIST OF ANNEXES

Annex A: Organisation Chart for Sira Group

Annex B: Organisation Chart for Chester

Annex C: UKAS Accreditation Certificate No 0327

Annex D: UKAS Schedule for Certificate No 0327

Annex E: UKAS Accreditation Certificate No 0376

Annex F: Extract of UKAS Schedule for certificate No 0376

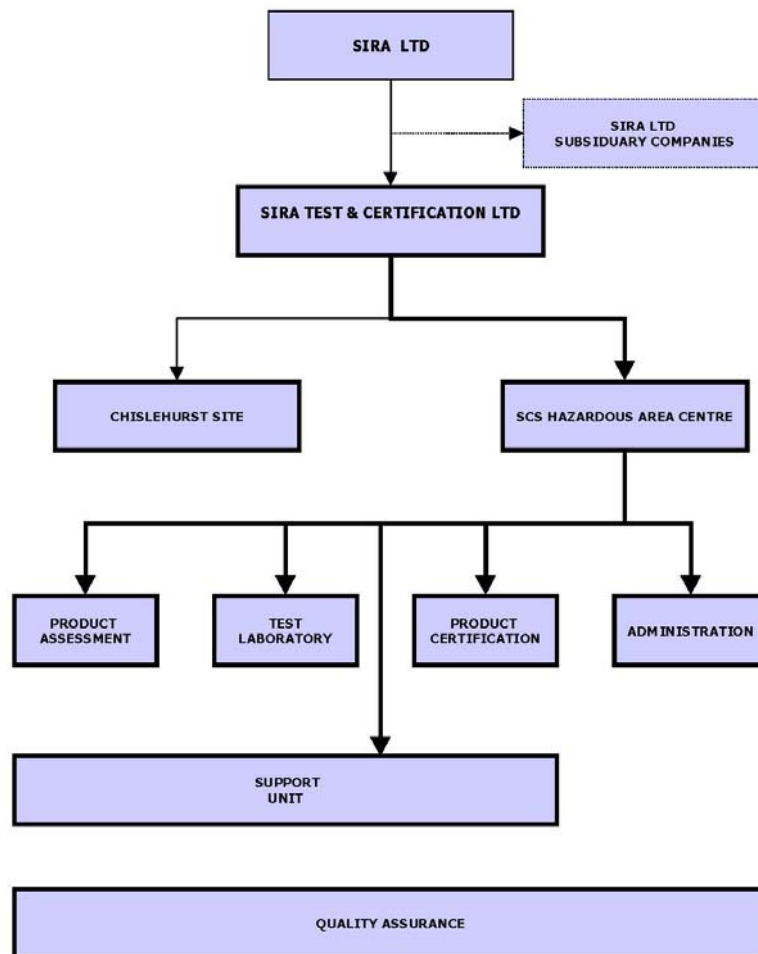
Jim Munro
Lead Assessor

Heinz Berger
Assessor

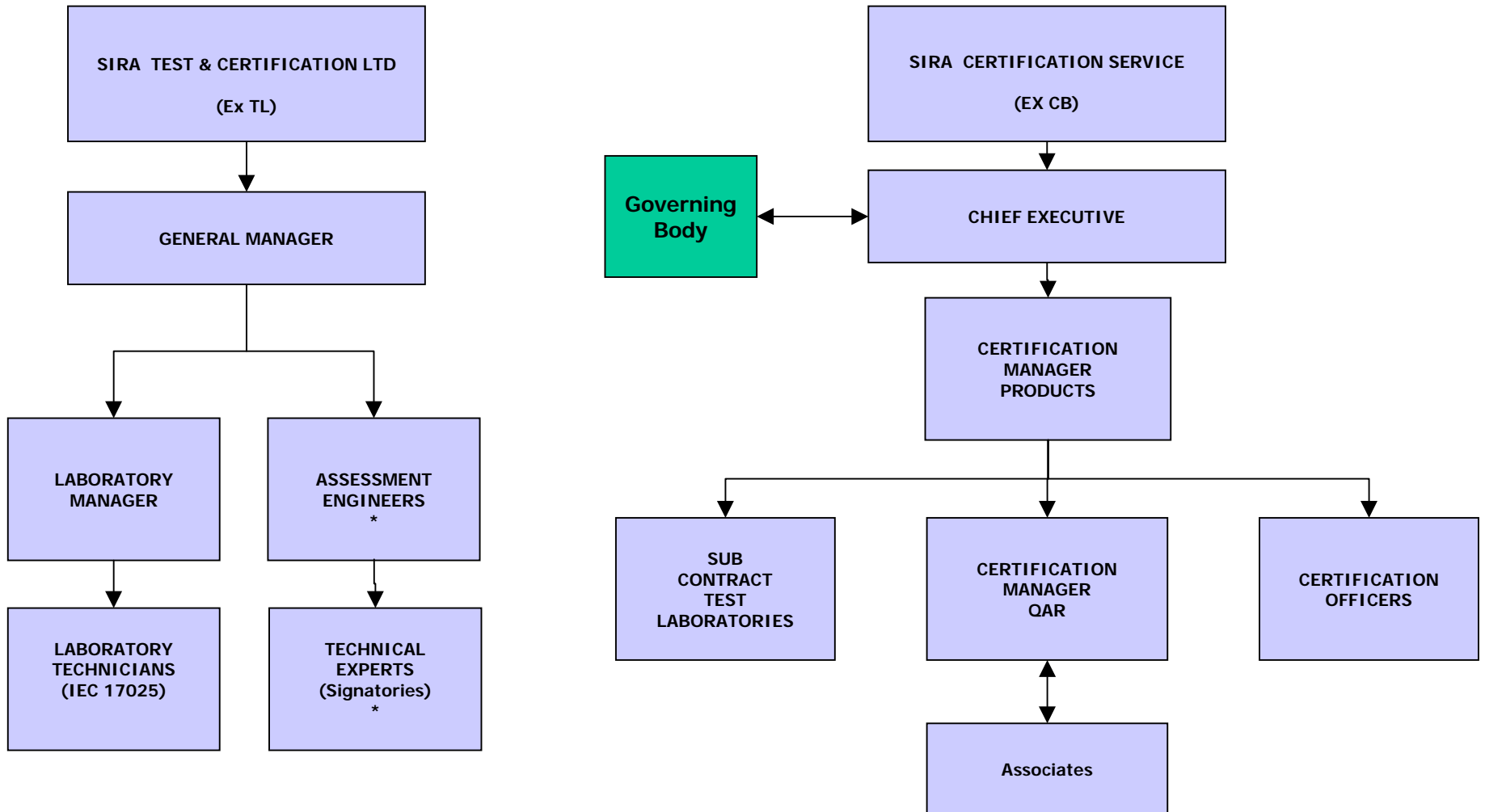
19 May 2005

Annex A

CHART 1 - Organisation of the Sira Group



SIRA TEST& CERTIFICATION ORGANISATION CHART (IECEx CERTIFICATION)



Note: The title defined here (*) is the role undertaken to illustrate the independence of the checking function and does not reflect the Job Title of the personnel, which is either Certification Engineer or Consultant Engineer. Personnel may fulfil either function depending on their competence

Annex C

United Kingdom Accreditation Service

ACCREDITATION CERTIFICATE



TESTING LABORATORY
No. 0327

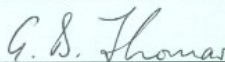
SIRA Test & Certification Ltd
SIRA Certification Service
Rake Lane
Eccleston
Chester
CH4 9JN

is accredited to undertake tests as detailed in the schedule bearing the above accreditation number. From time to time this schedule may be revised and reissued by the United Kingdom Accreditation Service.

Accredited laboratories comply with the requirements of International Standard BS EN ISO/IEC 17025, which replaces ISO/IEC Guide 25 and EN45001. Testing and calibration laboratories that comply with the requirements of this International Standard operate a quality system for their testing and calibration activities that also meets the requirements of ISO 9001 when they engage in the design/development of new methods, and/or develop test programmes combining standard and non-standard test and calibration methods, and ISO 9002 when they only use standard methods.

This Accreditation shall remain in force until the expiry date printed below, subject to continuing compliance with United Kingdom Accreditation Service requirements.

Initial Accreditation 11 November 1985



Accreditation Manager, United Kingdom Accreditation Service

This certificate issued on 01 September 2003

Expiry date 31 January 2007

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 personnel.



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Annex D

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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


	<table> <tr> <th colspan="2">SIRA Test & Certification Ltd</th></tr> <tr> <td colspan="2">Issue No: 018 Issue date: 17 February 2004</td></tr> <tr> <td data-bbox="539 748 863 931"> Hazardous Area Centre Rake Lane Eccleston Chester CH4 9JN </td><td data-bbox="863 748 1332 931"> Contact: Mr M Wilson Tel: +44 (0)1244 670900 Fax: +44 (0)1244 681330 E-Mail: exhazard@siratc.co.uk Website: www.siraservices.com </td></tr> </table>	SIRA Test & Certification Ltd		Issue No: 018 Issue date: 17 February 2004		Hazardous Area Centre Rake Lane Eccleston Chester CH4 9JN	Contact: Mr M Wilson Tel: +44 (0)1244 670900 Fax: +44 (0)1244 681330 E-Mail: exhazard@siratc.co.uk Website: www.siraservices.com
SIRA Test & Certification Ltd							
Issue No: 018 Issue date: 17 February 2004							
Hazardous Area Centre Rake Lane Eccleston Chester CH4 9JN	Contact: Mr M Wilson Tel: +44 (0)1244 670900 Fax: +44 (0)1244 681330 E-Mail: exhazard@siratc.co.uk Website: www.siraservices.com						
Testing performed at permanent laboratory premises							

SUMMARY OF ACCREDITATION

ELECTRICAL

Apparatus for use in potentially explosive atmospheres
 Apparatus protected by enclosures
 Cable glands
 Combustible dusts
 Ex d Flameproof enclosures
 Ex e Increased safety
 Ex i Intrinsically safe
 Ex m Encapsulated
 Ex n Type N protection
 Ex o Oil filled
 Ex p Purged & pressurised
 Ex q Powder filled
 General requirements
 Liquid fuel metering pumps & dispensers
 Miners caplights
 Electrical & electronic equipment
 Enclosures & ingress protection


Annex D

	Schedule of Accreditation issued by United Kingdom Accreditation Service 21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK
	SIRA Test & Certification Ltd Issue No: 018 Issue date: 17 February 2004
Testing performed at permanent laboratory premises	


DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Electrical Apparatus, Systems, Components, Accessories and Enclosures for use in potentially Explosive Atmospheres	<u>ELECTRICAL PRODUCT TESTS</u> Tests for the General Requirements for Electrical Apparatus for Potentially Explosive Atmospheres or Hazardous (Classified) Locations	EN 50014:1997, Amd's 1 and 2 EN 50014:1992 EN 50014:1977, Amd's A1 to A5 IEC 60079-0:1998 IEC 60079-0:1983 Excluding: Thermal Stability below -85°C Thermal Stability for enclosures greater than 795 x 825 x 800 mm Resistance to light Non-metallic enclosures Ageing Chemical Compatibility
	Tests for Oil Immersed Apparatus (Exo)	EN 50015:1998 EN 50015:1994 EN 50015:1977, Amd A1 IEC 60079-6:1994
	Tests for Pressurised and Purged Apparatus (Exp)	EN 50016:1995 EN 50016:1977, Amd A1 IEC 60079-2:1983
	Tests for Sand Filled Apparatus (Exq)	EN 50017:1998 EN 50017:1994 EN 50017:1977, Amd A1 IEC 60079-5:1997
	Tests for Apparatus in Flameproof Enclosures (Exd)	EN 50018:1994 EN 50018:1977, Amd's A1 to A3 IEC 60079-1:1971, Amd's 1 and 2 IEC 60079-1A:1975 Excluding: Conduit Torque Tests


Annex D

	<p align="center">Schedule of Accreditation issued by United Kingdom Accreditation Service 21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK</p>	
	<p align="center">SIRA Test & Certification Ltd Issue No: 018 Issue date: 17 February 2004</p>	
<p align="center">Testing performed at permanent laboratory premises</p>		
Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Electrical Apparatus, Systems, Components, Accessories and Enclosures for use in potentially Explosive Atmospheres (cont'd)	<u>ELECTRICAL PRODUCT TESTS</u> (cont'd) Tests for Increased Safety Apparatus (Exe)	EN 50019:1994 EN 50019:1977, Amd's A1 to A5 IEC 60079-7:1990, Amd's 1 and 2 Excluding: Mechanical tests for screwed lampholders Interturn Voltage Test as in HD 553 Tests on Secondary Batteries greater than 25 Ah Ventilation of Battery Enclosures
	Tests for Intrinsically Safe Apparatus, Associated Apparatus and Systems (Exi)	EN 50020:2002 EN 50020:1994, Amd 1 EN 50020:1977, Amd's A1 to A5 EN 50039:1980 IEC 60079-11:1999 IEC 60079-11:1991
	Tests for Encapsulated Apparatus (Exm)	EN 50028:1987 IEC 60079-18:1992
	Tests for Electrical Apparatus for Explosive Atmospheres with Type of Protection n (Exn)	BS 6941:1988 EN 50021:1999 Excluding: Clause 26.11 Tests for ballasts in circuits with ignitors IEC 60079-15:1987
	Tests for Electrical Apparatus with Protection by Enclosure for use in the presence of Combustible Dusts	BS 6467:Part 1:1985 Excluding: Appendix H.2 Thermal Conditioning below -85°C Thermal Conditioning for enclosures greater than 795 x 825 x 800 mm
	Electrical Apparatus Protected by Enclosures - Construction and Testing	EN 50281-1-1:1998 Excluding: Clause 6.10 Radiating equipment IEC 61241-1-1:1999

Annex D

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	<p align="center">SIRA Test & Certification Ltd Issue No: 018 Issue date: 17 February 2004</p>	
Testing performed at permanent laboratory premises		
Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Electrical Apparatus, Systems, Components, Accessories and Enclosures for use in potentially Explosive Atmospheres (cont'd)	<p><u>ELECTRICAL PRODUCT TESTS</u></p> <p>Special requirements for construction, Test and Marking of Electrical Apparatus of Equipment Group II, Category 1G</p>	EN 50284:1999
Metering pumps and dispensers to be installed at filling stations and used to dispense liquid fuel	Safety Tests	BS 7117:Part 1:1991, Amd's 1 and 2
Miners Cap Lamps	Safety Tests	EN 50033:1991
	Safety Tests	EN 62013-1:2002 Excluding: Clause 10.13.2, Store of dangerous charge
Mechanical Cable Glands	<p><u>DIMENSIONAL TESTS</u></p> <p>Tests to demonstrate compliance with Constructional Requirements</p>	BS 6121:Part 1:1987 BS 6121:Part 2:1989 Excluding: Seal Compression and Hardness Tensile Tests
Enclosures for Electrical Equipment	<p><u>INGRESS PROTECTION TESTS</u></p> <p>IP1X Protected against solid objects greater than 50 mm diameter</p> <p>IP2X Protected against solid objects greater than 12 mm diameter</p> <p>IP3X Protected against solid objects greater than 2.5 mm diameter</p> <p>IP4X Protected against solid objects greater than 1.0 mm diameter</p>	EN 60529:1992 IEC 60529:1989 EN 60947-1:1997, Amd 1 Appendix C only BS 4999:Part 105:1988 EN 60034:Part 5:1986

Annex D

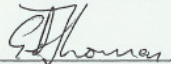
	<p>Schedule of Accreditation issued by United Kingdom Accreditation Service 21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK</p>	
	<p>SIRA Test & Certification Ltd Issue No: 018 Issue date: 17 February 2004</p>	
Testing performed at permanent laboratory premises		
Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Enclosures for Electrical Equipment (cont'd)	<p><u>INGRESS PROTECTION TESTS</u> (cont'd)</p> <p>IP5X Dust Protected Excluding: Objects greater than 810 x 760 x 800 mm</p> <p>IP6X Dust Tight Excluding: Objects greater than 810 x 760 x 800 mm</p> <p>IPX1 Protected against dripping water</p> <p>IPX2 Protected against dripping water when tilted up to 15°</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 heavy seas</p> <p>IPX7 Protected against the effects of immersion Excluding: Objects greater than Ø 350 x 500 mm</p> <p>IPX8 Protected against submersion Excluding: Objects greater than Ø 350 x 500 mm</p>	
	END	

United Kingdom Accreditation Service**ACCREDITATION CERTIFICATE****TESTING LABORATORY
No. 0376****Sira Test & Certification Ltd
South Hill
Chislehurst
Kent
BR7 5EH**

is accredited to undertake tests as detailed in the schedule bearing the above accreditation number. From time to time this schedule may be revised and reissued by the United Kingdom Accreditation Service.

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This Accreditation shall remain in force until the expiry date printed below, subject to continuing compliance with United Kingdom Accreditation Service requirements.

Initial Accreditation 30 June 1987*Accreditation Manager, United Kingdom Accreditation Service***This certificate issued on 23 October 2002****Expiry date 31 December 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 personnel.

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>UKAS TESTING 0376</p>	<p align="center">Sira Technology Ltd Sira Instrument Test and Calibration Division</p> <p align="center">Issue No: 018 Issue date: 14 June 2005</p>	
	<p>South Hill Chislehurst Kent BR7 5EH</p>	<p>Contact: Mr A R Banfield Tel: +44 (0)20-8467 2636 Fax: +44 (0)20-8468 1807 E-Mail: ITC@sira.co.uk Website: www.sira.co.uk</p>
<p align="center">Testing performed at permanent laboratory premises</p>		

SUMMARY OF ACCREDITATION

CONSTRUCTION

Smoke emission & toxicity
Motor vehicle, railway stock & aircraft materials

ELECTRICAL

Apparatus for use in potentially explosive atmospheres
Gas detectors
Industrial appliances & tools
Industrial appliances & tools

EMC, IT, RADIO & TELECOMS

EMC, commercial
Electrostatic discharge immunity
Transient immunity
Voltage dips, interruptions & fluctuations

ENGINEERING MATERIALS, MACHINERY, STRUCTURES & PRODUCTS

Machinery & mechanical devices
Pressure relief valves
Pressure vessels
Gas cylinders
Hydrostatic testing

ENVIRONMENTAL ENGINEERING (CLIMATIC/DYNAMIC)

Climatic (single parameters) -
non-explosive items
High humidity
High/low temperature
High pressure (atmospheric)
Dynamic
Vibration, sinusoidal



Schedule of Accreditation
issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

Sira Technology Ltd
Sira Instrument Test and Calibration Division
Issue No: 018 Issue date: 14 June 2005

Testing performed at permanent laboratory premises

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
AEROSPACE COMPONENTS AND EQUIPMENT BATTERIES AND CELLS CIRCUIT BREAKERS AND SWITCHES CLOTHING: PROTECTIVE COMPUTERS AND PERIPHERALS DOMESTIC APPLIANCES: ELECTRICAL DOMESTIC APPLIANCES: NON-ELECTRICAL ELECTRICAL/ELECTRONIC COMPONENTS ELECTRICAL/ELECTRONIC CONNECTORS ELECTRICAL/ELECTRONIC PRODUCTS ELECTRO-MECHANICAL DEVICES ENCLOSURES FOR ELECTRICAL EQUIPMENT FIRE FIGHTING AND DETECTION EQUIPMENT FLOWMETERS: EXCLUDING CALIBRATION HOSES, PIPES AND TUBES HYDRAULIC EQUIPMENT AND FITTINGS INSTRUMENTS: INDICATING/RECORDING INSULATING MATERIALS: ELECTRICAL INSULATING MATERIALS: THERMAL LAMPS: ELECTRICAL MARINE EQUIPMENT MEASURING EQUIPMENT MECHANICAL PRODUCTS AND PLANT MEDICAL/DENTAL EQUIPMENT MICRO-ELECTRONIC CIRCUITS AND COMPONENTS MINING EQUIPMENT COMPONENTS MINING PLANT EQUIPMENT MOTOR VEHICLE ACCESSORIES AND COMPONENTS	<p><u>ENVIRONMENTAL TESTS</u> (non-explosive items)</p> <p>CLIMATIC Single Parameters</p> <p>HIGH TEMPERATURE (Constant and Cyclic) Max temp: +60°C Max chamber size: 3.0 m x 2.5 m x 2.0 m Max temp: +180°C Max chamber size: 1.0 m x 1.0 m x 1.0 m</p> <p>LOW TEMPERATURE (Constant and Cyclic) Min temp: -25°C Max chamber size : 3.0 m x 2.5 m x 2.0 m Min temp: -60°C Max chamber size: 1.0 m x 1.0 m x 1.0 m</p> <p>HIGH HUMIDITY (Constant and Cyclic) Temp range: +20°C to +60°C Humidity range: 20% rh to 98% rh Max chamber size: 3.0 m x 2.5 m x 2.0 m Temp range: +20°C to +90°C Humidity range: 20% rh to 98% rh Max chamber size: 0.65 m x 0.6 m x 0.5 m</p> <p>HIGH HUMIDITY (Constant only) Temp range: +20°C to +90°C Humidity range: 20% rh to 98% rh Max chamber size: 1.0 m x 1.0 m x 1.0 m</p>	<p>BS EN 60068-2-2:1993 Tests Ba, Bb, Bc and Bd IEC 60068-2-2:1974, Amd's 1 and 2 DEF STAN 07-55:1975 Tests B1 & B2 MIL-STD-810E:1989 Method 501.3</p> <p>BS 2011:Part 2.1A:1990 Tests Aa, Ab and Ad IEC 60068-2-1:1990, Amd's 1 and 2 DEF STAN 07-55:1975 Tests B4 and B5 MIL-STD-810E:1989 Method 502.3</p> <p>BS 2011-2.1Ca:1977, Amd 1 BS EN 60068-2-30:1999, Amd 1 IEC 60068-2-3:1969 IEC 60068-2-30:1980, Amd 1 DEF STAN 07-55:1975 Tests B6 and B7 MIL-STD-810E:1989 Method 507.3</p> <p>BS 2011-2.1Ca:1977, Amd 1 IEC 60068-2-3:1969 DEF STAN 07-55:1975 Test B7 MIL-STD-810E:1989 Method 507.3</p>



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issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

Sira Technology Ltd
Sira Instrument Test and Calibration Division
Issue No: 018 Issue date: 14 June 2005

Testing performed at permanent laboratory premises

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Continued from Page 2 MOTORS: ELECTRICAL MOTORS: HYDRAULIC OFFICE EQUIPMENT: ELECTRICAL OFFICE EQUIPMENT: MECHANICAL OPTICAL AND PHOTOGRAPHIC EQUIPMENT PACKAGES AND PACKING MATERIAL POWER SUPPLIES: ELECTRICAL PRINTED CIRCUIT BOARDS PUMPS RADAR EQUIPMENT RADIO AND TV EQUIPMENT SAFETY APPLIANCES/ EQUIPMENT SAFETY APPLIANCES/ EQUIPMENT: PERSONAL SATELLITES AND SUBASSEMBLIES SECURITY DEVICES AND ALARMS TELECOMMUNICATION EQUIPMENT TRANSFORMERS: ELECTRICAL VALVES: ENGINEERING WEAPONS AND SUBASSEMBLIES	<u>ENVIRONMENTAL TESTS</u> (non-explosive items) (cont'd) DYNAMIC Single Parameters VIBRATION – Sinusoidal (ambient temperature) Slip table facility: Frequency range: 5 to 2000 Hz Peak thrust: 13 kN Max pk/pk displacement: ±25 mm Visual resonance search PRESSURE TESTS (ambient temperature) - proof - to destruction - leakage Maximum gauge pressures - gas, 70 MPa - hydraulic oil, 410 MPa - water, specified solvents, 100 MPa	BS 2011:Fc:1983 DEF STAN 07-55:1975 Test A1 BS EN 60068-2-6:1996 Documented PTL In-House Procedure: latest issue
EMC TESTING	EMC TESTING 1.1 Commercial EMC Testing Basic standards 1.1.1 Electrostatic discharge up to 15 kV	EN 61000-4-2:1995, Amd 1 IEC 60801-2:1991 IEC 60801-2:1984 IEC 61000-4-2:1995, Amd 1
	1.1.2 Electrical Fast Transients Bursts	EN 61000-4-4:1995 IEC 60801-4:1988



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EMC TESTING	<p><u>EMC TESTING</u></p> <p>1.2 Commercial EMC Testing Generic and product specific standards</p> <p>These standards are accredited to the extent that they call up the standards as detailed above</p>	<p>BS EN 50082-1:1998 (Tables 1.4, 2.2, 3.2, 4.2 and 5.2) BS EN 50082-1:1992 (Tables 1.2, 2 to 4, A.3.1 and A.3.2, A.4.1 to A.4.3) prEN 50082-2:1992 (Tables 1.2, A.4.1 and A.4.2, A.5.1 to A.5.3,) EN 50082-2:1995 (Tables 1.4, 2.2, 3.2, 4.2, 5.2, A.3.1, A.3.2, A.4.1 to A.4.3) BS EN 50270:1999 (Tables 1.4, 2.2, 3.2 and 4.2) BS EN 61779:Parts 1 to 5 for the tests listed under BS EN 50270:1999 above BS EN 45544:Parts 1 to 3 for the tests listed under BS EN 50270:1999 above OIML R 99 (Annexes A8, A11,A12, A.13) MOT/05/01/01 (Clauses 8.5.10 to 8.5.12)</p>
	1.2.1 Power supply variations (ac and dc voltage and frequency) interruptions and step changes	BS EN 50054:1999 (Sections 5.4.20.2, 5.4.20.3, 5.4.20.4, 5.4.21.2 and 5.4.21.4)
	1.2.2 Fast Burst Transients	BS EN 50054:1999 (Section 5.4.21.3)
INSTRUMENTS FOR MEASURING VEHICLE EXHAUST EMISSIONS	PERFORMANCE TESTS FOR PATTERN APPROVAL	OIML International Recommendation R99 Annex A1 to A7, A9, A10.1 and A16 to A23
		Vehicle Inspectorate Specifications: MOT/05/01/01 Sections 8.5.1 to 8.5.12 and 8.6 MOT Exhaust Gas Analysers VPB/07/24/20 Excluding RF Susceptibility**



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ELECTRICAL APPARATUS FOR THE DETECTION AND MEASUREMENT OF FLAMMABLE GASES General requirements and test methods Performance requirements for Group I apparatus indicating up to 5 % (V/V) methane in air Performance requirements for Group I apparatus indicating up to 100%(V/V) methane in air Performance requirements for Group II apparatus indicating up to 100% lower explosive limit Performance requirements for Group II apparatus indicating up to 100% (V/V) gas	<u>PERFORMANCE TESTS</u> Performance tests Performance tests Performance tests Performance tests Performance tests	BS EN 50054:1999* BS EN 61779-1:2000* BS EN 50055:1999* BS EN 61779-2:2000* BS EN 50056:1999* BS EN 61779-3:2000* BS EN 50057:1999* BS EN 61779-4:2000* BS EN 50058:1999* BS EN 61779-5:2000*
ELECTRICAL APPARATUS USED FOR THE DIRECT DETECTION AND DIRECT CONCENTRATION MEASUREMENT OF TOXIC GASES AND VAPOURS General requirements and test methods Part 2: Performance requirements for apparatus measuring concentrations in the range of limit values Part 3: Performance requirements for apparatus measuring concentrations well above limit values	Performance tests Performance tests Performance tests	BS EN 45544-1:2000* BS EN 45544-2:2000* BS EN 45544-3:2000*
Specification for carbon monoxide detectors (electrical) for domestic use	Performance tests	BS EN 50291:2001* BS 7860:1996, Amd 1*



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
		<p>* Excluding tests concerned with:</p> <ul style="list-style-type: none">i) Electromagnetic compatibilityii) Explosion protectioniii) Alarm and sound leveliv) Electrical safetyv) Degree of mechanical strength and protection
** RF Susceptibility tests carried out at another UKAS lab which provides the E-M influence.		
	END	