High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



File No. MA16034/05/0038

Project No.	AM1 - Tin Hau	Temple					
Date:	9-Oct-22		Next Due Date: 9-Dec-22		Operator: SK	SK	
Equipment No.:	A-0	1-05	Model No.:	GS2310		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	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}		of water		0) x (298/1a)] •axis
1	13.3		3.64	X - axis 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		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* =	0	.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:	9-0	et-22	Next Due Date:	: 9-Dec-22 : GS2310		Operator:	SK
Equipment No.:	A-0	1-08	Model No.:			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	Next Due Date: 9-Dec-22		Operator:	SK	
Equipment No.:	A-0	01-03	Model No.:	GS2310		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	<u>.</u>	2.25		3.2 1.9	1.79	
	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 103 Cha Kwo Ling Village							
Date:	5-Sep-22		Next Due Date: 5-N		Nov-22 Operate		SK
Equipment No.:	A-0	1-55	Model No.:	1 No.: TE 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		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 acco	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

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



File No. MA20003/55/017 Project No. CKL 2 - Flat 103 Cha Kwo Ling Village 5-Nov-22 Next Due Date: 5-Jan-23 Date: Operator: SK Equipment No.: A-01-55 Model No.: TE 5170 Serial No. 1956 **Ambient Condition** Temperature, Ta (K) 294.5 Pressure, Pa (mmHg) 764.3 **Orifice Transfer Standard Information** 0.05922 Intercept, bc 3864 Slope, mc -0.02420 Serial No. $mc \times Ostd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ Last Calibration Date: 31-Jan-22 Qstd = $\{ [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} -bc \} / mc$ 31-Jan-23 Next Calibration Date: **Calibration of TSP Sampler** Orfice HVS Calibration $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ ΔH (orifice), Ostd (CFM) ΔW (HVS), in. Point $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ in. of water X - axis of water Y-axis 1 12.5 3.57 60.63 9.6 3.13 2 10.5 3.27 55.61 7.3 2.73 2.92 49.78 5.5 2.37 4 5.1 2.28 38.88 2.9 1.72 2.7 1.7 5 1.66 28.40 1.32 By Linear Regression of Y on X Intercept, bw :____ -0.3652 Slope , mw = 0.0560 Correlation coefficient* = 0.9931 *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 x Qstd + bw = $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ Remarks: Conducted by: Wong Shing Kwai Checked by: Henry Leung



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 D	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





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		
7	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	ite 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

Digital Dust Indicator



Date of Calibration 29-Sep-22

Certificate of Calibration

Description:

Manufacturer:	Sibata Scientific Technology LTD.	_	Validity of Calibr	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)	Mass concentration (μg/m³) Y-axis			
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	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:	al Officer (Wong Shing Kwai)	_	Approved by: Projec	len et Manager (Henr	y X27 y Leung)	

Digital Dust Indicator



Date of Calibration 29-Nov-22

Certificate of Calibration

Description:

Manufacturer:	Sibata Scientific Technology LTD.	_	Validity of Calibr	ation Record	29-Jan-23				
Model No.:	LD-5R								
Serial No.:	972781								
Equipment No.:	SA-01-10	Sensitivity	0.001 mg/m3						
High Volume San	mpler No.: <u>A-01-03</u>	Before Sensitiv	vity Adjustment	734 CPM					
Tisch Calibration	o Orifice No.: 3864	After Sensitivi	ty Adjustment	734 CPM					
	Calibration of 1 hr TSP								
Calibration	Laser Dust Monitor			HVS					
Point	Mass Concentration (μg/1 X-axis	m3)	Mas	ss concentration (µ Y-axis	ıg/m³)				
1	71.0			133.0					
2	64.0			115.0					
3	52.0			94.0					
Average	62.3			114.0					
Slope , mw = Correlation co	2.0199 efficient* = 0.9943	Interd	eept, bw =	-11.9043	l <u> </u>				
		Correlation F	actor						
	centration by High Volume Sampler (μg/m³)	114.0						
	centration by Dust Meter (µg/m³)		62.3						
Measureing time	· · · ·			60.0					
Set Correlation F SCF = [K=High	actor, SCF n Volume Sampler / Dust Meter, (μg	g/m3)]	1.8						
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: Technica	al Officer (Wong Shing Kwai)	-	Approved by: Projec	t Manager (Henry	Leung)				

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	ag/m3)]	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)



Certificate of Calibration

Description:	Digital Dust I	ndicator		Date	of Calibration	29-Nov-22
Manufacturer:	Sibata Scienti	fic Technology LTD.	_	Validity of Calibration Record2		29-Jan-23
Model No.:	LD-5R					
Serial No.:	972780					
Equipment No.:	SA-01-09		Sensitivity	0.001 mg/m3		
High Volume Sa	mpler No.:	A-01-03	Before Sensit	vity Adjustment	739 CPM	
Tisch Calibration	n Orifice No.:	3864	After Sensitiv	ity Adjustment	739 CPM	
		Ca	libration of 1 h	r TSP		
Calibration		Laser Dust Monitor			HVS	
Point	Mass Concentration (μg/m3) X-axis		Mas	s concentration (µ Y-axis	ug/m³)	
1		69.0			133.0	
2	59.0			115.0		
3	49.0		94.0			
Average		59.0		114.0		
Slope , mw = Correlation co	1.950 pefficient* =	0.9990		cept, bw =	-1.0500	
<u> </u>		0.9990			-1.0500	
Correlation co	Defficient* =	0.9990 Se	t Correlation I		-1.0500 114.0	
Correlation co	centration by I	0.9990 Se	t Correlation I		114.0 59.0	
Particaulate Con Particaulate Con Measureing time	centration by I centration by I centration by I	0.9990 Se	t Correlation I		114.0	
Particaulate Con Particaulate Con Measureing time Set Correlation I	centration by I centration by I centration by I centration by I centration by I	0.9990 Se High Volume Sampler (Dust Meter (μg/m³)	t Correlation I	actor	114.0 59.0	
Particaulate Con Particaulate Con Measureing time Set Correlation I	centration by I centration by I centration by I centration by I centration by I	0.9990 Se	t Correlation I		114.0 59.0	
Particaulate Con Particaulate Con Measureing time Set Correlation I SCF = [K=High In-house method The Dust Monito Factor (CF) betw	centration by I centration by	0.9990 Se High Volume Sampler (Dust Meter (μg/m³)	t Correlation I (μg/m³) g/m3)] al: gh Volume Samme Sampler.	1.9	114.0 59.0 60.0	
Particaulate Con Particaulate Con Measureing time Set Correlation I SCF = [K=Hig In-house method The Dust Monito Factor (CF) betw	centration by I centration by	O.9990 See High Volume Sampler (Oust Meter (μg/m³) Appler / Dust Meter, (με o the instruction manual with a calibrated High Monitor and High Volumes)	t Correlation I (μg/m³) g/m3)] al: gh Volume Samme Sampler.	1.9	114.0 59.0 60.0	

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	Set Correlation F				
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



Date of Calibration 29-Nov-22

Certificate of Calibration

Description:

Manufacturer:	Sibata Scient	ific Technology LTD.	_	Validity of Calibi	ration Record	29-Jan-23
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 Sensitivi	ty Adjustment	744 CPM	
		Cal	libration of 1 h	r TSP		
Calibration		Laser Dust Monitor		HVS		
Point	M	Iass Concentration (μg/1 X-axis	m3)	Mas	ss concentration (µ Y-axis	\lg/m^3)
1		67.0			133.0	
2		56.0			115.0	
3		47.0			94.0	
Average	56.7			114.0		
Slope , mw = Correlation co	1.93 pefficient* =	0.9948		cept, bw =	4.1495	
			t Correlation F	actor		
		High Volume Sampler (μg/m³)		114.0	
Measureing time	•	Oust Meter (μg/m³)			56.7 60.0	
Set Correlation I	<u> </u>				00.0	
		npler / Dust Meter, (μ	g/m3)]	2.0		
The Dust Monitor Factor (CF) betw	or was compare veen the Dust I	to the instruction manual of with a calibrated High Monitor and High Volumeted by HOKLAS laborated	gh Volume Samp me Sampler.		was used to gener	rate the Correlation
Calibrated by:		ng Shing Kwai)	_	Approved by: Projec	- lenry	Leung)



Certificate of Calibration

It i	is certified t	that the	e item unde	r calibration	has been	calibrated by	corresponding	g calibrated High	Nolume Sami	oler

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/m3) X-axis		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



29-Nov-22

Date of Calibration

Certificate of Calibration

Description:

T+ 3	is certified that	the item under	calibration ba	s been calibrated l	by corresponding	colibrated High	Voluma Samplar
$I \iota$	is certified that	the item under	cambration na	s been canbrated i	ov corresponding	canorated High	volume Sambler

-						
Manufacturer:	Sibata Scient	ific Technology LTD.	_	Validity of Calib	ration Record	29-Jan-23
Model No.:	LD-5R					
Serial No.:	972778					
Equipment No.:	SA-01-07		Sensitivity _	0.001 mg/m3	_	
High Volume Sa	mpler No.:	A-01-03	Before Sensitiv	ity Adjustment	735 CPM	
Tisch Calibration	n Orifice No.:	3864	After Sensitivit	y Adjustment	735 CPM	
		Ca	libration of 1 hr	TSP		
C 17 4		Laser Dust Monitor			HVS	
Calibration Point	N	fass Concentration (μg/	(m3)	Mass concentration (μg/m³)		
		X-axis			Y-axis	
1		63.0		133.0		
2		56.0			115.0	
3		45.0			94.0	
Average		54.7			114.0	
Slope , mw = Correlation co		0.9965		ept, bw =	-3.1903	
		Se	t Correlation Fa	ector		
		High Volume Sampler	$(\mu g/m^3)$		114.0	
Particaulate Con	centration by l	Dust Meter (μg/m³)			54.7	
Measureing time	e, (min)				60.0	
Set Correlation I SCF = [K=Higl		npler / Dust Meter, (μ	g/m3)]	2.1		
The Dust Monitor Factor (CF) betw	or was compar veen the Dust l	to the instruction manual ded with a calibrated High Monitor and High Volunted by HOKLAS laborated	gh Volume Samp me Sampler.		was used to gener	rate the Correlation
Calibrated by:		ong Shing Kwai)	_	Approved by: Projec	Ct Manager (Henry	Leung)



Certificate of Calibration

Description:	Digital Dust I	ndicator		Date of	f Calibration	29-Sep-22
Manufacturer:	Sibata Scienti	fic Technology LTD.	_	Validity of Calibration Record 2		29-Nov-22
Model No.:	LD-5R					
Serial No.:	8Y2373					
Equipment No.:	SA-01-05		Sensitivity	0.001 mg/m3		
High Volume San	mpler No.:	A-01-03	Before Sensiti	vity Adjustment	657	
Tisch Calibration	Orifice No.:	3864	After Sensitiv	ty Adjustment	657	
		Ca	libration of 1 h	r TSP		
Calibration		Laser Dust Monitor			HVS	
Point	Mass Concentration (μg/m3)			Mass	concentration (µ	g/m^3)
1		X-axis			Y-axis	
2		74.0 67.0			160.0 142.0	
3	55.0			120.0		
Average	65.3			140.7		
Slope , mw = Correlation co	2.075 efficient* =	0.9957		cept, bw =	5.0469	
			t Correlation F	actor		
		High Volume Sampler ((μg/m³)		140.7	
	•	Oust Meter (μg/m ³)			65.3	
Measureing time. Set Correlation F					60.0	
		npler / Dust Meter, (μ	g/m3)]	2.2		
	•	o the instruction manua				
Factor (CF) betw	een the Dust N	ed with a calibrated Hig Monitor and High Volu ted by HOKLAS labo	me Sampler.		as used to gener	ate the Correlation
Calibrated by:	al Officer (Wor	ng Shing Kwai)	_		Manager (Henry	,,



Certificate of Calibration

Description:	Digital Dust I	gital Dust Indicator		Date of Calibration 29-1		29-Nov-22
Manufacturer:	Sibata Scienti	fic Technology LTD.	_	Validity of Calibration Record		29-Jan-23
Model No.:	LD-5R					
Serial No.:	8Y2373					
Equipment No.:	SA-01-05		Sensitivity	0.001 mg/m3		
High Volume Sa	mpler No.:	A-01-03	Before Sensiti	vity Adjustment _	657	
Tisch Calibration	Orifice No.:	3864	After Sensitiv	ity Adjustment	657	
		Ca	libration of 1 h	r TSP		
Calibration		Laser Dust Monitor	•		HVS	
Point	M	ass Concentration (μg/ X-axis	(m3)	Mass	concentration (µ	\lg/m^3)
1		70.0			Y-axis 133.0	
2		64.0			115.0	
3	53.0			94.0		
Average	62.3		114.0			
Slope , mw = Correlation co	2.240 efficient* =	0.9923		cept, bw =	-26.0404	
D	1 . 7		t Correlation F	Tactor I		
	-	High Volume Sampler (Oust Meter (μg/m³)	(μg/m³)		114.0	
Measureing time	•	Just Meter (μg/III)			62.3	
Set Correlation F	· ·				00.0	
		npler / Dust Meter, (μ	g/m3)]	1.8		
The Dust Monitor Factor (CF) betw	or was compare een the Dust N	o the instruction manual of with a calibrated High Monitor and High Voluted by HOKLAS laborated	gh Volume Sam me Sampler.		vas used to gener	rate the Correlation
Calibrated by:		0L	_	Approved by:	\-lem	y day



Certificate of Calibration

Description:	Digital Dust I	igital Dust Indicator		Date of Calibration 29-Sep		29-Sep-22
Manufacturer:	Sibata Scienti	fic Technology LTD.	_	Validity of Calibration 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	Mass Concentration (μg/m3)			Mass	concentration (µ	\lg/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:	Digital Dust Indicator	Date of Calibration_		29-Nov-22	
Manufacturer:	Sibata Scientific Technology LTD.	Validity of Ca	alibration Record	29-Jan-23	
Model No.:	LD-5R				
Serial No.:	8Y2374				
Equipment No.:	SA-01-04	Sensitivity 0.001 mg/m	3		
High Volume Sa	ampler No.: <u>A-01-03</u>	Before Sensitivity Adjustmen	t <u>652</u>		
Tisch Calibratio	n Orifice No.: 3864	After Sensitivity Adjustment	652		
	Ca	libration of 1 hr TSP			
Calibration	Laser Dust Monitor	•	HVS		
Point	Mass Concentration (μg/ X-axis	(m3)	Mass concentration (μg/m ³) Y-axis		
1	69.0		133.0		
2	62.0		115.0		
3	51.0		94.0		
Average	60.7		114.0		
Slope , mw = Correlation co		Intercept, bw =	-16.0520	<u>, </u>	
- · · · ·		t Correlation Factor			
	ncentration by High Volume Sampler	(μg/m ²)	114.0		
Measureing time	ncentration by Dust Meter (μg/m³)		60.7		
Set Correlation			00.0		
	h Volume Sampler / Dust Meter, (μ	g/m3)]	1.9		
In-house method				i i	
Factor (CF) bety	I in according to the instruction manual or was compared with a calibrated Higween the Dust Monitor and High Volupers are weighted by HOKLAS laborated	gh Volume Sampler and The re me Sampler.	sult was used to gene	rate the Correlation	



Certificate of Calibration

Description:	Laser Dust Monitor			Date of Calibration 29-Sep-22			
Manufacturer:	Sibata Scientific Technology LTD.			Validity of Calibration Record 29-Nov-22		29-Nov-22	
Model No.:	LD-3B						
Serial No.:	2Y6194						
Equipment No.:	SA-01-02			Sensitivity	0.001 mg/m3		
High Volume Sa	ampler No.:	A-01-03		Before Sens	sitivity Adjustment	578	
Tisch Calibratio	n Orifice No.:	3864		After Sensi	tivity Adjustment	578	
			Calibra	tion of 1 hr	ГSP		
Calibration		Laser Du	st Monitor			HVS	
Point	Total Count		Count / Minute X-axis		Mass	s concentration (Y-axis	ug/m³)
1	4150		69.2			173.0	
2	3650		60.8		153.0		
3	2950		49.2			128.0	
Avei	rage		59.7			151.3	
By Linear Regi Slope , mw =	ression of Y on 2.24			Inte	ercept, bw =	17.3693	3
Correl	ation coefficien	t* =	0.99	95	_		
Set Correlation l SCF = [K=Hig		oler / Dust Mo	eter, (μ g/m3)]		2.5		
(CF) between th	or was compared e Dust Monitor	l with a calibr and High Volu	ated High Volum	_	nd The result was use	d to generate the	Correlation Factor
Calibrated by: Techni	cal Officer (Wo	ng Shing Kwa	ii)		•	Project Manager	(Henry Leung)



Certificate of Calibration

Description:	Laser Dust Monitor			Date of Calibration 29-Nov-22		
Manufacturer:	Sibata Scientific Technology LTD.			Validity of Calibration Record 29		29-Jan-23
Model No.:	LD-3B					
Serial No.:	2Y6194					
Equipment No.:	SA-01-02		Sensitivity	0.001 mg/m3		
High Volume Sa	impler No.:	A-01-03	Before Sensitivity Adjustment 578			
Tisch Calibratio	n Orifice No.:	3864	After Sensitivity Adjustment 578			
		Calibra	tion of 1 hr T	SP		
Calibration		Laser Dust Monitor	HVS			
Point	Total Count	Count / Minute X-axis		Mass	concentration (µ Y-axis	ıg/m³)
1	4080	68.0			133.0	
2	3600	60.0			115.0	
3	2880	48.0		94.0		
Avei	age	58.7		114.0		
By Linear Regression of Y on X Slope , mw = 1.9342 Intercept, bw = 0.5263 Correlation coefficient* = 0.9975						
Set Correlation l SCF = [K=High		oler / Dust Meter, (μ g/m3)]		1.9		
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 Limited)						
	Calibrated by: Approved by: Learn Manager (Henry Leung) Technical Officer (Wong Shing Kwai) Project Manager (Henry Leung)					

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

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



Report No. : 00288 Issue Date : 10 Nov 2022

Application No. : HP00176

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-13-03

Manufacturer: : SOUNDTEK

Other information : Model No. ST-120

Serial No. 181001637

Date Received : 10 Nov 2022

Test Period : 10 Nov 2022 to 10 Nov 2022

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. : 00288 | Issue Date : 10 Nov 2022

Application No. : HP00176

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.	570183	
Microphone No.	570605	
Equipment No.	N-12-01	

Test Result

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.1	+ 0.1	± 0.3
114.0	114.2	+ 0.2	± 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 -

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 -

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

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



Report No. : 00181 Issue Date : 24 May 2022

Application No. : HP00060

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-12-06

Manufacturer: : BSWA Technology

Other information :

Model No.	BSWA 308
Serial No.	580156
Microphone No.	580804

Date Received : 16 May 2022

Test Period : 24 May 2022 to 24 May 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. : 00181 Issue Date : 24 May 2022

Application No. : HP00060

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	114.1	+0.1	± 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. : 00171 Issue Date : 01 Apr 2022

Application No. : HP00046

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-12-05

Manufacturer: : BSWA Technology

Other information :

Model No.	BSWA 308
Serial No.	580287
Microphone No.	570610

Date Received : 25 Mar 2022

Test Period : 30 Mar 2022 to 30 Mar 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. : 00171 Issue Date : 01 Apr 2022

Application No. : HP00046

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	94.0	0.0	± 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 -