



## Certificate of Calibration

### Calibration Certification Information

<b>Cal. Date:</b> October 17, 2018	<b>Rootsmeter S/N:</b> 438320	<b>Ta:</b> 294 °K
<b>Operator:</b> Jim Tisch		<b>Pa:</b> 755.7 mm Hg
<b>Calibration Model #:</b> TE-5025A	<b>Calibrator S/N:</b> 2154	

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4590	3.2	2.00
2	3	4	1	1.0410	6.4	4.00
3	5	6	1	0.9310	7.9	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7320	12.7	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)
1.0035	0.6878	1.4197	0.9958	0.6825	0.8821
0.9993	0.9599	2.0078	0.9915	0.9525	1.2475
0.9973	1.0712	2.2448	0.9895	1.0629	1.3948
0.9961	1.1268	2.3543	0.9884	1.1180	1.4628
0.9909	1.3536	2.8394	0.9832	1.3432	1.7642
<b>QSTD</b>	<b>m=</b>	<b>2.13015</b>	<b>QA</b>	<b>m=</b>	<b>1.33386</b>
	<b>b=</b>	<b>-0.04186</b>		<b>b=</b>	<b>-0.02601</b>
	<b>r=</b>	<b>0.99996</b>		<b>r=</b>	<b>0.99996</b>

### Calculations

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

### Standard Conditions

**Tstd:** 298.15 °K

**Pstd:** 760 mm Hg

### Key

**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

# Certificate of Calibration

**Calibration Certification Information**

<b>Cal. Date:</b> November 20, 2017	<b>Rootsmeter S/N:</b> 438320	<b>Ta:</b> 294 °K
<b>Operator:</b> Jim Tisch		<b>Pa:</b> 756.9 mm Hg
<b>Calibration Model #:</b> TE-5025A	<b>Calibrator S/N:</b> 2456	

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4440	3.2	2.00
2	3	4	1	1.0260	6.4	4.00
3	5	6	1	0.9130	7.8	5.00
4	7	8	1	0.8680	8.8	5.50
5	9	10	1	0.7190	12.7	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)
1.0052	0.6961	1.4209	0.9958	0.6896	0.8814
1.0010	0.9756	2.0095	0.9915	0.9664	1.2465
0.9991	1.0943	2.2467	0.9897	1.0840	1.3936
0.9978	1.1495	2.3563	0.9884	1.1387	1.4616
0.9926	1.3805	2.8418	0.9832	1.3675	1.7628
<b>QSTD</b>	<b>m=</b>	<b>2.07133</b>	<b>QA</b>	<b>m=</b>	<b>1.29703</b>
	<b>b=</b>	<b>-0.01892</b>		<b>b=</b>	<b>-0.01173</b>
	<b>r=</b>	<b>0.99995</b>		<b>r=</b>	<b>0.99995</b>

**Calculations**

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

**Standard Conditions**

<b>Tstd:</b>	298.15 °K
<b>Pstd:</b>	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

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**MaterialLab****TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET**

Project : Environmental Monitoring Works For Contract No. KLN/2015/07				Date of Calibration: 2-Oct-18	
Location : KER1b				Next Calibration Date: 1-Jan-19	
Brand:	Tisch			Technician: Toby Wan	
Model:	TE-5170	S/N:	3482		

**CONDITIONS**

Sea Level Pressure (hPa):	1014.9	Corrected Pressure (mm Hg):	761
Temperature (°C):	27	Temperature (K):	300

**CALIBRATION ORIFICE**

Make:	Tisch	Qstd Slope:	2.07013
Model:	TE-5025A	Qstd Intercept:	-0.01892
Calibration Date:	20-Nov-17	Expiry Date:	20-Nov-18
S/N:	2456		

**CALIBRATIONS**

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m <sup>3</sup> /min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	12.00	0.00	12.000	1.678	56.00	55.85	Slope = 32.9848 Intercept = 0.1261 Corr. coeff.: 0.9961
13	10.60	1.30	9.300	1.478	49.00	48.87	
10	9.40	2.10	7.300	1.311	44.00	43.88	
7	8.70	3.50	5.200	1.108	35.00	34.91	
5	7.60	5.20	2.400	0.755	26.00	25.93	

**Calculations:**

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta)) - b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart response

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pa = actual pressure during calibration (mm Hg)

Tstd = 298 deg K

Pstd = 760 mm Hg

**For subsequent calculation of sampler flow:**

$$1/m((I[\text{Sqrt}(298/Tav)(Pav/760)] - b)$$

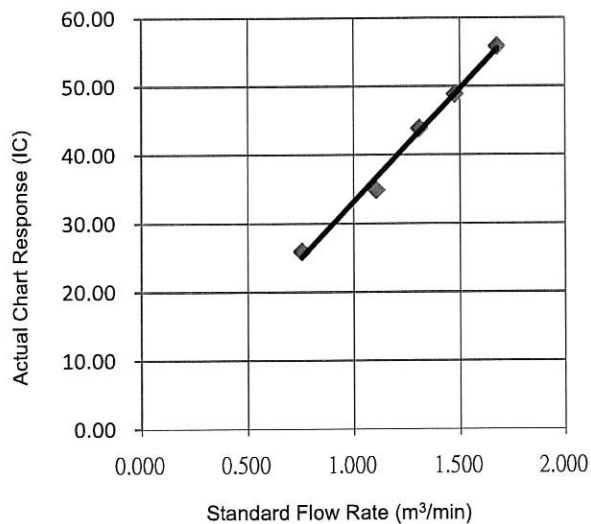
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

**FLOW RATE CHART**

**CHOI KAM HO**  
Project Consultant

**Report Date:** 2<sup>nd</sup> October, 2018



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**MaterialLab****TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET**

Project : Environmental Monitoring Works For Contract No. KLN/2015/07		Date of Calibration: 2-Oct-18	
Location : KTD1a		Next Calibration Date: 1-Jan-19	
Brand:	Tisch	Technician: Toby Wan	
Model:	TE-5170	S/N:	4037

**CONDITIONS**

Sea Level Pressure (hPa):	1014.9	Corrected Pressure (mm Hg):	761
Temperature (°C):	27	Temperature (K):	300

**CALIBRATION ORIFICE**

Make:	Tisch	Qstd Slope:	2.07013
Model:	TE-5025A	Qstd Intercept:	-0.01892
Calibration Date:	20-Nov-17	Expiry Date:	20-Nov-18
S/N:	2456		

**CALIBRATIONS**

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m <sup>3</sup> /min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	11.50	0.40	11.100	1.614	59.00	58.84	Slope = 31.9470 Intercept = 7.5845 Corr. coeff.: 0.9939
13	10.30	1.60	8.700	1.430	55.00	54.85	
10	9.40	2.30	7.100	1.293	48.00	47.87	
7	8.30	3.70	4.600	1.042	40.00	39.89	
5	7.30	4.60	2.700	0.801	34.00	33.91	

**Calculations:**

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart response

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pa = actual pressure during calibration (mm Hg)

Tstd = 298 deg K

Pstd = 760 mm Hg

**For subsequent calculation of sampler flow:**

$$1/m((I[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

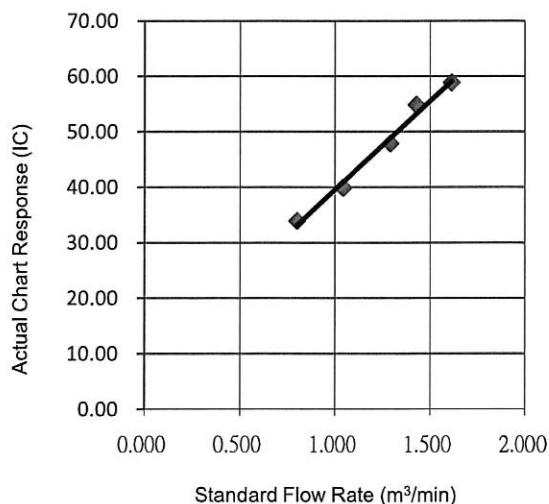
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

**FLOW RATE CHART**

**CHOI KAM HO**  
Project Consultant

**Report Date:** 2<sup>nd</sup> October, 2018

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**MaterialLab****TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET**

Project : Environmental Monitoring Works For Contract No. KLN/2015/07

Date of Calibration: 9-Aug-18

Location : KTD2b

Next Calibration Date: 8-Nov-18

Brand: Tisch

Technician: Toby Wan

Model: TE-5170

S/N: 3838

**CONDITIONS**

Sea Level Pressure (hPa): 1003.3      Corrected Pressure (mm Hg): 753  
Temperature (°C): 30      Temperature (K): 303

**CALIBRATION ORIFICE**

Make: Tisch      Qstd Slope: 2.07013  
Model: TE-5025A      Qstd Intercept: -0.01892  
Calibration Date: 20-Nov-17      Expiry Date: 20-Nov-18  
S/N: 2456

**CALIBRATIONS**

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m <sup>3</sup> /min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	3.80	-8.50	12.300	1.682	55.00	54.29	Slope = 31.2460 Intercept = 0.7345 Corr. coeff.: 0.9933
13	2.90	-6.50	9.400	1.471	46.00	45.41	
10	1.00	-5.70	6.700	1.243	41.00	40.47	
7	0.20	-4.20	4.400	1.009	31.00	30.60	
5	-0.80	-3.10	2.300	0.732	25.00	24.68	

**Calculations:** $Qstd = 1/m[\sqrt{(H2O(Pa/Pstd)(Tstd/Ta))}] - b$  $IC = I[\sqrt{(Pa/Pstd)(Tstd/Ta)}]$ 

Qstd = standard flow rate

IC = corrected chart response

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pa = actual pressure during calibration (mm Hg)

Tstd = 298 deg K

Pstd = 760 mm Hg

**For subsequent calculation of sampler flow:** $1/m((I)[\sqrt{(298/Tav)(Pav/760)}]) - b$ 

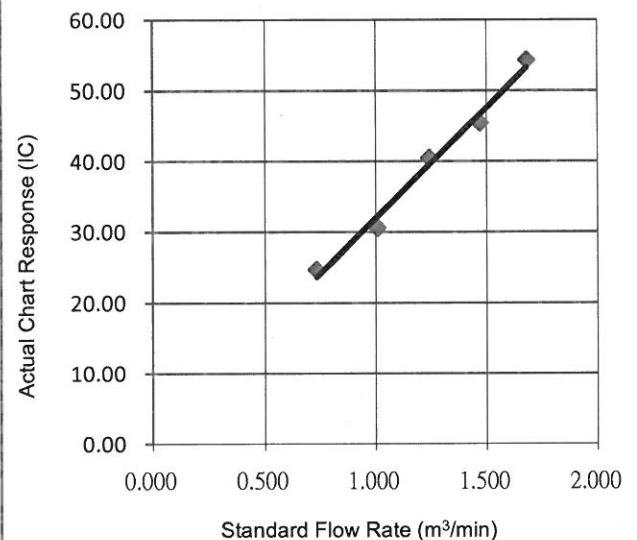
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

**FLOW RATE CHART**

**CHOI KAM HO**  
Project Consultant

Report Date: 9<sup>th</sup> August, 2018

**MATERIALAB CONSULTANTS LIMITED**

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**MaterialLab****TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET**

Project : Environmental Monitoring Works For Contract No. KLN/2015/07				Date of Calibration: 6-Nov-18	
Location : KTD2b				Next Calibration Date: 5-Feb-19	
Brand:	Tisch			Technician: Ting Chan	
Model:	TE-5170	S/N:	3838		

**CONDITIONS**

Sea Level Pressure (hPa):	1017.5	Corrected Pressure (mm Hg):	763
Temperature (°C):	27	Temperature (K):	300

**CALIBRATION ORIFICE**

Make:	Tisch	Qstd Slope:	2.13015
Model:	TE-5025A	Qstd Intercept:	-0.04186
Calibration Date:	17-Oct-18	Expiry Date:	17-Oct-19
S/N:	2154		

**CALIBRATIONS**

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m <sup>3</sup> /min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	5.40	-6.10	11.500	1.609	49.00	48.93	Slope = 24.9721 Intercept = 8.1265 Corr. coeff.: 0.9962
13	4.00	-4.80	8.800	1.410	43.00	42.94	
10	2.70	-3.20	5.900	1.158	37.00	36.95	
7	1.80	-2.50	4.300	0.992	32.00	31.95	
5	0.90	-1.60	2.500	0.761	28.00	27.96	

**Calculations:**

$$Qstd = 1/m[\text{Sqrt}(H_2O(Pa/Pstd)(Tstd/Ta)) - b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart response

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pa = actual pressure during calibration (mm Hg)

Tstd = 298 deg K

Pstd = 760 mm Hg

**For subsequent calculation of sampler flow:**

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)] - b)$$

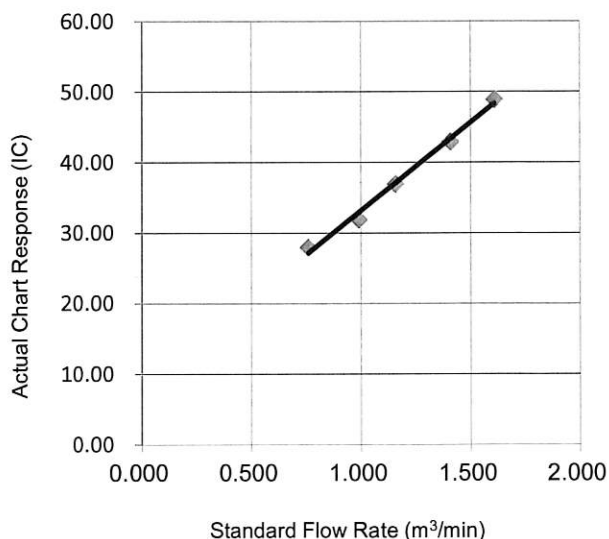
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

**FLOW RATE CHART**
**CHOI KAM HO**

Project Consultant

**Report Date:** 8<sup>th</sup> November, 2018

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**MaterialLab**

Report no.: 172379CA180329A

Page 1 of 1

**CALIBRATION CERTIFICATE OF SOUND LEVEL METER****Client Supplied Information**

Client : MaterialLab Consultants Ltd.

Address : Room 723 &amp; 725, 7/F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No.	CEL-63X	CE-251	CEL-495
Serial No.	1057055	00995	002317

Next Calibration Date : 12-Feb-2019

Specification Limit : EN 61672: 2003 Type 1

**Laboratory Information**

Description : B &amp; K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 13-Feb-2018 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct comparison

**Calibration Results :**

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	0.4	2.6 to -0.6
	2000Hz	1.0	2.8 to -0.4
	1000Hz	0.2	1.1 to -1.1
	500Hz	-3.0	-1.8 to -4.6
	250Hz	-8.3	-7.2 to -10.0
	125Hz	-15.7	-14.6 to -17.6
	63Hz	-25.7	-24.7 to -27.7
	31.5Hz	-38.7	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.1	± 0.6
	104dB-114dB	0.0	± 0.6

**Remarks :**

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighing is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.
5. This is to supersede the previous report no. 172379CA180329.

Checked by : Can Date : 5-7-2018 Certified by : K.T. Leung Date : 7-7-2018

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

\*\* End of Report \*\*



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# MaterialLab

Report no.: 172379CA185194

Page 1 of 1

## CALIBRATION CERTIFICATE OF SOUND LEVEL METER

### Client Supplied Information

Client : MaterialLab Consultants Ltd.

Address : Room 723 & 725, 7/F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

### Details of Unit Under Test, UUT

Description : Sound Level Meter  
Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No.	CL63X	CE-251	CEL-495
Serial No.	3756072	2403	002109

Equipment ID : N/A  
Next Calibration Date : 11-Jun-2019  
Specification Limit : EN 61672: 2003 Type 1

### Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)  
Equipment ID. : R-108-1  
Date of Calibration : 12-Jun-2018 Ambient Temperature : 22 °C  
Calibration Location : Calibration Laboratory of FTS  
Method Used : By direct comparison

### Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	0.4	2.6 to -0.6
	2000Hz	1.0	2.8 to -0.4
	1000Hz	-0.1	1.1 to -1.1
	500Hz	-3.4	-1.8 to -4.6
	250Hz	-9.6	-7.2 to -10.0
	125Hz	-16.2	-14.6 to -17.6
	63Hz	-26.3	-24.7 to -27.7
	31.5Hz	-39.2	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.0	± 0.6

### Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference range is 30-130dB, reference SPL is 94, 104 & 114dB, frequency weighing is A,
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.

Checked by : William Date : 22-6-2018 Certified by : K. Th. Leung Date : 23-6-2018  
CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

**\*\* End of Report \*\***



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# MaterialLab

Report no.: 172379CA185194(2)

Page 1 of 1

## CALIBRATION CERTIFICATE OF SOUND LEVEL METER

### Client Supplied Information

Client : MaterialLab Consultants Ltd.

Address : Room 723 & 725, 7F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter  
Manufacturer : Honglim Co.,Ltd  
Model No. : HLES-01  
Serial No. : 201591123  
Next Calibration Date : 11-Jun-2019  
Specification Limit : EN 61672: 2003 Type 1

### Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226  
Equipment ID. : R-108-1  
Date of Calibration : 12-Jun-2018 Ambient Temperature : 22 °C  
Calibration Location : Calibration Laboratory of FTS  
Method Used : By direct comparison

### Calibration Results :

Parameters		Mean Value (dB)	Specification Limit (dB)
A-weighting frequency response	4000Hz	2.4	2.6 to -0.6
	2000Hz	1.0	2.8 to -0.4
	1000Hz	-0.5	1.1 to -1.1
	500Hz	-3.8	-1.8 to -4.6
	250Hz	-9.4	-7.2 to -10.0
	125Hz	-17.3	-14.6 to -17.6
	63Hz	-27.6	-24.7 to -27.7
	31.5Hz	-40.5	-37.4 to -41.4
C-weighting frequency response	4000Hz	0.5	0.8 to -2.4
	2000Hz	-0.4	1.4 to -1.8
	1000Hz	-0.5	1.1 to -1.1
	500Hz	-0.5	1.4 to -1.4
	250Hz	-0.5	1.4 to -1.4
	125Hz	-0.7	1.3 to -1.7
	63Hz	-1.4	0.7 to -2.3
Level range control	31.5Hz	-3.7	-1.0 to -5.0
	45-115 (Ref.)	93.5	NA
Differential level linearity	65dB-135dB	-0.1	± 0.5
	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.1	± 0.6

### Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration setting: Ref. SPL is 94,104 & 114dB, range setting is 45-115dB & time weighing is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.

Checked by : William Date : 22-6-2018 Certified by : K. Kwok Date : 23-6-2018  
CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

\*\* End of Report \*\*

# FUGRO TECHNICAL SERVICES LIMITED

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# MaterialLab

Report no.: 172379CA180671(1)

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## CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

### Client Supplied Information

Client : MaterialLab Consultants Ltd.

Address : Room 723 & 725, 7/F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

### Details of Unit Under Test, UUT

Description : Sound Calibrator  
Manufacturer : Casella (Model no. CEL-120/1)  
Serial No. : 5230742  
Next Calibration Date : 10-Apr-2019  
Specification Limit : EN 60942: 2003 Type 1

### Laboratory Information


Description : Reference Sound Level Meter  
Equipment ID. : R-119-1  
Date of Calibration : 11-Apr-2018 Ambient Temperature : 21 °C  
Calibration Location : Calibration Laboratory of FTS  
Method Used : By direct comparison

### Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit (dB)
94dB	-0.4 dB	±0.4dB
114dB	0.0 dB	

### Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The equipment does comply with the specification limit.

Checked by :   
CA-R-297 (22/07/2009)

Date : 16/4/2018

Certified by : 

Chan Chun Wai (Manager)

Date : 16/4/2018

\*\* End of Report \*\*

## FUGRO TECHNICAL SERVICES LIMITED

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# MaterialLab

Report No. : 183057CA185180(1)

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### CALIBRATION CERTIFICATE OF ANEMOMETER

#### Client Supplied Information

Client : MaterialLab Consultants Ltd.

Project : Calibration Services

#### Details of Unit Under Test, UUT

Description : Anemometer

Manufacturer : Benetech

Model No. : GM816

Serial No. : 13372555

Equipment ID. : N/A

Next Calibration Date : 08-Jun-2019

#### Laboratory Information

##### Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

Date of Calibration : 09-Jun-2018 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct Comparison

#### Calibration Results :

Reference Reading (m/s)	UUT Reading (m/s)	Error (m/s)
1.96	2.2	0.2
4.04	4.1	0.1
6.05	6.2	0.2
8.02	7.9	-0.1
10.06	9.7	-0.4

#### Remark :

1. The equipment being used in this calibration is traceable to recognized National Standards.

Checked by : William Date : 12-6-2018 Certified by : Chan Chun Wai Date : 13-6-2018  
CA-R-297 (22/07/2009) Chan Chun Wai (Manager)

**\*\* End of Report \*\***



# FUGRO TECHNICAL SERVICES LIMITED

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# Materialab

Report No. : 182933CA185214(2)

Page 1 of 1

## CALIBRATION CERTIFICATE OF ANEMOMETER

### Client Supplied Information

Client : Materialab Consultants Ltd.

Address: Room 723 & 725, 7F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

### Details of Unit Under Test, UUT

Description : Comfort Level Probe

Manufacturer : Testo

Model No. :

Serial No. :

Equipment ID :

Meter	Probe
480	409
61003846	03216409

N/A

Next Calibration Due Date : 22-Aug-2019

### Laboratory Information

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

Date of Calibration : 23-Aug-2018

Ambient Temperature : 20± 2 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct Comparison

### Calibration Results :

Reference Reading (m/s)	UUT Reading (m/s)	Error (m/s)
1.05	1.06	0.01
3.02	3.06	0.04
5.04	5.07	0.03

### Remarks :

1. The equipment being used in this calibration is traceable to recognized National Standards.
2. The reported readings in this calibration are an average from 10 trials.

Checked by : William Date : 31-8-2018 Certified by : K. T. Leung Date : 31-8-2018  
CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

**\*\* End of Report \*\***