

RECALIBRATION **DUE DATE:**

July 8, 2020

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Calibration Certification Information

Cal. Date: July 8, 2019

Rootsmeter S/N: 438320

Ta: 297

°K

Operator: Jim Tisch

Pa: 751.8

mm Hg

Calibration Model #:

TE-5025A

Calibrator S/N: 3166

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4190	3.2	2.00
2	3	4	1	1.0080	6.4	4.00
3	5	6	1	0.9040	7.9	5.00
4	7	8	1	0.8630	8.8	5.50
5	9	10	1	0.7150	12.8	8.00

Data Tabulation							
Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right) \left(\frac{Tstd}{Ta}\right)}$		Qa	$\sqrt{\Delta H (Ta/Pa)}$		
(m3)	(x-axis)	(y-axis)	Va	(x-axis)	(y-axis)		
0.9884	0.6965	1.4090	0.9957	0.7017	0.8889		
0.9841	0.9763	1.9926	0.9915	0.9836	1.2570		
0.9822	1.0865	2.2278	0.9895	1.0946	1.4054		
0.9810	1.1367	2.3365	0.9883	1.1452	1.4740		
0.9757	1.3646	2.8179	0.9830	1.3748	1.7777		
	m=	2.11024		m=	1.32140		
QSTD	b=	-0.06349	QA	b=	-0.04005		
	r=	0.99999	,	r=	0.99999		

	Calculatio	ns			
Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	Va=	ΔVol((Pa-ΔP)/Pa)		
Qstd=	Vstd/ΔTime	Qa=	Qa= Va/ΔTime		
	For subsequent flow ra	te calculatio	ns:		
Qstd=	$1/m\left(\left(\frac{A}{2}\right)\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)\right)-b$	Qa=	$1/m\left(\left(\sqrt{\Delta H(Ta/Pa)}\right)-b\right)$		

Standard Conditions						
Tstd:	298.15 °K					
Pstd:	760 mm Hg					
	Key					
ΔH: calibrate	or manometer reading (in H2O)					
	ter manometer reading (mm Hg)					
	solute temperature (°K)					
Pa: actual ba	Pa: actual barometric pressure (mm Hg)					
b: intercept						
m: slope						

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

sch Environmental, Inc.

5 South Miami Avenue

lage of Cleves, OH 45002

www.tisch-env.com

TOLL FREE: (877)263-7610

FAX: (513)467-9009



RECALIBRATION **DUE DATE:**

January 11, 2020

ertificate d libration

Calibration Certification Information

Cal. Date: January 11, 2019

Rootsmeter S/N: 438320

Ta: 293

°K

Operator: Jim Tisch

Pa: 760.7

mm Hg

Calibration Model #:

TE-5025A

Calibrator S/N: 0005

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4090	3.2	2.00
2	3	4	1	0.9980	6.4	4.00
3	5	6	1	0.8900	7.8	5.00
4	7	8	1	0.8450	8.7	5.50
5	9	10	1	0.6990	12.6	8.00

	Data Tabulation								
Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right) \left(\frac{Tstd}{Ta}\right)}$		Qa	$\sqrt{\Delta H(Ta/Pa)}$				
(m3)	(x-axis)	(y-axis)	Va	(x-axis)	(y-axis)				
1.0138	0.7195	1.4269	0.9958	0.7067	0.8777				
1.0095	1.0115	2.0180	0.9916	0.9936	1.2412				
1.0076	1.1321	2.2561	0.9897	1.1121	1.3877				
1.0064	1.1910	2.3663	0.9886	1.1699	1.4555				
1.0012	1.4323	2.8538	0.9834	1.4069	1.7553				
	m=	1.99861		m=	1.25149				
QSTD[b=	-0.00882	QA	b=	-0.00543				
	r=	0.99997		r=	0.99997				

	Calculatio	ns			
Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	Va=	ΔVol((Pa-ΔP)/Pa)		
Qstd=	Vstd/ΔTime	Qa=	a= Va/ΔTime		
	For subsequent flow ra	te calculatio	ns:		
Qstd=	$1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$	Qa=	$1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$		

Standard Conditions						
Tstd:	298.15 °K					
Pstd:	760 mm Hg					
	Key					
ΔH: calibrate	or manometer reading (in H2O)					
ΔP: rootsme	ter manometer reading (mm Hg)					
	solute temperature (°K)					
Pa: actual ba	Pa: actual barometric pressure (mm Hg)					
b: intercept						
m: slope						

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

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Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location :		CMA3a				Calbratio	on Date	:	10-Dec-19
Equipment no.	ŀ	HVS012				Calbratio	on Due Date	:	9-Feb-20
CALIBRATION OF CON	TINUOUS	FLOW R	ECORDER						
				Ambient C	Condition				
Temperature, T _a		291		Kelvin	Pressure, P	a	1	019	mmHg
			Orifice Tr	ansfer Sta	ndard Inform	nation			
Equipment No.		0005		Slope, m _c	1.998	61	Intercept, bc		-0.00882
Last Calibration Date		11-Jan-1	9		(Hx	P _a / 101	3.3 x 298 /	T _a) 1	1/2
Next Calibration Date		11-Jan-2	:0		=	m _c x	$Q_{std} + b_c$		
				Calibratio	n of TSP				
Calibration	Man	ometer R	eading	C	std	Continu	ious Flow		IC
Point	H (i	inches of	water)	(m ³	/ min.)	Reco	rder, W	(W(P _a /1	013.3x298/T _a) ^{1/2} /35.31)
	(up)	(down)	(difference)	X-	axis	(C	FM)		Y-axis
1	1.6	1.6	3.2	0.9	9127		27		27.3996
2	2.4	2.4	4.8	1.	1168		34		34.5031
3	3.3	3.3	6.6	1.3	3089		38		38.5623
4	3.8	3.8	7.6	1.4	1042		43		43.6363
5	4.5	4.5	9.0	1.	5277		48		48.7103
By Linear Regression of	Y on X								
	Slope, m	=	33.50	341	Int	ercept, b =	-3	.4912	
Correlation Co	efficient*	=	0.99	13					
Calibration	Accepted	=	Yes/P	10 **					
* if Correlation Coefficien	it < 0.990,	check and	I recalibration	again.					
				_					
** Delete as appropriate.									
Remarks :									
Calibrated by	Lau	rance Yun	g			Checked	by	:	James Chu
Date :	10	0-Dec-19				Date		:	10-Dec-19



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

				•		•	•	
Location :		CMA3a			Calbratio	on Date	:	07-Feb-20
Equipment no.	ŀ	HVS012			Calbratio	on Due Date	:	08-Apr-20
CALIBRATION OF CON	ITINUOUS	FLOW R	ECORDER					
				Ambient Condition				
Temperature, T _a		292	2	Kelvin Pressure, P	a	1	021	mmHg
			Orifice Tr	ansfer Standard Infor	mation			
Equipment No.		3166		Slope , m _c 2.110		Intercept, bc	Т	-0.06349
Last Calibration Date		08-Jul-1		- 1		3.3 x 298 /	T_{a}) $^{1/2}$	
Next Calibration Date		07-Jul-2		=		$Q_{std} + b_c$	·a/	
				Oalthartian of TOD		0.0		
Calibration	Man			Calibration of TSP	Comtinu	- Flam		IC
Calibration Point		nometer R inches of	•	Q _{std}		ious Flow	/M/D /404	3.3x298/T _a) ^{1/2} /35.31)
Point	,		•	(m ³ / min.) X-axis		rder, W	(W(P _a /101	Y-axis
	(up)	(down)	(difference)		· ·	FM)		
1	1.8	1.8	3.6	0.9418		30		30.4216
2	2.6	2.6	5.2	1.1259		38		38.5340
4	3.8	3.8	7.6	1.3548		44		44.6183
	5.2	5.2	10.4	1.5798		49		49.6886
5 By Linear Regression of	6.3	6.3	12.6	1.7358	;	54		54.7588
by Linear Regression of	Slope, m	_	29.20	000 Int	ercept, b =	4.	2401	
Correlation Co		=	0.99		егсері, в =	4	2401	
Calibration		=	Yes/P					
Calibration	Accepted	_	103/F					
* if Correlation Coefficier	nt < 0.990,	check and	I recalibration	again.				
** Delete as appropriate.								
Domonto.								
Remarks :								
	1 0	range Vivo	~		Chaakad	hv		James Chir
Calibrated by		rance Yun 7-Feb-20			Checked Date	ыу	·	James Chu 07-Feb-20
Date	U.	1-1 C D-20			Date		•	01-1 0 0-20



香港黄竹坑道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 Fax: (852) 2555 7533



CERTIFICATE OF CALIBRATION

Certificate No.:

19CA0314 01

Page

2

Item tested

Description:

Sound Level Meter (Type 1)

Microphone

of

Manufacturer: Type/Model No.: Larson Davis

PCB

Serial/Equipment No.:

LxT1 0003737 377B02 171529

Adaptors used:

Item submitted by

Customer Name:

Lam Geotechnics Ltd.

Address of Customer:

Request No .:

14-Mar-2019

Date of receipt:

Date of test:

18-Mar-2019

Reference equipment used in the calibration

Description:

Multi function sound calibrator

Model:

Serial No.

Expiry Date:

Traceable to:

Signal generator

B&K 4226 DS 360

2288444 61227

23-Aug-2019 26-Dec-2019 CIGISMEC CEPREI

Ambient conditions

Temperature:

21 ± 1 °C 55 ± 10 %

Relative humidity: 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.

Feng/Junqi

Approved Signatory:

19-Mar-2019

Company Chop:

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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Form No.CARP152-1/Issue 1/Rev.C/01/02/2007



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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.:

19CA0314 01

Page

2

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 Uncertanity (dB)	Coverage Factor
Solf generated noise	۸	Pass	0.3	
Self-generated noise	A C			0.4
		Pass	0.8	2.1
1.	Lin	Pass	1.6	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	Α	Pass	0.3	
	С	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	N/A	N/A	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
3 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.

_			Expanded	Coverage
Test:	Subtest	Status	Uncertanity (dB)	Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
A SOUND OF THE PARTY OF	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.

Calibrated by:

Date:

Fong Chun Wai 18-Mar-2019 Checked by:

Fung Chi Yi 19-Mar-2019

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

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Form No.CARP152-2/Issue 1/Rev.C/01/02/2007



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Tel: (852) 2873 6860 Fax: (852) 2555 7533



CERTIFICATE OF CALIBRATION

Certificate No.:

19CA0617 03-02

Page:

Item tested

Description: Manufacturer: Acoustical Calibrator (Class 1)

Honglim Co., Ltd. HLES-02

Type/Model No.: Serial/Equipment No.:

2016611465

Adaptors used:

Item submitted by

Curstomer:

Lam Environmental Services Limited.

Address of Customer:

Request No.: Date of receipt:

17-Jun-2019

Date of test:

19-Jun-2019

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	03-May-2020	SCL
Preamplifier	B&K 2673	2239857	17-May-2020	CEPREI
Measuring amplifier	B&K 2610	2346941	05-Jun-2020	CEPREI
Signal generator	DS 360	61227	10-May-2020	CEPREI
Digital multi-meter	34401A	US36087050	08-May-2020	CEPREI
Audio analyzer	8903B	GB41300350	13-May-2020	CEPREI
Universal counter	53132A	MY40003662	10-May-2020	CEPREI

Ambient conditions

Temperature:

22 ± 1 °C

Relative humidity:

55 ± 10 %

Air pressure:

1005 ± 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.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference 3. 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.

Feng Junqi

Approved Signatory:

Date:

19-Jun-2019

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.

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Form No.CARP156-1/Issue 1/Rev.D/01/03/2007



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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.:

19CA0617 03-02

Page:

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	Output Sound Pressure Level Setting	Measured Output Sound Pressure Level	Estimated Expanded Uncertainty
Hz	dB	dB	dB
1000	94.00	93.85	0.10

Sound Pressure Level Stability - Short Term Fluctuations 2.

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 = 0.012 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 = 1003.6 Hz

Estimated expanded uncertainty

0.1 Hz

Coverage factor k = 2.2

Total Noise and Distortion 4,

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 = 0.3 %

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:

End

Checked by:

Date:

19-Jun-2019

Shek Kwong Tat 19-Jun-2019

Date:

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.

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Form No.CARP156-2/Issue 1/Rev.C/01/05/2005



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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: CHAN KA CHUN WORK ORDER: HK1954529

CLIENT: LAM ENVIRONMENTAL SERVICES LTD

ADDRESS: 11/F, CENTRE POINT, SUB-BATCH: C

181-185 GLOUCESTER ROAD, LABORATORY: HONG KONG WANCHAI, HONG KONG DATE RECEIVED: 28-Dec-2019

DATE OF ISSUE: 07-Jan-2020

COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test: Dissolved Oxygen, pH Value, Salinity and Temperature

Equipment Type: Multifunctional Meter Brand Name/ Model No.: YSI Professional Plus

Serial No./ Equipment No.: 16J100298 Date of Calibration: 07-Jan-2020

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.

Mr Chan Siu Ming, Vico Manager - Inorganic

Ma Shi

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WORK ORDER: HK1954529

SUB-BATCH: 0

DATE OF ISSUE: 07-Jan-2020

CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter

Brand Name/ Model No.:

YSI Professional Plus

Serial No./
Equipment No.:

16J100298

Date of Calibration: 07-Jan-2020

Date of Next Calibration: 07-Apr-2020

PARAMETERS:

Dissolved Oxygen Method Ref: APHA (21st edition), 4500-O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
4.09	3.98	-0.11
6.13	5.93	-0.20
8.41	8.39	-0.02
	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	3.91	-0.09
7.0	6.96	-0.04
10.0	9.91	-0.09
	Tolerance Limit (pH unit)	±0.20

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	
10	10.03	+0.3
20	19.17	-4.1
30	28.57	-4.8
	Tolerance Limit (%)	±10.0

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

Mr Chan Siu Ming, Vico Manager - Inorganic

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WORK ORDER: HK1954529

SUB-BATCH: 0

DATE OF ISSUE: 07-Jan-2020

CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter Brand Name/

Model No.:

YSI Professional Plus

Serial No./ Equipment No.:

16J100298

Date of Calibration: 07-Jan-2020 Date of Next Calibration: 07-Apr-2020

PARAMETERS:

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)
15.0	14.4	-0.6
22.5	21.7	-0.8
40.0	39.7	-0.3
	Tolerance Limit (°C)	±2.0

 $\hbox{Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless}$

of equipment precision or significant figures.

Mr Chan Siu Ming, Vico Manager - Inorganic

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ALS Technichem (HK) Pty Ltd

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: HENRY LAU WORK ORDER: HK2003813

CLIENT: LAM ENVIRONMENTAL SERVICES LTD

ADDRESS: 11/F CENTRE POINT, SUB-BATCH: (

181-185 GLOUCESTER ROAD,LABORATORY:HONG KONGWANCHAI, HONG KONGDATE RECEIVED:03-Feb-2020DATE OF ISSUE:11-Feb-2020

SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test: Dissolved Oxygen, pH Value, Salinity and Temperature

Equipment Type: Multifunctional Meter Brand Name/ Model No.: YSI Professional Plus

Serial No./ Equipment No.: 17F100236 Date of Calibration: 11-Feb-2020

GENERAL COMMENTS

This is the Final Report and supersedes any preliminary report with this batch number. All pages of this report have been checked and approved for release.

Ms. Lin Wai Yu, Iris

Assistant Manager - Inorganic

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WORK ORDER: HK2003813

SUB-BATCH: 0

DATE OF ISSUE: 11-Feb-2020

CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter

Brand Name/ Model No.:

YSI Professional Plus

Serial No./ 17F100236

Equipment No.:

Date of Calibration: 11-Feb-2020 Date of Next Calibration: 11-May-2020

PARAMETERS:

Dissolved Oxygen Method Ref: APHA (21st edition), 4500-O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.76	3.91	+0.15
5.39	5.42	+0.03
6.66	6.52	-0.14
	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	4.04	+0.04
7.0	6.99	-0.01
10.0	9.92	-0.08
	Tolerance Limit (pH unit)	±0.20

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	
10	9.47	-5.3
20	18.46	-7.7
30	30.07	+0.2
	Tolerance Limit (%)	±10.0

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

Ms. Lin Wai Yu, Iris

Assistant Manager - Inorganic

WORK ORDER: HK2003813

SUB-BATCH: 0

DATE OF ISSUE: 11-Feb-2020

CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter

Brand Name/ Model No.:

YSI Professional Plus

Serial No./ Equipment No.: 17F100236

Date of Calibration: 11-Feb-2020 Date of Next Calibration: 11-May-2020

PARAMETERS:

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	9.0	+0.0
20.1	21.0	+0.9
37.5	37.0	-0.5
	Tolerance Limit (°C)	±2.0

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

16:5

Ms. Lin Wai Yu, Iris Assistant Manager - Inorganic



Page 1 of 2

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied	by customer:		
CONTACT:	MR. CHAN KA CHUN	JOB REFERENCE NO.:	22777053-K30V6701
CLIENT:	LAM ENVIRONMENTAL SERV	VICES LTD.	
DATE RECEIVED:	30/10/2019		
DATE OF ISSUE:	02/12/2019		
ADDRESS:	11/F, CENTRE POINT, 181-185,	GLOUCESTER ROAD,	
	WANCHAI, HONG KONG		
PROJECT:			
METHOD OF PERF	ORMANCE CHECK/ CALIBRAT	ΓΙΟΝ:	
Ref: APHA22nd ed 21	30B		
COMMENTS			
t is certified that the it	em under performance check/calibrat	tion has been calibrated/checked by co	orresponding calibrated
equipment in the labora	atory.		
Maximum Tolerance a	nd calibration frequency stated in the	report, unless otherwise stated, the in	ternal acceptance criteria o
FT Laboratories Ltd w			
		Los tra	
Scope of Test:		Turbidity	
Equipment Type:		Turbidimeter	
Brand Name:		Xin Rui	
Model No.:		WGZ-3B	
Serial No.:		1807073	
Equipment No.:			
Date of Calibration: Remarks:		15/11/2019	
or release.			
Certified By:	Fragrance HO Senior Chemist	Issue Date:	02/12/2019
This report may not be	reproduced except with prior written	approval from FT Laboratories Ltd.	

Address: Lot No. DD77 Section 1552 S.A. ss 1RP. Ng Chow South Road, Ping Che, N.T., H. K., Tel: 27584861, Fax: 27588962

Form No.: HG022-002 Rev 0 20190101



WORK ORDER:

22777053-K30V6701

DATE OF ISSUE:

02/12/2019

CLIENT:

LAM ENVIRONMENTAL SERVICES LTD.

Equipment Type:	Turbidimeter	
Brand Name:	Xin Rui	
Model No.:	WGZ-3B	
Serial No.:	1807073	
Equipment No.:		
Date of Calibration:	15/11/2019	
Date of next Calibation:	14/02/2020	
Lab ID:	H190344-01	

Parameters:

Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
()	0.00	
4	3.87	-3.3%
10	9.98	-0.2%
40	36.80	-8.0%
100	99.89	-0.1%
400	399.9	0.0%
1000	999.9	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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Information supplied				
CONTACT:	MR. CHAN KA CHUN	JOB REFERENCE NO.:	22787053-B07A5001	
CLIENT:	LAM GEOTECHNICS LTD			
DATE RECEIVED:	07/02/2020			
DATE OF ISSUE:	18/02/2020	CV CV/CDCCTDD DC / D		
ADDRESS:	11/F, CENTRE POINT, 181-185,	GLOUCESTER ROAD,		
PD O IF CT	WANCHAI, HONG KONG			
PROJECT:	<u> </u>			
METHOD OF PERF Ref: APHA22nd ed 21	ORMANCE CHECK/ CALIBRA 30B	ΓΙΟΝ:		
COMMENTS				
	em under performance check/calibra	tion has been calibrated/checked b	y corresponding calibrated	
equipment in the labor			,	
	nd calibration frequency stated in the	e report, unless otherwise stated, th	e internal acceptance criteria of	
FT Laboratories Ltd w		T		
677. 4		T		
Scope of Test:		Turbidity		
Equipment Type:		Turbidimeter		
Brand Name:		Xin Rui		
Model No.:		WGZ-3B		
Serial No.:		1807069		
Equipment No.:		14/02/2020		
Date of Calibration: Remarks:		14/02/2020		
This is the Final Report for release.	t. Results apply to sample(s) as subm	nitted. All pages of this report have	been checked and approved	
Certified By:	MARAN	Issue Date:	18/02/2020	
Corumou by.	Ho Lai Sze			
	Senior Chemist			

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Form No.: HG022-002 Rev 0 20190101

Page 1 of 2



WORK ORDER:

22787053-B07A5001

DATE OF ISSUE:

18/02/2020

CLIENT:

LAM GEOTECHNICS LTD

Equipment Type:	Turbidimeter	
Brand Name:	Xin Rui	
Model No.:	WGZ-3B	
Serial No.:	1807069	
Equipment No.:		
Date of Calibration:	14/02/2020	
Date of next Calibation:	16/05/2020	
Lab I.D.:	H200038-01	

Parameters:

Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance	
0	0.00		
4	3.84	-4.0%	
10	10.29	2.9%	
40	38.68	-3.3%	
100	100.80	0.8%	
400	407	1.8%	
1000	1013	1.3%	
	Tolerance Limit (±)	10%	

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



Information supplied	by customer:		
CONTACT: CLIENT:	MR. CHAN KA CHUN JOB	REFERENCE NO.:	22777053-B07A4901
DATE RECEIVED:	LAM ENVIRONMENTAL SERVICES LT 07/02/2020	'D	
DATE OF ISSUE:	18/02/2020		
ADDRESS:	11/F, CENTRE POINT, 181-185, GLOUCE	ESTER ROAD.	

PROJECT:

WANCHAI, HONG KONG

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 FT Laboratories Ltd will be followed.

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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.

Certified By:	- Aller	Issue Date:	18/02/2020	
	Ho Lai Sze	_		_
	Senior Chemist			

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WORK ORDER:

22777053-B07A4901

DATE OF ISSUE:

18/02/2020

CLIENT:

LAM ENVIRONMENTAL SERVICES LTD

Equipment Type:	Turbidimeter	
Brand Name:	Xin Rui	
Model No.:	WGZ-3B	
Serial No.:	1807073	
Equipment No.:		
Date of Calibration:	14/02/2020	
Date of next Calibation:	16/05/2020	
Lab I.D.:	H200037-01	

Parameters:

Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance	
0	0.00		
4	3.90	-2.5%	
10	10.02	0.2%	
40	39.75	-0.6%	
100	101.10	1.1%	
400	400	0.0%	
1000	1001	0.1%	
	Tolerance Limit (±)	10%	

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