High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/05/0037

Project No.	AM1 - Tin Hau	Temple					
Date:	9-A	ug-22	Next Due Date:	9-0	Oct-22	Operator:	SK
Equipment No.:	o.: A-01-05		Model No.:	GS	S2310	Serial No.	10599
			Ambient C	ondition			
Temperatur	re Ta(K)	299.7	Pressure, Pa			752.8	
Temperatur	ic, iu (ii)	277.1	Tressure, ru	(IIIIII Ig)		732.0	
		Or	ifice Transfer Sta	ndard Informa	ation		
Serial	No.	3864	Slope, mc	0.05922	Intercept	, bc	-0.02420
Last Calibra	ntion Date:	31-Jan-22			$c = [\Delta H \times (Pa/760)]$		
Next Calibra	ation Date:	31-Jan-23		$\mathbf{Qstd} = \{ [\Delta \mathbf{H} \ \mathbf{x}] \}$	(Pa/760) x (298/7	Γa)] ^{1/2} -bc} / m	c
			Calibration of	TSP Sampler	T		
Calibration		Oı	fice	I		HVS	1/2
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	(50) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water		50) x (298/Ta)] ^{1/2} -axis
1	13.2		3.61	61.29	9.7		3.09
2	10.1		3.15	53.67	7.2		2.66
3	7.7		2.75	46.91	5.4		2.31
4	5.3		2.28	38.99	3.3	1.80	
5	3.1		1.75	29.91	2.0	1.40	
By Linear Regr Slope, mw = Correlation o	0.0546 coefficient* =	0	.9986	Intercept, bw :	-0.266	5	
			Set Point C	alculation			
From the TSP Fi	eld Calibration (Curve take Ostd		aicuiation			
From the Regres		_					
	,		-				
		mw x Q	$\mathbf{pstd} + \mathbf{bw} = [\mathbf{\Delta W} \ \mathbf{x}]$	(Pa/760) x (29	98/Ta)] ^{1/2}		
Therefore, Se	et Point; W = (n	nw x Qstd + bw)	² x (760 / Pa) x (′	Γa / 298) =	4.40		
Remarks:							
Conducted by:	Wong Sl	ning Kwai	Signature:	K	<u></u>	Date:	9-Aug-22
Checked by:	Henry	Leung	Signature:	\-lem	y Xoy	Date:	9-Aug-22

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



File No. MA16034/08/0037

Project No.	AM2 - Sai Tso	Wan Recreation	Ground				
Date:	9-Aug-22		Next Due Date: 9-Oct-22		Oct-22	Operator: SK	SK
Equipment No.:	A-(01-08	Model No.:	GS	S2310	Serial No.	1287
			Ambient C	ondition			
Temperatur	e, Ta (K)	299.7	Pressure, Pa			752.8	
		Or	ifice Transfer Star	ndard Informa	ation		
Serial	No.	3864	Slope, mc	0.05922	Intercept		-0.02420
Last Calibra	tion Date:	31-Jan-22			$c = [\Delta H \times (Pa/760)]$		
Next Calibra	ntion Date:	31-Jan-23		$\mathbf{Qstd} = \{ [\Delta \mathbf{H} \ \mathbf{x}] \}$	(Pa/760) x (298/7	[a)] ^{1/2} -bc} / mo	;
			Calibration of T	ΓSP Sampler	T		
Calibration		Oı	rfice	T		HVS	1/2
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	50) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water		0) x (298/Ta)] ^{1/2} -axis
1	13.2		3.61	61.29	9.5	3	3.06
2	10.4		3.20	54.45	6.8	2	2.59
3	7.8		2.77	47.21	5.2	2	2.26
4	5.4		2.31	39.35	3.6	1	.88
5	3.1		1.75	29.91	2.1	1	.44
By Linear Regression Slope, mw =	0.0505	_		Intercept, bw :	-0.099	8	
	coefficient* =		.9971	ī			
*If Correlation C	oefficient < 0.9	90, check and re	calibrate.				
			Set Point Ca	lculation			
From the TSP Fig	eld Calibration	Curve_take Ostd		irculation			
From the Regress							
Trom the Regress	sion Equation, t	ne i varae ace	ording to				
		mw x ($\mathbf{Qstd} + \mathbf{bw} = [\mathbf{\Delta W} \ \mathbf{x}]$	(Pa/760) x (29	98/Ta)] ^{1/2}		
	.		2 (50)				
Therefore, Se	et Point; W = (r	nw x Qstd + bw)	o ² x (760 / Pa) x (7	Ta / 298) =	4.36		
Remarks:							
•							
•							
Conduct 11	33 7 O	him a Vanci	G :	X	λ	Deter	0. 4 22
Conducted by:	wong S	hing Kwai	Signature:			Date:	9-Aug-22
Checked by:	Henry	/ Leung	Signature:	\-lem	~ X27	Date:	9-Aug-22

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/03/0037

Project No.	AM3 - Yau Lai	Estate, Bik Lai I	House				
Date:	9-Aug-22 : A-01-03		Next Due Date:	9-0	Oct-22	Operator:	SK
Equipment No.:			Model No.:	GS	S2310	Serial No.	10379
			Ambient C	ondition			
Temperatur	re Ta (K)	299.7	Pressure, Pa			752.8	
Temperatur	ic, 14 (11)	200.1	r ressure, r u	(minig)		732.0	
		Or	ifice Transfer Sta	ndard Informa	ation		
Serial	No.	3864	Slope, mc	0.05922	Intercept	, bc	-0.02420
Last Calibra	tion Date:	31-Jan-22			$c = [\Delta H \times (Pa/760)]$		
Next Calibra	ation Date:	31-Jan-23	($Qstd = \{ [\Delta H \ x] \}$	(Pa/760) x (298/7	Γa)] ^{1/2} -bc} / m	c
			Calibration of	TSP Sampler			
Calibration		Oı	fice	T		HVS	1/0
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	50) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water		50) x (298/Ta)] ^{1/2} -axis
1	12.7		3.54	60.13	8.8		2.94
2	10.0		3.14	53.40	6.7		2.57
3	7.9		2.79	47.51	5.1		2.24
4	4.8		2.17	37.12	3.0		1.72
5	2.6		1.60	27.43	1.7		1.29
By Linear Regr Slope, mw = Correlation C	0.0505 coefficient* =	0	.9988	Intercept, bw : -	-0.127	3	
			Set Point Ca	alculation			
From the TSP Fi	eld Calibration	Curve, take Ostd					
From the Regress		_					
C			-		1/0		
		mw x Q	$\mathbf{pstd} + \mathbf{bw} = [\mathbf{\Delta W} \ \mathbf{x}]$	(Pa/760) x (29	98/Ta)] ^{1/2}		
Therefore, Se	et Point; W = (n	nw x Qstd + bw)	² x (760 / Pa) x (′	Γa / 298) =	4.25		
Remarks:							
Conducted by:	Wong Sl	hing Kwai	Signature:	K	X-	Date:	9-Aug-22
Checked by:	Henry	/ Leung	Signature:	\-lem	y Xoy	Date:	9-Aug-22

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



File No. MA16034/05/0038

Project No.	AM1 - Tin Hau	Temple					
Date:	9-Oct-22 o.: A-01-05		Next Due Date: 9-Dec-22		Dec-22	Operator:	SK
Equipment No.:			Model No.:	G	S2310	Serial No.	10599
			Ambient C	ondition			
Temperatur	re, Ta (K)	300.1	Pressure, Pa			762.4	
•							
		Or	ifice Transfer Star	ndard Informa	ation		
Serial	No.	3864	Slope, mc	0.05922	Intercept		-0.02420
Last Calibra	ntion Date:	31-Jan-22			$c = [\Delta H \times (Pa/760]]$		
Next Calibra	ation Date:	31-Jan-23		$Qstd = \{ [\Delta H \ x]$	(Pa/760) x (298/7	Γa)] ^{1/2} -bc} / mc	<u>;</u>
			Calibration of T	TSP Sampler	I		
Calibration	ΔH (orifice),		fice	Qstd (CFM)	ΔW (HVS), in.	HVS	0) x (298/Ta)] ^{1/2}
Point	in. of water	[ΔH x (Pa/76	50) x (298/Ta)] ^{1/2}	X - axis	of water		0) x (298/1a)] •axis
1	13.3		3.64	61.87	9.8		3.12
2	10.4		3.22	54.76	7.3	2	2.70
3	7.6		2.75	46.87	5.4	2	2.32
4	5.5		2.34	39.93	3.4	1	.84
5	3.3		1.81	31.02	1.9	1	.38
By Linear Regr Slope, mw = Correlation of *If Correlation C	0.0568 coefficient* =		.9989 calibrate.		-0.393	9	
1	11.0.11	7	Set Point Ca	lculation			
From the Regress	sion Equation, th			, , ,	98/Ta)] ^{1/2}		
_							
Remarks:				1.	- 1		
Conducted by:	Wong Sh	ning Kwai	Signature:		<u> </u>	Date:	10-Oct-22
Checked by:	Henry	Leung	Signature:	-lem	y day	Date:	10-Oct-22

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/08/0038

Project No.	AM2 - Sai Tso	Wan Recreation	Ground				
Date:	9-Oct-22		Next Due Date: 9-		Dec-22	Operator:	SK
Equipment No.:	A-0	1-08	Model No.:	GS	S2310	Serial No.	1287
			Ambient C	ondition			
Temperatu	re, Ta (K)	300.1	Pressure, Pa	(mmHg)		762.4	
		0	• 6• TD	1 17 6	4*		
Serial	No	3864	Slope, mc	0.05922	Intercept	be be	-0.02420
Last Calibra		31-Jan-22	_		$c = [\Delta H \times (Pa/760)]$		
Next Calibra		31-Jan-23			(Pa/760) x (298/7		
	<u>'</u>						
			Calibration of 7	ΓSP Sampler			
Calibration		Oı	fice			HVS	
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	60) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water		0) x (298/Ta)] ^{1/2} -axis
1	13.5		3.67	62.33	9.5	3	3.08
2	10.7		3.26	55.54	7.0	2	2.64
3	7.9		2.81	47.78	5.4	2	2.32
4	5.5		2.34	39.93	3.7	1	.92
5	3.3		1.81	31.02	2.2	1	.48
	0.0499 coefficient* = Coefficient < 0.99	-	.9984	Intercept, bw	-0.076	1	
			Set Point Ca	alculation			
From the TSP Fi	eld Calibration C	Curve, take Ostd					
	sion Equation, th						
					1/2		
		mw x ($\mathbf{Qstd} + \mathbf{bw} = [\Delta \mathbf{W} \ \mathbf{x}]$	(Pa/760) x (29	98/Ta)] ^{1/2}		
Therefore, Se	et Point; W = (m	w x Qstd + bw)	² x (760 / Pa) x (7	Γa / 298) =	4.31		
Remarks:							
				- 1-	_1		
Conducted by:	Wong Sh	ing Kwai	Signature:	χ'	<u>}_</u> -	Date:	10-Oct-22
-		-		\ -			
Checked by:	Henry	Leung	Signature:	- lem	y day	Date:	10-Oct-22

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



File No. MA16034/03/0038

Project No.	AM3 - Yau Lai	Estate, Bik Lai I	House			•	
Date:	9-0	ct-22	t-22 Next Due Date:		9-Dec-22		SK
Equipment No.:	A-0	01-03	Model No.:	GS	S2310	Serial No.	10379
			Ambient C	ondition			
Temperatur	re, Ta (K)	300.1	Pressure, Pa	(mmHg)		762.4	
C - vi -1	NI.		ifice Transfer Star			1	0.02420
Serial Last Calibra		3864 31-Jan-22	Slope, mc	0.05922	Intercept $c = [\Delta H \times (Pa/760)]$		-0.02420
Next Calibra		31-Jan-23			$(Pa/760) \times (298/7)$		
Tiext Canor	ttion Date.			<u> </u>	(14/100) 11 (250)	(a) (bc) / Inc	<u>′</u>
			Calibration of	ΓSP Sampler			
Calibration		Or	fice			HVS	
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	50) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water		0) x (298/Ta)] ^{1/2} •axis
1	12.9		3.58	60.94	9.0	2	99
2	10.3		3.20	54.50	6.8		60
3	8.2		2.86	48.67	5.2	2	2.28
5	5.1 2.8		2.25 1.67	38.47 28.61	3.2 1.9		.79 .38
	0.0498 coefficient* =	_	.9972 ralibrate.		-0.095	9	
			Set Point Ca	lculation			
From the Regress	sion Equation, tl				98/Ta)] ^{1/2}		
Remarks:				<u> </u>	→		
	Wong Sl Henry		Signature: Signature:	-lem	7 Xon	Date:	10-Oct-22 10-Oct-22

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA20003/55/0016

Project No.	CKL 2 - Flat 10	3 Cha Kwo Ling	Village				
Date:	5-Sep-22 o.: A-01-55		Next Due Date: 5-N		Nov-22	Operator:	SK
Equipment No.:			Model No.:	TE	E 5170	Serial No.	1956
			Ambient C		I		
Temperatur	re, Ta (K)	304.1	Pressure, Pa	(mmHg)		753.4	
		Or	ifice Transfer Star	ndard Informa	ation		
Serial	No.	3864	Slope, mc	0.05922	Intercept	t, bc	-0.02420
Last Calibra		31-Jan-22			$c = [\Delta H \times (Pa/760)]$		
Next Calibra		31-Jan-23			(Pa/760) x (298/		
			Calibration of	ΓSP Sampler	T		
Calibration		Oı	fice			HVS	1/0
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	50) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water		60) x (298/Ta)] ^{1/2} Y-axis
1	12.7		3.51	59.72	9.7		3.07
2	10.7		3.22	54.85	7.5		2.70
3	8.5		2.87	48.93	5.7		2.35
4	5.2		2.25	38.36	3.1		1.74
5	2.8		1.65	28.26	1.7		1.29
By Linear Regressions Slope, mw = Correlation Correlation C	0.0564 coefficient* =	0	.9966	Intercept, bw	-0.368	33	
			Set Point Ca	alculation			
From the TSP Fi	eld Calibration (Curve, take Qstd	= 43 CFM				
From the Regress	sion Equation, th	ne "Y" value acce	ording to				
		mw x Q	$\mathbf{pstd} + \mathbf{bw} = [\Delta \mathbf{W} \ \mathbf{x}]$	(Pa/760) x (29	98/Ta)] ^{1/2}		
Therefore, Se	et Point; W = (m	w x Qstd + bw)	² x (760 / Pa) x (7	Γa / 298) =	4.36		
Remarks:							
Conducted by:	Wong Sh	ing Kwai	Signature:		<u></u>	Date:	5-Sep-22
Checked by:	Henry	Leung	Signature:	\-len	g Xon	Date:	5-Sep-22

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

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.

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

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 -

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

Tel: +852 3841 4388 Website: https://www.hpct.com.hk



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

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

Tel: +852 3841 4388 Website: https://www.hpct.com.hk



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 -

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

Tel: +852 3841 4388 Website: https://www.hpct.com.hk



Report No. : 00152 Issue Date : 19 Nov 2021

Application No. : HP00034

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-12-01

Manufacturer: : BSWA Technology

Other information : N

Model No.	BSWA 308
Serial No.	570183
Microphone No.	570605

Date Received : 10 Nov 2021

Test Period : 10 Nov 2021 to 17 Nov 2021

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

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

Tel: +852 3841 4388 Website: https://www.hpct.com.hk



Report No. : 00152 | Issue Date : 19 Nov 2021

Application No. : HP00034

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	114.0	0.0	± 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 -

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

Tel: +852 3841 4388 Website: https://www.hpct.com.hk



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

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

Tel: +852 3841 4388 Website: https://www.hpct.com.hk



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 -



Certificate of Calibration

It i	is certified t	that the	e item under	r calibration	has been	calibrated by	corresponding	calibrated High	Volume Samp	ler

Description:	Digital Dust Indicator		Date of Calibration	29-Sep-22
Manufacturer:	Sibata Scientific Technology LTD.	_	Validity of Calibration Record	29-Nov-22
Model No.:	LD-5R			
Serial No.:	972778			
Equipment No.:	SA-01-07	Sensitivity	0.001 mg/m3	
High Volume Sa	ampler No.: <u>A-01-03</u>	Before Sensiti	vity Adjustment 735 CPM	
Tisch Calibratio	n Orifice No.: 3864	After Sensitivi	ity Adjustment 735 CPM	
	Cal	ibration of 1 h	r TSP	
Calibration	Laser Dust Monitor		HVS	
Point	Mass Concentration (μg/1 X-axis	m3)	Mass concentration Y-axis	n (μg/m ³)
1	74.0		156.0	
2	65.0		135.0	
3	52.0		110.0	
Average	63.7		133.7	
Slope , mw = Correlation co	2.0790 pefficient* = 0.9985	Intere	cept, bw =)25
	Set	t Correlation F	actor	
Particaulate Con	centration by High Volume Sampler (μg/m ³)	133.7	
Particaulate Con	centration by Dust Meter (μg/m³)		63.7	
Measureing time			60.0	
Set Correlation 1				
SCF = [K=Hig	ractor , SCF h Volume Sampler / Dust Meter, (μg	g/m3)]	2.1	
			2.1	
In-house method The Dust Monito Factor (CF) betw	h Volume Sampler / Dust Meter, (μg	l: h Volume Samj ne Sampler.	pler and The result was used to g	enerate the Correlation
In-house method The Dust Monito Factor (CF) betw	In according to the instruction manual or was compared with a calibrated Higween the Dust Monitor and High Volumers are weighted by HOKLAS laborated.	l: h Volume Samj ne Sampler.	pler and The result was used to g	enerate the Correlation

Digital Dust Indicator



Date of Calibration 29-Sep-22

Certificate of Calibration

Description:

Manufacturer:	Sibata Scienti	fic Technology LTD.	_	Validity of Calib	ration Record	29-Nov-22
Model No.:	LD-5R					
Serial No.:	972779					
Equipment No.:	SA-01-08		Sensitivity	0.001 mg/m3	_	
High Volume Sa	mpler No.:	A-01-03	Before Sensiti	vity Adjustment	744 CPM	
Tisch Calibration	n Orifice No.:	3864	After Sensitiv	ty Adjustment	744 CPM	
		Ca	libration of 1 h	r TSP		
Calibration		Laser Dust Monitor	•		HVS	
Point	М	[ass Concentration (μg/ X-axis	(m3)	Ma	ss concentration (µ Y-axis	ig/m ³)
1		75.0			158.0	
2		64.0			136.0	
3		52.0			111.0	
Average		63.7			135.0	
By Linear Regr Slope , mw = Correlation co	2.04			cept, bw =	4.8602	
		Se	t Correlation F	actor		
Particaulate Con	centration by I	Se High Volume Sampler (actor	135.0	
	·			actor	135.0 63.7	
Particaulate Con Measureing time	centration by I	High Volume Sampler		actor		
Particaulate Con Measureing time Set Correlation I	centration by I c, (min) Factor, SCF	High Volume Sampler	(μg/m³)	actor 2.1	63.7	
Particaulate Con Measureing time Set Correlation I SCF = [K=High	centration by I e, (min) Factor , SCF h Volume Sam	High Volume Sampler (Dust Meter (μg/m ³)	(μg/m³) g/m3)]		63.7	
Particaulate Con Measureing time Set Correlation F SCF = [K=High In-house method The Dust Monito Factor (CF) betw	centration by I c, (min) Factor, SCF h Volume Sam I in according to the compare ween the Dust M	High Volume Sampler (Dust Meter (μg/m³) npler / Dust Meter, (μ	g/m3)] al: gh Volume Samme Sampler.	2.1 pler and The result	63.7	rate the Correlation
Particaulate Con Measureing time Set Correlation I SCF = [K=High In-house method The Dust Monito Factor (CF) betw Those filter pap Calibrated by:	centration by I c, (min) Factor, SCF h Volume Sam I in according to the compare ween the Dust Morers are weigh	High Volume Sampler (Dust Meter (μg/m³) npler / Dust Meter, (μ o the instruction manual with a calibrated High Monitor and High Volu	g/m3)] al: gh Volume Samme Sampler.	2.1 Deler and The result Litimed) Approved by:	63.7 60.0	y Xvy

Digital Dust Indicator



29-Sep-22

Date of Calibration

Certificate of Calibration

Description:

•						
Manufacturer:	Sibata Scient	ific Technology LTD.	_	Validity of Calib	ration Record	29-Nov-22
Model No.:	LD-5R					
Serial No.:	972780					
Equipment No.:	SA-01-09		Sensitivity	0.001 mg/m3	_	
High Volume Sa	impler No.:	A-01-03	Before Sensitiv	ity Adjustment	739 CPM	
Tisch Calibratio	n Orifice No.:	3864	After Sensitivi	ty Adjustment	739 CPM	
		Ca	alibration of 1 h	· TSP		
Calibration		Laser Dust Monitor	r		HVS	
Point	N	Mass Concentration (μg/	/m3)	Mas	ss concentration (ug/m ³)
		X-axis			Y-axis	
1		74.0			162.0	
2		65.0			146.0	
3		52.0			116.0	
Average		63.7			141.3	
By Linear Regi Slope , mw = Correlation co	2.10			ept, bw =	7.2343	
		Se	et Correlation F	actor		
Particaulate Con	centration by	High Volume Sampler	$(\mu g/m^3)$		141.3	
Particaulate Con	centration by	Dust Meter (μg/m ³)			63.7	
Measureing time	e, (min)				60.0	
Set Correlation 1	Factor, SCF					
SCF = [K=Hig	h Volume San	npler / Dust Meter, (μ		2.2		
In-house method	l in according	to the instruction manu	al:			
Factor (CF) betw	veen the Dust 1	ed with a calibrated Hi Monitor and High Volu ated by HOKLAS labo	ıme Sampler.		was used to gene	rate the Correlation
Calibrated by Technic		ong Shing Kwai)	_	Approved by:	Ct Manager (Henr	Leung)

Digital Dust Indicator



Date of Calibration 29-Sep-22

Certificate of Calibration

Description:

Manufacturer:	Sibata Scientific Technology LTD.	_	Validity of Calibration	ration Record	29-Nov-22
Model No.:	LD-5R				
Serial No.:	972781				
Equipment No.:	SA-01-10	Sensitivity	0.001 mg/m3	_	
High Volume Sa	mpler No.: <u>A-01-03</u>	Before Sensiti	vity Adjustment	734 CPM	
Tisch Calibration	n Orifice No.: 3864	After Sensitivi	ty Adjustment	734 CPM	
	Cal	libration of 1 h	r TSP		
Calibration	Laser Dust Monitor			HVS	
Point	Mass Concentration (μg/1 X-axis	m3)	Mas	ss concentration (Y-axis	ug/m³)
1	77.0			159.0	
2	65.0			135.0	
3	52.0			110.0	
Average	64.7			134.7	
Slope , mw = Correlation co	1.9595 pefficient* = 0.9999	Interd	cept, bw =	7.9531	
	Set	t Correlation F	actor		
	centration by High Volume Sampler (μg/m ³)		134.7	
	centration by Dust Meter (µg/m³)		64.7		
Measureing time				60.0	
Set Correlation F SCF = [K=Higl	ractor , SCF n Volume Sampler / Dust Meter, (με	g/m3)]	2.1		
The Dust Monitor Factor (CF) betw	in according to the instruction manual or was compared with a calibrated Hig geen the Dust Monitor and High Volumers are weighted by HOKLAS labor	gh Volume Samp me Sampler.		was used to gene	rate the Correlation
Calibrated by:	al Officer (Wong Shing Kwai)	_	Approved by: Projec	len et Manager (Henr	y X27 y Leung)





RECALIBRATION DUE DATE:

January 31, 2023

Certificate of Calibration

Calibration Certification Information

Cal. Date: January 31, 2022

Rootsmeter S/N: 438320

Ta: 294 °K

Pa: 752.6

Operator: Jim Tisch

mm Hg

Calibration Model #:

TE-5025A

Calibrator S/N: 3864

	Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔН
Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(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	Qstd $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right) \left(\frac{Tstd}{Ta}\right)}$			Qa	√∆H(Ta/Pa)			
(m3)	(x-axis)	(y-axis)	Va	(x-axis)	(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			
	m=	2.09281		m=	1.31048			
QSTD	b= -0.02426		QA [b=	-0.01514			
	r=	0.99993	,	r=	0.99993			

	Calculatio	ns	
Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	Va=	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/∆Time	Qa=	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=	$1/m\left(\left(\sqrt{\Delta H(Ta/Pa)}\right)-b\right)$

	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)
Ta: actual ab	solute temperature (°K)
Pa: actual ba	rometric 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



Certificate of Calibration - Wind Monitoring Station

Description: Yau Lai Estate, Bik Lai House

Manufacturer: <u>Davis Instruments</u>

Model No.: <u>Davis7440</u>

Serial No.: MC01010A44

Equipment No.: <u>SA-03-04</u>

Date of Calibration 19-Aug-2022

Next Due Date 19-Feb-2023

1. Performance check of Wind Speed

Wind Sp	peed, 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	2.6	-0.1		
4.0	4.0	0.0		

2. Performance check of Wind Direction

Wind Di	rection (°)	Difference D (°)		
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:

Wong Shing Kwai

Approved by:

Henry/Leung



Certificate of Calibration

Description:	Digital Dust Indicator			Date of Calibration 29-Sep-22			
Manufacturer:	Sibata Scienti	fic Technology LTD.	_	Validity of Calibra	tion Record	29-Nov-22	
Model No.:	LD-5R						
Serial No.:	8Y2374						
Equipment No.:	SA-01-04		Sensitivity	0.001 mg/m3			
High Volume Sa	mpler No.:	A-01-03	Before Sensiti	vity Adjustment	652		
Tisch Calibration	n Orifice No.:	3864	After Sensitivi	ty Adjustment	652		
		Ca	libration of 1 h	r TSP			
Calibration		Laser Dust Monitor			HVS		
Point	M	ass Concentration (μg/	m3)	Mass	concentration (µ	g/m^3)	
1		X-axis			Y-axis		
2		72.0 65.0			153.0 135.0		
3		54.0			116.0		
Average		63.7		134.7			
Slope , mw = Correlation co	2.020 pefficient* =	0.9937		eept, bw =	5.6579		
			t Correlation F	actor			
		High Volume Sampler ((µg/m³)	134.7			
	•	Oust Meter (μg/m ³)		63.7			
Measureing time Set Correlation F					60.0		
		npler / Dust Meter, (μ	g/m3)]	2.1			
In-house method	in according t	o the instruction manua	al:				
Factor (CF) betw	een the Dust N	ed with a calibrated Hig Monitor and High Volu ted by HOKLAS labo	me Sampler.		vas used to gener	ate the Correlation	
Calibrated by:		ng Shing Kwai)	_		Manager (Henry	.,	



Certificate of Calibration

Description:	Laser Dust Monitor			Date of Calibration 29-Sep-22		
Manufacturer:	Sibata Scientif	ic Technology LTD.		Validity of Calibra	tion Record	29-Nov-22
Model No.:	LD-3B					
Serial No.:	2Y6194					
Equipment No.:	SA-01-02		Sensitivity	0.001 mg/m3		
High Volume Sa	mpler No.:	A-01-03	Before Sens	itivity Adjustment	578	
Tisch Calibration	n Orifice No.:	3864	After Sensit	ivity Adjustment	578	
		Calibra	tion of 1 hr T	TSP		
Calibration		Laser Dust Monitor			HVS	
Point	Total Count	Count / Minute X-axis		Mass	concentration (µ Y-axis	ug/m³)
1	4150	69.2			173.0	
2	3650	60.8			153.0	
3	2950	49.2			128.0	
Aver	age	59.7			151.3	
By Linear Regr Slope , mw =	ression of Y on 2.24		Inte	ercept, bw =	17.3693	<u> </u>
Correla	ation coefficien	t* = 0.99	95	-		
Set Correlation F SCF = [K=Higl		pler / Dust Meter, (μ g/m3)]		2.5		
The Dust Monito (CF) between the Those filter pap	or was compared e Dust Monitor pers are weight	the instruction manual: I with a calibrated High Volume and High Volume Sampler. The control of the control o	-	ed)	1 0	Correlation Factor
Calibrated by: Technic		ng Shing Kwai)		Approved by:	Project Manager	(Henry Leung)