Enovative Environmental Service Limited

REPORT OF EQUIPMENT CALIBRATION

INSTRUMENT DESCRIPTION

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler and the filter paper is weighted by HOKLAS laboratory.

Instrument:	Handheld TSP meter
Brand Name:	TSI
Model No.:	AM520
Serial No.:	5201735004
Date of Calibration:	04 October, 2024
Date of Next Calibration :	04 October, 2025

ISSUING ORGANISATION

Address

Enovative Environmental Service Limited

Flat 23, 6/F, Block C, Goldfield Industrial Centre
1 Sui Wo Road
Shatin, N.T.
Hong Kong

Phone: 852-2242 1020
Fax: 852-3691 9240
Email: info@eno.com.hk

Mr Wong Siu Ho, Thomas
Manager

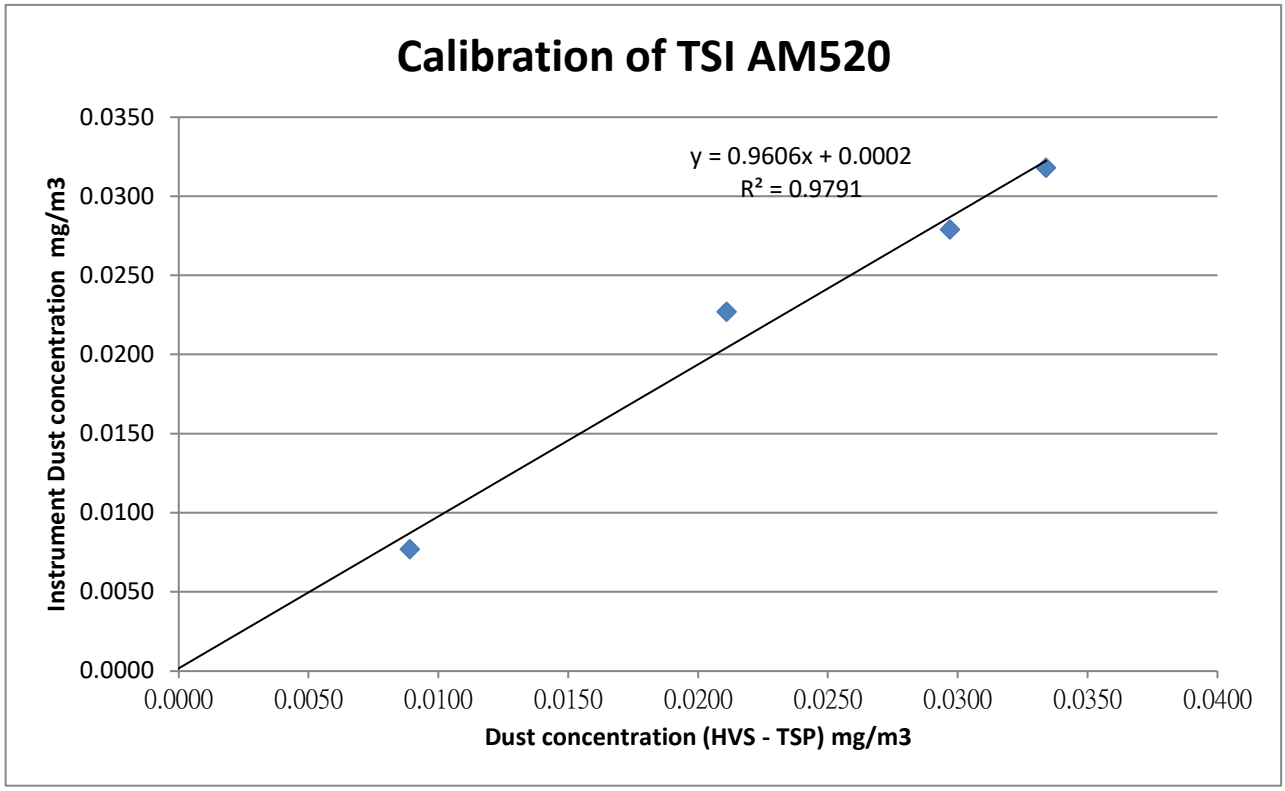
Enovative Environmental Service Limited

Brand Name:	TSI
Model No.:	AM520
Serial No.:	5201735004
HVS No.:	A12-TSP-102
Date of Calibration:	04 October, 2024
Date of next Calibration:	04 October, 2025

Calibration Record

HVS - TSP (mg/m3)	0.0334	0.0297	0.0089	0.0211
TSI AM520 (mg/m3)	0.0318	0.0279	0.0077	0.0227

K Factor :	0.9606
Correlation Coefficient :	0.9791



*** Filter paper being used in the calibration : 209681, 209682, 209683, 209684
Those filter papers are weighted by HOKLAS laboratory (ALS Technichem (HK) Pty Ltd.)

Mr Wong Siu Ho, Thomas
Manager

Enovative Environmental Service Limited

REPORT OF EQUIPMENT CALIBRATION

INSTRUMENT DESCRIPTION

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler and the filter paper is weighted by HOKLAS laboratory.

Instrument:	Handheld TSP meter
Brand Name:	TSI
Model No.:	AM520
Serial No.:	5201735006
Date of Calibration:	04 October, 2024
Date of Next Calibration :	04 October, 2025

ISSUING ORGANISATION

Address

Enovative Environmental Service Limited

Flat 23, 6/F, Block C, Goldfield Industrial Centre
1 Sui Wo Road
Shatin, N.T.
Hong Kong

Phone: 852-2242 1020
Fax: 852-3691 9240
Email: info@eno.com.hk

Mr Wong Siu Ho, Thomas
Manager

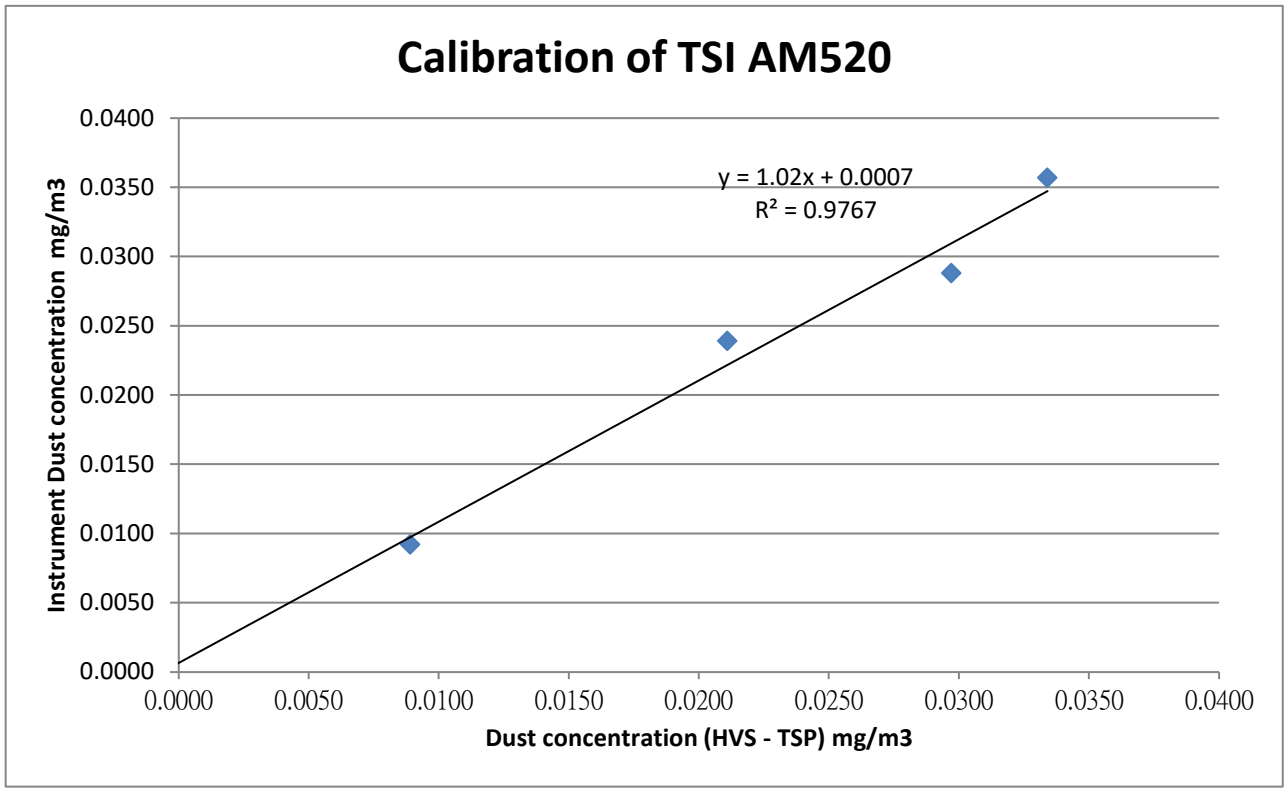
Enovative Environmental Service Limited

Brand Name:	TSI
Model No.:	AM520
Serial No.:	5201735006
HVS No.:	A12-TSP-102
Date of Calibration:	04 October, 2024
Date of next Calibration:	04 October, 2025

Calibration Record

HVS - TSP (mg/m3)	0.0334	0.0297	0.0089	0.0211
TSI AM520 (mg/m3)	0.0357	0.0288	0.0092	0.0239

K Factor :	1.02
Correlation Coefficient :	0.9767



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Those filter papers are weighted by HOKLAS laboratory (ALS Technichem (HK) Pty Ltd.)

Mr Wong Siu Ho, Thomas
Manager

Enovative Environmental Service Limited

REPORT OF EQUIPMENT CALIBRATION

INSTRUMENT DESCRIPTION

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler and the filter paper is weighted by HOKLAS laboratory.

Instrument:	Handheld TSP meter
Brand Name:	TSI
Model No.:	AM520
Serial No.:	5202345003
Date of Calibration:	04 October, 2024
Date of Next Calibration :	04 October, 2025

ISSUING ORGANISATION

Address

Enovative Environmental Service Limited

Flat 23, 6/F, Block C, Goldfield Industrial Centre
1 Sui Wo Road
Shatin, N.T.
Hong Kong

Phone: 852-2242 1020
Fax: 852-3691 9240
Email: info@eno.com.hk

Mr Wong Siu Ho, Thomas
Manager

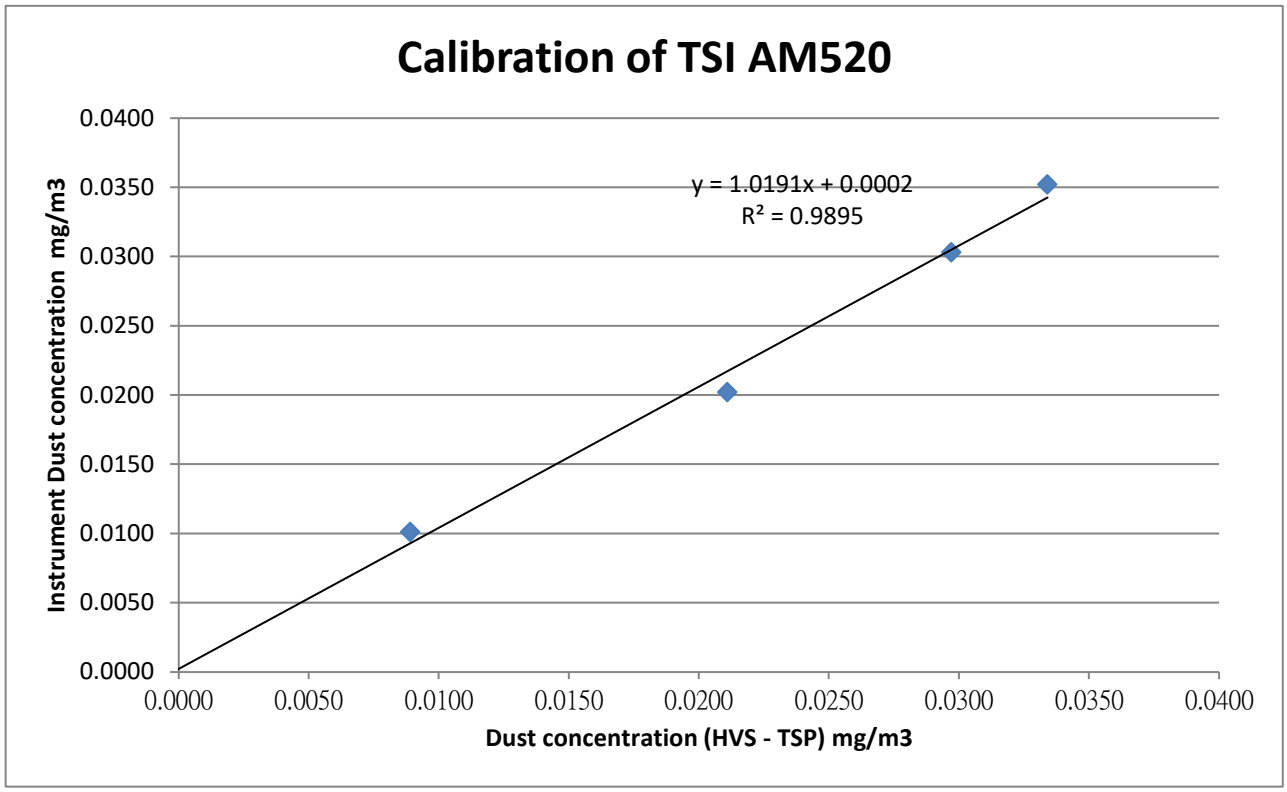
Enovative Environmental Service Limited

Brand Name:	TSI
Model No.:	AM520
Serial No.:	5202345003
HVS No.:	A12-TSP-102
Date of Calibration:	04 October, 2024
Date of next Calibration:	04 October, 2025

Calibration Record

HVS - TSP (mg/m3)	0.0334	0.0297	0.0089	0.0211
TSI AM520 (mg/m3)	0.0352	0.0303	0.0101	0.0202

K Factor :	1.0191
Correlation Coefficient :	0.9895



*** Filter paper being used in the calibration : 209681, 209682, 209683, 209684
Those filter papers are weighted by HOKLAS laboratory (ALS Technichem (HK) Pty Ltd.)

Mr Wong Siu Ho, Thomas
Manager

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location : AMS5(Ma Wan Chung Village)
Calibrated by : P.F.Yeung
Date : 30/04/2025

Sampler
Model : TE-5170
Serial Number : S/N3640

Calibration Orifice and Standard Calibration Relationship
Serial Number : 2454
Next Calibration Date : 02 December 2025
Slope (m) : 2.08315
Intercept (b) : -0.04938
Correlation Coefficient(r) : 0.99985

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

Calibration Condition
Pa (hpa) : 1013.3
Ta(K) : 301.2

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.1	3.162	1.542	58	57.71
2	13 holes	8.2	2.849	1.391	53	52.73
3	10 holes	5.9	2.417	1.184	48	47.76
4	7 holes	3.8	1.940	0.955	42	41.79
5	5 holes	2.3	1.509	0.748	38	37.81

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

Sampler Calibration Relationship

Slope(m):24.972 Intercept(b):18.492 Correlation Coefficient(r): 0.9970

Checked by: Magnum Fan Date: 05/05/2025

TSP High Volume Sampler Calibration

SITE

Location: AMS6 Dragon Air Building — Date: February 24, 2025
Sampler: TE-5170 — Tech: Sam Wong

CONDITIONS

Barometric Pressure (in Hg):	40.35	Corrected Pressure (mm Hg):	1025
Temperature (deg F):	66	Temperature (deg K):	292
Average Press. (in Hg):	40.35	Corrected Average (mm Hg):	1025
Average Temp. (deg F):	66	Average Temp. (deg K):	292

CALIBRATION ORIFICE

Make: Tisch Environmental, Inc — Slope: 2.12695
Model: TE-5025A — Intercept: -0.05604
Serial # 4285 — Date Certified: August 19, 2025

CALIBRATION

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.20	1.953	52.0	61.01
2	10.00	1.771	48.0	56.32
3	6.80	1.465	40.0	46.93
4	5.00	1.260	34.0	39.89
5	3.00	0.982	28.0	32.85

LINEAR REGRESSION

Slope: 29.6488
Intercept: 3.3412
Corr. Coeff: 0.9979

# of Observations: 5

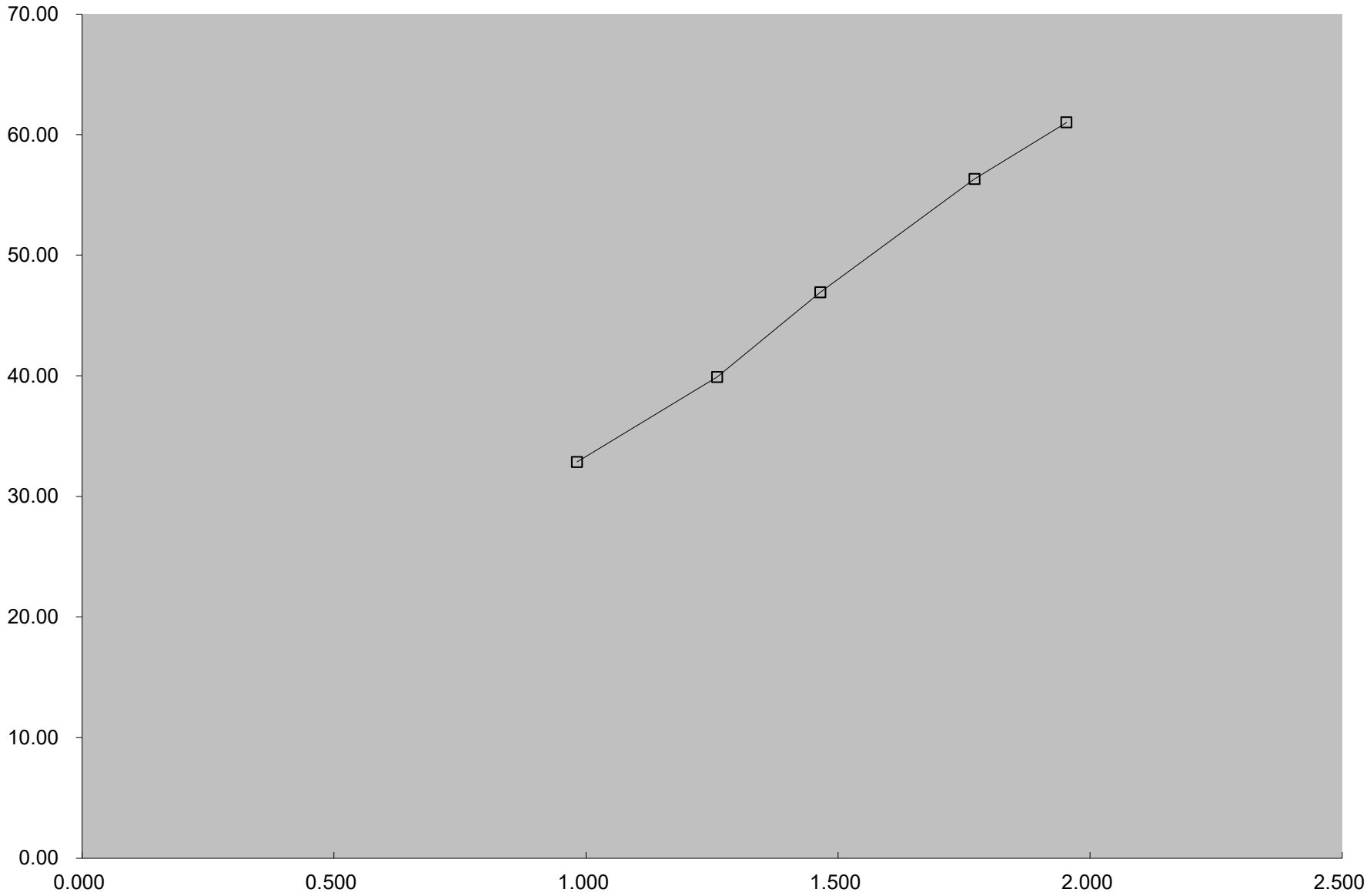
CALCULATIONS

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
m = calibrator slope
b = calibrator intercept
Ta = actual temperature (deg K)
Pa = actual pressure (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)


70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.000
0.500
1.000
1.500
2.000
2.500

TSP High Volume Sampler Calibration

SITE

Location: AMS6 Dragon Air Building — Date: May 20, 2025
Sampler: TE-5170 — Tech: Sam Wong

CONDITIONS

Barometric Pressure (in Hg):	39.75	Corrected Pressure (mm Hg):	1010
Temperature (deg F):	85	Temperature (deg K):	302
Average Press. (in Hg):	39.75	Corrected Average (mm Hg):	1010
Average Temp. (deg F):	85	Average Temp. (deg K):	302

CALIBRATION ORIFICE

Make: Tisch Environmental, Inc — Slope: 2.12695
Model: TE-5025A — Intercept: -0.05604
Serial # 4285 — Date Certified: August 19, 2025

CALIBRATION

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.20	1.905	52.0	59.49
2	10.00	1.727	48.0	54.92
3	6.80	1.429	40.0	45.76
4	5.00	1.229	34.0	38.90
5	3.00	0.958	28.0	32.03

LINEAR REGRESSION

Slope: 29.6488
Intercept: 3.2384
Corr. Coeff: 0.9979

# of Observations: 5

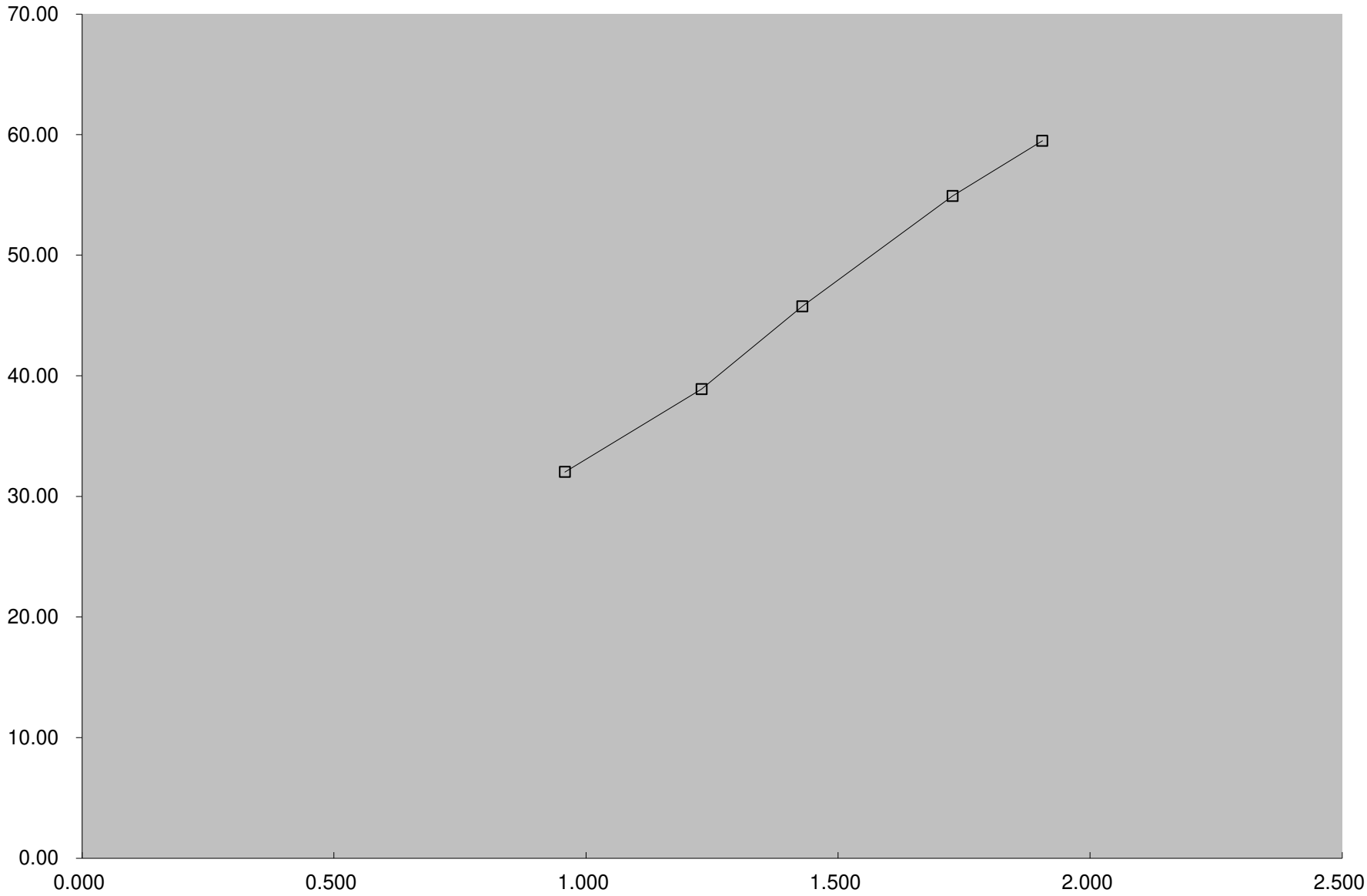
CALCULATIONS

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
m = calibrator slope
b = calibrator intercept
Ta = actual temperature (deg K)
Pa = actual pressure (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)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50.00
40.00
30.00
20.00
10.00
0.00
0.000
0.500
1.000
1.500
2.000
2.500

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 411654 Page 1 of 3 Pages

Customer : Enovative Environmental Service Limited

Address : Room 23, 6/F, Block C, Goldfield Industrial Centre, 1 Siu Wo Road, Shatin, N.T.

Order No. : Q44338 **Date of receipt :** 8-Nov-24

Item Tested

Description : Sound Level Meter

Manufacturer : RION **I.D.** : N15-RION-008

Model : NL-52 **Serial No.** : 01143485

Test Conditions

Date of Test : 18-Nov-24 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

The UUT has an indication that it conforms to IEC 61672-1:2013 Class 1

Ref. Document/Procedure: Z01, IEC 61672-1:2013.

Test Results

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S240	Sound Level Calibrator	405380	NIM-PRC & SCL-HKSAR
S017	Multi-Function Generator	C211339	SCL-HKSAR

The values given in this Calibration 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 environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. 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 International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 18-Nov-24

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

Acoustical signal test

1. Indication at the Calibration Check Frequency (1kHz)

UUT Setting		Applied Value (dB)	UUT Reading (dB)
Weight.	Response		After Adjust.*
A	F	94.0	93.8
	S		93.8
C	F		93.8
Z			93.8

*Adjustment using the customer's sound calibrator was performed immediately before test.

Tolerance : ± 1.0 dB
Uncertainty : ± 0.1 dB

2. Self-generated noise (Microphone Installed, most sensitive range) **:** 16.6 dBA (Mfr's Spec. ≤ 17 dBA)

Electrical signal tests

3. Frequency weightings (A ,F)

Frequency	Attenuation (dB)	IEC 61672-1 Class 1 Spec.
31.5 Hz	-39.5	- 39.4 dB, ± 1.5 dB
63 Hz	-26.1	- 26.2 dB, ± 1.0 dB
125 Hz	-16.1	- 16.1 dB, ± 1.0 dB
250 Hz	-8.6	- 8.6 dB, ± 1.0 dB
500 Hz	-3.2	- 3.2 dB, ± 1.0 dB
1 kHz	0.0 (Ref)	0 dB, ± 0.7 dB
2 kHz	+1.2	+ 1.2 dB, ± 1.0 dB
4 kHz	+1.3	+ 1.0 dB, ± 1.0 dB
8 kHz	-1.0	- 1.1 dB, + 1.5 dB ~ -2.5 dB
16 kHz	-2.5	- 6.6 dB, + 2.5 dB ~ - 16.0 dB

Uncertainty : ± 0.1 dB

Calibration Certificate

4. Frequency & Time weightings

4.1 Frequency Weighting (1kHz)

UUT Setting		Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
Time Weight.	Freq. Weight.			
F	A	94.0	94.0 (Ref.)	--
	C		94.0	± 0.2 dB
	Z		94.0	

Uncertainty : ± 0.1 dB

4.2 Time Weighting (1kHz)

UUT Setting		Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
Time Weight.	Freq. Weight.			
F	A	94.0	94.0 (Ref.)	--
S			94.0	± 0.1 dB
eq			94.0	

Uncertainty : ± 0.1 dB

5. Level Linearity on the Reference Level Range (8 kHz, A, F)

Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
124.0	123.9	± 0.8 dB
114.0	113.9	
104.0	104.0	
94.0	94.0 (Ref.)	
84.0	84.0	
74.0	74.0	
64.0	64.0	
54.0	54.0	
44.0	44.1	

Uncertainty : ± 0.1 dB

6. Level Linearity including the level range control (1 kHz, A, F)

N.A. (UUT is single range)

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure: 1 007 hPa.
4. Microphone model: UC-59, S/N: 04030.
5. Preamplifier model: NH-25, S/N: 21113.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 411655

Customer : Enovative Environmental Service Limited

Address : Room 23, 6/F, Block C, Goldfield Industrial Centre, 1 Siu Wo Road, Shatin, N.T.

Order No. : Q44338 **Date of receipt :** 8-Nov-24

Item Tested

Description : Sound Level Meter

Manufacturer : RION **I.D.** : --

Model : NL-52 **Serial No.** : 00175560

Test Conditions

Date of Test : 18-Nov-24 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

The UUT has an indication that it conforms to IEC 61672-1:2013/2002 Class 1

Ref. Document/Procedure: Z01, IEC 61672-1:2013, IEC 61260-1:2014.

Test Results

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S240	Sound Level Calibrator	405380	NIM-PRC & SCL-HKSAR
S017	Multi-Function Generator	C211339	SCL-HKSAR

The values given in this Calibration 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 environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. 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 International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 18-Nov-24

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

Acoustical signal test

1. Indication at the Calibration Check Frequency (1kHz)

UUT Setting		Applied Value (dB)	UUT Reading (dB)
Weight.	Response		After Adjust.*
A	F	94.0	94.0
	S		94.0
C	F		94.0
Z			94.0

*Adjustment using the customer's sound calibrator was performed immediately before test.

Tolerance : ± 1.0 dB
Uncertainty : ± 0.1 dB

2. Self-generated noise (Microphone Installed, most sensitive range) **:** 23.1 dBA (Mfr's Spec. ≤ 17 dBA)

Electrical signal tests

3. Frequency weightings (A ,F)

Frequency	Attenuation (dB)	IEC 61672-1 Class 1 Spec.
31.5 Hz	-39.5	- 39.4 dB, ± 1.5 dB
63 Hz	-26.2	- 26.2 dB, ± 1.0 dB
125 Hz	-16.2	- 16.1 dB, ± 1.0 dB
250 Hz	-8.7	- 8.6 dB, ± 1.0 dB
500 Hz	-3.2	- 3.2 dB, ± 1.0 dB
1 kHz	0.0 (Ref)	0 dB, ± 0.7 dB
2 kHz	+1.2	+ 1.2 dB, ± 1.0 dB
4 kHz	+1.3	+ 1.0 dB, ± 1.0 dB
8 kHz	-1.0	- 1.1 dB, + 1.5 dB ~ -2.5 dB
16 kHz	-2.5	- 6.6 dB, + 2.5 dB ~ - 16.0 dB

Uncertainty : ± 0.1 dB

Calibration Certificate

4. Frequency & Time weightings

4.1 Frequency Weighting (1kHz)

UUT Setting		Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
Time Weight.	Freq. Weight.			
F	A	94.0	94.0 (Ref.)	--
	C		94.0	± 0.2 dB
	Z		94.0	

Uncertainty : ± 0.1 dB

4.2 Time Weighting (1kHz)

UUT Setting		Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
Time Weight.	Freq. Weight.			
F	A	94.0	94.0 (Ref.)	--
S			94.0	± 0.1 dB
eq			94.0	

Uncertainty : ± 0.1 dB

5. Level Linearity on the Reference Level Range (8 kHz, A, F)

Anticipated Value (dB)	UUT Reading (dB)	IEC 61672-1 Class 1 Spec.
124.0	123.9	± 0.8 dB
114.0	114.0	
104.0	104.0	
94.0	94.0 (Ref.)	
84.0	84.0	
74.0	74.0	
64.0	64.0	
54.0	54.0	
44.0	44.1	

Uncertainty : ± 0.1 dB

6. Level Linearity including the level range control (1 kHz, A, F)

N.A. (UUT is single range)

Calibration Certificate

7. Filter Characteristics

7.1 1/1 – Octave Filter

Frequency	Attenuation (dB)	Tolerance (dB) (Ref.: IEC 61260-1 Class 1 Spec.)
125 Hz	-76.7	< - 60
250 Hz	-71.4	< - 40.5
500 Hz	-39.9	< - 16.6
707 Hz	-3.3	+ 0.4 ~ - 5.3
1 kHz (Ref)	--	--
1.414 kHz	-3.3	+ 0.4 ~ - 5.3
2 kHz	-40.9	< - 16.6
4 kHz	-85.7	< - 40.5
8 kHz	-86.3	< - 60

Uncertainty : ± 0.25 dB

7.2 1/3 – Octave Filter

Frequency	Attenuation (dB)	Tolerance (dB) (Ref.: IEC 61260-1 Class 1 Spec.)
326 Hz	-65.3	< - 60
530 Hz	-47.3	< - 40.5
772 Hz	-22.5	< - 16.6
891 Hz	-3.6	+ 0.4 ~ - 5.3
1 kHz (Ref)	--	--
1.122 kHz	-3.8	+ 0.4 ~ - 5.3
1.296 kHz	-22.8	< - 16.6
1.887 kHz	-47.7	< - 40.5
3.070 kHz	-92.6	< - 60

Uncertainty : ± 0.25 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure: 1 007 hPa.
4. Microphone model: UC-59, S/N: 10989.
5. Preamplifier model: NH-25, S/N: 65662.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 411656 Page 1 of 2 Pages

Customer : Enovative Environmental Service Limited

Address : Room 23, 6/F, Block C, Goldfield Industrial Centre, 1 Siu Wo Road, Shatin, N.T.

Order No. : Q44338 **Date of receipt :** 8-Nov-24

Item Tested

Description : Sound Calibrator

Manufacturer : RION **I.D.** : --

Model : NC-74 **Serial No.** : 34857296

Test Conditions

Date of Test : 18-Nov-24 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

The UUT has an indication that it conforms to IEC 60942:2003 Class 1.

Ref. Document/Procedure : F21, Z02, IEC 60942:2003.

Test Results

All results were within the IEC 60942 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	405219	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	405380	NIM-PRC & SCL-HKSAR
S041	Universal Counter	402289	SCL-HKSAR
S206	Sound Level Meter	405379	SCL-HKSAR

The values given in this Calibration 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 environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. 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 International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 18-Nov-24

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. Generated Sound Pressure Level

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94.0	94.0	± 0.4 dB

Uncertainty : ± 0.2 dB

2. Short-term Level Fluctuation : 0.0 dB
IEC 60942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.05 dB

3. Frequency

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	1.002	± 1 %

Uncertainty : $\pm 3.6 \times 10^{-6}$

4. Total Distortion + Noise : < 1.4 %
IEC 60942 Class 1 Spec. : < 3.0 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 007 hPa.

---------- END ----------

TISCH Environmental

RECALIBRATION DUE DATE:
August 19, 2025

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	August 19, 2024	**Rootsmeter S/N:** 438320	**Ta:** 296	°K
Operator:	Jim Tisch		**Pa:** 754.9	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **4285**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4390	3.2	2.00
2	3	4	1	1.0260	6.4	4.00
3	5	6	1	0.9160	8.0	5.00
4	7	8	1	0.8790	8.8	5.50
5	9	10	1	0.7240	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)	$\sqrt{\Delta H(Ta/Pa)}$ (y-axis)
0.9957	0.6920	1.4142	0.9958	0.6920	0.8856
0.9915	0.9664	2.0000	0.9915	0.9664	1.2524
0.9894	1.0801	2.2361	0.9894	1.0801	1.4002
0.9883	1.1244	2.3452	0.9883	1.1244	1.4685
0.9830	1.3578	2.8284	0.9830	1.3578	1.7711
QSTD	**m=**	**2.12695**	**QA**	**m=**	**1.33186**
	b=	**-0.05604**		**b=**	**-0.03509**
	r=	**0.99994**		**r=**	**0.99994**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/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= $1/m\left(\left(\sqrt{\Delta H(Ta/Pa)}\right)-b\right)$

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

Tisch Environmental, Inc.
145 South Miami Avenue
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TOLL FREE: (877)263-7610
FAX: (513)467-9009

TISCH Environmental

RECALIBRATION DUE DATE:
December 2, 2025

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	December 2, 2024	**Rootsmeter S/N:** 438320	**Ta:** 293	°K
Operator:	Jim Tisch		**Pa:** 757.4	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	1.4200	3.2	2.00
2	3	4	1	1.0170	6.4	4.00
3	5	6	1	0.9090	7.9	5.00
4	7	8	1	0.8700	8.8	5.50
5	9	10	1	0.7140	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)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0093	0.7108	1.4238	0.9958	0.7013	0.8796
1.0051	0.9883	2.0136	0.9916	0.9750	1.2439
1.0031	1.1035	2.2512	0.9896	1.0886	1.3907
1.0018	1.1515	2.3611	0.9884	1.1361	1.4586
0.9965	1.3956	2.8476	0.9831	1.3769	1.7592
QSTD	**m=**	**2.08315**	**QA**	**m=**	**1.30443**
	b=	**-0.04938**		**b=**	**-0.03050**
	r=	**0.99985**		**r=**	**0.99985**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/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= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

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

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR WS CHAN	**WORK ORDER:**	HK2513664
CLIENT:	AECOM ASIA COMPANY LIMITED		
ADDRESS:	13/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, HONG KONG	**SUB-BATCH:**	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	08-Apr-2025
		DATE OF ISSUE:	15-Apr-2025

GENERAL 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 laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.
The validity of equipment/ meter performance only applies to the result(s) stated in the report.
This report superseded any previous report(s) with same work order number.

EQUIPMENT INFORMATION

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

Equipment Type:	Multifunctional Meter
Service Nature:	Performance Check
Scope:	Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature
Brand Name/ Model No.:	[YSI]/ [6820 V2]
Serial No./ Equipment No.:	[00H1019]/ [W.026.09]
Date of Calibration:	08-April-2025

Ms. Cheng Sin Ying, May
Senior Chemist - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2513664

SUB-BATCH: 0
DATE OF ISSUE: 15-Apr-2025
CLIENT: AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [6820 V2]
Serial No./ Equipment No.: [00H1019]/ [W.026.09]
Date of Calibration: 08-April-2025 Date of Next Calibration: 08-July-2025

PARAMETERS:

Conductivity **Method Ref: APHA (23rd edition), 2510B**

Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)
146.9	150	+2.1
6667	6965	+4.5
12890	13014	+1.0
58670	59481	+1.4
	Tolerance Limit (%)	±10.0

Dissolved Oxygen **Method Ref: APHA (23rd edition), 4500O: G**

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.95	2.95	+0.00
4.50	4.49	-0.01
6.45	6.39	-0.06
	Tolerance Limit (mg/L)	±0.20

pH Value **Method Ref: APHA (23rd edition), 4500H: B**

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	3.91	-0.09
7.0	6.91	-0.09
10.0	9.98	-0.02
	Tolerance Limit (pH unit)	±0.20

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

Ms. Cheng Sin Ying, May
Senior Chemist - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2513664

SUB-BATCH: 0
DATE OF ISSUE: 15-Apr-2025
CLIENT: AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [6820 V2]
Serial No./ Equipment No.: [00H1019]/ [W.026.09]
Date of Calibration: 08-April-2025 Date of Next Calibration: 08-July-2025

PARAMETERS:

Turbidity **Method Ref: APHA (23rd edition), 2130B**

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.2	--
4	4.1	+2.5
10	9.8	-2.0
20	18.4	-8.0
50	54.3	+8.6
100	98.1	-1.9
	Tolerance Limit (%)	±10.0

Salinity **Method Ref: APHA (23rd edition), 2520B**

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	10.69	+6.9
20	20.12	+0.6
30	30.20	+0.7
	Tolerance Limit (%)	±10.0

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

Ms. Cheng Sin Ying, May
Senior Chemist - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2513664

SUB-BATCH: 0
DATE OF ISSUE: 15-Apr-2025
CLIENT: AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [6820 V2]
Serial No./ Equipment No.: [00H1019]/ [W.026.09]
Date of Calibration: 08-April-2025 Date of Next Calibration: 08-July-2025

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)
10.3	10.55	+0.3
20.3	20.12	-0.2
38.3	38.66	+0.4
	Tolerance Limit (°C)	±2.0

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

Ms. Cheng Sin Ying, May
Senior Chemist - Inorganics

-------- END OF REPORT --------

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www.alsglobal.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR WS CHAN	**WORK ORDER:**	HK2507719
CLIENT:	AECOM ASIA COMPANY LIMITED		
ADDRESS:	1501-10, 15/F, TOWER 1, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, NEW TERRITORIES, HONG KONG	**SUB-BATCH:**	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	25-Feb-2025
		DATE OF ISSUE:	04-Mar-2025

GENERAL 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 laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.
The validity of equipment/ meter performance only applies to the result(s) stated in the report.
This report superseded any previous report(s) with same work order number.

EQUIPMENT INFORMATION

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

Equipment Type:	Multifunctional Meter
Service Nature:	Performance Check
Scope:	Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature
Brand Name/ Model No.:	[YSI]/ [ProDSS]
Serial No./ Equipment No.:	[22J104777/22H104506]/ [W.026.37]
Date of Calibration:	25-February-2025

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2507719

SUB-BATCH: 0
DATE OF ISSUE: 04-Mar-2025
CLIENT: AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [ProDSS]
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]
Date of Calibration: 25-February-2025 Date of Next Calibration: 25-May-2025

PARAMETERS:

Conductivity **Method Ref: APHA (23rd edition), 2510B**

Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)
146.9	148.9	+1.4
6667	6401	-4.0
12890	12349	-4.2
58670	56860	-3.1
	Tolerance Limit (%)	±10.0

Dissolved Oxygen **Method Ref: APHA (23rd edition), 4500O: G**

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
1.84	1.87	+0.03
5.81	5.91	+0.10
7.62	7.73	+0.11
	Tolerance Limit (mg/L)	±0.20

pH Value **Method Ref: APHA (23rd edition), 4500H: B**

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.11	+0.11
7.0	7.14	+0.14
10.0	9.97	-0.03
	Tolerance Limit (pH unit)	±0.20

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

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2507719

SUB-BATCH: 0
DATE OF ISSUE: 04-Mar-2025
CLIENT: AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [ProDSS]
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]
Date of Calibration: 25-February-2025 Date of Next Calibration: 25-May-2025

PARAMETERS:

Turbidity **Method Ref: APHA (23rd edition), 2130B**

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	-0.09	--
4	3.80	-5.0
10	10.27	+2.7
20	19.77	-1.2
50	50.38	+0.8
100	97.56	-2.4
	Tolerance Limit (%)	±10.0

Salinity **Method Ref: APHA (23rd edition), 2520B**

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.08	--
10	10.22	+2.2
20	20.70	+3.5
30	30.49	+1.6
	Tolerance Limit (%)	±10.0

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

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2507719

SUB-BATCH: 0
DATE OF ISSUE: 04-Mar-2025
CLIENT: AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [ProDSS]
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]
Date of Calibration: 25-February-2025 Date of Next Calibration: 25-May-2025

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)
8.8	8.9	+0.1
19.3	18.7	-0.6
39.0	38.7	-0.3
	Tolerance Limit (°C)	±2.0

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

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

-------- END OF REPORT --------

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR WS CHAN	**WORK ORDER:**	HK2520682
CLIENT:	AECOM ASIA COMPANY LIMITED		
ADDRESS:	13/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, HONG KONG	**SUB-BATCH:**	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	23-May-2025
		DATE OF ISSUE:	28-May-2025

GENERAL 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 laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.
The validity of equipment/ meter performance only applies to the result(s) stated in the report.
This report superseded any previous report(s) with same work order number.

EQUIPMENT INFORMATION

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

Equipment Type:	Multifunctional Meter
Service Nature:	Performance Check
Scope:	Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature
Brand Name/ Model No.:	[YSI]/ [ProDSS]
Serial No./ Equipment No.:	[22J104777/22H104506]/ [W.026.37]
Date of Calibration:	23-May-2025

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2520682

SUB-BATCH: 0
DATE OF ISSUE: 28-May-2025
CLIENT: AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [ProDSS]
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]
Date of Calibration: 23-May-2025 Date of Next Calibration: 23-August-2025

PARAMETERS:

Conductivity **Method Ref: APHA (23rd edition), 2510B**

Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)
146.9	140.4	-4.4
6667	6328	-5.1
12890	12603	-2.2
58670	56971	-2.9
	Tolerance Limit (%)	±10.0

Dissolved Oxygen **Method Ref: APHA (23rd edition), 4500O: G**

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
1.92	1.99	+0.07
4.44	4.48	+0.04
6.82	6.78	-0.04
	Tolerance Limit (mg/L)	±0.20

pH Value **Method Ref: APHA (23rd edition), 4500H: B**

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.00	+0.00
7.0	6.91	-0.09
10.0	10.01	+0.01
	Tolerance Limit (pH unit)	±0.20

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

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2520682

SUB-BATCH: 0
DATE OF ISSUE: 28-May-2025
CLIENT: AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [ProDSS]
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]
Date of Calibration: 23-May-2025 Date of Next Calibration: 23-August-2025

PARAMETERS:

Turbidity **Method Ref: APHA (23rd edition), 2130B**

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.07	--
4	4.04	+1.0
10	10.29	+2.9
20	20.30	+1.5
50	49.71	-0.6
100	99.60	-0.4
	Tolerance Limit (%)	±10.0

Salinity **Method Ref: APHA (23rd edition), 2520B**

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.01	--
10	9.98	-0.2
20	20.39	+2.0
30	29.76	-0.8
	Tolerance Limit (%)	±10.0

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

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2520682

SUB-BATCH: 0
DATE OF ISSUE: 28-May-2025
CLIENT: AECOM ASIA COMPANY LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [ProDSS]
Serial No./ Equipment No.: [22J104777/22H104506]/ [W.026.37]
Date of Calibration: 23-May-2025 Date of Next Calibration: 23-August-2025

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)
10.3	10.2	-0.1
19.8	20.3	+0.5
37.8	38.1	+0.3
	Tolerance Limit (°C)	±2.0

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

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

-------- END OF REPORT --------