Station	Sheung Wun Yiu	(AM1A)		_ Operator:	Shum Ka	ım Yuen		
Cal. Date:	13-Aug-11			Next Due Date:	13-0	13-Oct-11		
quipment No.:	A-001-53T			Serial No.	102	216	_	
			Ambient	Condition				
Temperatu	re, Ta (K)	305	Pressure, I	Pa (mmHg)		755.4		
			Orifice Transfer S	tandard Informatio	n			
Serial	No:	843	Slope, mc	2.00691	Interce		-0.0221	
Last Calibra	ntion Date:	8-Nov-10		mc x Qstd + bc	= [DH x (Pa/760) x	(298/Ta)] <sup>1/2</sup>		
Next Calibra	ation Date:	8-Nov-11		Qstd = {[DH x (I	Pa/760) x (298/Ta)]	<sup>1/2</sup> -bc} / mc		
			Calibration of	of TSP Sampler				
		C	Orfice		HVS	S Flow Recorde	r	
Resistance Plate No.	I DH (orifice)		60) x (298/Ta)] <sup>1/2</sup>	Qstd (m³/min) X - axis	Flow Recorder Reading (CFM)	Continuous Flow Recorde Reading IC (CFM) Y-axi		
18	9.7		3.07	1.54	48.0	47	.30	
13	6.3		2.47	1.24	40.0	39	.42	
10	4.5		2.09	1.05	32.0	31	.53	
7	3.6		1.87	0.94	30.0	29	.56	
5	2.3	20	1.49	0.76	22.0	21	.68	
Slope , mw = Correlation Coe	32.5060 fficient* = efficient < 0.990,		9905 brate.	Intercept, bw =	-2.0	840	_	
			0-4 D-1-4	Calandatian				
From the TSP Fig	eld Calibration Cu	rve. take Ostd =		Calculation				
	sion Equation, the							
Tom the regree	olon Equation, an	, , , , , , , , , , , , , , , , , , ,	alling to					
		mw	x Qstd + bw = IC	х [(Pa/760) x (298/	Ta)] <sup>1/2</sup>			
Therefore, Set Po	oint; IC = ( mw x 0	Qstd + bw ) x [( 7	60 / Pa ) x ( Ta / 29	98 )] <sup>1/2</sup> =		40.77		
Remarks:								
			<del></del>	1	na a makan na Maran			
QC Reviewer:	K H. S	HEK	Signature:	Hike.		Date:	Aug. 11	

Station	Sheung Wun Yiu	(AM1A)		Operator:	Shum Ka	ım Yuen		
al. Date:	11-Oct-11			Next Due Date:	11-De	11-Dec-11		
quipment No.:	A-001-53T			Serial No.	10216			
			Ambient	Condition				
Temperatu	ire, Ta (K)	298	Pressure, I	Pa (mmHg)		758.5		
			Orifice Transfer S	tandard Informatio				
Serial	l No:	843	Slope, mc	2.00691	Interce		-0.0221	
Last Calibra	ation Date:	8-Nov-10			= [DH x (Pa/760) x			
Next Calibra	ation Date:	8-Nov-11		Qstd = {[DH x (F	Pa/760) x (298/Ta)]	<sup>1/2</sup> -bc} / mc		
-								
				of TSP Sampler				
		0	rfice		HVS	S Flow Recorde	<u> </u>	
Resistance Plate No.	DH (orifice), in. of water	[DH x (Pa/76	60) x (298/Ta)] <sup>1/2</sup>	Qstd (m³/min) X - axis	Flow Recorder Reading (CFM)		Flow Recorder CFM) Y-axis	
18	9.8		3.13	1.57	50.0	49	9.95	
13	6.1		2.47	1.24	40.0	39	9.96	
10	4.6		2.14	1.08	34.0	33	3.97	
7	3.7		1.92	0.97	30.0	29	9.97	
5	2.3		1.52	0.77	24.0	23	3.98	
Slope , mw = Correlation Coe	32.7860 efficient* =	0.:	9983 brate.	Intercept, bw =	-1.3	3063	<del></del>	
th - TCD F:	ield Calibration Cu	umus taks Ostd =		Calculation				
rom the Regres	ssion Equation, the	a "Y" value accor	aing to					
		mw	x Qstd + bw = IC	x [(Pa/760) x (298/	Ta)1 <sup>1/2</sup>			
				, ,	7.4			
Therefore, Set P	oint; IC = ( mw x	Qstd + bw ) x [( 7	60 / Pa ) x ( Ta / 2	98 )] <sup>1/2</sup> =		41.36		
		,						
Remarks:				-				
	k ii Onei.	*		u) .			not 11	
QC Reviewer: _	K. M. SHEK	<u> </u>	Signature:	IIK .		Date:	W.II	

Station	Shan Tong New	Village (AM2)		Operator:	Shum Ka	num Kam Yuen		
Cal. Date:	17-Sep-11			Next Due Date:	17-No	17-Nov-11		
Equipment No.:	A-001-29T			Serial No.	102	202	_	
			Ambient	Condition				
Temperatu	re. Ta (K)	304	Pressure, F	Pa (mmHg)	-	752.2		
			,		3000			
		C	rifice Transfer St	tandard Informatio	'n			
Serial	l No:	843	Slope, mc	2.00691	Interce	ept, bc	-0.02214	
Last Calibra	ation Date:	8-Nov-10		mc x Qstd + bc	= [DH x (Pa/760) x	(298/Ta)] <sup>1/2</sup>		
Next Calibra	ation Date:	8-Nov-11		Qstd = {[DH x (F	Pa/760) x (298/Ta)]	<sup>1/2</sup> -bc} / mc		
		•						
110.34			Calibration o	f TSP Sampler				
		01	fice	_	HVS	S Flow Recorder		
Resistance Plate No.	DH (orifice), in. of water	[DH x (Pa/76	0) x (298/Ta)] <sup>1/2</sup>	Qstd (m³/min) X - axis	Flow Recorder Reading (CFM)	Continuous Flo Reading IC (CF		
18	10.3		3.16	1.59	48.0	47.2	8	
13	7.6	2	2.72	1.36	42.0	41.3	7	
10	5.3	2	2.27	1.14	34.0	33.4	9	
7	3.8		1.92	0.97	28.0	27.5	8	
5	2.2		1.46	0.74	22.0	21.6	7	
Slope , mw = Correlation Coe	=		<b>967</b> rate.	Intercept, bw =	-1.7	391	_	
			Set Point	Calculation		11 11 11 11 11 11 11 11 11 11 11 11 11		
From the TSP Fir	eld Calibration Cu	ırve, take Qstd = 1						
		e "Y" value accord						
	— — — — — — — — — — — — — — — — — — —							
		mw :	x Qstd + bw = IC	x [(Pa/760) x (298/	Γa)] <sup>1/2</sup>			
	# 00 000-000 PF	10 10 10 10 10 10 10 10 10 10 10 10 10 1		1/3				
Therefore, Set Po	oint; IC = ( mw x	Qstd + bw ) x [( 76	0 / Pa ) x ( Ta / 29	98 )] ''2=		39.23	-	
Remarks:								
Remarks.								
				3				

Station	Riverain Bayside	(AM3)		Operator:	Shum Ka	m Yuen	
Cal. Date:	17-Sep-11			Next Due Date:	17-No	v-11	
quipment No.:	A-001-69T			Serial No.	71	6	_
			Ambiant	Canditian			
	- "A T	004		Condition		752.2	
Temperatu	re, Ta (K)	304	Pressure, F	a (mmHg)		152.2	
			Orifice Transfer St	andard Informatio	n		
Serial	No:	843	Slope, mc	2.00691	Interce	pt, bc	-0.02214
Last Calibra	ation Date:	8-Nov-10		mc x Qstd + bc	= [DH x (Pa/760) x	(298/Ta)] <sup>1/2</sup>	
Next Calibra	ation Date:	8-Nov-11		$Qstd = \{[DH \times (Family + Family + Fami$	Pa/760) x (298/Ta)] <sup>1</sup>	<sup>/2</sup> -bc} / mc	
		BUSINESS CONTRACTOR OF THE PARTY OF THE PART	Calibration o	f TSP Sampler			
31-32 St 20		(	Orfice		HVS	Flow Recorder	
Resistance Plate No.	DH (orifice), in. of water	[DH x (Pa/7	760) x (298/Ta)] <sup>1/2</sup>	Qstd (m³/min) X - axis	Flow Recorder Reading (CFM)	Continuous Florence Reading IC (C	
18	10.0		3.11	1.56	50.0	49.	25
13	8.0		2.79	1.40	44.0	43.	34
10	6.1		2.43	1.22	38.0	37.	43
7	4.5		2.09	1.05	32.0	31.	52
5	2.4		1.53	0.77	24.0	23.	64
Slope , mw = Correlation Coe	assion of Y on X 32.4591  Ifficient* = Defficient < 0.990,	0	.9972 librate.	Intercept, bw =	-1.9	741	_
			Set Beint	Calculation			
From the TSP Fi	eld Calibration C	urve, take Qstd =		Calculation			
	ssion Equation, th						
,	•		Ū				
		m\	v x Qstd + bw = IC	x [(Pa/760) x (298/	Ta)] <sup>1/2</sup>		
Therefore, Set P	Point; IC = ( mw x	Qstd + bw ) x [(	760 / Pa ) x ( Ta / 29	98 )] <sup>1/2</sup> =		40.84	_
			4				F 9 F 9
Domarka:							
Remarks:							
Remarks:				1			

Station	168 Shek Kwu Lu	ng Village (AM4A	<b>A)</b>	Operator:	Choi wi	ng ho		
al. Date:	3-Sep-11			Next Due Date:	3-Nov	3-Nov-11		
quipment No.:	A-001-70T			Serial No.	102	73	_	
			Ambient	Condition				
Temperati	ure, Ta (K)	304.5	Pressure, P	a (mmHg)		756.2		
			MANNE DE CONTRACTOR					
		(	Orifice Transfer St	andard Informatio	n			
Seria	al No:	843	Slope, mc	2.00691	Interce		-0.0214	
Last Calibr	ration Date:	8-Nov-10			= [DH x (Pa/760) x			
Next Calib	ration Date:	8-Nov-11		$Qstd = \{[DH \times (Family + Family + Family + (Family + Family + (Family + Family + (Family + (Family + Family + (Family + (Fami$	Pa/760) x (298/Ta)] <sup>1</sup>	<sup>/2</sup> -bc} / mc		
		•						
			Calibration o	f TSP Sampler				
		0	rfice		HVS	Flow Recorder		
Resistance Plate No.	DH (orifice), in. of water	[DH x (Pa/76	60) x (298/Ta)] <sup>1/2</sup>	Qstd (m³/min) X - axis	Flow Recorder Reading (CFM)	Continuous Fle Reading IC (C		
18	10.9		3.26	1.63	54.0	53.	29	
13	8.8		2.93	1.47	47.0	46.	38	
10	6.0		2.42	1.22	40.0	39.	47	
7	4.1		2.00	1.01	33.0	32.	56	
5	2.6		1.59	0.80	25.0	24.	67	
Slope , mw = Correlation Co	ression of Y on X 33.3401 efficient* = Coefficient < 0.990,		9958 brate.	Intercept, bw =	-1.5	5881		
			Set Point	Calculation				
From the TSP F	ield Calibration Cu	ırve, take Qstd =	1.30m <sup>3</sup> /min					
	ession Equation, th							
			_					
		mw	x Qstd + bw = IC	x [(Pa/760) x (298/	Ta)] <sup>1/2</sup>			
	N)			11/2		40.04		
Therefore, Set	Point; IC = ( mw x	Qstd + bw ) x [( /	60/Pajx(Ta/2	98 )]**=		42.31	_	
Remarks:	KINGAN,	the second section of the second section of		Q908 50				
nemarks.				****				
			<del></del>	ì				



TISCH ENVIROMENTAL, INC. 145 SOUTH MIAMI AVE. VILLAGE OF CLEVES, OH 45002 513.467.9000 877.263.7610 TOLL FREE 513.467.9009 FAX WWW.TISCH-ENV.COM

### AIR POLLUTION MONITORING EQUIPMENT

# ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - No Operator	ov 08, 2010 Tisch	Rootsmeter Orifice I.I		833620 0843	Ta (K) - Pa (mm) -	754.38
PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1 2 3 4 5	NA NA NA NA	NA NA NA NA NA	1.00 1.00 1.00 1.00 1.00	1.4030 0.9880 0.8850 0.8440 0.6970	3.2 6.4 7.9 8.8 12.7	2.00 4.00 5.00 5.50 8.00

### DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0087 1.0044 1.0023 1.0012 0.9959	0.7189 1.0166 1.1325 1.1862 1.4289	1.4234 2.0130 2.2506 2.3604 2.8468		0.9957 0.9915 0.9894 0.9883 0.9831	0.7097 1.0036 1.1180 1.1710 1,4105	0.8799 1.2443 1.3912 1.4591 1.7597
Qstd slop intercept coefficie	(b) =	2.00691 -0.02214 0.99996		Qa slope intercept coefficie	(b) =	1.25670 -0.01369 0.99996
y axis =	SQRT [H20 (1	Pa/760)(298/	ra)] '	y axis =	SQRT [H2O (T	Ta/Pa)]

### CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa] Qa = Va/Time

2-- --- , \_\_\_\_\_

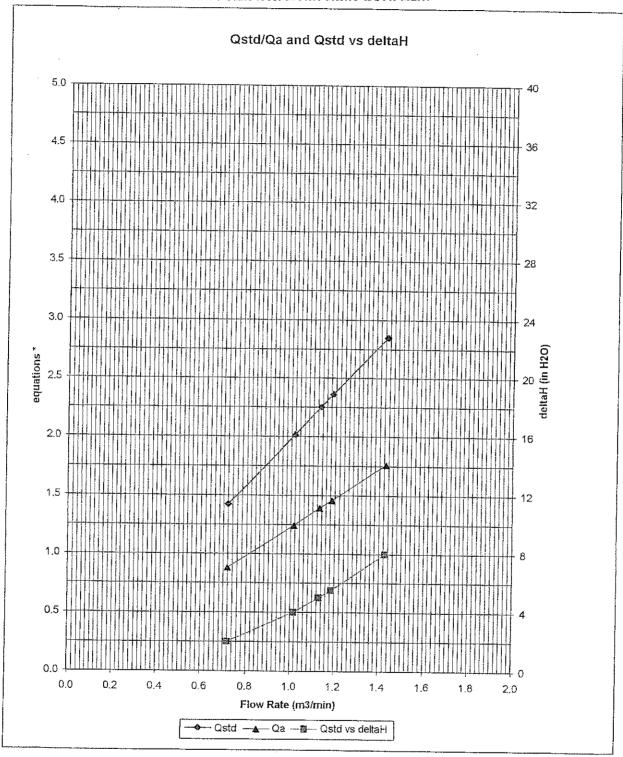
For subsequent flow rate calculations:

Qstd =  $1/m\{ [SQRT (H2O (Pa/760) (298/Ta))] - b\}$ Qa =  $1/m\{ [SQRT H2O (Ta/Pa)] - b\}$ 



TISCH ENVIROMENTAL, INC. 145 SOUTH MIAMI AVE. VILLAGE OF CLEVES, OH 45002 513.467.9000 877.263.7610 TOLL FREE 513.467.9009 FAX WWW.TISCH-ENV.COM

### AIR POLLUTION MONITORING EQUIPMENT



\* y-axis equations:

Qstd series:

$$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right) \left(\frac{Tstd}{Ta}\right)}$$

Qa series:

$$\sqrt{(\Delta H (Ta/Pa))}$$

#0843

Type:	acturer/Brand:			Laser Du SIBATA	ıst Monii	tor		
Model			· · · · · · · · · · · · · · · · · · ·	LD-3				
	nent No.:			A.005.07	a	<del></del>		
	ivity Adjustment	Scale Setti		557 CPN				
OCHSIL	ivity Adjustment	Ocaic Octi	<u>'</u>	007 01 11		· · · · · · · · · · · · · · · · · · ·		
Opera	tor:		AMMARA	Mike She	k (MSKN	1)		
Standa	rd Equipment							
Equipr	ment:	Rupj	orecht & Pat	tashnick	TEOM®			
Venue	:		erport (Pui Y	'ing Seco	ndary Sc	chool)		
Model		_Serie	es 1400AB					
Serial	No:	Cont		AB21989				
		Sens		00C14365	59803	K₀: <u>12500</u>		
Last C	alibration Date*:	_4 Ju	ne 2011					<del></del>
*Remar	ks: Recommend	ed interval	for hardwar	e calibrat	tion is 1 y	/ear		
Calibra	tion Result							
Seneit	ivity Adjustment	Scale Sett	ing /Rofore i	Calibratio	m).	<i>557</i> CP	ħΛ	
	ivity Adjustment		•		,	557 CP		
OCHSIL	avity Adjustment	Ocale Octi	ing (Aiter O	anoration,				
Hour	Date	Ti	me	Amh	pient	Concentration <sup>1</sup>	Total	Count/
, 1001	(dd-mm-yy)		, , , ,	Cond		(mg/m <sup>3</sup> )	Count <sup>2</sup>	Minute <sup>3</sup>
	(22 )))			Temp	R.H.	Y-axis		X-axis
		,		(°C)	(%)			
1	05-06-11	09:30	- 10:30	31.3	67	0.04118	1540	25.67
2	05-06-11	10:30	- 11:30	31.3	67	0.04354	1637	27.28
3	05-06-11	11:30	- 12:30	31.3	67	0.04633	1730	28.83
4	05-06-11	12:30	- 13:30	31.4	66	0.04271	1603	26.72
Note:	1. Monitoring of	lata was m	easured by	Rupprecl	ht & Pata	shnick TEOM®		
	<ol><li>Total Count</li></ol>							
	3. Count/minut	te was calc	ulated by (T	otal Cou	nt/60)			
D 17.	<b>,</b> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							
	ar Regression of	Y or X	0.0040				,	
	(K-factor):		0.0016					
Correi	ation coefficient:		0.9958		<del></del>			
Validit	y of Calibration F	Record:	4 June 20	)12	-			
Remark	(S)		_					
			<del></del>					
					_			
QC Re	eviewer: YW F	- ung	Signa	ture: 🖖	$\sqrt{}$	Date	e: <u>8 June</u>	2011

Type:				Laser D	ust Mor	nitor		
	cturer/Brand:		·	SIBATA				
Model N	₹o.:		_	LD-3			•	
Eguipm	ent No.:		_	A.005.08	a			
	ity Adjustment	Scale Setting	g: _	702 CPM				
Operato	or:		_	Mike She	ek (MSK	(M) .	•	
Standard	f Equipment					<del>~~~~</del>	,	· · · ·
						-	74. III. III. III. III. III. III. III. I	
Equipm	ent:		echt & Pa					
Venue:			oort (Pui	Ying Seco	ondary S	School)		
Model N		**************************************	1400AB					***************************************
Serial N	lo:	Contro		0AB2198			······································	<del></del>
		Senso		00C1436	59803	K <sub>o</sub> : <u>125</u>	500	
Last Ca	llibration Date*:	4 June	2011					
*Remark	s: Recommend	led interval fo	or hardwa	re calibra	ition is 1	year		
Calibrati	on Result							
	ity Adjustment					702	CPM	
Sensitiv	ity Adjustment	Scale Settin	g (After C	alibration	:):	702	CPM	
						·	<b></b>	
Hour	Date	Tim	е	Amb		Concentration '	Total	Count/
	(dd-mm-yy)			Cond		(mg/m³)	Count <sup>2</sup>	Minute <sup>3</sup>
	-			Temp	R.H.	Y-axis		X-axis
				(°C)	(%)			
1	02-07-1\$	09:00 -	10:00	31.1	70	0.04313	1607	26.78
2	02-07-11	10:00 -	11:00	31.1	70	0.04137	1550	25.83
3	02-07-11	11:00 -	12:00	31.2	71	0.04552	1713	28.55
4	02-07-11	12:00 -	13:00	31.2	71	0.04736	1771	29.51
Note:						tashnick TEOM®		
	2. Total Count							
	3. Count/minu	ie was caicui	ared by (	TOIBI COL	HWOU			
Ry Lineau	Regression of	YorX		•				
	K-factor):	1 01 70	0.0016					
	tion coefficient:	_	0.9949					
		<del>-</del>						
Validity	of Calibration F	Kecord:	1 July 20	12				
Remarks								
Comains	•				-			
		•						
	÷				Μ			
QC Rev	iewer: YW I	-ung	Signa	ature:	0.1/	ľ	Date: 4	July 2011

Type:			i	Laser Du	ıst Monit	tor		
Manu	facturer/Brand:			SIBATA				
Mode			*****	LD-3				
	ment No.:	0 1 0 11	want	A.005.09				
Sensi	tivity Adjustment	Scale Setting	g: _	797 CPN	<u> </u>			
Opera	ntor:			Mike She	k (MSKN	A)		
Standa	rd Equipment						- A PAPER AND A PA	
Equip	ment:	Ruppr	echt & Pai	tashnick <sup>*</sup>	TEOM®			
Venue			port (Pui Y			chool)	<u></u>	<del></del>
Model	No.:		1400AB	<del></del>				
Serial	No:	Contro	ol: 140	AB21989	99803			
		Senso	***	00C14365	59803	K₀: <u>1250</u>	<u> </u>	
Last C	Calibration Date*:	4 June	2011					
*Remar	ks: Recommend	ed interval fo	or hardwar	e calibrat	tion is 1 y	year		
Calibra	tion Result						.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	tivity Adjustment tivity Adjustment						PM PM	
Hour	Date	Tim	e	)	pient	Concentration	Total	Count/
	(dd-mm-yy)			<del></del>	dition	(mg/m³)	Count <sup>2</sup>	Minute <sup>3</sup>
				Temp (°C)	R.H. (%)	Y-axis		X-axis
1	05-06-11	13:30 -	14:30	31.4	66	0.04416	1758	29.30
2	05-06-11	14:30 -	15:30	31.5	66	0.04752	1889	31.48
3	05-06-11	15:30 -	16:30	31.5	66	0.04371	1748	29.13
4	05-06-11	16:30 -	17:30	31.5	67	0.04543	1808	30.13
Note:	Monitoring of 2. Total Count     Count/minut	was logged	by Laser [	Dust Mon	itor	ashnick TEOM®		
	ar Regression of	Y or X						
	(K-factor):	_	0.0015		<del></del>			
Correl	lation coefficient:	_	0.9953		······································			
Validit	y of Calibration F	Record:	4 June 20	)12				•
Remark	(SI							
				-				
		,			11/	<i>'</i>		<del>,</del>
QC R	eviewer: YW F	Fung	Signa	ture:		Da	te: 8 June	e 2011

Type: Laser Dust Monitor  Manufacturer/Brand: SIBATA  Model No.: LD-3  Equipment No.: A.005.11a  Sensitivity Adjustment Scale Setting: 799 CPM  Operator: Mike Shek (MSKM)  Standard Equipment  Equipment: Rupprecht & Patashnick TEOM®  Venue: Cyberport (Pui Ying Secondary School)  Model No.: Series 1400AB  Serial No: Control: 140AB219899803	
Equipment No.: Sensitivity Adjustment Scale Setting:  Operator:  Mike Shek (MSKM)   Standard Equipment  Equipment:  Rupprecht & Patashnick TEOM®  Venue: Cyberport (Pui Ying Secondary School) Model No.: Series 1400AB	
Sensitivity Adjustment Scale Setting: 799 CPM  Operator: Mike Shek (MSKM)  Standard Equipment  Equipment: Rupprecht & Patashnick TEOM®  Venue: Cyberport (Pui Ying Secondary School)  Model No.: Series 1400AB	
Operator:  Mike Shek (MSKM)  Standard Equipment  Equipment:  Rupprecht & Patashnick TEOM®  Venue:  Cyberport (Pui Ying Secondary School)  Model No.:  Series 1400AB	
Standard Equipment  Equipment: Rupprecht & Patashnick TEOM®  Venue: Cyberport (Pui Ying Secondary School)  Model No.: Series 1400AB	
Equipment: Rupprecht & Patashnick TEOM®  Venue: Cyberport (Pui Ying Secondary School)  Model No.: Series 1400AB	
Venue: Cyberport (Pui Ying Secondary School)  Model No.: Series 1400AB	
Venue: Cyberport (Pui Ying Secondary School)  Model No.: Series 1400AB	
Model No.: Series 1400AB	<del></del>
	<del></del>
Selial No. Collidi. 140AD219099003	
Sensor: 1200C143659803 K <sub>o</sub> : 12500	
Last Calibration Date*: 4 June 2011	programme day
	A*********************************
*Remarks: Recommended interval for hardware calibration is 1 year	
Calibration Result	
•	
Sensitivity Adjustment Scale Setting (Before Calibration): 799 CPM	
Sensitivity Adjustment Scale Setting (After Calibration): 799 CPM	
	Count/ Minute <sup>3</sup>
	X-axis
Temp   R.H.   Y-axis   X-axis   X-axis	V-9XI2
	28.63
	28.38
	29.38
4 02-07-11 12:30 - 13:30 31.2 71 0.04632 1855 30.92	30.92
Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®	
Total Count was logged by Laser Dust Monitor	
3. Count/minute was calculated by (Total Count/60)	
By Linear Regression of Y or X	
Slope (K-factor): 0.0015 Correlation coefficient: 0.9961	
Correlation coefficient: 0.9961	
Validity of Calibration Record: 1 July 2012	
Remarks:	
)	
OC Paviover: VM Every Signature: Date: 4 July 2011	2044

Type.				Laser Du	ıst Moni	tor		
Model	facturer/Brand:		_	SIBATA LD-3B		·		
	ment No.:		_	LD-3B A.005.12				
	tivity Adjustment	Scale Setting	_	805 CPI				
Opera	ator:			Mike She	k (MSKN	<i>1</i> )		
Standa	rd Equipment						<del> </del>	
		4.000	-					
Equip			echt & Pa					<u>_</u>
Venue			oort (Pui \	ing Seco	ndary Sc	chool)		
Model			1400AB		2000			
Serial	No:	Contro		DAB21989		1/ 40500		
1 4 6	No. 17 to 2 12 to 4 to 4 to	Senso		00C14368	9803	K <sub>o</sub> : <u>12500</u>		
Last C	Calibration Date*:	4 June	2011					
*Remar	ks: Recommend	ed interval fo	or hardwar	e calibra	tion is 1 y	/ear		
Calibra	tion Result						****	
Canbra	uon Kesuk							
	tivity Adjustment					805 CF 805 CF		
Sensi	tivity Adjustment	Scale Setting	g (After C	anbration	):	805 CF	'IVI	
Hour	Date	Tim	e	1	pient	Concentration	Total	Count/
	(dd-mm-yy)				dition	(mg/m <sup>3</sup> )	Count <sup>2</sup>	Minute <sup>3</sup>
-				Temp (°C)	R.H. (%)	Y-axis		X-axis
1	02-07-11	09:30 -	10:30	31.1	70	0.04305	1843	30.72
2	02-07-11	10:30 -	11:30	31.1	71	0.04257	1826	30.43
3	02-07-11	11:30 -	12:30	31.2	71	0.04424	1893	31.55
4	02-07-11	12:30 -	13:30	31.2	71	0.04632	1994	33.23
Note:	Monitoring of 2. Total Count     Count/minut	was logged	by Laser I	Dust Mon	itor	shnick TEOM <sup>®</sup>		
	ar Regression of	Y or X						
	(K-factor):	_	0.0014					
Correl	lation coefficient:	سب	0.9947					
Validit	ty of Calibration F	Record:	1 July 20	12				
Remark	(e:							
Cinair								
			•			3.000 Jan		
					1/			
QC R	eviewer: YW F	-una	Signa	ture:	1	Date	e: 4 July	2011

Type: Manufacturer/Brand: Model No.: Equipment No.:				Laser Du SIBATA LD-3B A.005.13a		dor		
Sensitivity Adjustment Scale Setting:			ting:	643 CPM				
Operator:				Mike Shek (MSKM)				
Standar	rd Equipment							
Equipr Venue Model	1.	Cyl		Patashnick ī ii Ying Seco. B		chool)	Appellula Abdal Mark Ava Berraria	
Serial No: Cor Ser		trol: 140AB219899803 sor: 1200C143659803 K <sub>o</sub> : 12500 rne 2011						
*Remarl	ks: Recommend	ed interva	al for hardv	vare calibrat	ion is 1 y	/ear		÷
Calibra	tion Result							
	ivity Adjustment ivity Adjustment					643 CF		
Hour	Date (dd-mm-yy)	,	Time	Amb Cond Temp (°C)		Concentration <sup>1</sup> (mg/m <sup>3</sup> ) <b>Y-axis</b>	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> X-axis
1	05-06-11	11:00	- 12:0		67	0.04513	1933	32.21
2	05-06-11	12:00	- 13:0		67	0.04392	1833	31.38
3	05-06-11	13:00 14:00	- 14:0 - 15:0		66 66	0.04751 0.04476	2042 1918	34.03 31.97
Note:	1. Monitoring of 2. Total Count 3. Count/minut	lata was r was logg	measured ed by Lase	by Rupprecl er Dust Mon	nt & Pata itor	ashnick TEOM®	1	J
• • • • • • • • • • • • • • • • • • • •			0.0014 0.9978			÷		
Validity of Calibration Record: 4 Jun			4 June	1 June 2012				
Remark	s:				^			
QC Re	eviewer: YW f	ung	Sig	ınature:	4	Dat	e: 8 June	e 2011



# 綜 合 試 驗 有 限 公 司 SOILS & MATERIALS ENGINEERING CO., LTD.

G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. 香港黃竹坑道37號利達中心地下,9樓,12樓,13樓及20樓 E-mail: smec@cigismec.com Website: www.cigismec.com

Tel: (852) 2873 6860 Fax: (852) 2555 7533



### CERTIFICATE OF CALIBRATION

Certificate No.:

11CA0711 01-02

Page

of

2

Item tested

Description: Manufacturer: Sound Level Meter (Type 1)

Microphone

B&K

Type/Model No.:

**B&K** 2238

4188 2250447

Serial/Equipment No.: Adaptors used:

2255680 / N.009.01

Item submitted by

**Customer Name:** 

AECOM ASIA CO., LTD.

Address of Customer:

Request No.:

Date of receipt:

11-Jul-2011

Date of test:

12-Jul-2011

Reference equipment used in the calibration

Description:

Model:

Serial No. 2288444

**Expiry Date:** 09-May-2012

Traceable to: CIGISMEC

Multi function sound calibrator Signal generator Signal generator

B&K 4226 DS 360 DS 360

33873 61227

30-May-2012 30-May-2012 CEPREI **CEPREI** 

**Ambient conditions** 

Temperature:

(22 ± 1) °C

Relative humidity: Air pressure:

 $(55 \pm 5) \%$ (995 ± 5) hPa

Test specifications

The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

The electrical tests were performed using an electrical signal substituted for the microphone which was removed and 2, replaced by an equivalent capacitance within a tolerance of +20%.

The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference 3, between the free-field and pressure responsess of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

in/Fe/ng Jun Qi

Actual Measurement data are documented on worksheets.

Huang

Approved Signatory:

Date:

13-Jul-2011

Company Chop:

The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

© Soils & Materials Engineering Co., Ltd



## 綜合試驗有限公司 SOILS & MATERIALS ENGINEERING CO., LTD.

G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. 香港黃竹坑道37號利達中心地下,9樓,12樓,13樓及20樓 E-mail: smec@cigismec.com Website: www.cigismec.com





### CERTIFICATE OF CALIBRATION

Certificate No.:

11CA0317 06-01

Page

of

2

Item tested

Description: Manufacturer: Sound Level Meter (Type 1) **B&K** 

Microphone **B&K** 4188

Type/Model No.: Serial/Equipment No.: 2238 2285692/N.009.04 2250420

Adaptors used:

Item submitted by

**Customer Name:** 

AECOM ASIA CO., LTD.

Address of Customer: Request No .:

Date of request:

17-Mar-2011

Date of test:

26-Mar-2011

### Reference equipment used in the calibration

Description: Multi function sound calibrator Signal generator

Signal generator

Model: B&K 4226 DS 360

DS 360

Serial No. 2288444 33873 61227

**Expiry Date:** 10-Jan-2012 28-Jun-2011 24-Jun-2011

Traceable to: CIGISMEC CEPREI CEPREI

**Ambient conditions** 

Temperature: Relative humidity:

Air pressure:

(22 ± 1) °C  $(60 \pm 5) \%$ (1005 ± 5) hPa

### Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference 3. between the free-field and pressure responsess of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Huang Jian Min/Feng Jun Qi

Actual Measurement data are documented on worksheets

Approved Signatory:

Date:

29-Mar-2011

Company Chop:

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

© Soils & Materials Engineering Co., Ltd.



# 綜合試驗有限公司

G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. 香港黃竹坑道37號利達中心地下,9樓,12樓,13樓及20樓 E-mail: smec@cigismec.com Website: www.cigismec.com

Tel: (852) 2873 6860 Fax: (852) 2555 7533



# CERTIFICATE OF CALIBRATION

Certificate No.:

10CA1105 01

Page

of

2

Item tested

Description:

Sound Level Meter (Type 1)

Microphone

Manufacturer:

**B&K** 

**B&K** 

Type/Model No.: Serial/Equipment No.:

2238 2255688 4188 2141430

Adaptors used:

Item submitted by

**Customer Name:** 

AECOM ASIA CO., LTD.

Address of Customer:

Request No.: Date of request:

05-Nov-2010

Date of test:

08-Nov-2010

Reference equipment used in the calibration

Description:

Model:

Serial No.

**Expiry Date:** 

Traceable to:

Multi function sound calibrator Signal generator

B&K 4226 DS 360

2288444 33873

12-Jan-2011 28-Jun-2011 CIGISMEC **CEPREI** 

Signal generator

DS 360

61227

24-Jun-2011

CEPRE

**Ambient conditions** 

Temperature: Air pressure:

(21 ± 1) °C

Relative humidity:

 $(60 \pm 5) \%$ (1000 ± 5) hPa

**Test specifications** 

The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580; Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

The electrical tests were performed using an electrical signal substituted for the microphone which was removed and 2,

replaced by an equivalent capacitance within a tolerance of ±20%. The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference 3, between the free-field and pressure responsess of the Sound Level Meter.

## Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

H<u>uang Jian Mi</u>o/Fend Jun Qi

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

Date:

@ Soils & Materials Engineering Co., Ltd.

Approved Signatory:



# 綜合試驗有限公司 SOILS & MATERIALS ENGINEERING CO., LTD.

G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. 香港黃竹坑道37號利達中心地下,9樓,12樓,13樓及20樓 Website: www.cigismec.com E-mail: smec@cigismec.com

Tel: (852) 2873 6860 Fax: (852) 2555 7533



### CERTIFICATE OF CALIBRATION

Certificate No.:

11CA0830 02

Page

of

Item tested

Description: Manufacturer: Sound Level Meter (Type 1)

Rion Co., Ltd.

N1 -31

Microphone Rion Co., Ltd. Preamo Rion Co., Ltd.

2

Serial/Equipment No.:

Type/Model No.:

00320528 / N.007.03A

UC-53A 90565

NH-19 75883

Adaptors used: Item submitted by

**Customer Name:** 

AECOM ASIA CO., LTD.

Address of Customer:

Request No.:

Date of receipt:

30-Aug-2011

Date of test:

31-Aug-2011

### Reference equipment used in the calibration

Description:

Multi function sound calibrator

Signal generator

Signal generator

Model: B&K 4226

DS 360

DS 360

2288444 33873 61227

Serial No.

Expiry Date:

09-May-2012 30-May-2012 30-May-2012 Traceable to: CIGISMEC CEPREL CEPREI

Ambient conditions

Temperature:

 $(23 \pm 1)$  °C  $(60 \pm 5) \%$ 

Relative humidity: Air pressure:

 $(1000 \pm 5) hPa$ 

### Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 1, and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and 2, replaced by an equivalent capacitance within a tolerance of ±20%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference 3, between the free-field and pressure responsess of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

ng Jun Qi

31-Aug-2011 Date:

Company Chop:

The results reported il this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

C Soils & Materials Engineering Co., Ltd.



## 綜 合 試 驗 有 限 公 司 SOILS & MATERIALS ENGINEERING CO., LTD.

G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. 香港黄竹坑道37號利達中心地下,9樓,12樓,13樓及20樓 E-mail: smec@cigismec.com Website: www.cigismec.com

Tel : (852) 2873 6860 Fax: (852) 2555 7533



### CERTIFICATE OF CALIBRATION

Certificate No.:

11CA0711 01-05

Page:

of

2

Item tested

Description:

Acoustical Calibrator (Class 1)

Manufacturer:

Ríon Co., Ltd.

Type/Model No.:

NC-73

Serial/Equipment No.:

10307223 / N.004.08

Adaptors used:

Item submitted by

Curstomer:

AECOM ASIA CO. LTD.

Address of Customer:

Request No.: Date of receipt:

11-Jul-2011

Date of test:

13-Jul-2011

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	18-May-2012	SCL
Preamplifier	B&K 2673	2239857	14-Dec-2011	CEPREI
Measuring amplifier	B&K 2610	2346941	15-Dec-2011	CEPREI
Signal generator	DS 360	61227	30-May-2012	CEPREI
Digital multi-meter	34401A	US36087050	09-Dec-2011	CEPREI
Audio analyzer	8903B	GB41300350	27-May-2012	CEPREI
Universal counter	53132A	MY40003662	30-May-2012	CEPREI

#### **Ambient conditions**

Temperature: Relative humidity: 22 ± 1 °C  $55 \pm 5 \%$ 

Air pressure:

990 ± 5 hPa

### **Test specifications**

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B 1, and the lab calibration procedure SMTP004-CA-156.
- 2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- 3. The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

### Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions,

Details of the performed measurements are presented on page 2 of this certificate.

Huang Jian

Approved Signatory:

nÆerlg Jun Qi

Company Chop:

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibra carry no implication regarding the long-term stability of the instrument.

Soils & Materials Engineering Co., Ltd.

Form No,CARP156-1/(ssue 1/Rev.D/01/03/2007



# 綜合試驗有限公司 SOILS & MATERIALS ENGINEERING CO., LTD.

G/F, 9/F, 12/F, 13/F, & 20/F, Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. 香港實竹坑道37號利達中心地下,9樓,12樓,13樓及20樓 E-mail: smec@cigismec.com Website: www.cigismec.com



# CERTIFICATE OF CALIBRATION

Certificate No.:

11CA0317 06-02

Page:

0

2

Item tested

Description:

Acoustical Calibrator (Class 1)

Manufacturer:

Rion Co., Ltd. NC-73

Type/Model No.: Serial/Equipment No.:

10186482/N.004.09

Adaptors used:

-

Item submitted by

Curstomer:

AECOM ASIA CO., LTD.

Address of Customer: Request No.:

-

Date of request:

17-Mar-2011

Date of test:

26-Mar-2011

## Reference equipment used in the calibration

Description: Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter Audio analyzer Universal counter	Model: B&K 4180 B&K 2673 B&K 2610 DS 360 34401A 8903B 53132A	Serial No. 2412857 2239857 2346941 61227 US36087050 GB41300350 MY40003662	Expiry Date: 02-Jul-2011 14-Dec-2011 15-Dec-2011 24-Jun-2011 09-Dec-2011 28-Jun-2011 05-Jul-2011	Traceable to: SCL CEPREI CEPREI CEPREI CEPREI CEPREI CEPREI CEPREI
---	---	--	---	--

### **Ambient conditions**

Temperature:

22 ± 1 °C

Relative humidity:

60 ± 5 %

Air pressure:

1005 ± 5 hPa

### Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- 2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- 3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

### Test results

Details of the performed measurements are presented on page 2 of this certificate.

dng Jun Qi

Approved Signatory:

Date:

29-Mar-2011

Company Chop:

SENGINEGARIO COM SELWING A TECHNICAL SENGING COM SELWING COM SELWIN

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

© Soils & Materials Engineering Co., Ltd.