



CERTIFICATE OF CALIBRATION

Certificate No.: 16CA1117 01-01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2236	,	4188
Serial/Equipment No.:	2100736	,	2288941
Adaptors used:	-	,	-

Item submitted by

Customer Name: Lam Geotechnics Limited
Address of Customer: -
Request No.: -
Date of receipt: 17-Nov-2016

Date of test: 18-Nov-2016

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	18-Jun-2017	CIGISMEC
Signal generator	DS 360	33873	18-Apr-2017	CEPREI
Signal generator	DS 360	61227	18-Apr-2017	CEPREI

Ambient conditions

Temperature: 23 ± 1 °C
Relative humidity: 50 ± 10 %
Air pressure: 1005 ± 5 hPa

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.


Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 21-Nov-2016

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

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1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date:

Fung Chi Yip
18-Nov-2016

Checked by:

Date:

Lam Tze Wai
21-Nov-2016

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0513 01-02

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-73
Serial/Equipment No.: 10465798
Adaptors used: -

Item submitted by

Customer: Lam Geotechnics Ltd.
Address of Customer: -
Request No.: -
Date of receipt: 13-May-2016

Date of test: 17-May-2016

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	14-Apr-2017	SCL
Preamplifier	B&K 2673	2239857	28-Apr-2017	CEPREI
Measuring amplifier	B&K 2610	2346941	26-Apr-2017	CEPREI
Signal generator	DS 360	61227	18-Apr-2017	CEPREI
Digital multi-meter	34401A	US36087050	18-Apr-2017	CEPREI
Audio analyzer	8903B	GB41300350	19-Apr-2017	CEPREI
Universal counter	53132A	MY40003662	19-Apr-2017	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

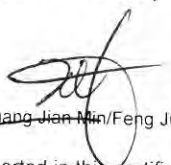
1. The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
2. The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
3. The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 18-May-2016

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 16CA0513 01-02

Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	(Output level in dB re 20 μ Pa)	
			Estimated Uncertainty dB	Expanded Uncertainty dB
1000	94.00	93.96	0.10	

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz STF = 0.001 dB
 Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz Actual Frequency = 967.3 Hz
 Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz TND = 0.8 %
 Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Date:

Fung Chi Yip
17-May-2016

End

Checked by:

Date:

Lam Tze Wai
18-May-2016

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

Report No. : HK1710077
Project Name : EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT
Date of Issue : 27/01/2017

Customer : LAM GEOTECHNICS LIMITED
Address : 11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG

Calibration Job No. : HK1710077
Test Item No. : HK1710077-01
Test Item Details
Test Item Description : Sonde
Manufacturer : YSI
Model No. : Professional Plus
Serial No. : 14E100105
Performance Method : Checked according to in-house method CAL005
 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B) , Dissolved oxygen (APHA 19e 4500-O,C))

Test Item Receipt Date : 25/01/2017
Test Item Calibration Date : 26/01/2017

- Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
 2. Results relate to item(s) as received.
 3. \pm indicates the tolerance limit
 4. N/A = Not applicable
 5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF. USA
 6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
 7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory

Ms. Wong Po Yan, Pauline
(Testing Engineer)

Issue Date:

27/01/2017


REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1710077
DATE OF ISSUE: 27/01/2017
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type	Sonde
Manufacturer	YSI
Model No.	Professional Plus
Serial No.	14E100105
Date of Calibration	26-Jan-17
Date of next Calibration	26-Apr-17

Parameters:

Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
7.2	7.2	0.0
14.9	15.1	0.2
29.4	29.0	-0.4
	Tolerance Limit	±2.0

pH Value (Method Ref: APHA21e, 4500H:B)

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	3.97	3.90	-0.07
7.0	7.00	7.17	0.17
10.0	10.00	9.95	-0.05
	Tolerance Limit		±0.20

Conductivity (Method Ref: APHA 19e, 2510)

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	11.82	11.59	-1.95
0.2000	22.60	22.35	-1.11
0.5000	51.30	50.50	-1.56
	Tolerance Limit		±2.0

Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
9.90	9.98	0.08
8.30	8.17	-0.13
7.68	7.57	-0.11
	Tolerance Limit	±0.20

Remarks: (1) Maxium tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
 (2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
 (3) Because of high sensitivity and ease of measurement, the conductivity method (accorndg to APHA 19e 2510) is used to determine salinity.

- End of Report -



EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

Report No. : HK1710208
Project Name : EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT
Date of Issue : 17/03/2017

Customer : LAM GEOTECHNICS LIMITED
Address : 11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG

Calibration Job No. : HK1710208
Test Item No. : HK1710208-01
Test Item Details
Test Item Description : Sonde
Manufacturer : YSI
Model No. : Professional Plus
Serial No. : 14M100277
Performance Method : Checked according to in-house method CAL005
 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B) , Dissolved oxygen (APHA 19e 4500-O,C))
Test Item Receipt Date : 15/03/2017
Test Item Calibration Date : 17/03/2017

- Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
 2. Results relate to item(s) as received.
 3. ± indicates the tolerance limit
 4. N/A = Not applicable
 5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF, USA
 6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
 7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory

Ms. Wong Po Yan, Pauline
(Testing Engineer)

Issue Date:

17/03/2017


REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1710208
DATE OF ISSUE: 17/03/2017
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type	Sonde
Manufacturer	YSI
Model No.	Professional Plus
Serial No.	14M100277
Date of Calibration	17-Mar-17
Date of next Calibration	17-Jun-17

Parameters:

Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
6.3	6.4	0.1
14.6	14.6	0.0
21.1	20.7	-0.4
Tolerance Limit		±2.0

pH Value (Method Ref: APHA21e, 4500H:B)

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	3.96	4.08	0.12
7.0	6.91	7.06	0.15
10.0	9.99	9.80	-0.19
Tolerance Limit			±0.20

Conductivity (Method Ref: APHA 19e, 2510)

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	11.92	11.85	-0.59
0.2000	22.90	22.74	-0.70
0.5000	54.20	53.40	-1.48
Tolerance Limit			±2.0

Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
8.85	8.68	-0.17
6.24	6.36	0.12
5.70	5.85	0.15
Tolerance Limit		±0.20

- Remarks:
- (1) Maxium tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
 - (2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
 - (3) Because of high sensitivity and ease of measurement, the conductivity method (accoridng to APHA 19e 2510) is used to determine salinity.

- End of Report -



EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

Report No. : HK1710300
Project Name : EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT
Date of Issue : 26/04/2017

Customer : LAM ENVIRONMENTAL SERVICES LIMITED
Address : 11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG

Calibration Job No. : HK1710300
Test Item No. : HK1710300-01
Test Item Details
Test Item Description : Sonde
Manufacturer : YSI
Model No. : Professional Plus
Serial No. : 16H100298
Performance Method : Checked according to in-house method CAL005
 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B) , Dissolved oxygen (APHA 19e 4500-O,C))

Test Item Receipt Date : 24/04/2017
Test Item Calibration Date : 25/04/2017

- Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
 2. Results relate to item(s) as received.
 3. \pm indicates the tolerance limit
 4. N/A = Not applicable
 5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF. USA
 6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
 7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory :

Issue Date:

26/04/2017

Ms. Wong Po Yan, Pauline
(Testing Engineer)


REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1710300
DATE OF ISSUE: 26/04/2017
CLIENT: LAM ENVIRONMENTAL SERVICES LIMITED

Equipment Type	Sonde
Manufacturer	YSI
Model No.	Professional Plus
Serial No.	16H100298
Date of Calibration	25-Apr-17
Date of next Calibration	25-Jul-17

Parameters:

Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
5.7	5.9	0.2
14.0	14.1	0.1
23.0	22.6	-0.4
Tolerance Limit		±2.0

pH Value (Method Ref: APHA21e, 4500H:B)

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	4.15	4.21	0.06
7.0	7.17	7.35	0.18
10.0	10.21	10.31	0.10
Tolerance Limit			±0.20

Conductivity (Method Ref: APHA 19e, 2510)

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	12.6	12.6	0.00
0.2000	23.8	23.8	0.00
0.5000	57.0	56.5	-0.88
Tolerance Limit			±2.0

Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
7.90	7.93	0.03
6.92	6.95	0.03
5.83	5.87	0.04
Tolerance Limit		±0.20

- Remarks:
- (1) Maximum tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
 - (2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
 - (3) Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

- End of Report -



EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

Report No.	: HK1710059
Project Name	: EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT
Date of Issue	: 23/1/17
Customer	: LAM GEOTECHNICS LIMITED
Address	: 11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG
<hr/>	
Calibration Job No.	: HK1710059
Test Item No.	: HK1710059-01
Test Item Details	
Test Item Description	: Sonde
Manufacturer	: YSI
Model No.	: Professional Plus
Serial No.	: 16H100298
Performance Method	: Checked according to in-house method CAL005 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B) , Dissolved oxygen (APHA 19e 4500-O,C))
Test Item Receipt Date	: 19/1/17
Test Item Calibration Date	: 20/1/17

- Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
 2. Results relate to item(s) as received.
 3. \pm indicates the tolerance limit
 4. N/A = Not applicable
 5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF. USA
 6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
 7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory :

Ms. Wong Po Yan, Pauline
(Testing Engineer)

Issue Date:

23/1/17


REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1710059
DATE OF ISSUE: 23/1/17
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type	Sonde
Manufacturer	YSI
Model No.	Professional Plus
Serial No.	16H100298
Date of Calibration	20-Jan-17
Date of next Calibration	20-Apr-17

Parameters:

Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
8.5	8.5	0.0
18.9	18.8	-0.1
28.0	27.8	-0.2
Tolerance Limit		±2.0

pH Value (Method Ref: APHA21e, 4500H:B)

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	4.09	4.12	0.03
7.0	7.05	7.20	0.15
10.0	10.06	10.07	0.01
Tolerance Limit			±0.20

Conductivity (Method Ref: APHA 19e, 2510)

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	12.00	12.05	0.42
0.2000	23.20	23.11	-0.39
0.5000	53.10	52.70	-0.75
Tolerance Limit			±2.0

Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
7.84	7.94	0.10
5.61	5.63	0.02
4.75	4.58	-0.17
Tolerance Limit		±0.20

- Remarks:
- (1) Maxium tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
 - (2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
 - (3) Because of high sensitivity and ease of measurement, the conductivity method (accoridng to APHA 19e 2510) is used to determine salinity.

- End of Report -

**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

WORK ORDER: HK1710060
DATE OF ISSUE: 23/01/2017
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1309192
Equipment No.:	---
Date of Calibration:	21/01/2017
Date of next Calibration:	21/04/2017

Parameters:**Turbidity**Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	4.11	2.8%
10	9.91	-0.9%
40	39.8	-0.4%
100	100	0.0%
400	400	0.0%
1000	1000	0.0%
	Tolerance Limit (±)	10%

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

**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

WORK ORDER: HK1710287
DATE OF ISSUE: 21/4/2017
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1309192
Equipment No.:	---
Date of Calibration:	20/04/2017
Date of next Calibration:	20/07/2017

Parameters:**Turbidity**Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	3.88	-3.0%
10	10.3	2.9%
40	41.0	2.5%
100	98.0	-2.0%
400	400	0.0%
1000	1000	0.0%
	Tolerance Limit (±)	10%

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

**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

WORK ORDER: HK1710202
DATE OF ISSUE: 15/3/2017
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1512036
Equipment No.:	---
Date of Calibration:	15/03/2017
Date of next Calibration:	15/06/2017

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	3.99	-0.2%
10	9.70	-3.0%
40	40.4	1.0%
100	95.0	-5.0%
400	404	1.0%
1000	1000	0.0%
	Tolerance Limit (\pm)	10%

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

**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

WORK ORDER: HK1710175
DATE OF ISSUE: 6/3/2017
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1408039
Equipment No.:	---
Date of Calibration:	04/03/2017
Date of next Calibration:	04/06/2017

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	4.14	3.5%
10	10.0	0.0%
40	40.0	0.0%
100	99.6	-0.4%
400	380	-5.0%
1000	1000	0.0%
	Tolerance Limit (\pm)	10%

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



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
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ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 20, 2016 Rootmeter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 3166 Pa (mm) - 748.03

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4270	3.2	2.00
2	NA	NA	1.00	1.0220	6.4	4.00
3	NA	NA	1.00	0.9100	7.9	5.00
4	NA	NA	1.00	0.8730	8.8	5.50
5	NA	NA	1.00	0.7180	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.6985	1.4150	0.9957	0.6977	0.8851
0.9925	0.9711	2.0010	0.9915	0.9701	1.2517
0.9904	1.0883	2.2372	0.9893	1.0872	1.3995
0.9892	1.1332	2.3464	0.9882	1.1320	1.4678
0.9840	1.3705	2.8299	0.9830	1.3691	1.7702
Qstd slope (m) = 2.10714			Qa slope (m) = 1.31946		
intercept (b) = -0.05158			intercept (b) = -0.03226		
coefficient (r) = 0.99978			coefficient (r) = 0.99978		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/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 }



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA1b
 Equipment no. : HVS001

Calibration Date : 16-Feb-17
 Calibration Due Date : 16-Apr-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	292	Kelvin	Pressure, P _a
			1022 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m _c	2.10714	Intercept, b _c	-0.05158
Last Calibration Date	20-May-16	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	20-May-17				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.5	1.5	3.0	0.8584	22	22.3201
2	2.4	2.4	4.8	1.0794	32	32.4656
3	3.8	3.8	7.6	1.3518	41	41.5965
4	5.2	5.2	10.4	1.5772	48	48.6984
5	6.5	6.5	13.0	1.7605	52	52.7566

By Linear Regression of Y on X

Slope, m = 33.6324 Intercept, b = -5.0111
 Correlation Coefficient* = 0.9938
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL452 to HVS001 with respect to the update in quality management system.

Calibrated by : Jackey MA
 Date : 16-Feb-17

Checked by : Pauline Wong
 Date : 16-Feb-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA1b
 Equipment no. : HVS001

Calibration Date : 13-Apr-17
 Calibration Due Date : 13-Jun-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	293	Kelvin	Pressure, P_a
			1017 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m_c	2.10714	Intercept, b_c	-0.05158
Last Calibration Date	20-May-16	$\left(\frac{H \times P_a}{1013.3 \times 298 / T_a} \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	20-May-17				

Calibration of TSP						
Calibration Point	Manometer Reading			Q_{std} ($m^3 / min.$) X-axis	Continuous Flow Recorder, W (CFM)	IC $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$ Y-axis
	(up)	(down)	(difference)			
1	1.6	1.6	3.2	0.8822	30	30.3101
2	2.9	2.9	5.8	1.1792	38	38.3928
3	3.8	3.8	7.6	1.3463	46	46.4755
4	4.8	4.8	9.6	1.5101	52	52.5375
5	6.4	6.4	12.8	1.7399	58	58.5995

By Linear Regression of Y on X

Slope, m = 34.2668 Intercept, b = -0.3651
 Correlation Coefficient* = 0.9948
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been

re-assigned from EL452 to HVS001 with respect to the update in quality management system.

Calibrated by : Jackey MA
 Date : 13-Apr-17

Checked by : Pauline Wong
 Date : 13-Apr-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA2a Calibration Date : 16-Feb-17
 Equipment no. : HVS002 Calibration Due Date : 16-Apr-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	292	Kelvin	Pressure, P _a
			1022 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m _c	2.10714	Intercept, b _c	-0.05158
Last Calibration Date	20-May-16	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	20-May-17				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.7	1.7	3.4	0.9123	30	30.4365
2	2.6	2.6	5.2	1.1224	36	36.5238
3	4.2	4.2	8.4	1.4199	44	44.6402
4	5.5	5.5	11.0	1.6214	50	50.7275
5	6.9	6.9	13.8	1.8131	56	56.8148

By Linear Regression of Y on X

Slope, m = 29.0457 Intercept, b = 3.8086
 Correlation Coefficient* = 0.9996
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL449 to HVS002 with respect to the update in quality management system.

Calibrated by : Jackey MA Checked by : Pualine Wong
 Date : 16-Feb-17 Date : 16-Feb-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA2a
 Equipment no. : HVS002

Calibration Date : 13-Apr-17
 Calibration Due Date : 13-Jun-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	293	Kelvin	Pressure, P_a
			1017 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m_c	2.10714	Intercept, b_c	-0.05158
Last Calibration Date	20-May-16	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	20-May-17				

Calibration of TSP						
Calibration Point	Manometer Reading			Q_{std} ($m^3 / min.$) X-axis	Continuous Flow Recorder, W (CFM)	IC ($W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31$) Y-axis
	(up)	(down)	(difference)			
1	1.5	1.5	3.0	0.8550	32	32.3307
2	2.3	2.3	4.6	1.0529	40	40.4134
3	3.8	3.8	7.6	1.3463	46	46.4755
4	5.1	5.1	10.2	1.5558	52	52.5375
5	6.5	6.5	13.0	1.7533	56	56.5788

By Linear Regression of Y on X

Slope, m = 26.2984 Intercept, b = 11.1467
 Correlation Coefficient* = 0.9934
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL449 to HVS002 with respect to the update in quality management system.

Calibrated by : Jackey MA
 Date : 13-Apr-17

Checked by : Pualine Wong
 Date : 13-Apr-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA3a
 Equipment no. : HVS012
 Calibration Date : 23-Feb-17
 Calibration Due Date : 23-Apr-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	291	Kelvin	Pressure, P_a
			1017 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m_c	2.10714	Intercept, b_c	-0.05158
Last Calibration Date	20-May-16	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	20-May-17				

Calibration of TSP						
Calibration Point	Manometer Reading			Q_{std} ($m^3 / min.$) X-axis	Continuous Flow Recorder, W (CFM)	IC ($W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31$) Y-axis
	(up)	(down)	(difference)			
1	1.3	1.3	2.6	0.8003	30	30.4141
2	2.2	2.2	4.4	1.0337	36	36.4969
3	3.5	3.5	7.0	1.2974	43	43.5935
4	4.5	4.5	9.0	1.4679	48	48.6625
5	5.6	5.6	11.2	1.6346	52	52.7177

By Linear Regression of Y on X

Slope, m = 26.9932 Intercept, b = 8.7224
 Correlation Coefficient* = 0.9997
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL333 to HVS012 with respect to the update in quality management system.

Calibrated by : Jackey MA Checked by : Pauline Wong
 Date : 23-Feb-17 Date : 23-Feb-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA3a
 Equipment no. : HVS012
 Calibration Date : 20-Apr-17
 Calibration Due Date : 20-Jun-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	299	Kelvin	Pressure, P _a
			1010 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m _c	2.10714	Intercept, b _c	-0.05158
Last Calibration Date	20-May-16	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	20-May-17				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.3	1.3	2.6	0.7872	31	30.8977
2	2.2	2.2	4.4	1.0167	36	35.8812
3	3.5	3.5	7.0	1.2759	43	42.8581
4	4.5	4.5	9.0	1.4435	48	47.8416
5	5.3	5.3	10.6	1.5645	54	53.8218

By Linear Regression of Y on X

Slope, m = 28.6680 Intercept, b = 7.3550
 Correlation Coefficient* = 0.9911
 Calibration Accepted = Yes/Ne**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL333 to HVS012 with respect to the update in quality management system.

Calibrated by : Jackey MA Checked by : Pauline Wong
 Date : 20-Apr-17 Date : 20-Apr-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA4a
 Equipment no. : HVS004

Calibration Date : 23-Feb-17
 Calibration Due Date : 23-Apr-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	291	Kelvin	Pressure, P_a
			1017 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m_c	2.10714	Intercept, b_c	-0.05158
Last Calibration Date	20-May-16	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	20-May-17				

Calibration of TSP						
Calibration Point	Manometer Reading H (inches of water)			Q_{std} ($m^3 / min.$)	Continuous Flow Recorder, W (CFM)	IC ($W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31$)
	(up)	(down)	(difference)	X-axis	Y-axis	Y-axis
1	1.3	1.3	2.6	0.8003	20	20.2760
2	2.2	2.2	4.4	1.0337	32	32.4417
3	3.4	3.4	6.8	1.2791	40	40.5521
4	4.4	4.4	8.8	1.4517	48	48.6625
5	5.6	5.6	11.2	1.6346	53	53.7315

By Linear Regression of Y on X

Slope, m = 39.9678 Intercept, b = -10.4229
 Correlation Coefficient* = 0.9953
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL390 to HVS004 with respect to the update in quality management system.

Calibrated by : Jackey MA
 Date : 23-Feb-17

Checked by : Pauline Wong
 Date : 23-Feb-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA4a Calibration Date : 20-Apr-17
 Equipment no. : HVS004 Calibration Due Date : 20-Jun-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition				
Temperature, T _a	299	Kelvin	Pressure, P _a	1010 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m _c	2.10714	Intercept, b _c	-0.05158
Last Calibration Date	20-May-16	$\left(\frac{H \times P_a}{1013.3 \times 298 / T_a} \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	20-May-17				

Calibration of TSP						
Calibration Point	Manometer Reading H (inches of water)			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.2	1.2	2.4	0.7573	35	34.8845
2	1.8	1.8	3.6	0.9220	41	40.8647
3	2.9	2.9	5.8	1.1636	48	47.8416
4	3.8	3.8	7.6	1.3285	53	52.8251
5	5.0	5.0	10.0	1.5203	57	56.8119

By Linear Regression of Y on X

Slope, m = 28.8782 Intercept, b = 13.7729
 Correlation Coefficient* = 0.9965
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL390 to HVS004 with respect to the update in quality management system.

Calibrated by : Jackey MA Checked by : Pauline Wong
 Date : 20-Apr-17 Date : 20-Apr-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA5b
 Equipment no. : HVS010

Calibration Date : 23-Feb-17
 Calibration Due Date : 23-Apr-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	291	Kelvin	Pressure, P_a
			1017 mmHg

Orifice Transfer Standard Information			
Equipment No.	Ori002	Slope, m_c	2.10714
		Intercept, b_c	-0.05158
Last Calibration Date	20-May-16	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$	
Next Calibration Date	20-May-17		

Calibration of TSP						
Calibration Point	Manometer Reading			Q_{std} ($m^3 / min.$) X-axis	Continuous Flow Recorder, W (CFM)	IC ($W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31$) Y-axis
	(up)	(down)	(difference)			
1	1.4	1.4	2.8	0.8296	36	36.4969
2	2.2	2.2	4.4	1.0337	42	42.5797
3	3.6	3.6	7.2	1.3155	52	52.7177
4	4.6	4.6	9.2	1.4838	57	57.7867
5	5.8	5.8	11.6	1.6631	63	63.8695

By Linear Regression of Y on X

Slope, m = 33.0908 Intercept, b = 8.8257
 Correlation Coefficient* = 0.9996
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL222 to HVS010 with respect to the update in quality management system.

Calibrated by : Jackey MA
 Date : 23-Feb-17

Checked by : Pauline Wong
 Date : 23-Feb-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA5b
 Equipment no. : HVS010

Calibration Date : 21-Apr-17
 Calibration Due Date : 21-Jun-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	299	Kelvin	Pressure, P _a
			1008 mmHg

Orifice Transfer Standard Information				
Equipment No.	Ori002	Slope, m _c	2.10714	Intercept, b _c
				-0.05158
Last Calibration Date	20-May-16	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$		
Next Calibration Date	20-May-17			

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.4	1.4	2.8	0.8152	38	37.8371
2	2.1	2.1	4.2	0.9929	44	43.8113
3	3.3	3.3	6.6	1.2385	52	51.7770
4	4.3	4.3	8.6	1.4102	57	56.7556
5	5.5	5.5	11.0	1.5917	62	61.7341

By Linear Regression of Y on X

Slope, m = 30.8725 Intercept, b = 13.0364
 Correlation Coefficient* = 0.9991
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL222 to HVS010 with respect to the update in quality management system.

Calibrated by : Jackey MA
 Date : 21-Apr-17

Checked by : Pauline Wong
 Date : 21-Apr-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA6a
 Equipment no. : HVS013

Calibration Date : 23-Feb-17
 Calibration Due Date : 23-Apr-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	291	Kelvin	Pressure, P_a
			1017 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m_c	2.10714	Intercept, b_c	-0.05158
Last Calibration Date	20-May-16	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	20-May-17	= $m_c \times Q_{std} + b_c$			

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC $(W(P_a/1013.3 \times 298/T_a)^{1/2} / 35.31)$ Y-axis
	H (inches of water)					
	(up)	(down)	(difference)			
1	1.5	1.5	3.0	0.8578	34	34.4693
2	2.4	2.4	4.8	1.0786	42	42.5797
3	3.7	3.7	7.4	1.3333	51	51.7039
4	4.9	4.9	9.8	1.5306	57	57.7867
5	6.2	6.2	12.4	1.7187	64	64.8833

By Linear Regression of Y on X

Slope, m = 34.9914 Intercept, b = 4.6626

Correlation Coefficient* = 0.9996

Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL551 to HVS013 with respect to the update in quality management system.

Calibrated by : Jackey MA
 Date : 23-Feb-17

Checked by : Pauline Wong
 Date : 23-Feb-17



Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA6a
 Equipment no. : HVS013

Calibration Date : 21-Apr-17
 Calibration Due Date : 21-Jun-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	299	Kelvin	Pressure, P_a
			1008 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m_c	2.10714	Intercept, b_c	-0.05158
Last Calibration Date	20-May-16	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	20-May-17				

Calibration of TSP						
Calibration Point	Manometer Reading			Q_{std} ($m^3 / min.$) X-axis	Continuous Flow Recorder, W (CFM)	IC $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$ Y-axis
	(up)	(down)	(difference)			
1	1.4	1.4	2.8	0.8152	38	37.8371
2	2.3	2.3	4.6	1.0380	44	43.8113
3	3.6	3.6	7.2	1.2924	52	51.7770
4	4.8	4.8	9.6	1.4886	56	55.7599
5	6.1	6.1	12.2	1.6750	64	63.7256

By Linear Regression of Y on X

Slope, m = 29.3004 Intercept, b = 13.6098
 Correlation Coefficient* = 0.9957
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL551 to HVS013 with respect to the update in quality management system.

Calibrated by : Jackey MA
 Date : 21-Apr-17

Checked by : Pauline Wong
 Date : 21-Apr-17