

Appendix E
Calibration Record
(Air Quality Monitoring)

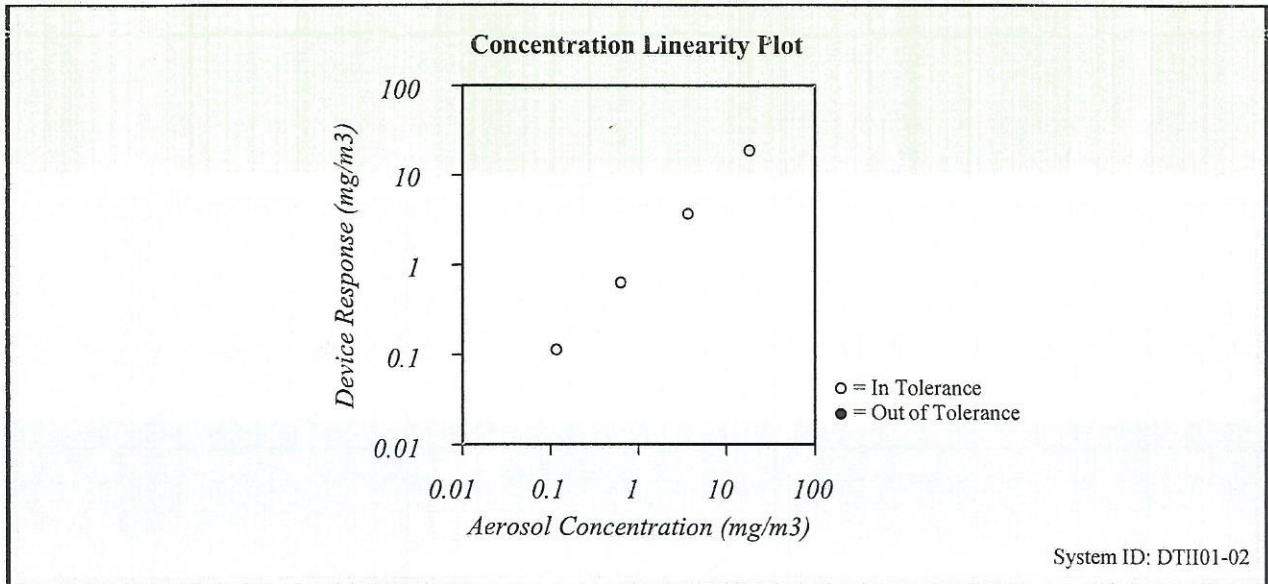


CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
 Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			Model	8520
Temperature	74.1 (23.4)	°F (°C)	Serial Number	
Relative Humidity	51	%RH		
Barometric Pressure	28.70 (971.9)	inHg (hPa)		
			82378	

<input checked="" type="checkbox"/> As Left	<input checked="" type="checkbox"/> In Tolerance
<input type="checkbox"/> As Found	<input type="checkbox"/> Out of Tolerance



Zero Stability Results			
Average:	Minimum:	Maximum:	Time:
0.000 :mg/m ³	0.000 :mg/m ³	0.001 :mg/m ³	2:00 :hrs.

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Barometric Pressure	E003733	03-27-14	03-27-15	Temperature	E002873	11-05-13	11-05-14
Humidity	E002873	11-05-13	11-05-14	DC Voltage	E003314	01-03-14	01-03-15
DC Voltage	E003315	01-03-14	01-03-15	Photometer	E003319	02-11-14	08-11-14
Microbalance	M001324	01-04-13	01-04-15	Pressure	E003511	11-04-13	11-04-14
Flowmeter	E002471	04-30-14	04-30-15				

Tandy

 Calibrated

Final Function Check

July 7, 2014

 Date



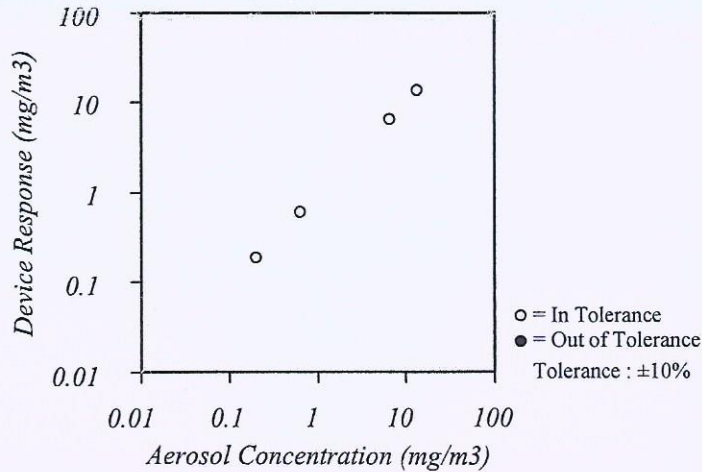
CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Condition			Model	AM510
Temperature	73.2 (22.9)	°F (°C)		
Relative Humidity	48	%RH		
Barometric Pressure	29.04 (983.4)	inHg (hPa)		
			Serial Number	11108010

- | | |
|---|--|
| <input checked="" type="checkbox"/> As Left | <input checked="" type="checkbox"/> In Tolerance |
| <input type="checkbox"/> As Found | <input type="checkbox"/> Out of Tolerance |

Concentration Linearity Plot



System ID: DTH01-02

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due		Measurement Variable	System ID	Last Cal.	Cal. Due
Barometric Pressure	E003733	03-27-14	03-27-15		Temperature	E002873	11-05-13	11-05-14
Humidity	E002873	11-05-13	11-05-14		DC Voltage	E003314	01-03-14	01-03-15
DC Voltage	E003315	01-03-14	01-03-15		Photometer	E003319	02-11-14	08-11-14
Microbalance	M001324	01-04-13	01-04-15		Pressure	E003511	11-04-13	11-04-14
Flowmeter	E002471	04-30-14	04-30-15					

Millie Peterson
Calibrated

Final Function Check

August 6, 2014

Date

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR2A
 Calibrated by : T.K.Wong
 Date : 05/03/2015

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 1061

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 24 Mar 2014
 Slope (m) : 2.07593
 Intercept (b) : -0.00102
 Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1021
 Ta(K) : 292

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.7	3.613	1.741	54	54.74
2 13 holes	9.5	3.124	1.506	48	48.66
3 10 holes	7.1	2.701	1.302	42	42.58
4 7 holes	4.5	2.150	1.036	35	35.48
5 5 holes	2.5	1.603	0.773	27	27.37

Sampler Calibration Relationship

Slope(m):28.248 Intercept(b):5.851 Correlation Coefficient(r):0.9996

Checked by: Magnum Fan

Date: 07/03/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR4
Calibrated by : T.K.Wong
Date : 05/03/2015

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1273

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
Service Date : 24 Mar 2014
Slope (m) : 2.07593
Intercept (b) : -0.00102
Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1021
Ta(K) : 292

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.5	3.584	1.727	58	58.79
2 13 holes	9.0	3.041	1.465	49	49.67
3 10 holes	7.1	2.701	1.302	44	44.60
4 7 holes	5.1	2.289	1.103	36	36.49
5 5 holes	3.1	1.785	0.860	28	28.38

Sampler Calibration Relationship

Slope(m):35.305 Intercept(b):2.007 Correlation Coefficient(r):0.9994

Checked by: Magnum Fan

Date: 07/03/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR3
 Calibrated by : T.K.Wong
 Date : 05/03/2015

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 7577

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 24 Mar 2014
 Slope (m) : 2.07593
 Intercept (b) : -0.00102
 Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1021
 Ta(K) : 292

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	13.0	3.655	1.761	60	60.82
2 13 holes	10.1	3.222	1.552	53	53.73
3 10 holes	7.6	2.795	1.347	46	46.63
4 7 holes	4.3	2.102	1.013	36	36.49
5 5 holes	2.8	1.696	0.818	28	28.38

Sampler Calibration Relationship

Slope(m):33.752 Intercept(b):1.395 Correlation Coefficient(r):0.9991

Checked by: Magnum Fan

Date: 07/03/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR1
Calibrated by : T.K.Wong
Date : 05/03/2015

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1806

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
Service Date : 24 Mar 2014
Slope (m) : 2.07593
Intercept (b) : -0.00102
Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1021
Ta(K) : 292

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.6	3.598	1.734	53	53.73
2 13 holes	10.0	3.206	1.545	48	48.66
3 10 holes	7.0	2.682	1.292	42	42.58
4 7 holes	4.5	2.150	1.036	36	36.49
5 5 holes	2.8	1.696	0.818	30	30.41

Sampler Calibration Relationship

Slope(m): 25.094 Intercept(b): 10.128 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan

Date: 07/03/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR2A
Calibrated by : T.K.Wong
Date : 05/05/2015

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1061

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
Service Date : 24 Mar 2015
Slope (m) : 2.09532
Intercept (b) : -0.03812
Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1010
Ta(K) : 302

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.0	3.436	1.658	53	52.57
2 13 holes	9.4	3.041	1.470	45	44.63
3 10 holes	7.0	2.624	1.271	38	37.69
4 7 holes	4.9	2.196	1.066	30	29.76
5 5 holes	3.1	1.746	0.852	22	21.82

Sampler Calibration Relationship

Slope(m):37.867 Intercept(b):-10.539 Correlation Coefficient(r):0.9997

Checked by: Magnum Fan

Date: 08/05/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR4
Calibrated by : T.K.Wong
Date : 05/05/2015

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1273

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
Service Date : 24 Mar 2015
Slope (m) : 2.09532
Intercept (b) : -0.03812
Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1010
Ta(K) : 302

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.7	3.393	1.637	55	54.55
2 13 holes	9.8	3.105	1.500	50	49.59
3 10 holes	7.1	2.643	1.280	43	42.65
4 7 holes	4.8	2.173	1.055	36	35.71
5 5 holes	2.9	1.689	0.824	28	27.77

Sampler Calibration Relationship

Slope(m): 32.535 Intercept(b): 1.084 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan

Date: 08/05/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR3
 Calibrated by : T.K.Wong
 Date : 05/05/2015

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 7577

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 24 Mar 2015
 Slope (m) : 2.09532
 Intercept (b) : -0.03812
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1010
 Ta(K) : 302

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.2	3.465	1.672	58	57.53
2 13 holes	9.6	3.073	1.485	52	51.58
3 10 holes	7.4	2.698	1.306	46	45.63
4 7 holes	4.8	2.173	1.055	37	36.70
5 5 holes	3.0	1.718	0.838	29	28.76

Sampler Calibration Relationship

Slope(m):34.591 Intercept(b):0.069 Correlation Coefficient(r):0.9996

Checked by: Magnum Fan

Date: 08/05/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR1
Calibrated by : T.K.Wong
Date : 05/05/2015

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1806

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
Service Date : 24 Mar 2015
Slope (m) : 2.09532
Intercept (b) : -0.03812
Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1010
Ta(K) : 302

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.8	3.549	1.712	53	52.57
2 13 holes	8.6	2.909	1.406	46	45.63
3 10 holes	6.3	2.490	1.206	40	39.68
4 7 holes	4.3	2.057	0.999	35	34.72
5 5 holes	2.6	1.599	0.781	30	29.76

Sampler Calibration Relationship

Slope(m): 24.900 Intercept(b): 10.061 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan

Date: 08/05/2015

Appendix E
Calibration Record
(Noise Monitoring)



輝創工程有限公司

Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C144069
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1633) Date of Receipt / 收件日期 : 27 June 2014

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00331805
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 5 July 2014


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).

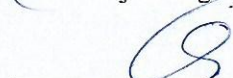
The test equipment used for calibration are traceable to National Standards via :

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

Tested By :
測試


K C Lee
Project Engineer

Certified By :
核證


K M Wu
Engineer

Date of Issue : 7 July 2014
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.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

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

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E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Page 1 of 3

Certificate of Calibration

校正證書

Certificate No. : C144069

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. Self-calibration was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L _A	A	Fast	94.00	1	94.1	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L _A	A	Fast	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.1

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L _A	A	Fast	94.00	1	94.1	Ref.
			Slow			94.1	± 0.3

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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Certificate of Calibration

校正證書

Certificate No. : C144069

證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L _A	A	Fast	94.00	63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.5
					250 Hz	85.4	-8.6 ± 1.4
					500 Hz	90.8	-3.2 ± 1.4
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.6
					4 kHz	95.1	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L _C	C	Fast	94.00	63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.5
					250 Hz	94.1	0.0 ± 1.4
					500 Hz	94.1	0.0 ± 1.4
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.6
					4 kHz	93.3	-0.8 ± 1.6
					8 kHz	91.2	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.7	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 04870

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 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)

- 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.

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.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。



輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C144214

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1719)

Date of Receipt / 收件日期 : 9 July 2014

Description / 儀器名稱 : Sound Level Calibrator

Manufacturer / 製造商 : Rion

Model No. / 型號 : NC-73

Serial No. / 編號 : 10786708

Supplied By / 委託者 : Envirotech Services Co.

Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

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 July 2014

TEST RESULTS / 測試結果

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

All results are within manufacturer's specification.

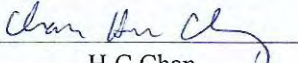
The results are detailed in the subsequent page(s).

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 Everett Service Center, USA
- Agilent Technologies, USA


Tested By

測試


H C Chan
Engineer

Certified By

核證


K K Wong
Engineer

Date of Issue

簽發日期

16 July 2014

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.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, I 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

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E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

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Certificate of Calibration

校正證書

Certificate No. : C144214
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C143868
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

- Test procedure : MA100N.

- Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.9	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.990	1 kHz ± 2 %	± 1

Remark : 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.

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.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Appendix E
Calibration Record
(Water Quality Monitoring)



ALS Technichem (HK) Pty Ltd
11/F, Chung Shun Knitting Centre
1-3 Wing Yip Street
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www.alsglobal.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR THOMAS WONG
CLIENT: ENOVATIVE ENVIRONMENTAL SERVICE LTD
ADDRESS: RM811, HIN PUI HOUSE,
HIN KENG ESTATE,
TAI WAI,
N.T., HONG KONG
PROJECT: --

WORK ORDER: HK1510571
LABORATORY: HONG KONG
DATE RECEIVED: 30/03/2015
DATE OF ISSUE: 19/04/2015

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

Scope of Test: Dissolved Oxygen, pH, Salinity and Temperature
Equipment Type: Multimeter
Brand Name: YSI
Model No.: Proplus
Serial No.: 10D101565
Equipment No.: --
Date of Calibration: 30 March, 2015

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.


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

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



Work Order: HK1510571
Date of Issue: 19/04/2015
Client: ENOVATIVE ENVIRONMENTAL SERVICE LTD

Description: Multimeter
Brand Name: YSI
Model No.: Proplus
Serial No.: 10D101565
Equipment No.: --
Date of Calibration: 30 March, 2015

Date of next Calibration: 30 June, 2015

Parameters:

Dissolved Oxygen

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.66	3.80	0.14
6.43	6.28	-0.15
8.65	8.49	-0.16
Tolerance Limit (\pm 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	4.05	0.05
7.0	7.15	0.15
10.0	9.93	-0.07
Tolerance Limit (\pm pH unit)		0.20

Salinity

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	9.06	-9.4
20	18.31	-8.5
30	27.84	-7.2
Tolerance Limit (\pm %)		10.0

Temperature

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

Expected Reading ($^{\circ}$ C)	Displayed Reading ($^{\circ}$ C)	Tolerance ($^{\circ}$ C)
11.0	10.7	-0.3
23.5	23.6	0.1
35.0	36.0	1.0
Tolerance Limit (\pm $^{\circ}$ C)		2.0

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



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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR THOMAS WONG
CLIENT: ENOVATIVE ENVIRONMENTAL SERVICE LTD
ADDRESS: RM811, HIN PUI HOUSE,
HIN KENG ESTATE,
TAI WAI,
N.T., HONG KONG

WORK ORDER: HK1510577
LABORATORY: HONG KONG
DATE RECEIVED: 30/03/2015
DATE OF ISSUE: 19/04/2015

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test: Turbidity
Description: Turbidimeter
Brand Name: HACH
Model No.: 2100Q IS
Serial No.: 13120C004242
Equipment No.: --
Date of Calibration: 30 March, 2015

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.


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

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1510577
Date of Issue: 19/04/2015
Client: ENOVATIVE ENVIRONMENTAL SERVICE LTD



Description: Turbidimeter
Brand Name: HACH
Model No.: 2100Q IS
Serial No.: 13120C004242
Equipment No.: --
Date of Calibration: 30 March, 2015 Date of next Calibration: 30 June, 2015

Parameters:

Turbidity

Method Ref: APHA 21st Ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.1	--
4	4.2	+5.0
40	38.1	-4.8
80	75.0	-6.3
400	361	-9.8
800	724	-9.5
	Tolerance Limit ($\pm\%$)	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