5-POINT CALIBRATION DATA SHEET



File No. MA16034/05/0029

Project No.	AM1 - Tin Hau	Temple					
Date:	10-4	Apr-21	Next Due Date:	10-	Jun-21	Operator:	SK
Equipment No.:	A-()1-05	Model No.:	GS	S2310	Serial No.	10599
			Ambient C	ondition			
Temperatur	re, Ta (K)	292.8	Pressure, Pa	(mmHg)		764.9	
	ı		ifice Transfer Star			ı	
Serial		3864	Slope, mc	0.05846	Intercept		-0.00313
Last Calibra		11-Jan-21			$c = [\Delta H \times (Pa/760)]$		
Next Calibra	ation Date:	11-Jan-22		$Qstd = \{ \Delta H x \}$	(Pa/760) x (298/7	[a)] - bc} / i	nc
			Calibration of 7	TSP Sampler			
G 1" ·		Or	fice	i or bampici		HVS	
Calibration Point	ΔH (orifice), in. of water		(0) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/	760) x (298/Ta)] ^{1/2} Y-axis
1	13.0		3.65	62.47	8.9		3.02
2	9.4		3.10	53.13	6.4		2.56
3	7.5	<u>'</u>	2.77	47.47	4.8		2.22
4	4.8		2.22	37.98	3.1		1.78
5	2.5		1.60	27.43	1.9		1.40
	0.0469 coefficient* =	_	.9965	Intercept, bw =	0.051	6	
			Set Point Ca	alculation			
From the Regres	sion Equation, t		ording to $\mathbf{pstd} + \mathbf{bw} = [\Delta \mathbf{W} \ \mathbf{x}]$		98/Ta)] ^{1/2}		
Therefore, Se	et Point; W = (n	nw x Qstd + bw)	² x (760 / Pa) x (7	Γα / 298) =	4.18		_
Remarks:							
Conducted by:	SK Wong	Signature:	例	,·		Date:	10 April 2021
Checked by:	Henry Leung	Signature:	Jenny X	27		Date:	10 April 2021

5-POINT CALIBRATION DATA SHEET



10 April 2021

10 April 2021

Date:

Date:

File No. MA16034/08/0029 Project No. AM2 - Sai Tso Wan Recreation Ground 10-Apr-21 Next Due Date: 10-Jun-21 Operator: SK Date: Equipment No.: <u>A-01</u>-08 GS2310 Serial No. 1287 Model No.: **Ambient Condition** 292.8 764.9 Temperature, Ta (K) Pressure, Pa (mmHg) **Orifice Transfer Standard Information** Serial No. 3864 Slope, mc 0.05846 Intercept, bc -0.00313 mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ Last Calibration Date: 11-Jan-21 Qstd = $\{ [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} -bc \} / mc$ Next Calibration Date: 11-Jan-22 **Calibration of TSP Sampler** Orfice HVS Calibration ΔH (orifice), $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Qstd (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 13.1 3.66 62.71 8.8 3.00 2 9.9 3.18 54.53 6.2 2.52 7.8 2.83 48.40 4.8 2.22 3 4.9 3.2 4 2.24 38.38 1.81 5 2.9 1.72 29.54 1.9 1.40 By Linear Regression of Y on X Slope , mw = _____0.0474 Correlation coefficient* = *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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) = 3.96$ Remarks:

Conducted by: SK Wong Signature:

Checked by: Henry Leung Signature:

5-POINT CALIBRATION DATA SHEET



File No. MA16034/03/0029

Project No.	AM3 - Yau Lai	Estate, Bik Lai I	House				
Date:	10-4	Apr-21	Next Due Date:	e Date: 10-Jun-21		Operator:	SK
Equipment No.:	A-(01-03	Model No.:	G	S2310	Serial No.	10379
			Ambient C	ondition			
Temperatur	re, Ta (K)	292.8	Pressure, Pa	(mmHg)		764.9	
~			ifice Transfer Star			.	0.00040
Serial		3864	Slope, mc	0.05846	Intercept $c = [\Delta H \times (Pa/760)]$		-0.00313
Last Calibra		11-Jan-21	4		с = [ДН х (Ра/760 (Pa/760) х (298/7		
Next Calibra	ation Date:	11-Jan-22	<u> </u>	Qsta = { ΔH x	(Pa//00) X (298/)	rajj -bc}/	шс
		•	Calibration of T	ΓSP Sampler			
G-1'1		Oı	fice			HVS	
Calibration 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		760) x (298/Ta)] ^{1/2} Y-axis
1	13.0		3.65	62.47	8.7		2.99
2	9.6		3.14	53.69	6.5		2.58
3	7.8		2.83	48.40	5.3		2.33
4	5.2		2.31	39.53	3.5		1.89
5	2.6		1.63	27.97	2.0		1.42
	0.0456 coefficient* =	_	.9993 calibrate.		0.124	4	
Enough the TCD E	ald Calibration	Curve, take Qstd	Set Point Ca	llculation			
From the Regress	sion Equation, t	he "Y" value acco	ording to $\mathbf{Qstd} + \mathbf{bw} = [\Delta \mathbf{W} \ \mathbf{x}]$		98/Ta)] ^{1/2}		
Therefore, Se	et Point; W = (n	nw x Qstd + bw)	² x (760 / Pa) x (7	Ta / 298) =	4.25		
Remarks:							
Conducted by:	SK Wong	Signature:	<u> </u>	,		Date:	10 April 2021
Checked by:	Henry Leung	Signature:	- leng a	Log		Date:	10 April 2021

5-POINT CALIBRATION DATA SHEET



10 April 2021

10 April 2021

Date:

Date:

File No. MA16034/54/0029 AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office Project No. 10-Apr-21 Next Due Date: 10-Jun-21 Operator: SK Date: Equipment No.: A-01-54 TE-5170 Serial No. 1536 Model No.: **Ambient Condition** 292.8 764.9 Temperature, Ta (K) Pressure, Pa (mmHg) **Orifice Transfer Standard Information** Serial No. 3864 Slope, mc 0.05846 Intercept, bc -0.00313 mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ Last Calibration Date: 11-Jan-21 Qstd = $\{ [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} -bc \} / mc$ Next Calibration Date: 11-Jan-22 **Calibration of TSP Sampler** Orfice HVS Calibration ΔH (orifice), $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Qstd (CFM) ΔW (HVS), in. Point $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ in. of water X - axis of water Y-axis 8.9 1 13.2 3.68 62.95 3.02 2 9.9 3.18 54.53 6.4 2.56 7.5 2.77 47.47 5.0 2.26 3 5.3 3.3 4 2.33 39.91 1.84 5 3.0 1.75 30.04 1.9 1.40 By Linear Regression of Y on X Slope , mw = _____0.0493 Intercept, bw = -0.1022 Correlation coefficient* = *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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.98 Remarks:

Conducted by: SK Wong Signature:

Checked by: Henry Leung Signature:

5-POINT CALIBRATION DATA SHEET



File No. MA16034/05/0030

Project No.	AM1 - Tin Hau	Temple					
Date:	10-Jun-21 Next Due Date: 10-Aug-21		Operator:	SK			
Equipment No.:	A-0	1-05	Model No.:	GS	S2310	Serial No.	10599
			Ambient C	ondition			
Temperatur	re Ta (K)	301.8	Pressure, Pa			754	
Temperatus	10, 14 (11)	301.0	11055410, 14	(111111115)		731	
		Or	ifice Transfer Star	ndard Informa	ation		
Serial	No.	3864	Slope, mc	0.05846	Intercept	t, bc	-0.00313
Last Calibra	ation Date:	11-Jan-21	r	nc x Qstd + bo	$c = [\Delta H \times (Pa/760)]$) x (298/Ta)]	1/2
Next Calibra	ation Date:	11-Jan-22			(Pa/760) x (298/7		
			Calibration of	ΓSP Sampler			
Calibration		Oı	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		760) x (298/Ta)] ^{1/2} Y-axis
1	12.8		3.54	60.63	9.3		3.02
2	9.4		3.03	51.96	7.0		2.62
3	7.5		2.71	46.42	5.4		2.30
4	4.8		2.17	37.15	3.4		1.83
5	2.5		1.56	26.82	2.0		1.40
By Linear Regr Slope, mw = Correlation of *If Correlation C	0.0487 coefficient* =	0	.9987	Intercept, bw =	0.060	8	
			Set Point Ca	lculation			
From the TSP Field Calibration Curve, take Qstd = 43 CFM From the Regression Equation, the "Y" value according to $\mathbf{mw} \ \mathbf{x} \ \mathbf{Qstd} + \mathbf{bw} = \left[\Delta \mathbf{W} \ \mathbf{x} \ (\mathbf{Pa}/760) \ \mathbf{x} \ (\mathbf{298/Ta})\right]^{1/2}$							
Therefore, Se	Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) = 4.74$						
Remarks:							
Conducted by:	SK Wong	Signature:				Date:	10 June 2021
Checked by:	Henry Leung	Signature:	- lemy (Xoz		Date:	10 June 2021

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



File No. MA16034/08/0030

Project No.	AM2 - Sai Tso	Wan Recreation	Ground				
Date:	10-Jun-21 Next Due Date: 10-Aug-21		Aug-21	Operator:	SK		
Equipment No.:	A-()1-08	Model No.:	GS	52310	Serial No.	1287
			Ambient C	ondition			
Temperatur	re, Ta (K)	301.8	Pressure, Pa	(mmHg)		754	
Carial	Ne	3864	ifice Transfer Sta			le a	0.00212
Serial Last Calibra		11-Jan-21	Slope, mc	0.05846	Intercept $c = [\Delta H \times (Pa/760)]$		-0.00313 1 ^{1/2}
Next Calibra		11-Jan-22			(Pa/760) x (298/		
Treste duries			I	<u> </u>	() (,1	
			Calibration of	TSP Sampler			
Calibration		Oı	rfice	_		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		760) x (298/Ta)] ^{1/2} Y-axis
1	13.3		3.61	61.80	8.9		2.95
2	10.1		3.15	53.86	6.3		2.48
3	7.9		2.78	47.64	4.9		2.19
5	5.1 3.0		2.24 1.71	38.29 29.38	3.3 2.0		1.80
By Linear Regr Slope, mw = Correlation of *If Correlation C	0.0470 coefficient* =	0	.9976	-	-0.007	0	
From the TSP Fig	eld Calibration	Curve_take Ostd		aicuiation			
From the TSP Field Calibration Curve, take Qstd = 43 CFM From the Regression Equation, the "Y" value according to $\mathbf{mw} \ \mathbf{x} \ \mathbf{Qstd} + \mathbf{bw} = \left[\Delta \mathbf{W} \ \mathbf{x} \ (\mathbf{Pa/760}) \ \mathbf{x} \ (\mathbf{298/Ta}) \right]^{1/2}$ Therefore, Set Point; W = (mw x Qstd + bw) ² x (760 / Pa) x (Ta / 298) = 4.14							
Conducted by: SK Wong Signature: Checked by: Henry Leung Signature: Date: 10 June 2021 Date: 10 June 2021							
Checked by:	Tierry Leurig	Signature.	temp	Mari	-	Daic.	10 34110 2021

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



File No. MA16034/03/0030

Project No.	AM3 - Yau La	i Estate, Bik Lai I	House				
Date:	10-J	Jun-21	Next Due Date:	10-2	Aug-21	Operator:	SK
Equipment No.:	A-0	01-03	Model No.:	GS	S2310	Serial No.	10379
			Ambient C	ondition	T		
Temperatur	re, Ta (K)	301.8	Pressure, Pa	(mmHg)		754	
0 11	N.T.		ifice Transfer Star			, 1	0.00010
Serial		3864	Slope, mc	0.05846	Intercept $c = [\Delta H \times (Pa/760)]$		-0.00313
Last Calibra		11-Jan-21			: = [ДН X (Ра/760 (Ра/760) X (298/7		
Next Calibra	ition Date:	11-Jan-22		<u> </u>	(Fa//00) X (296/	rajj -bc _{}/}	ilic
		•	Calibration of	TCD Complex			
		Or	fice	i Sr Sampier		HVS	
Calibration Point	ΔH (orifice), in. of water		50) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/	760) x (298/Ta)] ^{1/2} Y-axis
1	12.9		3.55	60.86	8.5		2.89
2	9.7		3.08	52.78	6.4		2.50
3	7.9		2.78	47.64	4.9		2.19
4	5.1		2.24	38.29	3.2		1.77
5	3.0		1.71	29.38	2.0		1.40
By Linear Regr Slope, mw = Correlation of *If Correlation C	0.0476 coefficient* =	0	.9984	Intercept, bw	-0.029	0	
			Set Point Ca	alculation			
From the TSP Fig	eld Calibration	Curve, take Qstd					
From the Regress		-					
	1				1.0		
		mw x Q	$\mathbf{pstd} + \mathbf{bw} = [\Delta \mathbf{W} \ \mathbf{x}]$	(Pa/760) x (29	98/Ta)] ^{1/2}		
Therefore, Se	Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.15						
Remarks:							
Conducted by:	SK Wong	Signature:	6)	,.		Date:	10 June 2021
Checked by:	Henry Leung	Signature:	-leng a	Xoz		Date:	10 June 2021

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET



File No. MA16034/54/0030

Project No.	Project No. AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office						
Date:	10-J	un-21	Next Due Date: 10-Aug-21			Operator:	SK
Equipment No.:	A-(01-54	Model No.:	TE	2-5170	Serial No.	1536
			Ambient C	Condition			
Temperatur	re, Ta (K)	301.8	Pressure, Pa	(mmHg)		754	
		_					
Carial	Na		ifice Transfer Sta			la a	0.00212
Serial Last Calibra		3864 11-Jan-21	Slope, mc	0.05846 mc x Ostd + bo	Intercept $c = [\Delta H \times (Pa/760)]$		-0.00313 1/2
Next Calibra		11-Jan-22			(Pa/760) x (298/		
Treste duries			ı	<u> </u>	() (,1	
			Calibration of	TSP 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		760) x (298/Ta)] ^{1/2} Y-axis
1	13.2		3.60	61.56	9.0		2.97
2	9.9		3.11	53.32	6.4		2.50
3	7.5		2.71	46.42	5.0		2.21
5	5.4 3.0		2.30 1.71	39.40 29.38	3.3 1.9		1.80
By Linear Regr Slope, mw = _ Correlation C	0.0499 coefficient* =	0	.9986	Intercept, bw =	-0.127	7	
			Set Point Ca	alculation			
From the TSP Field Calibration Curve, take Qstd = 43 CFM From the Regression Equation, the "Y" value according to $\mathbf{mw} \ \mathbf{x} \ \mathbf{Qstd} + \mathbf{bw} = \left[\Delta \mathbf{W} \ \mathbf{x} \ (\mathbf{Pa/760}) \ \mathbf{x} \ (\mathbf{298/Ta}) \right]^{1/2}$ Therefore, Set Point; W = (mw x Qstd + bw) ² x (760 / Pa) x (Ta / 298) = 4.16							
Remarks:	L. A.						
Conducted by:	SK Wong	Signature:		<u>. </u>	•	Date:	10 June 2021
Checked by:	Henry Leung	Signature:	-leng (Xoz		Date:	10 June 2021



Equipment no.: N-12-01

Calibration Certificate

0024993

Customer:

Cinotech Consultants Limited

RM 1710, Technology Park,

18 On Lai Street, Shatin, N.T.

Hong Kong

Customer Code:

SVEC09005

Date of calibration:

Date of the recommended re-calibration:

Object 1:

BSWA 308 SLM

Serial No. /Ref. No. :

570183 / 550233

Object 2:

Serial No. /Ref. No. :

Manufacturer:

BSWAtech

Certificate No.:

Handle by:

0024993 E0002

Measuring results

Reference	value	Indication value	Deviation	Allowed deviation	Object
94.0	dB	93.4dB	-0.6dB	+/- 1.5dB	1
114.0)dB	113.2dB	-0.8dB	+/- 1.5dB	1

07/10/2020

07/10/2021

Measuring equipment

index	Calibrator / Master	Traceability	
1	Master Sound Meter, SVAN949,sn:8571	IEC61672	
2	Sound Calibrator, SV30A sn:32580	IEC60942	

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

- 1. The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2. The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3. The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5. The calibrations certificate may not be reproduced.

Measured value(s)

within

the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Mr. K.S. N

Quality Manager

Appleone Calibration Laboratory Ltd.

Rm1309, 13/F, No.77 Wing Hong St, Kln, HKSAR

Tel: +852 2370 4437 Fax: +852 2114 0393



Equipment no.: N-12-02

Calibration Certificate

0024995

Customer: Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Object 1: Serial No. /Ref. No. :

BSWA 308 SLM 570187 / 550841

Object 2:

Serial No. /Ref. No.

Hong Kong

SVEC09005

Manufacturer:

BSWAtech

Customer Code Date of calibration:

07/10/2020

Certificate No.:

0024995

Date of the recommended re-calibration:

07/10/2021

Handle by:

E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.1dB	-0.9dB	+/- 1.5dB	1
114.0dB	113.1dB	-0.9dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1. The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2. The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3. The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5. The calibrations certificate may not be reproduced.

Measured value(s)

the allowable deviation.

Performed by

Mr. K.L. Ng

Approved by

Mr. K.S. Na

Calibration Technician

Quality Manager



Equipment no.: N-12-03

Calibration Certificate

0024996

Customer:

Cinotech Consultants Limited

RM 1710, Technology Park,

18 On Lai Street, Shatin, N.T.

Hong Kong

Customer Code: SVEC09005

Date of calibration:

Date of the recommended re-calibration:

Object 1:

BSWA 308 SLM

Serial No. /Ref. No. : 570188 / 550850

Object 2:

Serial No. /Ref. No. :

Manufacturer: **BSWAtech**

Certificate No.:

0024996

Handle by:

E0002

Measuring results

 Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	92.9dB	-1.1dB	+/- 1.5dB	1
114.0dB	112.8dB	-1.2dB	+/- 1.5dB	1

07/10/2020

07/10/2021

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

- 1. The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3. The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5. The calibrations certificate may not be reproduced.

Measu	ıred	val	اعيرا	(e)

(s) within

the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Mr. K.S. Ng

Quality Manager

Appleone Calibration Laboratory Ltd.

Rm1309, 13/F, No.77 Wing Hong St, Kln, HKSAR

Tel: +852 2370 4437 Fax: +852 2114 0393



Equipment no.: N-13-01

Calibration Certificate

0025247

Customer:

Cinotech Consultants Limited

RM 1710, Technology Park,

18 On Lai Street, Shatin, N.T.

Hong Kong

Customer Code:

Date of calibration:

SVEC09005

V EC09005

Date of the recommended re-calibration:

Object 1:

ST-120 sound calibrator

Serial No. /Ref. No.: 181001608

Object 2 :

Serial No. /Ref. No. :

Manufacturer :

Soundtek

Certificate No.:

0025247

Handle by:

E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

05/11/2020

05/11/2021

Measuring equipment

index		Calibrator / Master	Traceability	
	1	Master Sound Meter, SVAN949,sn:8571	IEC61672	
	2	Sound Calibrator, SV30A sn:32580	IEC60942	

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

- 1. The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2. The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3. The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5. The calibrations certificate may not be reproduced.

Measured value(s)

within

the allowable deviation.

Performed by

Mr. K.L. Ng

Approved by

Quality Manager

Calibration Technician



Equipment no.: N-13-02

Calibration Certificate

0025249

Customer :

Cinotech Consultants Limited

RM 1710, Technology Park,

18 On Lai Street, Shatin, N.T.

Hong Kong

Customer Code: SVEC09005

Date of calibration:

Date of the recommended re-calibration:

Object 1:

ST-120 sound calibrator

Serial No. /Ref. No. :

Object 2:

Serial No. /Ref. No.

Manufacturer:

Soundtek

Certificate No.:

Handle by:

0025249 E0002

181001636

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

05/11/2020

05/11/2021

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source ..

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

- 1. The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2. The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3. The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5. The calibrations certificate may not be reproduced.

Measured value(s) within

the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager

Appleone Calibration Laboratory Ltd. Rm1309, 13/F, No.77 Wing Hong St, Kln, HKSAR

Tel: +852 2370 4437 Fax: +852 2114 0393



Equipment no.: N-13-03

Calibration Certificate

0025248

Customer:

Cinotech Consultants Limited

RM 1710, Technology Park,

18 On Lai Street, Shatin, N.T.

Hong Kong

Customer Code: SVEC09005

Date of calibration:

Date of the recommended re-calibration:

05/11/2020 05/11/2021

Object 1:

ST-120 sound calibrator

Serial No. /Ref. No. : 181001637

Object 2:

Serial No. /Ref. No. :

Manufacturer: Soundtek

Certificate No.: Handle by:

0025248 E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.8dB	-0.2dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

Measuring equipment

index		Calibrator / Master	Traceability
	1	Master Sound Meter, SVAN949,sn:8571	IEC61672
	2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

- 1. The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2. The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3. The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5. The calibrations certificate may not be reproduced.

Measured value(s) within

the allowable deviation.

Performed by

Calibration Technician

Appleone Calibration Laboratory Ltd.

Mr. K.L. Ng

Approved by

Quality Manager

Tel: +852 2370 4437 Fax: +852 2114 0393 Rm1309, 13/F, No.77 Wing Hong St, Kln, HKSAR

Digital Dust Indicator



1-Jun-21

Date of Calibration

Certificate of Calibration

Description:

•						
Manufacturer:	Sibata Scient	ific Technology LTD.	<u>-</u>	Validity of Calibr	ation Record	1-Aug-21
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 Sensitiv	ity Adjustment	652	
Tisch Calibration	n Orifice No.:	3864	After Sensitivity	y Adjustment	652	
		Cal	libration of 1 hr	TSP		
Calibration		Laser Dust Monitor			HVS	
Point	M	Tass Concentration (μg/s X-axis	m3)	Mas	s concentration (µ Y-axis	ıg/m³)
1		68.0			146.0	
2		62.0			139.0	
3		54.0			130.0	
Average		61.3			138.3	
Slope , mw = Correlation co	1.14 pefficient* =	0.9999		ept, bw =	68.2973	
			t Correlation Fa	ctor		
		High Volume Sampler ($(\mu g/m^3)$		138.3	
	·	Oust Meter (μg/m ³)		61.3		
Measureing time	· ·				60.0	
Set Correlation F SCF = [K=HigI		npler / Dust Meter, (μ	g/m3)]	2.3		
The Dust Monitor Factor (CF) betw	or was compare veen the Dust I	o the instruction manual of with a calibrated Hig Monitor and High Voluted by HOKLAS laborated	gh Volume Sampl me Sampler.		was used to gener	rate the Correlation
Calibrated by:		ng Shing Kwai)	_		t Manager (Henry	

Digital Dust Indicator



1-Jun-21

Date of Calibration

Certificate of Calibration

Description:

Manufacturer:	Sibata Scientific Technology LTD.		Validity of Calibr	ation Record	1-Aug-21
Model No.:	LD-5R				
Serial No.:	8Y2373				
Equipment No.:	SA-01-05	Sensitivity	0.001 mg/m3		
High Volume Sa	ampler No.: <u>A-01-03</u>	Before Sensitivit	y Adjustment	657	
Tisch Calibratio	n Orifice No.: 3864	After Sensitivity	Adjustment	657	
	Ca	libration of 1 hr	ΓSP		
Calibration	Laser Dust Monitor	r		HVS	
Point	Mass Concentration (μg/ X-axis	/m3)	Mas	s concentration (μ Y-axis	ug/m ³)
1	59.0			146.0	
2	53.0			139.0	
3	47.0		130.0		
Average	53.0		138.3		
Slope, mw = Correlation co	1.3333 pefficient* = 0.9974	Intercep)t, bw =	67.6667	
	Se	et Correlation Fac	tor		
Particaulate Con	ncentration by High Volume Sampler	$(\mu g/m^3)$		138.3	
Particaulate Cor	ncentration by Dust Meter (µg/m³)			53.0	
Measureing time	e, (min)			60.0	
Set Correlation					
SCF = [K=Hig	h Volume Sampler / Dust Meter, (μ	g/m3)]	2.6		
The Dust Monitor Factor (CF) betw	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 Sample ıme Sampler.		was used to gener	ate the Correlation
	:	_		leng M	
Lechnic	al Officer (Wong Shing Kwai)		Project	t Manager (Henry	(Leimo)

Digital Dust Indicator



1-Jun-21

Date of Calibration

Certificate of Calibration

Description:

•						
Manufacturer:	Sibata Scient	ific Technology LTD.	_	Validity of Calibr	ation Record	1-Aug-21
Model No.:	LD-5R					
Serial No.:	972778					
Equipment No.:	SA-01-07		Sensitivity _	0.001 mg/m3	i	
High Volume Sa	mpler No.:	A-01-03	Before Sensitivi	ity Adjustment	735 CPM	
Tisch Calibration	n Orifice No.:	3864	After Sensitivity	Adjustment	735 CPM	
		Cal	libration of 1 hr	TSP		
Calibration		Laser Dust Monitor			HVS	
Point	M	[ass Concentration (μg/s	m3)	Mas	s concentration (µ Y-axis	ug/m ³)
1		62.0			146.0	
2		57.0			139.0	
3		49.0			130.0	
Average		56.0			138.3	
Slope , mw = Correlation co	1.22 pefficient* =	0.9982		pt, bw =	69.9612	
		Se	t Correlation Fa	ctor		
		High Volume Sampler ($(\mu g/m^3)$		138.3	
	•	Oust Meter (μg/m ³)		56.0		
Measureing time					60.0	
Set Correlation I SCF = [K=Higl		npler / Dust Meter, (μ	g/m3)]	2.5		
The Dust Monitor Factor (CF) betw	or was compare ween the Dust I	o the instruction manual of with a calibrated Hig Monitor and High Voluted by HOKLAS laborated	gh Volume Sampl me Sampler.		was used to gener	ate the Correlation
Calibrated by:		ng Shing Kwai)	-	Approved by:	t Manager (Henry	Leung)



Certificate of Calibration

Description:	Digital Dust Indicator	Date of Calibration 1-Jun-21			
Manufacturer:	Sibata Scientific Technology LTD.	_	Validity of Calib	ration Record	1-Aug-21
Model No.:	LD-5R				
Serial No.:	972779				
Equipment No.:	SA-01-08	Sensitivity	0.001 mg/m3	_	
High Volume Sa	mpler No.: <u>A-01-03</u>	Before Sensiti	vity Adjustment	744 CPM	
Tisch Calibration	n Orifice No.: 3864	After Sensitivi	ty Adjustment	744 CPM	
	Ca	libration of 1 h	r TSP		
Calibration	Laser Dust Monitor	r		HVS	
Point	Mass Concentration (μg/ X-axis	/m3)	Mas	ss concentration (µ ₂ Y-axis	g/m^3)
1	63.0			146.0	
2	58.0			139.0	
3	51.0		130.0		
Average	57.3		138.3		
Slope , mw = Correlation co	1.3303 pefficient* = 0.9997		cept, bw =	62.0642	
	Se	t Correlation F	actor		
Particaulate Con	centration by High Volume Sampler	$(\mu g/m^3)$		138.3	
Particaulate Con	centration by Dust Meter (µg/m³)		57.3		
Measureing time	e, (min)			60.0	
Set Correlation I					
SCF = [K=Higl	h Volume Sampler / Dust Meter, (μ	g/m3)]	2.4		
The Dust Monitor Factor (CF) betw	in according to the instruction manual or was compared with a calibrated Hig ween the Dust Monitor and High Volu pers are weighted by HOKLAS labor	gh Volume Sam _l ime Sampler.		was used to genera	ate the Correlation
Calibrated by:	al Officer (Wong Shing Kwai)	_		Leny (Mo	1

Digital Dust Indicator



Date of Calibration 1-Jun-21

Certificate of Calibration

Description:

Manufacturer:	Sibata Scient	ific Technology LTD.	_	Validity of Calibr	ration Record	1-Aug-21
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 Sensitiv	vity Adjustment	739 CPM	
Tisch Calibration	n Orifice No.:	3864	After Sensitivi	ty Adjustment	739 CPM	
		Cal	libration of 1 h	r TSP		
Calibration		Laser Dust Monitor			HVS	
Point	M	lass Concentration (μg/1	m3)	Mas	s concentration (µ	\lg/m^3)
1		X-axis			Y-axis	
1		59.0			146.0	
3		54.0 49.0			139.0	
Average		54.0			138.3	
Slope , mw = Correlation co	1.60 pefficient* =	0.9974		ept, bw =	51.9333	
		Set	t Correlation F	actor		
		High Volume Sampler ($(\mu g/m^3)$		138.3	
	•	Oust Meter (μg/m³)			54.0	
Measureing time	· ·				60.0	
Set Correlation F SCF = [K=Higl		npler / Dust Meter, (με	g/m3)]	2.6		
The Dust Monitor Factor (CF) betw	or was compare veen the Dust I	to the instruction manual of with a calibrated Hig 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:	leng (Menry	y Leung)



Certificate of Calibration

Digital Dust Indicator		Date of Calibration		1-Jun-21	
Sibata Scienti	fic Technology LTD.	_	Validity of Calibr	ation Record	1-Aug-21
LD-5R					
972781					
SA-01-10		Sensitivity	0.001 mg/m3	i	
mpler No.:	A-01-03	Before Sensit	ivity Adjustment	734 CPM	
n Orifice No.:	3864	After Sensitiv	rity Adjustment	734 CPM	
	Ca	libration of 1 l	nr TSP		
	Laser Dust Monitor	•		HVS	
M	lass Concentration (μg/ X-axis	(m3)	Mass concentration (μg/m³) Y-axis		
	69.0			146.0	
	60.0			139.0	
	48.0		130.0		
	59.0			138.3	
0.76	13		ccept, bw =	93.4189	
			Factor		
		(μg/m³)		138.3	
·	Oust Meter (μg/m ³)				
Measureing time, (min) 60.0 Set Correlation Factor, SCF					
•	npler / Dust Meter, (μ	g/m3)]	2.3		
or was compare veen the Dust N	ed with a calibrated Hig Monitor and High Volu	gh Volume Sam me Sampler.		was used to gener	ate the Correlation
	Sibata Scienti LD-5R 972781 SA-01-10 Impler No.: In Orifice No.: In Orific	Sibata Scientific Technology LTD. LD-5R 972781 SA-01-10 Impler No.: A-01-03 In Orifice No.: 3864 Ca Laser Dust Monitor Mass Concentration (µg/ X-axis 69.0 60.0 48.0 59.0 Pession of Y on X 0.7613 Defficient* = 0.9999 Secentration by High Volume Sampler of the Contraction by Dust Meter (µg/m³) Second of Your Mater (µg/m³) Second of Your Meter, (µg/m³) Second	Sibata Scientific Technology LTD. LD-5R 972781 SA-01-10 Sensitivity mpler No.: A-01-03 Before Sensit Calibration of 1 I Laser Dust Monitor Mass Concentration (μg/m3) X-axis 69.0 60.0 48.0 59.0 cession of Y on X 0.7613 Interdiction by High Volume Sampler (μg/m³) centration by Dust Meter (μg/m³) centration by Dust Meter (μg/m³) centration by Dust Meter, (μg/m³) centration by Toust Meter, (μg/m³) centration by Toust Meter, (μg/m³) centration by Dust Meter, (μg/m³)	Sibata Scientific Technology LTD. LD-5R 972781 SA-01-10 Sensitivity O.001 mg/m3 mpler No.: A-01-03 Before Sensitivity Adjustment Calibration of 1 hr TSP Laser Dust Monitor Mass Concentration (μg/m3) X-axis 69.0 60.0 48.0 59.0 Pession of Y on X 0.7613 Intercept, bw = 0.9999 Set Correlation Factor centration by High Volume Sampler (μg/m³) centration by Dust Meter (μg/m³) centration by Dust Meter (μg/m³) centration by Dust Meter, (μg/m³)	Sibata Scientific Technology LTD. Validity of Calibration Record



RECALIBRATION
DUE DATE:

January 11, 2022

Certificate of Calibration

Calibration Certification Information

Cal. Date: January 11, 2021

Rootsmeter S/N: 438320

°K

Operator: Jim Tisch

Ta: 297
Pa: 750.1

mm Hg

Calibration Model #: TE-5025A

Calibrator S/N: 3864

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4470	3.2	2.00
2	3	4	1	1.0210	6.4	4.00
3	5	6	1	0.9140	8.0	5.00
4	, 7	8	1	0.8670	8.8	5.50
5	9	10	1	0.7140	12.9	8.00

Data Tabulation					
Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right) \left(\frac{Tstd}{Ta}\right)}$		Qa	$\sqrt{\Delta H (Ta/Pa)}$
(m3)	(x-axis)	(y-axis)	Va	(x-axis)	(y-axis)
0.9860	0.6814	1.4073	0.9957	0.6881	0.8899
0.9818	0.9616	1.9902	0.9915	0.9711	1.2585
0.9797	1.0719	2.2251	0.9893	1.0824	1.4071
0.9786	1.1288	2.3337	0.9883	1.1399	1.4757
0.9732	1.3630	2.8146	0.9828	1.3765	1.7798
	m=	2.06566		m=	1.29348
QSTD	b=	0.00315	QA	b=	0.00199
	r=	0.99996		r=	0.99996

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

	Standard Conditions		
Tstd:	298.15 °K		
Pstd:	760 mm Hg		
Key			
ΔH: calibrator manometer reading (in H2O)			
ΔP: rootsmeter manometer reading (mm Hg)			
Ta: actual absolute temperature (°K)			
Pa: actual barometric pressure (mm Hg)			
b: intercept			
m: slope			

RECALIBRATION

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

FAX: (513)467-9009

www.tisch-env.com



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>20-Feb-2021</u>

Next Due Date <u>20-Aug-2021</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	1.6	-0.1
2.5	2.5	0.0
3.5	3.4	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:		Approved by:	Leany Chang
	Wong Shing Kwai	_	Henry Leung