PRODUCT CONFORMITY CERTIFICATE

This is certify that the

4500 Premier Dust Monitor

manufactured by:

Land Instruments International Ltd

Stubley Lane
Dronfield
Derbyshire
S18 1DJ
England

has been assessed by Sira Certification Service
and found to comply with:

MCERTS Performance Standards for Continuous Emission Monitoring Systems, Version 2, Revision 1 (April 2003)

Certification Ranges :

Optical Density (Extinction)	0 - 0.1 to 0 - 3.0
Opacity	0 - 10 % to 0 - 100 %
Dust Concentration	0 - 15 mg/m^3 (Min pathlength 5 metres) to 0 – 3000 mg/m^3

* 0 – 0.1 extinction translates to 0 – 15mg/m^3 for a minimum pathlength of 5 metres.

Certification is awarded in respect of the conditions stated in this certificate

Project No:	674/0162
Certificate No:	Sira MC 040029/01
Initial Certification:	01st July 2004
This Certificate Issued:	07 March 2008
Renewal Date:	30th June 2009

Chief Executive

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
South Hill, Chislehurst, Kent, BR7 5EH, England
Tel: 020-8467-2636 Fax: 020-8468 1841

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -20^{o}C to +50^{0}C

Performance values are expressed as a percentage of the certification range, except for availability and analysis function, and '✔' indicates compliance with MCERTS requirements.

Test	Results expressed as % of max of certification range				Other results	MCERTS* specification Note 2
	<0.3	<1	<2	<4		
Linearity			✔			<±2%
Ambient temperature: zero shift					<0.3%/^{o}C	<±0.3%/^{o}C
Ambient temperature: span shift					<0.3%/^{o}C	<±0.3%/^{o}C
Response time					5s	<200s
Detection limit			✔			<±2%
Analysis function (field)					>90% -	>90% (<20mg/m^3) >95% (>20mg/m^3)
Availability (field)					99.5%	>95%
Voltage effect at ±15% from the norm					No effect	<±2%
Maintenance interval					4 weeks	To be reported
Zero drift (field)					<±0.3%/week -	<±3%/week (<20mg/m^3) <±2%/week (>20mg/m^3)
Span drift (field)					<±0.3%/week -	<±3%/week (<20mg/m^3) <±2%/week (>20mg/m^3)
Reproducibility R_D					>52 -	>30 (<20mg/m^3) >50 (>20mg/m^3)
Sample gas pressure					See note 1	To be reported

* MCERTS performance limit Version 2, Revision 1, April 2003

Note 1: The 4500 Premier measures directly within the stack. Therefore this test was not relevant.

Note 2: Both sets of MCERTS performance limits are shown (<20mg/m^3 and >20mg/m^3). The range tested was 0 – 15mg/m^3.

Certificate No: Sira MC 040029/01

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Performance values are expressed as a percentage of the certification range, except for availability and analysis function, and '✔' indicates compliance with MCERTS requirements.

Test	Results expressed as % of max of certification range				Other results	MCERTS* specification Note 2
	<0.3	<1	<2	<4		
Sample gas temperature					See note 1	To be reported
Vibration test (10-150Hz at 19.6m/s^2)					No observed effect	Not specified

* MCERTS performance limit Version 2, Revision 1, April 2003

Note 1: The 4500 Premier measures directly within the stack. Therefore this test was not relevant.
Note 2: Both sets of MCERTS performance limits are shown (<20mg/m^3 and >20mg/m^3). The range tested was 0 – 15mg/m^3.

Field Test Site

The application for MCERTS certification sought by the manufacturer was for waste incineration.

The 4500 Premier analyser was assessed on the basis of a three month trial mounted on a municipal waste incinerator.

Approved Site Application

On the basis of these tests this certificate is valid when the instrument is used on waste incineration and large coal-fired combustion plant applications.

*However a**ny potential user should ensure, in consultation with the manufacturer, that the emission monitoring system is suitable for the process on which it will be installed. The MCERTS standard gives guidance of process conditions for some other types of plant.*

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Basis of Certification

This certification is based on the following Test Reports and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

TÜV Köln Report ref: 936/21200527/A dated 02.02.2004
TÜV Köln Report ref: 936/21200527/C dated 31.03.2004

TÜV reports are accepted on the basis of the Environment Agency's document 'MCERTS – Guidance on the acceptance of German type approval test reports for CEMS' Version 2 (October 2003).

Product Certified

The 4500 Premier system tested for TUV comprised of:

- The Transmissometer which contains all of the electronics and electro-optic components
- The Retro-Reflector containing a corner cube reflector
- The Termination box where the customer terminations are located
- The air purge system
- AI data display control room unit

This certificate applies to all instruments fitted with software version 3.18 onwards (i.e. serial number 0395894 onwards).

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Description

Land Instruments Model 4500 Premier is designed to measure the opacity, optical density, or dust concentration in the exhaust gases of combustion processes. The measurement technique uses a modulated beam of light from a high intensity green LED light source. The light passes through the flue gases to a retroreflector and returns back to the transceiver. The ratio of the intensities of the outgoing and returning light beams is measured using a patented low-drift technique.

The analyser contains a microprocessor, which calculates opacity, optical density or dust concentration, and controls the automatic calibration system. Gravimetric calibration is essential for dust concentration measurement.

The ambient temperature range is -20 ºC to +50 ºC for the standard analyser system. Heated components are available to extend the minimum temperature to -40 ºC.

Auto-calibration is performed automatically at regular intervals or when requested.

The Model 4500 Premier is similar to the Model 4500 MkII^{+} model (MCERTS certificate no. MC040028/00), however it has an enhanced optical system and is subjected to additional quality control procedures during manufacture.

General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this Certificate. The Manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of Sira Certificates'. The design of the product certified is defined in the Sira Design Schedule for certificate No. Sira MC 040029/01

2. If certified product is found not to comply, Sira Certification Services should be notified immediately at the address shown on page 1.

3. The Certification Marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of Sira Certificates'.

4. This document remains the property of Sira and shall be returned when requested by the company.

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