

33624 Certificate No.

Page

4 Pages

Customer: Lam Geotechnics Limited

Address: 11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong.

Order No.: Q31494

Date of receipt

30-May-13

Item Tested

Description : Digital Sound Level Meter

Manufacturer: B&K

Model

: Type 2236

Serial No.

: 2100736

Test Conditions

Date of Test:

3-Jun-13

Supply Voltage : --

Ambient Temperature :

 $(23 \pm 3)^{\circ}C$

Relative Humidity: (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results

All results were within the IEC 651 Type 1, IEC 804 Type 1 & IEC 1260 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No. Description

Cert. No.

Traceable to

S017

Multi-Function Generator

C127181

SCL-HKSAR

S024

Sound Level Calibrator

30620

NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by

Liam Wong

3-Jun-13

Date:

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

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Certificate No. 33624

Page 2 of 4 Pages

Results:

1. SPL Accuracy

	J	JUT Setting			
Range	Parameter	Frequency Wt.	Freq. Response	Applied Value (dB)	UUT Reading (dB)
20 - 100	SPL	dBA	F	94.0	93.8
			S		93.8
		dBC	F		93.8
		dBL	F		93.9
		1 kHz	F		93.8
40 - 120	SPL	dBA	F	94.0	93.9
		1 kHz	F		93.9
	SPL	dBA	F	114.0	113.8
			S		113.8
		dBC	F		113.9
		dBL	F		113.9
		1 kHz	F		113.8

IEC 651 Type 1 Spec. : ± 0.7 dB

Uncertainty: ± 0.1 dB

2. Level Stability: 0.0 dB

IEC 651 Type 1 Spec. : \pm 0.3 dB

Uncertainty: ± 0.1 dB

3. Linearity

3.1 Level Linearity

UUT Range	Applied	UUT Reading	Variation	IEC 651 Type 1 Spec.
(dB)	Value (dB)	(dB)	(dB)	(Primary Indicator Range)
140	114.0	113.9	0.0	± 0.7 dB
130	104.0	103.9	0.0	
120	94.0	93.9 (Ref.)	Care Ann	
110	84.0	83.9	0.0	
100	74.0	73.9	0.0	
100	64.0	63.9	0.0	
100	54.0	53.9	0.0	

Uncertainty: $\pm 0.1 \text{ dB}$



Certificate No. 33624

Page 3 of 4 Pages

3.2 Differential level linearity

UUT Range	Applied	UUT Reading		
(dB)	Value (dB)	(dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	83.9	0.0	± 0.4 dB
	94.0	93.9 (Ref.)	- :=:	
	95.0	94.9	0.0	± 0.2 dB

Uncertainty: ± 0.1 dB

4. Frequency Weighting

A weighting

Frequen	су	Attenuation (dl	B)	IEC 651 Type 1 Spec.
31.5 H	[z	-39.6		$-39.4 \text{ dB}, \pm 1.5 \text{ dB}$
63 H	[z	-26.4		- 26.2 dB, ± 1.5 dB
125 F	[z	-16.3		- 16.1 dB, ± 1 dB
250 H	[z	-8.8		- 8.6 dB, ± 1 dB
500 F	Iz	-3.3		- $3.2 dB, \pm 1 dB$
1 kF	Iz	0.0	(Ref)	$0 \text{ dB}, \pm 1 \text{ dB}$
2 kH	Iz	+1.2		+ 1.2 dB, ± 1 dB
4 kF	Iz	+0.9		+ 1.0 dB, ± 1 dB
8 kF	Iz	-1.2		- 1.1 dB, + 1.5 dB ~ -3 dB
16 kF	Iz	-6.8		- 6.6 dB, $+ 3$ dB $\sim - \infty$

Uncertainty: ± 0.1 dB

5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	
1/10	40.0	39.9	± 0.5 dB
$1/10^2$	40.0	39.8	
$1/10^{3}$	40.0	39.7	± 1.0 dB
1/104	40.0	39.5	

Uncertainty: $\pm 0.1 \text{ dB}$



Certificate No. 33624

Page 4 of 4 Pages

6. Filter Response

Filter	Setting	Attenuation (dB)	IEC 1260 Class 1 Spec.
125	Hz	-63.6	<- 61
250	Hz	-44.8	< - 42
500	Hz	-21.0	< - 17.5
707	Hz	-3.7	- 2 ~ - 5
1	kHz (Ref.)	0.0 (Ref.)	
1.41	4 kHz	-4.1	- 2 ~ - 5
2	kHz	-21.4	< - 17.5
4	kHz	-45.0	< - 42
8	kHz	-63.9	<- 61

Uncertainty: ± 0.2 dB

Remark: 1. UUT: Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. Atmospheric Pressure: 996 hPa
- 4. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

----- END -----



Certificate No.

34228

Page

1 of 2 Pages

Customer: Lam Geotechnics Limited

Address: 11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong.

Order No.: Q31610

Date of receipt

21-Jun-13

Item Tested

Description: Sound Level Calibrator

Manufacturer: Rion

Model

: NC-73

Serial No.

: 10707358

Test Conditions

Date of Test: 25-Jun-13

 $(23 \pm 3)^{\circ}C$

Supply Voltage : --

Relative Humidity: (50 ± 25) %

Test Specifications

Ambient Temperature :

Calibration check.

Ref. Document/Procedure: F21, Z02.

Test Results

All results were within the manufacturer's specification.

The results are shown in the attached page(s).

Main Test equipment used:

			T bla to
Equipment No.	Description Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	30259	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	30620	NIM-PRC & SCL-HKSAR
S041	Universal Counter	28347	SCL-HKSAR
S206	Sound Level Meter	30655	SCL-HKSAR
0200			

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI). The test results apply to the above Unit-Under-Test only

Calibrated by

25-Jun-13

Date:

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

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Certificate No. 34228

Page 2 of 2 Pages

Results:

1. Level Accuracy (at 1 kHz)

	1771	Mfr's Spec.
UUT Nominal Value	Measured Value	
475	93.88 dB	$\pm 1 \text{ dB}$
94 dB	35.00	

Uncertainty: ± 0.2 dB

2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.995 kHz	± 2 %

Uncertainty: ± 0.1 %

3. Level Stability: 0.0 dB Uncertainty: ± 0.01 dB

4. Total Harmonic Distortion : < 0.2 %

Mfr's Spec. : < 3 %

Uncertainty: ± 2.3 % of reading

Remark: 1. UUT: Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. The above measured values were the mean of 3 measurements.
- 4. Atmospheric Pressure: 999 hPa

----- END -----



CONTACT:

MS EMILY KONG

CLIENT:

LAM GEOTECHNICS LIMITED

ADDRESS:

11/F., CENTRE POINT,

181-185 GLOUCESTER ROAD,

WAN CHAI, HONG KONG

PROJECT:

WORK ORDER:

HK1316903

LABORATORY:

HONG KONG

DATE RECEIVED:

25/06/2013

DATE OF ISSUE:

03/07/2013

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal aceptance criteria of ALS will be followed.

Scope of Test:

Turbidity

Equipment Type:

Turbidimeter

Brand Name:

XIN RUI

Model No.:

WGZ-3B 1203008

Serial No .: Equipment No.:

Date of Calibration: 03 July, 2013

NOTES

This is the Final Report and supersedes any preliminary report with this batch number. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd

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1-3 Wing Yip Street

Kwai Chung HONG KONG Phone:

852-2610 1044

Fax:

852-2610 2021

Email:

hongkong@alsglobal.com

Mr. Fung Lim Chee, Richard

General Manager -

Greater Chipa & Hong Kong

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Page 1 of 2

Work Order: Date of Issue: HK1316903

Client:

03/07/2013 LAM GEOTECHNICS LIMITED



Equipment Type:

Turbidimeter

Brand Name:

XIN RUI

Model No.:

WGZ-3B

Serial No.:

1203008

Equipment No.:

Date of Calibration:

03 July, 2013

Date of next Calibration: 03 October, 2013

Parameters:

Turbidity

Method Ref: APHA 21st Fd 2130R

Method Kel. APRA 215t Ed. 21	מטכו	
Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.13	
4	3.82	-4.5
40	38.37	-4.1
80	80.45	0.6
400	383.8	-4.1
800	840.4	5.1
	Tolerance Limit (±%)	10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

> Mr. Fung Lim Chee General Manager

Greater China & Hong Kong

Information supplied by customer:

CONTACT: <u>DEREK LO</u> WORK ORDER: <u>HK1310006</u>

CLIENT: LAM GEOTECHNICS LIMITED

DATE RECEIVED: <u>13/07/2013</u> DATE OF ISSUE: <u>15/07/2013</u>

ADDRESS: 11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD,

WANCHAI, HONG KONG

PROJECT: ---

METHOD OF PERFORMANCE CHECK/ CALIBRATION:

Ref: APHA22nd ed 2130B

COMMENTS

It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.

Scope of Test:	Turbidity	
Equipment Type:	Turbidimeter	
Brand Name:	Xin Rui	
Model No.:	WGZ-3B	
Serial No.:	1203010	
Equipment No.:		
Date of Calibration:	15 July, 2013	

Remarks:

This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr. Peter Lee

Cluan

Director

WORK ORDER: <u>HK1310006</u> DATE OF ISSUE: <u>15th July, 2013</u>

CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter	
Brand Name:	Xin Rui	
Model No.:	WGZ-3B	
Serial No.:	1203010	
Equipment No.:		
Date of Calibration:	15 July, 2013	
Date of next Calibration:	15 October, 2013	

Parameters:

Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.00	0
4	3.76	-6.0
10	10.3	+3.0
40	38.6	-3.5
100	104	+4.0
400	386	-3.5
1000	989	-1.1
	Tolerance Limit (±%)	10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.

Mr. Peter Lee

Director

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CONTACT: MS EMILY KONG

CLIENT: LAM GEOTECHNICS LIMITED ADDRESS:

11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD.

WAN CHAI, HONG KONG

PROJECT:

WORK ORDER: LABORATORY:

HK1310783 HONG KONG

DATE RECEIVED:

22/04/2013

DATE OF ISSUE:

02/05/2013

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal aceptance criteria of ALS will be followed.

Scope of Test:

Equipment Type:

Turbidity Turbidimeter

Brand Name: Model No.:

XIN RUI WGZ-3B 1203016

Serial No.:

Equipment No.: Date of Calibration: 29 April, 2013

NOTES

This is the Final Report and supersedes any preliminary report with this batch number. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd

11/F Chung Shun Knitting Centre

1-3 Wing Yip Street

Kwai Chung HONG KONG Phone:

852-2610 1044 852-2610 2021

Fax: Email:

hongkong@alsglobal.com

Mr. Fung Lim Chee richard

General Manager

Greater China & Hong Kong

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Page 1 of 2

ADDRESS 11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong | PHONE +852 2610 1044 | FAX +852 2610 2021 ALS TECHNICHEM (HK) PTY LTD An ALS Limited Company

Work Order: Date of Issue: HK1310783

02/05/2013

Client:

LAM GEOTECHNICS LIMITED



Equipment Type:

Turbidimeter

Brand Name:

XIN RUI

Model No.: Serial No.:

WGZ-3B 1203016

Equipment No.:

Date of Calibration:

29 April, 2013

Date of next Calibration:

29 July, 2013

Parameters:

Turbidity

Method Ref: APHA 21st Ed. 2130B

Method Ref. Al HA 2130 Ed. 2130 B			
Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)	
0	-0.43		
4	3.99	-0.2	
40	40.63	1.6	
80	78.50	-1.9	
400	401.9	0.5	
800	836.9	4.6	
	Tolerance Limit (±%)	10.0	

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

> Mr. Fung Lim Chee, Richard General Manager/-

> Greater China & Hong Kong

Information supplied by customer:

CONTACT: <u>DEREK LO</u> WORK ORDER: <u>HK1310007</u>

CLIENT: LAM GEOTECHNICS LIMITED

DATE RECEIVED: <u>30/07/2013</u> DATE OF ISSUE: <u>31/07/2013</u>

ADDRESS: 11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD,

WANCHAI, HONG KONG

PROJECT: ---

METHOD OF PERFORMANCE CHECK/ CALIBRATION:

Ref: APHA22nd ed 2130B

COMMENTS

It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.

Scope of Test:	Turbidity	
Equipment Type:	Turbidimeter	
Brand Name:	Xin Rui	
Model No.:	WGZ-3B	000000
Serial No.:	1203016	
Equipment No.:		
Date of Calibration:	31 July, 2013	

Remarks:

This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr. Peter Lee

Director

WORK ORDER: <u>HK1310007</u> **DATE OF ISSUE:** <u>31st July, 2013</u>

CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter	
Brand Name:	Xin Rui	
Model No.:	WGZ-3B	
Serial No.:	1203016	
Equipment No.:		
Date of Calibration:	31 July, 2013	
Date of next Calibration:	30 October, 2013	

Parameters:

Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.02	+0.2
4	3.85	-3.8
10	9.68	-3.2
40	42.1	+5.2
100	96.0	-4.0
400	387	-3.2
1000	985	-1.5
	Tolerance Limit (±%)	10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.

Mr. Peter Lee

Director

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ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:

MS EMILY KONG

CLIENT:

LAM GEOTECHNICS LIMITED

ADDRESS:

11/F., CENTRE POINT,

181-185 GLOUCESTER ROAD,

WAN CHAI, HONG KONG

PROJECT:

-

WORK ORDER:

HK1316245

LABORATORY:

HONG KONG

DATE RECEIVED:

18/06/2013

DATE OF ISSUE:

26/06/2013

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal aceptance criteria of ALS will be followed.

Scope of Test:

Dissolved Oxygen, pH, Salinity and Temperature

Equipment Type:

Multimeter

Brand Name:

YSI

Model No.:

Professional plus 11F100420

Serial No.:

Equipment No.:

Date of Calibration: 25 June, 2013

NOTES

This is the Final Report and supersedes any preliminary report with this batch number. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

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852-2610 1044

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hongkong@alsglobal.com

Mr. Fung Lim Chee Richard

General Manager

Greater China & Hong Kong

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Page 1 of 2

Work Order: Date of Issue: HK1316245 26/06/2013

Client:

LAM GEOTECHNICS LIMITED



Equipment Type:

Multimeter

Brand Name:

YSI

Model No.:

Professional plus

Serial No.:

11F100420

Equipment No.:

--

Date of Calibration:

25 June, 2013

Date of next Calibration:

25 September, 2013

Parameters:

Dissolved Oxygen

Method Ref: APHA (21st edition), 45000: G

method nem / (==== cameron), record		
Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.85	2.99	0.14
6.09	5.94	-0.15
7.37	7.47	0.10
	Tolerance Limit (±mg/L)	0.20

pH Value

Method Ref: APHA (21st edition), 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	3.89	-0.11
7.0	6.99	-0.01
10.0	9.97	-0.03
	Tolerance Limit (±pH unit)	0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Method Ref. Al The (21st edition), 25205		
Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.01	
10	10.33	3.3
20	20.96	4.8
30	32.22	7.4
		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
	Tolerance Limit (±%)	10.0

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
9.0	9.8	0.8
25.0	25.2	0.2
41.0	41.4	0.4
	Tolerance Limit (±°C)	2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard

General Manager -

Greater China & Hong Kong

ALS Technichem (HK) Pty Ltd ALS Environmental

Page 2 of 2



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:

MS EMILY KONG

CLIENT:

LAM GEOTECHNICS LIMITED

ADDRESS:

11/F., CENTRE POINT,

181-185 GLOUCESTER ROAD,

WAN CHAI, HONG KONG

PROJECT:

WORK ORDER:

HK1314154

LABORATORY:

HONG KONG

DATE RECEIVED:

27/05/2013

DATE OF ISSUE:

04/06/2013

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal aceptance criteria of ALS will be followed.

Scope of Test:

Dissolved Oxygen, pH, Salinity and Temperature

Equipment Type:

Multimeter

Brand Name:

YSI

Model No.:

Professional Plus

Serial No.:

13A100242

Equipment No.:

Date of Calibration: 31 May, 2013

NOTES

This is the Final Report and supersedes any preliminary report with this batch number. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd

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Mr. Fung Lim Chee General Manager

Greater China & Hong Kong

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Page 1 of 2

Work Order: Date of Issue: HK1314154 04/06/2013

Client:

LAM GEOTECHNICS LIMITED



Equipment Type:

Multimeter

Brand Name:

YSI

Model No.:

Professional Plus

Serial No.:

13A100242

Equipment No.:

--

Date of Calibration:

31 May, 2013

Date of next Calibration:

31 August, 2013

Parameters:

Dissolved Oxygen

Method Ref: APHA (21st edition), 45000: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
80.00	200 000	
2.22	2.24	0.02
5.76	5.65	-0.11
7.90	8.00	0.10
	19	1200
	Tolerance Limit (±mg/L)	0.20

pH Value

Method Ref: APHA (21st edition), 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	3.97	-0.03
7.0	7.05	0.05
10.0	9.95	-0.05
	Tolerance Limit (±pH unit)	0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	
10	9.60	-4.0
20	19.49	-2.6
30	30.05	0.2
	Tolerance Limit (±%)	10.0

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.5	9.7	-0.8
20.0	19.4	-0.6
38.0	38.3	0.3
	Tolerance Limit (±°C)	2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless

of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard

General Manager

Greater China & Hong Kong



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:

MS EMILY KONG

CLIENT:

LAM GEOTECHNICS LIMITED

ADDRESS:

11/F., CENTRE POINT,

181-185 GLOUCESTER ROAD,

WAN CHAI, HONG KONG

PROJECT:

(2)

WORK ORDER:

HK1317591

LABORATORY:

HONG KONG

DATE RECEIVED:

03/07/2013

DATE OF ISSUE:

12/07/2013

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal aceptance criteria of ALS will be followed.

Scope of Test:

Dissolved Oxygen, pH, Salinity and Temperature

Equipment Type:

Sonde Environmental Monitoring System

Brand Name:

YS

Model No.:

Professional plus

Serial No.:

11F100597

Equipment No.:

Date of Calibration: 10 July, 2013

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

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Mr. Fung Lim Chee, Richard General Manager -

Greater China & Hong Kong

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Page 1 of 2

Work Order: Date of Issue: HK1317591

Cliant

12/07/2013

Client:

LAM GEOTECHNICS LIMITED



Equipment Type:

Sonde Environmental Monitoring System

Brand Name:

YSI

Model No.:

Professional plus

Serial No.:

11F100597

Equipment No.: Date of Calibration:

--

101

10 July, 2013

Date of next Calibration:

10 October, 2013

Parameters:

Dissolved Oxygen

Method Ref: APHA (21st edition), 45000: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)			
4.52	4.63	0.11			
6.72	6.53	-0.19			
7.80	7.71	-0.09			
	Tolerance Limit (±mg/L)	0.20			

pH Value

Method Ref: APHA (21st edition), 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	3.92	-0.08
7.0	7.08	0.08
10.0	10.07	0.07
	Tolerance Limit (±pH unit)	0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Method Ref. Al HA (21st edition), 25208										
	Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)							
	0	0.00								
	10	9.49	-5.1							
	20	19.02	-4.9							
	30	29.29	-2.4							
		-								
		Tolerance Limit (+%)	10.0							

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.0	11.2	1.2
22.5	23.6	1.1
39.0	38.8	-0.2
	Tolerance Limit (±°C)	2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard

General Manager -

Greater China & Hong Kong



TISCH ENVIROMENTAL, INC. 145 SOUTH MIAMI AVE. VILLAGE OF CLEVES, OH 45002 513.467.9000 877.263.7610 TOLL FREE 513.467.9009 FAX WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Ju Operator	Ta (K) - Pa (mm) -	759.46							
======================================									
PLATE	VOLUME	VOLUME	DIFF	DIFF	DIFF	DIFF			
OR	START	STOP	VOLUME	TIME	Hg	H2O			
Run #	(m3)	(m3)	(m3)	(min)	(mm)	(in.)			
1	NA	NA	1.00	1.3910	.3.2	2.00			
2	NA	NA	1.00	0.9830	6.4	4.00			
3	NA	NA	1.00	0.8800	7.9	5.00			
4	NA	NA	1.00	0.8380	8.8	5.50			
5	NA	NA	1.00	0.6930	12.7	8.00			

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9884 0.9843 0.9822 0.9811 0.9760	0.7106 1.0013 1.1161 1.1708 1.4084	1.4090 1.9926 2.2278 2.3365 2.8180		0.9958 0.9916 0.9895 0.9884 0.9832	0.7159 1.0087 1.1244 1.1795 1.4188	0.8888 1.2570 1.4054 1.4740 1.7777
Qstd slop intercept coefficie	(b) = ent (r) =	2.01968 -0.02746 0.99999		Qa slope intercept coefficie	t (b) = ent (r) =	1.26469 -0.01732 0.99999
y axis =	SQRT[H2O(F	Pa/760)(298/	ľa)]	y axis =	SQRT[H2O(7	[a/Pa)]

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]

Qa = Va/Time

For subsequent flow rate calculations:

Qstd = $1/m\{ [SQRT (H2O (Pa/760) (298/Ta))] - b \}$ Qa = $1/m\{ [SQRT H2O (Ta/Pa)] - b \}$



Location :		CMA3a				Calbra	ation Date	:	25-Jun-13		
Equipment no.		EL333			Calbration E			: :	25-Aug-13		
						-					
CALIBRATION OF CON	ITINUOUS	S FLOW RE	CORDER								
				mbient Co	ndition						
Temperature, T _a		304		Kelvin	Pressure, P	a	Т	101	12 mmHg		
			Orifice Tra	nsfer Stan	dard Informa	ation					
Equipment No.		EL086		Slope, m _c	2.011	45	Intercept, b	С	-0.02803		
Last Calibration Date		19-Jul-1	2		(HxI	P _a / 10	13.3 x 298	/ 7	a) 1/2		
Next Calibration Date		19-Jul-1	3				$(Q_{std} + b_{c})$				
			c	Calibration	of RSP						
Calibration	Mar	nometer R	eading	C	l _{std}	Contin	uous Flow		IC		
Point	Н (inches of	water)	(m ³	Record		order, W	(W	(P _a /1013.3x298/T _a) ^{1/2} /35.31)		
	(up)	(down)	(difference)	X-	axis	(CFM)	FM) Y-axi			
1	5.8	5.8	11.6	1.6	6893		58	57.3879			
2	4.8	4.8	9.6	1.5	5381		49	48.4829			
3	4.0	4.0	8.0	1.4	4053		41	40.5673			
4	2.4	2.4	4.8	1.0	0917		25		24.7362		
5	1.5	1.5	3.0	0.8	3659		14		13.8523		
By Linear Regression of	Y on X										
	Slope, m	=	52.6	106	Int	ercept, b	=	32.3	377		
Correlation C	oefficient*	=	0.99	991							
Calibration	Accepted	=	Yes/l	No**							
* if Correlation Coefficier	nt < 0.990,	check and	recalibration	again.							
** Delete as appropriate.											
Remarks :											
Calibrated by		Henry				Check	ked by	:	Derek Lo		
Date :	2	25-Jun-13					:	25-Jun-13			



Calibration Due Date	: 17-Jul-13		
Name	p-13		
Name			
Name			
Name			
Calibration Calibration			
Calibration Date 19-Jul-12 Calibration Date 19-Jul-13 Calibration Date 19-Jul-13 Calibration Date 19-Jul-13 Calibration Date 19-Jul-13 Calibration Oate 19-Jul-13 Calibration of RSP	mmHg		
Equipment No. EL086 Slope, m _c 2.01145 Intercept, bc -0.028			
Last Calibration Date 19-Jul-12 $(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ Next Calibration Date 19-Jul-13 $(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ Calibration of RSP Calibration Manometer Reading Q std Continuous Flow IC Point H (inches of water) $(m^3 / min.)$ Recorder, W $(W(P_a/1013.3 \times 298 / T_a)^{-1/2}$ 1 6.2 6.2 12.4 1.7416 61 60.197 2 5.1 5.1 10.2 1.5808 53 52.302 3 4.1 4.1 8.2 1.4188 46 45.395 4 2.5 2.5 5.0 1.1110 32 31.579 5 1.4 1.4 2.8 0.8349 21 20.7238 By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Calibration Accepted = Yes/Ne** Yes/Ne**			
Calibration Date 19-Jul-13 = m _c x Q _{std} + b _c	803		
Calibration of RSP Calibration Manometer Reading Q std (m³ / min.) Continuous Flow (W(P,J1013.3x298/T) IC Point H (inches of water) (m³ / min.) Recorder, W (W(P,J1013.3x298/T) 1 6.2 6.2 12.4 1.7416 61 60.197/T 2 5.1 5.1 10.2 1.5808 53 52.3028/T 3 4.1 4.1 8.2 1.4188 46 45.395/T 4 2.5 2.5 5.0 1.1110 32 31.579/T 5 1.4 1.4 2.8 0.8349 21 20.723/T By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Calibration Accepted = Yes/Ne** **If Correlation Coefficient < 0.990, check and recallibration again. **Delete as appropriate.			
Calibration Manometer Reading Q std Continuous Flow IC Point H (inches of water) (m³ / min.) Recorder, W (W(P₂/1013.3x298/r) (up) (down) (difference) X-axis (CFM) Y-axis 1 6.2 6.2 12.4 1.7416 61 60.197 2 5.1 5.1 10.2 1.5808 53 52.3029 3 4.1 4.1 8.2 1.4188 46 45.3950 4 2.5 2.5 5.0 1.1110 32 31.579 5 1.4 1.4 2.8 0.8349 21 20.7236 By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Correlation Coefficient* = 0.9994			
Point H (inches of water) (m³ / min.) Recorder, W (W/P _s /1013.3x298/V 1 6.2 6.2 12.4 1.7416 61 60.1977 2 5.1 5.1 10.2 1.5808 53 52.3029 3 4.1 4.1 8.2 1.4188 46 45.3950 4 2.5 2.5 5.0 1.1110 32 31.579 5 1.4 1.4 2.8 0.8349 21 20.7230 By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Correlation Coefficient* = 0.9994 Calibration Accepted = Yes/Ne** ** Delete as appropriate.			
(up) (down) (difference) X-axis (CFM) Y-axis 1 6.2 6.2 12.4 1.7416 61 60.1977 2 5.1 5.1 10.2 1.5808 53 52.3029 3 4.1 4.1 8.2 1.4188 46 45.3950 4 2.5 2.5 5.0 1.1110 32 31.579 5 1.4 1.4 2.8 0.8349 21 20.7230 By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Correlation Coefficient* = 0.9994 Calibration Accepted = Yes/Ne** ** Delete as appropriate.			
1 6.2 6.2 12.4 1.7416 61 60.1977 2 5.1 5.1 10.2 1.5808 53 52.3028 3 4.1 4.1 8.2 1.4188 46 45.3950 4 2.5 2.5 5.0 1.1110 32 31.579 5 1.4 1.4 2.8 0.8349 21 20.7238 By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Correlation Coefficient* = 0.9994 Calibration Accepted = Yes/Ne** **If Correlation Coefficient < 0.990, check and recalibration again. **Delete as appropriate.	T _a) ^{1/2} /35.31)		
2 5.1 5.1 10.2 1.5808 53 52.3028 3 4.1 4.1 8.2 1.4188 46 45.3950 4 2.5 2.5 5.0 1.1110 32 31.5799 5 1.4 1.4 2.8 0.8349 21 20.7238 By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Correlation Coefficient* = 0.9994 Calibration Accepted = Yes/Ne**	š		
3 4.1 4.1 8.2 1.4188 46 45.3950 4 2.5 2.5 5.0 1.1110 32 31.579 5 1.4 1.4 2.8 0.8349 21 20.7238 By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Correlation Coefficient* = 0.9994 Calibration Accepted = Yes/Ne**	7		
4 2.5 2.5 5.0 1.1110 32 31.579° 5 1.4 1.4 2.8 0.8349 21 20.7236 By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Correlation Coefficient* = 0.9994 0.9994 -16.1479 Calibration Accepted = Yes/Ne** Yes/Ne**	9		
5 1.4 1.4 2.8 0.8349 21 20.7238 By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Correlation Coefficient* = 0.9994 Calibration Accepted = Yes/Ne** * if Correlation Coefficient < 0.990, check and recalibration again. ** Delete as appropriate.	0		
By Linear Regression of Y on X Slope, m = 43.5073 Intercept, b = -16.1479 Correlation Coefficient* = 0.9994 Calibration Accepted = Yes/Ne** * if Correlation Coefficient < 0.990, check and recalibration again. ** Delete as appropriate.	1		
Slope, m = 43.5073 Intercept, b = -16.1479 Correlation Coefficient* = 0.9994 Calibration Accepted = Yes/Ne** * if Correlation Coefficient < 0.990, check and recalibration again. ** Delete as appropriate.	8		
Correlation Coefficient* = 0.9994 Calibration Accepted = Yes/Ne** * if Correlation Coefficient < 0.990, check and recalibration again. ** Delete as appropriate.			
Calibration Accepted = Yes/Ne** * if Correlation Coefficient < 0.990, check and recalibration again. ** Delete as appropriate.			
* if Correlation Coefficient < 0.990, check and recalibration again. ** Delete as appropriate.			
** Delete as appropriate.			
** Delete as appropriate.			
** Delete as appropriate.			
Remarks :			
Calibrated by : Sam Checked by : Derek	Lo		
Date : 17-Jul-13	I-13		



Location

Equipment no.

CMA2a

EL449

Calibration Data for High Volume Sampler (TSP Sampler)

Calbration Date

Calbration Due Dat :

17-Jul-13

17-Sep-13

CALIBRATION OF CON	TINUOUS	FLOW RE	CORDER									
Ambient Condition												
Temperature, T _a	perature, T _a 305 Kelvin Pressure, P _a 1010 mmh											
Orifice Transfer Standard Information												
Equipment No.		EL086		Slope, m _c	2.011	45 II	ntercept, b	С	-0.02803			
Last Calibration Date		19-Jul-12	2		(Hxl	P _a / 1013	.3 x 298	$/T_a)^{1}$	/2			
Next Calibration Date		19-Jul-13	3		=	$m_c x G$	$p_{std} + b_c$					
			c	Calibration	of RSP							
Calibration	Man	ometer Re	eading	Q	std	Continuo	us Flow		IC			
Point	H (i	inches of v	vater)	(m ³ ,	min.)	Record	ler, W	(W(P _a /101	3.3x298/T _a) ^{1/2} /35.31)			
	(up)	(down)	(difference)	X-	axis	(CF	M)		Y-axis			
1	6.1	6.1	12.2	1.7	276	59)		58.2240			
2	5.0	5.0	10.0	1.5	654	51			50.3292			
3	4.2	4.2	8.4	1.4	1.4359 43		3		42.4344			
4	2.5	2.5	5.0	1.1	110	26	3		25.6580			
5	1.5	1.5	3.0	0.8	8637	14	ļ		13.8159			
By Linear Regression of	Y on X											
	Slope, m	=	51.8	624	Int	ercept, b =	-3	31.4400				
Correlation Co	pefficient*	=.	0.99	996								
Calibration	Accepted	=	Yes/	No**								
if Correlation Coefficien	t < 0.990,	check and	recalibration	ı again.								
* Delete as appropriate.												
Remarks :												
Calibrated by		Sam				Checked	by	:	Derek Lo			
Date	1	7-Jul-13				Date		:	17-Jul-13			



Location :	: CMA3a Calbration Date					: 22-Aug-13			
Equipment no. :		EL333			Calbration Due Dat			:	22-Oct-13
								-	
CALIBRATION OF CON	ITINUOUS	FLOW RE	CORDER						
	•		Α	mbient Co	ndition				
Temperature, T _a		305		Kelvin	Pressure, P	a		101	0 mmHg
			Orifice Tra	nsfer Stan	dard Informa	ation			
Equipment No.		EL086		Slope, m _c	2.019	68	Intercept, be	С	-0.02746
Last Calibration Date		15-Jul-1	3		(HxI	P _a / 10	13.3 x 298	/ T	a) 1/2
Next Calibration Date		15-Jul-1	4		=	m_c	$x Q_{std} + b_c$		
			C	Calibration	of RSP				
Calibration	Mar	nometer R	eading	G	Q _{std}	Contir	nuous Flow	, IC	
Point	H (inches of water) (m³ / min.) Reco		of water)		order, W	(W(P _a /1013.3x298/T _a) ^{1/2} /35.31)		
	(up)	(down)	(difference)	x-	axis	((CFM)	Y-axis	
1	5.8	5.8	11.6	1.0	6778		58		57.2371
2	4.8	4.8	9.6	1.9	5275		49	48.3555	
3	4.0	4.0	8.0	1.3	3956		42	41.4476	
4	2.4	2.4	4.8	1.0	0841		25	24.6712	
5	1.6	1.6	3.2	0.8	8877		14		13.8159
By Linear Regression of	Y on X								
	Slope, m	=	54.5	515	Int	ercept, b	= -3	34.6	041
Correlation C	oefficient*	=	0.99	999					
Calibration	Accepted	=	Yes/	No**					
* if Correlation Coefficier	st + 0 000	ahaak and	rocalibration	ogoin					
ii Correlation Coefficier	ii < 0.990,	спеск апо	recalibration	ı agaın.					
** Delete as appropriate.									
Remarks :									
Calibrated by		Henry				Chec	ked by	:	Derek Lo
Date :	2	2-Aug-13			Date			:	22-Aug-13



Location :		CMA4a				Calbrati	on Date	:	17-Jul-13
Equipment no.		EL390			Calbration Due Dat				17-Sep-13
								_	
CALIBRATION OF CON	ITINUOUS	FLOW RE	CORDER						
			A	mbient Co	ndition				
Temperature, T _a		305		Kelvin	Pressure, P	a		1010	mmHg
			Orifice Tra	nsfer Stan	dard Informa	ation			
Equipment No.		EL086		Slope, m _c	2.0114	45	Intercept, be	С	-0.02803
Last Calibration Date		19-Jul-1	2		(HxI	P _a / 1013	3.3 x 298	/ T _a) 1/2
Next Calibration Date		19-Jul-1	3				$Q_{std} + b_c$		
			C	alibration	of RSP				
Calibration	Mar	nometer R	eading	c	l _{std}	Continue	ous Flow		IC
Point	Н (inches of	water)	(m ³ / min.)		Recor	der, W	(W(Pa	/1013.3x298/T _a) ^{1/2} /35.31)
	(up)	(down)	(difference)	X-	axis	(CI	=M)		Y-axis
1	6.0	6.0	12.0	1.7	7135	6	51		60.1977
2	5.0	5.0	10.0	1.5	5654	5	i4		53.2897
3	4.1	4.1	8.2	1.4	4188	4	ŀ6		45.3950
4	2.5	2.5	5.0	1.1	1110	3	31		30.5923
5	1.5	1.5	3.0	0.8	3637	1	9		18.7501
By Linear Regression of	Y on X								
	Slope, m	=	48.9	540	Int	ercept, b =	-2	23.683	32
Correlation C	oefficient*	=	0.99	99					
Calibration	Accepted	=	Yes/ I	\0 **					
* if Correlation Coefficien	nt < 0.990,	check and	recalibration	again.					
				Ū					
** Delete as appropriate.									
Remarks :									
Calibrated by		Sam				Checke	d by	:	Derek Lo
Date :	1	7-Jul-13				Date		:	17-Jul-13



Location	CMASa					ion Date	•	17-Jul-13		
Equipment no.		EL380		Calbratio			ion Due Dat	:	17-Sep-13	
								_		
CALIBRATION OF CON	ITINILIOUI	e EL OW D	CORRER							
CALIBRATION OF CON	ITINUOUS	S FLOW R								
	T .		Α	mbient Co						
Temperature, T _a	a 305 Kelvin Pressure , P a					1010 mmHg				
			Orifice Tra	nsfer Stan	dard Informa	ation				
Equipment No.	EL086			Slope, m _c	2.0114	Intercept, b	-0.02803			
Last Calibration Date	19-Jul-12			$(HxP_a/1013.3x298/T_a)^{1/2}$						
Next Calibration Date		19-Jul-1	3	$= m_c \times Q_{std} + b_c$						
			C	alibration	of RSP					
Calibration	Mar	nometer R		Q _{std}		Continuous Flow			IC	
Point			(m ³			rder, W	(W(P	_a /1013.3x298/T _a) ^{1/2} /35.31)		
	(up)	(down)	(difference)				FM)	Y-axis		
1	6.1	6.1	12.2		7276	`	 61		60.1977	
2	4.9	4.9	9.8		5498 53			52.3029		
3	4.0	4.0	8.0				46	45.3950		
4	2.4	2.4	4.8		0888 31			30.5923		
5	1.5	1.5	3.0				20		19.7369	
		1.0	3.0	0.0	,0001				19.7309	
By Linear Regression of			40.0	5 40				20.00	00	
			46.9		Inte	ercept, b =	= -2	20.63	<u></u>	
Correlation Co	0.99	0.9999								
Calibration	Yes/l	No**								
* if Correlation Coefficier	st ~ 0 000	chook and	l rocalibratio	n again						
ii Correlation Coefficier	11 < 0.990,	, CHECK and	recalibratio	ii ayaiii.						
** Delete as appropriate.										
Remarks :										
		Sam				ed by	:	Derek Lo		
Calibrated by	1	17-Jul-13				Date	•	. –	17-Jul-13	
Date						Jule		٠	001 10	



Location :	CMA6a ————————————————————————————————————				Calbration Date			: 17-Jul-13			
Equipment no.					Calbration Due Dat				: 17-Sep-13		
	TINULOUG	2 EL OW B									
CALIBRATION OF CON	ITINUOUS	S FLOW R									
			A	mbient Co							
Temperature, T _a		305		Kelvin	Pressure, P	e, Pa			1010 mmHg		
			Orifice Tra	nsfer Stan	dard Informa	ation					
Equipment No.	EL086			Slope, m _c	2.0114	Intercept, b	-0.02803				
Last Calibration Date	19-Jul-12				$(Hx P_a / 1013.3 \times 298 / T_a)^{1/2}$						
Next Calibration Date		19-Jul-1	3		=	$= m_c \times Q_{std} + b_c$					
			C	alibration	of RSP						
Calibration	Man	nometer R	eading			uous Flow		IC			
Point	H (i	inches of	water)	(m ³			order, W	(W(P	_a /1013.3x298/T _a) ^{1/2} /35.31)		
	(up)	(down)	(difference)	X-	-axis (CF		CFM)	Y-axis			
1	6.1	6.1	12.2	1.	.7276 60		60	59.2108			
2	5.0	5.0	10.0	1.5	5654 5		52	51.3161			
3	4.1	4.1	8.2	1.4	4188 4		44	43.4213			
4	2.5	2.5	5.0	1.	1110 30		30	29.6054			
5	1.5	1.5	3.0	0.	.8637 19		19		18.7501		
By Linear Regression of	Y on X		•								
Slope, m = 46.8			114	Inte	ercept, b	= -2	22.140)2			
Correlation Coefficient* = 0.9			0.99	994				-			
Calibration Accepted = Yes/I			No**								
* if Correlation Coefficien	nt < 0.990,	check and	l recalibratio	n again.							
** Delete as appropriate.											
Remarks :											
: Calibrated by		Sam				Checl	ked by	:	Derek Lo		
Date	1	7-Jul-13				Date		: -	17-Jul-13		