Certificate of Calibration - Wind Monitoring Station

Description:	Yau Lai Estate, Bik Lai House
Manufacturer:	Davis Instruments
Model No.:	Davis7440
Serial No.:	MC01010A44
Equipment No.:	SA-03-04
Date of Calibration	19-Feb-2022
Next Due Date	19-Aug-2022

1. Performance check of Wind Speed

Wind Speed, m/s		Difference D (m/s)
Wind Speed Reading (V1)	Anemometer Value (V2)	D = V1 – V2
0.0	0.0	0.0
1.5	1.5	0.0
2.5	2.5	0.0
4.2	4.3	-0.1

2. Performance check of Wind Direction
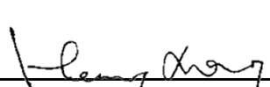
Wind Direction (^{o})		Difference D (^{o})
Wind Direction Reading (W1)	Marine Compass Value (W2)	D = W1 - W2
0	0	0.0
90	90	0.0
180	180	0.0
270	270	0.0

Test Specification:

1. Performance Wind Speed Test - The wind meter was on-site calibrated against the anemometer

2. Performance Wind Direction Test - The wind meter was on-site calibrated against the marine compass at four direction

Calibrated by: _____   Approved by: _____

Wong Shing Kwai   Henry Leung

TISCH Environmental

Certificate of Calibration

Calibration Certification Information

Cal. Date: January 31, 2022	**Rootsmeter S/N:** 438320	**Ta:** 294 °K
Operator: Jim Tisch		**Pa:** 752.6 mm Hg
Calibration Model #: TE-5025A	**Calibrator S/N: 3864**	

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4490	3.2	2.00
2	3	4	1	1.0320	6.4	4.00
3	5	6	1	0.9160	7.9	5.00
4	7	8	1	0.8730	8.8	5.50
5	9	10	1	0.7230	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9995	0.6898	1.4169	0.9957	0.6872	0.8839
0.9952	0.9643	2.0037	0.9915	0.9608	1.2500
0.9932	1.0843	2.2402	0.9895	1.0802	1.3976
0.9920	1.1363	2.3496	0.9883	1.1321	1.4658
0.9868	1.3649	2.8337	0.9831	1.3598	1.7678

QSTD			QA		
	m=	2.09281		m=	1.31048
	b=	-0.02426		b=	-0.01514
	r=	0.99993		r=	0.99993

Calculations

Vstd= ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=** ΔVol((Pa-ΔP)/Pa)
Qstd= Vstd/ΔTime	**Qa=** Va/ΔTime

For subsequent flow rate calculations:

$$Qstd= \frac{1}{m}\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$$

$$Qa= \frac{1}{m}\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$$

Standard Conditions

Tstd:	298.15 °K
Pstd:	760 mm Hg

Key

ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
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

CINOTECH CONSULTANTS LIMITED

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

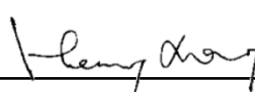|			
Description:	Digital Dust Indicator	Date of Calibration	29-Mar-22
Manufacturer:	Sibata Scientific Technology LTD.	Validity of Calibration Record	29-May-22
Model No.:	LD-5R		
Serial No.:	972781		
Equipment No.:	SA-01-10	Sensitivity	0.001 mg/m3
High Volume Sampler No.:	A-01-03	Before Sensitivity Adjustment	734 CPM
Tisch Calibration Orifice No.:	3864	After Sensitivity Adjustment	734 CPM

Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor Mass Concentration (μg/m3) **X-axis**	HVS Mass concentration (μg/m^3) **Y-axis**
1	74.0	152.0
2	63.5	133.0
3	48.0	109.0
Average	**61.8**	**131.3**

By Linear Regression of Y on X

Slope , mw =	1.6459	Intercept, bw =	29.5628
Correlation coefficient* =	0.9991		

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (μg/m^3)	131.3
Particaulate Concentration by Dust Meter (μg/m^3)	61.8
Measureing time, (min)	60.0
Set Correlation Factor , SCF	
SCF = [K=High Volume Sampler / Dust Meter, (μg/m3)]	2.1

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: _____

Technical Officer (Wong Shing Kwai)

Approved by: _____

Project Manager (Henry Leung)

CINOTECH CONSULTANTS LIMITED

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

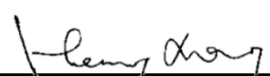|			
Description:	Digital Dust Indicator	Date of Calibration	29-Mar-22
Manufacturer:	Sibata Scientific Technology LTD.	Validity of Calibration Record	29-May-22
Model No.:	LD-5R		
Serial No.:	972778		
Equipment No.:	SA-01-07	Sensitivity	0.001 mg/m3
High Volume Sampler No.:	A-01-03	Before Sensitivity Adjustment	735 CPM
Tisch Calibration Orifice No.:	3864	After Sensitivity Adjustment	735 CPM

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor** Mass Concentration (μg/m3) **X-axis**	**HVS** Mass concentration (μg/m³) **Y-axis**
1	72.0	152.0
2	63.0	133.0
3	54.0	109.0
Average	**63.0**	**131.3**

By Linear Regression of Y on X

Slope , mw = 2.3889   Intercept, bw = -19.1667

Correlation coefficient* = 0.9978

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (μg/m³)	131.3
Particaulate Concentration by Dust Meter (μg/m³)	63.0
Measureing time, (min)	60.0
Set Correlation Factor , SCF	
SCF = [K=High Volume Sampler / Dust Meter, (μg/m3)]	2.1

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: _____   Approved by: _____

Technical Officer (Wong Shing Kwai)   Project Manager (Henry Leung)

Report No.	: 00150	Issue Date	: 16 Nov 2021
Application No.	: HP00032		

Certificate of Calibration

Applicant : Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Sound Level Calibrator.

Equipment No.: : N-13-01

Manufacturer: : SOUNDTEK

Other information :

Model No.	ST-120
Serial No.	181001608

Date Received : 05 Nov 2021

Test Period : 08 Nov 2021 to 12 Nov 2021

Test Requested : Performance checking for Sound Level Calibrator

Test Method : The Sound Level Meter and Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : 1. **Information of the sample description provided by the Applicant.**
2. **The result(s) relate only to the items tested or calibrated.**

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED

Lee Wai Kit
Laboratory Manager

| Report No. | : | 00150 | | Issue Date | : | 16 Nov 2021 |
| Application No. | : | HP00032 | | | | |

Certificate of Calibration

Measuring
equipment   :

Description	Sound Calibrator
Manufacturer	Brüel & Kjær
Model No.	TYPE 4231
Serial No.	2326353
Equipment No.	N-02-01

Description	Sound Meter
Manufacturer	BSWA Technology
Model No.	BSWA 308
Serial No.	570188
Microphone No.	570608
Equipment No.	N-12-03

Test Result   :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.1	+0.1	± 0.3
114.0	114.0	0.0	± 0.5

**Note   :   1. "Instrument Readings" presents the figures shown on item under calibration /
checking regardless of equipment precision or significant figures.**

2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

Report No.	:	00168	Issue Date	:	25 Jan 2022
Application No.	:	HP00044			

Certificate of Calibration

Applicant	:	Cinotech Consultants Limited
		RM 1710, Technology Park,
		18 On Lai Street,
		Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.:	:	N-08-11
Manufacturer:	:	SVANTEK

Other information :

Model No.	SVAN 957
Serial No.	23852
Microphone No.	22454

Date Received	:	20 Jan 2022
Test Period	:	21 Jan 2022 to 21 Jan 2022
Test Requested	:	Performance checking for Sound Level Meter
Test Method	:	The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.
Test conditions	:	Room Temperature: 22-25 degree Celsius Relative Humidity: 35-70%
Test Result	:	Refer to the test result(s) on page 2.

Remark : 1. **Information of the sample description provided by the Applicant.**
2. **The result(s) relate only to the items tested or calibrated.**

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED

Lee Wai Kit
Laboratory Manager

| Report No. | : | 00168 | | Issue Date | : | 25 Jan 2022 |
Application No.   :   HP00044

Certificate of Calibration

Measuring   :
equipment

Description	Sound Calibrator
Manufacturer	Brüel & Kjær
Model No.	TYPE 4231
Serial No.	2326353
Equipment No.	N-02-01

Test Result   :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.1	+0.1	± 1.5
114.0	114.2	+0.2	± 1.5

Note   :   1.   "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

2.   The indication value was obtained from the average of ten replicated measurement.

- End of report -

Report No.   :   00160   Issue Date   :   10 Jan 2022
Application No. :   HP00040

Certificate of Calibration

Applicant   :   Cinotech Consultants Limited
                             RM 1710, Technology Park,
                             18 On Lai Street,
                             Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.:   :   N-08-07

Manufacturer: :   SVANTEK

Other information   :

Model No.	SVAN 957
Serial No.	21455
Microphone No.	22391

Date Received   :   03 Jan 2022

Test Period   :   10 Jan 2022 to 10 Jan 2022

Test Requested   :   Performance checking for Sound Level Meter

Test Method   :   The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions   :   Room Temperature: 22-25 degree Celsius
                            Relative Humidity: 35-70%

Test Result   :   Refer to the test result(s) on page 2.

Remark   :   1. Information of the sample description provided by the Applicant.
                  2. The result(s) relate only to the items tested or calibrated.

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED

Lee Wai Kit
Laboratory Manager

High Precision Chemical Testing Ltd.

Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388   Website: https://www.hpct.com.hk

Report No.   :   00160   Issue Date   :   10 Jan 2022
Application No.   :   HP00040

Certificate of Calibration

Measuring   :
equipment

Description	Sound Calibrator
Manufacturer	Brüel & Kjær
Model No.	TYPE 4231
Serial No.	2326353
Equipment No.	N-02-01

Test Result   :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	93.9	-0.1	± 1.5
114.0	113.8	-0.2	± 1.5

Note   :   1. **"Instrument Readings" presents the figures shown on item under calibration /
                        checking regardless of equipment precision or significant figures.**
                   2. **The indication value was obtained from the average of ten replicated measurement.**

- End of report -

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/54/0035

Project No. AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office

Date: 9-Apr-22   Next Due Date: 9-Jun-22   Operator: SK

Equipment No.: A-01-54   Model No.: TE-5170   Serial No. 1536

Ambient Condition			
Temperature, Ta (K)	296.1	Pressure, Pa (mmHg)	760

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05922	Intercept, bc	-0.02420
Last Calibration Date:	31-Jan-22				
Next Calibration Date:	31-Jan-23				

$$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$$

$$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$$

.

Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	13.0	3.62	61.49	9.4	3.08
2	10.6	3.27	55.56	7.4	2.73
3	7.6	2.77	47.11	5.2	2.29
4	5.6	2.37	40.50	3.4	1.85
5	3.0	1.74	29.75	2.0	1.42

By Linear Regression of Y on X

Slope , mw = 0.0530   Intercept, bw = -0.2129

Correlation coefficient* = 0.9969

*If Correlation Coefficient < 0.990, check and recalibrate.

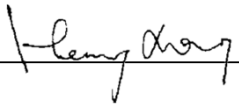| Set Point Calculation |
|---|

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = (mw x Qstd + bw $)^2$ x (760 / Pa) x (Ta / 298) = 4.24

Remarks: _____

_____

Conducted by: Wong Shing Kwai   Signature: _____   Date: 9-Apr-22

Checked by: Henry Leung   Signature: _____   Date: 9-Apr-22

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. MA16034/03/0035

Project No. AM3 - Yau Lai Estate, Bik Lai House

Date:	9-Apr-22	Next Due Date:	9-Jun-22	Operator:	SK

Equipment No.:	A-01-03	Model No.:	GS2310	Serial No.	10379

Ambient Condition			
Temperature, Ta (K)	296.1	Pressure, Pa (mmHg)	760

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05922	Intercept, bc	-0.02420
Last Calibration Date:	31-Jan-22	mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	31-Jan-23	Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	13.2	3.64	61.96	9.4	3.08
2	10.4	3.24	55.04	7.0	2.65
3	8.4	2.91	49.51	5.6	2.37
4	5.4	2.33	39.77	3.4	1.85
5	3.0	1.74	29.75	2.0	1.41

By Linear Regression of Y on X

Slope , mw = 0.0516   Intercept, bw = -0.1629

Correlation coefficient* = 0.9983

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) =   4.20

Remarks: _____

_____

Conducted by:	Wong Shing Kwai	Signature:		Date:	9-Apr-22
Checked by:	Henry Leung	Signature:		Date:	9-Apr-22

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/08/0035

Project No.   AM2 - Sai Tso Wan Recreation Ground

Date: 9-Apr-22   Next Due Date: 9-Jun-22   Operator: SK

Equipment No.: A-01-08   Model No.: GS2310   Serial No. 1287

Ambient Condition			
Temperature, Ta (K)	296.1	Pressure, Pa (mmHg)	760

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05922	Intercept, bc	-0.02420
Last Calibration Date:	31-Jan-22	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	31-Jan-23	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	13.2	3.64	61.96	9.4	3.08
2	10.4	3.24	55.04	6.8	2.62
3	7.8	2.80	47.72	5.2	2.29
4	5.4	2.33	39.77	3.4	1.85
5	3.0	1.74	29.75	2.0	1.42

By Linear Regression of Y on X

 Slope , mw =   0.0510   Intercept, bw =   -0.1387

   Correlation coefficient* =   0.9973

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

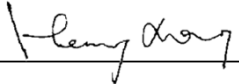From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

 Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) =   4.19

Remarks:

Conducted by: Wong Shing Kwai   Signature: Date: 9-Apr-22

Checked by: Henry Leung   Signature: Date: 9-Apr-22

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. MA16034/05/0035

Project No.   AM1 - Tin Hau Temple

Date:	9-Apr-22	Next Due Date:	9-Jun-22	Operator:	SK
Equipment No.:	A-01-05	Model No.:	GS2310	Serial No.	10599

Ambient Condition			
Temperature, Ta (K)	296.1	Pressure, Pa (mmHg)	760

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05922	Intercept, bc	-0.02420
Last Calibration Date:	31-Jan-22		$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$		
Next Calibration Date:	31-Jan-23		$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$		

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	13.2	3.64	61.96	9.6	3.11
2	10.2	3.20	54.51	7.2	2.69
3	7.7	2.78	47.42	5.4	2.33
4	5.4	2.33	39.77	3.3	1.82
5	3.0	1.74	29.75	2.0	1.42

By Linear Regression of Y on X

Slope , mw =   0.0535   Intercept, bw =   -0.2213

Correlation coefficient* =   0.9973

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298)$ =   4.29

Remarks: _____

Conducted by:	Wong Shing Kwai	Signature:		Date:	9-Apr-22
Checked by:	Henry Leung	Signature:		Date:	9-Apr-22

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

Project No.   AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office

Date:	9-Feb-22	Next Due Date:	9-Apr-22	Operator:	SK
Equipment No.:	A-01-54	Model No.:	TE-5170	Serial No.	1536

Ambient Condition			
Temperature, Ta (K)	289.1	Pressure, Pa (mmHg)	764.2

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05922	Intercept, bc	-0.02420
Last Calibration Date:	31-Jan-22	mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$			
Next Calibration Date:	31-Jan-23	Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc			

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ Y-axis
1	13.2	3.70	62.87	9.6	3.15
2	10.8	3.35	56.91	7.6	2.81
3	7.8	2.84	48.42	5.4	2.37
4	5.9	2.47	42.17	3.6	1.93
5	3.0	1.76	30.19	2.0	1.44

By Linear Regression of Y on X

Slope , mw =   0.0532   Intercept, bw =   -0.2208

Correlation coefficient* =   0.9967

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

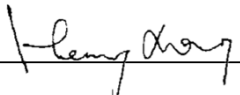From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \text{ x } Qstd + bw = [\Delta W \text{ x } (Pa/760) \text{ x } (298/Ta)]^{1/2}$$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) =   4.12

Remarks:

Conducted by:	Wong Shing Kwai	Signature:		Date:	9-Feb-22
Checked by:	Henry Leung	Signature:		Date:	9-Feb-22

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. MA16034/03/0034

Project No.   AM3 - Yau Lai Estate, Bik Lai House

Date: 9-Feb-22   Next Due Date: 9-Apr-22   Operator: SK

Equipment No.:   A-01-03   Model No.:   GS2310   Serial No.   10379

Ambient Condition			
Temperature, Ta (K)	289.1	Pressure, Pa (mmHg)	764.2

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05922	Intercept, bc	-0.02420
Last Calibration Date:	31-Jan-22	mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$			
Next Calibration Date:	31-Jan-23	Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc			

$$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$$
$$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$$

Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ Y-axis
1	13.2	3.70	62.87	9.2	3.09
2	10.4	3.28	55.85	7.0	2.69
3	8.3	2.93	49.94	5.4	2.37
4	5.4	2.37	40.36	3.4	1.88
5	2.9	1.73	29.68	2.0	1.43

By Linear Regression of Y on X

Slope , mw =   0.0501   Intercept, bw =   -0.0985

Correlation coefficient* =   0.9980

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) =   4.07

Remarks:

Conducted by: Wong Shing Kwai   Signature: Date: 9-Feb-22

Checked by: Henry Leung   Signature: Date: 9-Feb-22

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0034

Project No. AM2 - Sai Tso Wan Recreation Ground

Date:	9-Feb-22	Next Due Date:	9-Apr-22	Operator:	SK
Equipment No.:	A-01-08	Model No.:	GS2310	Serial No.	1287

Ambient Condition

Temperature, Ta (K)	289.1	Pressure, Pa (mmHg)	764.2

Orifice Transfer Standard Information

Serial No.	3864	Slope, mc	0.05922	Intercept, bc	-0.02420
Last Calibration Date:	31-Jan-22				
Next Calibration Date:	31-Jan-23				

$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$

$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$

Calibration of TSP Sampler

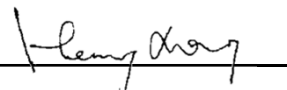| Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	13.2	3.70	62.87	9.2	3.09
2	10.4	3.28	55.85	6.8	2.65
3	8.0	2.88	49.03	5.1	2.30
4	5.4	2.37	40.36	3.4	1.88
5	3.0	1.76	30.19	2.0	1.44

By Linear Regression of Y on X

Slope , mw = 0.0501   Intercept, bw = -0.1155

Correlation coefficient* = 0.9976

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.01

Remarks:

Conducted by:	Wong Shing Kwai	Signature:	Date: 9-Feb-22
Checked by:	Henry Leung	Signature:	Date: 9-Feb-22

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

Project No.   AM1 - Tin Hau Temple

Date:	9-Feb-22	Next Due Date:	9-Apr-22	Operator:	SK
Equipment No.:	A-01-05	Model No.:	GS2310	Serial No.	10599

Ambient Condition

Temperature, Ta (K)	289.1	Pressure, Pa (mmHg)	764.2

Orifice Transfer Standard Information

Serial No.	3864	Slope, mc	0.05922	Intercept, bc	-0.02420
Last Calibration Date:	31-Jan-22				
Next Calibration Date:	31-Jan-23				

$$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$$

$$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$$

Calibration of TSP Sampler

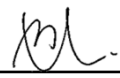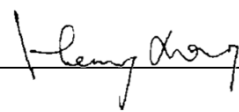| Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	13.2	3.70	62.87	9.4	3.12
2	10.2	3.25	55.31	7.0	2.69
3	7.6	2.81	47.80	5.2	2.32
4	5.4	2.37	40.36	3.3	1.85
5	3.0	1.76	30.19	2.0	1.44

By Linear Regression of Y on X

Slope , mw =   0.0522   Intercept, bw =   -0.1827

Correlation coefficient* =   0.9976

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) =   4.10

Remarks:

Conducted by:	Wong Shing Kwai	Signature:		Date: 9-Feb-22
Checked by:	Henry Leung	Signature:		Date: 9-Feb-22