Total Suspended Particulates (TSP) Sampler Field Calibration Report

Station	Fanling Governm	nent Secondary	School (AM2)		Operator:	Shum Kan	n Yuen
Date:27-Jul-15					Next Due Date:	27-Sep-15	
Model No:	TE-5170				Verified Against:	O.T.S	988
Equipment No.:	A-001-74T				Expiration Date:	28-May-	2015
			Ambient C	Condition			
Temperat	ture, Ta	303.0	Kelvin	Pressu	ıre, Pa	757.3	mmHg
			10 To 0 Co				
Г.			ifice Transfer Sta	l .			0.01220
Equipme		843	Slope, mc	1.99	924	Intercept, bc	-0.01238
Last Calibra		9-Dec-14	$mc x Qstd + bc = [H x (Pa/760) x (298/Ta)]^{1/2}$				
Next Calibra	ation Date:	9-Dec-15					
HI DA			Calibration of	TSP Sampler			
Calibration Point	H in. of water	[H x (Pa/760) x (298/Ta)] ^{1/2}		Qstd (m³/min) X - axis	W in. of oil	[ΔW x (Pa/760) Y-ax	
1	7.0		2.62	1.32	4.5	2.10)
2	5.8		2.38	1.20	3.7	1.90)
3	4.5		2.10	1.06	3.1	1.74	4
4	3.5		1.85	0.93	2.4	1.53	3
5	2.3	100 100 100 100 100 100 100 100 100 100	1.50	0.76	1.6	1.25	
By Linear Regr		X					
Slope, $mw = \frac{1}{2}$		_		Intercept, bw =		0.132	20
Correlation C	oefficient* =	0	.9982				
		* 100					16-
			Set Point C	alculation			
From the TSP Fi	eld Calibration	Curve, take Qs	$std = 1.21 \text{ m}^3/\text{min } (4)$	43 CFM)			
From the Regress	sion Equation, t	he "Y" value a	ccording to				
		m x	$\mathbf{Qstd} + \mathbf{b} = [\mathbf{W} \times (\mathbf{b})]$	Pa/760) x (298/T	$[a]^{1/2}$		
			2			40	
Therefore, S	Set Point W = (m x Qstd + b)	2 x (760 / Pa) x (7	Ta / 298) =	3	3.83	- 8
*If Correlation C	Coefficient < 0.9	990, check and	recalibrate again.		N INCOME	SACRESS SECTION	W-12
Remarks:						HW	
,			28.29600				
						- 1-	1 -
QCReviewer: 上	US CHAN	J	Signature:			Date: 27//	115



TISCH ENVIRONMENTAL, INC. 145 SOUTH MIAMI AVE VILLAGE OF CLEVES, OH 45002 513.467.9000 877.263.7610 TOLL FREE 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

	ec 09, 2014 Tisch	Rootsmeter Orifice I.I		438320 0843	Ta (K) - Pa (mm) -	293 755.65
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	1.4010 0.9950 0.8830 0.8420 0.6960	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)
1.0069 1.0027 1.0006 0.9994 0.9942	0.7187 1.0077 1.1332 1.1870 1.4285	1.4221 2.0112 2.2486 2.3584 2.8443		0.9957 0.9915 0.9894 0.9883 0.9831	0.7107 0.9965 1.1206 1.1738 1.4126	0.8806 1.2454 1.3924 1.4603 1.7612
<pre>Qstd slope (m) = 1.99924 intercept (b) = -0.01238 coefficient (r) = 0.99990</pre>				Qa slope intercept coefficie v axis =	z (b) =	1.25189 -0.00766 0.99990

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

EQUIPMENT CALIBRATION RECORD

Type:				Laser Di	ust Moni	tor		
	facturer/Brand:		_	SIBATA	act mom			
Model	No.:		-	LD-3				
Equipment No.:			_	A.005.07a				
Sensitivity Adjustment Scale Setting:				557 CPM				
Opera	ator:		_	Mike She	ek (MSKN	M)		
Standa	rd Equipment							
Equipment: Rupprecht						, ,		
Venue			rport (Pui \	ring Seco	ondary So	chool)		
Model Serial			s 1400AB	A D 24 0 0	00000			
Serial	NO.	Contr		AB2198		V . 40500	\ <u>\</u>	
Last C	Calibration Date*:	Sens 7 Ma	y 2015	00C1436	59803	K _o : <u>12500</u>		
					11.00	11.0		
*Remar	ks: Recommend	ed interval	for hardwar	e calibra	tion is 1 y	year		
Calibra	tion Result				- W			
Sonsi	tivity Adjustment	Saala Sattii	aa (Poforo	Calibratia	n).	557 CF	OM	
	tivity Adjustment tivity Adjustment					557 CF 557 CF		
0011011	avity / tajasti i o i t	ocale octili	ig (Aiter O	anbration).	01	IVI	
Hour	Date	Tir	ne	Amb	pient	Concentration ¹	Total	Count/
	(dd-mm-yy)			Cond	dition	(mg/m ³)	Count ²	Minute ³
				Temp	R.H.	Y-axis		X-axis
				(°C)	(%)			
1	08-05-15		10:15	26.9	76	0.04417	1763	29.38
2	08-05-15	10:15 -	11:15	26.9	76	0.04625	1851	30.85
3	08-05-15	11:15 -	12:15	26.9	77	0.04513	1805	30.08
4	08-05-15	12:15 -	13:15	27.1	77	0.04828	1926	32.10
Note:						shnick TEOM®		
	Total CountCount/minut							
	o. Countinina	C Was calce	alated by (1	otal ooa	11000)			
By Line	ar Regression of	Y or X						
	(K-factor):		0.0015					
Correl	ation coefficient:		0.9983	7				
Validit	y of Calibration F	Record:	8 May 201	16				
Remark	is:							
					1000	731, 31, 32, 43, 44		
L								
					1.			
QC Re	eviewer: YW F	ung	Signat	ure:	1	Date	e: _11 Ma	y 2015

EQUIPMENT CALIBRATION RECORD

Type: Manufacturer/Brand: Model No.: Equipment No.: Sensitivity Adjustment Scale Setting:				Laser Dust Monitor SIBATA LD-3B A.005.16a 521 CPM				
Opera	tor:		_	Mike She	k (MSKN	Л)		
Standa	rd Equipment				100 Miles			
Equipment: Ruppro Venue: Cyberg Model No.: Series Serial No: Contro Senso								
*Remark	ks: Recommend	ed interval fo	or hardwar	e calibrat	tion is 1 v	/ear		
			- Hai a Wai	- Countries		, our		1
Calibra	tion Result							
	ivity Adjustment ivity Adjustment		-		,		CPM CPM	
Hour	Date (dd-mm-yy)	Tim	е	Amb Cond Temp (°C)		Concentration ¹ (mg/m ³) Y-axis	Total Count ²	Count/ Minute ³ X-axis
1	18-07-15	09:30 -	10:30	29.8	75	0.05032	2014	33.57
2	18-07-15	10:45 -	11:45	30.1	76	0.05117	2047	34.12
3	18-07-15	12:15 -	13:15	30.4	77	0.05363	2141	35.68
4	18-07-15	13:40 -	14:40	30.5	78	0.05465	2179	36.32
Slope	1. Monitoring of 2. Total Count 3. Count/minut ar Regression of (K-factor): ation coefficient:	was logged e was calcul Y or X	by Laser [Dust Mon	itor	shnick TEOM [®]		
Validity	y of Calibration F	Record: _	18 July 20	016				
Remark	s:							
QC Re	eviewer: _ <i>YW F</i>	ung	Signat	ure:	W.	Da	ate: 20 Jul	y 2015



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.:

15CA0317 03

Page

of

Item tested

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

B & K

Type/Model No.: Serial/Equipment No.: 2238 2285692 4188 2791211

Microphone

Adaptors used:

998039999

Item submitted by

Customer Name:

AECOM ASIA CO., LTD.

Address of Customer: Request No.:

--

Date of receipt:

17-Mar-2015

Date of test:

18-Mar-2015

Reference equipment used in the calibration

Description:

Multi function sound calibrator

Model: B&K 4226 Serial No. 2288444 Expiry Date: 20-Jun-2015

Traceable to: CIGISMEC

Signal generator Signal generator DS 360 DS 360 33873 61227

09-Apr-2015 09-Apr-2015 CEPREI CEPREI

Ambient conditions

Temperature:

Relative humidity: Air pressure: 60 ± 10 % 1010 ± 5 hPa

21 ± 1 °C

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.
- 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 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.

Min/Feng Jun Qi

Actual Measurement data are documented on worksheets.

Approved Signatory:

Date:

19-Mar-2015

Company Chop:

SENGINEGRAS COMMANDER OF THE SENGINE COMMAND COMMAND

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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Form No.CARP152-1/Issue 1/Rev.C/01/02/2007



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



CERTIFICATE OF CALIBRATION

Certificate No.:

14CA1106 04-01

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of

2

Item tested

Description:

Sound Level Meter (Type 1) Rion Co., Ltd.

Microphone

Manufacturer: Type/Model No.:

NL-31

Rion Co., Ltd.

Serial/Equipment No.:

UC-53A 90565

Adaptors used:

00320528 / N.007.03A

Item submitted by

Customer Name:

AECOM ASIA CO., LTD.

Address of Customer:

Request No. Date of receipt:

06-Nov-2014

Date of test:

07-Nov-2014

Reference equipment used in the calibration

Description:

Multi function sound calibrator

Model: B&K 4226 Serial No.

Expiry Date:

Traceable to:

Signal generator

DS 360

2288444

15-Jun-2015

CIGISMEC

Signal generator

DS 360

33873 61227 09-Apr-2015 09-Apr-2015 CEPREI CEPREI

Ambient conditions

Temperature: Air pressure:

22 ± 1 °C

Relative humidity:

65 ± 10 % 1010 ± 10 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%

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.

Actual Measurement data are documented on worksheets

Approved Signatory:

Date:

08-Nov-2014

Company Chop:

Huang Jian Min/Feng Jun Qi

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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Form No.CARP152-1/Issue 1/Rev.C/01/02/2007



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CERTIFICATE OF CALIBRATION

Certificate No.:

14CA1106 04-02

Page:

of

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Item tested

Description:

Acoustical Calibrator (Class 1)

Manufacturer:

Rion Co., Ltd. NC-73

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

NC-73 10307223 / N.004.08

Adaptors used:

10-1

Item submitted by

Curstomer:

AECOM ASIA CO., LTD.

Address of Customer:

Request No.:

-

Date of receipt:

06-Nov-2014

Date of test:

07-Nov-2014

Reference equipment used in the calibration

Description: Lab standard microphone Preamplifier	Model:	Serial No.	Expiry Date:	Traceable to:
	B&K 4180	2412857	13-May-2015	SCL
	B&K 2673	2239857	10-Apr-2015	CEPREI
Measuring amplifier Signal generator	B&K 2610	2346941	08-Apr-2015	CEPREI
	DS 360	61227	09-Apr-2015	CEPREI
Digital multi-meter Audio analyzer Universal counter	34401A 8903B 53132A	US36087050 GB41300350 MY40003662	17-Dec-2014 07-Apr-2015 11-Apr-2015	CEPREI CEPREI

Ambient conditions

Temperature:

22 ± 1 °C

Relative humidity:

65 ± 10 %

Air pressure:

1010 ± 10 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

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:

08-Nov-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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Form No.CARP156-1/Issue 1/Rev.D/01/03/2007