



Brüel & Kjær

Calibration Chart

Type 4231

Serial No. 3004068

Sound Pressure Level: 94.00 or 114.00 dB ± 0.20 dB
(re 20 μ Pa at reference conditions)

Frequency: 1000 Hz $\pm 0.1\%$

Distortion: $< 1\%$

Reference Conditions:

Temperature: 23°C
Pressure: 101.325 kPa
Humidity: 50% RH
Load: 0.25 cm³ ($\frac{1}{2}$ " Brüel & Kjær Mic.)

Date: 16/07/12 Signed: R. Khan



Brüel & Kjær

Sound Calibrator Type 4231

Levels for Brüel & Kjær $\frac{1}{2}$ " Microphones:

Equivalent Free Field: 93.85 dB or 113.85 dB
Equivalent Diffuse Field: 94.00 dB or 114.00 dB
Pressure Field: 94.00 dB or 114.00 dB

Frequency: 1000 Hz

Conforms to:

ANSI S1.40-1984 and IEC 60942 (2003) Class 1 & LS

Ambient Conditions:

Temperature: -10° to 50° C, Class LS $+16^{\circ}$ to 30° C
Pressure: 65 kPa to 108 kPa
Humidity: 25% to 90% RH

For further information refer to the User Manual

BC0210-12

Certificate of Calibration

校正證書

Certificate No. : C126606

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-2838)

Description / 儀器名稱 : Integrating Sound Level Meter

Manufacturer / 製造商 : Brüel & Kjær

Model No. / 型號 : 2238

Serial No. / 編號 : 2684502

Supplied By / 委託者 : Atkins China Limited

13/F, Wharf T&T Centre, Harbour City, Tsim Sha Tsui, Kowloon

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$

Relative Humidity / 相對濕度 : $(55 \pm 20)\%$

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 15 November 2012

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

All results are within manufacturer's specification.

The results are detailed in the subsequent page(s).

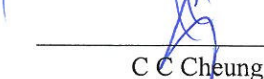
The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By
測試

: 
K C Lee

Certified By
核證

: 
C C Cheung

Date of Issue
簽發日期

15 November 2012

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Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

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- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.

- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

- Test procedure : MA101N.

- Results :

- Sound Pressure Level

- Reference Sound Pressure Level

- Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFP}	A	F	94.00	1	94.1

- After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.1	± 0.7

- Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFP}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.1

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

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Certificate of Calibration

校正證書

Certificate No. : C126606
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.1	Ref.
	L _{ASP}		S			94.1	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		102.0	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{AFP}	A	F	94.00	31.5 Hz	54.8	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

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Certificate of Calibration

校正證書

Certificate No. : C126606

證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.3	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5 ; -3.0)
					12.5 kHz	88.0	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L _{Acq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
								1/10 ²	90	± 0.5
			60 sec.					1/10 ³	80	± 1.0
			5 min.					1/10 ⁴	70	± 1.0

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB : 31.5 Hz - 125 Hz	: ± 0.35 dB
250 Hz - 500 Hz	: ± 0.30 dB
1 kHz	: ± 0.20 dB
2 kHz - 4 kHz	: ± 0.35 dB
8 kHz	: ± 0.45 dB
12.5 kHz	: ± 0.70 dB
104 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level	: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C125261
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-2206)

Description / 儀器名稱 : Integrating Sound Level Meter
Manufacturer / 製造商 : Bruel & Kjaer
Model No. / 型號 : 2238
Serial No. / 編號 : 2684503
Supplied By / 委託者 : Atkins China Limited
13/F., Wharf T&T Centre, Harbour City, Tsim Sha Tsui,
Kowloon

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : $(55 \pm 20)\%$

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 7 September 2012

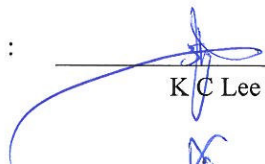
TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

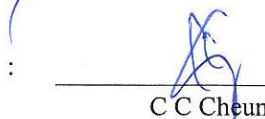
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- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By
測試


K C Lee

Certified By
核證


C C Cheung

Date of Issue : 10 September 2012
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Fax/傳真: 2744 8986

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Certificate of Calibration

校正證書

Certificate No. : C125261

證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

4. Test procedure : MA101N.

5. Results :

- 5.1 Sound Pressure Level

- 5.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading	IEC 60651 Type 1 Spec.
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	(dB)	(dB)
50 - 130	L _{AFP}	A	F	94.00	1	94.0	± 0.7

- 5.1.2 Linearity

UUT Setting				Applied Value		UUT Reading
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	(dB)
50 - 130	L _{AFP}	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

- 5.2 Time Weighting

- 5.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading	IEC 60651 Type 1 Spec.
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	(dB)	(dB)
50 - 130	L _{AFP}	A	F	94.00	1	94.0	Ref.
	L _{ASP}		S			94.0	± 0.1
	L _{AIP}		I			94.0	± 0.1

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Certificate of Calibration

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Certificate No. : C125261

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5.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		102.0	-4.1 ± 1.0	

5.3 Frequency Weighting

5.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{AFP}	A	F	94.00	31.5 Hz	54.7	-39.4 ± 1.5
					63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

5.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.1	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

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Certificate of Calibration

校正證書

Certificate No. : C125261

證書編號

5.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
30 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
						1/10 ²		90	89.9	± 0.5
			60 sec.			1/10 ³		80	79.7	± 1.0
			5 min.			1/10 ⁴		70	69.8	± 1.0

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	1 kHz	: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level		: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

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Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location : ANS5(Ma Wan Chung Village)
Calibrated by : K.F.Ho
Date : 01/04/2013

Sampler

Model : TE-5170
Serial Number : S/N3640

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
Service Date : 26 Dec 2012
Slope (m) : 2.09107
Intercept (b) : -0.02838
Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1015
Ta(K) : 293

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.8	3.318	1.600	61	61.6
2	13 holes	8.7	2.978	1.438	55	55.5
3	10 holes	6.7	2.613	1.263	48	48.5
4	7 holes	4.3	2.093	1.015	39	39.4
5	5 holes	2.7	1.659	0.807	30	30.3

Sampler Calibration Relationship

Slope(m): 39.195 Intercept(b): -0.951 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan

Date: 04/04/2013

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location : ANS6(Dragonair Building)
Calibrated by : K.F.Ho
Date : 01/04/2013

Sampler

Model : TE-5170
Serial Number : S/N3639

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
Service Date : 26 Dec 2012
Slope (m) : 2.09107
Intercept (b) : -0.02838
Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1015
Ta(K) : 293

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.9	3.333	1.607	61	61.6
2	13 holes	8.9	3.012	1.454	55	55.5
3	10 holes	6.9	2.652	1.282	48	48.5
4	7 holes	4.8	2.212	1.071	39	39.4
5	5 holes	2.8	1.689	0.821	28	28.3

Sampler Calibration Relationship

Slope(m):42.451 Intercept(b): -6.303 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 04/04/2013



TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVELAND, 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 - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.6902	1.4149	0.9957	0.6896	0.8851
0.9925	0.9693	2.0010	0.9915	0.9683	1.2517
0.9903	1.0858	2.2372	0.9893	1.0847	1.3995
0.9893	1.1345	2.3464	0.9883	1.1334	1.4678
0.9840	1.3666	2.8299	0.9830	1.3652	1.7702
Qstd slope (m) = 2.09107			Qa slope (m) = 1.30939		
intercept (b) = -0.02838			intercept (b) = -0.01775		
coefficient (r) = 0.99996			coefficient (r) = 0.99996		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			x axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

$$Vstd = \text{Diff. Vol}[(Pa - \text{Diff. Hg})/760] (298/Ta)$$

$$Qstd = Vstd/\text{Time}$$

$$Va = \text{Diff Vol} [(Pa - \text{Diff Hg})/Pa]$$

$$Qa = Va/\text{Time}$$

For subsequent flow rate calculations:

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

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

EQUIPMENT CALIBRATION RECORD

Type : Laser Dust Monitor
Manufacturer / Brand : SIBATA
Model No.: LD-3B
Equipment No.: LD-3B-002
Sensitivity Adjustment Scale Setting : 622 CPM

Operator: _____

Standard Equipment

Equipment : MFC High Volume Air Sampler
Venue : Wah Ming House, Wah Fu Estate
Model No.: TE-5170 Total Suspended Particulated
Serial No.: 2100

Previous Calibration Date 10/21/2011

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration) : 622 CPM
Sensitivity Adjustment Scale Setting (After Calibration) : 622 CPM

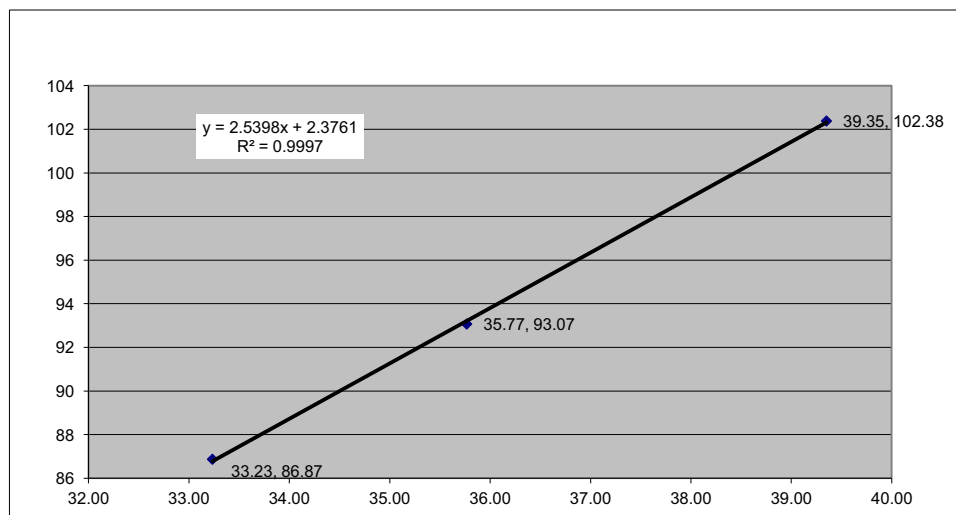
Hour	Date (dd-mmm-yy)	Time		Ambient Condition		Concentration (obtained by High Volume Sampler) (ug/m3) Y-axis	Total Count for 60mins (obtained by Laser Dust Monitor)	Count per Minute X-axis
				Temp (C)	R.H. (%)			
1	15-Oct-12	13:12	14:12	26.3	74%	86.87	1994	33.23
2	15-Oct-12	14:16	15:16	26.3	74%	93.07	2146	35.77
3	15-Oct-12	15:33	16:33	26.3	74%	102.38	2361	39.35

Be Linear Regression of Y or X

Slope (K-factor): 2.5398

Correlation coefficient : 0.9997

Remark: _____



Recorded by: Ruby Law

Signature: 

Date: 10/21/2012

Checked by: Keith Chau

Signature: 

Date: 10/21/2012

EQUIPMENT CALIBRATION RECORD

Type : Laser Dust Monitor
Manufacturer / Brand : SIBATA
Model No.: LD-3B
Equipment No.: LD-3B-003
Sensitivity Adjustment Scale Setting : 799 CPM

Operator:

Standard Equipment

Equipment : MFC High Volume Air Sampler
Venue : Wah Ming House, Wah Fu Estate
Model No.: TE-5170 Total Suspended Particulated
Serial No.: 276018

Previous Calibration Date N/A

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration) : 799 CPM
Sensitivity Adjustment Scale Setting (After Calibration) : 799 CPM

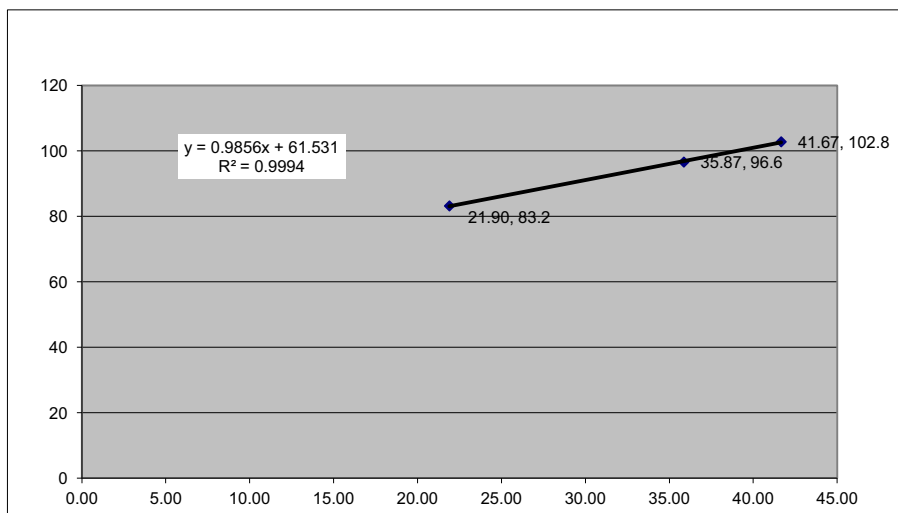
Hour	Date (dd-mmm-yy)	Time		Ambient Condition		Concentration (ug/m3) Y-axis	Total Count	Count/Minute X-axis
				Temp (C)	R.H. (%)			
1	16-Oct-12	13:14	14:14	26.2	74%	83.2	1314	21.90
2	16-Oct-12	14:22	15:22	26.2	74%	96.6	2152	35.87
3	16-Oct-12	15:30	16:30	26.2	74%	102.8	2500	41.67

Be Linear Regression of Y or X

Slope (K-factor): 0.9856

Correlation coefficient : 0.9994

Remark:



Recorded by: Ruby Law

Signature: 

Date: 10/21/2012

Checked by: Keith Chau

Signature: 

Date: 10/21/2012

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1304287
Date of Issue: 27/02/2013
Client: AECOM ASIA COMPANY LIMITED



Description: YSI Sonde
Brand Name: YSI
Model No.: 6820 V2
Serial No.: 12A101545
Equipment No.: W.026.35
Date of Calibration: 19 February, 2013

Date of next Calibration: 19 May, 2013

Parameters:

Conductivity

Method Ref: APHA (21st edition), 2510B

Expected Reading (uS/cm)	Displayed Reading (uS/cm)	Tolerance (%)
146.9	149.0	1.4
6667	6143	-7.9
12890	11950	-7.3
58670	54120	-7.8
Tolerance Limit (±%)		10.0

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
4.05	4.14	0.09
6.55	6.48	-0.07
8.10	8.01	-0.09
Tolerance Limit (±mg/L)		0.20

pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	3.98	-0.02
7.0	7.18	0.18
10.0	10.14	0.14
Tolerance Limit (±pH unit)		0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.01	--
10	9.31	-6.9
20	19.61	-2.0
30	28.46	-5.1
Tolerance Limit (±%)		10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1304287
Date of Issue: 27/02/2013
Client: AECOM ASIA COMPANY LIMITED



Description: YSI Sonde
Brand Name: YSI
Model No.: 6820 V2
Serial No.: 12A101545
Equipment No.: W.026.35
Date of Calibration: 19 February, 2013

Date of next Calibration: 19 May, 2013

Parameters:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical
Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
16.0	16.85	0.9
25.0	23.88	-1.1
34.0	33.20	-0.8
Tolerance Limit ($\pm^{\circ}\text{C}$)		2.0

Turbidity

Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.0	--
4	4.3	7.5
10	10.4	4.0
20	20.2	1.0
50	50.3	0.6
100	101.6	1.6
Tolerance Limit ($\pm\%$)		10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1300554
Date of Issue: 09/01/2013
Client: AECOM ASIA COMPANY LIMITED



Description: YSI Sonde
Brand Name: YSI
Model No.: 6820 V2-M
Serial No.: 12D100972
Equipment No.: W.026.36
Date of Calibration: 08 January, 2013

Date of next Calibration: 08 April, 2013

Parameters:

Conductivity

Method Ref: APHA (21st edition), 2510B

Expected Reading (uS/cm)	Displayed Reading (uS/cm)	Tolerance (%)
146.9	155.0	5.5
6667	6527	-2.1
12890	12050	-6.5
58670	55650	-5.1
Tolerance Limit (±%)		10.0

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
4.33	4.26	-0.07
5.98	5.93	-0.05
8.65	8.83	0.18
Tolerance Limit (±mg/L)		0.20

pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.18	0.18
7.0	7.18	0.18
10.0	9.94	-0.06
Tolerance Limit (±pH unit)		0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	9.55	-4.5
20	19.72	-1.4
30	30.65	2.2
Tolerance Limit (±%)		10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard
General Manager
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



Work Order: HK1300554
Date of Issue: 09/01/2013
Client: AECOM ASIA COMPANY LIMITED

Description: YSI Sonde
Brand Name: YSI
Model No.: 6820 V2-M
Serial No.: 12D100972
Equipment No.: W.026.36
Date of Calibration: 08 January, 2013

Date of next Calibration: 08 April, 2013

Parameters:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical
Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)
18.0	17.85	-0.1
28.5	28.56	0.1
40.0	39.75	-0.3
Tolerance Limit ($\pm^{\circ}\text{C}$)		2.0

Turbidity

Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.0	--
4	3.7	-7.5
10	10.2	2.0
20	20.6	3.0
50	48.7	-2.6
100	100.1	0.1
Tolerance Limit ($\pm\%$)		10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1309345
Date of Issue: 11/04/2013
Client: AECOM ASIA COMPANY LIMITED



Description: Sonde Environmental Monitoring System
Brand Name: YSI
Model No.: 6820 V2
Serial No.: 12D100972
Equipment No.: W.026.36
Date of Calibration: 10 April, 2013 Date of next Calibration: 10 July, 2013

Parameters:

Conductivity

Method Ref: APHA (21st edition), 2510B

Expected Reading (uS/cm)	Displayed Reading (uS/cm)	Tolerance (%)
146.9	140.5	-4.4
6667	6125	-8.1
12890	11870	-7.9
58670	53640	-8.6
Tolerance Limit (±%)		10.0

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.98	4.09	0.11
5.29	5.38	0.09
7.05	7.22	0.17
Tolerance Limit (±mg/L)		0.20

pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.15	0.15
7.0	7.14	0.14
10.0	10.18	0.18
Tolerance Limit (±pH unit)		0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.02	--
10	9.96	-0.4
20	19.98	-0.1
30	30.11	0.4
Tolerance Limit (±%)		10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee Richard
General Manager
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1309345
Date of Issue: 11/04/2013
Client: AECOM ASIA COMPANY LIMITED



Description: Sonde Environmental Monitoring System
Brand Name: YSI
Model No.: 6820 V2
Serial No.: 12D100972
Equipment No.: W.026.36
Date of Calibration: 10 April, 2013
Date of next Calibration: 10 July, 2013

Parameters:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical
Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
16.0	16.50	0.5
25.5	25.88	0.4
35.0	35.22	0.2
Tolerance Limit ($\pm^{\circ}\text{C}$)		2.0

Turbidity

Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0	--
4	4.2	5.0
10	10.2	2.0
20	20.4	2.0
50	47.1	-5.8
100	104.4	4.4
Tolerance Limit ($\pm\%$)		10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.