

High-Volume TSP Sampler  
5-Point Calibration Record

Location : AM1 (ICC)  
Calibrated by : K.T.Ho  
Date : 04/10/2018

Sampler

Model : TE-5170  
Serial Number : S/N 0767

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454  
Service Date : 19 Mar 2018  
Slope (m) : 2.05242  
Intercept (b) : -0.01383  
Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition


Pa (hpa) : 1014  
Ta(K) : 301

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	10.2	3.179	1.556	60	59.73
2	13 holes	7.6	2.744	1.344	50	49.77
3	10 holes	5.9	2.418	1.185	42	41.81
4	7 holes	4.0	1.991	0.977	28	27.87
5	5 holes	2.6	1.605	0.789	16	15.93

Notes:  $Z = \sqrt{\frac{dH(Pa/Pstd)(Tstd/Ta)}{}}$ ,  $X = Z/m - b$ ,  $Y(\text{Corrected Flow}) = IC * \{\sqrt{\frac{Pa}{Pstd}(Tstd/Ta)}\}$

Sampler Calibration Relationship

Slope(m): 57.628                      Intercept(b): -28.405                      Correlation Coefficient(r): 0.9967

Checked by:   
Magnum Fan

Date: 07/10/2018

High-Volume TSP Sampler  
5-Point Calibration Record

Location : AM2A (Harbourside)  
Calibrated by : K.T.Ho  
Date : 04/10/2018

Sampler

Model : TE-5170  
Serial Number : S/N 8919

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454  
Service Date : 19 Mar 2018  
Slope (m) : 2.05242  
Intercept (b) : -0.01383  
Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition


Pa (hpa) : 1014  
Ta(K) : 301

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.2	3.477	1.701	60	59.73
2	13 holes	8.6	2.919	1.429	50	49.77
3	10 holes	6.0	2.438	1.195	40	39.82
4	7 holes	4.0	1.991	0.977	28	27.87
5	5 holes	2.6	1.605	0.789	16	15.93

Notes:  $Z = \sqrt{dH(Pa/Pstd)(Tstd/Ta)}$ ,  $X = Z/m - b$ ,  $Y(\text{Corrected Flow}) = IC * \{\sqrt{Pa/Pstd}(Tstd/Ta)\}$

Sampler Calibration Relationship

Slope(m): 47.731      Intercept(b): -19.516      Correlation Coefficient(r): 0.9934

Checked by:   
Magnum Fan

Date: 07/10/2018



RECALIBRATION

DUE DATE:

March 19, 2019

# Certificate of Calibration

## Calibration Certification Information

Cal. Date: March 19, 2018      Rootsmeter S/N: 438320      Ta: 294 °K  
Operator: Jim Tisch      Pa: 746.8 mm Hg  
Calibration Model #: TE-5025A      Calibrator S/N: 2454

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4300	3.2	2.00
2	3	4	1	1.0040	6.4	4.00
3	5	6	1	0.9030	7.9	5.00
4	7	8	1	0.8590	8.7	5.50
5	9	10	1	0.7080	12.8	8.00

## Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left( \frac{Ta}{Pa} \right)}$ (y-axis)
0.9917	0.6935	1.4113	0.9957	0.6963	0.8874
0.9874	0.9835	1.9959	0.9914	0.9875	1.2549
0.9854	1.0913	2.2315	0.9894	1.0957	1.4030
0.9843	1.1459	2.3405	0.9883	1.1506	1.4715
0.9789	1.3826	2.8227	0.9829	1.3882	1.7747
<b>QSTD</b>	m=	2.05242	<b>QA</b>	m=	1.28519
	b=	-0.01383		b=	-0.00869
	r=	0.99994		r=	0.99994

## Calculations

Vstd=	$\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va=	$\Delta Vol((Pa-\Delta P)/Pa)$
Qstd=	Vstd/ΔTime	Qa=	Va/ΔTime
For subsequent flow rate calculations:			
Qstd= $1/m \left( \left( \sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)} \right) - b \right)$		Qa= $1/m \left( \left( \sqrt{\Delta H \left( \frac{Ta}{Pa} \right)} \right) - b \right)$	

## Standard Conditions

Tstd:	298.15 °K
Pstd:	760 mm Hg
<b>Key</b>	
ΔH: calibrator manometer reading (in H2O)	
ΔP: rootsmeter manometer reading (mm Hg)	
Ta: actual absolute temperature (°K)	
Pa: actual barometric pressure (mm Hg)	
b: intercept	
m: slope	

## RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

## **CALIBRATION CERTIFICATE**

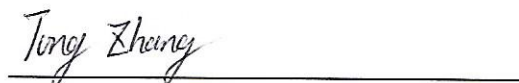
Date: April 6th, 2018

Equipment Name	: Digital Dust Indicator, Model LD-5R
Code No.	: 080000-72
Quantity	: 1 unit
Serial No.	: 841723
Sensitivity	: 0.001 mg/m <sup>3</sup>
Sensitivity Adjustment	: 615CPM
Scale Setting	: April 2rd, 2018

We hereby certify that the above mentioned instrument has been calibrated satisfactorily.

Sincerely

**SIBATA SCIENTIFIC TECHNOLOGY LTD.**



Tong Zhang

Overseas Sales Division



## REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

REPORT NO. : HK180419  
 PROJECT NAME : PERFORMANCE CHECK / CALIBRATION OF DUST METER  
 DATE OF ISSUE : 2/5/2018

CUSTOMER : Envirotech Services Company  
 ADDRESS : Rm. 113, 1/F., MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T.

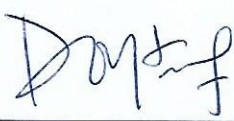
REPORT NO. : HK180419  
 PROJECT ITEM NO. : HK180419-01  
 PERFORMANCE CHECK / CALIBRATED EQUIPMENT  
 TYPE : Digital Dust Indicator  
 MANUFACTURER : SIBATA  
 MODEL NO. : LD-5R  
 SERIAL NO. : 841723  
 EQUIPMENT NO. : ---  
 RECEIPT DATE : 27/4/2018  
 PERFORMANCE CHECK / CALIBRATION DATE : 28/4/2018

## PERFORMANCE CHECK / CALIBRATION Information

CODE	Calibration Parameter	Method Procedure	Reference Method
Dust PC/CAL	Performance Check / Calibration of Dust Meter	CAL003	General Technical Requirements of Environmental Monitoring, Environmental Monitoring & Audit Guidelines for Development Projects in HK

- Notes : 1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.  
 2. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Approved Signatory

:   
 Wong Po Yan Pauline  
 (Assistant Laboratory Manager)

Issue Date: 2/5/2018





## REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME : PERFORMANCE CHECK / CALIBRATION OF DUST METER  
 DATE OF ISSUE : 2/5/2018  
 REPORT NO. : HK180419

## PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE : Digital Dust Indicator  
 MANUFACTURER : SIBATA  
 MODEL NO. : LD-5R  
 SERIAL NO. : 841723  
 EQUIPMENT NO. : ---  
 SENSITIVITY ADJUSTMENT (CPM) : 615  
 PERFORMANCE CHECK / CALIBRATION DATE : 28/4/2018

## STANDARD EQUIPMENT

TYPE : HIGH VOLUME AIR SAMPLER  
 MANUFACTURER : TISCH  
 MODEL NO. : TE-5170  
 EQUIPMENT REF NO. : PTL\_HV002  
 LAST CALIBRATION DATE : 27/4/2018

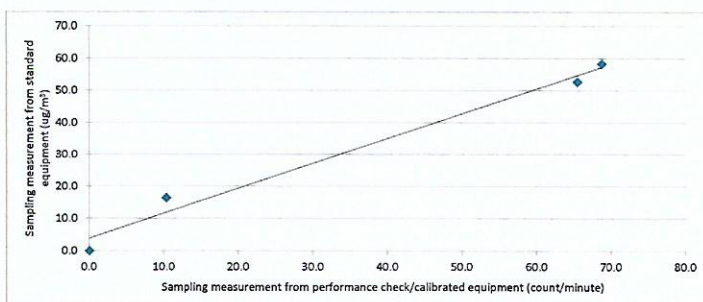
## EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Sensitivity Adjustment Scale Setting (Before Performance check / Calibration): 615 CPM  
 Sensitivity Adjustment Scale Setting (After Performance check / Calibration): 615 CPM

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m <sup>3</sup> (Standard equipment) (Y - Axis)	Total Count <sup>2</sup> (Performance Check / Calibrated equipment)	Concentration in Count/Minute <sup>3</sup> (Performance Check / Calibrated equipment) (X - Axis)
Zero Check <sup>1</sup>	28/4/2018, 9:50:00 AM	24.9	1015	0	0	0
1	28/4/2018, 11:32:00 AM	24.9	1015	53	3926	65
2	28/4/2018, 12:38:00 PM	24.9	1015	58	4121	69
3	28/4/2018, 1:46:00 PM	24.9	1015	16	618	10

## Linear Regression of Y on X

Slope (K- factor) : 0.8  
 Correlation Coefficient : 0.9914  
 Validity of Performance Check / Calibration Record : 28/4/2019



- Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.  
 2. Total Count was measured by Digital Dust Indicator.  
 3. Count/minute was calculated by (Total Count/60)  
 4. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.  
 5. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: MA Ching Him, Jackey Signature: [Signature] Date: 28/4/2018

Checked by: Wong Po Yan, Pauline Signature: [Signature] Date: 2/5/2018

## **CALIBRATION CERTIFICATE**

Date: April 6th, 2018

Equipment Name	: Digital Dust Indicator, Model LD-5R
Code No.	: 080000-72
Quantity	: 1 unit
Serial No.	: 841724
Sensitivity	: 0.001 mg/m3
Sensitivity Adjustment	: 618CPM
Scale Setting	: April 2rd, 2018

We hereby certify that the above mentioned instrument has been calibrated satisfactory.

Sincerely

**SIBATA SCIENTIFIC TECHNOLOGY LTD.**



Tong Zhang

Overseas Sales Division



## REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

REPORT NO. : HK180420  
 PROJECT NAME : PERFORMANCE CHECK / CALIBRATION OF DUST METER  
 DATE OF ISSUE : 2/5/2018  
 CUSTOMER : Envirotech Services Company  
 ADDRESS : Rm. 113, 1/F., MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T.

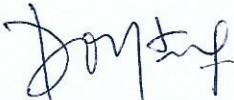
REPORT NO. : HK180420  
 PROJECT ITEM NO. : HK180420-01  
 PERFORMANCE CHECK / CALIBRATED EQUIPMENT  
 TYPE : Digital Dust Indicator  
 MANUFACTURER : SIBATA  
 MODEL NO. : LD-5R  
 SERIAL NO. : 841724  
 EQUIPMENT NO. : ---  
 RECEIPT DATE : 27/4/2018  
 PERFORMANCE CHECK / CALIBRATION DATE : 28/4/2018

## PERFORMANCE CHECK / CALIBRATION Information

CODE	Calibration Parameter	Method Procedure	Reference Method
Dust PC/CAL	Performance Check / Calibration of Dust Meter	CAL003	General Technical Requirements of Environmental Monitoring, Environmental Monitoring & Audit Guidelines for Development Projects in HK

- Notes : 1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.  
 2. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Approved Signatory

  
 Wong Po Yan Pauline  
 (Assistant Laboratory Manager)

Issue Date: 2/5/2018



**REPORT OF PERFORMANCE CHECK / CALIBRATION**

PROJECT NAME : PERFORMANCE CHECK / CALIBRATION OF DUST METER  
 DATE OF ISSUE : 2/5/2018  
 REPORT NO. : HK180420

**PERFORMANCE CHECK / CALIBRATED EQUIPMENT**

TYPE : Digital Dust Indicator  
 MANUFACTURER : SIBATA  
 MODEL NO. : LD-5R  
 SERIAL NO. : 841724  
 EQUIPMENT NO. : —  
 SENSITIVITY ADJUSTMENT (CPM) : 618  
 PERFORMANCE CHECK / CALIBRATION DATE : 28/4/2018

**STANDARD EQUIPMENT**

TYPE : HIGH VOLUME AIR SAMPLER  
 MANUFACTURER : TISCH  
 MODEL NO. : TE-5170  
 EQUIPMENT REF NO. : PTL\_HV002  
 LAST CALIBRATION DATE : 27/4/2018

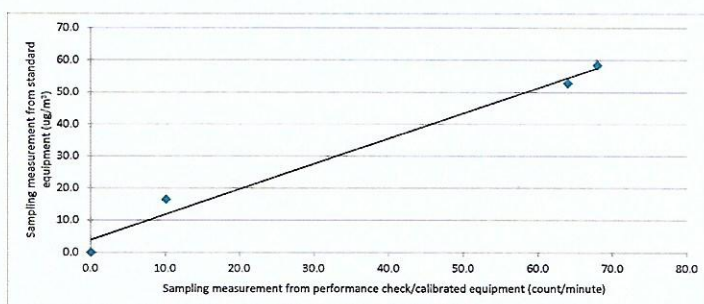
**EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:**

Sensitivity Adjustment Scale Setting (Before Performance check / Calibration): 617 CPM  
 Sensitivity Adjustment Scale Setting (After Performance check / Calibration): 617 CPM

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m <sup>3</sup> (Standard equipment) (Y - Axis)	Total Count <sup>2</sup> (Performance Check / Calibrated equipment)	Concentration in Count/Minute <sup>3</sup> (Performance Check / Calibrated equipment) (X - Axis)
Zero Check <sup>1</sup>	28/4/2018, 9:50:00 AM	24.9	1015	0	0	0
1	28/4/2018, 11:32:00 AM	24.9	1015	53	3840	64
2	28/4/2018, 12:38:00 PM	24.9	1015	58	4079	68
3	28/4/2018, 1:46:00 PM	24.9	1015	16	604	10

**Linear Regression of Y on X**

Slope (K- factor) : 0.8  
 Correlation Coefficient : 0.9916  
 Validity of Performance Check / Calibration Record : 28/4/2019



- Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.  
 2. Total Count was measured by Digital Dust Indicator.  
 3. Count/minute was calculated by (Total Count/60)  
 4. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.  
 5. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: MA Ching Him, Jackey Signature: [Signature] Date: 28/4/2018

Checked by: Wong Po Yan, Pauline Signature: [Signature] Date: 2/5/2018

# Certificate of Calibration

## 校正證書

Certificate No. : C183087

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC18-1089)

Date of Receipt / 收件日期 : 25 May 2018

Description / 儀器名稱 : Sound Level Meter

Manufacturer / 製造商 : Rion

Model No. / 型號 : NL-52

Serial No. / 編號 : 00175561

Supplied By / 委託者 : Envirotech Services Co.

Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,  
New Territories, Hong Kong

### TEST CONDITIONS / 測試條件

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

Relative Humidity / 相對濕度 :  $(50 \pm 25)\%$

Line Voltage / 電壓 : ---

### TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 10 June 2018

### TEST RESULTS / 測試結果

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

The results do not exceed manufacturer's specification.

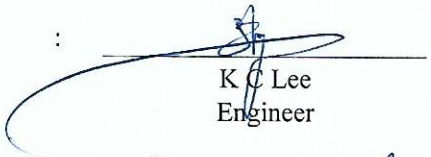
The results are detailed in the subsequent page(s).

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

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

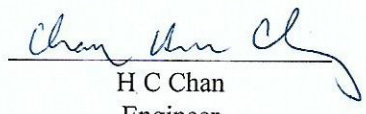
Tested By  
測試

:

  
K C Lee  
Engineer

Certified By  
核證

:

  
H C Chan  
Engineer

Date of Issue  
簽發日期

:

14 June 2018

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書面批准。



# Certificate of Calibration

## 校正證書

Certificate No. : C183087  
證書編號

- 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 was performed before the test.
- 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	C180024
CL281	Multifunction Acoustic Calibrator	PA160023

- Test procedure : MA101N.

- 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 <sub>A</sub>	A	Fast	94.00	1	94.0	± 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 <sub>A</sub>	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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 <sub>A</sub>	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 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.

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。



# Certificate of Calibration

## 校正證書

Certificate No. : C183087  
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 <sub>A</sub>	A	Fast	94.00	63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.8	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.6	-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 <sub>C</sub>	C	Fast	94.00	63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.6	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 10990

- 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 :

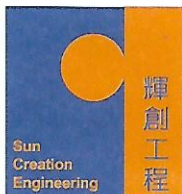
Only the original copy or the laboratory's certified true copy is valid.

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 & Testing Laboratory

# Certificate of Calibration

## 校正證書

Certificate No. : C185607  
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC18-1968) Date of Receipt / 收件日期 : 27 September 2018

Description / 儀器名稱 : Precision Acoustic Calibrator  
Manufacturer / 製造商 : LARSON DAVIS  
Model No. / 型號 : CAL200  
Serial No. / 編號 : 15678  
Supplied By / 委託者 : Envirotech Services Co.  
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,  
New Territories, Hong Kong

### 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 :  $(50 \pm 25)\%$

### TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 October 2018

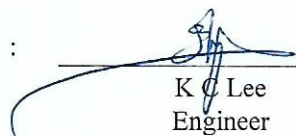
### TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.  
The results do not exceed manufacturer's specification.  
The results are detailed in the subsequent page(s).

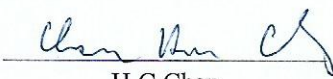
The test equipment used for calibration are traceable to National Standards via :

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

Tested By  
測試

  
K C Lee  
Engineer

Certified By  
核證

  
H C Chan  
Engineer

Date of Issue : 19 October 2018  
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。

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# Certificate of Calibration

## 校正證書

Certificate No. : C185607  
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 :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C183775
CL281	Multifunction Acoustic Calibrator	CDK1806821
TST150A	Measuring Amplifier	C181288

- 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	94.0	± 0.2	± 0.2
114 dB, 1 kHz	113.9		

### 5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000	1 kHz ± 1 %	± 1

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

#### Note :

Only the original copy or the laboratory's certified true copy is valid.

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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