# **High-Volume TSP Sampler** 5-POINT CALIBRATION DATA SHEET



File No. MA16034/05/0043

Project No.	AM1 - Tin Hau	Temple					
Date:	12-A	ug-23	Next Due Date:	12-	Oct-23	Operator:	SK
Equipment No.:	A-0	1-05	•		S2310	· <del>-</del>	10599
1 1			•			_	
			Ambient C	ondition			
Temperatur	re, Ta (K)	302	Pressure, Pa	(mmHg)		752.7	
		Or	ifice Transfer Star	ndard Informa	tion		
Serial	No.	3864	Slope, mc	0.05928	Intercept		-0.03491
Last Calibra	ation Date:	16-Jan-23			$c = [\Delta H \times (Pa/760]]$		
Next Calibra	ation Date:	16-Jan-24		$Qstd = \{ [\Delta H \ x] $	(Pa/760) x (298/7	[a)] <sup>1/2</sup> -bc} / n	nc
	T		Calibration of T	<b>ISP Sampler</b>			
Calibration	AII (orifica)		fice	Oatd (CEM)	AW (IIVG) :-	HVS	(200/T-)1 <sup>1/2</sup>
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	$(50) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water		760) x (298/Ta)] <sup>1/2</sup> <b>Y-axis</b>
1	13.2		3.59	61.18	9.2		3.00
2	10.6	1	3.22	54.88	7.0		2.62
3	7.5	2.71		46.26	5.0		2.21
4	5.5	2.32		39.70	3.0		1.71
5	3.0		1.71	29.47	1.6		1.25
By Linear Regr Slope, mw = Correlation of *If Correlation C	0.0557 coefficient* =	0	.9973	intercept, bw =	-0.422	3	
			Set Point Ca	lculation			
From the TSP Fig. From the Regress	sion Equation, th	e "Y" value acco			98/Ta)] <sup>1/2</sup> 3.99		
Remarks:  Conducted by:	Wong Sh	ing Kwai	Signature:	<i>\tau</i>	<u></u>	Date: _	12-Aug-23
Checked by:	Henry	Leung	Signature:	1- tem	y May	Date:	12-Aug-23

# **High-Volume TSP Sampler**

#### 5-POINT CALIBRATION DATA SHEET



File No. MA16034/08/0043

Project No.	AM2 - Sai Tso V	Wan Recreation	Ground			·	
Date:	12-A	ug-23	Next Due Date:	12-	Oct-23	Operator:	SK
Equipment No.:	A-0	1-08	Model No.: G		S2310	Serial No.	1287
			Ambient C	Condition			
Temperatur	re, Ta (K)	302	Pressure, Pa			752.7	
Serial	No	3864	ifice Transfer Star			· ho	-0.03491
Last Calibra		16-Jan-23	Slope, mc	0.05928	Intercept $c = [\Delta H \times (Pa/760)]$		
Next Calibra		16-Jan-24			$(Pa/760) \times (298/7)$		
Next Canor	ation Date.				(1 a/ 100) X (200)	[a/] -bc// m	<u>v</u>
		•	Calibration of	TSP Sampler			
Colibration		Or	fice	_		HVS	
Calibration Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	50) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of water		50) x (298/Ta)] <sup>1/2</sup> -axis
1	13.3		3.61	61.41	9.0		2.97
2	10.4		3.19	54.37	6.6		2.54
3	7.6		2.73	46.56	4.9	2	2.19
4	5.3		2.28	38.98	3.2		1.77
5	3.0		1.71	29.47	1.7		1.29
	coefficient* =		.9993 calibrate.	-			
			Set Point C	alculation			
From the TSP Fi	eld Calibration C	Curve, take Qstd					
From the Regres	sion Equation, th	e "Y" value acco	ording to				
				(D. /E(0) (0)	NO /TE > 11/2		
		mw x (	$\mathbf{Qstd} + \mathbf{bw} = [\mathbf{\Delta W} \ \mathbf{x}]$	x (Pa//60) x (29	98/Ta)]		
Therefore, Se	et Point; W = ( m	w x Qstd + bw)	<sup>2</sup> x ( 760 / Pa ) x ( ′	Γa / 298 ) =	4.04		
Remarks:							
				t.	1		
Conducted by:	Wong Sh	ing Kwai	Signature:		<u> </u>	Date:	12-Aug-23
Checked by:	Henry	Leung	Signature:	-lem	y day	Date:	12-Aug-23

# **High-Volume TSP Sampler** 5-POINT CALIBRATION DATA SHEET



File No. MA16034/03/0043

Project No.	AM3 - Yau Lai	Estate, Bik Lai I	House			_	
Date:	12-A	ug-23	Next Due Date:	12-	Oct-23	Operator:	SK
Equipment No.:	ment No.: A-01-03				S2310	Serial No.	10379
			Ambient C	ondition			
Temperatu	re, Ta (K)	302	Pressure, Pa	(mmHg)		752.7	
		-					
Serial	No	3864	Slope, mc	0.05928		t ho	-0.03491
Last Calibra		16-Jan-23	Slope, mc   0.05928   Intercept, bc   -0.03491   $mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$				
Next Calibra		16-Jan-24			(Pa/760) x (298/		
	-						
			Calibration of	TSP Sampler			
Calibration		Oı	rfice	ı		HVS	• 10
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	60) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of water		0) x (298/Ta)] <sup>1/2</sup> •axis
1	12.9	1	3.55	60.48	8.6	2	90
2	10.2	3.16		53.85	6.4		2.50
3	8.2	2.83		48.34	4.6		2.12
5	5.2 2.8		2.25 1.65	38.62 28.49	2.9 1.7		.68
	coefficient* =		.9934	Intercept, bw :	-0.210	<del>,</del>	
			Set Point Ca	alculation			
	eld Calibration C	ne "Y" value acco		x (Pa/760) x (29	98/Ta)] <sup>1/2</sup>		
Therefore, Se	et Point; W = ( m	w x Qstd + bw)	<sup>2</sup> x ( 760 / Pa ) x ( 7	Γa / 298 ) =	3.89		
Remarks:							
Conducted by:	Wong Sh	ning Kwai	Signature:		<u></u>	Date:	12-Aug-23
Checked by:	Henry	Leung	Signature:	\-lem	y Xoy	Date:	12-Aug-23

# **High-Volume TSP Sampler**

#### 5-POINT CALIBRATION DATA SHEET



File No. MA20003/55/020

Project No.	CKL 2 - Flat 10	3 Cha Kwo Ling	Village				
Date:	4-Ju	11-23	Next Due Date:	4-5	Sep-23	Operator:	SK
Equipment No.:	A-0	1-55	Model No.:	TE	E 5170	Serial No.	1956
		202.2	Ambient C		T		
Temperatu	re, Ta (K)	302.3	Pressure, Pa	(mmHg)		756.6	
		Ori	fice Transfer Sta	ndard Inform	ation		
Serial	No.	3864	Slope, mc	0.05928	Intercept		-0.03491
Last Calibra	ation Date:	16-Jan-23			$c = [\Delta H \times (Pa/760)]$		
Next Calibra	ation Date:	16-Jan-24		$\mathbf{Qstd} = \{ [\Delta \mathbf{H} \ \mathbf{x} ] \}$	(Pa/760) x (298/7	Ta)] <sup>1/2</sup> -bc} / mo	:
			Calibration of	TSP Sampler			
Calibration	ATT ('C')	Or	fice	0 +1 (CEN)	ANT (TIME) :	HVS	o) (200 FL) 1/2
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	0) x $(298/Ta)$ ] <sup>1/2</sup>	Qstd (CFM) X - axis	$\Delta$ W (HVS), in. of water		0) x (298/Ta)] <sup>1/2</sup> -axis
1	12.9		3.56	60.61	9.8		3.10
2	10.9		3.27	55.76	7.8	2	2.77
3	8.8		2.94	50.16	6.0	2	2.43
4	5.0		2.22	37.96	2.8	1	.66
5	3.0		1.72	29.53	1.7	1	.29
By Linear Regr	ession of Y on Σ	ζ.					
Slope, mw =	0.0589	_		Intercept, bw	-0.505	59	
Correlation	coefficient* =	0	9977	=			
*If Correlation C	Coefficient < 0.99	00, check and rec	calibrate.				
			Set Point C	alculation			
From the TSP Fi	eld Calibration (	Curve, take Qstd	= 43 CFM				
From the Regres	sion Equation, th	ne "Y" value acco	ording to				
		mw x Q	$std + bw = [\Delta W]$	x (Pa/760) x (29	98/Ta)] <sup>1/2</sup>		
			2				
Therefore, Se	et Point; W = ( m	w x Qstd + bw)	<sup>2</sup> x ( 760 / Pa ) x (	Ta / 298) =	4.18		
Remarks:							
comarks.							
				1.	<u> </u>		
Conducted by:	Wong Sh	ing Kwai	Signature:	X	<u>}\_</u> -	Date:	4-Jul-23
-			-	1			
Checked by:	Henry	Leung	Signature:	- Pen	g Mong	Date:	4-Jul-23
					, ,		

# **High-Volume TSP Sampler** 5-POINT CALIBRATION DATA SHEET



File No. MA20003/55/021

Project No.	CKL 2 - Flat 10	3 Cha Kwo Ling	Village						
Date:	4-Se	ep-23	Next Due Date:	4-N	Nov-23	Operator:	SK		
Equipment No.:		01-55		TE	E 5170	Serial No.	1956		
			Ambient C	ondition					
Temperatur	re. Ta (K)	302.9	Pressure, Pa			751.6			
Temperatur	10, 14 (11)		11055410,14	()		75110			
		Or	ifice Transfer Star	ndard Informa	ntion				
Serial	No.	3864	Slope, mc	0.05928	Intercept	, bc	-0.03491		
Last Calibra	ntion Date:	16-Jan-23	r	mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$					
Next Calibra	ation Date:	16-Jan-24	(	$Qstd = \{ [\Delta H \ x ] \}$	(Pa/760) x (298/7	$[\Gamma a]^{1/2}$ -bc} / mo	:		
			Calibration of T	ΓSP Sampler					
Calibration		Or	fice			HVS			
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	50) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) <b>X - axis</b>	ΔW (HVS), in. of water		0) x (298/Ta)] <sup>1/2</sup> -axis		
1	13.1		3.57	60.81	9.7	3	3.07		
2	11.1	3.29		56.03	7.7	2	2.74		
3	8.9	2.94		50.23	5.9	2	2.40		
4	5.2	2.25		38.53	2.7	1	.62		
5	3.2		1.76	30.35	1.6	1	.25		
	0.0606 coefficient* =	<u> </u>	.9981	Intercept, bw	-0.646	0			
			Set Point Ca	lculation					
From the Regress	sion Equation, th		ording to <b>Qstd</b> + <b>bw</b> = [Δ <b>W x</b>						
Therefore, Se	et Point; W = ( m	nw x Qstd + bw)	<sup>2</sup> x ( 760 / Pa ) x ( 7	Га / 298) =	3.95				
Remarks:									
Conducted by:	Wong Sh	ning Kwai	Signature:	X	<u></u>	Date:	4-Jul-23		
Checked by:	Henry	Leung	Signature:	\-la-	Mong	Date:	4-Jul-23		



#### **Certificate of Calibration**

Tt is	certified that t	the item und	ler calibration b	nas heen	calibrated by	corresponding	calibrated High	Volume Sample
11 15	сеннестна г	ше пеш ша	ег санытанон г	Ias Deen	Cambrated by	COHESDOHUIII9	Cambrated migh	. voiime Jannoie

Description:	Laser Dust Mo	nitor			Date of	of Calibration	31-Jul-23
Manufacturer:	Sibata Scientif	ic Technology	LTD.		Validity of Calibr	ation Record	30-Sep-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 Sensi	tivity Adjustment	578	
Tisch Calibration	n Orifice No.:	3864		After Sensiti	vity Adjustment	578	
			Calibra	ation of 1 hr T	SP		
Calibration		Laser Du	st Monitor			HVS	
Point	Total Count		Count / Minute		Mas	s concentration (µ	ug/m <sup>3</sup> )
			X-axis			Y-axis	
1	4100		73.0			138.0	
2	3700		64.0			120.0	
3 Aver	3000		53.0 <b>63.3</b>			99.0 <b>119.0</b>	
By Linear Regr Slope , mw =	ression of Y on 1.94			Inter	rcept, bw =	-4.4053	
Correlation I SCF = [K=Higl		-	0.99 eter, (μg/m3)]		1.9		
In-house method The Dust Monito (CF) between the Those filter pap	or was compared e Dust Monitor	d with a calibr and High Volu	ated High Volur ame Sampler.		d The result was use	ed to generate the	Correlation Factor
Calibrated by:	cal Officer (Wor	ng Shing Kwa	i)		Approved by:	Project Manager	(Henry Leung)

Digital Dust Indicator



Date of Calibration 31-Jul-23

#### **Certificate of Calibration**

Description:

Manufacturer:	Sibata Scientif	ic Technology LTD.	_	Validity of Calibr	ation Record	30-Sep-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	n Orifice No.:	3864	After Sensitivi	ty Adjustment	657	
		Cal	libration of 1 h	r TSP		
Calibration		<b>Laser Dust Monitor</b>			HVS	
Point	Ma	ass Concentration (μg/1 <b>X-axis</b>	m3)	Mas	s concentration (µ <b>Y-axis</b>	ıg/m³)
1		74.0			135.0	
2		65.0			116.0	
3		54.0			98.0	
Average		64.3			116.3	
Correlation co	oefficient* = _	0.9973	t Correlation F	actor		
Particaulate Con	centration by H	igh Volume Sampler (	2	actor	116.3	
	•	ust Meter (µg/m <sup>3</sup> )	μ <u>β</u> / ΙΙΙ )		64.3	
Measureing time	·	(1.0		60.0		
Set Correlation I	Factor, SCF					
SCF = [ K=High	h Volume Sam	pler / Dust Meter, (με	g/m3) ]	1.8		
The Dust Monitor Factor (CF) betw	or was compared ween the Dust M	o the instruction manual d with a calibrated Hig Ionitor and High Volumed by HOKLAS labo	th Volume Samp me Sampler.		was used to gener	rate the Correlation
Calibrated by:	al Officer (Won	g Shing Kwai)	-	Approved by: Projec	t Manager (Henry	Leung)

Digital Dust Indicator



31-Jul-23

Date of Calibration

#### **Certificate of Calibration**

Description:

•							
Manufacturer:	Sibata Scient	ific Technology LTD.	_	Validity of Calibr	ation Record	30-Sep-23	
Model No.:	LD-5R						
Serial No.:	972777						
Equipment No.:	SA-01-06		Sensitivity	0.001 mg/m3			
High Volume Sa	ampler No.:	A-01-03	Before Sensiti	vity Adjustment	645		
Tisch Calibratio	n Orifice No.:	3864	After Sensitivi	ty Adjustment	645		
		Ca	alibration of 1 h	r TSP			
Calibration		Laser Dust Monito	r		HVS		
Point	N.	Mass Concentration (μg	y/m3)	Mas	s concentration (	μg/m <sup>3</sup> )	
		X-axis		Y-axis			
1		71.0			137.0		
2		63.0			118.0		
3		51.0			98.0		
Average		61.7			117.7		
,	ression of <b>Y</b> or	u A					
Slope , mw = Correlation co	1.92			cept, bw =	-1.2039	<u> </u>	
Slope, mw =	1.92	0.9950			-1.2039	<u> </u>	
Slope , mw = Correlation co	1.92 pefficient* =	0.9950	0 et Correlation F		<b>-1.2039</b> 117.7		
Slope , mw = Correlation co	1.92 pefficient* =	0,9950 Se	0 et Correlation F				
Slope , mw = Correlation co	1.92 pefficient* = accentration by lacentration by lacentratio	0.9950 Set High Volume Sampler	0 et Correlation F		117.7		
Slope , mw = Correlation co  Particaulate Con Particaulate Con	1.92 pefficient* = accentration by lacentration by lacentratio	0.9950 Set High Volume Sampler	0 et Correlation F		117.7 61.7		
Slope , mw = Correlation co  Particaulate Con Particaulate Con Measureing time Set Correlation 1	1.92 pefficient* = acentration by lacentration	0.9950 Set High Volume Sampler	et Correlation F (μg/m³)		117.7 61.7		
Slope , mw = Correlation co  Particaulate Con Particaulate Con Measureing time Set Correlation 1 SCF = [ K=Hig	ncentration by lacentration by	0.9950 Solution Sampler Dust Meter (μg/m³)	et Correlation F (μg/m³)  ug/m3) ]	actor	117.7 61.7		
Slope, mw = Correlation co  Particaulate Con Particaulate Con Measureing time Set Correlation I SCF = [ K=Hig  In-house method The Dust Monito	ncentration by lacentration by	Solution (μg/m³)  The struction manual of the instruction manual of the with a calibrated History (μg/m²)	et Correlation F (μg/m³)  ug/m3) ]  ual: igh Volume Samp	actor	117.7 61.7 60.0		
Slope, mw = Correlation co  Particaulate Con Particaulate Con Measureing time Set Correlation I SCF = [ K=Hig  In-house method The Dust Monito Factor (CF) betw	ncentration by lacentration by	Solution High Volume Sampler  Dust Meter (μg/m³)  Inpler / Dust Meter, (μ  to the instruction manual with a calibrated High Monitor and High Volume Sampler	et Correlation F (μg/m³)  ug/m3) ]  ug/m3) ]  ual:  igh Volume Sampume Sampume Sampler.	1.9	117.7 61.7 60.0		
Slope, mw = Correlation co  Particaulate Con Particaulate Con Measureing time Set Correlation I SCF = [ K=Hig  In-house method The Dust Monito Factor (CF) betw	ncentration by lacentration by	Solution (μg/m³)  The struction manual of the instruction manual of the with a calibrated History (μg/m²)	et Correlation F (μg/m³)  ug/m3) ]  ug/m3) ]  ual:  igh Volume Sampume Sampume Sampler.	1.9	117.7 61.7 60.0		
Slope, mw = Correlation co  Particaulate Con Particaulate Con Measureing time Set Correlation I SCF = [ K=Hig  In-house method The Dust Monito Factor (CF) betw	ncentration by lacentration by	Solution High Volume Sampler  Dust Meter (μg/m³)  Inpler / Dust Meter, (μ  to the instruction manual with a calibrated High Monitor and High Volume Sampler	et Correlation F (μg/m³)  ug/m3) ]  ug/m3) ]  ual:  igh Volume Sampume Sampume Sampler.	1.9	117.7 61.7 60.0		
Slope, mw = Correlation co  Particaulate Con Particaulate Con Measureing time Set Correlation I SCF = [ K=Hig  In-house method The Dust Monito Factor (CF) betw	ncentration by lacentration by	Solution High Volume Sampler  Dust Meter (μg/m³)  Inpler / Dust Meter, (μ  to the instruction manual with a calibrated High Monitor and High Volume Sampler	et Correlation F (μg/m³)  ug/m3) ]  ug/m3) ]  ual:  igh Volume Sampume Sampume Sampler.	1.9	117.7 61.7 60.0 was used to gene		
Slope, mw = Correlation co  Particaulate Con Particaulate Con Measureing time Set Correlation I SCF = [ K=Hig  In-house method The Dust Monite Factor (CF) betw Those filter pap	ncentration by lacentration by	Solution High Volume Sampler  Dust Meter (μg/m³)  Inpler / Dust Meter, (μ  to the instruction manual with a calibrated High Monitor and High Volume Sampler	et Correlation F (μg/m³)  ug/m3) ]  ug/m3) ]  ual:  igh Volume Sampume Sampume Sampler.	1.9 pler and The result Litimed) Approved by:	117.7 61.7 60.0 was used to gene	rate the Correlation	

Digital Dust Indicator



31-Jul-23

Date of Calibration

#### **Certificate of Calibration**

Description:

Manufacturer:	Sibata Scientific Technology LTD.	Validity of Calib	ration Record 30-Sep-23				
Model No.:	LD-5R						
Serial No.:	972778						
Equipment No.:	SA-01-07	Sensitivity 0.001 mg/m3	_				
High Volume Sa	ampler No.: A-01-03	Before Sensitivity Adjustment	735 CPM				
Tisch Calibratio	n Orifice No.: 3864	After Sensitivity Adjustment	735 CPM				
	Ca	libration of 1 hr TSP					
Calibration	Laser Dust Monitor	r	HVS				
Point	Mass Concentration (μg/	/m3) Ma	ss concentration (μg/m <sup>3</sup> )				
	X-axis		Y-axis				
1	70.0		137.0				
2	61.0		119.0				
3	50.0		98.0				
Average	60.3		118.0				
Slope , mw = Correlation co			0.4402				
D 1 1 C		et Correlation Factor	110.0				
	ncentration by High Volume Sampler	(μg/m²)	118.0				
Measureing time	centration by Dust Meter (μg/m³)		60.3				
Set Correlation l		1	00.0				
	h Volume Sampler / Dust Meter, (μ	g/m3) ]					
The Dust Monitor Factor (CF) betw	I in according to the instruction manuor was compared with a calibrated Higween the Dust Monitor and High Volupers are weighted by HOKLAS laboration.	gh Volume Sampler and The resultume Sampler.	was used to generate the Correlation				
Calibrated by	al Officer (Wong Shing Kwai)	_ Approved by: Proje	ct Manager (Henry Leung)				

Digital Dust Indicator



Date of Calibration 31-Jul-23

#### **Certificate of Calibration**

Description:

Manufacturer:	Sibata Scient	ific Technology LTD.	_	Validity of Calibration Record 30-Sep-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 Sensitiv	ity Adjustment	744 CPM			
		Ca	alibration of 1 h	r TSP				
Calibration		Laser Dust Monitor	r		HVS			
Point	N	fass Concentration (μg. <b>X-axis</b>	/m3)	Mass concentration (μg/m <sup>3</sup> )				
1		71.0		Y-axis 138.0				
2		60.0			118.0			
3		52.0			98.0			
Average	61.0				118.0			
Slope , mw = Correlation co	2.08 pefficient* =	0.9959		cept, bw =	-9.3626			
		Se	et Correlation F	actor				
	-	High Volume Sampler	$(\mu g/m^3)$	118.0				
	Particaulate Concentration by Dust Meter (µg/m³)				61.0			
Measureing time		Dust Meter (μg/m²)						
G . G . 1 .: . T	e, (min)	Dust Meter (μg/m²)			61.0			
Set Correlation I SCF = [ K=Hig	e, (min) Factor, SCF	Dust Meter (µg/m²)  npler / Dust Meter, (µ	.g/m3)	1.9	60.0			
SCF = [ K=Hig	e, (min) Factor , SCF h Volume San			1.9	60.0			
SCF = [ K=High In-house method The Dust Monitor Factor (CF) betw	Factor, SCF h Volume San l in according to was comparized the Dust I	npler / Dust Meter, (μ	al: gh Volume Sam ime Sampler.	pler and The result	60.0	rate the Correlation		
In-house method The Dust Monite Factor (CF) betw Those filter pap	Factor, SCF h Volume San l in according to was compariveen the Dust I pers are weigh	npler / Dust Meter, (µ to the instruction manu ed with a calibrated Hi Monitor and High Volu	al: gh Volume Sam ime Sampler.	pler and The result  Litimed)  Approved by:	was used to gener	y Xvy		

Digital Dust Indicator



Date of Calibration 31-Jul-23

#### **Certificate of Calibration**

Description:

Manufacturer:	Sibata Scient	ific Technology LTD.	_	Validity of Calibration Record 30-Sep-23				
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 Sensit	ivity Adjustment	739 CPM			
Tisch Calibration	n Orifice No.:	3864	After Sensitiv	rity Adjustment	739 CPM			
		Ca	libration of 1 l	nr TSP				
Calibration		Laser Dust Monitor	r		HVS			
Point	N	fass Concentration (μg/	/m3)	Mass concentration (μg/m <sup>3</sup> )				
		X-axis		Y-axis				
2		73.0 63.0			140.0 120.0			
3		52.0			99.0			
Average	62.7				119.7			
Slope , mw = Correlation co	1.95 pefficient* =	0.9999		cept, bw = -	-2.6375	<u>;                                    </u>		
		Se	et Correlation l	Factor				
		High Volume Sampler	$(\mu g/m^3)$	119.7				
		Dust Meter (μg/m <sup>3</sup> )			62.7			
Measureing time					60.0			
Set Correlation I SCF = [ K=Higl		npler / Dust Meter, (μ	g/m3) ]	1.9				
In-house method	l in according	to the instruction manua	al:					
Factor (CF) betw	veen the Dust 1	ed with a calibrated Hig Monitor and High Volunted by HOKLAS laborated	ıme Sampler.		was used to gene	rate the Correlation		
Calibrated by:		ong Shing Kwai)	_	Approved by:	ct Manager (Henr	J Xmy		

Digital Dust Indicator



Date of Calibration 31-Jul-23

#### **Certificate of Calibration**

Description:

Manufacturer:	Sibata Scient	ific Technology LTD.	_	Validity of Calibr	ration Record	30-Sep-23
Model No.:	LD-5R					
Serial No.:	972781					
Equipment No.:	SA-01-10		Sensitivity	0.001 mg/m3	_	
High Volume Sa	mpler No.:	A-01-03	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	N.	Iass Concentration (μg/	m3)	Mas	ss concentration (	$\mu g/m^3$ )
1		X-axis			Y-axis	
2		80.5 70.0			132.0 114.0	
3		59.0			97.0	
Average		69.8			114.3	
Slope , mw = Correlation co	1.62 pefficient* =	0.9996		cept, bw =	0.6968	<u> </u>
		Se	t Correlation F	actor		
Particaulate Con	centration by l	High Volume Sampler (	$(\mu g/m^3)$		114.3	
Particaulate Con	centration by l	Dust Meter (μg/m <sup>3</sup> )			69.8	
Measureing time				1	60.0	
Set Correlation Factor , SCF  SCF = [ K=High Volume Sampler / Dust Meter, (µg/m3) ] 1.6						
In-house method	in according t	to the instruction manua	վ։			
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:		M-	_	Approved by:	\-len	y day
Technical Officer (Wong Shing Kwai)				, ,		





# RECALIBRATION DUE DATE:

January 16, 2024

# Certificate of Calibration

**Calibration Certification Information** 

Cal. Date: January 16, 2023

Rootsmeter S/N: 438320

Ta: 293

°K

Operator: Jim Tisch
Calibration Model #:

TE-5025A Calibrator S/N: 3864

Pa: 749.0

mm Hg

ΔΗ Vol. Final ΔVol. ΔTime ΔΡ Vol. Init (in H2O) (m3)(min) (mm Hg) Run (m3)(m3)2.00 3.2 2 1.4440 1 6.4 4.00 2 3 4 1 1.0220 5.00 3 5 1 8.0 6 0.9100 5.50 4 8.8 7 8 1 0.8710 8.00 10 0.7210 12.8

	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)
0.9981	0.6912	1.4159	0.9957	0.6896	0.8845
0.9938	0.9724	2.0024	0.9915	0.9701	1.2509
0.9917	1.0898	2.2388	0.9893	1.0872	1.3985
0.9906	1.1373	2.3480	0.9883	1.1346	1.4668
0.9853	1.3665	2.8318	0.9829	1.3633	1.7690
	m=	2.09452		m=	1.31155
QSTD[	b=	-0.03493	QA	b=	-0.02182
	r=	0.99995	7	r=	0.99995

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

Standard Conditions			
Tstd:			
Pstd:	760 mm Hg		
	Key		
	or manometer reading (in H2O)		
	ter manometer reading (mm Hg)		
	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.: <u>MC01010A44</u>

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

Date of Calibration <u>18-Aug-2023</u>

Next Due Date <u>18-Feb-2024</u>

#### 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	2.4	0.1
4.0	3.9	0.1

#### 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

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

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



Report No. : 00370 Issue Date : 02 May 2023

Application No. : HP00242

**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.: : SN-01-01

Manufacturer: : SVANTEK

Other information : | Model No. | SVAN 979

Serial No. 27189
Microphone No. 25202

Date Received : 02 May 2023

Test Period : 02 May 2023 to 02 May 2023

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

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

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



Report No. : 00370 Issue Date : 02 May 2023

Application No. : HP00242

# **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	114.0	± 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.

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NT, Hong Kong

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



Report No. : 00319 Issue Date : 06 Jan 2023

Application No. : HP00222

**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. 17204

Date Received : 06 Jan 2023

Test Period : 06 Jan 2023 to 06 Jan 2023

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

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NT, Hong Kong

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



Application No. : HP00222

# **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	95.0	± 1.0	± 1.5
114.0	114.4	+ 0.4	± 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.

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Report No. : 00333 Issue Date : 20 Jan 2023

Application No. : HP00212

**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-12-02

Manufacturer: : BSWA Technology

Other information : | |

Model No.	BSWA 308
Serial No.	570187
Microphone No.	590079

Date Received : 18 Jan 2023

Test Period : 20 Jan 2023 to 20 Jan 2023

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

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NT, Hong Kong

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



Report No. : 00333 | Issue Date : 20 Jan 2023

Application No. : HP00212

# **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.

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



Report No. : 00361 | Issue Date : 30 Mar 2023

Application No. : HP00236

**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-12-04

Manufacturer: : BSWA Technology

Other information : N

Model No.	BSWA 308
Serial No.	580238
Microphone No.	570605

Date Received : 27 Mar 2023

Test Period : 28 Mar 2023 to 28 Mar 2023

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

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

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



Report No. : 00361 Issue Date : 30 Mar 2023

Application No. : HP00236

# **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	94.2	+ 0.2	± 1.5
114.0	114.3	+ 0.3	± 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.

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Report No. : 00364 | Issue Date : 03 Apr 2023

Application No. : HP00240

**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 : 03 Apr 2023

Test Period : 03 Apr 2023 to 03 Apr 2023

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

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

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

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Report No. : 00364 | Issue Date : 03 Apr 2023

Application No. : HP00240

# **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	94.2	+ 0.2	± 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.

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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

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.

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Report No. : 00389 | Issue Date : 20 Jul 2023

Application No. : HP00262

**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-16-01

Manufacturer: : Hangzhou Aihua Instruments Co., Ltd.

Other information : Model No.

Model No. AWA6021A
Serial No. 1023253

Date Received : 18 Jul 2023

Test Period : 19 Jul 2023 to 19 Jul 2023

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

Rm 1904, Technology Park 18 On Lai Street, Shatin

NT, Hong Kong

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



Report No. : 00389 Issue Date : 20 Jul 2023

Application No. : HP00262

# **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	94.2	+ 0.2	± 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.