綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 16CA1117 01-01

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 responsess 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:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

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

1, Electrical Tests

The electrical tests were perfomed 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	
Frequency weightings	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: Fung Chi Yip Date: 18-Nov-2016

Checked by: Lam Tze Wai Date: 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.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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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

Curstomer:	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 conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

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HOKLAS 028 CAL

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.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated 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.

- End -

Calibrated by: Fung Chi Yip **Date:** 17-May-2016

Checked by: Lam Tze Wai **Date:** 18-May-2016

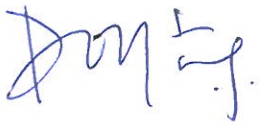
The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

PILOT TESTING

EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

Report No.	:	HK1610567
Project Name	:	EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT
Date of Issue	:	25/10/2016
Customer	:	LAM GEOTECHNICS LIMITED
Address	:	11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG
Calibration Job No.	:	HK1610567
Test Item No.	:	HK1610567-01
Test Item Details		
Test Item Description	:	Multifunctional Meter
Manufacturer	:	YSI
Model No.	:	Professional Plus
Serial No.	:	16J100298
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	:	20-Oct-16
Test Item Calibration Date	:	24-Oct-16

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: 25/10/2016

Pilot Testing Limited
Address: Room B12, Block B, 5/F, Tonic Industrial Centre, 19 Lam Hing Street, Kowloon Bay, Kowloon
Tel: (852) 2527 6691 email: test@pilot-testing.com

PILOT TESTING

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1610567
DATE OF ISSUE: 25/10/2016
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type	Multifunctional Meter
Manufacturer	YSI
Model No.	Professional Plus
Serial No.	16J100298
Date of Calibration	24-Oct-16
Date of next Calibation	24-Jan-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)
4.5	4.7	0.2
15.0	14.9	-0.1
24.6	24.6	0.0
	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	4.00	3.92	-0.08
7.0	6.96	7.07	0.11
10.0	9.98	9.97	-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	12.81	12.87	0.47
0.2000	25.20	24.92	-1.11
0.5000	58.80	58.60	-0.34
	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)
7.00	7.10	0.10
4.76	4.79	0.03
4.64	4.61	-0.03
	Tolerance Limit	±0.20

Remarks:
(1) Maxium tolerance and calibration frequency stated in the report, unless otherewise 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.

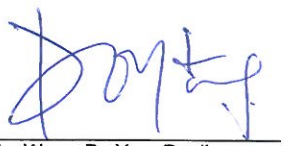
- End of Report -

PILOT TESTING

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. ± 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

Pilot Testing Limited
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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 Calibation	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 otherewise 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 -

PILOT TESTING

EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

Report No.	:	HK1610730
Project Name	:	EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT
Date of Issue	:	23/12/2016
Customer	:	LAM GEOTECHNICS LIMITED
Address	:	11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG
Calibration Job No.	:	HK1610730
Test Item No.	:	HK1610730-01
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	:	22-Dec-16
Test Item Calibration Date	:	23-Dec-16

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: 23/12/2016

Pilot Testing Limited
Address: Room B12, Block B, 5/F, Tonic Industrial Centre, 19 Lam Hing Street, Kowloon Bay, Kowloon
Tel: (852) 2527 6691 email: test@pilot-testing.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1610730
DATE OF ISSUE: 23/12/2016
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type	Sonde
Manufacturer	YSI
Model No.	Professional Plus
Serial No.	14M100277
Date of Calibration	23-Dec-16
Date of next Calibation	24-Mar-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)
9.6	9.4	-0.2
19.1	19.3	0.2
28.1	28.3	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	4.07	4.10	0.03
7.0	6.95	7.04	0.09
10.0	9.92	9.90	-0.02
	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	12.40	12.37	-0.24
0.2000	23.80	23.36	-1.85
0.5000	53.10	52.80	-0.56
	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)
8.96	9.05	0.09
5.84	5.88	0.04
4.95	5.01	0.06
	Tolerance Limit	±0.20

Remarks:
(1) Maxium tolerance and calibration frequency stated in the report, unless otherewise 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.
(4) Due to the malfuction of pH sensor, there is no reading shown on the multimeter's screen. pH parameter is failed to comply with the tolerence.

- End of Report -

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

CONTACT:	**MR. SAM LAM**	**WORK ORDER:**	**HK1610515**
CLIENT:	**LAM GEOTECHNICS LIMITED**		
DATE RECEIVED:	**30/09/2016**		
DATE OF ISSUE:	**15/10/2016**		
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.:	1403009
Equipment No.:	---
Date of Calibration:	30/09/2016

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.

Approved Signatory: _____ Issue Date: 15/10/2016

Ms. Wong Po Yan, Pauline
Testing Engineer

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Phone +852 2527 6691 | Email info@pilot-testing.com

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: HK1610515
DATE OF ISSUE: 15/10/2016
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1403009
Equipment No.:	---
Date of Calibration:	30/09/2016
Date of next Calibation:	30/12/2016

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	3.96	-1.0%
10	10.0	0.0%
40	39.1	-2.3%
100	99.0	-1.0%
400	400	0.0%
1000	995	-0.5%
	Tolerance Limit (±)	10%

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

Address: No.B12, 5th Floor, Block B, Tonic Industrial Centre, No.19 Lam Hing Street, Kowloon Bay, Kowloon
Phone +852 2527 6691 | Email info@pilot-testing.com

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

CONTACT: MR. SAM LAM **WORK ORDER:** HK1710016
CLIENT: LAM GEOTECHNICS LIMITED
DATE RECEIVED: 05/01/2017
DATE OF ISSUE: 10/01/2017
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.:	1403009
Equipment No.:	---
Date of Calibration:	09/01/2017

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.

Approved Signatory: 

Ms. Wong Po Yan, Pauline
Testing Engineer

Issue Date: 10/01/2017

Address: No.B12, 5th Floor, Block B, Tonic Industrial Centre, No.19 Lam Hing Street, Kowloon Bay, Kowloon
Phone +852 2527 6691 | Email info@pilot-testing.com

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: HK1710016
DATE OF ISSUE: 10/01/2017
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1403009
Equipment No.:	---
Date of Calibration:	09/01/2017
Date of next Calibation:	09/04/2017

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	4.02	0.5%
10	9.81	-1.9%
40	38.7	-3.2%
100	93.4	-6.6%
400	392	-2.0%
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.

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REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

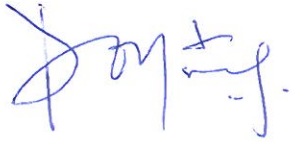
CONTACT:	**MR. SAM LAM**	**WORK ORDER:**	**HK1610696**
CLIENT:	**LAM GEOTECHNICS LIMITED**		
DATE RECEIVED:	**05/12/2016**		
DATE OF ISSUE:	**12/12/2016**		
ADDRESS:	**11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD, WANCHAI, HONG KONG**		
PROJECT:	---		

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.:	1512046
Equipment No.:	---
Date of Calibration:	05/12/2016

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.



Approved Signatory: _____ Issue Date: 12/12/2016

Ms. Wong Po Yan, Pauline
Testing Engineer

Address: No.B12, 5th Floor, Block B, Tonic Industrial Centre, No.19 Lam Hing Street, Kowloon Bay, Kowloon
Phone +852 2527 6691 | Email info@pilot-testing.com

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: HK1610696
DATE OF ISSUE: 12/12/2016
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1512046
Equipment No.:	---
Date of Calibration:	05/12/2016
Date of next Calibation:	05/03/2017

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	3.94	-1.5%
10	9.30	-7.0%
40	38.4	-4.0%
100	102	2.0%
400	380	-5.0%
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.

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REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

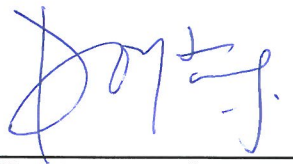
CONTACT:	**MR. SAM LAM**	**WORK ORDER:**	**HK1610731**
CLIENT:	**LAM GEOTECHNICS LIMITED**		
DATE RECEIVED:	**21/12/2016**		
DATE OF ISSUE:	**23/12/2016**		
ADDRESS:	**11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD, WANCHAI, HONG KONG**		
PROJECT:	**---**		

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.:	1512036
Equipment No.:	---
Date of Calibration:	22/12/2016

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.

Approved Signatory: 

Ms. Wong Po Yan, Pauline
Testing Engineer

Issue Date: 23/12/2016

Address: No.B12, 5th Floor, Block B, Tonic Industrial Centre, No.19 Lam Hing Street, Kowloon Bay, Kowloon
Phone +852 2527 6691 | Email info@pilot-testing.com

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: HK1610731
DATE OF ISSUE: 23/12/2016
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1512036
Equipment No.:	---
Date of Calibration:	22/12/2016
Date of next Calibation:	22/03/2017

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	4.17	4.3%
10	9.99	-0.1%
40	40.3	0.7%
100	99.2	-0.8%
400	411	2.8%
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.

Address: No.B12, 5th Floor, Block B, Tonic Industrial Centre, No.19 Lam Hing Street, Kowloon Bay, Kowloon
Phone +852 2527 6691 | Email info@pilot-testing.com

TISCH Environmental

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE
VILLAGE OF CLEVES, OH
45002
513.467.9000
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513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 20, 2016 Rootsmeter 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 DIFF Hg (mm)	ORFICE 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)
0.9967	0.6985	1.4150
0.9925	0.9711	2.0010
0.9904	1.0883	2.2372
0.9892	1.1332	2.3464
0.9840	1.3705	2.8299

Qstd slope (m) = 2.10714
intercept (b) = -0.05158
coefficient (r) = 0.99978

y axis = SQRT[H2O(Pa/760)(298/Ta)]

Va	(x axis) Qa	(y axis)
0.9957	0.6977	0.8851
0.9915	0.9701	1.2517
0.9893	1.0872	1.3995
0.9882	1.1320	1.4678
0.9830	1.3691	1.7702

Qa slope (m) = 1.31946
intercept (b) = -0.03226
coefficient (r) = 0.99978

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	**Calibration Date**	:	22-Dec-16
Equipment no.	:	HVS001	**Calibration Due Date**	:	22-Feb-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	295	Kelvin	**Pressure, P_a**	1019	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori002**	**Slope, m_c**	2.10714	**Intercept, bc**	-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 H (inches of water)** (up)	(down)	(difference)	**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**
1	1.6	1.6	3.2	0.8801	25	25.1974
2	2.3	2.3	4.6	1.0504	34	34.2684
3	3.8	3.8	7.6	1.3431	42	42.3316
4	4.9	4.9	9.8	1.5219	48	48.3789
5	6.1	6.1	12.2	1.6952	54	54.4263

By Linear Regression of Y on X

Slope, m	=	34.3507	Intercept, b	=	-3.6713
Correlation Coefficient*	=	0.9949			
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	**Checked by**	:	Pauline Wong
Date	:	22-Dec-16	**Date**	:	22-Dec-16

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA2a	**Calibration Date**	:	21-Dec-16
Equipment no.	:	HVS002	**Calibration Due Date**	:	21-Feb-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	295	Kelvin	**Pressure, P_a**	1017	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori002**	**Slope, m_c**	2.10714	**Intercept, bc**	-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 H (inches of water)** (up)	(down)	(difference)	**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**
1	1.6	1.6	3.2	0.8793	28	28.1933
2	2.5	2.5	5.0	1.0930	36	36.2486
3	3.6	3.6	7.2	1.3067	48	48.3314
4	4.6	4.6	9.2	1.4739	54	54.3729
5	5.5	5.5	11.0	1.6093	60	60.4143

By Linear Regression of Y on X

Slope, m	=	44.9481	Intercept, b	=	-11.6816
Correlation Coefficient*	=	0.9976			
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	:	21-Dec-16	**Date**	:	21-Dec-16

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA3a	**Calibration Date**	:	11-Nov-16
Equipment no.	:	HVS012	**Calibration Due Date**	:	11-Jan-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	293 Kelvin	**Pressure, P_a**	1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori002**	**Slope, m_c**	2.10714	**Intercept, bc**	-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 H (inches of water)**			**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	0.7984	32	32.3625
2	2.1	2.1	4.2	1.0081	38	38.4305
3	3.3	3.3	6.6	1.2575	45	45.5098
4	4.2	4.2	8.4	1.4155	50	50.5664
5	5.2	5.2	10.4	1.5723	56	56.6344

By Linear Regression of Y on X

Slope, m = 30.8649 Intercept, b = 7.3433

Correlation Coefficient* = 0.9982

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	:	11-Nov-16	**Date**	:	11-Nov-16

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA3a	**Calibration Date**	:	30-Dec-16
Equipment no.	:	HVS012	**Calibration Due Date**	:	28-Feb-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	290	Kelvin	**Pressure, P_a**	1024	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori002**	**Slope, m_c**	2.10714	**Intercept, bc**	-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 H (inches of water)**			**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	0.8043	30	30.5711
2	2.1	2.1	4.2	1.0156	36	36.6853
3	3.5	3.5	7.0	1.3040	42	42.7996
4	4.6	4.6	9.2	1.4913	48	48.9138
5	5.8	5.8	11.6	1.6716	53	54.0090

By Linear Regression of Y on X

Slope, m = 26.5975 Intercept, b = 9.1531

Correlation Coefficient* = 0.9978

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	:	30-Dec-16	**Date**	:	30-Dec-16

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA4a	**Calibration Date**	:	11-Nov-16
Equipment no.	:	HVS004	**Calibration Due Date**	:	11-Jan-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	293	Kelvin	**Pressure, P_a**	1019	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori002**	**Slope, m_c**	2.10714	**Intercept, bc**	-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 H (inches of water) (up)	(down)	(difference)	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
1	1.4	1.4	2.8	0.8276	25	25.2832
2	2.2	2.2	4.4	1.0312	32	32.3625
3	3.3	3.3	6.6	1.2575	41	41.4645
4	4.3	4.3	8.6	1.4320	46	46.5211
5	5.6	5.6	11.2	1.6307	52	52.5891

By Linear Regression of Y on X

Slope, m = 34.3403 Intercept, b = -2.7938

Correlation Coefficient* = 0.9982

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	:	11-Nov-16	**Date**	:	11-Nov-16

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA4a	**Calibration Date**	:	30-Dec-16
Equipment no.	:	HVS004	**Calibration Due Date**	:	28-Feb-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	290	Kelvin	**Pressure, P_a**	1024	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori002**	**Slope, m_c**	2.10714	**Intercept, bc**	-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 H (inches of water)**			**Q_{std}** (m^3 / min.)	**Continuous Flow Recorder, W**	**IC** ($W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31$)
	(up)	(down)	(difference)	**X-axis**	(CFM)	**Y-axis**
1	1.4	1.4	2.8	0.8337	22	22.4188
2	2.1	2.1	4.2	1.0156	30	30.5711
3	3.1	3.1	6.2	1.2287	40	40.7615
4	3.9	3.9	7.8	1.3751	46	46.8757
5	5.2	5.2	10.4	1.5841	52	52.9899

By Linear Regression of Y on X

Slope, m = 41.6284 Intercept, b = -11.5402

Correlation Coefficient* = 0.9956

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	:	30-Dec-16	**Date**	:	30-Dec-16

Calibration Data for High Volume Sampler (TSP Sampler)

Location	: CMA5b	**Calibration Date**	: 11-Nov-16
Equipment no.	: HVS010	**Calibration Due Date**	: 11-Jan-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	293	Kelvin	**Pressure, P_a**	1019	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori002**	**Slope, m_c**	2.10714	**Intercept, bc**	-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 H (inches of water) (up)	(down)	(difference)	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
1	1.4	1.4	2.8	0.8276	32	32.3625
2	2.3	2.3	4.6	1.0539	38	38.4305
3	3.5	3.5	7.0	1.2943	48	48.5438
4	4.6	4.6	9.2	1.4802	52	52.5891
5	5.8	5.8	11.6	1.6591	60	60.6797

By Linear Regression of Y on X

Slope, m = 33.8651 Intercept, b = 3.7484

Correlation Coefficient* = 0.9956

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	**Checked by**	: Pauline Wong
Date	: 11-Nov-16	**Date**	: 11-Nov-16

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA5b	**Calibration Date**	:	30-Dec-16
Equipment no.	:	HVS010	**Calibration Due Date**	:	28-Feb-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	290	Kelvin	**Pressure, P_a**	1024	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori002**	**Slope, m_c**	2.10714	**Intercept, bc**	-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 H (inches of water)** (up)	(down)	(difference)	**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**
1	1.4	1.4	2.8	0.8337	38	38.7234
2	2.3	2.3	4.6	1.0617	44	44.8376
3	3.5	3.5	7.0	1.3040	53	54.0090
4	4.5	4.5	9.0	1.4753	58	59.1042
5	5.8	5.8	11.6	1.6716	64	65.2184

By Linear Regression of Y on X

Slope, m = 32.2163 Intercept, b = 11.4875

Correlation Coefficient* = 0.9987

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	**Checked by**	:	Pauline Wong
Date	:	30-Dec-16	**Date**	:	30-Dec-16

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA6a	**Calibration Date**	:	11-Nov-16
Equipment no.	:	HVS013	**Calibration Due Date**	:	11-Jan-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	293	Kelvin	**Pressure, P_a**	1019	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori002**	**Slope, m_c**	2.10714	**Intercept, bc**	-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 H (inches of water) (up)	(down)	(difference)	Q_{std} (m^3 / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC $(W(P_a/1013.3\times298/T_a)^{1/2}/35.31)$ Y-axis
1	1.5	1.5	3.0	0.8558	33	33.3739
2	2.2	2.2	4.4	1.0312	42	42.4758
3	3.5	3.5	7.0	1.2943	48	48.5438
4	4.6	4.6	9.2	1.4802	53	53.6004
5	5.9	5.9	11.8	1.6732	59	59.6684

By Linear Regression of Y on X

Slope, m	=	30.4334	Intercept, b	=	8.9749
Correlation Coefficient*	=	0.9909			
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	**Checked by**	:	Pauline Wong
Date	:	11-Nov-16	**Date**	:	11-Nov-16

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA6a	**Calibration Date**	:	30-Dec-16
Equipment no.	:	HVS013	**Calibration Due Date**	:	28-Feb-17

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	290	Kelvin	**Pressure, P_a**	1024	mmHg

Orifice Transfer Standard Information					
Equipment No.	**Ori002**	**Slope, m_c**	2.10714	**Intercept, bc**	-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 H (inches of water)** (up)	(down)	(difference)	**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3\times298/T_a)^{1/2}/35.31)$ **Y-axis**
1	1.6	1.6	3.2	0.8896	36	36.6853
2	2.5	2.5	5.0	1.1059	43	43.8186
3	3.9	3.9	7.8	1.3751	52	52.9899
4	5.0	5.0	10.0	1.5538	59	60.1232
5	6.3	6.3	12.6	1.7411	64	65.2184

By Linear Regression of Y on X

Slope, m = 34.1269 Intercept, b = 6.2724

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 EL551 to HVS013 with respect to the update in quality management system.

Calibrated by	:	Jackey MA	**Checked by**	:	Pauline Wong
Date	:	30-Dec-16	**Date**	:	30-Dec-16