

CERTIFICATION OF CALIBRATION



Date Of Calibration: 16-Jul-2021

Certificate Number: G502417_1/28472

Issued by: QED Environmental Systems Ltd.

Customer: L K Consult Limited

Unit 29 Eton Business Park Eton Hill Road Radcliffe
Manchester M26 2ZS UNITED KINGDOM

Description: Gas Analyser

Model: GA5000

Serial Number: G502417

UKAS Accredited results:

Results after adjustment :

Methane (CH ₄)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	5.0	0.072
14.9	14.9	0.13
60.0	59.8	0.42

Carbon Dioxide (CO ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	4.9	0.074
15.1	15.0	0.13
40.0	40.1	0.29

Oxygen (O ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
21.1	21.2	0.25

The inwards assessment was carried out 05-Jul-2021.

The maximum adjustment is larger than the specification limit.

Inwards assessment data is available if requested.

All concentrations are molar.

CH₄, CO₂ readings recorded at : 32.2 °C ± 2.5 °C

O₂ readings recorded at : 22.5 °C ± 2.5 °C

Barometric Pressure : 1016 mbar ± 4 mbar

Method of Test : The analyser is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure LP004.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.

The results relate only to the item calibrated

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance:112 IGC Instance:112

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QED Environmental Systems Ltd. Cyan Park - Unit 3, Jimmy Hill Way, Coventry, CV2 4QP, UNITED KINGDOM

Registered in England and Wales 1898734

CERTIFICATION OF CALIBRATION



Date Of Calibration: 16-Jul-2021

Certificate Number: G502417_1/28472

Issued by: QED Environmental Systems Ltd.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Calibrations marked 'Non-UKAS Accredited results' on this certificate have been included for completeness.

Non-UKAS accredited results after adjustment:

Barometer (mbar)	
Reference	Instrument Reading
1016	1016

Additional Gas Cells		
Gas	Certified Gas (ppm)	Instrument Reading (ppm)
CO	509	509
H ₂ S	250	250

Internal Flow	
Applied (l/hr)	Instrument Reading (l/hr)
5.00	5.20
10.00	10.30

Date of Issue : 19-Jul-2021

Approved by Signatory

Dawn Hemings

Laboratory Inspection

End of Certificate

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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CERTIFICATION OF CALIBRATION



Date Of Calibration: 07-Jun-2021

Certificate Number: G507783_2/28209

Issued by: QED Environmental Systems Ltd.

Customer: L K Consult Limited
Unit 29 Eton Business Park Eton Hill Road Radcliffe
Manchester M26 2ZS UNITED KINGDOM

Description: Gas Analyser

Model: GA5000

Serial Number: G507783

UKAS Accredited results:

Methane (CH ₄)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	4.9	0.072
15.0	15.0	0.13
60.0	59.7	0.42

Carbon Dioxide (CO ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	4.9	0.074
15.0	14.9	0.13
40.0	40.0	0.29

Oxygen (O ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
21.1	21.2	0.25

All concentrations are molar.

CH₄, CO₂ readings recorded at : 32.4 °C ± 2.5 °C

O₂ readings recorded at : 22.7 °C ± 2.5 °C

Barometric Pressure : 1013 mbar ± 4 mbar

Method of Test : The analyser is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure LP004.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.

The results relate only to the item calibrated

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Calibration Instance:112 IGC Instance:N/A

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CERTIFICATION OF CALIBRATION



Date Of Calibration: 07-Jun-2021

Certificate Number: G507783_2/28209

Issued by: QED Environmental Systems Ltd.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Calibrations marked 'Non-UKAS Accredited results' on this certificate have been included for completeness.

Non-UKAS accredited results after adjustment:

Barometer (mbar)	
Reference	Instrument Reading
1013	1013

Additional Gas Cells		
Gas	Certified Gas (ppm)	Instrument Reading (ppm)
CO	509	509
H ₂ S	53.6	54

Internal Flow	
Applied (l/hr)	Instrument Reading (l/hr)
25.2	25.2
9.9	9.9
5	5

Date of Issue : 08-Jun-2021

Approved by Signatory

Laura McBride

Laboratory Inspection

End of Certificate

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance: 112 IGC Instance: N/A

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