Station	Sheung Wun Yiu	(AM1A)		Operator:	Gary	Choi					
Cal. Date:	15-Mar-14		100 - 100 -	Next Due Date:	14-Ma	ay-14	_				
Equipment No.:	A-001-53T	_		Serial No.	102	216	_				
			Ambient	Condition							
Temperatu	re, Ta (K)	289	Pressure,	Pa (mmHg)		767.0					
				( )							
		(	Orifice Transfer S	tandard Informatio	n						
Serial	No:	988	Slope, mc	1.94727	Interce		0.0233				
Last Calibra	ation Date:	20-May-13			= [DH x (Pa/760) x						
Next Calibra	ation Date:	20-May-14	O-May-14 Qstd = {[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup> -bc} / mc								
				of TSP Sampler	10.4	S Eleve Beereden					
Resistance		0	rfice		HVS	S Flow Recorder					
Plate No.	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup>		Qstd (m³/min) X - axis	Flow Recorder Reading (CFM)	Continuous Flo Reading IC (C					
18			3.06	1.56	46.0	46.9	93				
13	6.1		2.52	1.28	36.0	36.7	72				
10	4.4		2.14	1.09	31.0	31.62					
7	3.5	3.5 1.91 0.97			28.0	28.5	56				
5	2.1		1.48	0.75	22.0	22.4	14				
By Linear Regre	29.7418	-		Intercept, bw =	-0.3	150	_				
Correlation Coef	-		931	_							
'If Correlation Co	efficient < 0.990,	check and recalib	orate.								
			Set Point	Calculation							
From the TSP Fie	eld Calibration Cu	rve, take Qstd =	1.30m <sup>3</sup> /min								
		e "Y" value accord									
		mw	x Qstd + bw = IC	x [(Pa/760) x (298/	Γa)] <sup>1/2</sup>						
				1/0							
Therefore, Set Po	oint; IC = ( mw x (	Qstd + bw ) x [( 76	60 / Pa ) x ( Ta / 29	98 )]''²=		37.59	-				
Remarks:											
TOTTOTION.	<u> </u>										
,											
00 D	9/10		Cian atura			Data: For	122-110				

Station	Shan Tong New	Village (AM2)		Operator:	Gary	Choi				
Cal. Date:	15-Mar-14			Next Due Date:	14-M	ay-14				
Equipment No.:	A-001-29T	_		Serial No.	102	202	_			
			Ambient	t Condition						
Temperatu	re, Ta (K)	289	Pressure,	Pa (mmHg)		767.0				
				( 0)		000000000000000000000000000000000000000				
		C	Orifice Transfer S	tandard Information	on					
Serial	No:	988	Slope, mc	1.94727	Interce	ept, bc	0.02332			
Last Calibra	ation Date:	20-May-13		mc x Qstd + bc	= [DH x (Pa/760) x	(298/Ta)] <sup>1/2</sup>				
Next Calibra	ation Date:	20-May-14	20-May-14 Qstd = {[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup> -bc} / mc							
		•								
				of TSP Sampler						
		0	rfice		HV	S Flow Recorder	*			
Resistance Plate No.  DH (orifice), in. of water  18  10.0		[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup>		Qstd (m³/min) X - axis	Flow Recorder Reading (CFM)	Continuous Flo Reading IC (C				
			3.23	1.64	48.0	48.97				
13	7.5		2.79	1.42	42.0	42.8	84			
10	5.6		2.41	1.23	35.0	35.	70			
7	3.7		1.96	1.00	28.0	28.5	56			
5	2.5		1.61	0.82	24.0	24.4	48			
By Linear Regre Slope , mw = Correlation Coef	30.3815	_	958	Intercept, bw =	-0.9	966	÷			
ii Correlation Co	emcient < 0.990,	check and recalib	rate.							
			Set Point	Calculation						
From the TSP Fie	eld Calibration Cu	rve, take Qstd = 1	1.30m³/min							
From the Regress	sion Equation, the	e "Y" value accord	ling to							
		mw :	x Qstd + bw = IC	x [(Pa/760) x (298/	Га)] <sup>1/2</sup>					
				1/2						
Therefore, Set Po	oint; IC = ( mw x (	Qstd + bw ) x [( 76	60 / Pa ) x ( Ta / 29	98 )]''²=		37.74				
Remarks:										
veillains.										
5										
,	XT 1000	7	/			113-				

D:\HVS Calibration Certificate (Existing)\

Station	Riverain Bayside	e (AM3)		Operator:	Choi W	/ing Ho	
Cal. Date:	18-Feb-14			Next Due Date:	18-M	ay-14	
Equipment No.:	A-001-69T			Serial No.	7	16	
			Ambient	Condition			
Temperatu	ıre, Ta (K)	290	Pressure, I	Pa (mmHg)		762.4	
			Orifice Transfer S	tandard Informatio			
Seria	l No:	988	Slope, mc	1.94727		ept, bc	0.02332
Last Calibra	ation Date:	20-May-13			= [DH x (Pa/760) x		
Next Calibr	ation Date:	20-May-14		Qstd = {[DH x (	Pa/760) x (298/Ta)]	<sup>1/2</sup> -bc} / mc	
			Calibration	of TSP Sampler	The second secon		
		C	rfice	or Tor Sampler	HV	S Flow Recorder	
Resistance			Title				
Plate No.	DH (orifice), in. of water	[DH x (Pa/7)	60) x (298/Ta)] <sup>1/2</sup>	Qstd (m³/min) X - axis	Flow Recorder Reading (CFM)	Continuous Flow Reading IC (CFM	
18	8.9		3.03	1.54	46.0	46.70	
13	13 7.5 2.78		2.78	1.42	43.0	43.66	
10	5.6	2.40		1.22	34.0	34.52	
7	4.0	2.03		1.03	27.0	27.41	
5	3.0		1.76	0.89	21.0	21.32	
Slope , mw = Correlation Coe	-		<b>9949</b> orate.	Intercept, bw =	-13.8	3329	
			Set Point	Calculation			
From the TSP Fig	eld Calibration Cu	urve, take Qstd =		Galculation			
		e "Y" value accor					
J	,						
		mw	x Qstd + bw = IC	x [(Pa/760) x (298/	Ta)] <sup>1/2</sup>		
Therefore Set P	oint: IC = / mw v	Octd + hw \ v [/ 7]	60 / Pa ) x ( Ta / 29	98 )1 <sup>1/2</sup> =		37.31	
Therefore, Set F	oilit, iC = ( iiiw x ·	Q3tu · bw ) x [( i	3071 a / X ( 1 a 7 2 c	,0 )] -		37.31	
					10.00		
	-						
Remarks:	*						
							1
				Ĭ.			
QC Reviewer: 1	M Sun		Signature:	4		Date: 20 - 2 -	14

Cal. Date:	100 OHER KWU L	ung Village (AM4A	٨)	Operator:	Gary	Choi		
	15-Mar-14			Next Due Date:	14-Ma	ay-14	_	
Equipment No.:	A-001-70T	_		Serial No.	102	273	_	
			Ambient	Condition				
Temperatu	re, Ta (K)	289.4	Pressure, F	Pa (mmHg)		768.3		
<del></del>								
		C	Prifice Transfer S	tandard Informatio	n			
Serial	l No:	988	Slope, mc	1.94727	Interce		0.0233	
Last Calibra	ation Date:	20-May-13		mc x Qstd + bc	= [DH x (Pa/760) x	(298/Ta)] <sup>1/2</sup>		
Next Calibra	ation Date:	20-May-14		Qstd = {[DH x (I	Pa/760) x (298/Ta)]	<sup>1/2</sup> -bc} / mc		
			Calibration of	of TSP Sampler				
		0	rfice		HVS	S Flow Recorde	r	
Resistance Plate No.	in. of water			Qstd (m³/min) X - axis	Flow Recorder Reading (CFM)	Continuous Flow Reco		
18	8.8		3.03	1.54	46.0	46	.93	
13	7.4		2.78	1.41	42.0	42	.85	
10	5.1	1	2.30	1.17	36.0	36.73		
7	3.2		1.83	0.93	28.0	28	.57	
5	2.5		1.61	0.82	23.0	23	.47	
Slope , mw = Correlation Coe	31.3458 fficient* =	_,	<b>9922</b> prate.	Intercept, bw =	-1.0	821	_	
Slope , mw = Correlation Coe	31.3458 fficient* =		orate.	Intercept, bw =	-1.0	821		
Glope , mw = Correlation Coe If Correlation Co	31.3458  fficient* = pefficient < 0.990,	0.9 check and recalib	orate.  Set Point	_	-1.0	821		
Slope , mw = Correlation Coe If Correlation Co From the TSP Fig.	31.3458  fficient* = pefficient < 0.990, peld Calibration Cu		Set Point 1.30m³/min	_	-1.0	821		
Slope , mw = Correlation Coe If Correlation Co From the TSP Fig.	31.3458  fficient* = pefficient < 0.990, peld Calibration Cu	check and recalib	Set Point 1.30m³/min	_	-1.0	821		
Slope , mw = Correlation Coe If Correlation Coe From the TSP Fig.	31.3458  fficient* = pefficient < 0.990, peld Calibration Cu	check and recalib	Set Point 1.30m³/min ling to	_		821		
Correlation Coe If Correlation Coe From the TSP Fig.	31.3458  fficient* = pefficient < 0.990, peld Calibration Cusion Equation, the	check and recalib	Set Point 1.30m³/min ling to  x Qstd + bw = IC	Calculation x [(Pa/760) x (298/				
Correlation Coe If Correlation Coe From the TSP Fig.	31.3458  fficient* = pefficient < 0.990, peld Calibration Cusion Equation, the	check and recalib	Set Point 1.30m³/min ling to  x Qstd + bw = IC	Calculation x [(Pa/760) x (298/		38.88		
Correlation Coe If Correlation Coe From the TSP Fig.	31.3458  fficient* = pefficient < 0.990, peld Calibration Cusion Equation, the	check and recalib	Set Point 1.30m³/min ling to  x Qstd + bw = IC	Calculation x [(Pa/760) x (298/				
Correlation Coe If Correlation Coe From the TSP Fig.	31.3458  fficient* = pefficient < 0.990, peld Calibration Cusion Equation, the	check and recalib	Set Point 1.30m³/min ling to  x Qstd + bw = IC	Calculation x [(Pa/760) x (298/				
Correlation Coe If Correlation Coe From the TSP Fig. From the Regres	31.3458  fficient* = pefficient < 0.990, peld Calibration Cusion Equation, the	check and recalib	Set Point 1.30m³/min ling to  x Qstd + bw = IC	Calculation x [(Pa/760) x (298/				
Correlation Coe If Correlation Coe From the TSP Fig. From the Regres	31.3458  fficient* = pefficient < 0.990, peld Calibration Cusion Equation, the	check and recalib	Set Point 1.30m³/min ling to  x Qstd + bw = IC	Calculation x [(Pa/760) x (298/				
From the TSP Fig From the Regres	31.3458  fficient* = pefficient < 0.990, peld Calibration Cusion Equation, the	check and recalib	Set Point 1.30m³/min ling to  x Qstd + bw = IC	Calculation x [(Pa/760) x (298/				



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 - M Operator		Rootsmeter Orifice I.I		438320 0988	Ta (K) - Pa (mm) -	297 751.84
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 NA	1.00 1.00 1.00 1.00	1.3900 0.9720 0.8670 0.8270 0.6800	3.2 6.4 7.9 8.7 12.6	2.00 4.00 5.00 5.50 8.00

#### DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9884 0.9842 0.9821 0.9811 0.9759	0.7110 1.0125 1.1327 1.1863 1.4352	1.4090 1.9926 2.2278 2.3365 2.8179	0.9957 0.9915 0.9894 0.9884 0.9832	0.7163 1.0201 1.1412 1.1952 1.4459	0.8889 1.2570 1.4054 1.4740 1.7777
Qstd slo intercep coeffici	ot (b) = ent (r) =	1.94727 0.02332 0.99998 	Qa slop intercep coeffici v axis =	t (b) =	1.21935 0.01471 0.99998

#### CALCULATIONS

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

Qstd = Vstd/Time

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

Qa = Va/Time

For subsequent flow rate calculations:

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

Mode Equip Sensi Opera	facturer/Brand: If No.: If No.: If No.: It with the state of the state	_Rup Cyb Ser	oprecht & Pa erport (Pui ies 1400AB		TEOM®	M)		
	Calibration Date*:	Sen		00C1436		K <sub>o</sub> : <u>1250</u>	0	_
*Remar	ks: Recommend	ed interva	l for hardwa	re calibra	tion is 1	year		
Calibra	tion Result							
	tivity Adjustment tivity Adjustment						PM PM	
Hour	Date (dd-mm-yy)	Т	ime	Amb Cond Temp (°C)	pient dition R.H. (%)	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	18-05-13	12:30	- 13:30	28.1	78	0.04714	1887	31.45
2	18-05-13	13:30	- 14:30	28.1	78	0.04932	1970	32.83
3	18-05-13	14:30	- 15:30	28.2	77	0.05156	2056	34.27
4	18-05-13	15:30	- 16:30	28.1	78	0.05083	2026	33.77
Slope Correla	2. Total Count 3. Count/minut ar Regression of (K-factor): ation coefficient: y of Calibration F	was logge e was cald Y or X	d by Laser	Dust Moni Γotal Cour	tor	shnick TEOM <sup>®</sup>		
QC Re	viewer: <u>YW</u> F	ung	Signa	ture:	4/	Date	e: <u>20 Ma</u> y	/ 2013

	Scale S	etting:		Laser Dust Monitor SIBATA LD-3 A.005.08a 702 CPM					
or:			_	Mike Sh	ek (MSF	(M)			
d Equipment									
No.:	C) Se	/berpo	rt (Pui 400AB	t (Pui Ying Secondary School)					
	Se	ensor:	12			K <sub>o</sub> : _12	500		
s: Recommend	ed interv	al for h	nardwa	re calibra	ition is 1	year			
on Result									
						702 702	CPM CPM		
Date (dd-mm-yy)		Time		Ambient Condition Temp R.H. (°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	
18-05-13	12:30	- 1	3:30	28.1	78	0.04714	1764	29.40	
18-05-13	13:30			28.1	78	0.04932	1846	30.77	
					77	0.05156	1935	32.25	
18-05-13	15:30	- 1	6:30	28.1	78	0.05083	1899	31.65	
<ol> <li>Total Count</li> <li>Count/minut</li> <li>Regression of</li> <li>(-factor):</li> </ol>	was logg e was ca	ged by alculate	Laser ed by (	Dust Mon	itor				
of Calibration F	Record:	_17	May 2	014					
1									
	No.: No: No: No: No: No: No: No: No: No: No	No.: See No: S	Cyberpol Series 1: No: Series 1: No: Control: Sensor: 18 May 2: s: Recommended interval for Non Result  Find Adjustment Scale Setting (Vity Adjustment Scal	Cyberport (Pui   Series 1400AB   Control: 14   Sensor: 12   18   May 2013   Series 1400AB   Sensor: 12   18   May 2013   Series 1400AB   Sensor: 12   18   May 2013   Series 14   May 2013   Series 14   Sensor: 12   Sensor: 13   Sensor: 14   Sensor: 14   Sensor: 14   Sensor: 15   Sensor: 14   Sensor: 16   Sensor: 16   Sensor: 17   Sensor: 17	Cyberport (Pui Ying Section	Cyberport (Pui Ying Secondary   Series 1400AB   Control: 140AB219899803   Sensor: 1200C143659803   Sensor: 1200C1436598	Cyberport (Pui Ying Secondary School)   Series 1400AB	Cyberport (Pui Ying Secondary School)	

r/Brand: o.: ljustment S <b>ipment</b>	cale Se	tting											
ljustment S	cale Se	tting		A.005.09 797 CPN									
ljustment S	cale Se	tting		797 CPN									
ipment				Miles Obs	797 CPM								
ipment	Operator: Standard Equipment					Mike Shek (MSKM)							
	Ruj	opre	cht & Pa	tashnick 1	ΓΕΟΜ <sup>®</sup>								
	Cyl	berpo	ort (Pui \	(Pui Ying Secondary School)									
	Ser	ies 1	1400AB	or her had									
Serial No: Control:													
Sensor:					9803	K <sub>o</sub> : 12500							
Last Calibration Date*: 18 May 20								-					
commended	d interva	al for	hardwa	e calibrat	ion is 1	year							
esult													
Hour Date Time (dd-mm-yy)					ition	Concentration <sup>1</sup> (mg/m <sup>3</sup> )	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup>					
				Temp (°C)		Y-axis		X-axis					
05-13	12:30	-	13:30	28.1	78	0.04714	1885	31.42					
05-13	13:30	121	14:30	28.1	78	0.04932	1965	32.75					
		+			77	0.05156	2059	34.32					
		÷				0.05083	2024	33.73					
tal Count w unt/minute ession of Y or):	as logge was cal	ed by culat	Laser I ted by (T	Dust Moni	tor	ISNNICK LEOM							
ibration Re	cord:	_1	7 May 20	014									
					6/	/							
	djustment Siljustment Siljustm	commended intervales ult  commended intervales  commended interv	Control: Sensor: 18 May  commended interval for  esult  dijustment Scale Setting dijustment Scale Setting  Oate Time  mm-yy)  05-13 12:30 - 05-13 13:30 - 05-13 15:30 - onitoring data was meastal Count was logged by bunt/minute was calculated ession of Y or X  or):  oefficient:  0.0  0.1  0.1  0.1  0.1  0.1  0.1  0.	Control: 140 Sensor: 120 18 May 2013  commended interval for hardware sult  dijustment Scale Setting (Before dijustment Scale Setting (After Cata)  Oate Time  O5-13 12:30 - 13:30 O5-13 13:30 - 14:30 O5-13 15:30 - 16:30 Onitoring data was measured by tal Count was logged by Laser Dount/minute was calculated by (Tession of Y or X or): 0.0015 Oefficient: 0.9973  Ilibration Record: 17 May 20	Control:	Control: 140AB219899803   Sensor: 1200C143659803   1200C143659803   1200C143659803   1200C143659803   18 May 2013   18 May 2013   18 May 2013   18 may 2014   19 may 2014   18 may 201	Control: 140AB219899803   Sensor: 1200C143659803   Ko: 12500   K	Control:   140AB219899803   Sensor:   1200C143659803   Koopen   Koopen					

Model	facturer/Brand: No.: ment No.:			-	Laser De SIBATA LD-3 A.005.10	itor			
	tivity Adjustment	Scale Se	tting:		753 CPI				
Opera	itor:				Mike She	k (MSKI	M)		
Standa	rd Equipment								
Equip	ment:	Ruj	opred	cht & Pa	tashnick	TEOM®			
Venue	30				Ying Seco	ndary S	chool)		
Model				400AB					
Serial	No:		ntrol:		DAB2198				
Last C	alibration Date*:	nsor: May	<u>120</u> 2013	00C1436	59803	K <sub>o</sub> : 12500	)	_	
*Remar	ks: Recommend	ed interva	al for	hardwai	re calibra	tion is 1	year		
Calibra	tion Result								
	ivity Adjustment ivity Adjustment						753 CF		
Hour	Date (dd-mm-yy)	Ţ	ime		Ambient Condition Temp R.H. (°C) (%)		Concentration <sup>1</sup> (mg/m <sup>3</sup> )  Y-axis	Total Count <sup>2</sup>	Count/ Minute X-axis
1	18-05-13	12:30	-	13:30	28.1	78	0.04714	1886	31.43
2	18-05-13	13:30	-	14:30	28.1	78	0.04932	1968	32.80
3	18-05-13	14:30	100	15:30	28.2	77	0.05156	2061	34.35
4	18-05-13	15:30	-	16:30	28.1	78	0.05083	2026	33.77
Slope	1. Monitoring d 2. Total Count 3. Count/minut ar Regression of (K-factor): ation coefficient:	was logge e was cal	ed by culat _0.	Laser [	<b>Dust Mon</b>	itor	ashnick TEOM <sup>®</sup>		
Validity	of Calibration R	Record:	17	7 May 20	014				
Remarks	s:								
						*			

Type:				Laser Du	ıst Moni	itor			
	facturer/Brand:		_	SIBATA					
Model			_	LD-3					
	ment No.: tivity Adjustment	Scale Se	ttino	_	A.005.11 799 CPI		-		
Sensi	livity Aujustinem	Scale Se	ung		199 CFI	VI			
Opera	itor:				Mike She	k (MSKI	M)		
Standa	rd Equipment								
Equip	ment:	Ru	ppre	cht & Pa	tashnick	TEOM®			
Venue					Ying Seco	ndary S	chool)		
Model				1400AB	7 3				
Serial No: Control: Sensor:					DAB21989				
41-50-5				00C1436	59803	K <sub>o</sub> : 12500			
Last Calibration Date*:18 May 20									_
*Remar	ks: Recommend	ded interva	al for	hardwar	re calibra	tion is 1	year		
Calibra	tion Result								
Sensit	ivity Adjustment	Scale Se	tting	(Before	Calibratio	n):	799 CF	PM	
	ivity Adjustment						799 CF		
Hour	Date		Time			pient	Concentration <sup>1</sup>	Total	Count
	(dd-mm-yy)				Cond		(mg/m <sup>3</sup> )	Count <sup>2</sup>	Minute
					Temp	R.H.	Y-axis		X-axis
1	18-05-13	12:15	.6	13:15	(°C) 28.1	(%) 78	0.04685	1871	31.18
2	18-05-13	13:15	-	14:15	28.1	78	0.04941	1979	32.98
3	18-05-13	14:15		15:15	28.2	77	0.05127	2055	34.25
4	18-05-13	15:15	-	16:15	28.1	78	0.05060	2021	33.68
Note:		data was i	mea	sured by	Rupprec	nt & Pata	ashnick TEOM®	2021	1 00.00
	3. Count/minu	te was ca	lcula	ted by (T	otal Cou	nt/60)			
	ar Regression of	YorX		2202					
	(K-factor):			0.0015					
Correla	ation coefficient:		_0	.9976		-			
Validity	y of Calibration I	Record:	_1	7 May 20	014	_			
Remark	e.								
Kemark	S.								
						1/			
QC Re	eviewer: YW F	-ung		Signat	ure:	4/	Date	e: 20 Ma	y 2013
						U		-	

Model Equipi Sensit Opera	ment No.: tivity Adjustment ator:	Scale Se	tting:	=	Laser Du SIBATA LD-3B A.005.13 643 CPI Mike She					
Standa	rd Equipment									
Equipr Venue Model Serial Last C	e: No.:	Cyl. Ser Cor Ser	perpoi	rt (Pui \ 100AB 140 120	tashnick Ving Seco DAB21989 DOC14365	ndary So 9803				
*Remar	ks: Recommend	ed interva	al for h	nardwar	e calibrat	ion is 1 y	/ear			
Calibra	tion Result		7000 100				FIX. FIX AND ST			
	ivity Adjustment ivity Adjustment		٠,			,		CPM CPM		
Hour	Date (dd-mm-yy)	,	ime		Amb Cond Temp (°C)		Concentration (mg/m³) <b>Y-axis</b>	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> <b>X-axis</b>	
1	18-05-13	12:15	-	13:15	28.1	78	0.04685	1867	31.12	
2	18-05-13	13:15	-	14:15	28.1	78	0.04941	1975	32.92	
3	18-05-13	14:15		15:15	28.2	77	0.05127	2048	34.13	
4	18-05-13	15:15		16:15	28.1	78	0.05060	2017	33.62	
Slope	1. Monitoring d 2. Total Count 3. Count/minut ar Regression of (K-factor): ation coefficient:	was logge e was cal	ed by culate	Laser [	Dust Moni	tor	shnick TEOM®			
Validity	y of Calibration F	Record:	_17	May 20	014					
Remarks	s:									
QC Re	viewer: YW F	ung		Signat	ure:	4/	D	ate: _20 Ma	ıy 2013	

Type: Manufacturer/Brand: Model No.: Equipment No.:				Laser Dust Monitor SIBATA LD-3B A.005.16a					
Equipment No.: Sensitivity Adjustment Scale Setting:			-	521 CPN					
Operator:			_	Mike Shek (MSKM)					
Standa	rd Equipment			416					
Equipr	ment:	Ruppre	echt & Pa	tashnick '	TEOM®				
			berport (Pui Ying Secondary School)						
The state of the s			ies 1400AB						
Serial			ntrol: 140AB219899803						
Last C	Sense Last Calibration Date*: 18 Ma		:: <u>120</u> / 2013	1200C143659803 K <sub>o</sub> : 12500					
Lasi C	alibration Date .	_ TO IVIA	7 2013					<u></u>	
*Remar	ks: Recommend	ed interval fo	r hardwai	re calibrat	ion is 1	year			
Calibra	tion Result								
		(3)							
	ivity Adjustment						PM		
Sensit	ivity Adjustment	Scale Setting	(After Ca	alibration)	):	_521 C	PM		
Hour	Date	Time	2	Amb	pient	Concentration <sup>1</sup>	Total	Count/	
11001	(dd-mm-yy)		5	Condition		(mg/m <sup>3</sup> )	Count <sup>2</sup>	Minute <sup>3</sup>	
	(00 ),)			Temp	R.H.	Y-axis		X-axis	
				(°C)	(%)		907-27-2		
1	27-07-13	11:00 -	12:00	27.3	75	0.04734	1893	31.55	
2	27-07-13	12:00 -	13:00	27.3	75	0.04789	1915	31.92	
3	27-07-13	13:00 -	14:00	27.4	74	0.04953	1976	32.93	
4	27-07-13	14:00 -	15:00	27.4	75	0.04867	1949	32.48	
Note:	Monitoring of 2. Total Count 3. Count/minus ar Regression of 2.	was logged t te was calcula	by Laser I	Dust Mon	itor	ashnick TEOM <sup>®</sup>			
	(K-factor):		0.0015						
	ation coefficient:		0.9934						
Validit	Validity of Calibration Record: 26 July								
Remark	s:								
				- <u> </u>					
							7		
QC Re	eviewer: YW I	-ung	Signa	ture:	4	Da	te: _29 Jul	y 2013	



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



### CERTIFICATE OF CALIBRATION

Certificate No.:

13CA1107 01-02

Page:

of

2

Item tested

Description:

Acoustical Calibrator (Class 1)

Manufacturer:

Rion 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:

07-Nov-2013

Date of test:

08-Nov-2013

#### Reference equipment used in the calibration

Description: Lab standard microphone Preamplifier	Model: B&K 4180 B&K 2673	Serial No. 2341427 2239857	Expiry Date: 17-Apr-2014 16-Apr-2014	Traceable to: SCL CEPREI
Measuring amplifier	B&K 2610	2346941	24-Apr-2014	CEPREI
Signal generator	DS 360	61227	15-Apr-2014	CEPREI
Digital multi-meter	34401A	US36087050	10-Dec-2013	CEPREI
Audio analyzer	8903B	GB41300350	15-Apr-2014	CEPREI
Universal counter	53132A	MY40003662	15-Apr-2014	CEPREI

#### **Ambient conditions**

Temperature: Relative humidity: 22 ± 1 °C 60 ± 10 % 1000 ± 10 hPa

Air pressure:

#### **Test specifications**

- 1, 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

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 Min/Feng Jun Qi

Approved Signatory:

Date:

11-Nov-2013

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.

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# CERTIFICATE OF CALIBRATION

Certificate No.:

14CA0305 06-01

Page

of

Item tested

Sound Level Meter (Type 1)

Microphone

2

Description:

Manufacturer:

**B&K** 

B&K

2238

4188

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

2285692

Adaptors used:

2250420

Item submitted by

Customer Name:

AECOM ASIA CO. LTD.

Address of Customer:

Request No .:

Date of receipt:

05-Mar-2014

Date of test:

07-Mar-2014

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

22-Jun-2014

CIGISMEC

Signal generator

DS 360

33873 61227

15-Apr-2014 15-Apr-2014

CEPREI **CEPREI** 

Ambient conditions

Temperature:

22 ± 1 °C

Relative humidity: Air pressure:

60 ± 10 % 1000 ± 10 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. 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:

12-Mar-2014

Company Chop:

ENGIN

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.

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



### CERTIFICATE OF CALIBRATION

Certificate No.:

13CA0617 01-01

Page

of

2

Item tested

Description: Manufacturer: Sound Level Meter (Type 1)

Microphone B&K

Type/Model No.:

**B&K** 2238

4188 2791211

Serial/Equipment No.: Adaptors used:

2800927 / N.009.06

Item submitted by

Customer Name:

AECOM ASIA CO. LTD.

Address of Customer:

Request No .: Date of receipt:

17-Jun-2013

Date of test:

18-Jun-2013

Reference equipment used in the calibration

Description:

Model: B&K 4226 Serial No.

**Expiry Date:** 

Traceable to: CIGISMEC

Multi function sound calibrator Signal generator Signal generator

DS 360 DS 360

2288444 33873 61227

22-Jun-2013 15-Apr-2014 15-Apr-2014

CEPREI CEPREI

**Ambient conditions** 

Temperature:

22 ± 1 °C 60 ± 10 %

Relative humidity: Air pressure:

1000 ± 10 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%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference 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.

⊮Feng Jun Qi

Actual Measurement data are documented on worksheets.

Huang Jian M

Approved Signatory:

Date:

18-Jun-2013

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.

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



### CERTIFICATE OF CALIBRATION

Certificate No.:

13CA1107 01-01

Page

Item tested

Description:

Sound Level Meter (Type 1)

Rion Co., Ltd.

Microphone Rion Co., Ltd.

Manufacturer: Type/Model No.:

**NL-31** 

UC-53A

Serial/Equipment No .: Adaptors used:

90565 00320528 / N.007.03A

Item submitted by

**Customer Name:** Address of Customer: AECOM ASIA CO., LTD.

Request No.:

Date of receipt:

07-Nov-2013

Date of test:

08-Nov-2013

Reference equipment used in the calibration

Description:

Multi function sound calibrator

Signal generator Signal generator

Model:

DS 360

B&K 4226 DS 360

Serial No. 2288444

33873 61227 **Expiry Date:** 

22-Jun-2014 15-Apr-2014 15-Apr-2014

Traceable to:

CIGISMEC CEPREI **CEPREI** 

**Ambient conditions** 

Temperature: Relative humidity: 22 ± 1 °C 60 ± 10 %

Air pressure:

1000 ± 10 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%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference 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:

11-Nov-2013

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.



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



# CERTIFICATE OF CALIBRATION

Certificate No.:

14CA0305 06-02

Page

of

2

Item tested

Description: Manufacturer: Sound Level Meter (Type 1)

N.011,01

**B&K** 

2250

**B&K** 

4950 2665582

Microphone

Adaptors used:

Type/Model No.:

2681366

Item submitted by

Serial/Equipment No.:

Customer Name:

AECOM ASIA CO. LTD.

Address of Customer:

Request No.:

05-Mar-2014

Date of receipt:

Date of test:

07-Mar-2014

#### Reference equipment used in the calibration

Description:

Multi function sound calibrator

B&K 4226

Serial No. 2288444

**Expiry Date:** 22-Jun-2014 15-Apr-2014

Traceable to: CIGISMEC CEPREI CEPREI

Signal generator Signal generator DS 360 DS 360

Model:

33873 61227

15-Apr-2014

#### **Ambient conditions**

Temperature: Air pressure:

Relative humidity:

22 ± 1 °C 60 ± 10 % 1000 ± 10 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

Huang Jian Min/Feng Jun Qi

Actual Measurement data are documented on worksheets.

Approved Signatory:

Date:

12-Mar-2014

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.

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