เอกสารผลการสอบเทียบ
เครื่องมือตรวจวัด

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C08250053

Calibration Certificate

Equipment:	pH METER		
Model:	F-74BW	Job No.:	KSMT2501044
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	26.1 °C	±	0.3	°C
Humidity:	50.2 %RH	±	1.1	%RH

The Method used

In-house method, WI08, based on ASTM E 70-07

Traceability

This certificate is traceable to SI Units, Sample Test is assured through primary meaurement method Harned cell, through CPAchem Ltd. (ISO17034) Certificate No. 1066714, 1066714, 1066716, pH Scale and Temperature test are traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through Industrial Foundation Electrical and Electronics Institute Certificate No. CA20250010EA, through SCIMET Co., Ltd. Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

[redacted]

Authorized signatory

2025

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard Buffer solution	4.007 pH	PH216.L5	1066714	18-Jan-27
Standard Buffer solution	6.965 pH	PH107.L5	1066714	18-Jan-26
Standard Buffer solution	10.010 pH	PH220.L5	1066716	18-Jan-26
DC Voltage and Current Calibrator / XITRON		2000MN	CA20250010EA	19-Jan-26
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

pH Scale

Input	pH Meter Reading			Uncertainty of Measurement (mV)	Coverage Factor *(k)*
(mV)	(mV)	Error (mV)	(pH)		
414.12	414.2	0.08	0.000	0.065	2.00
354.96	355.0	0.04	1.000	0.065	2.00
295.80	295.8	0.00	2.000	0.065	2.00
236.64	236.7	0.06	3.000	0.065	2.00
177.48	177.5	0.02	4.000	0.065	2.00
118.32	118.4	0.08	5.000	0.065	2.00
59.16	59.2	0.04	6.000	0.065	2.00
0.00	0.0	0.00	7.000	0.065	2.00
-59.16	-59.1	0.06	8.000	0.065	2.00
-118.32	-118.2	0.12	9.000	0.065	2.00
-177.48	-177.4	0.08	10.000	0.065	2.00
-236.64	-236.6	0.04	11.000	0.065	2.00
-295.80	-295.7	0.10	12.000	0.065	2.00
-354.96	-354.9	0.06	13.000	0.065	2.00
-414.12	-414.0	0.12	14.000	0.065	2.00

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co... 025

Electrode Test Results*

The three-point calibration using three standard buffer solutions; pH 4.007 , pH 6.965 and pH 10.010

The practical slope of the pH electrode; 58.31 (mV/pH), 98.57%

The zero point of the pH electrode; 6.58 (pH)

Sample Test Results

Electrode Serial No.: 9X1K0003

Model: 9615S

Manufacturer: HORIBA

Standard Buffer Solution (pH)	Unit Under Calibration (pH)	Difference (pH)	Uncertainty of Measurement (pH)	Coverage Factor (*k*)
4.007	3.995	-0.012	0.011	2.43
6.965	6.970	0.005	0.011	2.07
10.010	10.019	0.009	0.0089	2.06

Temperature Electrode

Dimension of Probe;

Length : 100 mm

Diameter : 12 mm

Immersion Depth : 80 mm

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Uncertainty of Measurement (±°C)	Coverage Factor *(k)*
25.03	25.0	0.03	0.20	2.00

* Calibration Marked for Electrode Test" Not TISI Accredited " in this Certificate have been included for completeness.

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted]

SCIMET

ใบตรวจสอบสภาพเครื่อง pH Meter

เลขที่ใบงาน: KSMT2501044

ชนิดเครื่องมือ: pH METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☐	☑	8. ระดับสารละลายใน Electrode (Level KCl)	☑	☐	
☑	☐	9. ฝาปิดกันปลาย Electrode (Dust Protection Hood)	☑	☐	
☑	☐	10. ขาจับอิเล็กโทรด (Stand)	☑	☐	

เพิ่มเติม/ข้อแนะนำ : _____

Mr. Dumrong Boonsopon
Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

025

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **67-400639-1** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Temperature controlled enclosure (Refrigerator)
Manufacturer : M-LAB Model : BIC-140
Range : N/A °C Resolution : 0.1 °C
Serial No. : 1011 ID No. : ELABBODC140N03

Environment : On site calibration was carried out at the Laboratory, Envilab Co., Ltd.
Ambient Temperature : (24.4 to 25.0) °C
Relative Humidity : (40 to 45) %
Line Voltage : (227.0 to 230.0) V

Date of Received : 07 November 2024
Date of Calibration : 07 November 2024
Date of Issue : 13 November 2024
Calibrated by : Permpon Chanpu
Calibration Method : CAL-M4004, TLAS G-20
The temperature scale used was based on ITS-90

Reference Standard Instruments : This certification is traceable to the International System of Units
Standard Digital Thermometer with RTD Probe

ID No.	Cert. No.	Due Date	Traceability
400046 & 400042	67-400442-1	26 Jan 2025	National Institute of Metrology Thailand (NIMT)

[redacted]
Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of t

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

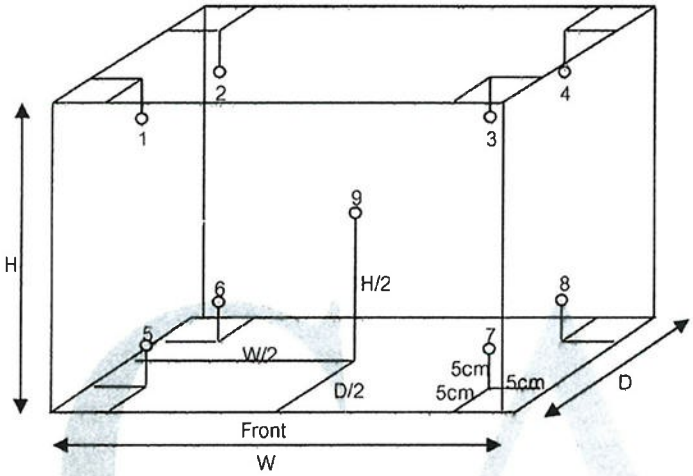
Certificate No. : 67-400639-1

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

This instrument was setting air ventilation at position 0 (close)



Inside of Chamber
W = 0.38 m
D = 0.35 m
H = 1.15 m
Capacity = 0.15 m^3

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Temperature (°C) @ Sensor No.									Uncertainty (±°C)
			1	2	3	4	5	6	7	8	9	
4.0	4.0	4.0	4.09	3.41	3.76	3.42	4.48	4.47	4.49	4.31	4.27	0.36

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Uniformity (°C)	Measured Stability (°C)	Overall Variation (°C)
4.0	4.0	4.0	0.88	0.04	1.13

Remark The uncertainty is not combine uniformity of the air chamber

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17240307

Calibration Certificate

Equipment:	Cooled Incubator		
Model:	BIC-140	Job No.:	KSMT2402653
Serial No.(or ID):	100613-1 (ELABBODC140NO1)	Received Date:	27 September 2024
Manufacturer:	M-LAB	Issued Date:	30 September 2024
Condition:	In Condition	Page:	1 of 3
Ventilation Valve:	None Shelves(pc.): 5		

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

27 September 2024

Environment Condition

Temperature:	20.8 °C	±	1.0	°C
Humidity:	54.8 %RH	±	2.6	%RH

The Method used

In-house method, WI17, based on TLAS-G20

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd.Certificate No. C23240083

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

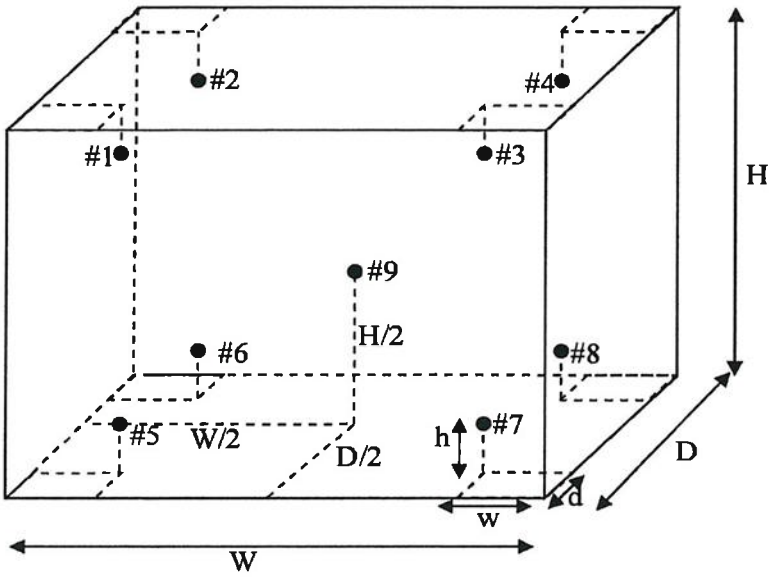
[redacted]
Person in charge

SCIMET CO.,LTD

[redacted]
Authorized signatory

Envilab Co.,

[redacted]
023



Standard Installation Locations

Volume (Calibration Zone)= 58 (Liters)

Inside chamber:	W = 38 (cm)	D = 32 (cm)	H = 114 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 10 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 10 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	201	202	203	204	205	206	207	208	209

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	19.54	-0.46	0.38
#2	19.49	-0.51	0.39
#3	19.87	-0.13	0.39
#4	20.04	0.04	0.37
#5	20.36	0.36	0.36
#6	20.21	0.21	0.37
#7	20.10	0.10	0.36
#8	20.19	0.19	0.37
#9	20.48	0.48	0.35

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
20.0	20.0	20.0	19.54	19.49	19.87	20.04	20.36	20.21	20.10	20.19	20.48	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
20.0	1.07	0.18	1.26

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, TLAS-G20. Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]
Authorized signatory

Without adjustment

Desired Temperature : 20.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	19.54	-0.46	0.38	1.0	Pass
#2	19.49	-0.51	0.39	1.0	Pass
#3	19.87	-0.13	0.39	1.0	Pass
#4	20.04	0.04	0.37	1.0	Pass
#5	20.36	0.36	0.36	1.0	Pass
#6	20.21	0.21	0.37	1.0	Pass
#7	20.10	0.10	0.36	1.0	Pass
#8	20.19	0.19	0.37	1.0	Pass
#9	20.48	0.48	0.35	1.0	Pass

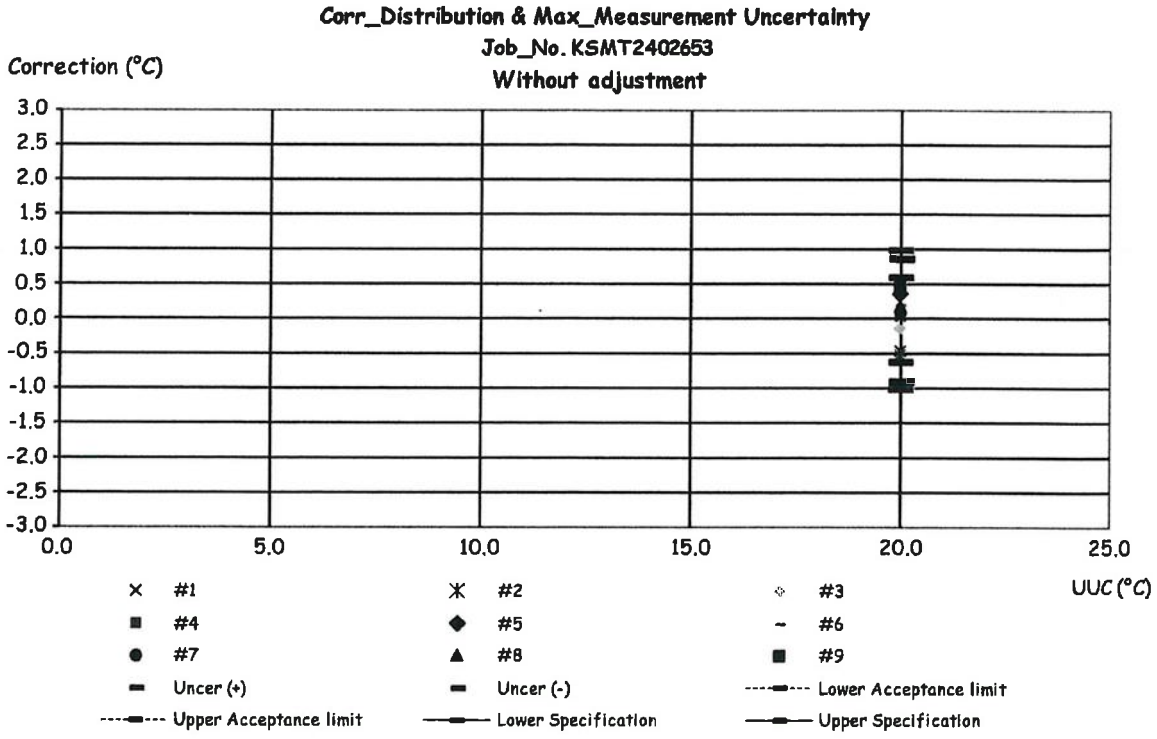
Correction of UUC.* = Measured Temperature - Desired Temperature

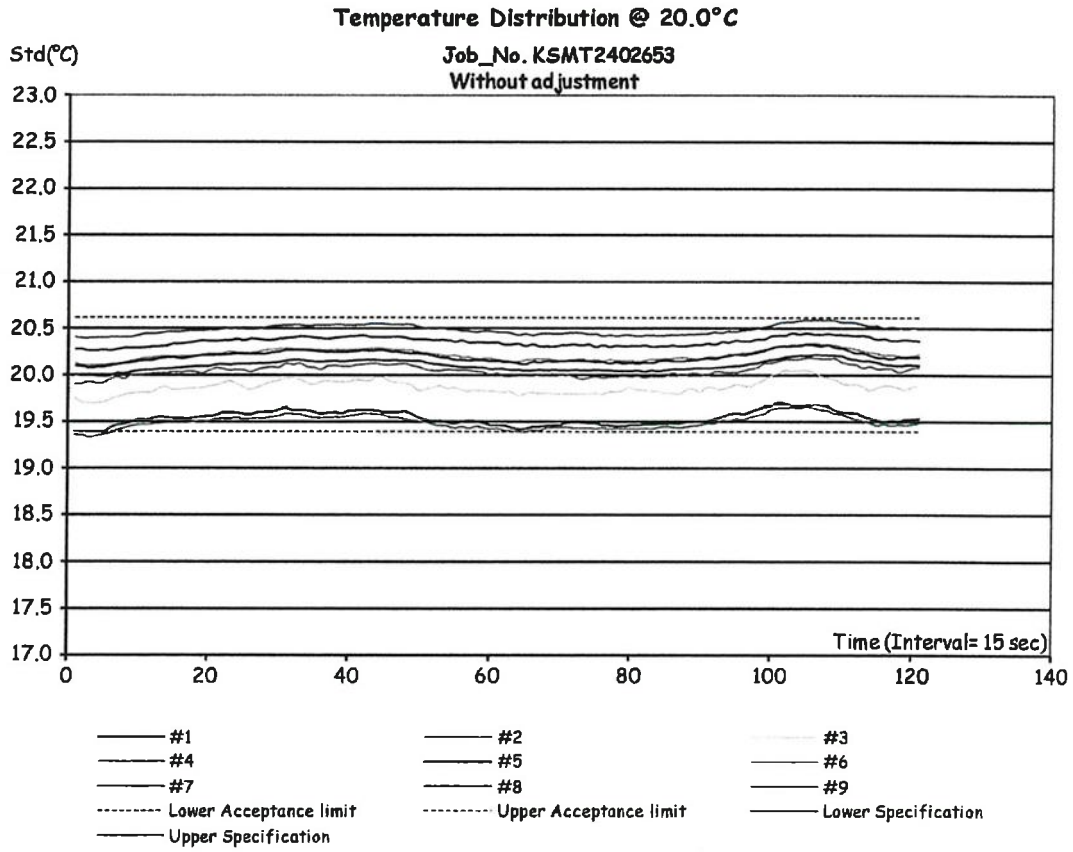
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





[redacted]

Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2402653

ชนิดเครื่องมือ: Cooled Incubator รุ่น: BIC-140

หมายเลขเครื่อง: 100613-1 (ELABBODC140NO1)

ตรวจสอบ (รับ) 27 Sep 2024 ปกติ	ตรวจสอบ (รับ) 27 Sep 2024 ไม่ปกติ	รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 27 Sep 2024 ปกติ	ตรวจสอบ (ส่ง) 27 Sep 2024 ไม่ปกติ	หมายเหตุ
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☐	☐	6. สภาพ Lever of Ventilation valve	☐	☐	-
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☑	☐	10. การทำงานของระบบทำความเย็น	☑	☐	
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Mongkolwat Hasanon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel:095-552-4939

Certificate No. C27250001

Calibration Certificate

Equipment:	DO METER		
Model:	HI9146	Job No.:	KSMT2501049
Serial No.(or ID):	GOOO7931 (ELABDOHI914601)	Received Date:	17 March 2025
Manufacturer:	HANNA	Issued Date:	18 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Environment Laboratory, SCIMET Co., Ltd.

1194 Soi Wachirathamsathit 57, Bangchak, Prakhanong, Bangkok 10260 Thailand

Calibration Date

17 March 2025

Environment Condition

Temperature:	23	°C	±	2	°C
Humidity:	50	%RH	±	15	%RH

The Method used

In-house method, WI27 , By comparison with certified dissloved oxygen solution standard

Traceability

This is certificate is traceable to SI Units , Sample test and temperature test are assured through HANNA instruments company certificare No. 26I42, through Quality Reborn Co.,LTD certificare No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

[redacted]

Envilab Co.,

Calibration Results:

Electrode Serial No. -

Model : -

Brand : HANNA

Electrode Test

Atmospheric pressure measured while calibrating.	756.36	mmHg
Temperature measured while calibrating.(± 0.2 °C)	24.7	°C
The Oxygen Solubility was calculated from the ambient conditions.	8.27 ± 0.03	mg/L
The Oxygen Solubility reading from the DO METER	-	mg/L

Sample Test

Standard Oxygen Solution	Unit Under Calibration Reading	Correction	Coverage Factor (k)	Uncertainty of Measurement (±)
0.0 %	0.0 %	0.0 %	2.00	0.20 %

Temperature Electrode

Dimension of Probe;

Length : 85 mn.

Diameter : 18 mn.

Immersion Depth 80 mn.

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.01	25.6	-0.59	2.00	0.15

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 095 552 4939

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Do Meter

เลขที่ใบงาน: KSMT2501049

ชนิดเครื่องมือ: DO METER รุ่น: HI9146 หมายเลขเครื่อง: GOOO7931

ตรวจสอบ (รับ) 17 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 17 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ :

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 095 552 4939

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

MIRACLE INTERNATIONAL TECHNOLOGY CO.,LTD
214 Bangwaek Rd. Bangpai Bangkae Bangkok 10160
Tel.: 0-2865-4647-8 Fax: 0-2865-4649 http://www.mit.in.th

CALIBRATION CERTIFICATE

Certificate No. : S2024080486-0002
Date Issued : 27-Aug-24

Customer : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok, Thailand 10160

Equipment : COD test tube heater with 25 vial

Manufacturer : HANNA
Model : HI839800
Serial No. : 6480043101
ID No./Tag No. : ELABHI83980002
Date Received : 23-Aug-24
Date Calibrated : 23-Aug-24

Calibrated by : Akaladej Numnuan

Calibration Method or Calibration Procedure Used

In-house method : CP-49 base on TLAS G-20 by comparing against Standard Thermometer.

This certificate is traceable to national standards, which realize the units of measurement according to the International System of Units (SI).

Result of Calibration

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor k = 2, providing a level confidence approximately 95 percent.

This certificate may not be reproduced other than in full except with the prior written approval of the Miracle International Technology Company Limited.

Approve [redacted]

CERTIFIED MIT

Envilab Co.,Ltd. [redacted]

Certificate No. : S2024080486-0002

Environment : Ambient Temperature : Start record 25.3 °C, Stop record 25.4 °C

Relative Humidity : Start record 51.2 %RH, Stop record 52.3 %RH

Calibration Temperature (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Stability[1] (°C)	Measured Uniformity[2] (°C)	Overall Variation[3] (°C)
150	150	150	0.80	1.65	2.24

Calibration Temperature (°C)	Standard Reading (°C), Probe No. 13 is Reference Probe					Uncertainty[4] (±°C)
150	**No. 1**	**No. 2**	**No. 3**	**No. 4**	**No. 5**	1.4
	150.12	150.28	150.43	149.66	150.03	
	No. 6	**No. 7**	**No. 8**	**No. 9**	**No. 10**	
	149.74	149.98	149.83	150.77	150.60	
	No. 11	**No. 12**	**No. 13**	**No. 14**	**No. 15**	
	150.01	150.49	150.19	150.13	150.20	
	No. 16	**No. 17**	**No. 18**	**No. 19**	**No. 20**	
	150.80	149.98	150.21	149.52	149.44	
	No. 21	**No. 22**	**No. 23**	**No. 24**	**No. 25**	
	150.16	150.32	149.97	149.96	150.11	

Decision Rule with Guard Band

Calibration Temperature (°C)	Pass / Fail					MPE (±°C)
	No. 1	**No. 2**	**No. 3**	**No. 4**	**No. 5**	
150	Pass	Pass	Pass	Pass	Pass	2
	No. 6	**No. 7**	**No. 8**	**No. 9**	**No. 10**	
	Pass	Pass	Pass	Failed	Pass	
	No. 11	**No. 12**	**No. 13**	**No. 14**	**No. 15**	
	Pass	Pass	Pass	Pass	Pass	
	No. 16	**No. 17**	**No. 18**	**No. 19**	**No. 20**	
	Failed	Pass	Pass	Pass	Pass	
	No. 21	**No. 22**	**No. 23**	**No. 24**	**No. 25**	
	Pass	Pass	Pass	Pass	Pass	

Pass = **|error|<= |MPE|** **MPE =** **Maximum Permissible Error**

Fail = **|error| > |MPE|**

Without adjustment

No.1	**No.2**	**No.3**	**No.4**	**No.5**
No.6	**No.7**	**No.8**	**No.9**	**No.10**
No.11	**No.12**	**No.13**	**No.14**	**No.15**
No.16	**No.17**	**No.18**	**No.19**	**No.20**
No.21	**No.22**	**No.23**	**No.24**	**No.25**

Top view position

Condition As-Received : Used Item

The measurment results and statements of conformity with specification only relate to the item calibrated.

Measurement Standards Used & Traceabilitly :

The International System of Units (SI) through

MIT Certificate No. L202403007-0011 for Digital Thermometer with Probe (Agilent) Module 2 (73) TC Serial No. MY44024042, Due 10-Sep-24

Notes : 1. The temperature stability is the one-half of greatest maximum difference of measured temperatures at any one probe.

2. The temperature uniformity is the maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time.

3. Overall variation is the difference of maximum and minimum measured temperatures throughout observation time.

4. The uncertainty of measurement is included temperature stability.

End of Certificate

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C18250038

Calibration Certificate

Equipment:	Liquid Bath		
Model:	WNB14	Job No.:	KSMT2501047
Serial No.(or ID):	L412.2222 (ELABWBWNB14N01)	Received Date:	19 March 2025
Manufacturer:	Memmert	Issued Date:	24 March 2025
Circulation:	None	Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	28.1 °C	±	0.5	°C
Humidity:	49.2 %RH	±	3	%RH

The Method used

In-house method, WI18, based on ASTM E715-1980 (reapproved 2022)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

[redacted]

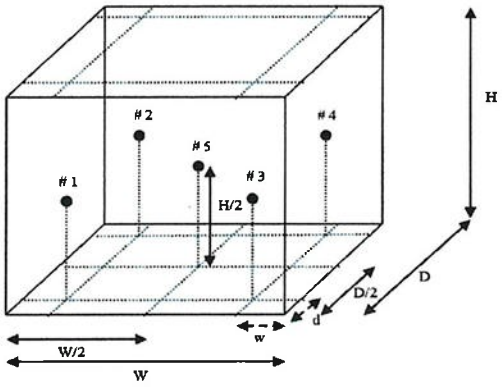
Authorized signatory

Envilab Co.,Ltd.

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration item : In Condition



Standard Installation Locations

Midway between the diffuser plate and the water surface

Inside bath: W = 37 (cm) D = 33 (cm) H = 16 (cm) Volume = 20 (Liters)

Standard Locations #1: w = 5 (cm) d = 5 (cm)

Standard Locations #2: w = 5 (cm) d = 5 (cm)

Standard Locations #3: w = 5 (cm) d = 5 (cm)

Standard Locations #4: w = 5 (cm) d = 5 (cm)

Standard Locations #5: Center of any probes. (#1 - #4)

Position of Std	#1	#2	#3	#4	#5
Channel of Logger	101	102	103	104	105

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the bath.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the bath at steady-state. The reference probe is preferably located in the geometric center of the bath.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temper

Envilab Co.,L

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	95.08	0.08	0.20
#2	95.12	0.12	0.20
#3	95.03	0.03	0.20
#4	95.07	0.07	0.20
#5	95.08	0.08	0.20

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)					Uncertainty (± °C)*
			#1	#2	#3	#4	#5	
95.0	94.5	94.5	95.08	95.12	95.03	95.07	95.08	0.20

Bath Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
94.5	0.12	0.09	0.28

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted]

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E715-1980 (reapproved 2022). Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET CO.,LTD. บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

Without adjustment

Desired Temperature : 95.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	95.08	0.08	0.20	1.0	Pass
#2	95.12	0.12	0.20	1.0	Pass
#3	95.03	0.03	0.20	1.0	Pass
#4	95.07	0.07	0.20	1.0	Pass
#5	95.08	0.08	0.20	1.0	Pass

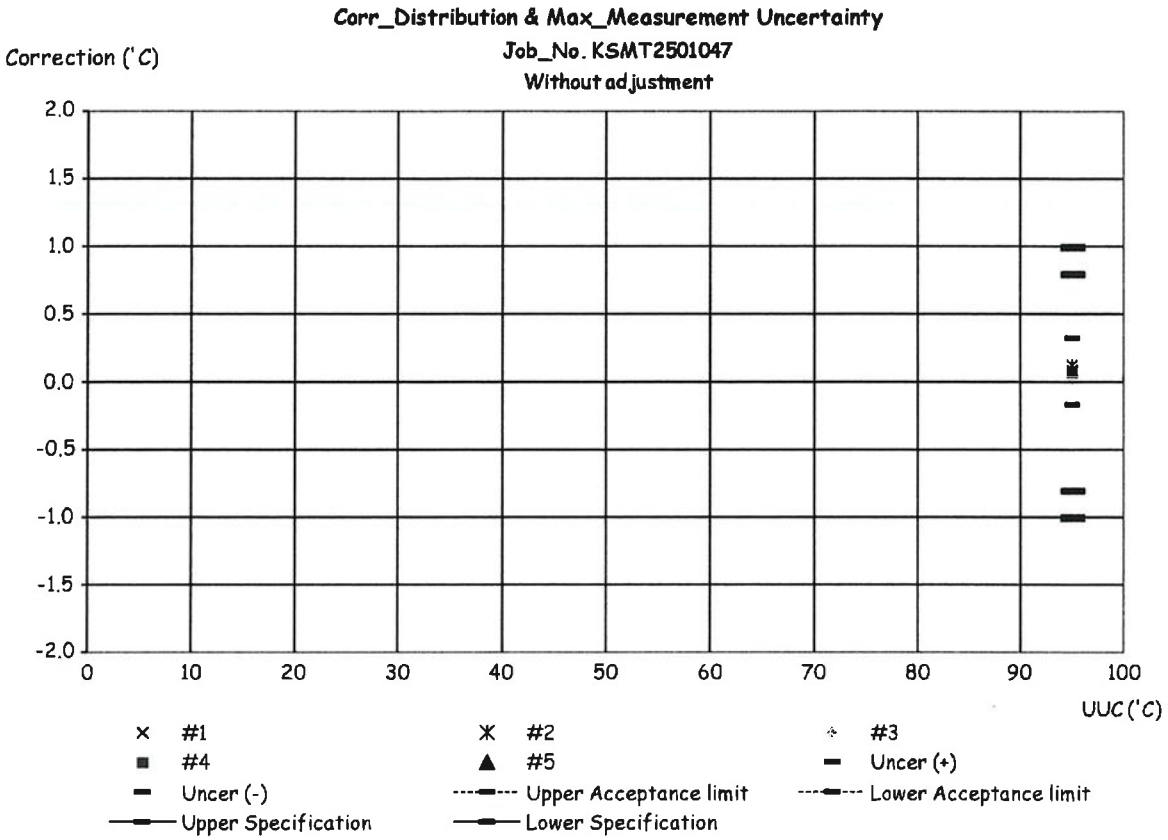
Correction of UUC.* = Measured Temperature - Desired Temperature

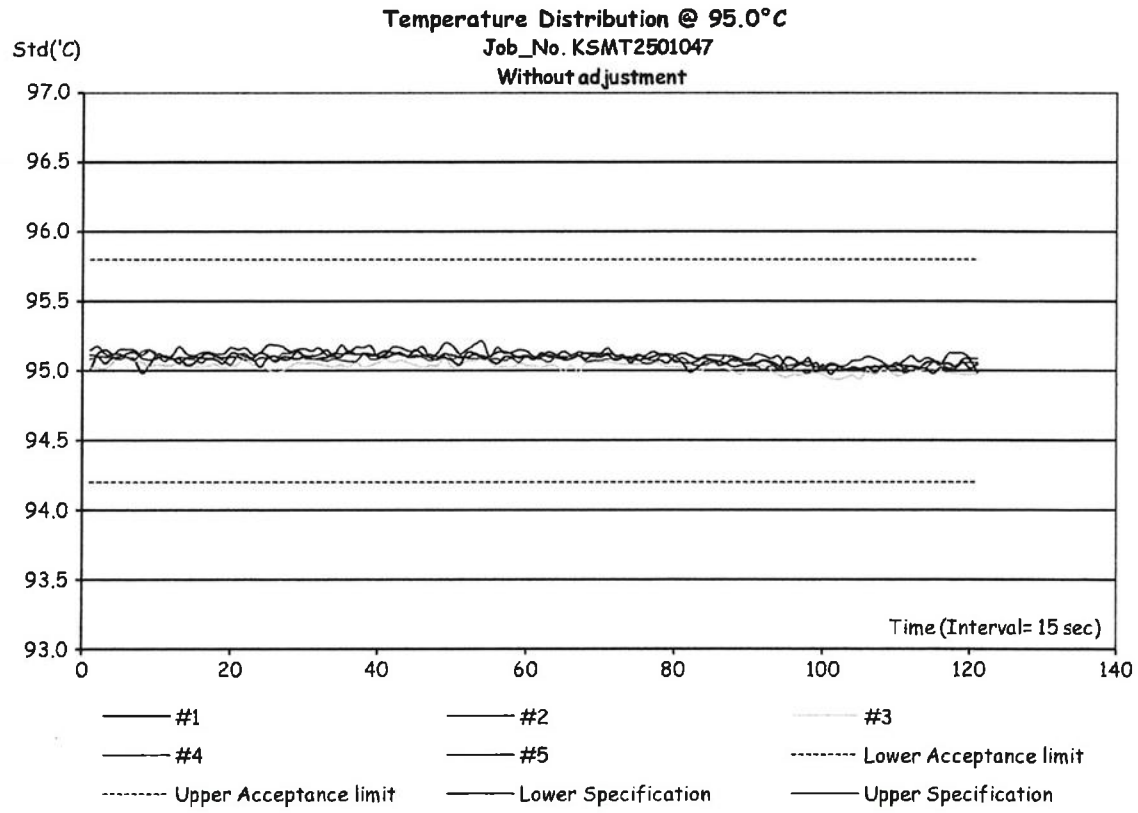
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted]





[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501047

ชนิดเครื่องมือ: Liquid Bath รุ่น: WNB14

หมายเลขเครื่อง: L412.2222

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☐	☐	5. การทำงาน Circulator	☐	☐	ไม่มี
☑	☐	6. สภาพ Lever door open / close	☑	☐	
☑	☐	7. ท่อระบายน้ำทิ้ง (DRAIN)	☑	☐	
☐	☐	8. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☑	☐	9. สภาพตัวเครื่อง	☑	☐	
☑	☐	10. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

บริษัท ชายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-200066-2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : Electronic Balance
Manufacturer : METTLER TOLEDO Model : XSR205DU
Serial No. : B911363567 ID No. : ELABBALANCEN06
Capacity : 220 g Resolution : 0.00001g/81g, 0.0001g/220g

Environment : On site calibration was carried out at the B304 Balance Room, Envilab Co., Ltd.
Ambient Temperature : (21.2 to 21.5) °C
Relative Humidity : (51.4 to 56.2) %
Air Pressure : 1011.0 mbar

Date of Received : 17 February 2025
Date of Calibration : 17 February 2025
Date of Issue : 19 February 2025
Calibrated by : Satja Sangkhum

Calibration Method : In-house method CAL-M2001 based on UKAS Publication ref : LAB 14 Edition 7 - November 2022

Reference Standard Instruments : This certification is traceable to the International System of Units

Standard Weights

ID No.	Cert. No.	Due Date	Traceability
E261-E2624	C02242009	07 Nov 2025	National Institute of Metrology (Thailand), (NIMT)

Appr [redacted]
(Surachai Promthong)
Laboratory Manager

[redacted]

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Cal

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-200066-2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Departure of indication from nominal value

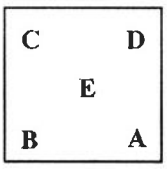
Nominal Value (g)	Correction (g)	Uncertainty ± (g)
0.1	0.00000	0.000016
0.5	0.00000	0.000022
1	0.00000	0.000026
2	-0.00001	0.000034
5	-0.00001	0.000043
10	0.00000	0.000053
50	-0.00002	0.00011
100	0.0000	0.00020
150	0.0000	0.00038
200	0.0000	0.00038

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty mutiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

Eccentric error Load test : 50 g

A	B	C	D	E	
-0.00001	-0.00001	0.00003	0.00003	0.00000	g



Repeatability Load test : 200 g

Stdev. : 0.000032 g

- o0o -

[redacted]

[redacted]

EnviLab Co.,Ltd.

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250137

Calibration Certificate

Equipment: Hot Air Oven

Model:	UF75
Serial No.(or ID):	B319.0600 (ELABHAOVEN0600)
Manufacturer:	Memmert
Ventilation Valve:	Closed
Shelves(pc.):	3

Job No.:	KSMT2501050
Received Date:	19 March 2025
Issued Date:	24 March 2025
Page:	1 of 5

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B306 CH2 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	29.4 °C	±	1.2	°C
Humidity:	48 %RH	±	3	%RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]
Person in charge

SCIMET CO.,LTD

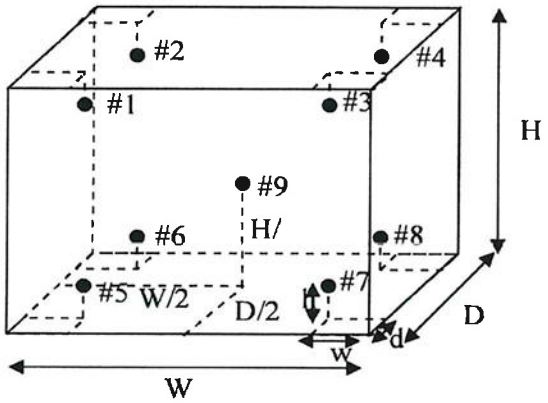
[redacted]
Authorized signatory

Envilab Co.,L

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 30 (Liters)

Inside chamber:	W = 40 (cm)	D = 33 (cm)	H = 56 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	301	302	303	304	305	306	307	308	309

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Enviab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Calibration Results:

Before adjustment

Desired (°C)	Setting (°C)	Indicating (°C)	#1 (°C)	#2 (°C)	#3 (°C)	#4 (°C)	#5 (°C)	#6 (°C)	#7 (°C)	#8 (°C)	#9 (°C)
104.0	104.0	104.0	104.44	104.95	105.08	104.82	104.94	104.72	104.13	104.70	105.02

After adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	103.85	-0.15	0.39
#2	104.35	0.35	0.39
#3	104.40	0.40	0.39
#4	104.17	0.17	0.39
#5	104.33	0.33	0.39
#6	104.12	0.12	0.39
#7	103.73	-0.27	0.39
#8	104.10	0.10	0.39
#9	104.31	0.31	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
104.0	104.0	104.0	103.85	104.35	104.40	104.17	104.33	104.12	103.73	104.10	104.31	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
104.0	0.65	0.09	0.80

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted] ผู้จัดการฝ่ายควบคุมคุณภาพ

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	109.74	-0.26	0.39
#2	110.28	0.28	0.39
#3	110.40	0.40	0.39
#4	110.15	0.15	0.39
#5	110.24	0.24	0.39
#6	110.01	0.01	0.39
#7	109.59	-0.41	0.39
#8	110.02	0.02	0.39
#9	110.33	0.33	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
110.0	110.0	110.0	109.74	110.28	110.40	110.15	110.24	110.01	109.59	110.02	110.33	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
110.0	0.84	0.12	0.98

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	179.37	-0.63	0.49
#2	180.52	0.52	0.48
#3	180.61	0.61	0.47
#4	180.55	0.55	0.47
#5	180.51	0.51	0.48
#6	180.03	0.03	0.50
#7	179.26	-0.74	0.49
#8	180.23	0.23	0.49
#9	180.67	0.67	0.47

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
180.0	179.0	179.0	179.37	180.52	180.61	180.55	180.51	180.03	179.26	180.23	180.67	0.50

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
179.0	1.54	0.17	1.68

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
025
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

After adjustment

Desired Temperature : 104.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	103.85	-0.15	0.39	1.0	Pass
#2	104.35	0.35	0.39	1.0	Pass
#3	104.40	0.40	0.39	1.0	Pass
#4	104.17	0.17	0.39	1.0	Pass
#5	104.33	0.33	0.39	1.0	Pass
#6	104.12	0.12	0.39	1.0	Pass
#7	103.73	-0.27	0.39	1.0	Pass
#8	104.10	0.10	0.39	1.0	Pass
#9	104.31	0.31	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:(Cont.)

After adjustment (Cont.)

Desired Temperature : 110.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	109.74	-0.26	0.39	1.0	Pass
#2	110.28	0.28	0.39	1.0	Pass
#3	110.40	0.40	0.39	1.0	Pass
#4	110.15	0.15	0.39	1.0	Pass
#5	110.24	0.24	0.39	1.0	Pass
#6	110.01	0.01	0.39	1.0	Pass
#7	109.59	-0.41	0.39	1.0	Pass
#8	110.02	0.02	0.39	1.0	Pass
#9	110.33	0.33	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

After adjustment (Cont.)

Desired Temperature : 180.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	179.37	-0.63	0.49	2.0	Pass
#2	180.52	0.52	0.48	2.0	Pass
#3	180.61	0.61	0.47	2.0	Pass
#4	180.55	0.55	0.47	2.0	Pass
#5	180.51	0.51	0.48	2.0	Pass
#6	180.03	0.03	0.5	2.0	Pass
#7	179.26	-0.74	0.49	2.0	Pass
#8	180.23	0.23	0.49	2.0	Pass
#9	180.67	0.67	0.47	2.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

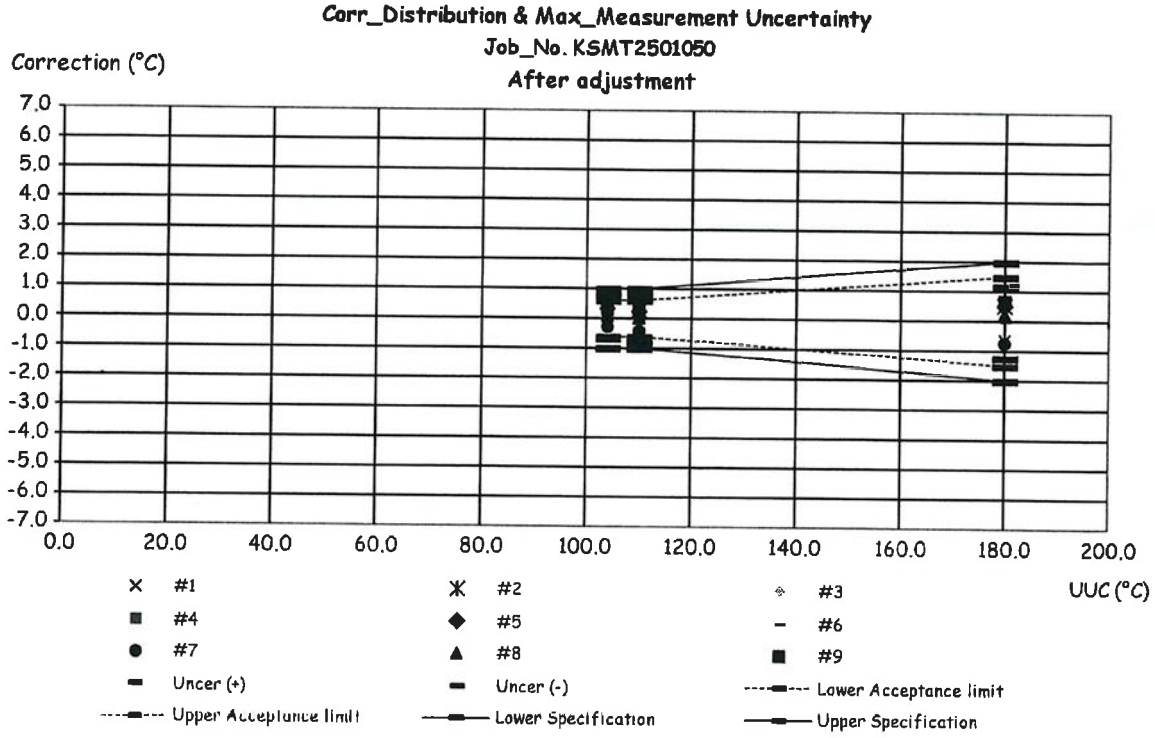
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

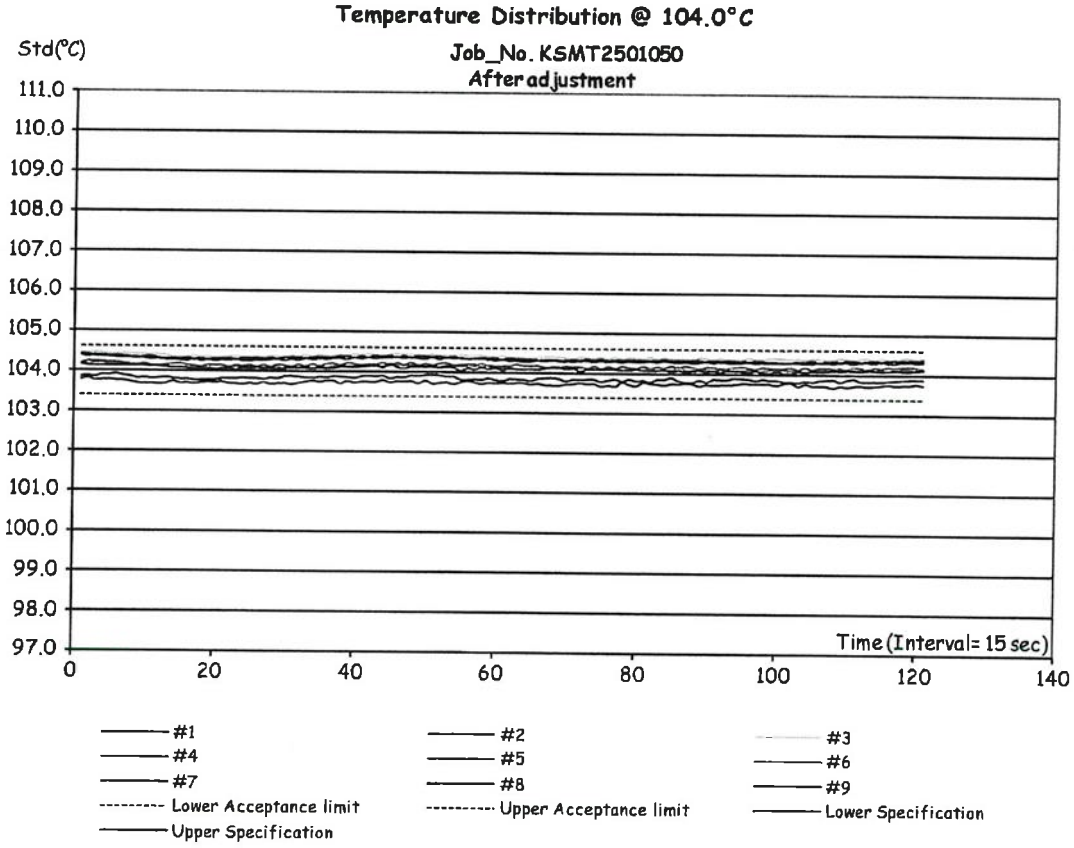
The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

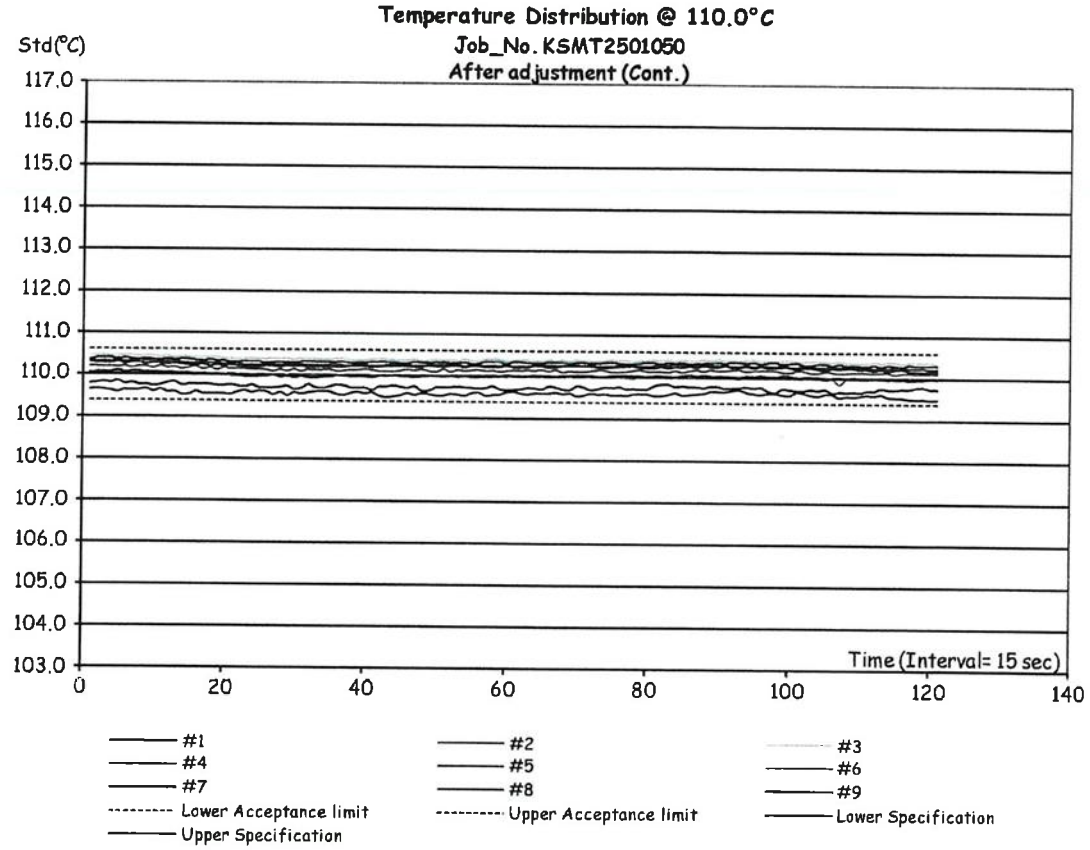
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

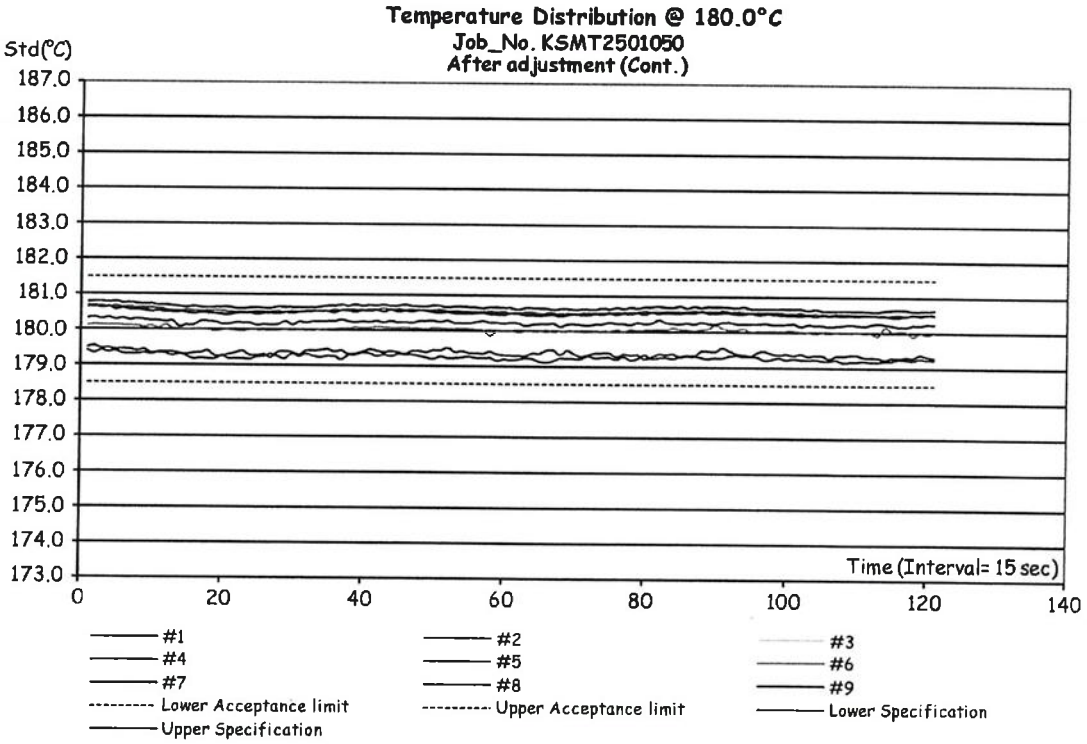




[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





Enviiab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501050

ชนิดเครื่องมือ: Hot Air Oven รุ่น: UF75

หมายเลขเครื่อง: B319.0600 (ELABHAOVEN0600)

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☑	☐	6. สภาพ Lever of Ventilation valve	☑	☐	
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☐	☐	10. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	ไม่มี
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300237-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Cylinder
Manufacturer : BOROSIL Class : A
Capacity : 50 ml Graduation : 1 ml
ID No. : C-WW-004/24

Environment : Ambient Temperature : (20 + 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1015.8 mbar.

Date of Received : 14 March 2025
Date of Calibration : 18 March 2025
Date of Issue : 18 March 2025
Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241002	67-200410-1	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the

[redacted]

รับรองสำเนาถูกต้อง
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-300237-2

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Nominal Volume (ml)	Measuring Volume (ml)
30	30.07
50	50.08

Uncertainty of measurement with in ± 0.054 ml

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

[redacted]

Envilab Co.,Ltd.

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17240309

Calibration Certificate

Equipment:	Oven		
Model:	ED53	Job No.:	KSMT2402655
Serial No.(or ID):	13-02277 (ELABHAOVEN2277)	Received Date:	27 September 2024
Manufacturer:	Binder	Issued Date:	30 September 2024
Condition:	In Condition	Page:	1 of 5
Ventilation Valve:	Closed Shelves(pc.): 2		

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B306 CH2 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

27 September 2024

Environment Condition

Temperature:	30.4 °C	±	1.0	°C
Humidity:	70.3 %RH	±	5.0	%RH

The Method used

In-house method, WI17, based on TLAS-G20

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd.Certificate No. C23240083

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

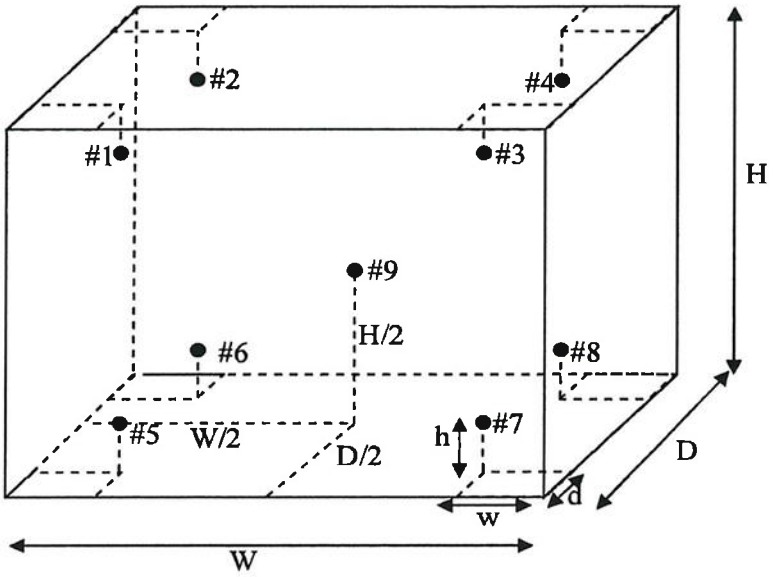
These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]
Person in charge

SCIMET CO.,LTD

[redacted]
Authorized signatory

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ



Standard Installation Locations

Volume (Calibration Zone)= 21 (Liters)

Inside chamber:	W = 40 (cm)	D = 33 (cm)	H = 40 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 5 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 5 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	101	102	103	104	105	106	107	108	109

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

Envilab Co.,Ltd.

Calibration Results:

Before adjustment

Desired (°C)	Setting (°C)	Indicating (°C)	#1 (°C)	#2 (°C)	#3 (°C)	#4 (°C)	#5 (°C)	#6 (°C)	#7 (°C)	#8 (°C)	#9 (°C)
85.0	85.0	85.0	87.01	88.17	87.35	87.18	85.19	85.80	85.32	85.05	85.84

After adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 85.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	86.28	1.28	0.58
#2	87.39	2.39	0.58
#3	86.58	1.58	0.58
#4	86.54	1.54	0.58
#5	84.67	-0.33	0.58
#6	85.22	0.22	0.57
#7	84.76	-0.24	0.57
#8	84.63	-0.37	0.58
#9	85.14	0.14	0.58

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
85.0	85.0	85.0	86.28	87.39	86.58	86.54	84.67	85.22	84.76	84.63	85.14	0.58

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
85.0	2.29	0.07	2.89

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	104.52	0.52	0.82
#2	106.25	2.25	0.85
#3	105.03	1.03	0.82
#4	105.00	1.00	0.83
#5	103.10	-0.90	0.82
#6	103.32	-0.68	0.82
#7	103.12	-0.88	0.82
#8	102.58	-1.42	0.82
#9	103.17	-0.83	0.82

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
104.0	104.5	104.5	104.52	106.25	105.03	105.00	103.10	103.32	103.12	102.58	103.17	0.85

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
104.5	3.26	0.21	3.96

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 182.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	181.12	1.12	1.1
#2	183.67	3.67	1.3
#3	181.80	1.80	1.1
#4	181.92	1.92	1.1
#5	179.84	-0.16	1.2
#6	180.90	0.90	1.1
#7	179.77	-0.23	1.1
#8	179.38	-0.62	1.2
#9	179.75	-0.25	1.1

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
180.0	182.5	182.5	181.12	183.67	181.80	181.92	179.84	180.90	179.77	179.38	179.75	1.3

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
182.5	4.48	0.64	5.29

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, TLAS-G20. Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :
- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET CO.,LTD บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

After adjustment

Desired Temperature : 85.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 85.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	86.28	1.28	0.58	1.0	Condition Fail
#2	87.39	2.39	0.58	1.0	Fail
#3	86.58	1.58	0.58	1.0	Condition Fail
#4	86.54	1.54	0.58	1.0	Condition Fail
#5	84.67	-0.33	0.58	1.0	Pass
#6	85.22	0.22	0.57	1.0	Pass
#7	84.76	-0.24	0.57	1.0	Pass
#8	84.63	-0.37	0.58	1.0	Pass
#9	85.14	0.14	0.58	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:(Cont.)

After adjustment (Cont.)

Desired Temperature : 104.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	104.52	0.52	0.82	2.0	Pass
#2	106.25	2.25	0.85	2.0	Condition Fail
#3	105.03	1.03	0.82	2.0	Pass
#4	105.00	1.00	0.83	2.0	Pass
#5	103.10	-0.90	0.82	2.0	Pass
#6	103.32	-0.68	0.82	2.0	Pass
#7	103.12	-0.88	0.82	2.0	Pass
#8	102.58	-1.42	0.82	2.0	Condition Pass
#9	103.17	-0.83	0.82	2.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

After adjustment (Cont.)

Desired Temperature : 180.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 182.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	181.12	1.12	1.1	2.0	Condition Pass
#2	183.67	3.67	1.3	2.0	Fail
#3	181.80	1.80	1.1	2.0	Condition Pass
#4	181.92	1.92	1.1	2.0	Condition Pass
#5	179.84	-0.16	1.2	2.0	Pass
#6	180.90	0.90	1.1	2.0	Pass
#7	179.77	-0.23	1.1	2.0	Pass
#8	179.38	-0.62	1.2	2.0	Pass
#9	179.75	-0.25	1.1	2.0	Pass

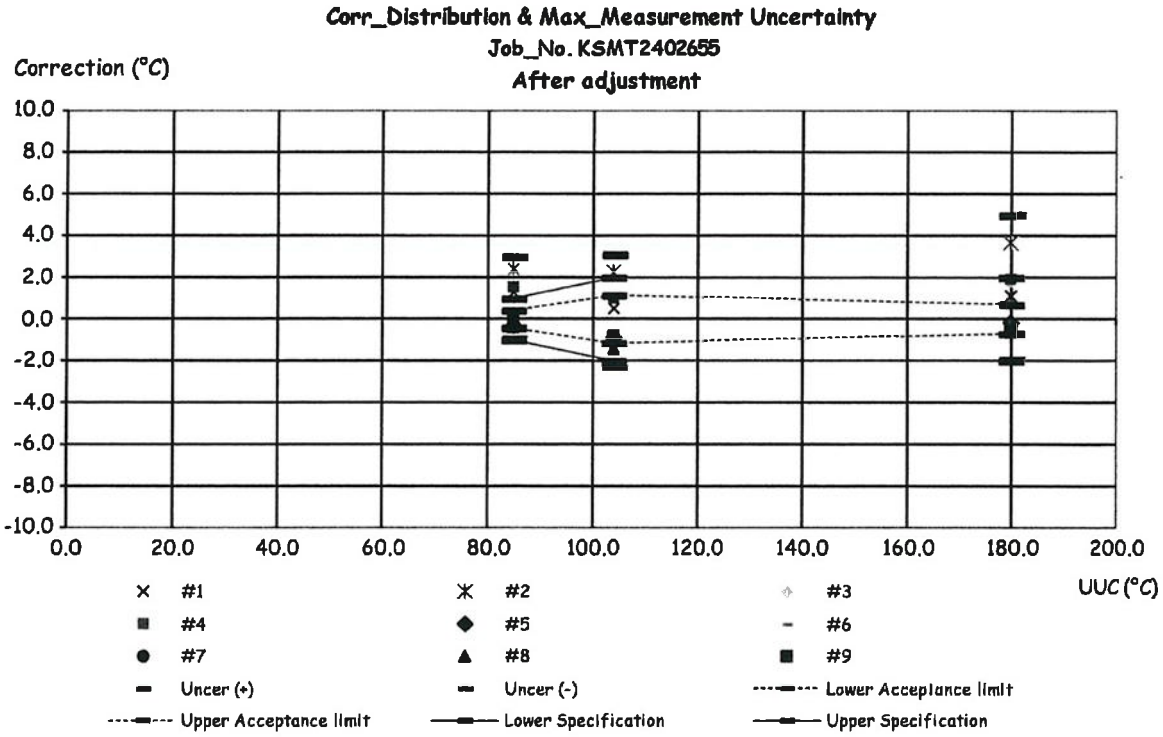
Correction of UUC.* = Measured Temperature - Desired Temperature

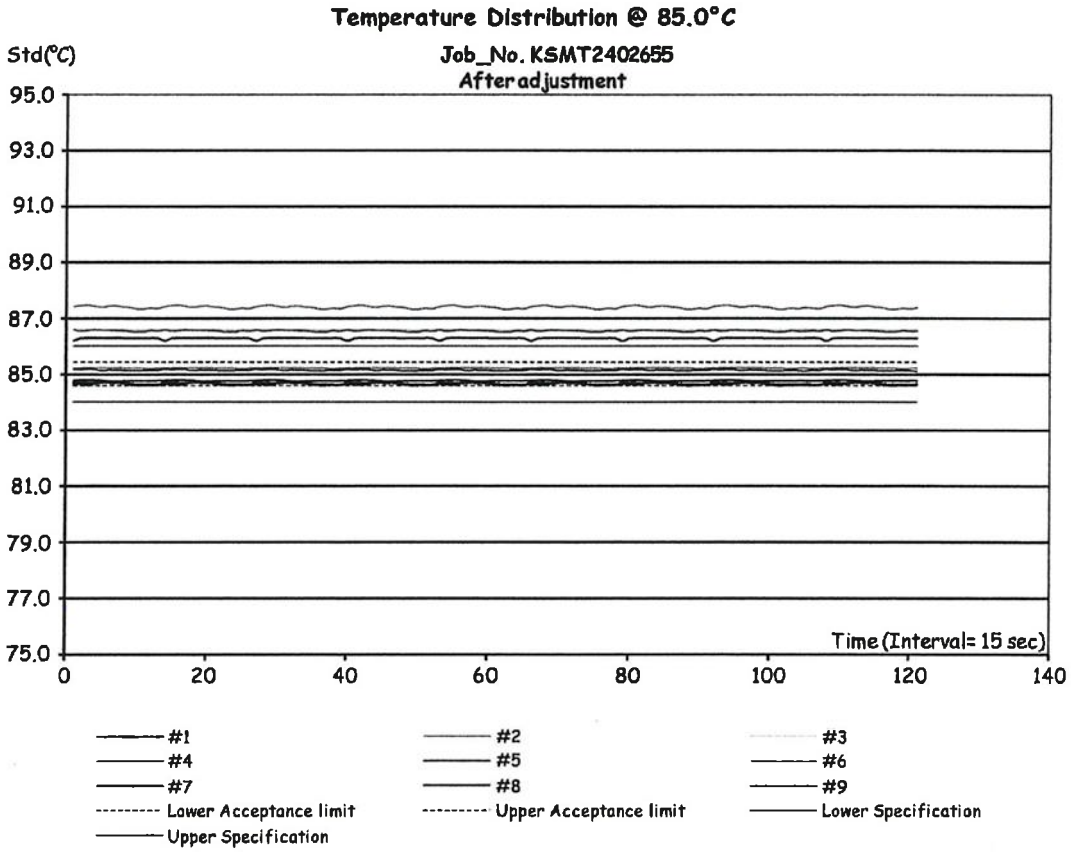
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

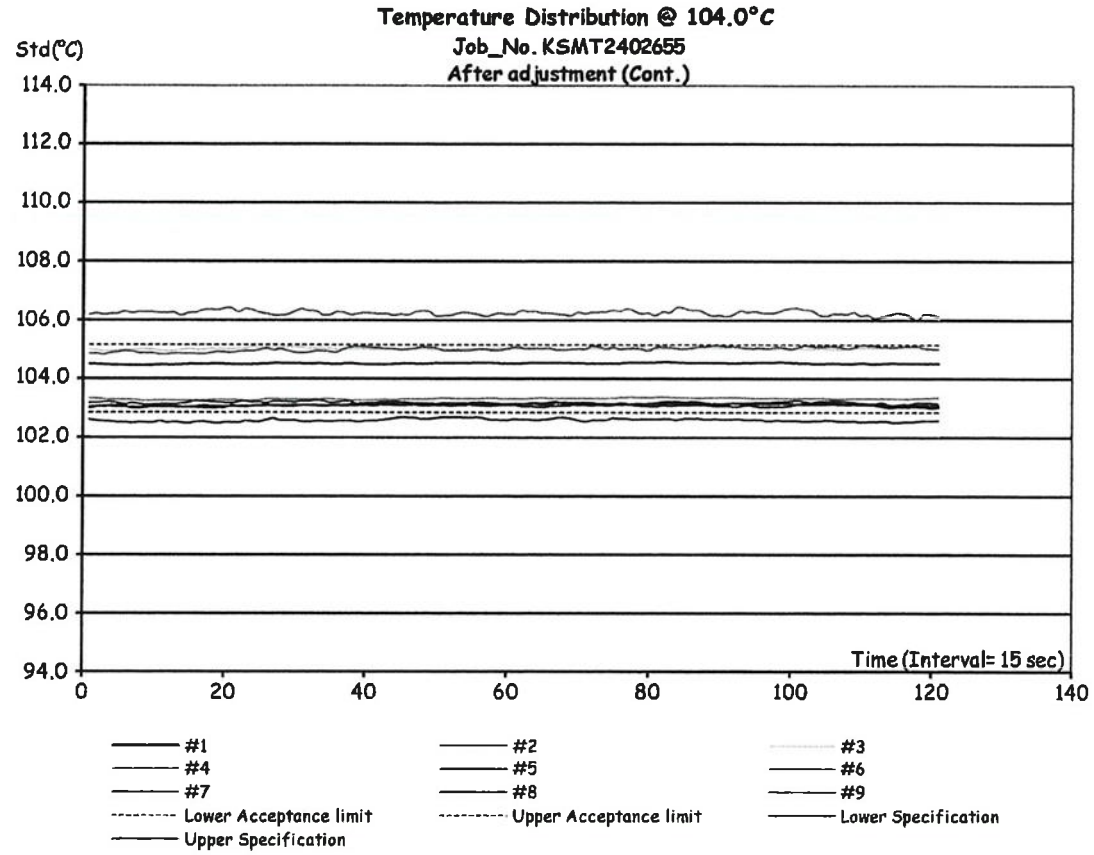
บริษัท ชายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

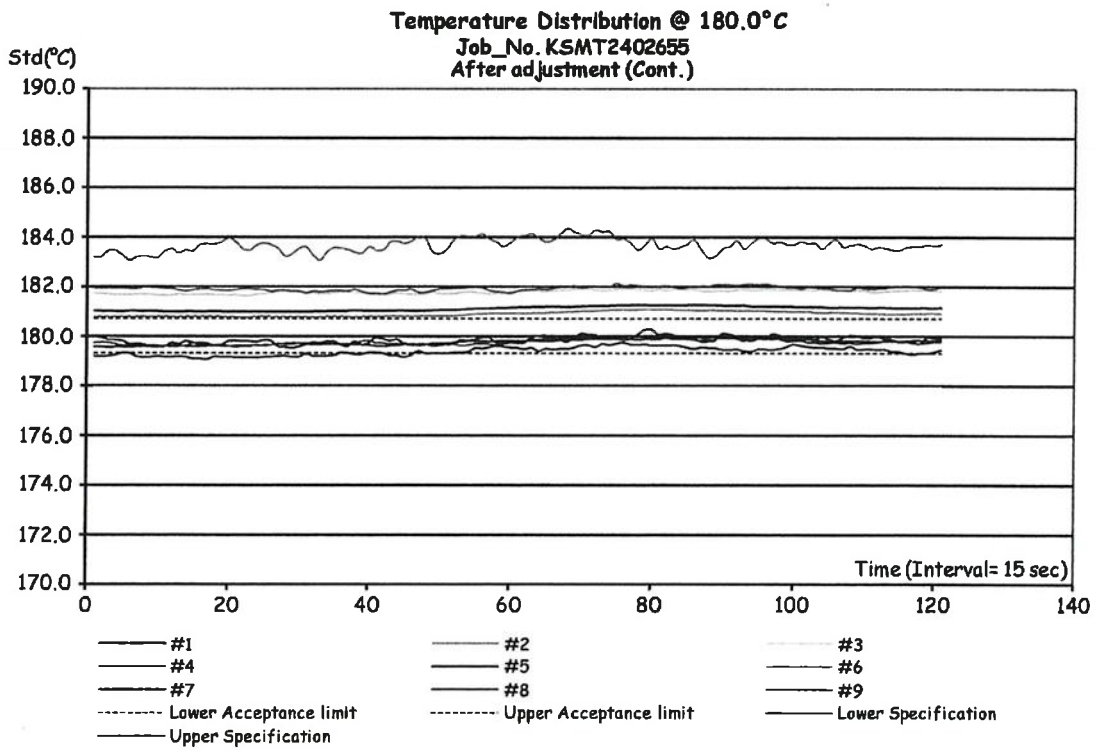
[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2402655

ชนิดเครื่องมือ: Oven รุ่น: ED53

หมายเลขเครื่อง: 13-02277 (ELABHAOVEN2277)

ตรวจสอบ (รับ) 27 Sep 2024		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 27 Sep 2024		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	*
☐	☐	5. การทำงาน พัดลม	☐	☐	-
☑	☐	6. สภาพ Lever of Ventilation valve	☑	☐	
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☐	☐	10. การทำงานของระบบทำความเย็น	☐	☐	-
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : * Control Modify Brand M-LAB

Mr. Mongkolwat Hasanon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C07250028

Calibration Certificate

Equipment:	SPECTROPHOTOMETER		
Model:	CARY 60UV-VIS	Job No.:	KSMT2500779
Serial No.(or ID):	MY17490026 (ELABSPECTRO0002)	Received Date:	03 March 2025
Manufacturer:	Agilent	Issued Date:	03 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B301 CO-THC ROOM)

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

03 March 2025

Environment Condition

Temperature:	22.3 °C	±	0.1	°C
Humidity:	66.0 %RH	±	2.2	%RH

The Method used

In-house method, WI07, based on ASTM E 275-08 and ASTM E 387-04

Traceability

This certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Starna Scientific Limited.

The standard for Wavelength Certificate No. 125472 and 125471

The standard for Photometric Certificate No. 125567 and 125517

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

Authorized signatory

Envilab Co.,Lt

[redacted]

SCIMET

Condition of reference standards Instruments / CRM:

Instruments	Set No.	Certificate No.	Due date
Didymium Oxide Glass Reference	131033	125472	16-Sep-26
Holmium Oxide Glass Reference	136650	125471	16-Sep-26
Neutral Density Filter Reference	45329	125567	17-Sep-26
Potassium Dichromate Solution References	45328	125517	17-Sep-26

Calibration Results:

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Standard Wavelength (nm)	Unit Under Calibration (nm)	Correction (nm)	Uncertainty of Measurement (± nm)
219.39	220.0	-0.61	0.14
241.27	241.5	-0.23	0.14
287.39	287.5	-0.11	0.14
333.65	333.4	0.25	0.14
360.32	360.0	0.32	0.14
417.64	417.0	0.64	0.14
472.50	472.5	0.00	0.14
513.47	513.4	0.07	0.14
528.88	528.9	-0.02	0.14
537.13	537.1	0.03	0.14
640.92	641.7	-0.78	0.14
740.72	741.4	-0.68	0.14
748.55	749.3	-0.75	0.14
807.03	807.5	-0.47	0.14
879.28	879.3	-0.02	0.14

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
235 nm	0.0000	0.0002	-0.0002	0.0080
	0.7328	0.7345	-0.0017	0.0080
257 nm	0.0000	-0.0003	0.0003	0.0080
	0.8537	0.8545	-0.0008	0.0080
313 nm	0.0000	-0.0001	0.0001	0.0080
	0.2855	0.2862	-0.0007	0.0080
350 nm	0.0000	0.0000	0.0000	0.0080
	0.6338	0.6349	-0.0011	0.0080

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Calibration Results:

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
420 nm	0.0000	0.0000	0.0000	0.0045
	0.2352	0.2382	-0.0030	0.0045
	0.5716	0.5740	-0.0024	0.0045
	0.7146	0.7167	-0.0021	0.0045
	1.0179	1.0190	-0.0011	0.0045
440 nm	0.0000	0.0000	0.0000	0.0045
	0.2314	0.2350	-0.0036	0.0045
	0.5566	0.5596	-0.0030	0.0045
	0.7028	0.7060	-0.0032	0.0045
	1.0016	1.0039	-0.0023	0.0045
465 nm	0.0000	0.0000	0.0000	0.0045
	0.2107	0.2137	-0.0030	0.0045
	0.5192	0.5219	-0.0027	0.0045
	0.6638	0.6668	-0.0030	0.0045
	0.9447	0.9471	-0.0024	0.0045
546.1 nm	0.0000	0.0000	0.0000	0.0045
	0.2187	0.2208	-0.0021	0.0045
	0.5207	0.5230	-0.0023	0.0045
	0.7002	0.7025	-0.0023	0.0045
	1.0001	1.0020	-0.0019	0.0045
590 nm	0.0000	0.0000	0.0000	0.0045
	0.2430	0.2449	-0.0019	0.0045
	0.5546	0.5567	-0.0021	0.0045
	0.7756	0.7774	-0.0018	0.0045
	1.1117	1.1123	-0.0006	0.0045
635 nm	0.0000	0.0000	0.0000	0.0045
	0.2635	0.2651	-0.0016	0.0045
	0.5622	0.5639	-0.0017	0.0045
	0.7651	0.7673	-0.0022	0.0045
	1.0974	1.0982	-0.0008	0.0045

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The error of temperature determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E 275-08 and ASTM E 387-04. Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET CO.,LTD. บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
220.0	-0.61	0.14	1.0	Pass
241.5	-0.23	0.14	1.0	Pass
287.5	-0.11	0.14	1.0	Pass
333.4	0.25	0.14	1.0	Pass
360.0	0.32	0.14	1.0	Pass
417.0	0.64	0.14	1.0	Pass
472.5	0.00	0.14	1.0	Pass
513.4	0.07	0.14	1.0	Pass
528.9	-0.02	0.14	1.0	Pass
537.1	0.03	0.14	1.0	Pass
641.7	-0.78	0.14	1.0	Pass
741.4	-0.68	0.14	1.0	Pass
749.3	-0.75	0.14	1.0	Pass
807.5	-0.47	0.14	1.0	Pass
879.3	-0.02	0.14	1.0	Pass

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
235 nm	0.0002	-0.0002	0.0080	0.020	Pass
	0.7345	-0.0017	0.0080	0.020	Pass
257 nm	-0.0003	0.0003	0.0080	0.020	Pass
	0.8545	-0.0008	0.0080	0.020	Pass
313 nm	-0.0001	0.0001	0.0080	0.020	Pass
	0.2862	-0.0007	0.0080	0.020	Pass
350 nm	0.0000	0.0000	0.0080	0.020	Pass
	0.6349	-0.0011	0.0080	0.020	Pass

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
420 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2382	-0.0030	0.0045	0.015	Pass
	0.5740	-0.0024	0.0045	0.015	Pass
	0.7167	-0.0021	0.0045	0.015	Pass
	1.0190	-0.0011	0.0045	0.015	Pass
440 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2350	-0.0036	0.0045	0.015	Pass
	0.5596	-0.0030	0.0045	0.015	Pass
	0.7060	-0.0032	0.0045	0.015	Pass
	1.0039	-0.0023	0.0045	0.015	Pass
465 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2137	-0.0030	0.0045	0.015	Pass
	0.5219	-0.0027	0.0045	0.015	Pass
	0.6668	-0.0030	0.0045	0.015	Pass
	0.9471	-0.0024	0.0045	0.015	Pass
546.1 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2208	-0.0021	0.0045	0.015	Pass
	0.5230	-0.0023	0.0045	0.015	Pass
	0.7025	-0.0023	0.0045	0.015	Pass
	1.0020	-0.0019	0.0045	0.015	Pass
590 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2449	-0.0019	0.0045	0.015	Pass
	0.5567	-0.0021	0.0045	0.015	Pass
	0.7774	-0.0018	0.0045	0.015	Pass
	1.1123	-0.0006	0.0045	0.015	Pass
635 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2651	-0.0016	0.0045	0.015	Pass
	0.5639	-0.0017	0.0045	0.015	Pass
	0.7673	-0.0022	0.0045	0.015	Pass
	1.0982	-0.0008	0.0045	0.015	Pass

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted] ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Spectrophotometer

เลขที่ใบงาน: KSMT2500779

ชนิดเครื่องมือ: SPECTROPHOTOMETER รุ่น: CARY 60UV-VIS หมายเลขเครื่อง: MY17490026

ตรวจสอบ (รับ) 03 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 03 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. ตัวหมุนเลือกความยาวคลื่น (Wavelength Control)	☑	☐	
☑	☐	7. ความยาวคลื่น (Wavelength Check)	☑	☐	
☑	☐	8. แหล่งกำเนิดแสง (UV < 3,000 hour)	☑	☐	
☑	☐	9. แหล่งกำเนิดแสง (Visible < 5,000 hour)	☑	☐	
☐	☐	10. ช่องวัดหลายตัวอย่าง (Carousel Module)	☐	☐	-

เพิ่มเติม/ข้อแนะนำ :

Mr. Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C09250024

Calibration Certificate

Equipment:	CONDUCTIVITY METER		
Model:	F-74BW	Job No.:	KSMT2501045
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	25.8 °C	±	0.4	°C
Humidity:	51.7 %RH	±	2.9	%RH

The Method used

In-house method, WI09, based on ASTM D1125-14 and D 5391-14

Traceability

This certificate is traceable to the SI Units maintained by CRM of NIST(SRM) through CPA chem Co., Ltd. (ISO 17034) Certificate No. 1019566, 1019567, 1019568 , Temperature test is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co., Ltd.Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standardlaboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

Envilab Co.,Ltd.

SCIMET

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard conductivity solution	25.001 µS/cm	CS25M0S.L5	1019566	4-Aug-25
Standard conductivity solution	1412.9 µS/cm	CS1413M0S.L5	1019567	4-Aug-25
Standard conductivity solution	111.3 mS/cm	CS111MS.L5	1019568	4-Aug-25
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

Electrode Serial No. 3G1J0088 Model : 3552 Brand : HORIBA

Before Adjustment

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	27.6	µS/cm	-2.599	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1541	µS/cm	-128.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	113.7	mS/cm	-2.4	mS/cm	2.00	0.82	mS/cm

After Adjustment ; at 1412.9 µS/cm

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	25.3	µS/cm	-0.299	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1413	µS/cm	-0.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	106.1	mS/cm	5.2	mS/cm	2.00	0.82	mS/cm

Temperature Electrode

Dimension of Probe ; mm (millimeter) Length : 110 Diameter: 12 Immersion Depth: 80

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.03	24.9	0.13	2.00	0.20

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Conductivity Meter

เลขที่ใบงาน: KSMT2501045

ชนิดเครื่องมือ: CONDUCTIVITY METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ : _____

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech.cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300233-5** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Measuring Pipette
Manufacturer : witeg Class : A
Capacity : 25 ml Graduation : 0.1 ml
ID No. : G-WW-014/23

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1008.0 mbar.

Date of Received : 14 March 2025
Date of Calibration : 18 March 2025
Date of Issue : 18 March 2025
Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241005	67-200410-4	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by [redacted]
Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the C

[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-300233-5**

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Delivery Time : 15.09 sec.

Nominal Volume (ml)	Measuring Volume (ml)
1	1.0096
10	9.9778
25	24.9769

Uncertainty of measurement with in ± 0.0067 ml

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

-o0o-

[redacted]

[redacted]

Agilent CrossLab
From Insight to Outcome

Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.
- For customers using HF applications, the instrument should be returned to its standard sample introduction system.

Envilab Co.,Ltd.
[redacted]

Revision: A.02, Issued: 21 January 2022
Document Number: G8014-90075
© Agilent Technologies, Inc. 2022

Agilent

Agilent CrossLab
From Insight to Outcome

Agilent CrossLab Start Up Services

Agilent 5100 5110 ICP-OES Preventive Maintenance

[redacted]

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides what you need to reduce unplanned downtime and keep your systems operating at their peak performance.

This checklist is used as a guide for completing the preventive maintenance tasks. A signed copy of this checklist is provided for your records.

Revision: A.02, ssued: 21 January 2022
Document Number: G8014-90075
© Agilent Technologies, Inc. 2022

Agilent

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "**X**" or tick mark "✓".
- Check **"Service not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in the most logical order relevant to the individual system service in the order of the tasks listed.
- Complete the **Service Review** section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Add relevant page numbers to selected pages and complete the total number of pages field in the Service Completion section
- **Ask the customer to sign the Service Verification section including the customer's and your signature.**

Envilab Co.,Ltd.

© Agilent Technologies, Inc. 2022

Important Customer Web Links

- To access **Agilent University**, visit http://www.agilent.com/crosslab/university/ to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit https://www.agilent.com/en-us/agilentresources. The following information topics are available:
  - Sample Prep and Containment
  - Chemical Standards
  - Analysis
  - Service and Support
  - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at https://www.youtube.com/user/agilent
- **Need to place a service call?** Flexible Repair Options | Agilent

© Agilent Technologies, Inc. 2022

Preparation

- ☑ Discuss any specific issues with the customer before starting.
- ☑ Review the instrument logbook for recorded problems and comments.
- ☑ Save Instrument control settings before starting the procedure.
- ☑ Perform a general inspection of the system for cleanliness.
- ☑ Check for proper installation of parts, assemblies, sensors etc.
- ☑ Check system for required installation of components and implementation of Service Notes
- ☑ Check for required firmware/software updates and verify with customers if they would like them installed.
- ☐ For HF application systems, if standard sample introduction system was not installed, ask the customer to install it. N/A
- ☑ Ask the customer to remove any samples from the ICP-OES sample introduction area, auto sampler or around the ICP-OES.

Envilab Co.,Ltd.
[redacted]

Instrument Maintenance

System Information

☐ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	5110 VDV ICP-OES
Instrument System Site and Location	Envilab Company limited

	List System Component Product Numbers	List the Serial Numbers of each Component
1.	G 8015 A	MY 17490002
2.	G 8410 A	AU173 93768
3.	G 8481-80002	1709-05327
4.		
5.		
6.		
7.		
8.		
9.		

ICP-OES Configuration Table	Circle the type or write in the type if other
Nebulizer Type	(SeaSpray) | OneNeb | Conikal | Other
Spray Chamber	Cyclonic Single Pass | (Cyclonic Double Pass) | Other
Torch	Radial | (Dual View) | Other
Torch Type	(One Piece) | Semi Demountable | Fully Demountable | Other
Injector Diameter	2.4mm | (1.8mm) | 1.4mm | 0.8mm | Other
Injector Material	(Quartz) | Ceramic | Other

SPS 3 Auto Sampler

- ☑ **Service not applicable**
- ☐ Power cycle the autosampler and verify successful initialization.
- ☐ Inspect X and Z axis belts for wear. Replace is necessary.
- ☐ Clean X and Z axis slide shafts.
- ☐ Using customer's racks and the Agilent software move the sample probe to the 4 outermost corners and rinse port, ensure that the probe is approximately centered in the vial.

SPS 4 Auto sampler

- ☐ **Service not applicable**
- ☑ Clean the spill tray, rack location mat, end frames and chassis with a damp soft cloth and diluted mild detergent.
- ☑ Clean the auto sampler cover panels, if cover kit is installed, with domestic window cleaner.
- ☑ Check the X-axis and Z-axis drive belts for cracks, splits, damaged teeth, excessive fraying, color changes or degradation from fumes.
- ☑ Check the X-axis, Theta-axis and Z-axis FFC cables for cracks, incorrect positioning, damaged edges or damaged connectors.
- ☑ Pump Tubing Replacement. Replace peristaltic pump tubing. Replace all tubing that goes from the rinse station to the pump and from the pump to the waste/rinse bottles only checked, passed
- ☑ Test using customer's tray and move the sample probe to the sample vial 1, wash vial and rinse port and ensure that the probe is centered in the vial. If not use calibration wizard and calibrate the position.

AVS 4, 6, 7 Advanced Valve System

- ☑ **Service not applicable**
- ☐ Replace valve rotor seal
- ☐ Check fittings for signs of leaks
- ☐ Check tubing including autosampler tubing for kinks or excessive wear
- ☐ Check high flow pump for signs of leaks

© Agilent Technologies, Inc. 2022

Preventive Maintenance Procedures

Record Pre-PM Instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table – Pre-PM.

Clean and inspect ICP-OES system

- ☑ Look for any obvious external damage or problems.
- ☑ Inspect water cooling hoses, gas lines and power cord for excessive wear or damage.
- ☑ Perform a general internal inspection of the system for excessive dust accumulation, clean if necessary.
- ☑ Inspect sample introduction components and record any required maintenance in the Service Engineer Comments and notify the customer as the required actions required.
- ☑ Record the instrument operating conditions in the ICP-OES Status Results Table.
- ☑ Replace the polychromator purge filter.
- ☑ Replace the radial pre-optics window
- ☑ Replace the axial pre-optics window for SVDV and VDV instruments.
- ☑ Check exhaust flow for the correct positive extraction at the exhaust duct to insure they meet minimum specifications.
- ☑ Replace air inlet dust filter.
- ☐ Replace high capacity air inlet dust filter element if installed. N/A
- ☑ Remove and clean instrument water inlet filter.

Agilent Water Recirculator

- ☐ **Service not applicable**
- ☑ Drain cooling fluid and remove any particles from the chiller reservoir
- ☑ Remove, clean and reinstall water inlet metal mesh filter if present.
- ☑ Re fill with Agilent Cool Clear cooling fluid.
- ☑ Clean the cooling system Air filter and the condenser.

© Agilent Technologies, Inc. 2022

Enviab Co.,Ltd.

Restore Instrument

- ☐ For HF applications, ask the customer to reinstall their sample introduction system. N/A
- ☑ Leave system in an idle state: on and purging.
- ☑ Guidance: If the PM service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Record the PM event in the Smart Alerts logbook, if applicable.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review this service, parts replaced, and test results obtained with the customer.
- ☑ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box. Systems in a compliant environment may need additional documentation.
- ☑ **Complete the Signature Page with both Service Engineer and Customer signatures.**

Filmed Co.,Ltd.

© Agilent Technologies, Inc. 2022

ICP-OES adjustment

- ☑ Check position of Zn peak, adjust if required.
- ☑ Check Argon Ratio, adjust to specified value if required.
- ☑ Perform Detector Calibration.
- ☑ Perform Instrument Calibration.

Record Post-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table - Post PM.
- ☑ For systems using ICP Expert version 7.3 and above, run the following Instrument tests
  - ☑ Subsystem Communications Test
  - ☑ Air Flow
  - ☑ Water Flow
  - ☑ Gas Flows
  - ☑ RF Generator
  - ☑ Camera Test
  - ☑ Optics Test
  - ☑ Nebulizer Test
- ☑ Record the result in the Instrument Test Results Table

© Agilent Technologies, Inc. 2022

ICP-OES Status Results Table

Note: These measurements do not form part of any specification and are for reference only.

Measurement	Standby Mode		Plasma On	
Mains Voltage	219.371	VAC	217.484	VAC
Mains Current	0.082	A	0.098	A
Instrument Temperature	23.5	°C	23.1	°C
RF Air Flow (sensor speed)	13.0	Hz	19.0	Hz
Plasma Exhaust Temperature	No measurement		56.4	°C
Water Flow Oscillator	No measurement		1.51	L/min
Water Flow Detector	1.09	L/min	1.06	L/min
Water Inlet Temperature	16.9	°C	16.7	°C
Polychromator Temperature	35.0	°C	35.0	°C
CCD Temperature	-39.6	°C	-39.4	°C
Thermal Stabilizer	35.0	°C	35.0	°C
Argon Supply Pressure	619.13	kPa	560.32	kPa
Purge Gas Supply Pressure*1	616.63	kPa	593.43	kPa
Option Gas Supply Pressure*1	-	kPa	-	kPa
Nebulizer Flow	No measurement		0.70	L/min
Nebulizer Back Pressure	No measurement		283.17	kPa
Plasma Gas Flow	No measurement		11.98	L/min
Auxiliary Gas Flow	No measurement		1.00	L/min
RF Power	No measurement		1198.1	W
RF Supply Current	No measurement		8.190	A
RF Supply Voltage	No measurement		194.557	V

*1 If option installed

© Agilent Technologies, Inc. 2022

Test Results

Instrument Performance Test Results Table

Note: These measurements do not form part of any specification and are for reference only.

	Pre PM Sensitivity Check		Post PM Sensitivity Check	
	Radial	Axial *	Radial	Axial*
Zn 213.857 nm SRBR	1597.1	3382.6	2348.2	6129.9
Mn 257.610 nm SRBR	9945.3	16145.3	10764.1	39033.2
Al 396.152 nm SBR	7.0	16.3	8.5	25.7
K 766.491 nm SBR	8.2	67.3	4.7	83.6

* Axial result is not applicable for G8016AA, G8012AA Radial View instruments.

Instrument Test Results Table

Note: The Instrument Test results are for systems using ICP Expert version 7.3 and above only.

Instrument Test	Result
Subsystem Communications Test	Pass
Air Flow	Pass
Water Flow	Pass
Gas Flows	Pass
RF Generator	Pass
Camera Test	Pass
Optics Test	Pass
Nebulizer test	Pass

© Agilent Technologies, Inc. 2022

Envilab Co.,Ltd.
[redacted]

Signature Page

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the installation or other items of interest for the customer, please write in this box.

Service Verification

Service Request Number: 6006121636

Date Service Completed: 31 May 2023

Service Engineer Name: Kanyakorn S.

Customer Name: [redacted]

Service Engineer Signature: Kanyakorn S.

Customer Signature: [redacted]

Total number of pages in this document: 14

© Agilent Technologies, Inc. 2022

Consumed PM Parts

Part Description	Part Number	Product or Model# where used	Quantity consumed
Axial Pre-Optic Window	G8010-68014	G8010A, G8011A, G8014A/G8015A	1
Radial Pre-Optic Window	G8010-68015	All	1
Agilent Cool Clear Coolant Fluid	5799-0037	Agilent Water Recirculator	—
Purge Gas Filter	G8010-60136	All	1
Air inlet filter	G8000-68002	All	1
High Capacity Air Filter	G8010-60189	Optional	—
Rotor seal for 6-7 port valve for AVS6/7	G8494-60002	G8494A/G8495	—
Rotor seal for 4 port valve for AVS4	G8493-60002	G8493A	—
Rinse solution to rinse station 2.5mm Id x 1m	G8410-80123	SPS4	—
Barb connector 2.5mm-1.5mm ID	G8410-80124	SPS4	—
PVC waste tubing,8mm od x 5mm Id, 2m	G8410-80122	SPS4	—
Additional Parts may be required from engineer's stock:			
X axis drive belt	5410047500	SPS3	—
Z axis drive belt	5410047400	SPS3	—
Peristaltic pump tubing, PVC SolvaFlex, 3 bridged,	3710049000	SPS4	—

Consumed Parts Reference (Purchased by customer, not included as part of PM)

☐ **Section Not Applicable.**

Part Description	Part Number	Product or Model# where used	Quantity consumed

© Agilent Technologies, Inc. 2022

[redacted] Co.,Ltd.

Resolution Test — Pass

Element Wavelength	Specification	Width
N (174.213 nm)	≤ 9.40	6.72
As (188.980 nm)	≤ 8.20	6.49
C (193.027 nm)	≤ 11.50	8.01
Mo (202.032 nm)	≤ 8.20	6.43
Cr (206.158 nm)	≤ 13.40	8.50
Zn (213.857 nm)	≤ 8.70	7.16
Pb (220.353 nm)	≤ 9.50	7.51
Co (228.615 nm)	≤ 17.20	11.32
Ba (230.424 nm)	≤ 9.40	7.80
Mn (257.610 nm)	≤ 13.30	9.78
Mn (260.568 nm)	≤ 20.30	13.88
Cr (267.716 nm)	≤ 11.00	9.09
Cu (324.754 nm)	≤ 25.00	18.88
Cu (327.395 nm)	≤ 14.20	12.41
Sr (338.071 nm)	≤ 33.50	24.27
Ba (455.403 nm)	≤ 44.00	34.07
Sr (460.733 nm)	≤ 36.00	22.56
Ba (493.408 nm)	≤ 36.00	27.79
Ba (614.171 nm)	≤ 42.00	27.97
Ar (675.283 nm)	≤ 74.00	62.41
K (766.491 nm)	≤ 80.00	65.95

Report Summary

Instrument Model	Agilent 5100/5110 VDV ICP-OES
Instrument ID	G8011A/G8015A
Instrument Serial Number	MY17490002
Software Version	7.4.0.10280
Firmware Version	3562
Tested By	Kanyakorn S.
Test Started On	5/31/2023 12:22:01 PM
Test Completed On	5/31/2023 12:26:21 PM

Result Summary

Subsystem Communications Test	Pass
Air Flow Test	Skipped
Water Flow Test	Skipped
Gas Flows Test	Skipped
RF Generator Test	Skipped
Camera Test	Skipped
Optics Test	Pass
Advanced Valve System Test	Skipped
Resolution Test	Pass
Sensitivity Test	Pass
Precision Test	Pass

Subsystem Communications Test — Pass

Optics Test — Pass

	Radial	Axial
Intensity	3397602	2923418
Wavelength	737.212	737.212

Envilab Co.,Ltd.
[redacted]

Precision Test — Pass

Radial

Element Wavelength	Specification	Measured Value % RSD
As (188.980 nm)	≤ 2.60	0.75
Se (196.026 nm)	≤ 2.60	0.69
Zn (213.857 nm)	≤ 1.50	0.27
Pb (220.353 nm)	≤ 2.60	1.06
Mn (257.610 nm)	≤ 1.50	0.30
Al (396.152 nm)	≤ 1.50	0.27
Ba (493.408 nm)	≤ 1.50	0.99
K (766.491 nm)	≤ 1.50	0.25

Axial

Element Wavelength	Specification	Measured Value % RSD
As (188.980 nm)	≤ 1.50	0.54
Se (196.026 nm)	≤ 1.50	0.48
Zn (206.200 nm)	≤ 1.50	1.06
Zn (213.857 nm)	≤ 1.50	0.48
Cd (214.439 nm)	≤ 1.50	0.33
Pb (220.353 nm)	≤ 1.50	0.37
Mn (257.610 nm)	≤ 1.50	0.77
Cr (267.716 nm)	≤ 1.50	0.62
Cu (324.754 nm)	≤ 1.50	0.45
Al (396.152 nm)	≤ 1.50	0.45
Ba (493.408 nm)	≤ 1.50	0.80
K (766.491 nm)	≤ 1.50	0.91

Envilab Co.,Ltd.

Sensitivity Test — Pass

Radial

Element Wavelength	Specification	Method	Ratio	Standard	Blank
As (188.980 nm)	≥ 46.0	SRBR	108.0	934.0	64.8
Se (196.026 nm)	≥ 41.0	SRBR	110.2	1159.4	93.6
Zn (213.857 nm)	≥ 1421.0	SRBR	2348.2	23561.0	99.8
Pb (220.353 nm)	≥ 46.0	SRBR	98.7	1075.1	98.0
Mn (257.610 nm)	≥ 3518.0	SRBR	10768.1	218704.5	411.0
Al (396.152 nm)	≥ 3.4	SBR	8.5	40909.0	4325.8
Ba (493.408 nm)	≥ 34.0	SBR	111.9	1396218.4	12367.4
K (766.491 nm)	≥ 1.8	SBR	4.7	108989.7	19076.8

Axial

Element Wavelength	Specification	Method	Ratio	Standard	Blank
As (188.980 nm)	≥ 208.0	SRBR	267.6	3134.3	126.3
Se (196.026 nm)	≥ 159.0	SRBR	284.6	4158.5	194.0
Zn (206.200 nm)	≥ 234.0	SRBR	495.4	1165.9	5.5
Zn (213.857 nm)	≥ 1743.0	SRBR	6129.9	92298.3	225.6
Cd (214.439 nm)	≥ 4227.0	SRBR	16998.9	48382.7	8.1
Pb (220.353 nm)	≥ 320.0	SRBR	416.4	6520.1	228.4
Mn (257.610 nm)	≥ 10625.0	SRBR	39073.2	1331904.8	1159.9
Cr (267.716 nm)	≥ 1048.0	SRBR	5986.5	203686.5	1144.7
Cu (324.754 nm)	≥ 19.0	SBR	77.1	389900.7	4991.6
Al (396.152 nm)	≥ 6.0	SBR	25.7	268775.7	10073.7
Ba (493.408 nm)	≥ 60.0	SBR	293.9	8244793.3	27957.8
K (766.491 nm)	≥ 24.0	SBR	83.6	3030541.1	35817.8

Gas Flows Test — Pass

Nebulizer Target Flow	Actual Flow	Back Pressure
0.70	0.71	280.77

Auxiliary Target Flow	Actual Flow	Back Pressure
2.00	2.00	93.84

Makeup Target Flow	Actual Flow	Back Pressure
2.00	1.99	95.26

Plasma Target Flow	Actual Flow	Back Pressure
18.00	17.94	23.27

RF Generator Test — Pass

RF Power Supply Test	Passed
RF Power Supply (V)	147.418

RF Oscillator Test	Passed
RF Oscillator Frequency (MHz)	25.961
Work Coil Current (A)	45.326
RF Power Supply Current (A)	2.000

Camera Test — Pass

	Integration Time (ms)	Standard Deviation	Status
Electronic Offset Test	1000	5.120	Passed
Array Test	5	0.015	Passed
Linearity Test		0.122	Passed

Report Summary

Instrument Model	Agilent 5100/5110 VDV ICP-OES
Instrument ID	G8011A/G8015A
Instrument Serial Number	MY17490002
Software Version	7.4.0.10280
Firmware Version	3562
Tested By	Kanyakorn S.
Test Startec On	5/31/2023 12:34:17 PM
Test Completed On	5/31/2023 12:46:55 PM

Result Summary

Subsystem Communications Test	Pass
Air Flow Test	Pass
Water Flow Test	Pass
Gas Flows Test	Pass
RF Generator Test	Pass
Camera Test	Pass
Optics Test	Skipped
Advanced Valve System Test	Skipped
Resolution Test	Skipped
Sensitivity Test	Skipped
Precision Test	Skipped

Subsystem Communications Test — Pass

Air Flow Test — Pass

30% Air Flow (relative speed)	75% Air Flow (relative speed)
12.00	18.00

Water Flow Test — Pass

RF Water Flow(L/min)	Camera Water Flow (L/min)	Water Inlet Temperature (°C)
1.45	1.06	16.78

Envilab Co.,

PinAAcle 900F Preventive Maintenance (PM)			
Company Name:	Envilab Co.,Ltd		
Address (Instrument Location):	540/1 ซอยบางแค 7, แขวงบางแค เขตบางแค กรุงเทพมหานคร 10160		
Serial Number:	PFBS20011403	**PM Number:**	1/2
Customer Name (if applicable):	KJanjira	**Telephone Number:**	095-550-0510
Customer Support Engineer Name:	Khwanchai	**Service Order Number:**	WO-02944419
Date PM Performed: (DD-MMM-YYYY)	04-Oct-2024	**Next PM Due Date:** (DD-MMM-YYYY)	04-Apr-2025
Standard Labor Hours to Complete PM :		**5 hours**	

Part Number	Release	Publication Date	PerkinElmer
09370145 Rev.9	A	January 2018	

Scope
The purpose of this PM is to ensure the continued functionality of the PinAAcle 900F by inspecting and replacing any worn or damaged parts. This service should only be performed by a trained representative of PerkinElmer.
The customer should save their method before the PM begins.

General Instructions:
The customer must provide the engineer operational data to demonstrate recent instrument performance prior to starting the PM.
Always check with the customer before making any changes that may affect the customer's analysis or calibration, including a current back-up of system software and/or data files.
The completed document should be signed by an authorized PerkinElmer and customer representative and left with the customer.
Update the PM sticker and instrument logbook as required.

Copyright Information
This document contains proprietary information that is protected by copyright. All rights are reserved.
No part of this publication may be reproduced in any form whatsoever or translated into any language without the prior, written permission of PerkinElmer, Inc.
Copyright © 2013 PerkinElmer, Inc.

Trademarks
Registered names, trademarks, etc. used in this document, even when not specifically marked as such, are protected by law. PerkinElmer is a registered trademark of PerkinElmer, Inc. All other trademarks and registered trademarks not owned by PerkinElmer, Inc. or its subsidiaries that are depicted herein are the property of their respective owners.
Except as specifically set forth in its terms and conditions of sale, PerkinElmer makes no Warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.
PerkinElmer shall not be liable for incidental or consequential damages in connection with the furnishing or use of this document.

Envilab Co.,Ltd.

PerkinElmer
For the Better

PinAAcle 900F Preventive Maintenance Report

Company Name: Envilab Co.,Ltd

Instrument Location: 540/1 ซอยบางแค 7, แขวงบางแค เขตบางแค กรุงเทพมหานคร 10160

Instrument Serial No.: PFBS20011403

Date: 04-Oct-2024

Component List

Component / Specific Model	Serial #	Configuration Notes

Parts Lists

Parts Included with the PM		
Part Number (if applicable)	Description	Quantity
B0501696	Fan Filters	2
N3160156	O-Ring Kits for Sampling Introduction (Stainless Steels Nebulizer)	NA
N3160157	O-Ring Kits for Sampling Introduction (Plastic Nebulizer)	1
N9301714	Replacement Acetylene Filter Cartridge	1
TH001022	Replacement Air Filter Cartridge	2

Additional Reagents and Standards Required for PM				
Part Number (if applicable)	Description	Quality	Batch/Lot #	Expired Date (MM/YY)
N9300183	1000 mg/L Copper Standard	AR	27-39CUY1	04/25

Additional Reagents and Standards Required for PM (Customer Support Solution)				
Part Number (if applicable)	Description	Quantity	Batch/Lot #	Expiration Date (MM/YY)
N/A	DI Water	250 ml.	AR	AR
N/A	0.5% HNO_3	250 ml.	AR	AR

Additional Tools Required for PM			
Part Number (if applicable)	Description	Quantity	Serial #
N1013000	0.2A Neutral density filter	1	MG0-056
N1013002	1.0A Neutral density filter	1	MG2-054
03030997	System 2 EDL Driver	1	03030997
N3050605	As System 2 EDL	1	16148
N3050121	Cu Lumina HCL	1	092216-010130
N3050109	Ba Lumina HCL	1	102416-040160
N3050139	K Lumina HCL	1	110716-010060
N3050152	Ni Lumina HCL	1	100516-030190

Envilab Co.,Ltd.

7. **Flame Interlock Check:**

Description: Check to ensure that all safety interlocks are closed.

Parameter	Specification	Test Results	Pass/Fail
Flame Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Drain Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Nebulizer Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
C_2H_2 Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Air Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Burner Head Sensor	Choosing Nitrous Oxide as the oxidant should trigger an interlock shuts down	Active	Passed

8. **After PM Performance tests:**

8.1 Detector Linearity with Barium

Description: Ensures that the detector is linear in the Visible Range.

Parameter	Specification	Certificate Value at 553.6 nm (Abs.)	Test Results	Pass/Fail
1.0 A ND Filter	± 5% from Cert.	1.0531	1.0542	Passed
0.2 A ND Filter	± 5% from Cert.	0.1806	0.1787	Passed

8.2 Baseline Noise at 1.0 Absorbance with Barium

Description: Ensures that a high absorbance will not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0023	Passed

8.3 AA Baseline Noise with Copper

Description: Check baseline noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.001	0.0002	Passed

Enviab Co.,Ltd. [redacted]

Procedure Checklist

Use (✓) to check off those steps in the checklist that have been completed.

1. **General:**
   - ☑ Review the instrument performance with the customer and document any recent problems.
   - ☑ Inspect the customer log book and make any appropriate PM entries.
   - ☑ Perform general inspection of system for cleanliness.

2. **PC Instrument Software:**
   - ☑ Instrument Software user files/databases archived, packed, and/or deleted as needed.

3. **Mechanical:**
   - ☑ Inspect and clean all fans and filters. Replace filters if necessary
   - ☑ Inspect all gas lines for leaks and/or wear. Replace if needed.
   - ☑ Clean exterior of the instrument.
   - ☑ Inspect the burner head, burner chamber, and nebulizer. Clean if needed as stated in the Hardware Guide.
   - ☑ Check burner head dimensions with the feeler gauge as stated in the Hardware Guide in the Maintenance chapter section on cleaning the burner head and checking sloth width. Replace if out of specification
   - ☑ Check the condition of the end cap, burner head, and nebulizer O-rings. Replace if necessary.
   - ☑ Check the drain system for signs of wear. Replace worn or damaged parts.
   - ☑ Visually check for proper flame conditions when igniting the Air-C2H2 and N20-C2H2 flames (if applicable).

4. **Electrical:**
   - ☑ Inspect PC boards. Clean if necessary.
   - ☑ Carefully check all internal and external cable connections.
   - ☑ Check instrument firmware revisions upgrade to current levels (if necessary)
   - ☑ Run Diagnostics Test within the Advanced function of the Spectrometer page. Check the results in the service log folder in the Spectrometer BM Log Viewer.

5. **Optics:**
   - ☑ Inspect and clean the sample compartment windows, if needed.
   - ☑ Inspect optics. Clean or replace if necessary,

6. **Gasses:**
   - ☑ Verify that the Gasses supplied to the instrument are within the pressure and purity specifications found in the PinAAcle 900 Series Pre-installation Checklist SDB.
   - ☑ Verify that the acetylene filter and air filter element is dry. Replace if necessary.

8.4 D_2 Background Compensation with Copper

Description: Verifies the instruments ability to compensate for Background absorption.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0061	Passed

8.5 AA-BG Baseline Noise with Copper

Description: Ensures that background correction does not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0003	Passed

8.6 AA-BG Baseline Noise with Arsenic

Description: Ensures that background correction does not produce excessive noise at a low wavelength.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0006	Passed

8.7 Flame Sensitivity

Description: Instrument Sensitivity checked against Copper standard.

Standard Copper Sensitivity	Specification	Results (Abs.)	Pass/Fail
5 mg/L Sensitivity SS Neb (if applicable)	> 0.250 Abs.	-	Not Applicable
2 mg/L Sensitivity HS Neb (if applicable)	> 0.250 Abs.	0.3578	Passed

10. Review:

- ☑ Review with the customer PM work performed.
- ☑ Review with the customer routine maintenance procedures.
- ☑ Discuss recommended customer supplied materials to have on hand.
- ☑ Attach PM sticker.

Additional Comments

Additional Comments Regarding the PM

Review

The preventive maintenance checks and if applicable performance tests for PinAAcle 900F have been completed.

This PinAAcle 900F Passes ☑ Fails ☐ the preventive maintenance.

Review of Preventive Maintenance:	
Authorized PerkinElmer Representative: [redacted]	Date: 04-Oct-2024 (DD-MMM-YYYY)
Authorized Customer Representative:	Date: 04-Oct-2024 (DD-MMM-YYYY)

Envilab Co. [redacted]

Component List

Component / Specific Model	Serial #	Firmware Version	Configuration Notes

Parts Lists

Parts Included with the PM				
Part Number (if applicable)	**Description**	**Quantity**	**Batch/Lot #**	**Expiration Date (MM/YY)**
B050 2706	Fan Filter	1	N/A	

Additional Tools Required for PM				
Part Number (if applicable)	**Description**	**Quantity**	**Serial #**	**Calibration Due Date (MM/YY)**
	Digital Volt Meter	1	N/A	
Additional Reagents and Standards Required for PM				
Part Number (if applicable)	**Description**	**Quantity**	**Batch/Lot #**	**Expiration Date (MM/YY)**

Atomic Absorption/FIAS 100/400 Preventive Maintenance (PM)

Company Name:	Envilab Co.,Ltd		
Address (Instrument Location):	540/1 ซอยบางแค 7, แขวงบางแค เขตบางแค กรุงเทพมหานคร 10160		
Room Number:	-		
Asset Number (if applicable):	100S20010501	**Customer System ID:**	
Service Engineer Name:	Khwanchai	**Service Order Number:**	WO-02944418
Date PM Performed: (DD-MMM-YYYY)	04-Oct-2024	**Next PM Due Date:** (DD-MMM-YYYY)	04-Apr-2025

Part Number	Release	Publication Date	
09370005	C	January 2013	PerkinElmer®

Scope
The purpose of this PM is to ensure the continued functionality of the Atomic Absorption/FIAS 100,400 by inspecting and replacing any worn or damaged parts. This service should only be performed by a trained representative of PerkinElmer.
The customer should save their method before the PM begins.

General Instructions:
Always check with the customer before making any changes that may affect the customer's analysis or calibration.
The completed document should be signed by an authorized PerkinElmer and customer representative and left with the customer.
Update the PM sticker and instrument logbook as required.

Copyright Information
This document contains proprietary information that is protected by copyright. All rights are reserved.
No part of this publication may be reproduced in any form whatsoever or translated into any language without the prior, written permission of PerkinElmer, Inc. **Copyright © 2013 PerkinElmer, Inc.**

Trademarks
Registered names, trademarks, etc. used in this document, even when not specifically marked as such, are protected by law. PerkinElmer is a registered trademark of PerkinElmer, Inc. All other trademarks and registered trademarks not owned by PerkinElmer, Inc. or its subsidiaries that are depicted herein are the property of their respective owners.
Except as specifically set forth in its terms and conditions of sale, PerkinElmer makes no warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.
PerkinElmer shall not be liable for incidental or consequential damages in connection with the furnishing or use of this document.

Envilab Co.,Ltd. [redacted]

Procedure Checklist

Use (✓) to check off those steps in the checklist that have been completed.

1. **General:**
   - ☑ Review the instrument performance with the customer and document any recent problems.

     _____

   - ☑ Is the Working Environment Acceptable? If not, document.

     _____

   - ■ Visual Damage (if yes, describe)

     _____

   - ☑ Check incoming AC line voltage for proper levels and grounding.
   - ☑ Verify Voltage switch on back of instrument is correct
   - ☑ Perform general inspection of system for cleanliness. Clean if needed.
   - ☑ Gas supply cylinders secured, lines leak checked and argon or nitrogen supply pressure verified (45 – 58 psi).
   - ☑ Inspect the customer log book and make any appropriate PM entries.
   - ☑ Fan checked and filter cleaned
   - ☑ Heating mantle or Universal Cell Holder checked

2. **Instrument components**
   - ☑ Non-return valve checked/repaired/replaced if needed (B019 8111). Clean the valve if there is any liquid in it. Replace the rubber sleeve (B013 5123) if it is worn. Check the flow meter for any signs of fluid in it. Clean the flow meter if needed.
   - ☑ Verify condition of pump pressure adjustment levers (B050 7794 - look for cracks or problems with the springs), pump rollers (B300 0251 check for wear), and thumb screws (B050 7796).
   - ☑ Check the Multiport valve for proper switching, flow, and insure there are no leaks. Clean valve parts and replace o-rings if needed (large o-ring: B050 1250, small o-ring: B004 5095). Use a squirt bottle & fishing line to try to dislodge clogs.
   - ☑ Firmware Version checked. Latest is 2.20.

3. **Mixing/Separation Assembly & Pump Tubing:**
   - ☑ Mixing separator assembly checked
   - ☑ Filter/membrane checked (B050 8306)
   - ☑ Condition of the pump tubing (replace if necessary), correct pump tubing for the solutions being run. Make sure the correct magazines are being used. B050 7791 for 0.13 – 1.80 mm tubing; B050 7792 for 1.60 – 3.18 mm tubing.

4. **Cell, Cell Windows, Transfer Line:**
   - ☑ Cell checked
   - ☑ Cell windows checked
   - ☑ Transfer line checked for moisture (if moisture is a problem, the Nafion dryer might be needed)

5. **Operational Tests:**
   - ☑ Run DI water through the carrier/reductant/sample system. Verify smooth flow of liquid throughout without leaks. Replace tubing & fittings if needed.

6. **Review:**
   - ☑ Review with the customer PM work performed.
   - ☑ Review with the customer routine maintenance procedures.
   - ☑ Discuss recommended customer-supplied materials to have on hand.
   - ☑ Attach PM sticker.
   - ☑ Update Logbook.

Analytik Jena AG & Co. Ltd.
[redacted]

Document History

Revision	Description of Change	Page(s)	Date
A	First release		May 2008
B	Addition of Batch/Lot Number, Expiration Date, and Report Fields.	2,7	February 2009
C	Update to new format	All	January 2013

Additional Comments

Additional Comments Regarding the PM

Review

The preventive maintenance checks and if applicable performance tests for FIAS 100/400 have been completed.

This FIAS 100/400 Passes ☑ ***Fails*** ☐ ***the preventive maintenance.***

Review of Preventive Maintenance:	
Authorized PerkinElmer Representativ [redacted]	Date: 04-Oct-2024 (DD-MMM-YYYY)
Authorized Customer Representative:	Date: 04-Oct-2024 (DD-MMM-YYYY)

Enviab Co.,Ltd. [redacted]

PerkinElmer
For the Better

PerkinElmer Scientific (Thailand) Co., Ltd.
290 Soi Soonvijai 4
Khwang Bangkapi, Khet Huay Kwang
Bangkok 10310
Thailand
Tel: 66 2719 6420 ; Fax: +66 2 319 7900
http://www.perkinelmer.com

Service Report

Work Order Number	Activity Code	Billing Type	Requested Start Date	Model	Serial Number
WO-02944418	Planned Maintenance	Contract	13/08/2567 10:13 น.	FIAS100	100S20010501

Service Representative Name	Contract Number	Expiry Date	Equipment ID	System ID
Siangwong, Khwanchai	SC-0035621885	04/05/2025	N/A	N/A

UDI Number
N/A

Equipment Location	Bill To Name
บริษัท เอ็นไวแล็บ จำกัด แขวงบางแค เขตบางแค กรุงเทพฯ 51 10160 TH	บริษัท เอ็นไวแล็บ จำกัด แขวงบางแค เขตบางแค กรุงเทพมหานคร 51 10160 TH

Customer Contact	Phone Number	Fax Number	Email	Purchase Order
คุณสมลักษณ์ สาดิมะ	N/A	N/A	tec@evltesting.com	PO6500333

Work Description

- Clean sample introduction, valve, menifold, instrument exterior
- Perform instrument operation
- Instrument work normally

Start Date	End Date	Work Description
04/10/2024	04/10/2024	
04/10/2024	04/10/2024	

Tools Used

Quantity	Calibrated Tool	Description	Serial Number	Last Calibration Date	Next Calibration Date
*** No Calibrated Tools Used ***					

Material Used

Part Number	Part Description	Note	Lot/Serial Number	Quantity
*** No Parts Used ***				

Labour Details

Part Number	Part Description	Start Date	Quantity
SV000013	Preventative maintenance	04/10/2024	1
SV000004	Service F.O.C. Travel	04/10/2024	1

Work Complete	
Yes ☑ No ☐	[redacted]
PM/OQ/IPV Left with Customer	
Yes ☑ No ☐	

Terms & Conditions
Customer Acknowledgment of receipt of the above repair / replacement
Special Terms and Conditions: This is not an invoice
Taxes will be applied to your invoice if applicable

Envilab Co.,Ltd.
[redacted]

This Certificate has been generated electronically from PerkinElmer Learning Management System, LMS ES-009-000, 0-05-55-11.

Print Date Nov 17, 2016, 8:31 AM

Global Training Leader

Certified By: Fred Rubino

Completed on 8/17/2016 06:00 AM Eastern/New York

FIAS 100 & 400 System

Has successfully completed

Khwanchai Siangwong

This certifies that

Certificate of Completion

PerkinElmer

Certificate of Completion

This certifies that

Khwanchai Siangwong

Has successfully completed

AA PinAAcle 900 T, H, Z, F and 500

Completed on 4/7/2017 05:00 AM Eastern/New York

Certified By: Fred Rubino

Global Training Leader

Print Date May 19, 2017, 2:42 AM

This Certificate has been generated electronically from PerkinElmer Learning Management System, LMS ES-009-000, 0-05-55-11.

Envilab Co.,Ltd. [redacted]

PerkinElmer
For the Better

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, CT 06484-4794, U.S.A.

CERTIFICATE OF CALIBRATION

Test Standard for Instrument Performance Validation

(ISO 9000, GMP, GLP)

This is to certify that this PerkinElmer Reference Standard was tested and verified to be in conformance with all applicable quality requirements, including specifications, drawings, calibration, preservation, packing, marking requirements and part identification.

Declaration of Validation

The Reference Standard was found to meet its functional and performance specification prior to shipment. To support this declaration, the following Engineering, Production and Test Documents are held by PerkinElmer and are available for reference upon request in justified cases and to an appropriate extent:

The Test Specification
The Final Test Protocol
The Records of the Primary Standard
The Calibration Records

Note: PerkinElmer will maintain possession of all documents; their reproduction may require a nondisclosure agreement to be provided by those requiring access to them.

The existence of these documents and the procedures used in their production are formal requirements of the PerkinElmer Quality System. The integrity of this PerkinElmer Quality System is routinely audited and is certified by the British Standards Institution as meeting all the requirements of ISO 9001, the internationally recognized standard for Quality Assurance.

This document shall not be reproduced except in full without the express written approval of the PerkinElmer UV Standards Certification Laboratory.

[redacted]

PerkinElmer Inc., Shelton, CT 06484 USA An ISO 9001 Company

MCL CoC.DOC
yright 2003 PerkinElmer, Inc.
inElmer is a registered trademark of PerkinElmer, Inc.

[redacted]

Envilab Co.,Ltd.

Secondary Spectrometric Calibration Standards

Certificate of Calibration

Ordinate Calibration

Calibration Data for Secondary Calibration Standards:

Wavelength / Absorbance	Number	Ordinate Reading (Absorbance) at the following wavelengths:							
Wavelength		193.70	324.80	553.60	786.50				
Standard 1	MG0-056	0.2483	0.1857	0.1806	0.1674				

The tolerance of the given absorbance values is +/-0.006 A in the ultra violet and visible range, and +/- 0.010 A in the near infrared range. The uncertainty is the sum of the tolerance of the primary NIST/PTB reference material, the measurement reproducibility, and an estimated bias due to the possible systematic errors.

We recommend that you recalibrate this set of spectrometric standards once a year.

Conditions of Calibration

The following settings were used on the Lambda 900 UV/Vis/NIR Spectrometer employed to obtain the calibration data quoted on this certificate:

Measurement of Calibration

Ordinate mode	Absorbance		
Slit mode UV/Vis	Fix	Slit UV/Vis	1 nm
Integration time UV/Vis	5 s		
Slit mode NIR	Servo	Slit NIR	Servo
Integration time NIR	5 s	Gain	2

The instrument's wavelength program facility was used to measure the absorbance of the standards at the wavelength given above.

This set of Spectrometric Solution was calibrated on a PerkinElmer high performance Lambda 900 UV/Vis/NIR Spectrometer.

Serial Number: 89015

This instrument is used solely for calibration purposes. The most recent quality control check of this instrument was performed on:

Date / Time: 9/18/2010

using the standard PerkinElmer quality control procedure. A set of NIST or NBS/PTB Standard Reference Standard Materials certified on:

Date: NIST 1930 S/N 155 11/05/2009

was used during this procedure. Measurements were performed at an ambient temperature of: 25.6 C° and the humidity of: 14 %

Date / Time: 12/20/2010 / 1:48:28 PM

Operator: Cam Le Horvath Signature: [redacted]

PerkinElmer Instruments, 710 Bridgeport Avenue, Shelton, CT 06484-4794

PerkinElmer
For the Better

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, CT 06484-4794, U.S.A.

CERTIFICATE OF CALIBRATION

Test Standard for Instrument Performance Validation

(ISO 9000, GMP, GLP)

This is to certify that this PerkinElmer Reference Standard was tested and verified to be in conformance with all applicable quality requirements, including specifications, drawings, calibration, preservation, packing, marking requirements and part identification.

Declaration of Validation

The Reference Standard was found to meet its functional and performance specification prior to shipment. To support this declaration, the following Engineering, Production and Test Documents are held by PerkinElmer and are available for reference upon request in justified cases and to an appropriate extent:

- **The Test Specification**
- **The Final Test Protocol**
- **The Records of the Primary Standard**
- **The Calibration Records**

Note: PerkinElmer will maintain possession of all documents; their reproduction may require a nondisclosure agreement to be provided by those requiring access to them.

The existence of these documents and the procedures used in their production are formal requirements of the PerkinElmer Quality System. The integrity of this PerkinElmer Quality System is routinely audited and is certified by the British Standards Institution as meeting all the requirements of ISO 9001, the internationally recognized standard for Quality Assurance.

This document shall not be reproduced except in full without the express written approval of the PerkinElmer UV Standards Certification Laboratory.

[redacted]
PerkinElmer Instruments
Shelton, CT. USA

PKI RMCL CoC.DOC

Copyright 2003 PerkinElmer, Inc.
PerkinElmer is a registered trademark of PerkinElmer, Inc.

[redacted]

PerkinElmer Secondary Spectrometric Calibration Standards

Certificate of Calibration ***for*** ***Report Number: MG2-054-20110324***

Ordinate Calibration

Calibration Data for Gray Glass Secondary Calibration Standards:

Wavelength / Absorbance	Number	Ordinate Reading (Absorbance) at the following wavelengths:							
Wavelength		193.70	324.80	553.60	766.50				
Standard 1	MG2-054	1.0904	1.0082	1.0531	1.0170				

The uncertainty of the given absorbance values is +/-0.003 A at the given wavelengths.
The uncertainty is the expanded uncertainty expressed at an approximate level of confidence of 95% and a coverage factor of k=2 based on JCGM 100:2008 Evaluation of measurement data - Guide to the expression of uncertainty in measurement.

Conditions of Calibration

The following settings were used on the Lambda 900 UV/Vis/NIR Spectrometer employed to obtain the calibration data quoted on this certificate:

Measurement of Calibration

Ordinate mode	Absorbance		
Slit mode UV/Vis	Fix	Slit UV/Vis	1 nm
Integration time UV/Vis	5 s		
Slit mode NIR	Servo	Slit NIR	Servo
Integration time NIR	5 s	Gain	2

The instrument's wavelength program facility was used to measure the absorbance of the standards at the wavelength given above.

This set of Spectrometric Solution was calibrated on a PerkinElmer high performance Lambda 900 UV/Vis/NIR Spectrometer.

Serial Number: 89015

This instrument is used solely for calibration purposes. The most recent quality control check of this instrument was performed on:

Date / Time: 3/17/2011

using the standard PerkinElmer quality control procedure. A set of NIST or NBS/PTB Standard Reference Standard Materials:

NIST model SRM 1930 filter set S/N 155 Calibration Date 11/05/2009 NRC Calibration Report No.PAR 2009 2759

was used during this procedure. Measurements were performed at an ambient temperature of: 24.1 C° and the humidity of: 18 %

Date / Time: 3/24/2011 / 11:15:32 AM

Operator: Cam Le Horvath Signature: [redacted]

PerkinElmer LAS, Inc. , 710 Bridgeport Avenue, Shelton, CT 06484-4794, US

End of Report

PerkinElmer
For the Better

PerkinElmer Scientific (Thailand) Co., Ltd.
290 Soi Soonvijai 4
Khwang Bangkapi, Khet Huay Kwang
Bangkok 10310
Thailand
Tel: 66 2719 6420 ; Fax: +66 2 319 7900
http://www.perkinelmer.com

Service Report

Work Order Number	Activity Code	Billing Type	Requested Start Date	Model	Serial Number
WO-02944419	Planned Maintenance	Contract	20/08/2567 20:00 น.	AAN3200051	PFBS20011403

Service Representative Name	Contract Number	Expiry Date	Equipment ID	System ID
Kanan, Chayanan	SC-0035621885	04/05/2025	N/A	N/A

UDI Number
N/A

Equipment Location	Bill To Name
บริษัท เอ็นไวแล็บ จำกัด แขวงบางแค เขตบางแค กรุงเทพฯ 51 10160 TH	บริษัท เอ็นไวแล็บ จำกัด แขวงบางแค เขตบางแค กรุงเทพมหานคร 51 10160 TH

Customer Contact	Phone Number	Fax Number	Email	Purchase Order
คุณสมลักษณ์ สำดีนะ	N/A	N/A	tec@evltesting.com	PO6500333

Work Description

- Clean sample Introduction, mirrors, lens, instrument exterior
- Perform WLCal and Instrument test
- Replaced PM Kits
- Instrument work normally

Start Date	End Date	Work Description
04/10/2024	04/10/2024	
04/10/2024	04/10/2024	

Tools Used

Quantity	Calibrated Tool	Description	Serial Number	Last Calibration Date	Next Calibration Date
*** No Calibrated Tools Used ***					

Material Used

Part Number	Part Description	Note	Lot/Serial Number	Quantity
*** No Parts Used ***				

Labour Details

Part Number	Part Description	Start Date	Quantity
SV000013	Preventative maintenance	04/10/2024	4
SV000004	Service F.O.C. Travel	04/10/2024	1

[redacted]

Envilab Co.,Ltd.

PerkinElmer

PerkinElmer TruQ

PerkinElmer Number: N9300183
Element and Matrix: 1000 µg/mL Copper in 2% HNO3
Starting Material: Copper Metal
Starting Material Lot No: 06201C
Density: 1.011 g/mL @ 20°C

Lot No: 27-39CUY1
Certification Date: OCT - - 2023
Expiration Date: APR 3 0 2025

Trace Metallic Impurities in the Actual Solution via ICP / ICP-MS Analysis:

Element	µg/mL	Element	µg/mL	Element	µg/mL	Element	µg/mL	Element	µg/mL
Ag	0.001	Dy	<0.001	Li	<0.001	Pt	<0.001	Tb	<0.001
Al	0.003	Er	<0.001	Lu	<0.001	Rb	<0.005	Te	<0.001
As	<0.001	Eu	<0.001	Mg	0.002	Re	<0.001	Th	<0.001
Au	<0.001	Fe	0.02	Mn	<0.001	Rh	0.002	Ti	<0.001
B	<0.001	Ga	<0.001	Mo	<0.001	Ru	<0.001	Tl	<0.001
Ba	<0.001	Gd	<0.001	Na	<0.001	Sb	0.004	Tm	<0.001
Be	<0.001	Ge	<0.001	Nb	<0.001	Sc	<0.001	U	<0.001
Bi	<0.001	Hf	<0.001	Nd	<0.001	Se	<0.006	V	<0.001
Ca	<0.01	Hg	<0.001	Ni	<0.002	Si	<0.1	W	<0.001
Cd	<0.001	Ho	<0.001	P	<0.5	Sm	<0.001	Y	<0.001
Ce	<0.001	In	<0.001	Pb	0.004	Sn	0.002	Yb	<0.001
Co	<0.001	Ir	<0.001	Pd	<0.001	Sr	<0.001	Zn	<0.02
Cr	<0.001	K	0.5	Pr	<0.001	Ta	<0.001	Zr	<0.001
Cs	<0.001	La	<0.001						

Traceability Documentation for Solution Standard:

Certified Value: 999 µg/mL ±5 µg/mL (refer to side 2)
Certified Value is Traceable to: NIST SRM #3114
*** Classical Wet Assay:** 998 µg/mL
Method: EDTA titration using PAN as indicator. EDTA standardized against $Pb(NO_3)_2$ NIST SRM #928.

***Instrument Analysis using ICP Spectrometer:** 1000 µg/mL
via NIST SRM #3114

We guarantee that our PerkinElmer TruQ Atomic Spectroscopy Standards are stable and accurate to ±0.5% of certified concentration until the expiration date, provided the standards are kept tightly capped and stored under normal laboratory conditions. This value is the sum of cumulative errors associated with the analytical determinations, pipetting, and diluting to final volume. For these solutions we use high purity acids, ASTM Type 1 water (18 megohm double deionized), and leached, triple-rinsed bottles. All glassware used is class A.

Certifying Officer: [redacted]

Work Complete	[redacted]
Yes ☑ No ☐	
PM/OQ/IPV Left with Customer	
Yes ☑ No ☐	

Terms & Conditions
Customer Acknowledgment of receipt of the above repair / replacement
Special Terms and Conditions: This is not an invoice
Taxes will be applied to your invoice if applicable

Envilab Co.,Ltd.

[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : 68-410024-1 **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Digital Thermo-Hygrometer

Manufacturer :	Jedto	Model :	HTC-1
Range Temperature :	-10 °C to 50 °C	Resolution :	0.1 °C
Range Humidity :	20 %R.H. to 90 %R.H.	Resolution :	1 %R.H.
Serial No. :	PONPE5852094	ID No. :	ELABTMHTC10003

Environment : Ambient Temperature : (23 ± 2) °C
Relative Humidity : (50 ± 15) %

Date of Received : 17 February 2025
Date of Calibration : 22 February 2025
Date of Issue : 22 February 2025
Calibrated by : Chortip Samchusri

Calibration Method : This instrument was calibrated by In-house method comparison technique CAL-M4013 by compared with standard probe sensor humidity/temperature into humidity/temperature chamber.

Reference Standard Instruments : [redacted]tional System of Units

Digital Indicator with Standard Probe Temp[redacted]

ID No.	Cert. No.	Due Date	Traceability
400034 & 400036	SG-H-00001/68	04 Jul 2025	Success Gateway Co., Ltd., Accredited by TISI Calibration No.0268

App[redacted]
Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full except with the prior written approval [redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-410024-1

UUC Condition As-Received : Good

Result of Calibration : Without Adjustment

Function : Temperature measurement

Reference Humidity @ 50 %R.H.

Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
25.00	24.9	0.1	0.46

Result of Calibration : Without Adjustment

Function : Humidity measurement

Reference Temperature @ 25 °C

Standard Humidity (%R.H.)	UUC Reading (%R.H.)	Correction (%R.H.)	Uncertainty (±%R.H.)
50.03	50	0	2.2

Remark

UUC : Unit Under Calibration

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

รับรองสำเนาถูก
ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C08250053

Calibration Certificate

Equipment:	pH METER		
Model:	F-74BW	Job No.:	KSMT2501044
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	26.1 °C	±	0.3	°C
Humidity:	50.2 %RH	±	1.1	%RH

The Method used

In-house method, WI08, based on ASTM E 70-07

Traceability

This certificate is traceable to SI Units, Sample Test is assured through primary meaurement method Harned cell, through CPAchem Ltd. (ISO17034) Certificate No. 1066714, 1066714, 1066716, pH Scale and Temperature test are traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through Industrial Foundation Electrical and Electronics Institute Certificate No. CA20250010EA, through SCIMET Co., Ltd. Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

(Mr. Thalernkeat Poungpeam)

Envilab Co.,L

[redacted]

SCIMET

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard Buffer solution	4.007 pH	PH216.L5	1066714	18-Jan-27
Standard Buffer solution	6.965 pH	PH107.L5	1066714	18-Jan-26
Standard Buffer solution	10.010 pH	PH220.L5	1066716	18-Jan-26
DC Voltage and Current Calibrator / XITRON		2000MN	CA20250010EA	19-Jan-26
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

pH Scale

Input	pH Meter Reading			Uncertainty of Measurement (mV)	Coverage Factor *(k)*
(mV)	(mV)	Error (mV)	(pH)		
414.12	414.2	0.08	0.000	0.065	2.00
354.96	355.0	0.04	1.000	0.065	2.00
295.80	295.8	0.00	2.000	0.065	2.00
236.64	236.7	0.06	3.000	0.065	2.00
177.48	177.5	0.02	4.000	0.065	2.00
118.32	118.4	0.08	5.000	0.065	2.00
59.16	59.2	0.04	6.000	0.065	2.00
0.00	0.0	0.00	7.000	0.065	2.00
-59.16	-59.1	0.06	8.000	0.065	2.00
-118.32	-118.2	0.12	9.000	0.065	2.00
-177.48	-177.4	0.08	10.000	0.065	2.00
-236.64	-236.6	0.04	11.000	0.065	2.00
-295.80	-295.7	0.10	12.000	0.065	2.00
-354.96	-354.9	0.06	13.000	0.065	2.00
-414.12	-414.0	0.12	14.000	0.065	2.00

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Electrode Test Results*

The three-point calibration using three standard buffer solutions; pH 4.007 , pH 6.965 and pH 10.010

The practical slope of the pH electrode; 58.31 (mV/pH), 98.57%

The zero point of the pH electrode; 6.58 (pH)

Sample Test Results

Electrode Serial No.: 9X1K0003

Model: 9615S

Manufacturer: HORIBA

Standard Buffer Solution (pH)	Unit Under Calibration (pH)	Difference (pH)	Uncertainty of Measurement (pH)	Coverage Factor (*k*)
4.007	3.995	-0.012	0.011	2.43
6.965	6.970	0.005	0.011	2.07
10.010	10.019	0.009	0.0089	2.06

Temperature Electrode

Dimension of Probe;

Length : 100 mm

Diameter : 12 mm

Immersion Depth : 80 mm

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Uncertainty of Measurement (±°C)	Coverage Factor *(k)*
25.03	25.0	0.03	0.20	2.00

* Calibration Marked for Electrode Test" Not TISI Accredited " in this Certificate have been included for completeness.

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง pH Meter

เลขที่ใบงาน: KSMT2501044

ชนิดเครื่องมือ: pH METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☐	☑	8. ระดับสารละลายใน Electrode (Level KCl)	☑	☐	
☑	☐	9. ฝาปิดกันปลาย Electrode (Dust Protection Hood)	☑	☐	
☑	☐	10. ขาจับอิเล็กโทรด (Stand)	☑	☐	

เพิ่มเติม/ข้อแนะนำ : _____

_____

_____

Mr. Dumrong Boonsopon
Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **67-400639-1** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Temperature controlled enclosure (Refrigerator)
Manufacturer : M-LAB Model : BIC-140
Range : N/A °C Resolution : 0.1 °C
Serial No. : 1011 ID No. : ELABBODC140N03

Environment : On site calibration was carried out at the Laboratory, Envilab Co., Ltd.
Ambient Temperature : (24.4 to 25.0) °C
Relative Humidity : (40 to 45) %
Line Voltage : (227.0 to 230.0) V

Date of Received : 07 November 2024
Date of Calibration : 07 November 2024
Date of Issue : 13 November 2024
Calibrated by : Permpon Chanpu
Calibration Method : CAL-M4004, TLAS G-20
The temperature scale used was based on ITS-90

Reference Standard Instruments : This certification is traceable to the International System of Units
Standard Digital Thermometer with RTD Probe

ID No.	Cert. No.	Due Date	Traceability
400046 & 400042	67-400442-1	26 Jan 2025	National Institute of Metrology Thailand (NIMT)

App[redacted]
Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the C[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

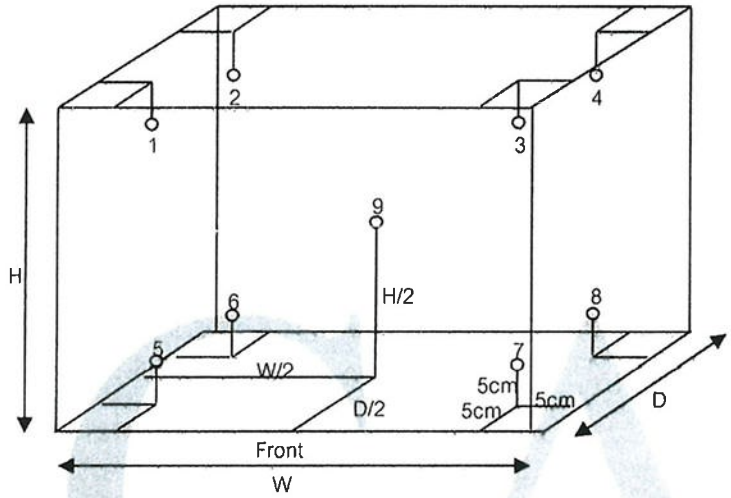
Certificate No. : 67-400639-1

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

This instrument was setting air ventilation at position 0 (close)



Inside of Chamber
W = 0.38 m
D = 0.35 m
H = 1.15 m
Capacity = 0.15 m^3

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Temperature (°C) @ Sensor No.									Uncertainty (±°C)
			1	2	3	4	5	6	7	8	9	
4.0	4.0	4.0	4.09	3.41	3.76	3.42	4.48	4.47	4.49	4.31	4.27	0.36

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Uniformity (°C)	Measured Stability (°C)	Overall Variation (°C)
4.0	4.0	4.0	0.88	0.04	1.13

Remark The uncertainty is not combine uniformity of the air chamber

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17240307

Calibration Certificate

Equipment: Cooled Incubator

Model:	BIC-140	Job No.:	KSMT2402653
Serial No.(or ID):	100613-1 (ELABBODC140NO1)	Received Date:	27 September 2024
Manufacturer:	M-LAB	Issued Date:	30 September 2024
Condition:	In Condition	Page:	1 of 3
Ventilation Valve:	None Shelves(pc.): 5		

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

27 September 2024

Environment Condition

Temperature:	20.8 °C	±	1.0	°C
Humidity:	54.8 %RH	±	2.6	%RH

The Method used

In-house method, WI17, based on TLAS-G20

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd.Certificate No. C23240083

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty In Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

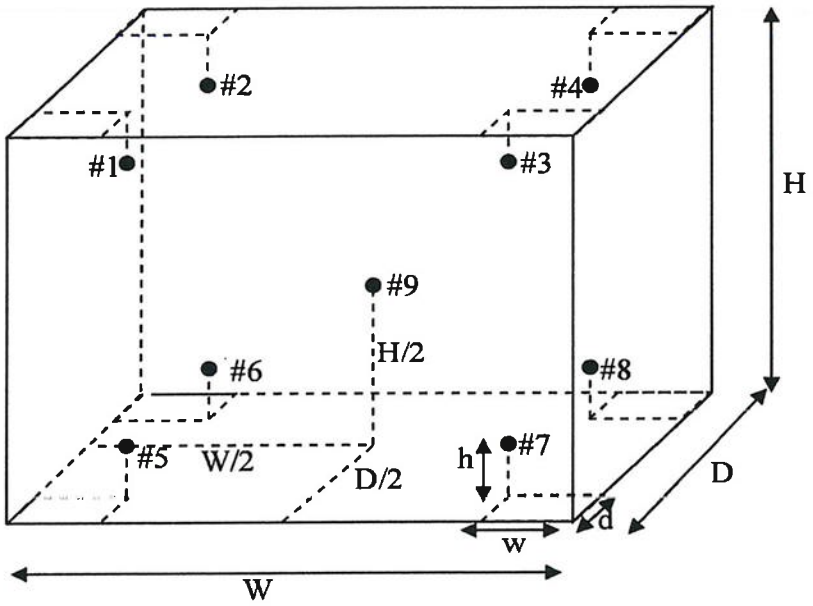
[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

Envilab Co.,Ltd.



Standard Installation Locations

Volume (Calibration Zone)= 58 (Liters)

Inside chamber:	W = 38 (cm)	D = 32 (cm)	H = 114 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 10 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 10 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	201	202	203	204	205	206	207	208	209

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	19.54	-0.46	0.38
#2	19.49	-0.51	0.39
#3	19.87	-0.13	0.39
#4	20.04	0.04	0.37
#5	20.36	0.36	0.36
#6	20.21	0.21	0.37
#7	20.10	0.10	0.36
#8	20.19	0.19	0.37
#9	20.48	0.48	0.35

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
20.0	20.0	20.0	19.54	19.49	19.87	20.04	20.36	20.21	20.10	20.19	20.48	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
20.0	1.07	0.18	1.26

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted]

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, TLAS-G20. Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule : ☐ Choice A Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.

☑ Choice B Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.

☐ Choice C Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD.
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

Without adjustment

Desired Temperature : 20.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	19.54	-0.46	0.38	1.0	Pass
#2	19.49	-0.51	0.39	1.0	Pass
#3	19.87	-0.13	0.39	1.0	Pass
#4	20.04	0.04	0.37	1.0	Pass
#5	20.36	0.36	0.36	1.0	Pass
#6	20.21	0.21	0.37	1.0	Pass
#7	20.10	0.10	0.36	1.0	Pass
#8	20.19	0.19	0.37	1.0	Pass
#9	20.48	0.48	0.35	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

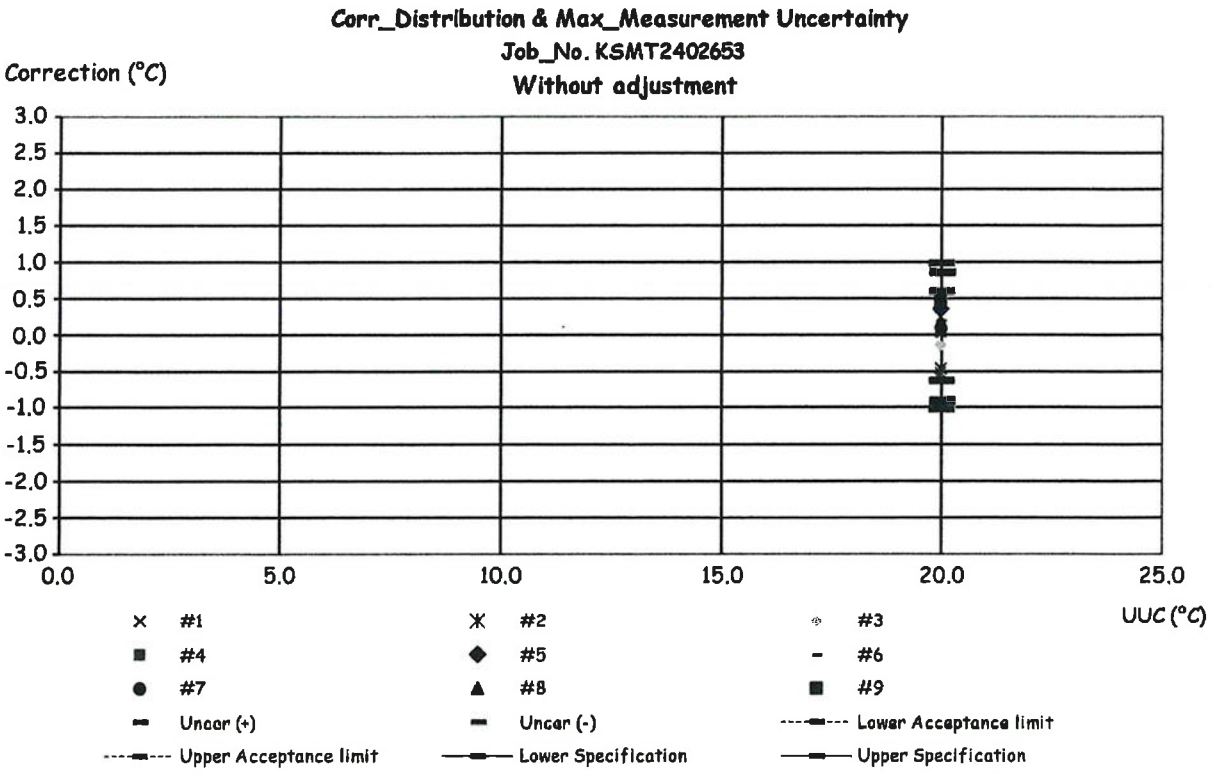
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

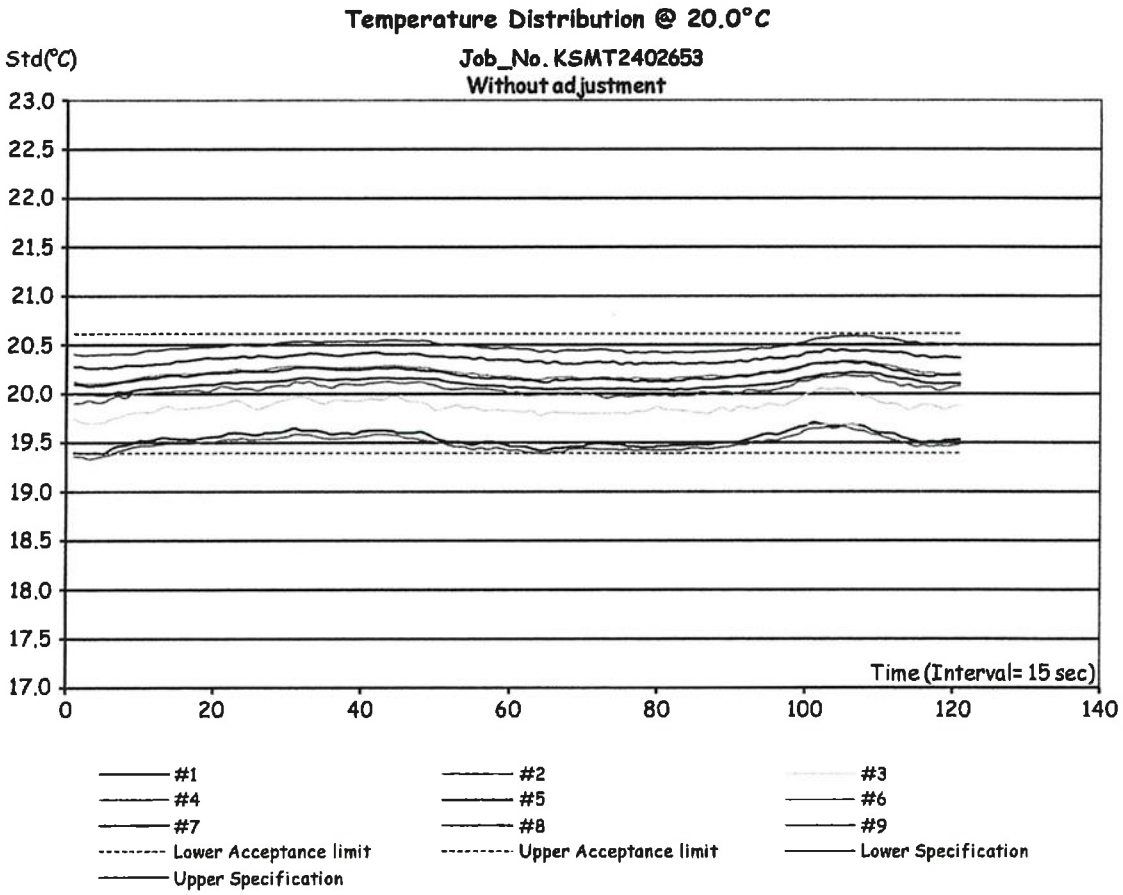
The End of Statements of Conformity

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239





[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2402653

ชนิดเครื่องมือ: Cooled Incubator รุ่น: BIC-140

หมายเลขเครื่อง: 100613-1 (ELABBODC140NO1)

ตรวจสอบ (รับ) 27 Sep 2024		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 27 Sep 2024		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☐	☐	6. สภาพ Lever of Ventilation valve	☐	☐	-
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☑	☐	10. การทำงานของระบบทำความเย็น	☑	☐	
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Mongkolwat Hasanon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel:095-552-4939

Certificate No. C27250001

Calibration Certificate

Equipment:	DO METER		
Model:	HI9146	Job No.:	KSMT2501049
Serial No.(or ID):	GOOO7931 (ELABDOHI914601)	Received Date:	17 March 2025
Manufacturer:	HANNA	Issued Date:	18 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Environment Laboratory, SCIMET Co., Ltd.

1194 Soi Wachirathamsathit 57, Bangchak, Prakhanong, Bangkok 10260 Thailand

Calibration Date

17 March 2025

Environment Condition

Temperature:	23	°C	±	2	°C
Humidity:	50	%RH	±	15	%RH

The Method used

In-house method, WI27 , By comparison with certified dissloved oxygen solution standard

Traceability

This is certificate is traceable to SI Units , Sample test and temperature test are assured through HANNA instruments company certificare No. 26I42, through Quality Reborn Co.,LTD certificare No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

[redacted]

Authorized signatory

รับรองสำเนาถูกต้อง
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Calibration Results:

Electrode Serial No. -

Model : -

Brand : HANNA

Electrode Test

Atmospheric pressure measured while calibrating.	756.36	mmHg		
Temperature measured while calibrating.(± 0.2 °C)	24.7	°C		
The Oxygen Solubility was calculated from the ambient conditions.	8.27	±	0.03	mg/L
The Oxygen Solubility reading from the DO METER	-	mg/L		

Sample Test

Standard Oxygen Solution	Unit Under Calibration Reading	Correction	Coverage Factor (k)	Uncertainty of Measurement (±)
0.0 %	0.0 %	0.0 %	2.00	0.20 %

Temperature Electrode

Dimension of Probe;

Length : 85 mn.

Diameter : 18 mn.

Immersion Depth 80 mn.

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.01	25.6	-0.59	2.00	0.15

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com Tel: 095 552 4939

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Do Meter

เลขที่ใบงาน: KSMT2501049

ชนิดเครื่องมือ: DO METER รุ่น: HI9146 หมายเลขเครื่อง: GOOO7931

ตรวจสอบ (รับ) 17 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 17 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ :

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com. Tel: 095 552 4939

Envilab Co.,Ltd.

MIRACLE INTERNATIONAL TECHNOLOGY CO.,LTD
214 Bangwaek Rd. Bangpai Bangkae Bangkok 10160
Tel.: 0-2865-4647-8 Fax: 0-2865-4649 http://www.mit.in.th

CALIBRATION CERTIFICATE

Certificate No. : S2024080486-0002
Date Issued : 27-Aug-24

Customer	:	Envilab Co., Ltd. 540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok, Thailand 10160
Equipment	:	COD test tube heater with 25 vial
Manufacturer	:	HANNA
Model	:	HI839800
Serial No.	:	6480043101
ID No./Tag No.	:	ELABHI83980002
Date Received	:	23-Aug-24
Date Calibrated	:	23-Aug-24
Calibrated by	:	Akaladej Numnuan

Calibration Method or Calibration Procedure Used

In-house method : CP-49 base on TLAS G-20 by comparing against Standard Thermometer.

This certificate is traceable to national standards, which realize the units of measurement according to the International System of Units (SI).

Result of Calibration

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor k = 2, providing a level confidence approximately 95 percent.

This certificate may not be reproduced other than in full except with the prior written approval of the Miracle International Technology Company Limited.

Approved b [redacted]

CERTIFIED MIT

[redacted]

Envilab Co.,Ltd.

Certificate No. : S2024080486-0002

Environment : Ambient Temperature : Start record 25.3 °C, Stop record 25.4 °C

Relative Humidity : Start record 51.2 %RH, Stop record 52.3 %RH

Calibration Temperature (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Stability[1] (°C)	Measured Uniformity[2] (°C)	Overall Variation[3] (°C)
150	150	150	0.80	1.65	2.24

Calibration Temperature (°C)	Standard Reading (°C), Probe No. 13 is Reference Probe					Uncertainty[4] (±°C)
150	**No. 1**	**No. 2**	**No. 3**	**No. 4**	**No. 5**	1.4
	150.12	150.28	150.43	149.66	150.03	
	No. 6	**No. 7**	**No. 8**	**No. 9**	**No. 10**	
	149.74	149.98	149.83	150.77	150.60	
	No. 11	**No. 12**	**No. 13**	**No. 14**	**No. 15**	
	150.01	150.49	150.19	150.13	150.20	
	No. 16	**No. 17**	**No. 18**	**No. 19**	**No. 20**	
	150.80	149.98	150.21	149.52	149.44	
	No. 21	**No. 22**	**No. 23**	**No. 24**	**No. 25**	
	150.16	150.32	149.97	149.96	150.11	

Decision Rule with Guard Band

Calibration Temperature (°C)	Pass / Fail					MPE (±°C)
	No. 1	**No. 2**	**No. 3**	**No. 4**	**No. 5**	
150	Pass	Pass	Pass	Pass	Pass	2
	No. 6	**No. 7**	**No. 8**	**No. 9**	**No. 10**	
	Pass	Pass	Pass	Failed	Pass	
	No. 11	**No. 12**	**No. 13**	**No. 14**	**No. 15**	
	Pass	Pass	Pass	Pass	Pass	
	No. 16	**No. 17**	**No. 18**	**No. 19**	**No. 20**	
	Failed	Pass	Pass	Pass	Pass	
	No. 21	**No. 22**	**No. 23**	**No. 24**	**No. 25**	
	Pass	Pass	Pass	Pass	Pass	

Pass = **|error|<= |MPE|** **MPE =** **Maximum Permissible Error**

Fail = **|error| > |MPE|**

Without adjustment

No.1	**No.2**	**No.3**	**No.4**	**No.5**
No.6	**No.7**	**No.8**	**No.9**	**No.10**
No.11	**No.12**	**No.13**	**No.14**	**No.15**
No.16	**No.17**	**No.18**	**No.19**	**No.20**
No.21	**No.22**	**No.23**	**No.24**	**No.25**

Top view position

Condition As-Received : Used Item

The measurment results and statements of conformity with specification only relate to the item calibrated.

Measurement Standards Used & Traceabilitly :

The International System of Units (SI) through

MIT Certificate No. L202403007-0011 for Digital Thermometer with Probe (Agilent) Module 2 (73) TC Serial No. MY44024042, Due 10-Sep-24

Notes : 1. The temperature stability is the one-half of greatest maximum difference of measured temperatures at any one probe.

2. The temperature uniformity is the maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time.

3. Overall variation is the difference of maximum and minimum measured temperatures throughout observation time.

4. The uncertainty of measurement is included temperature stability.

End of Certificate

[redacted]

Envilab Co.,Ltd.

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C18250038

Calibration Certificate

Equipment:	Liquid Bath		
Model:	WNB14	Job No.:	KSMT2501047
Serial No.(or ID):	L412.2222 (ELABWBWNB14N01)	Received Date:	19 March 2025
Manufacturer:	Memmert	Issued Date:	24 March 2025
Circulation:	None	Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	28.1 °C	±	0.5	°C
Humidity:	49.2 %RH	±	3	%RH

The Method used

In-house method, WI18, based on ASTM E715-1980 (reapproved 2022)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

SCIMET CO.,LTD

Person in charge

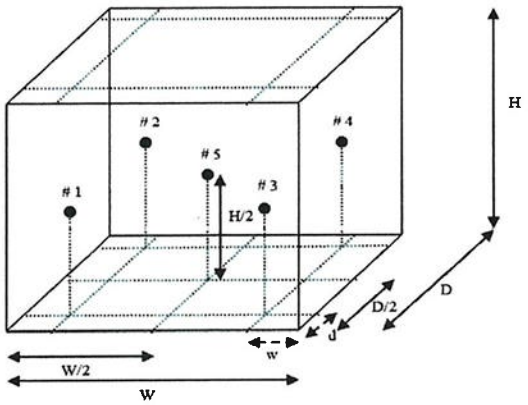
[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration item : In Condition



Standard Installation Locations

Midway between the diffuser plate and the water surface

Inside bath: W = 37 (cm) D = 33 (cm) H = 16 (cm) Volume = 20 (Liters)

Standard Locations #1: w = 5 (cm) d = 5 (cm)

Standard Locations #2: w = 5 (cm) d = 5 (cm)

Standard Locations #3: w = 5 (cm) d = 5 (cm)

Standard Locations #4: w = 5 (cm) d = 5 (cm)

Standard Locations #5: Center of any probes. (#1 - #4)

Position of Std	#1	#2	#3	#4	#5
Channel of Logger	101	102	103	104	105

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the bath.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the bath at steady-state. The reference probe is preferably located in the geometric center of the bath.

Measured Stability: The one-half of greatest maximum difference of measured tempera

Overall Variation: The difference of maximum and minimum measured temperatures th

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	95.08	0.08	0.20
#2	95.12	0.12	0.20
#3	95.03	0.03	0.20
#4	95.07	0.07	0.20
#5	95.08	0.08	0.20

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)					Uncertainty (± °C)*
			#1	#2	#3	#4	#5	
95.0	94.5	94.5	95.08	95.12	95.03	95.07	95.08	0.20

Bath Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
94.5	0.12	0.09	0.28

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E715-1980 (reapproved 2022). Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET CO.,LTD. บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

Without adjustment

Desired Temperature : 95.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	95.08	0.08	0.20	1.0	Pass
#2	95.12	0.12	0.20	1.0	Pass
#3	95.03	0.03	0.20	1.0	Pass
#4	95.07	0.07	0.20	1.0	Pass
#5	95.08	0.08	0.20	1.0	Pass

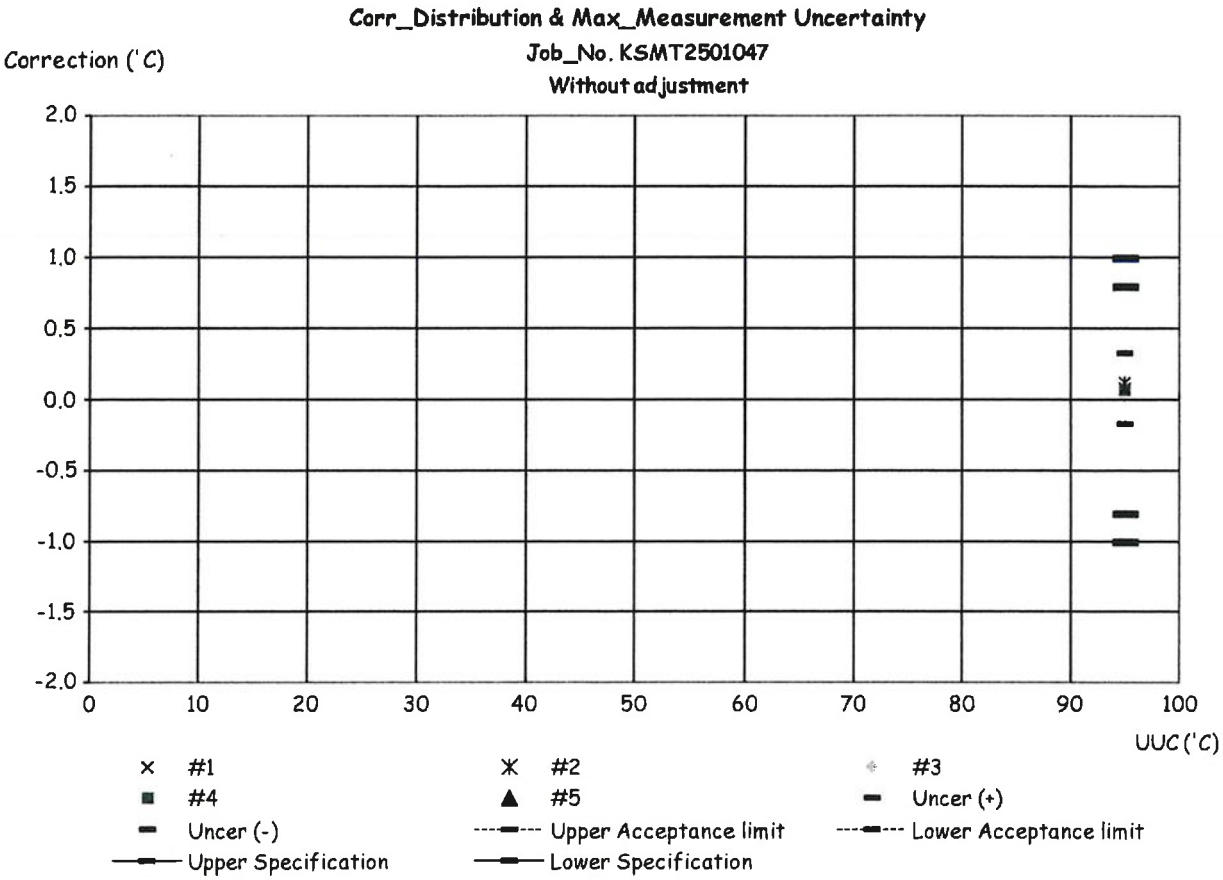
Correction of UUC.* = Measured Temperature - Desired Temperature

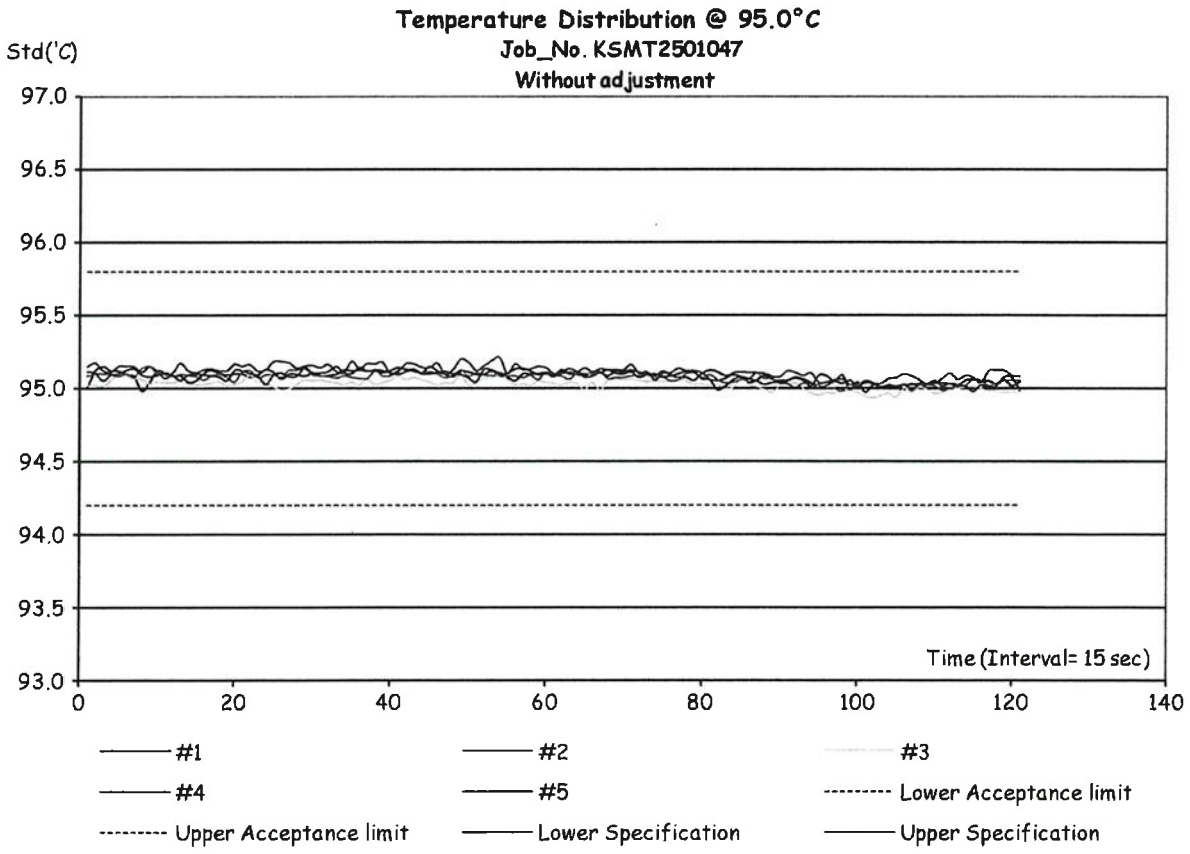
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





Enviiab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501047

ชนิดเครื่องมือ: Liquid Bath รุ่น: WNB14

หมายเลขเครื่อง: L412.2222

ตรวจสอบ (รับ) 19 Mar 2025 ปกติ	ตรวจสอบ (รับ) 19 Mar 2025 ไม่ปกติ	รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025 ปกติ	ตรวจสอบ (ส่ง) 19 Mar 2025 ไม่ปกติ	หมายเหตุ
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☐	☐	5. การทำงาน Circulator	☐	☐	ไม่มี
☑	☐	6. สภาพ Lever door open / close	☑	☐	
☑	☐	7. ท่อระบายน้ำทิ้ง (DRAIN)	☑	☐	
☐	☐	8. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☑	☐	9. สภาพตัวเครื่อง	☑	☐	
☑	☐	10. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-200066-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : Electronic Balance
Manufacturer : METTLER TOLEDO Model : XSR205DU
Serial No. : B911363567 ID No. : ELABBALANCEN06
Capacity : 220 g Resolution : 0.00001g/81g, 0.0001g/220g

Environment : On site calibration was carried out at the B304 Balance Room, Envilab Co., Ltd.
Ambient Temperature : (21.2 to 21.5) °C
Relative Humidity : (51.4 to 56.2) %
Air Pressure : 1011.0 mbar

Date of Received : 17 February 2025
Date of Calibration : 17 February 2025
Date of Issue : 19 February 2025
Calibrated by : Satja Sangkhum

Calibration Method : In-house method CAL-M2001 based on UKAS Publication ref : LAB 14
Edition 7 - November 2022

Reference Standard Instruments : This certification is traceable to the International System of Units

Standard Weights

ID No.	Cert. No.	Due Date	Traceability
E261-E2624	C02242009	07 Nov 2025	National Institute of Metrology (Thailand), (NIMT)

Approved [redacted]
Laboratory Manager

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Ca[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-200066-2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Departure of indication from nominal value

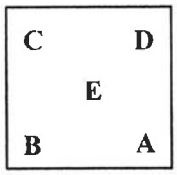
Nominal Value (g)	Correction (g)	Uncertainty ± (g)
0.1	0.00000	0.000016
0.5	0.00000	0.000022
1	0.00000	0.000026
2	-0.00001	0.000034
5	-0.00001	0.000043
10	0.00000	0.000053
50	-0.00002	0.00011
100	0.0000	0.00020
150	0.0000	0.00038
200	0.0000	0.00038

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty mutiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

Eccentric error Load test : 50 g

A	B	C	D	E	
-0.00001	-0.00001	0.00003	0.00003	0.00000	g



Repeatability Load test : 200 g

Stdev. : 0.000032 g

- o0o -

[redacted]

[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-410024-1** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Digital Thermo-Hygrometer

Manufacturer :	Jedto	Model :	HTC-1
Range Temperature :	-10 °C to 50 °C	Resolution :	0.1 °C
Range Humidity :	20 %R.H. to 90 %R.H.	Resolution :	1 %R.H.
Serial No. :	PONPE5852094	ID No. :	ELABTMHTC10003

Environment : Ambient Temperature : (23 ± 2) °C
Relative Humidity : (50 ± 15) %

Date of Received : 17 February 2025
Date of Calibration : 22 February 2025
Date of Issue : 22 February 2025
Calibrated by : Chortip Samchusri

Calibration Method : This instrument was calibrated by In-house method comparison technique CAL-M4013 by compared with standard probe sensor humidity/temperature into humidity/temperature chamber.

Reference Standard Instruments : This certification is traceable to the International System of Units

Digital Indicator with Standard Probe Temp&Hum

ID No.	Cert. No.	Due Date	Traceability
400034 & 400036	SG-H-00001/68	04 Jul 2025	Success Gateway Co., Ltd., Accredited by TISI Calibration No.0268

Approve[redacted]
Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Cali[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-410024-1

UUC Condition As-Received : Good

Result of Calibration : Without Adjustment

Function : Temperature measurement

Reference Humidity @ 50 %R.H.

Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
25.00	24.9	0.1	0.46

Result of Calibration : Without Adjustment

Function : Humidity measurement

Reference Temperature @ 25 °C

Standard Humidity (%R.H.)	UUC Reading (%R.H.)	Correction (%R.H.)	Uncertainty (±%R.H)
50.03	50	0	2.2

Remark

UUC : Unit Under Calibration

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุม

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250137

Calibration Certificate

Equipment: Hot Air Oven

Model:	UF75
Serial No.(or ID):	B319.0600 (ELABHAOVEN0600)
Manufacturer:	Memmert
Ventilation Valve:	Closed
Shelves(pc.):	3

Job No.:	KSMT2501050
Received Date:	19 March 2025
Issued Date:	24 March 2025
Page:	1 of 5

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B306 CH2 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	29.4 °C	±	1.2	°C
Humidity:	48 %RH	±	3	%RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]
Person in charge

SCIMET CO.,LTD.

[redacted]
(Mr. Thaleingkeat Poungngam)

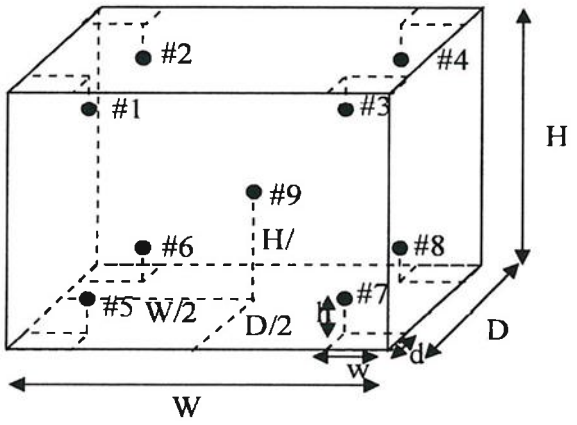
Envilab Co.,Ltd.

[redacted]

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 30 (Liters)

Inside chamber:	W = 40 (cm)	D = 33 (cm)	H = 56 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	301	302	303	304	305	306	307	308	309

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

Calibration Results:

Before adjustment

Desired (°C)	Setting (°C)	Indicating (°C)	#1 (°C)	#2 (°C)	#3 (°C)	#4 (°C)	#5 (°C)	#6 (°C)	#7 (°C)	#8 (°C)	#9 (°C)
104.0	104.0	104.0	104.44	104.95	105.08	104.82	104.94	104.72	104.13	104.70	105.02

After adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	103.85	-0.15	0.39
#2	104.35	0.35	0.39
#3	104.40	0.40	0.39
#4	104.17	0.17	0.39
#5	104.33	0.33	0.39
#6	104.12	0.12	0.39
#7	103.73	-0.27	0.39
#8	104.10	0.10	0.39
#9	104.31	0.31	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
104.0	104.0	104.0	103.85	104.35	104.40	104.17	104.33	104.12	103.73	104.10	104.31	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
104.0	0.65	0.09	0.80

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	109.74	-0.26	0.39
#2	110.28	0.28	0.39
#3	110.40	0.40	0.39
#4	110.15	0.15	0.39
#5	110.24	0.24	0.39
#6	110.01	0.01	0.39
#7	109.59	-0.41	0.39
#8	110.02	0.02	0.39
#9	110.33	0.33	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
110.0	110.0	110.0	109.74	110.28	110.40	110.15	110.24	110.01	109.59	110.02	110.33	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
110.0	0.84	0.12	0.98

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Enviab Co.,Ltd. ผู้จัดการฝ่ายความเที่ยงตรง

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	179.37	-0.63	0.49
#2	180.52	0.52	0.48
#3	180.61	0.61	0.47
#4	180.55	0.55	0.47
#5	180.51	0.51	0.48
#6	180.03	0.03	0.50
#7	179.26	-0.74	0.49
#8	180.23	0.23	0.49
#9	180.67	0.67	0.47

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
180.0	179.0	179.0	179.37	180.52	180.61	180.55	180.51	180.03	179.26	180.23	180.67	0.50

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
179.0	1.54	0.17	1.68

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Enviiab Co.,Ltd.

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD.
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

After adjustment

Desired Temperature : 104.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	103.85	-0.15	0.39	1.0	Pass
#2	104.35	0.35	0.39	1.0	Pass
#3	104.40	0.40	0.39	1.0	Pass
#4	104.17	0.17	0.39	1.0	Pass
#5	104.33	0.33	0.39	1.0	Pass
#6	104.12	0.12	0.39	1.0	Pass
#7	103.73	-0.27	0.39	1.0	Pass
#8	104.10	0.10	0.39	1.0	Pass
#9	104.31	0.31	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Enviiab Co.,Ltd. [redacted]

Statements of conformity:(Cont.)

After adjustment (Cont.)

Desired Temperature : 110.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	109.74	-0.26	0.39	1.0	Pass
#2	110.28	0.28	0.39	1.0	Pass
#3	110.40	0.40	0.39	1.0	Pass
#4	110.15	0.15	0.39	1.0	Pass
#5	110.24	0.24	0.39	1.0	Pass
#6	110.01	0.01	0.39	1.0	Pass
#7	109.59	-0.41	0.39	1.0	Pass
#8	110.02	0.02	0.39	1.0	Pass
#9	110.33	0.33	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

After adjustment (Cont.)

Desired Temperature : 180.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	179.37	-0.63	0.49	2.0	Pass
#2	180.52	0.52	0.48	2.0	Pass
#3	180.61	0.61	0.47	2.0	Pass
#4	180.55	0.55	0.47	2.0	Pass
#5	180.51	0.51	0.48	2.0	Pass
#6	180.03	0.03	0.5	2.0	Pass
#7	179.26	-0.74	0.49	2.0	Pass
#8	180.23	0.23	0.49	2.0	Pass
#9	180.67	0.67	0.47	2.0	Pass

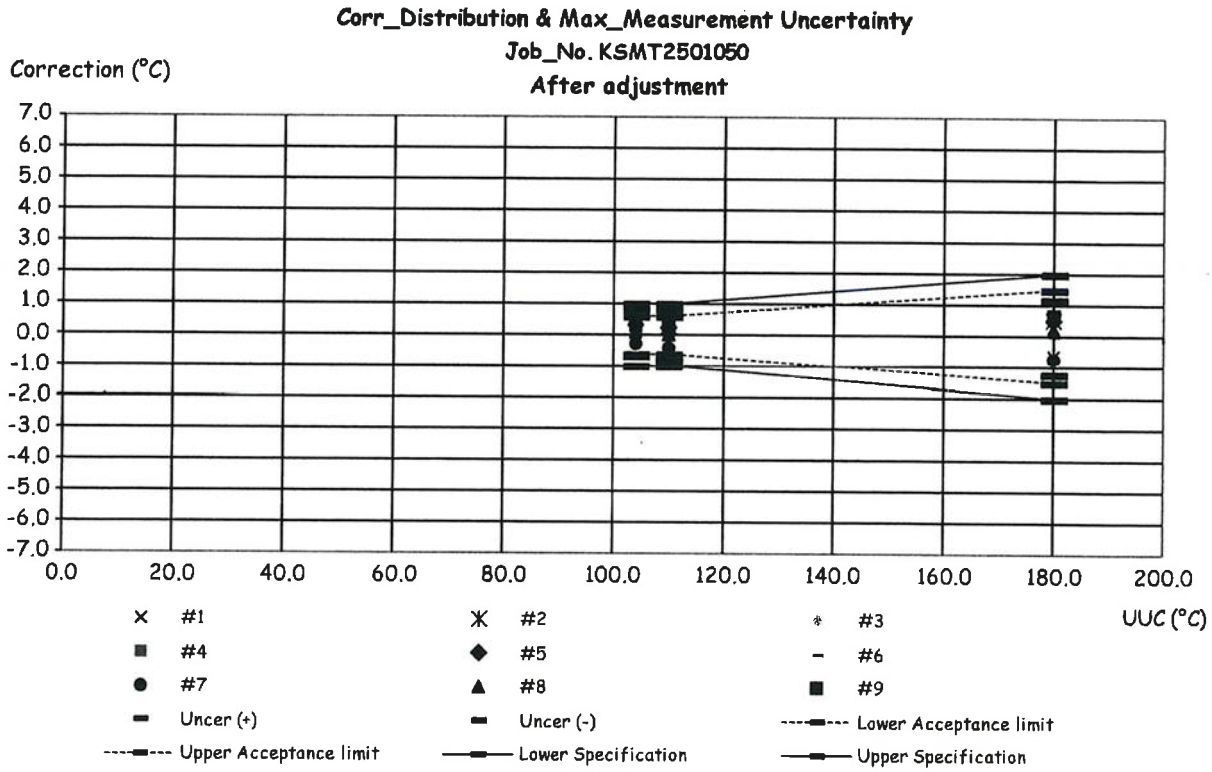
Correction of UUC.* = Measured Temperature - Desired Temperature

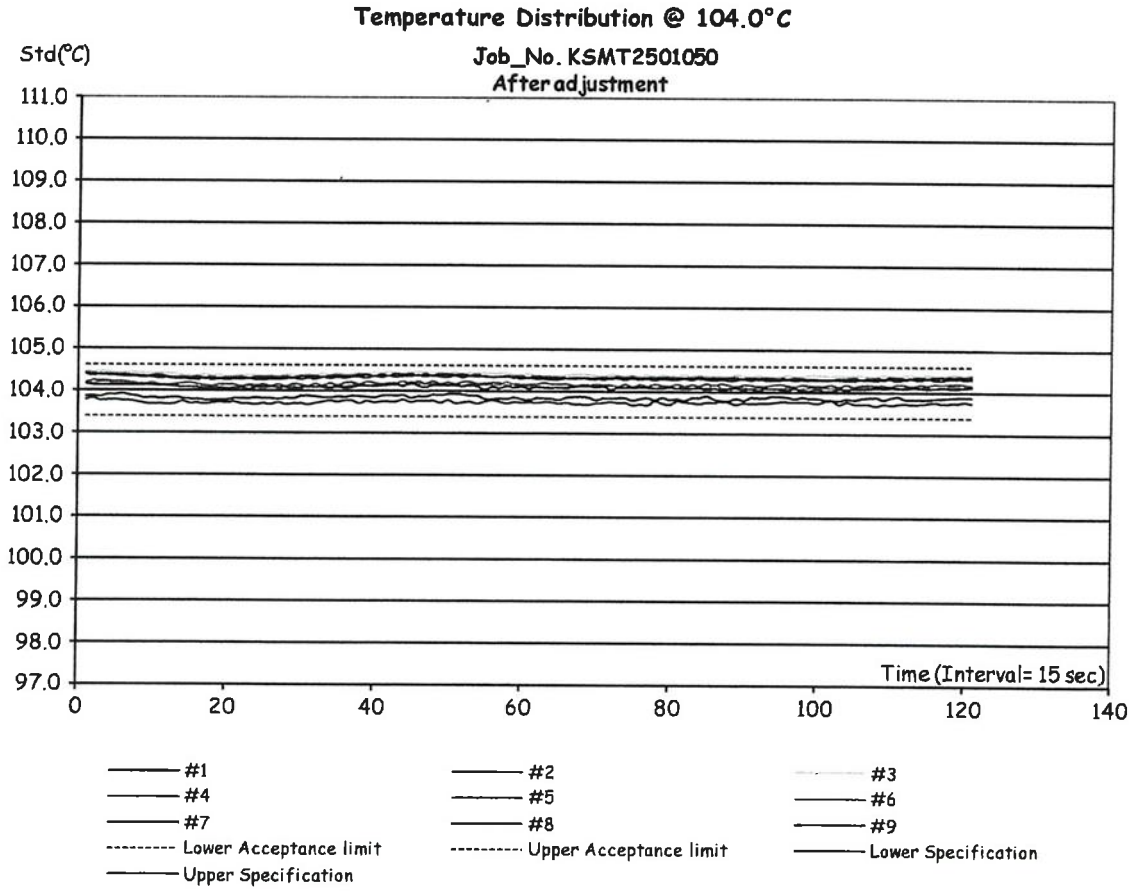
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

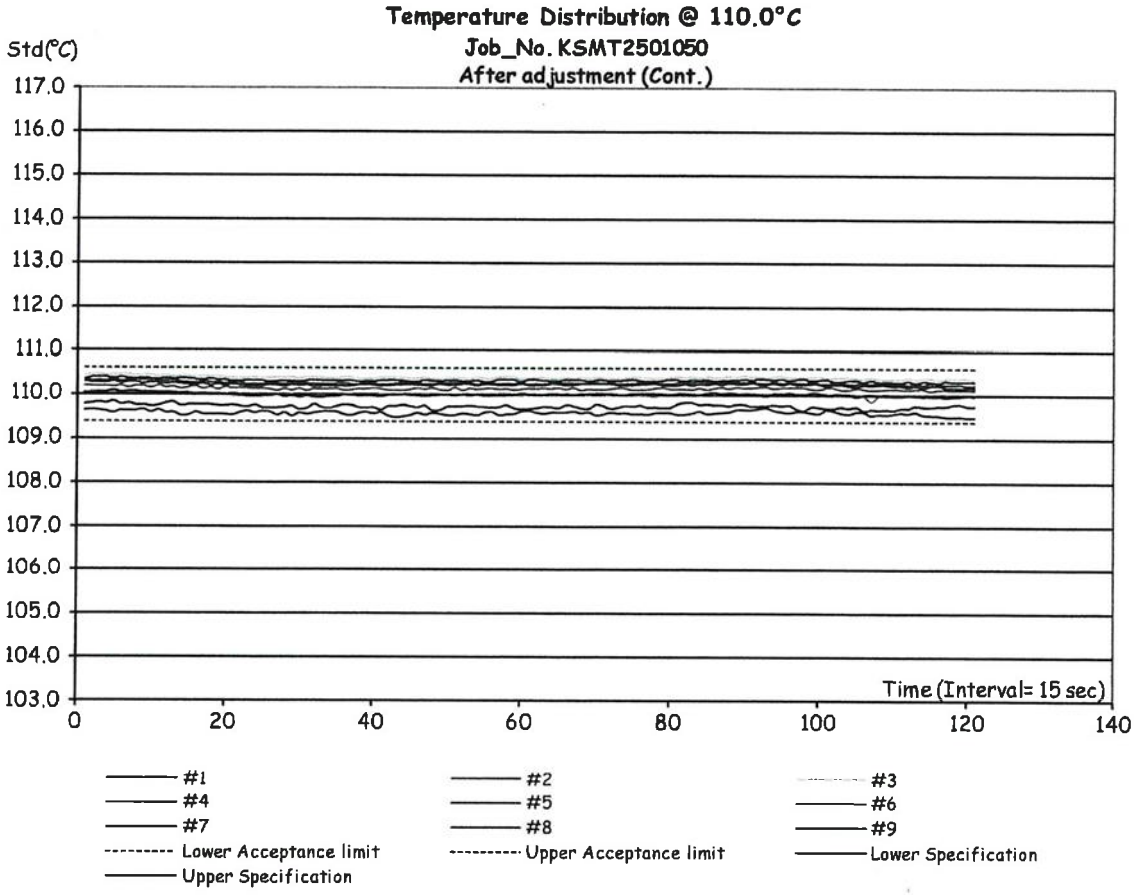
Envilab Co.,Ltd.

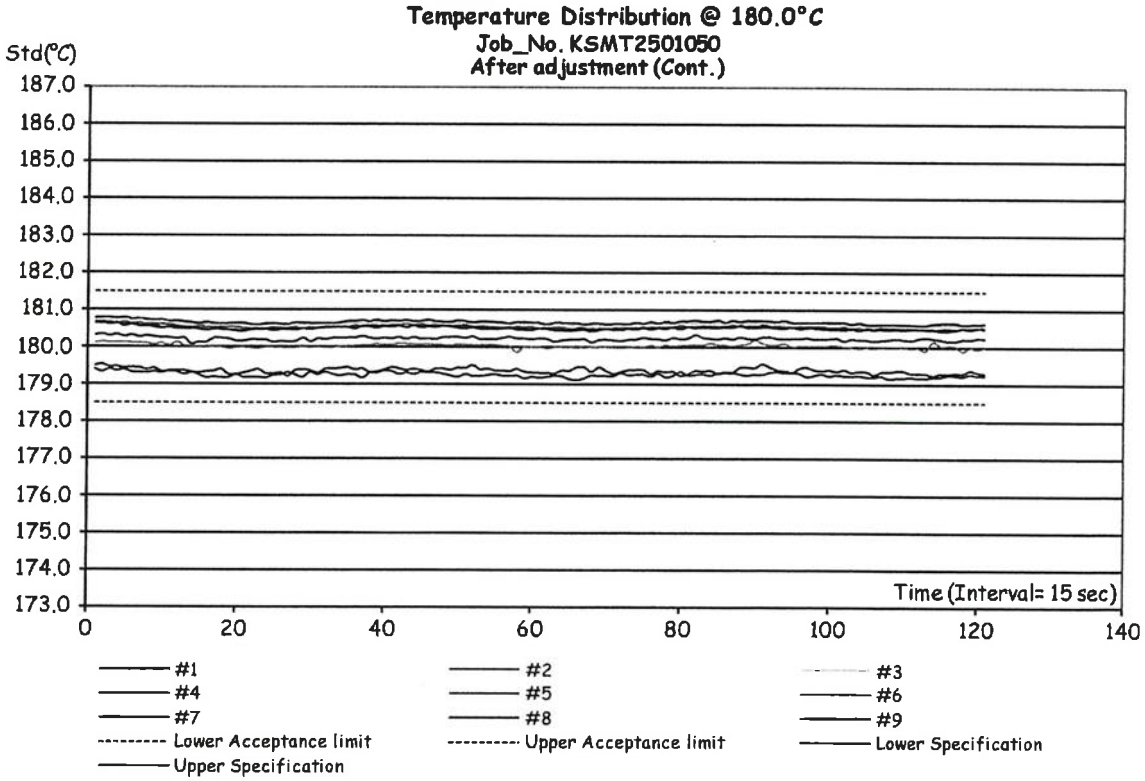




[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501050

ชนิดเครื่องมือ: Hot Air Oven รุ่น: UF75

หมายเลขเครื่อง: B319.0600 (ELABHAOVEN0600)

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☑	☐	6. สภาพ Lever of Ventilation valve	☑	☐	
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☐	☐	10. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	ไม่มี
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
18/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
mail: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่าย[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300237-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Cylinder
Manufacturer : BOROSIL Class : A
Capacity : 50 ml Graduation : 1 ml
ID No. : C-WW-004/24

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1015.8 mbar.

Date of Received : 14 March 2025
Date of Calibration : 18 March 2025
Date of Issue : 18 March 2025
Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241002	67-200410-1	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by : [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Ca

[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-300237-2**

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Nominal Volume (ml)	Measuring Volume (ml)
30	30.07
50	50.08

Uncertainty of measurement with in ± 0.054 ml

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

[redacted]

Envilab Co.,Ltd.

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17240309

Calibration Certificate

Equipment: Oven

Model:	ED53	Job No.:	KSMT2402655
Serial No.(or ID):	13-02277 (ELABHAOVEN2277)	Received Date:	27 September 2024
Manufacturer:	Binder	Issued Date:	30 September 2024
Condition:	In Condition	Page:	1 of 5
Ventilation Valve:	Closed Shelves(pc.): 2		

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B306 CH2 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

27 September 2024

Environment Condition

Temperature:	30.4 °C	±	1.0	°C
Humidity:	70.3 %RH	±	5.0	%RH

The Method used

In-house method, WI17, based on TLAS-G20

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd.Certificate No. C23240083

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

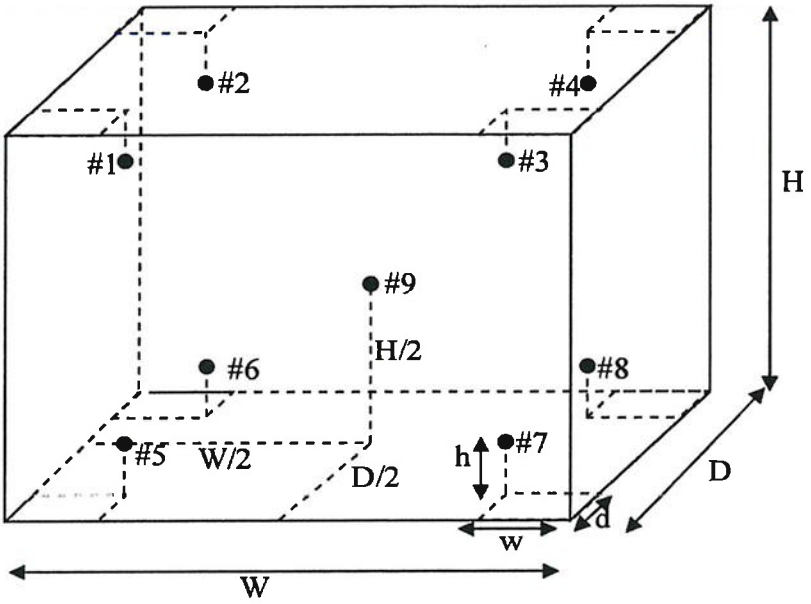
SCIMET CO.,LTD

[redacted]

Authorized signatory

Envilab Co.,Ltd.

[redacted]



Standard Installation Locations

Volume (Calibration Zone)= 21 (Liters)

Inside chamber:	W = 40 (cm)	D = 33 (cm)	H = 40 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 5 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 5 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	101	102	103	104	105	106	107	108	109

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่าย RC17-02-30 MAY 2023

Calibration Results:

Before adjustment

Desired (°C)	Setting (°C)	Indicating (°C)	#1 (°C)	#2 (°C)	#3 (°C)	#4 (°C)	#5 (°C)	#6 (°C)	#7 (°C)	#8 (°C)	#9 (°C)
85.0	85.0	85.0	87.01	88.17	87.35	87.18	85.19	85.80	85.32	85.05	85.84

After adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 85.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	86.28	1.28	0.58
#2	87.39	2.39	0.58
#3	86.58	1.58	0.58
#4	86.54	1.54	0.58
#5	84.67	-0.33	0.58
#6	85.22	0.22	0.57
#7	84.76	-0.24	0.57
#8	84.63	-0.37	0.58
#9	85.14	0.14	0.58

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
85.0	85.0	85.0	86.28	87.39	86.58	86.54	84.67	85.22	84.76	84.63	85.14	0.58

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
85.0	2.29	0.07	2.89

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	104.52	0.52	0.82
#2	106.25	2.25	0.85
#3	105.03	1.03	0.82
#4	105.00	1.00	0.83
#5	103.10	-0.90	0.82
#6	103.32	-0.68	0.82
#7	103.12	-0.88	0.82
#8	102.58	-1.42	0.82
#9	103.17	-0.83	0.82

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
104.0	104.5	104.5	104.52	106.25	105.03	105.00	103.10	103.32	103.12	102.58	103.17	0.85

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
104.5	3.26	0.21	3.96

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,L

[redacted]

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 182.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	181.12	1.12	1.1
#2	183.67	3.67	1.3
#3	181.80	1.80	1.1
#4	181.92	1.92	1.1
#5	179.84	-0.16	1.2
#6	180.90	0.90	1.1
#7	179.77	-0.23	1.1
#8	179.38	-0.62	1.2
#9	179.75	-0.25	1.1

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
180.0	182.5	182.5	181.12	183.67	181.80	181.92	179.84	180.90	179.77	179.38	179.75	1.3

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
182.5	4.48	0.64	5.29

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted]

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, TLAS-G20. Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :
- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET CO.,LTD บริษัท ซายน์เมท จำกัด

[redacted]
Authorized signatory

After adjustment

Desired Temperature : 85.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 85.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	86.28	1.28	0.58	1.0	Condition Fail
#2	87.39	2.39	0.58	1.0	Fail
#3	86.58	1.58	0.58	1.0	Condition Fail
#4	86.54	1.54	0.58	1.0	Condition Fail
#5	84.67	-0.33	0.58	1.0	Pass
#6	85.22	0.22	0.57	1.0	Pass
#7	84.76	-0.24	0.57	1.0	Pass
#8	84.63	-0.37	0.58	1.0	Pass
#9	85.14	0.14	0.58	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

[redacted]

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

Statements of conformity:(Cont.)

After adjustment (Cont.)

Desired Temperature : 104.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	104.52	0.52	0.82	2.0	Pass
#2	106.25	2.25	0.85	2.0	Condition Fail
#3	105.03	1.03	0.82	2.0	Pass
#4	105.00	1.00	0.83	2.0	Pass
#5	103.10	-0.90	0.82	2.0	Pass
#6	103.32	-0.68	0.82	2.0	Pass
#7	103.12	-0.88	0.82	2.0	Pass
#8	102.58	-1.42	0.82	2.0	Condition Pass
#9	103.17	-0.83	0.82	2.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

After adjustment (Cont.)

Desired Temperature : 180.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 182.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	181.12	1.12	1.1	2.0	Condition Pass
#2	183.67	3.67	1.3	2.0	Fail
#3	181.80	1.80	1.1	2.0	Condition Pass
#4	181.92	1.92	1.1	2.0	Condition Pass
#5	179.84	-0.16	1.2	2.0	Pass
#6	180.90	0.90	1.1	2.0	Pass
#7	179.77	-0.23	1.1	2.0	Pass
#8	179.38	-0.62	1.2	2.0	Pass
#9	179.75	-0.25	1.1	2.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

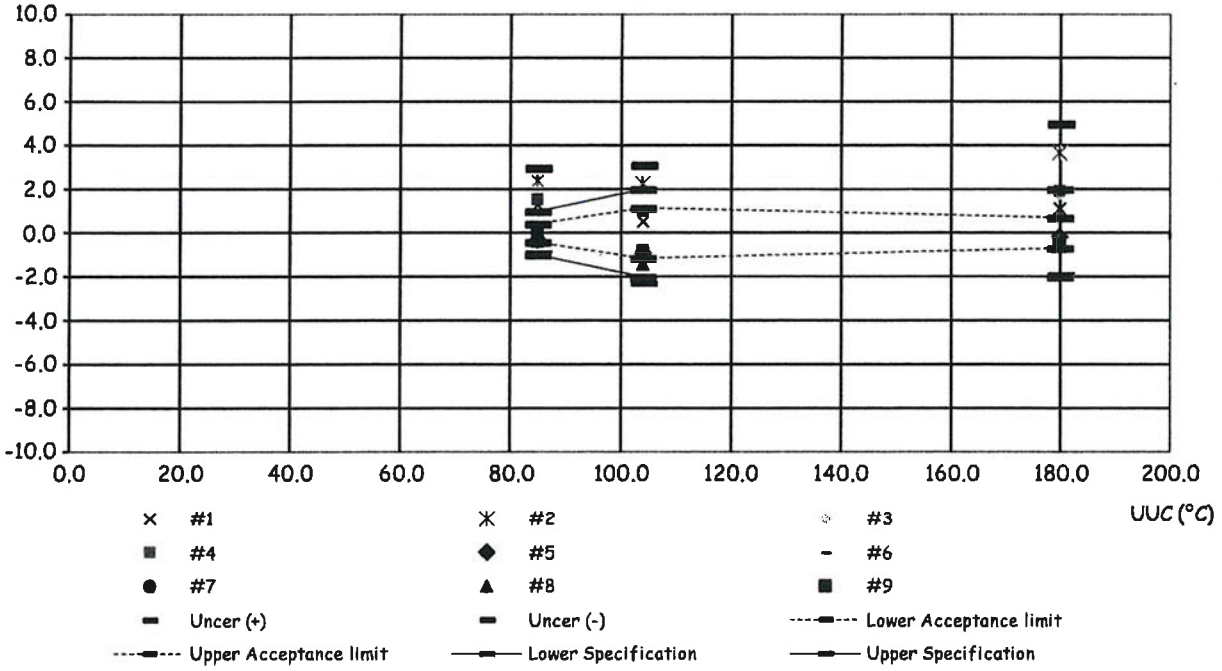
บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

Corr_Distribution & Max_Measurement Uncertainty

Job_No. KSMT2402655

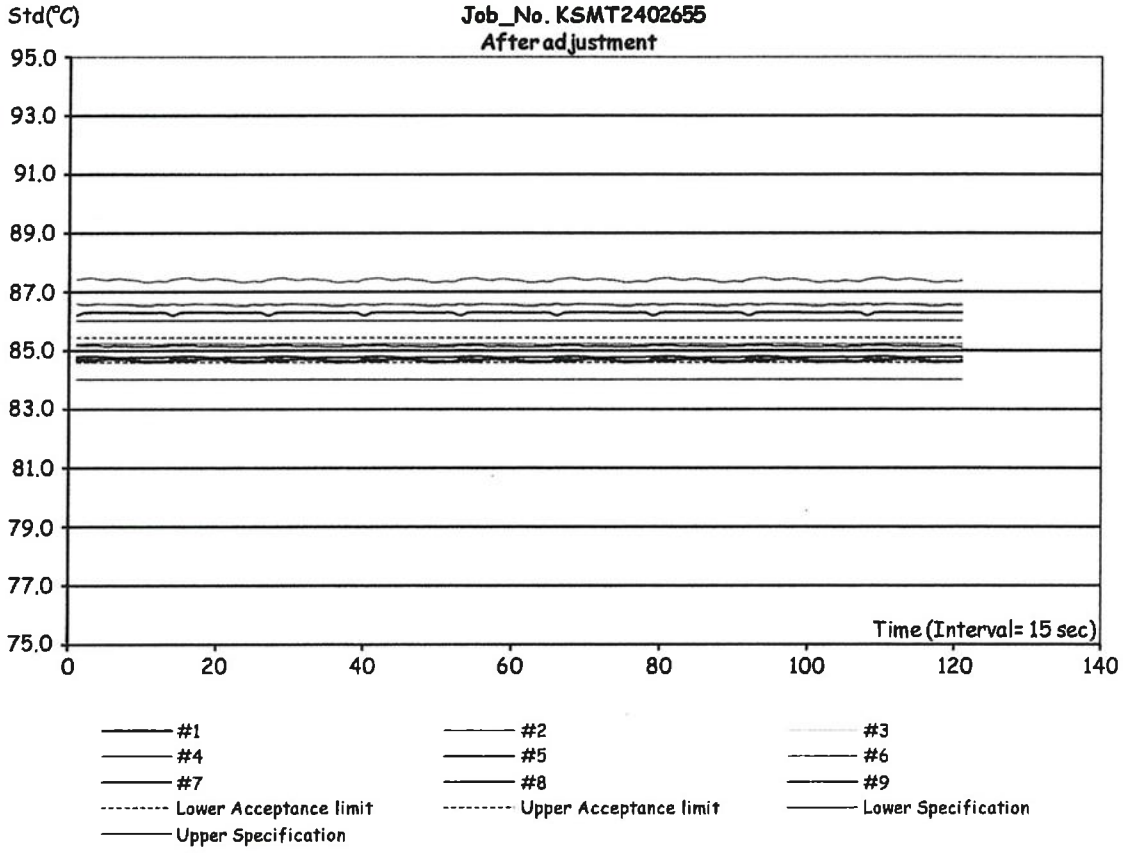
After adjustment



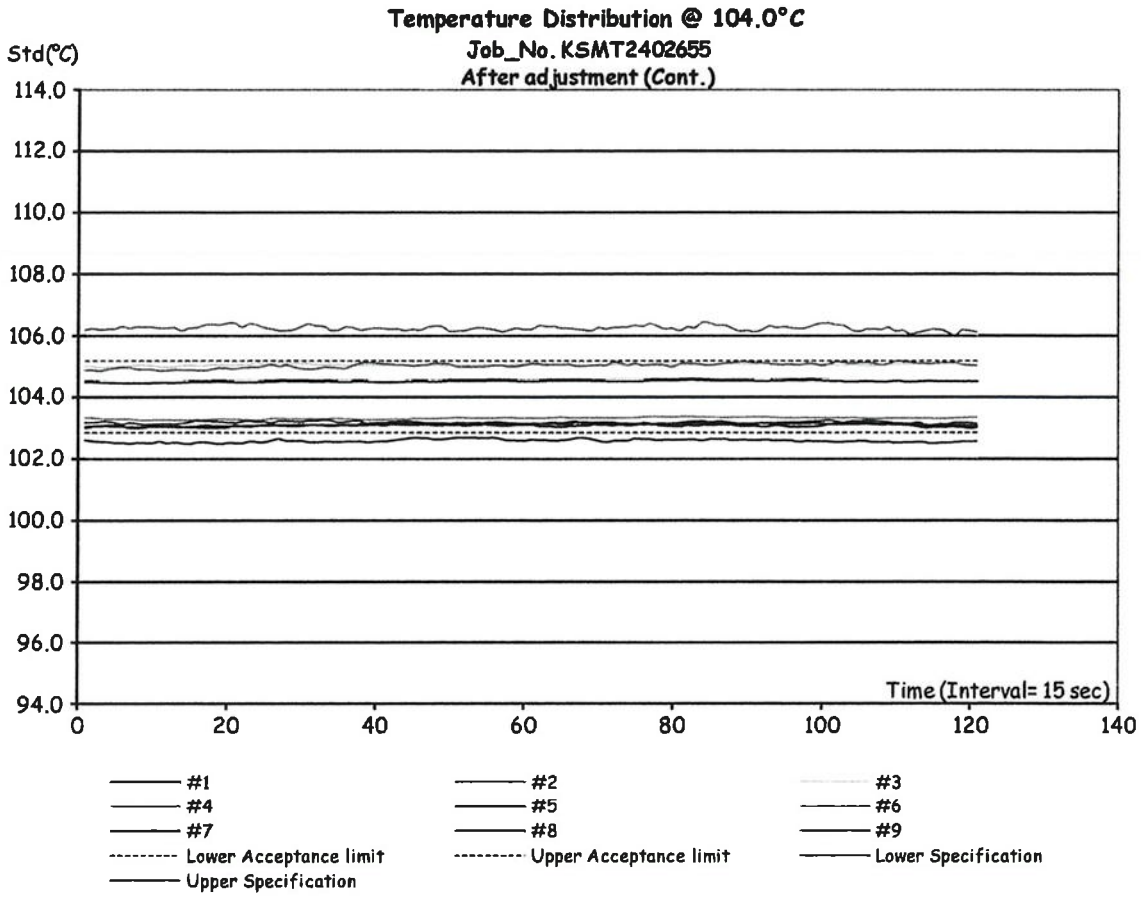
Temperature Distribution @ 85.0°C

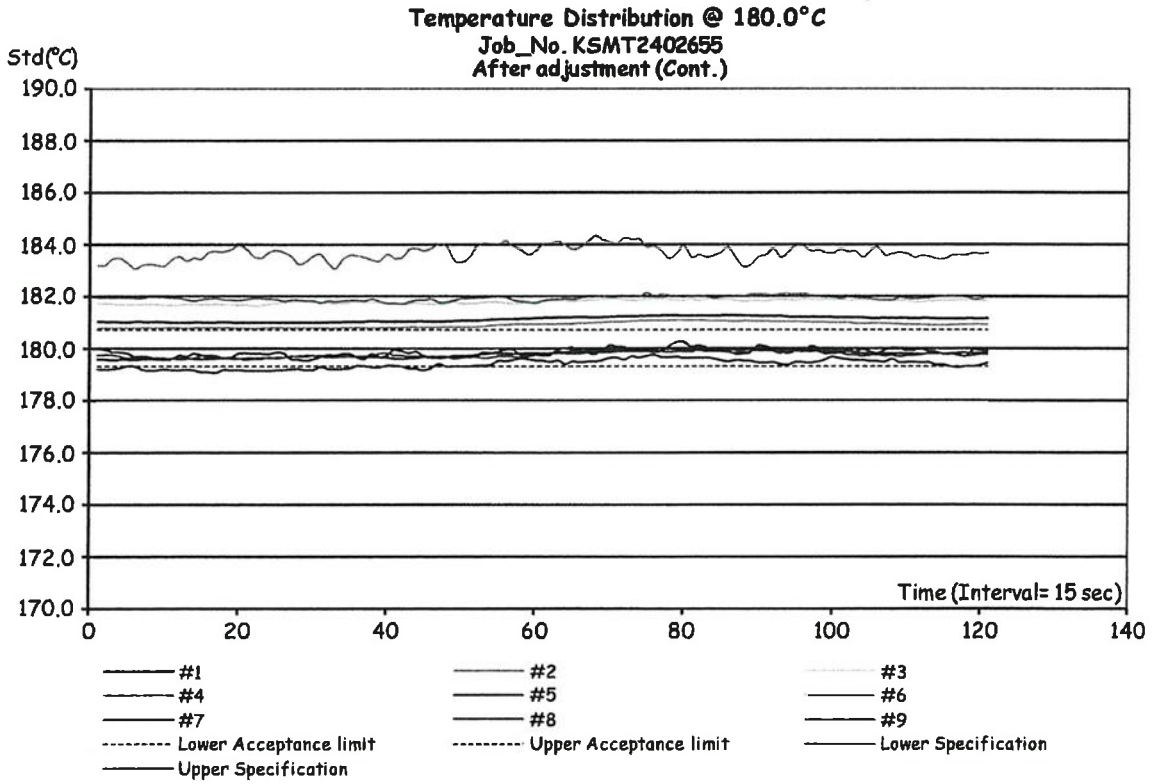
Job_No. KSMT2402655

After adjustment



Envilab Co.,Ltd.





Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2402655

ชนิดเครื่องมือ: Oven รุ่น: ED53

หมายเลขเครื่อง: 13-02277 (ELABHAOVEN2277)

ตรวจสอบ (รับ) 27 Sep 2024		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 27 Sep 2024		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	*
☐	☐	5. การทำงาน พัดลม	☐	☐	-
☑	☐	6. สภาพ Lever of Ventilation valve	☑	☐	
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☐	☐	10. การทำงานของระบบทำความเย็น	☐	☐	-
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : * Control Modify Brand M-LAB

Mr. Mongkolwat Hasanon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้นำทางด้านเครื่องมือควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C07250028

Calibration Certificate

Equipment:	SPECTROPHOTOMETER		
Model:	CARY 60UV-VIS	Job No.:	KSMT2500779
Serial No.(or ID):	MY17490026 (ELABSPECTRO0002)	Received Date:	03 March 2025
Manufacturer:	Agilent	Issued Date:	03 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B301 CO-THC ROOM)

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

03 March 2025

Environment Condition

Temperature:	22.3 °C	±	0.1	°C
Humidity:	66.0 %RH	±	2.2	%RH

The Method used

In-house method, WI07, based on ASTM E 275-08 and ASTM E 387-04

Traceability

This certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Starna Scientific Limited.

The standard for Wavelength Certificate No. 125472 and 125471

The standard for Photometric Certificate No. 125567 and 125517

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

Envilab Co.,Ltd.

[redacted]

Condition of reference standards Instruments / CRM:

Instruments	Set No.	Certificate No.	Due date
Didymium Oxide Glass Reference	131033	125472	16-Sep-26
Holmium Oxide Glass Reference	136650	125471	16-Sep-26
Neutral Density Filter Reference	45329	125567	17-Sep-26
Potassium Dichromate Solution References	45328	125517	17-Sep-26

Calibration Results:

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Standard Wavelength (nm)	Unit Under Calibration (nm)	Correction (nm)	Uncertainty of Measurement (± nm)
219.39	220.0	-0.61	0.14
241.27	241.5	-0.23	0.14
287.39	287.5	-0.11	0.14
333.65	333.4	0.25	0.14
360.32	360.0	0.32	0.14
417.64	417.0	0.64	0.14
472.50	472.5	0.00	0.14
513.47	513.4	0.07	0.14
528.88	528.9	-0.02	0.14
537.13	537.1	0.03	0.14
640.92	641.7	-0.78	0.14
740.72	741.4	-0.68	0.14
748.55	749.3	-0.75	0.14
807.03	807.5	-0.47	0.14
879.28	879.3	-0.02	0.14

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
235 nm	0.0000	0.0002	-0.0002	0.0080
	0.7328	0.7345	-0.0017	0.0080
257 nm	0.0000	-0.0003	0.0003	0.0080
	0.8537	0.8545	-0.0008	0.0080
313 nm	0.0000	-0.0001	0.0001	0.0080
	0.2855	0.2862	-0.0007	0.0080
350 nm	0.0000	0.0000	0.0000	0.0080
	0.6338	0.6349	-0.0011	[redacted]

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
118/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

SCIMET

Calibration Results:

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
420 nm	0.0000	0.0000	0.0000	0.0045
	0.2352	0.2382	-0.0030	0.0045
	0.5716	0.5740	-0.0024	0.0045
	0.7146	0.7167	-0.0021	0.0045
	1.0179	1.0190	-0.0011	0.0045
440 nm	0.0000	0.0000	0.0000	0.0045
	0.2314	0.2350	-0.0036	0.0045
	0.5566	0.5596	-0.0030	0.0045
	0.7028	0.7060	-0.0032	0.0045
	1.0016	1.0039	-0.0023	0.0045
465 nm	0.0000	0.0000	0.0000	0.0045
	0.2107	0.2137	-0.0030	0.0045
	0.5192	0.5219	-0.0027	0.0045
	0.6638	0.6668	-0.0030	0.0045
	0.9447	0.9471	-0.0024	0.0045
546.1 nm	0.0000	0.0000	0.0000	0.0045
	0.2187	0.2208	-0.0021	0.0045
	0.5207	0.5230	-0.0023	0.0045
	0.7002	0.7025	-0.0023	0.0045
	1.0001	1.0020	-0.0019	0.0045
590 nm	0.0000	0.0000	0.0000	0.0045
	0.2430	0.2449	-0.0019	0.0045
	0.5546	0.5567	-0.0021	0.0045
	0.7756	0.7774	-0.0018	0.0045
	1.1117	1.1123	-0.0006	0.0045
635 nm	0.0000	0.0000	0.0000	0.0045
	0.2635	0.2651	-0.0016	0.0045
	0.5622	0.5639	-0.0017	0.0045
	0.7651	0.7673	-0.0022	0.0045
	1.0974	1.0982	-0.0008	0.0045

The End of Certificate

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

FC07-04: 27 JAN 2025

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
118/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The error of temperature determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E 275-08 and ASTM E 387-04. Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
18/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
mail: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Enviab Co.,Ltd. ผู้จัดการ

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
220.0	-0.61	0.14	1.0	Pass
241.5	-0.23	0.14	1.0	Pass
287.5	-0.11	0.14	1.0	Pass
333.4	0.25	0.14	1.0	Pass
360.0	0.32	0.14	1.0	Pass
417.0	0.64	0.14	1.0	Pass
472.5	0.00	0.14	1.0	Pass
513.4	0.07	0.14	1.0	Pass
528.9	-0.02	0.14	1.0	Pass
537.1	0.03	0.14	1.0	Pass
641.7	-0.78	0.14	1.0	Pass
741.4	-0.68	0.14	1.0	Pass
749.3	-0.75	0.14	1.0	Pass
807.5	-0.47	0.14	1.0	Pass
879.3	-0.02	0.14	1.0	Pass

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
235 nm	0.0002	-0.0002	0.0080	0.020	Pass
	0.7345	-0.0017	0.0080	0.020	Pass
257 nm	-0.0003	0.0003	0.0080	0.020	Pass
	0.8545	-0.0008	0.0080	0.020	Pass
313 nm	-0.0001	0.0001	0.0080	0.020	Pass
	0.2862	-0.0007	0.0080	0.020	Pass
350 nm	0.0000	0.0000	0.0080	0.020	Pass
	0.6349	-0.0011	0.0080	0.020	Pass

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
118/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted]

SCIMET

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
420 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2382	-0.0030	0.0045	0.015	Pass
	0.5740	-0.0024	0.0045	0.015	Pass
	0.7167	-0.0021	0.0045	0.015	Pass
	1.0190	-0.0011	0.0045	0.015	Pass
440 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2350	-0.0036	0.0045	0.015	Pass
	0.5596	-0.0030	0.0045	0.015	Pass
	0.7060	-0.0032	0.0045	0.015	Pass
	1.0039	-0.0023	0.0045	0.015	Pass
465 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2137	-0.0030	0.0045	0.015	Pass
	0.5219	-0.0027	0.0045	0.015	Pass
	0.6668	-0.0030	0.0045	0.015	Pass
	0.9471	-0.0024	0.0045	0.015	Pass
546.1 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2208	-0.0021	0.0045	0.015	Pass
	0.5230	-0.0023	0.0045	0.015	Pass
	0.7025	-0.0023	0.0045	0.015	Pass
	1.0020	-0.0019	0.0045	0.015	Pass
590 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2449	-0.0019	0.0045	0.015	Pass
	0.5567	-0.0021	0.0045	0.015	Pass
	0.7774	-0.0018	0.0045	0.015	Pass
	1.1123	-0.0006	0.0045	0.015	Pass
635 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2651	-0.0016	0.0045	0.015	Pass
	0.5639	-0.0017	0.0045	0.015	Pass
	0.7673	-0.0022	0.0045	0.015	Pass
	1.0982	-0.0008	0.0045	0.015	Pass

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

[redacted]

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
118/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
mail: scimet2022@gmail.com, Tel: 02 460 9239

SCIMET

ใบตรวจสอบสภาพเครื่อง Spectrophotometer

เลขที่ใบงาน: KSMT2500779

ชนิดเครื่องมือ: SPECTROPHOTOMETER รุ่น: CARY 60UV-VIS หมายเลขเครื่อง: MY17490026

ตรวจสอบ (รับ) 03 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 03 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. ตัวหมุนเลือกความยาวคลื่น (Wavelength Control)	☑	☐	
☑	☐	7. ความยาวคลื่น (Wavelength Check)	☑	☐	
☑	☐	8. แหล่งกำเนิดแสง (UV < 3,000 hour)	☑	☐	
☑	☐	9. แหล่งกำเนิดแสง (Visible < 5,000 hour)	☑	☐	
☐	☐	10. ช่องวัดหลายตัวอย่าง (Carousel Module)	☐	☐	-

เพิ่มเติม/ข้อแนะนำ :

Mr. Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
118/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C09250024

Calibration Certificate

Equipment:	CONDUCTIVITY METER		
Model:	F-74BW	Job No.:	KSMT2501045
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	25.8 °C	±	0.4	°C
Humidity:	51.7 %RH	±	2.9	%RH

The Method used

In-house method, WI09, based on ASTM D1125-14 and D 5391-14

Traceability

This certificate is traceable to the SI Units maintained by CRM of NIST(SRM) through CPA chem Co., Ltd. (ISO 17034) Certificate No. 1019566, 1019567, 1019568 , Temperature test is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co., Ltd.Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standardlaboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]
(Mr. Dumrong Boonsopon)
Person in charge

SCIMET CO.,LTD.

[redacted]
Authorized signatory

Envilab Co.,Ltd.

FC09-04 27 JAN 2025

SCIMET

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard conductivity solution	25.001 µS/cm	CS25M0S.L5	1019566	4-Aug-25
Standard conductivity solution	1412.9 µS/cm	CS1413M0S.L5	1019567	4-Aug-25
Standard conductivity solution	111.3 mS/cm	CS111MS.L5	1019568	4-Aug-25
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

Electrode Serial No. 3G1J0088 Model : 3552 Brand : HORIBA

Before Adjustment

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	27.6	µS/cm	-2.599	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1541	µS/cm	-128.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	113.7	mS/cm	-2.4	mS/cm	2.00	0.82	mS/cm

After Adjustment ; at 1412.9 µS/cm

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	25.3	µS/cm	-0.299	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1413	µS/cm	-0.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	106.1	mS/cm	5.2	mS/cm	2.00	0.82	mS/cm

Temperature Electrode

Dimension of Probe ; mm (millimeter) Length : 110 Diameter: 12 Immersion Depth: 80

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.03	24.9	0.13	2.00	0.20

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

SCIMET

ใบตรวจสอบสภาพเครื่อง Conductivity Meter

เลขที่ใบงาน: KSMT2501045

ชนิดเครื่องมือ: CONDUCTIVITY METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ : _____

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ชายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300233-5** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Measuring Pipette
Manufacturer : witeg Class : A
Capacity : 25 ml Graduation : 0.1 ml
ID No. : G-WW-014/23

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1008.0 mbar.

Date of Received : 14 March 2025

Date of Calibration : 18 March 2025

Date of Issue : 18 March 2025

Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241005	67-200410-4	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Calibr

[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-300233-5**

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Delivery Time : 15.09 sec.

Nominal Volume (ml)	Measuring Volume (ml)
1	1.0096
10	9.9778
25	24.9769

Uncertainty of measurement with in ± 0.0067 ml

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายคุณภาพ

Agilent CrossLab
From Insight to Outcome

Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.
- For customers using HF applications, the instrument should be returned to its standard sample introduction system.

Envilab Co.,Ltd.

Agilent

Agilent CrossLab
From Insight to Outcome

Agilent CrossLab Start Up Services

ss

Agilent 5100 5110 ICP-OES Preventive Maintenance

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides what you need to reduce unplanned downtime and keep your systems operating at their peak performance.

This checklist is used as a guide for completing the preventive maintenance tasks. A signed copy of this checklist is provided for your records.

© Agilent Technologies, Inc. 2022

Agilent

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "**X**" or tick mark "✓".
- Check **"Service not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in the most logical order relevant to the individual system service in the order of the tasks listed.
- Complete the **Service Review** section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Add relevant page numbers to selected pages and complete the total number of pages field in the Service Completion section
- **Ask the customer to sign the Service Verification section including the customer's and your signature.**

Envilab Co.,Ltd.

Important Customer Web Links

- To access **Agilent University**, visit http://www.agilent.com/crosslab/university/ to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit https://www.agilent.com/en-us/agilentresources. The following information topics are available:
  - Sample Prep and Containment
  - Chemical Standards
  - Analysis
  - Service and Support
  - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at https://www.youtube.com/user/agilent
- **Need to place a service call?** Flexible Repair Options | Agilent

Preparation

- ☑ Discuss any specific issues with the customer before starting.
- ☑ Review the instrument logbook for recorded problems and comments.
- ☑ Save instrument control settings before starting the procedure.
- ☑ Perform a general inspection of the system for cleanliness.
- ☑ Check for proper installation of parts, assemblies, sensors etc.
- ☑ Check system for required installation of components and implementation of Service Notes
- ☑ Check for required firmware/software updates and verify with customers if they would like them installed.
- ☐ For HF application systems, if standard sample introduction system was not installed, ask the customer to install it.
- ☑ Ask the customer to remove any samples from the ICP-OES sample introduction area, auto sampler or around the ICP-OES.

Envilab Co.,Ltd.
[redacted]

Instrument Maintenance

System Information

☐ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	G8015A / MY17490002
Instrument System Site and Location	Envilab Company Limited

List System Component Product Numbers		List the Serial Numbers of each Component
1.	G8410A	AU17393768
2.	G8015A	MY17490002
3.	G8481	1709-05327
4.		
5.		
6.		
7.		
8.		
9.		

ICP-OES Configuration Table	Circle the type or write in the type if other
Nebulizer Type	SeaSpray | OneNeb | Conikal | Other
Spray Chamber	Cyclonic Single Pass | Cyclonic Double Pass | Other
Torch	Radial | Dual View | Other
Torch Type	One Piece | Semi Demountable | Fully Demountable | Other
Injector Diameter	2.4mm | 1.8mm | 1.4mm | 0.8mm | Other
Injector Material	Quartz | Ceramic | Other

SPS 3 Auto Sampler

Type text here

- ☑ **Service not applicable**
- ☐ Power cycle the autosampler and verify successful initialization.
- ☐ Inspect X and Z axis belts for wear. Replace is necessary.
- ☐ Clean X and Z axis slide shafts.
- ☐ Using customer's racks and the Agilent software move the sample probe to the 4 outermost corners and rinse port, ensure that the probe is approximately centered in the vial.

SPS 4 Auto sampler

- ☐ **Service not applicable**
- ☑ Clean the spill tray, rack location mat, end frames and chassis with a damp soft cloth and diluted mild detergent.
- ☑ Clean the auto sampler cover panels, if cover kit is installed, with domestic window cleaner.
- ☑ Check the X-axis and Z-axis drive belts for cracks, splits, damaged teeth, excessive fraying, color changes or degradation from fumes.
- ☑ Check the X-axis, Theta-axis and Z-axis FFC cables for cracks, incorrect positioning, damaged edges or damaged connectors.
- ☑ Pump Tubing Replacement. Replace peristaltic pump tubing. Replace all tubing that goes from the rinse station to the pump and from the pump to the waste/rinse bottles
- ☑ Test using customer's tray and move the sample probe to the sample vial 1, wash vial and rinse port and ensure that the probe is centered in the vial. If not use calibration wizard and calibrate the position.

AVS 4, 6, 7 Advanced Valve System

- ☑ **Service not applicable**
- ☐ Replace valve rotor seal
- ☐ Check fittings for signs of leaks
- ☐ Check tubing including autosampler tubing for kinks or excessive wear
- ☐ Check high flow pump for signs of leaks

Envilab Co.,Ltd. [redacted]

Preventive Maintenance Procedures

Record Pre-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table – Pre-PM.

Clean and inspect ICP-OES system

- ☑ Look for any obvious external damage or problems.
- ☑ Inspect water cooling hoses, gas lines and power cord for excessive wear or damage.
- ☑ Perform a general internal inspection of the system for excessive dust accumulation, clean if necessary.
- ☑ Inspect sample introduction components and record any required maintenance in the Service Engineer Comments and notify the customer as the required actions required.
- ☑ Record the instrument operating conditions in the ICP-OES Status Results Table.
- ☑ Replace the polychromator purge filter.
- ☑ Replace the radial pre-optics window
- ☑ Replace the axial pre-optics window for SVDV and VDV instruments.
- ☑ Check exhaust flow for the correct positive extraction at the exhaust duct to insure they meet minimum specifications.
- ☑ Replace air inlet dust filter.
- ☑ Replace high capacity air inlet dust filter element if installed.
- ☑ Remove and clean instrument water inlet filter.

Agilent Water Recirculator

- ☐ **Service not applicable**
- ☑ Drain cooling fluid and remove any particles from the chiller reservoir
- ☑ Remove, clean and reinstall water inlet metal mesh filter if present.
- ☑ Refill with Agilent Cool Clear cooling fluid.
- ☑ Clean the cooling system Air filter and the condenser.

Restore Instrument

- ☐ For HF applications, ask the customer to reinstall their sample introduction system.
- ☐ Leave system in an idle state: on and purging.
- ☐ Guidance: If the PM service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Record the PM event in the Smart Alerts logbook, if applicable.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review this service, parts replaced, and test results obtained with the customer.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box. Systems in a compliant environment may need additional documentation.
- ☑ **Complete the Signature Page with both Service Engineer and Customer signatures.**

Envilab Co.,Ltd.

ADS 2 Advanced Dilution System (5110 only)

- ☑ SERVICE NOT APPLICABLE
- ☐ LOOK FOR ANY OBVIOUS EXTERNAL DAMAGE OR PROBLEMS.
- ☐ REPLACE VALVE ROTOR SEAL ON VALVES A AND B.
- ☐ REPLACE BOTH SYRINGES.
- ☐ REPLACE ACID VAPOR FILTER (WASTE VESSEL)
- ☐ REPLACE VENTING VALVE (DILUENT CARRIER BOTTLE)
- ☐ CHECK FITTINGS FOR SIGNS OF LEAKS.
- ☐ CHECK TUBING INCLUDING AUTOSAMPLER TUBING FOR KINKS OR EXCESSIVE WEAR.

ICP-OES adjustment

- ☑ Check position of Zn peak, adjust if required.
- ☑ Check Argon Ratio, adjust to specified value if required.
- ☑ Perform Detector Calibration.
- ☑ Perform Instrument Calibration.

Record Post-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table - Post PM.
- ☑ For systems using ICP Expert version 7.3 and above, run the following Instrument tests
  - ☑ Subsystem Communications Test
  - ☑ Air Flow
  - ☑ Water Flow
  - ☑ Gas Flows
  - ☑ RF Generator
  - ☑ Camera Test
  - ☑ Optics Test
  - ☑ Nebulizer Test
- ☑ Record the result in the Instrument Test Results Table

ICP-OES Status Results Table

Note: These measurements do not form part of any specification and are for reference only.

Measurement	Standby Mode		Plasma On	
Mains Voltage	220.640	VAC	219.053	VAC
Mains Current	0.080	A	0.099	A
Instrument Temperature	23.2	°C	22.3	°C
RF Air Flow (sensor speed)	7.0	Hz	20.0	Hz
Plasma Exhaust Temperature	No measurement		46.5	°C
Water Flow Oscillator	No measurement		1.51	L/min
Water Flow Detector	1.20	L/min	1.17	L/min
Water Inlet Temperature	18.3	°C	18.3	°C
Polychromator Temperature	35.3	°C	35.0	°C
CCD Temperature	-39.7	°C	-39.8	°C
Thermal Stabilizer	35.0	°C	35.0	°C
Argon Supply Pressure	611.44	kPa	564.69	kPa
Purge Gas Supply Pressure*1	610.40	kPa	594.52	kPa
Option Gas Supply Pressure*1	-	kPa	-	kPa
Nebulizer Flow	No measurement		0.70	L/min
Nebulizer Back Pressure	No measurement		280.74	kPa
Plasma Gas Flow	No measurement		12.03	L/min
Auxiliary Gas Flow	No measurement		1.00	L/min
RF Power	No measurement		1203.4	W
RF Supply Current	No measurement		8.244	A
RF Supply Voltage	No measurement		194.614	V

*1 If option installed

© Agilent Technologies, Inc. 2022

Envlab Co.,Ltd.

Test Results

Instrument Performance Test Results Table

Note: These measurements do not form part of any specification and are for reference only.

	Pre PM Sensitivity Check		Post PM Sensitivity Check	
	Radial	Axial *	Radial	Axial*
Zn 213.857 nm SRBR	2745.8	3632.4	14128.0	23024.3
Mn 257.610 nm SRBR	12504.7	26596.0	86470.0	215311.9
Al 396.152 nm SBR	5.0	14.9	564.1	2335.7
K 766.491 nm SBR	4.4	71.4	639.6	11029.3

* Axial result is not applicable for G8016AA, G8012AA Radial View instruments.

Instrument Test Results Table

Note: The Instrument Test results are for systems using ICP Expert version 7.3 and above only.

Instrument Test	Result
Subsystem Communications Test	Pass
Air Flow	Pass
Water Flow	Pass
Gas Flows	Pass
RF Generator	Pass
Camera Test	Pass
Optics Test	Pass
Nebulizer test	Pass

© Agilent Technologies, Inc. 2022

Part Description	Part Number	Product or Model# where used	Quantity consumed

Signature Page

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the installation or other items of interest for the customer, please write in this box.

-Torch is broken. Should be replaced and should be spaerd.

Service Verification

Service Request Number: 6007747651

Date Service Completed: June 26, 2025

Service Engineer Name: Suwan Onkhom

Customer Name:

© Agilent Technologies, Inc. 2022

Envilab Co.,Ltd.

Consumed PM Parts

Part Description	Part Number	Product or Model# where used	Quantity consumed
Axial Pre-Optic Window	G8010-68014	G8010A, G8011A, G8014A/G8015A	1
Radial Pre-Optic Window	G8010-68015	All	1
Agilent Cool Clear Coolant Fluid	5799-0037	Agilent Water Recirculator	N/A
Purge Gas Filter	G8010-60136	All	1
Air inlet filter	G8000-68002	All	1
High Capacity Air Filter	G8010-60189	Optional	N/A
Rotor seal for 6-7 port valve for AVS6/7	G8494-60002	G8494A/G8495, ADS 2	N/A
Rotor seal for 4 port valve for AVS4	G8493-60002	G8493A	N/A
Rinse solution to rinse station 2.5mm id x 1m	G8410-80123	SPS 4	N/A
Barb connector 2.5mm-1.5mm ID	G8410-80124	SPS 4	N/A
PVC waste tubing,8mm od x 5mm id, 2m	G8410-80122	SPS 4	N/A
Syringe, 5mL	5299-0037	ADS 2	N/A
Syringe, 10mL	5299-0038	ADS 2	N/A
Acid vapor filter	5043-1193	ADS 2	N/A
Venting valve	5043-1190	ADS 2	N/A
Additional Parts may be required from engineer's stock:			
X axis drive belt	5410047500	SPS 3	N/A
Z axis drive belt	5410047400	SPS 3	N/A
Peristaltic pump tubing, PVC SolvaFlex, 3 bridged,	3710049000	SPS 4	N/A

Consumed Parts Reference (Purchased by customer, not included as part of PM)

☐ **Section Not Applicable**

Part Description	Part Number	Product or Model# where used	Quantity consumed

© Agilent Technologies, Inc. 2022

Service Engineer Signature:
Suwan O.

Customer Signature:

Total number of pages in this document:
15 pages



[redacted]

© Agilent Technologies, Inc. 2022

PinAAcle 900F Preventive Maintenance (PM)

Company Name:	ENVI LAB Co.,Ltd		
Address (Instrument Location):	540 soi Bangkhae7, Bangkae,Bangkok 10160		
Serial Number:	PFBS20011403	**PM Number:**	2/2
Customer Name (if applicable):	K.Janjira	**Telephone Number:**	095-5500510
Customer Support Engineer Name:	Prasit	**Service Order Number:**	WO-03026378
Date PM Performed: (DD-MMM-YYYY)	4 APR 2025	**Next PM Due Date:** (DD-MMM-YYYY)	4 OCT 2025
Standard Labor Hours to Complete PM :		**5 hours**	

Part Number	Release	Publication Date	PerkinElmer
09370145 Rev.9	A	January 2018	

Scope
The purpose of this PM is to ensure the continued functionality of the PinAAcle 900F by inspecting and replacing any worn or damaged parts. This service should only be performed by a trained representative of PerkinElmer.
The customer should save their method before the PM begins.

General Instructions:
The customer must provide the engineer operational data to demonstrate recent instrument performance prior to starting the PM.
Always check with the customer before making any changes that may affect the customer's analysis or calibration, including a current back-up of system software and/or data files.
The completed document should be signed by an authorized PerkinElmer and customer representative and left with the customer.
Update the PM sticker and instrument logbook as required.

Copyright Information
This document contains proprietary information that is protected by copyright. All rights are reserved.
No part of this publication may be reproduced in any form whatsoever or translated into any language without the prior, written permission of PerkinElmer, Inc.
Copyright © 2013 PerkinElmer, Inc.

Trademarks
Registered names, trademarks, etc. used in this document, even when not specifically marked as such, are protected by law. PerkinElmer is a registered trademark of PerkinElmer, Inc. All other trademarks and registered trademarks not owned by PerkinElmer, Inc. or its subsidiaries that are depicted herein are the property of their respective owners.
Except as specifically set forth in its terms and conditions of sale, PerkinElmer makes no Warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.
PerkinElmer shall not be liable for incidental or consequential damages in connection with the furnishing or use of this document.

Envilab Co.,Ltd.

PerkinElmer
For the Better

PinAAcle 900F
Preventive Maintenance Report

Company Name: ENVI LAB Co.,Ltd

Instrument Location: AAS ROOM

540 soi Bangkhae7, Bangkae,Bangkok 10160

Instrument Serial No.: PFBS20011403

Date: 4 APR 2025

Component List

Component / Specific Model	Serial #	Configuration Notes
PinAAcle 900F	PFBS20011403	Syngistix Ver 5.1.0.2066

Parts Lists

Parts Included with the PM		
Part Number (if applicable)	Description	Quantity
B0501696	Fan Filters	N/A
N3160156	O-Ring Kits for Sampling Introduction (Stainless Steels Nebulizer)	N/A
N3160157	O-Ring Kits for Sampling Introduction (Plastic Nebulizer)	N/A
N9301714	Replacement Acetylene Filter Cartridge	N/A
TH001022	Replacement Air Filter Cartridge	N/A

Additional Reagents and Standards Required for PM				
Part Number (if applicable)	Description	Quality	Batch/Lot #	Expired Date (MM/YY)
N9300183	1000 mg/L Copper Standard	AR	26-87CUY1	APR-2025

Additional Reagents and Standards Required for PM (Customer Support Solution)				
Part Number (if applicable)	Description	Quantity	Batch/Lot #	Expiration Date (MM/YY)
N/A	DI Water	250 ml.	AR	AR
N/A	0.5% HNO_3	250 ml.	AR	AR

Additional Tools Required for PM			
Part Number (if applicable)	Description	Quantity	Serial #
N1013000	0.2A Neutral density filter	1	MG0-135
N1013002	1.0A Neutral density filter	1	MG2-258
03030997	System 2 EDL Driver	1	030309-97E
N3050605	As System 2 EDL	1	17986
N3050121	Cu Lumina HCL	1	000003793D12
N3050109	Ba Lumina HCL	1	041123-010120
N3050139	K Lumina HCL	1	0000037B8E1D
N3050152	Ni Lumina HCL	1	

Envilab Co.,Ltd. [redacted]

Procedure Checklist

Use (✓) to check off those steps in the checklist that have been completed.

1. **General:**
   - ☑ Review the instrument performance with the customer and document any recent problems.
   - ☑ Inspect the customer log book and make any appropriate PM entries.
   - ☑ Perform general inspection of system for cleanliness.

2. **PC Instrument Software:**
   - ☑ Instrument Software user files/databases archived, packed, and/or deleted as needed.

3. **Mechanical:**
   - ☑ Inspect and clean all fans and filters. Replace filters if necessary
   - ☑ Inspect all gas lines for leaks and/or wear. Replace if needed.
   - ☑ Clean exterior of the instrument.
   - ☑ Inspect the burner head, burner chamber, and nebulizer. Clean if needed as stated in the Hardware Guide.
   - ☑ Check burner head dimensions with the feeler gauge as stated in the Hardware Guide in the Maintenance chapter section on cleaning the burner head and checking sloth width. Replace if out of specification
   - ☑ Check the condition of the end cap, burner head, and nebulizer O-rings. Replace if necessary.
   - ☑ Check the drain system for signs of wear. Replace worn or damaged parts.
   - ☑ Visually check for proper flame conditions when igniting the Air-C2H2 and N20-C2H2 flames (if applicable).

4. **Electrical:**
   - ☑ Inspect PC boards. Clean if necessary.
   - ☑ Carefully check all internal and external cable connections.
   - ☑ Check instrument firmware revisions upgrade to current levels (if necessary)
   - ☑ Run Diagnostics Test within the Advanced function of the Spectrometer page. Check the results in the service log folder in the Spectrometer BM Log Viewer.

5. **Optics:**
   - ☑ Inspect and clean the sample compartment windows, if needed.
   - ☑ Inspect optics. Clean or replace if necessary,

6. **Gasses:**
   - ☑ Verify that the Gasses supplied to the instrument are within the pressure and purity specifications found in the PinAAcle 900 Series Pre-installation Checklist SDB.
   - ☑ Verify that the acetylene filter and air filter element is dry. Replace if necessary.

7. **Flame Interlock Check:**

   Description: Check to ensure that all safety interlocks are closed.

Parameter	Specification	Test Results	Pass/Fail
Flame Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Drain Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Nebulizer Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
C_2H_2 Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Air Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Burner Head Sensor	Choosing Nitrous Oxide as the oxidant should trigger an interlock shuts down	Active	Passed

8. **After PM Performance tests:**

   8.1 Detector Linearity with Barium

   Description: Ensures that the detector is linear in the Visible Range.

Parameter	Specification	Certificate Value at 553.6 nm (Abs.)	Test Results	Pass/Fail
1.0 A ND Filter	± 5% from Cert.	0.9995	1.0277	Passed
0.2 A ND Filter	± 5% from Cert.	0.1936	0.2024	Passed

   8.2 Baseline Noise at 1.0 Absorbance with Barium

   Description: Ensures that a high absorbance will not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0015	Passed

   8.3 AA Baseline Noise with Copper

   Description: Check baseline noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.001	0.0003	Passed

Envilab Co.,Ltd. ENVIRONMENT

8.4 D_2 Background Compensation with Copper

Description: Verifies the instruments ability to compensate for Background absorption.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0013	Passed

8.5 AA-BG Baseline Noise with Copper

Description: Ensures that background correction does not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0004	Passed

8.6 AA-BG Baseline Noise with Arsenic

Description: Ensures that background correction does not produce excessive noise at a low wavelength.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0001	Passed

8.7 Flame Sensitivity

Description: Instrument Sensitivity checked against Copper standard.

Standard Copper Sensitivity	Specification	Results (Abs.)	Pass/Fail
5 mg/L Sensitivity SS Neb (if applicable)	> 0.250 Abs.	N/A	Passed
2 mg/L Sensitivity HS Neb (if applicable)	> 0.250 Abs.	0.2987	Passed

10. Review:

- ☑ Review with the customer PM work performed.
- ☑ Review with the customer routine maintenance procedures.
- ☑ Discuss recommended customer supplied materials to have on hand.
- ☑ Attach PM sticker.

Additional Comments

Additional Comments Regarding the PM

Review

The preventive maintenance checks and if applicable performance tests for PinAAcle 900F have been completed.

This PinAAcle 900F Passes ☑ Fails ☐ the preventive maintenance.

Review of Preventive Maintenance:	
Authorized PerkinElmer Representative: [redacted]	Date: 4 APR 2025 (DD-MMM-YYYY)
Authorized Customer Representative:	Date: 4 APR 2025 (DD-MMM-YYYY)

Envilab Co.,Ltd. [redacted]

AIRFLOW CALIBRATION CO.,LTD.

Primary Test Results

1. Downflow Velocity Test

Test equipment used

● Thermo anemometer ● Brand: Testo ● Model: 425

● Serial number: 01844130 ● Calibration due: 2-May-2025

Instruction: Work opening in normal positions. With the anemometer inside the MSC, make air velocity measurements in horizontal plane 50 mm to 100 mm above the top edge of the front aperture. Make measurements over a period of at least 1 min in each position.

[redacted]

Back

0.36	0.37	0.35	0.38	0.38	0.37	0.39	0.39
0.38	0.37	0.39	0.37	0.40	0.42	0.42	0.39
0.35	0.36	0.36	0.37	0.40	0.41	0.40	0.38

Front

Characteristic of downflow velocities

[redacted]	Mean	Maximum	Minimum	+20 % of Mean
• Mean downflow velocity to achieve product protection : 0.33 m/s - 0.38 m/s. All measurements should be within ±20 % of mean values.	0.38	0.42	0.35	0.31 - 0.46

Result Summary : Pass

[redacted]

AIR FM-SV-08 : 01 Sep 2021

51/104 Moo 9, Ladsawai, Lamlukka Phatumthani 12150 Thailand
Tel : 0 2152 8350 , 0 2152 8348 , 0 2152 8070 ,08 4360 2558 , 09 2265 3175 Fax : 0 2152 8348
http:// www.airflow-calibration.com E-mail : bm.airflow@gmail.com , nop.airflow@gmail.com.

AIRFLOW CALIBRATION CO.,LTD.

CERTIFICATION OF TEST REPORT

Equipment	: Biological Safety Cabinet (Class II)		
Manufacturer	: Heal Force	Report Number	: B225332
Model	: HFsafe-1200LC	Issued Date	: 7 March 2025
Serial Number	: EX04201LC5497	Job Number	: B225332
Identification Number	: ELABMICROBSC01	Page	: 1 of 7 Pages

Customer : ENVILAB CO.,LTD. (HEAD OFFICE)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bang 10160

Test Place : ENVILAB CO.,LTD. (HEAD OFFICE) Laboratory Floor 3

Test By : Mr.Chanaphon Tusakat
Test Date : 28 February 2025
Due Date : 28 February 2026
Test Procedure : Service Manual
NSF/ANSI 49 - 2008: Biosafety Cabinetry: Design, Construction, Performance, and Field Certification
EN 12469: 2000 Biotechnology performance criteria for microbiological safety cabinet
AS 1807.23: 2000 Determination of intensity of radiation from germicidal ultraviolet lamp

Traceability : Velocity test is traceable to TECHMASTER Certificate Number :TTH-0-90784
Leak test of HEPA filter is traceable to WK Certificate Number :WK2501-091-1
Ultraviolet radiation test is traceable to EEI Certificate Number :CO20240056EA
Illumination test is traceable to WK Certificate Number :WK2404-302-93
Sound test is traceable to TECHMASTER Certificate Number :TTH-0-91022

This calibration certificate documents the traceability to national standards, which realize the unit of measurement according to the International System of Units (SI).
This certificate may not be reproduced other than in full except with the prior written approval of the Air Flow Calibration Company Limited.

[redacted]
Mr.
Authorized Signatory

AIR FM-SV-08 : 01 Sep 2021

51/104 Moo 9, Ladsawai, Lamlukka Phatumthani 12150 Thailand
Tel : 0 2152 8350 , 0 2152 8348 , 0 2152 8070 ,08 4360 2558 , 09 2265 3175 Fax : 0 2152 8348
http:// www.airflow-calibration.com E-mail : bm.airflow@gmail.com , nop.airflow@gmail.com.

2. Inflow Velocity Test

Test equipment used

- Thermo anemometer ● Brand: Testo ● Model: 425
- Serial number: 01844130 ● Calibration due: 2-May-2025

Exhaust Measurement

Instruction: The alternative procedure to determine inflow velocity uses a thermoanemometer in a constricted window access opening of 3 inches (76mm) with the armrest removed. Inflow air velocity is measured in the center of the constricted opening 1-1/2 inches (38mm) blow the top of the work access opening on the following specified grid.Use the correction factor table to calculate the inflow velocity.

Inflow Velocity Data (m/s)							
1.43	1.42	1.41	1.37	1.39	1.39	1.38	1.41

Characteristic of air velocities in the work opening

Specification	Value within Data (m/s)
• Mean inflow velocity to achieve product protection : 0.51 m/s - 0.56 m/s.	0.53

Result Summary : Pass

51/104 Moo 9, Ladsawai, Lamlukka Phatumthani 12150 Thailand

Tel : 0 2152 8350 , 0 2152 8348 , 0 2152 8070 ,08 4360 2558 , 09 2265 3175 Fax : 0 2152 8348

http:// www.airflow-calibration.com E-mail : bm.airflow@gmail.com , nop.airflow@gmail.com

3. Leak Test of HEPA Filters

Test equipment used

- Aerosol Photometer ● Brand: ATI ● Model: 2H
- Serial number: 20505 ● Calibration due: 14-Jan-2026

Test equipment used:

- Aerosol Generator ● Brand: ATI ● Model: 6C
- Serial number: 20554 ● Calibration date: -

Instruction: The aerosol through the "Challenge" valve to the backside of HEPA filter and maximum local penetration: 0.01 % of upstream concentration. (PAO test substitute for DOP test)

Characteristic of PAO test

[redacted]	14	µg/l
[redacted]	0.002	%
[redacted]	0.002	%

Main HEPA Filter

Leak position



: 10 cm. x 10 cm. X : Media leak position G : Gasket leak position M : Maximum leak position

51/104 Moo 9, Ladsawai, Lamlukka Phatumthani 12150 Thailand

Tel : 0 2152 8350 , 0 2152 8348 , 0 2152 8070 ,08 4360 2558 , 09 2265 3175 Fax : 0 2152 8348

http:// www.airflow-calibration.com E-mail : bm.airflow@gmail.com , nop.airflow@gmail.com

Envilab Co.,Ltd.

Exhaust HEPA Filter

Leak position



: 10 cm x 10 cm X : Media leak position G : Gasket leak position M : Maximum leak position

Result Summary : Pass

4. Airflow Patterns

Test equipment used

Smoke Generator

Instruction : The purpose of the test is to verify that no smoke escapes from the working space to the room, and that smoke will be drawn into the working space from the room.

Pass the smoke in an easy movement along the front opening outside the cabinet. The smoke must be drawn into the cabinet without visible turbulence.

Test the laminarity of the downflow and along the side-and back wall. No smoke must come out in the room and only small Turbulence must be observed.

Result Summary :

Downflow Pattern Test	Pass
View Screen Retention Test	Pass
Work Opening Edge Retention Test	Pass
Sash/Window Seal Test	Pass

51/104 Moo 9, Ladsawai, Lamlukka Phatumthani 12150 Thailand
Tel : 0 2152 8350 , 0 2152 8348 , 0 2152 8070 ,08 4360 2558 , 09 2265 3175 Fax : 0 2152 8348
http:// www.airflow-calibration.com E-mail : bm.airflow@gmail.com , nop.airflow@gmail.com.

5. Site Installation

5.1 Sash Alarm	Pass
5.2 Interlocks	N/A
5.3 Exhaust System Alarm	N/A

6. Soap Solution

Instruction: Comprising 25g/l soft soap in tepid distilled water prepared in grease free vessel.

Result Summary : Absence of soap bubbles. N/A

Secondary Test Results

7. Illumination Test

Instruction: Take readings at approximately 300 mm centres across the full front width of the work floor surface, starting approximately 150 mm in from each side.

Test equipment used

- Luxmeter
- Brand: Digicon
- Model: LX-73
- Serial number: T.034913
- Calibration due: 30-Apr-2025

[redacted]

Back

783	895	914	911	821

Front

The intensity of illumination shall be not less than 750 lux at all work positions.

Result Summary : Pass

51/104 Moo 9, Ladsawai, Lamlukka Phatumthani 12150 Thailand
Tel : 0 2152 8350 , 0 2152 8348 , 0 2152 8070 ,08 4360 2558 , 09 2265 3175 Fax : 0 2152 8348
http:// www.airflow-calibration.com E-mail : bm.airflow@gmail.com , nop.airflow@gmail.com.

Envilab Co.,Ltd. [redacted]

AIRFLOW CALIBRATION CO.,LTD.

8. Ultraviolet Radiation Test

Instruction: Take readings at approximately 300 mm centres across the full front width of the work floor surface, starting approximately 150 mm in from each side.

Test equipment used

- UVC Light Meter
- Brand: Lutron
- Model: UVC-254SD
- Serial number: S.021156
- Calibration due: 7-Jun-2025

[redacted] Ultraviolet Radiation Unit: mW/m2

Back

1575	2048	2478	2379	1817

Front

The intensity of radiation at a wave length of 254 nm shall be not less than 400 mW/m2 at all work positions.

Result Summary : Pass

9. Sound levels Test

Instruction: Sound levels in a cabinet should be low enough not to distract a worker. When tested inaccordance with EN ISO 3744 using a sound level meter situated 1.0 m from the centre of the front aperture of the cabinet 1.0 m from any part of the installation within the laboratory, the A-weighted sound pressure level generated by the cabinet should not exceed 68 dB when the A-weighted sound pressure level of the background is less than 55 dB. If the background noise exceeds 55 dB then the corrected cabinet A-weighted sound pressure level should not exceed 65 dB.

Test equipment used

- Sound Meter
- Brand: Daiichi
- Model: SL332
- Serial number: 130108517
- Calibration due: 7-May-2025

- **Sound pressure level of the background: 47.7 dBA**
- **Sound levels: 63.8 dBA**

Result Summary : Pass

End of Certificate of Test Report

51/104 Moo 9, Ladsawai, Lamlukka Phatumthani 12150 Thailand
Tel : 0 2152 8350 , 0 2152 8348 , 0 2152 8070 ,08 4360 2558 , 09 2265 3175 Fax : 0 2152 8348
http:// www.airflow-calibration.com E-mail : bu.airflow@gmail.com , acp.airflow@gmail.com.

Envilab Co.,Ltd.

[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-400025-1** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540,540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : Autoclave

Manufacturer :	Tomy	Model :	SX-500
Range :	N/A °C	Resolution	1 °C
Serial No. :	55133094	ID No. :	ELABAUTOCLAVE1

Environment : On site calibration was carried out at the Laboratory, Envilab Co., Ltd.

Ambient Temperature :	(26.5 to 27.0) °C
Relative Humidity :	(40 to 45) %
Line Voltage :	(224.0 to 225.0) V

Date of Received : 28 January 2025

Date of Calibration : 28 January 2025

Date of Issue : 31 January 2025

Calibrated by : Permpon Chanpu

Calibration Method : This instrument was calibrated by In-house method CAL-M4007 based on BS 2646 Part 1 : 2021
The temperature scale used was based on ITS-90

Reference Standard Instruments : This certification is traceable to the International System of Units

Standard Temperature Data Logger with RTD pt 100

ID No.	Cert. No.	Due Date	Traceability
400039	67-400732-1	25 Jun 2025	National Institute of Metrology Thailand (NIMT)
400040	67-400732-2	25 Jun 2025	National Institute of Metrology Thailand (NIMT)
400041	67-400732-3	25 Jun 2025	National Institute of Metrology Thailand (NIMT)

Approved by : [redacted]
([redacted]npu)
Supervisor

[redacted]

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Calibr

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

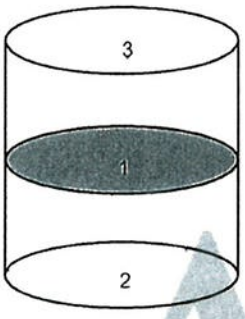
Certificate of Calibration

Certificate No. 68-400025-1

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement



Front

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Temperature (°C) @ Sensor No. 1	2	3	Uncertainty (±°C)	Measured Uniformity (°C)	Measured Stability (°C)	Sterilizing Time (minute)	Pressure Gauge Reading (kg/cm²)
121	121	121	121.6	121.6	121.6	0.71	0.1	0.1	15	0.11

Remark

1. UUC : Unit Under Calibration
2. Pressure Gauge reading are out of accreditation's scope.

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95%

- o0o -

[redacted]

EnMlab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS 17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-400102-1** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Temperature controlled enclosure (Incubator)
Manufacturer : Memmert Model : IF 110
Range : N/A °C Resolution : 0.1 °C
Serial No. : D419.0525 ID No. : ELABINCUBATOR1

Environment : On site calibration was carried out at the Laboratory, Envilab Co., Ltd.
Ambient Temperature : (26.0 to 26.5) °C
Relative Humidity : (50 to 55) %
Line Voltage : (223.0 to 225.0) V

Date of Received : 17 February 2025
Date of Calibration : 17 February 2025
Date of Issue : 25 February 2025
Calibrated by : Permpon Chanpu
Calibration Method : CAL-M4004, TLAS G-20
The temperature scale used was based on ITS-90

Reference Standard Instruments : This certification is traceable to the International System of Units
Standard Digital Thermometer with RTD Probe

ID No.	Cert. No.	Due Date	Traceability
400029 & 400043	67-400585-1	26 Apr 2025	National Institute of Metrology Thailand (NIMT)

Ap[redacted]
Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full except with the prior written approval of the Cali[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

Certificate of Calibration

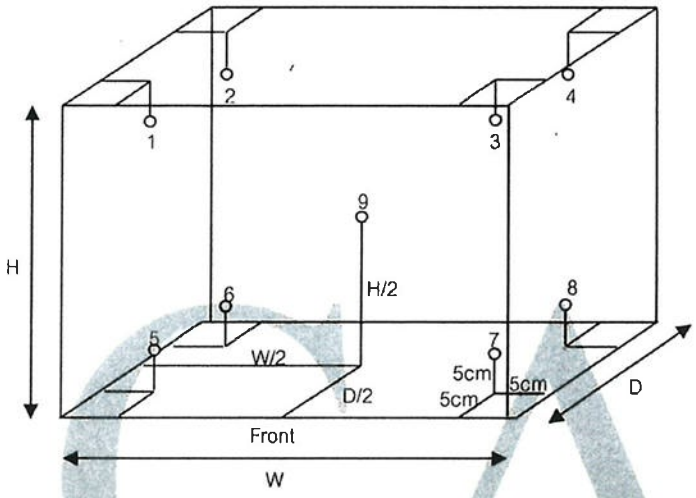
Certificate No. : 68-400102-1

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

This instrument was setting air ventilation at position 0 (close)



Inside of Chamber
W = 0.56 m
D = 0.48 m
H = 0.40 m
Capacity = 0.11 m^3

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Temperature (°C) @ Sensor No. 1	2	3	4	5	6	7	8	9	Uncertainty (±°C)
35.0	35.0	35.0	35.01	35.07	35.07	35.10	35.11	35.07	34.89	35.08	35.06	0.30
37.0	37.0	37.0	37.08	37.12	37.15	37.16	37.18	37.14	36.95	37.15	37.13	0.30

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Uniformity (°C)	Measured Stability (°C)	Overall Variation (°C)
35.0	35.0	35.0	0.21	0.02	0.25
37.0	37.0	37.0	0.21	0.02	0.26

Remark The uncertainty is not combine uniformity of the air chamber

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300049-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhac 7, Bangkhac, Bangkok 10160

Equipment : Piston Pipette
Manufacturer : sartorius Model : N/A
Serial No. : 4538900217 ID No. : ELABMICROPP006
Capacity : 100 µl to 1000 µl Resolution : 5 µl

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (55 ± 10) %
Air Pressure : (1010.5 to 1010.6) mbar.

Date of Received : 15 January 2025
Date of Calibration : 17 January 2025
Date of Issue : 17 January 2025
Calibrated by : Wipa Tovadee

Calibration Method : In-house method CAL-M3002 base on ISO 8655-6 : 2022-04

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241003	67-200410-2	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by : [redacted]
Supervisor
[redacted]

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full except with the prior written approval of the Calibra

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-300049-2**

Result of Calibration : Without Adjustment

based on the gravimetric determination of the quantity of water which is converted to true volume at the standard temperature of 20 °C

Setting Volume (µl)	Measuring Volume (µl)	e_s (µl)	η_s (%)	S_r (µl)	C_V (%)	Uncertainty (±µl)	Coverage Factor (k)
100	106.96	6.96	6.96	0.15	0.14	3.1	2.00
500	502.27	2.27	0.45	0.12	0.02	3.2	2.00
1000	999.28	-0.72	0.07	0.08	0.01	3.3	2.00

Note : e_s : Systematic error (µl), η_s : Relative systematic error (%)

S_r : Standard deviation (µl), C_V : Coefficient of variation (%)

The formula used to convert weighing values into volume is

$V_{20} = M \times Z$

V_{20} = is the water volume at standard temperature of 20 °C

M = is the balance reading of delivered water

Z = is the combined factor for buoyancy correction and conversion from mass to volume

UUC Condition As-Received : Good

UUC Calibrated to delivery (Ex) by using : White Tip

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurment was based on a standard uncertainty multiplied by a coverage factor (k)

providing a level of confidence of approximately 95%

- o0o -

[redacted]

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C08250053

Calibration Certificate

Equipment:	pH METER		
Model:	F-74BW	Job No.:	KSMT2501044
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	26.1 °C	±	0.3	°C
Humidity:	50.2 %RH	±	1.1	%RH

The Method used

In-house method, WI08, based on ASTM E 70-07

Traceability

This certificate is traceable to SI Units, Sample Test is assured through primary meaurement method Harned cell, through CPAchem Ltd. (ISO17034) Certificate No. 1066714, 1066714, 1066716, pH Scale and Temperature test are traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through Industrial Foundation Electrical and Electronics Institute Certificate No. CA20250010EA, through SCIMET Co., Ltd. Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.
บริษัท ซายเมท จำกัด

[redacted]

Envilab Co.,L

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard Buffer solution	4.007 pH	PH216.L5	1066714	18-Jan-27
Standard Buffer solution	6.965 pH	PH107.L5	1066714	18-Jan-26
Standard Buffer solution	10.010 pH	PH220.L5	1066716	18-Jan-26
DC Voltage and Current Calibrator / XITRON		2000MN	CA20250010EA	19-Jan-26
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

pH Scale

Input	pH Meter Reading			Uncertainty of Measurement (mV)	Coverage Factor *(k)*
(mV)	(mV)	Error (mV)	(pH)		
414.12	414.2	0.08	0.000	0.065	2.00
354.96	355.0	0.04	1.000	0.065	2.00
295.80	295.8	0.00	2.000	0.065	2.00
236.64	236.7	0.06	3.000	0.065	2.00
177.48	177.5	0.02	4.000	0.065	2.00
118.32	118.4	0.08	5.000	0.065	2.00
59.16	59.2	0.04	6.000	0.065	2.00
0.00	0.0	0.00	7.000	0.065	2.00
-59.16	-59.1	0.06	8.000	0.065	2.00
-118.32	-118.2	0.12	9.000	0.065	2.00
-177.48	-177.4	0.08	10.000	0.065	2.00
-236.64	-236.6	0.04	11.000	0.065	2.00
-295.80	-295.7	0.10	12.000	0.065	2.00
-354.96	-354.9	0.06	13.000	0.065	2.00
-414.12	-414.0	0.12	14.000	0.065	2.00

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co

SCIMET

Electrode Test Results*

The three-point calibration using three standard buffer solutions; pH 4.007 , pH 6.965 and pH 10.010

The practical slope of the pH electrode; 58.31 (mV/pH), 98.57%

The zero point of the pH electrode; 6.58 (pH)

Sample Test Results

Electrode Serial No.: 9X1K0003

Model: 9615S

Manufacturer: HORIBA

Standard Buffer Solution (pH)	Unit Under Calibration (pH)	Difference (pH)	Uncertainty of Measurement (pH)	Coverage Factor (*k*)
4.007	3.995	-0.012	0.011	2.43
6.965	6.970	0.005	0.011	2.07
10.010	10.019	0.009	0.0089	2.06

Temperature Electrode

Dimension of Probe;

Length : 100 mm

Diameter : 12 mm

Immersion Depth : 80 mm

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Uncertainty of Measurement (±°C)	Coverage Factor *(k)*
25.03	25.0	0.03	0.20	2.00

* Calibration Marked for Electrode Test" Not TISI Accredited " in this Certificate have been included for completeness.

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

[redacted]

SCIMET

ใบตรวจสอบสภาพเครื่อง pH Meter

เลขที่ใบงาน: KSMT2501044

ชนิดเครื่องมือ: pH METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☐	☑	8. ระดับสารละลายใน Electrode (Level KCl)	☑	☐	
☑	☐	9. ฝาปิดกันปลาย Electrode (Dust Protection Hood)	☑	☐	
☑	☐	10. ขาจับอิเล็กโทรด (Stand)	☑	☐	

เพิ่มเติม/ข้อแนะนำ : _____

_____

_____

Mr. Dumrong Boonsopon
Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **67-400639-1** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Temperature controlled enclosure (Refrigerator)
Manufacturer : M-LAB Model : BIC-140
Range : N/A °C Resolution : 0.1 °C
Serial No. : 1011 ID No. : ELABBODC140N03

Environment : On site calibration was carried out at the Laboratory, Envilab Co., Ltd.
Ambient Temperature : (24.4 to 25.0) °C
Relative Humidity : (40 to 45) %
Line Voltage : (227.0 to 230.0) V

Date of Received : 07 November 2024
Date of Calibration : 07 November 2024
Date of Issue : 13 November 2024
Calibrated by : Permpon Chanpu
Calibration Method : CAL-M4004, TLAS G-20
The temperature scale used was based on ITS-90

Reference Standard Instruments : This certification is traceable to the International System of Units
Standard Digital Thermometer with RTD Probe

ID No.	Cert. No.	Due Date	Traceability
400046 & 400042	67-400442-1	26 Jan 2025	National Institute of Metrology Thailand (NIMT)

A [redacted]
Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Cal

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบ[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

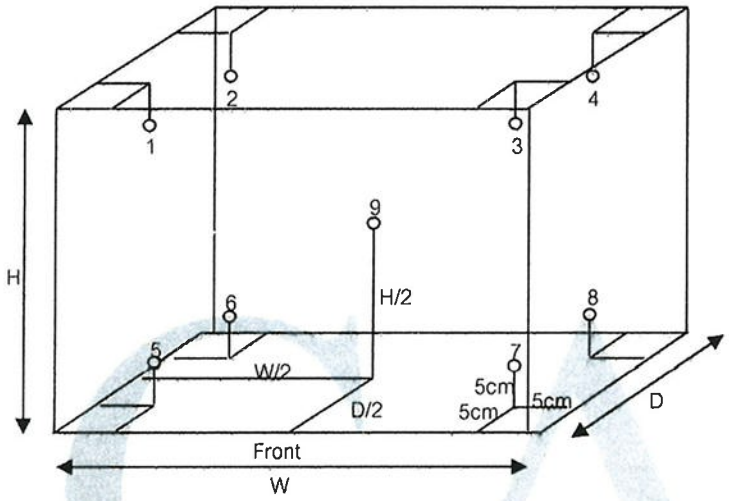
Certificate No. : 67-400639-1

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

This instrument was setting air ventilation at position 0 (close)



Inside of Chamber

W = 0.38 m

D = 0.35 m

H = 1.15 m

Capacity = 0.15 m^3

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Temperature (°C) @ Sensor No.									Uncertainty (±°C)
			1	2	3	4	5	6	7	8	9	
4.0	4.0	4.0	4.09	3.41	3.76	3.42	4.48	4.47	4.49	4.31	4.27	0.36

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Uniformity (°C)	Measured Stability (°C)	Overall Variation (°C)
4.0	4.0	4.0	0.88	0.04	1.13

Remark The uncertainty is not combine uniformity of the air chamber

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17240307

Calibration Certificate

Equipment:	Cooled Incubator		
Model:	BIC-140	Job No.:	KSMT2402653
Serial No.(or ID):	100613-1 (ELABBODC140NO1)	Received Date:	27 September 2024
Manufacturer:	M-LAB	Issued Date:	30 September 2024
Condition:	In Condition	Page:	1 of 3
Ventilation Valve:	None Shelves(pc.): 5		

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

27 September 2024

Environment Condition

Temperature:	20.8 °C	±	1.0	°C
Humidity:	54.8 %RH	±	2.6	%RH

The Method used

In-house method, WI17, based on TLAS-G20

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd.Certificate No. C23240083

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to International or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

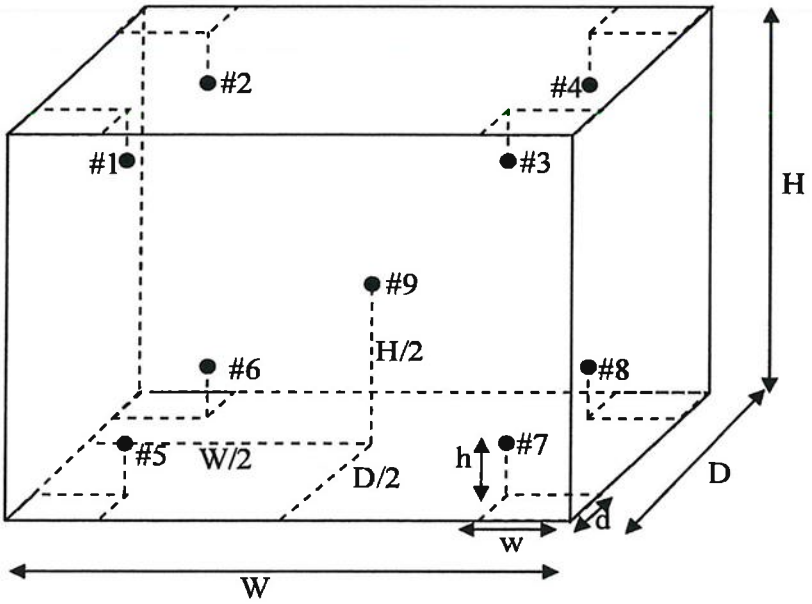
[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

Envilab Co.,Ltd.



Standard Installation Locations

Volume (Calibration Zone)= 58 (Liters)

Inside chamber:	W = 38 (cm)	D = 32 (cm)	H = 114 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 10 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 10 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	201	202	203	204	205	206	207	208	209

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

Enviiab Co.,Ltd.

SCIMET

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	19.54	-0.46	0.38
#2	19.49	-0.51	0.39
#3	19.87	-0.13	0.39
#4	20.04	0.04	0.37
#5	20.36	0.36	0.36
#6	20.21	0.21	0.37
#7	20.10	0.10	0.36
#8	20.19	0.19	0.37
#9	20.48	0.48	0.35

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
20.0	20.0	20.0	19.54	19.49	19.87	20.04	20.36	20.21	20.10	20.19	20.48	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
20.0	1.07	0.18	1.26

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการห้องปฏิบัติการ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, TLAS-G20. Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule : ☐ Choice A Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.

☑ Choice B Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.

☐ Choice C Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD.
บริษัท ซายน์เมท จำกัด

[redacted]
Authorized signatory

Without adjustment

Desired Temperature : 20.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	19.54	-0.46	0.38	1.0	Pass
#2	19.49	-0.51	0.39	1.0	Pass
#3	19.87	-0.13	0.39	1.0	Pass
#4	20.04	0.04	0.37	1.0	Pass
#5	20.36	0.36	0.36	1.0	Pass
#6	20.21	0.21	0.37	1.0	Pass
#7	20.10	0.10	0.36	1.0	Pass
#8	20.19	0.19	0.37	1.0	Pass
#9	20.48	0.48	0.35	1.0	Pass

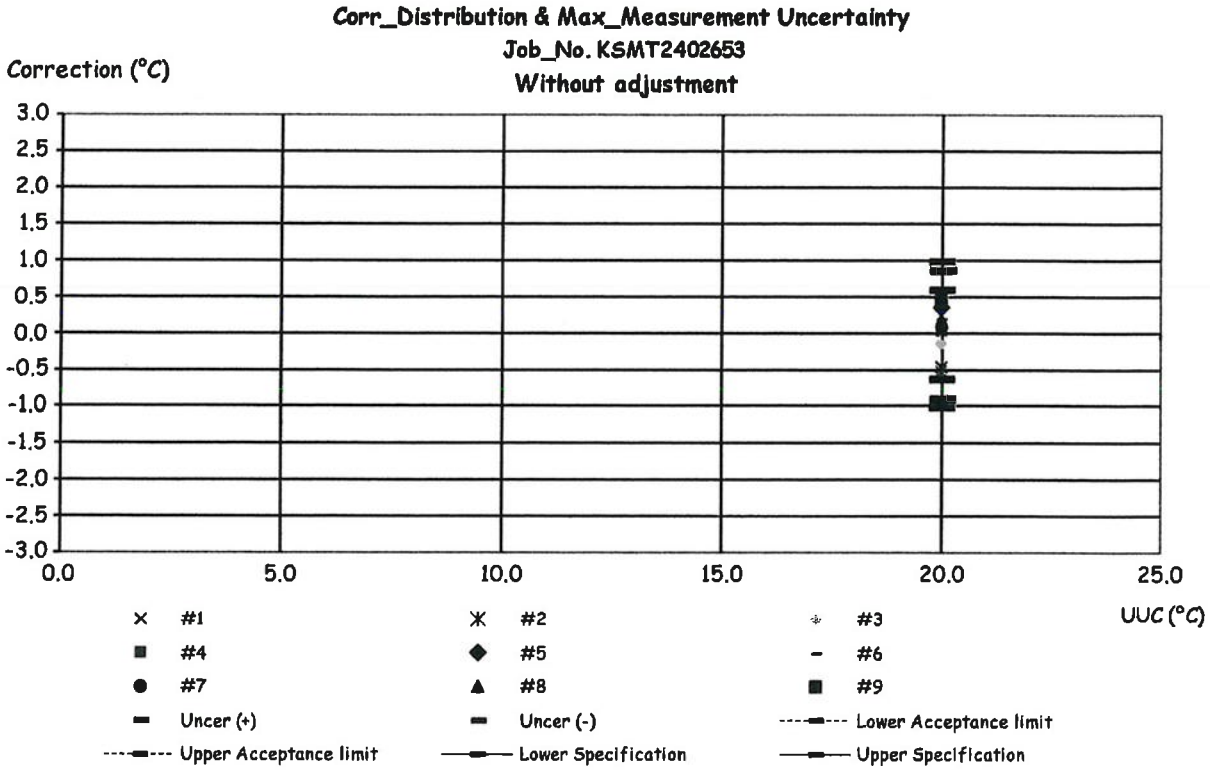
Correction of UUC.* = Measured Temperature - Desired Temperature

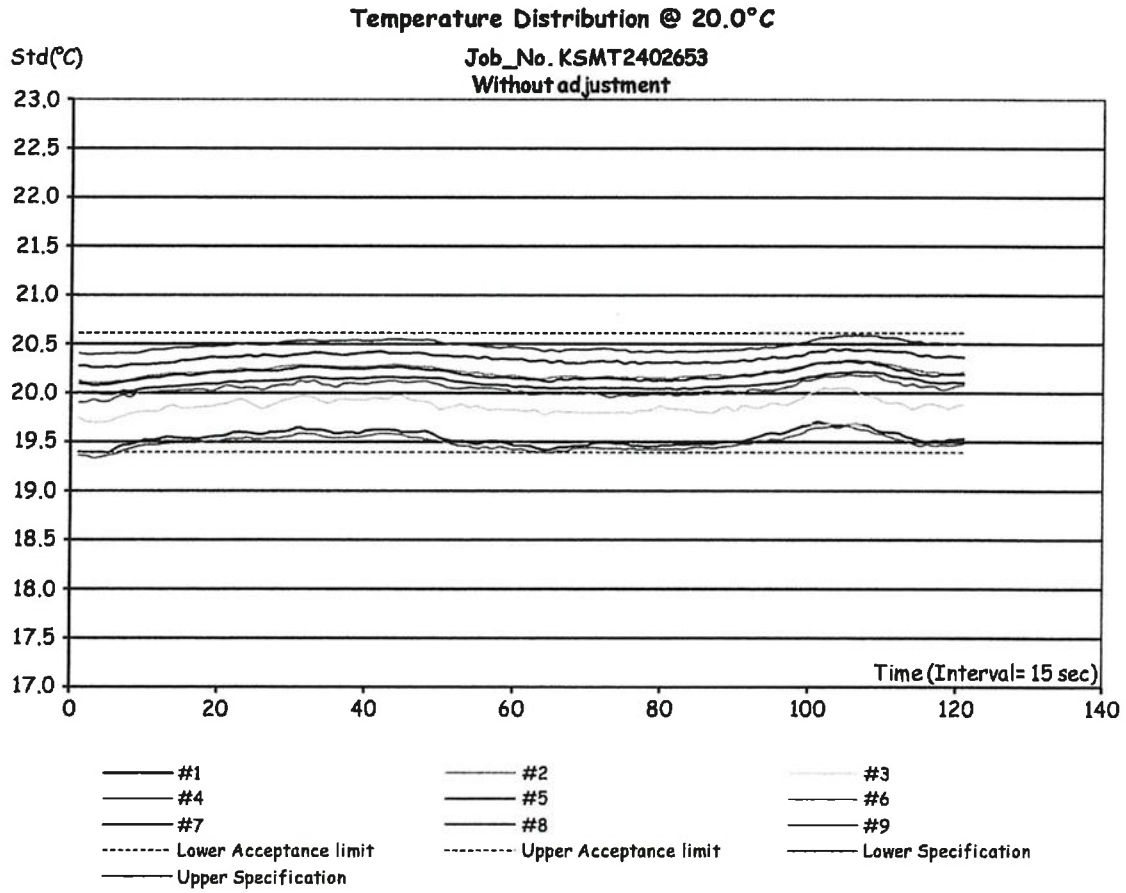
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,L [redacted]





[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2402653

ชนิดเครื่องมือ: Cooled Incubator รุ่น: BIC-140

หมายเลขเครื่อง: 100613-1 (ELABBODC140NO1)

ตรวจสอบ (รับ) 27 Sep 2024		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 27 Sep 2024		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☐	☐	6. สภาพ Lever of Ventilation valve	☐	☐	-
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☑	☐	10. การทำงานของระบบทำความเย็น	☑	☐	
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Mongkolwat Hasanon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel:095-552-4939

Certificate No. C27250001

Calibration Certificate

Equipment:	DO METER		
Model:	HI9146	Job No.:	KSMT2501049
Serial No.(or ID):	GOOO7931 (ELABDOHI914601)	Received Date:	17 March 2025
Manufacturer:	HANNA	Issued Date:	18 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Environment Laboratory, SCIMET Co., Ltd.

1194 Soi Wachirathamsathit 57, Bangchak, Prakhanong, Bangkok 10260 Thailand

Calibration Date

17 March 2025

Environment Condition

Temperature:	23	°C	±	2	°C
Humidity:	50	%RH	±	15	%RH

The Method used

In-house method, WI27 , By comparison with certified dissloved oxygen solution standard

Traceability

This is certificate is traceable to SI Units , Sample test and temperature test are assured through HANNA instruments company certificare No. 26I42, through Quality Reborn Co.,LTD certificare No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Mr.Damrong Boonsopon

Person in charge

SCIMET

SCIMET CO.,LTD

บริษัท ซายน์เมท จำกัด

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Calibration Results:

Electrode Serial No. -

Model : -

Brand : HANNA

Electrode Test

Atmospheric pressure measured while calibrating.	756.36	mmHg
Temperature measured while calibrating.(± 0.2 °C)	24.7	°C
The Oxygen Solubility was calculated from the ambient conditions.	8.27 ± 0.03	mg/L
The Oxygen Solubility reading from the DO METER	-	mg/L

Sample Test

Standard Oxygen Solution	Unit Under Calibration Reading	Correction	Coverage Factor (k)	Uncertainty of Measurement (±)
0.0 %	0.0 %	0.0 %	2.00	0.20 %

Temperature Electrode

Dimension of Probe;

Length : 85 mn.

Diameter : 18 mn.

Immersion Depth 80 mn.

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.01	25.6	-0.59	2.00	0.15

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 095 552 4939

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Do Meter

เลขที่ใบงาน: KSMT2501049

ชนิดเครื่องมือ: DO METER รุ่น: HI9146 หมายเลขเครื่อง: GOOO7931

ตรวจสอบ (รับ) 17 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 17 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ :

Mr.Dumrong Boonsopon

Service Engineer

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com. Tel: 095 552 4939

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-400323-1 **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.

540,540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : COD Reactor

Manufacturer : Hanna Model : HI839800

Range : N/A °C Resolution : 0.1 °C

Serial No. : 06480040101 ID No. : ELABHI83980001

Environment : Ambient Temperature : (23 ± 2) °C

Relative Humidity : (50 ± 15) %

Date of Received : 28 May 2025

Date of Calibration : 31 May 2025

Date of Issue : 31 May 2025

Calibrated by : Sarawut Sangiamging

Calibration Method : This instrument was calibrated by In-house method direct measurement with Standard Digital Thermometer with TC Type T probe

The temperature scale used was based on ITS-90

Reference Standard Instruments :

Standard Digital Thermometer with TC Probe

ID No.	Cert. No.	Due Date	Traceability
400046 & 400023	68-400148-1	02 Oct 2025	National Institute of Metrology Thailand (NIMT)
400046 & 400028	68-400148-3	01 Oct 2025	National Institute of Metrology Thailand (NIMT)

Appr[redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Ca[redacted]

Envilab Co.,Ltd.

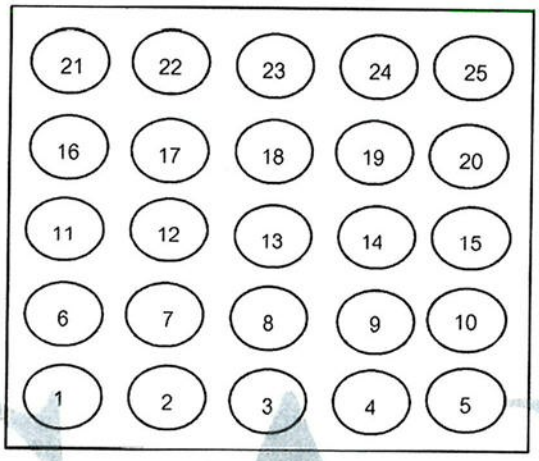
CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-400323-1**

Result of Calibration : Without Adjustment

Function : Temperature measurement



Controller

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)									
			1	2	3	4	5	6	7	8	9	10
150.0	150.0	150.0	149.0	149.2	149.4	149.6	148.6	149.0	150.3	149.7	149.6	149.8

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)									
			11	12	13	14	15	16	17	18	19	20
150.0	150.0	150.0	149.4	149.5	150.2	150.0	149.1	149.1	150.0	150.1	150.1	148.7

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)					Uncertainty (± °C)
			21	22	23	24	25	
150.0	150.0	150.0	148.6	148.7	149.6	148.9	148.6	0.79

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

Envilab Co.,Ltd.

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C18250038

Calibration Certificate

Equipment:	Liquid Bath		
Model:	WNB14	Job No.:	KSMT2501047
Serial No.(or ID):	L412.2222 (ELABWBWNB14N01)	Received Date:	19 March 2025
Manufacturer:	Memmert	Issued Date:	24 March 2025
Circulation:	None	Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	28.1 °C	±	0.5	°C
Humidity:	49.2 %RH	±	3	%RH

The Method used

In-house method, WI18, based on ASTM E715-1980 (reapproved 2022)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co., Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

SCIMET CO.,LTD.

Person in charge

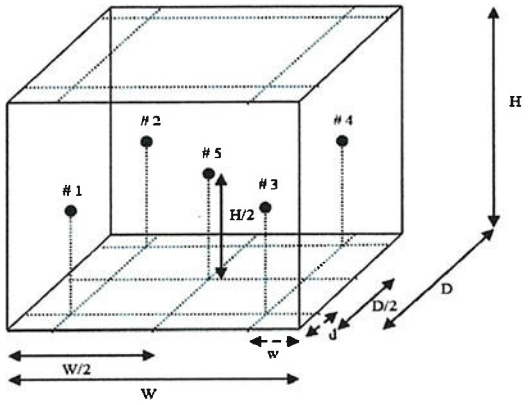
[redacted]

Envilab Co.,Ltd.

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration item : In Condition



Standard Installation Locations

Midway between the diffuser plate and the water surface

Inside bath: W = 37 (cm) D = 33 (cm) H = 16 (cm) Volume = 20 (Liters)

Standard Locations #1: w = 5 (cm) d = 5 (cm)

Standard Locations #2: w = 5 (cm) d = 5 (cm)

Standard Locations #3: w = 5 (cm) d = 5 (cm)

Standard Locations #4: w = 5 (cm) d = 5 (cm)

Standard Locations #5: Center of any probes. (#1 - #4)

Position of Std	#1	#2	#3	#4	#5
Channel of Logger	101	102	103	104	105

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the bath.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the bath at steady-state. The reference probe is preferably located in the geometric center of the bath.

Measured Stability: The one-half of greatest maximum difference of measured tempera[redacted]

Overall Variation: The difference of maximum and minimum measured temperatures th[redacted]

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	95.08	0.08	0.20
#2	95.12	0.12	0.20
#3	95.03	0.03	0.20
#4	95.07	0.07	0.20
#5	95.08	0.08	0.20

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)					Uncertainty (± °C)*
			#1	#2	#3	#4	#5	
95.0	94.5	94.5	95.08	95.12	95.03	95.07	95.08	0.20

Bath Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
94.5	0.12	0.09	0.28

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com Tel: 02 460 9239

Envilab Co.,Ltd.

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E715-1980 (reapproved 2022). Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET CO.,LTD. บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

Without adjustment

Desired Temperature : 95.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	95.08	0.08	0.20	1.0	Pass
#2	95.12	0.12	0.20	1.0	Pass
#3	95.03	0.03	0.20	1.0	Pass
#4	95.07	0.07	0.20	1.0	Pass
#5	95.08	0.08	0.20	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

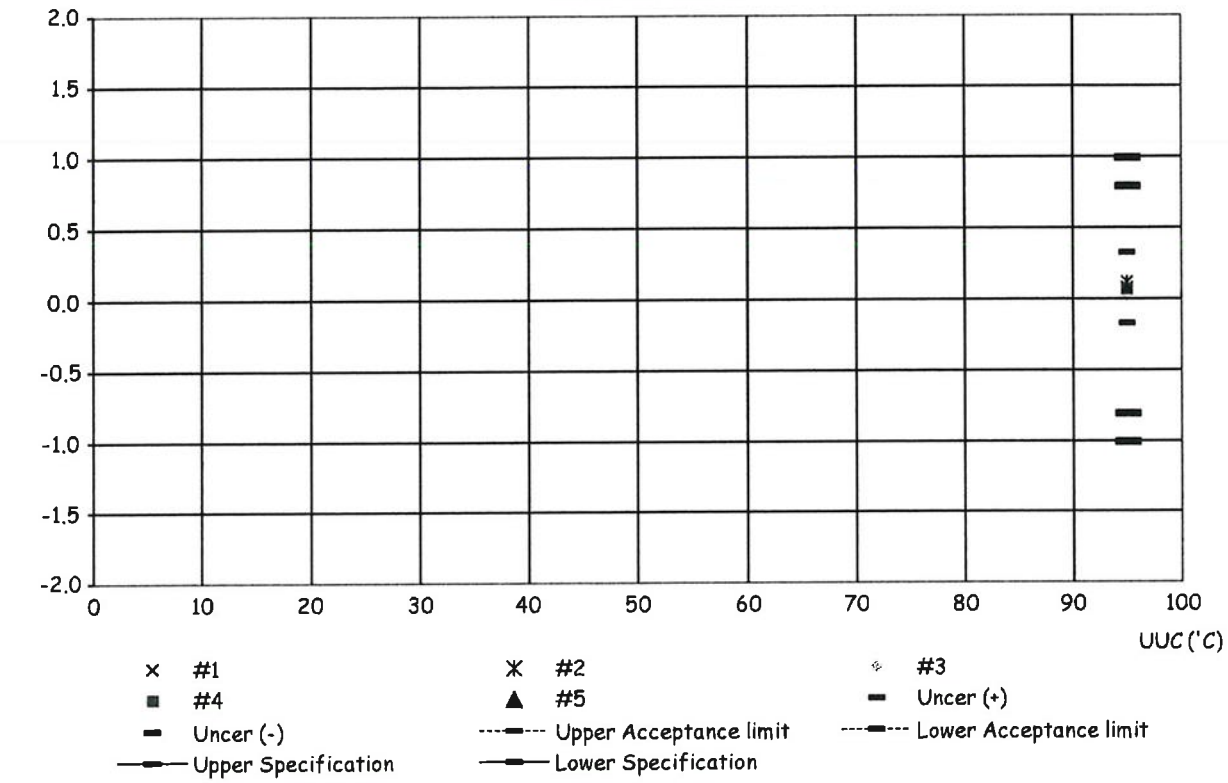
[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Corr_Distribution & Max_Measurement Uncertainty

Job_No. KSMT2501047

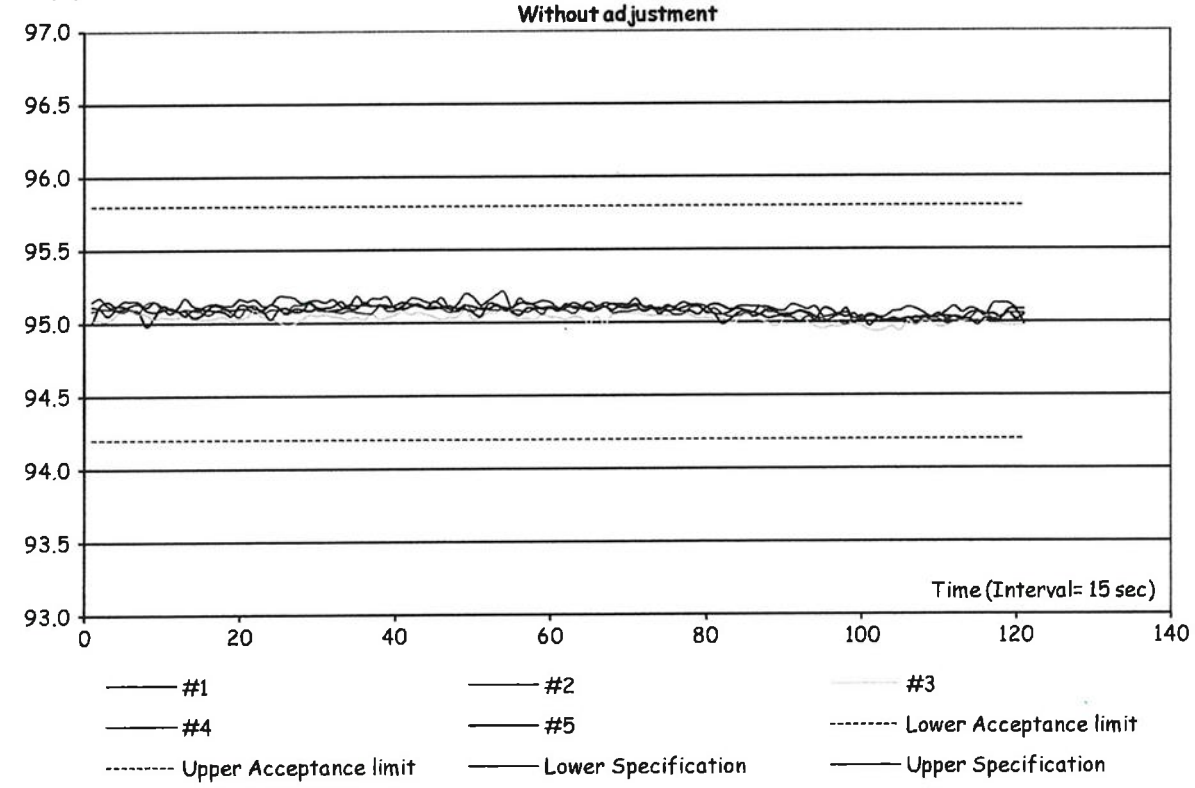
Without adjustment



Temperature Distribution @ 95.0°C

Job_No. KSMT2501047

Without adjustment



[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501047

ชนิดเครื่องมือ: Liquid Bath รุ่น: WNB14

หมายเลขเครื่อง: L412.2222

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☐	☐	5. การทำงาน Circulator	☐	☐	ไม่มี
☑	☐	6. สภาพ Lever door open / close	☑	☐	
☑	☐	7. ท่อระบายน้ำทิ้ง (DRAIN)	☑	☐	
☐	☐	8. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☑	☐	9. สภาพตัวเครื่อง	☑	☐	
☑	☐	10. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-200066-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : Electronic Balance
Manufacturer : METTLER TOLEDO Model : XSR205DU
Serial No. : B911363567 ID No. : ELABBALANCEN06
Capacity : 220 g Resolution : 0.00001g/81g, 0.0001g/220g

Environment : On site calibration was carried out at the B304 Balance Room, Envilab Co., Ltd.
Ambient Temperature : (21.2 to 21.5) °C
Relative Humidity : (51.4 to 56.2) %
Air Pressure : 1011.0 mbar

Date of Received : 17 February 2025
Date of Calibration : 17 February 2025
Date of Issue : 19 February 2025
Calibrated by : Satja Sangkhum

Calibration Method : In-house method CAL-M2001 based on UKAS Publication ref : LAB 14 Edition 7 - November 2022

Reference Standard Instruments : This certification is traceable to the International System of Units

Standard Weights

ID No.	Cert. No.	Due Date	Traceability
E261-E2624	C02242009	07 Nov 2025	National Institute of Metrology (Thailand), (NIMT)

Appr[redacted]

Laboratory Manager

[redacted]

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Cal

Envilab Co.,

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-200066-2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Departure of indication from nominal value

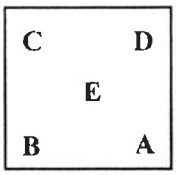
Nominal Value (g)	Correction (g)	Uncertainty ± (g)
0.1	0.00000	0.000016
0.5	0.00000	0.000022
1	0.00000	0.000026
2	-0.00001	0.000034
5	-0.00001	0.000043
10	0.00000	0.000053
50	-0.00002	0.00011
100	0.0000	0.00020
150	0.0000	0.00038
200	0.0000	0.00038

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty mutiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

Eccentric error Load test : 50 g

A	B	C	D	E	
-0.00001	-0.00001	0.00003	0.00003	0.00000	g



Repeatability Load test : 200 g

Stdev. : 0.000032 g

- o0o -

[redacted]

[redacted]

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250137

Calibration Certificate

Equipment: Hot Air Oven

Model:	UF75
Serial No.(or ID):	B319.0600 (ELABHAOVEN0600)
Manufacturer:	Memmert
Ventilation Valve:	Closed
Shelves(pc.):	3

Job No.:	KSMT2501050
Received Date:	19 March 2025
Issued Date:	24 March 2025
Page:	1 of 5

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B306 CH2 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	29.4 °C	±	1.2	°C
Humidity:	48 %RH	±	3	%RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]
(Mr. Hattapong Puminii)
Person in charge

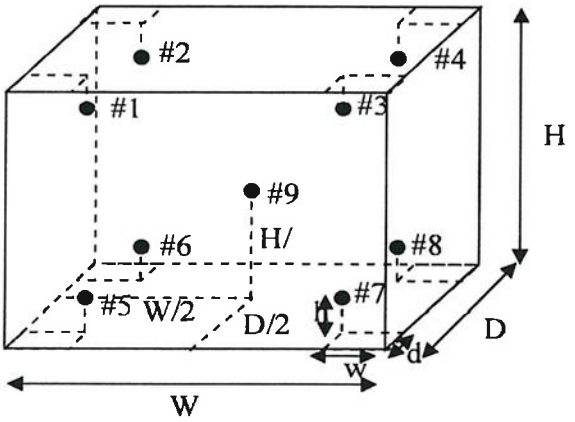
SCIMET CO.,LTD.

[redacted]
Envilab Co

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 30 (Liters)

Inside chamber:	W = 40 (cm)	D = 33 (cm)	H = 56 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	301	302	303	304	305	306	307	308	309

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

Calibration Results:

Before adjustment

Desired (°C)	Setting (°C)	Indicating (°C)	#1 (°C)	#2 (°C)	#3 (°C)	#4 (°C)	#5 (°C)	#6 (°C)	#7 (°C)	#8 (°C)	#9 (°C)
104.0	104.0	104.0	104.44	104.95	105.08	104.82	104.94	104.72	104.13	104.70	105.02

After adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	103.85	-0.15	0.39
#2	104.35	0.35	0.39
#3	104.40	0.40	0.39
#4	104.17	0.17	0.39
#5	104.33	0.33	0.39
#6	104.12	0.12	0.39
#7	103.73	-0.27	0.39
#8	104.10	0.10	0.39
#9	104.31	0.31	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
104.0	104.0	104.0	103.85	104.35	104.40	104.17	104.33	104.12	103.73	104.10	104.31	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
104.0	0.65	0.09	0.80

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	109.74	-0.26	0.39
#2	110.28	0.28	0.39
#3	110.40	0.40	0.39
#4	110.15	0.15	0.39
#5	110.24	0.24	0.39
#6	110.01	0.01	0.39
#7	109.59	-0.41	0.39
#8	110.02	0.02	0.39
#9	110.33	0.33	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
110.0	110.0	110.0	109.74	110.28	110.40	110.15	110.24	110.01	109.59	110.02	110.33	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
110.0	0.84	0.12	0.98

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	179.37	-0.63	0.49
#2	180.52	0.52	0.48
#3	180.61	0.61	0.47
#4	180.55	0.55	0.47
#5	180.51	0.51	0.48
#6	180.03	0.03	0.50
#7	179.26	-0.74	0.49
#8	180.23	0.23	0.49
#9	180.67	0.67	0.47

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
180.0	179.0	179.0	179.37	180.52	180.61	180.55	180.51	180.03	179.26	180.23	180.67	0.50

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
179.0	1.54	0.17	1.68

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd.

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]
Authorized signatory

After adjustment

Desired Temperature : 104.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	103.85	-0.15	0.39	1.0	Pass
#2	104.35	0.35	0.39	1.0	Pass
#3	104.40	0.40	0.39	1.0	Pass
#4	104.17	0.17	0.39	1.0	Pass
#5	104.33	0.33	0.39	1.0	Pass
#6	104.12	0.12	0.39	1.0	Pass
#7	103.73	-0.27	0.39	1.0	Pass
#8	104.10	0.10	0.39	1.0	Pass
#9	104.31	0.31	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

[redacted]
Envilab Co.,Ltd.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

SCIMET

Statements of conformity:(Cont.)

After adjustment (Cont.)

Desired Temperature : 110.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	109.74	-0.26	0.39	1.0	Pass
#2	110.28	0.28	0.39	1.0	Pass
#3	110.40	0.40	0.39	1.0	Pass
#4	110.15	0.15	0.39	1.0	Pass
#5	110.24	0.24	0.39	1.0	Pass
#6	110.01	0.01	0.39	1.0	Pass
#7	109.59	-0.41	0.39	1.0	Pass
#8	110.02	0.02	0.39	1.0	Pass
#9	110.33	0.33	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

After adjustment (Cont.)

Desired Temperature : 180.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	179.37	-0.63	0.49	2.0	Pass
#2	180.52	0.52	0.48	2.0	Pass
#3	180.61	0.61	0.47	2.0	Pass
#4	180.55	0.55	0.47	2.0	Pass
#5	180.51	0.51	0.48	2.0	Pass
#6	180.03	0.03	0.5	2.0	Pass
#7	179.26	-0.74	0.49	2.0	Pass
#8	180.23	0.23	0.49	2.0	Pass
#9	180.67	0.67	0.47	2.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

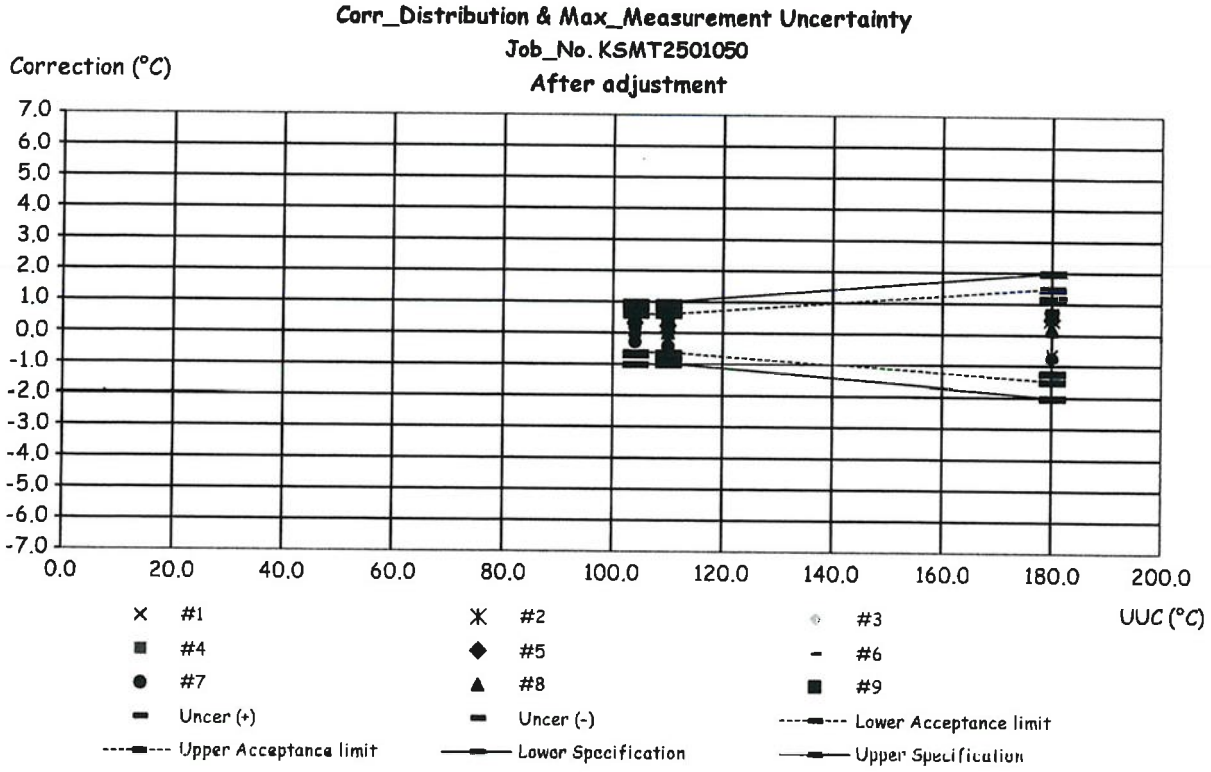
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

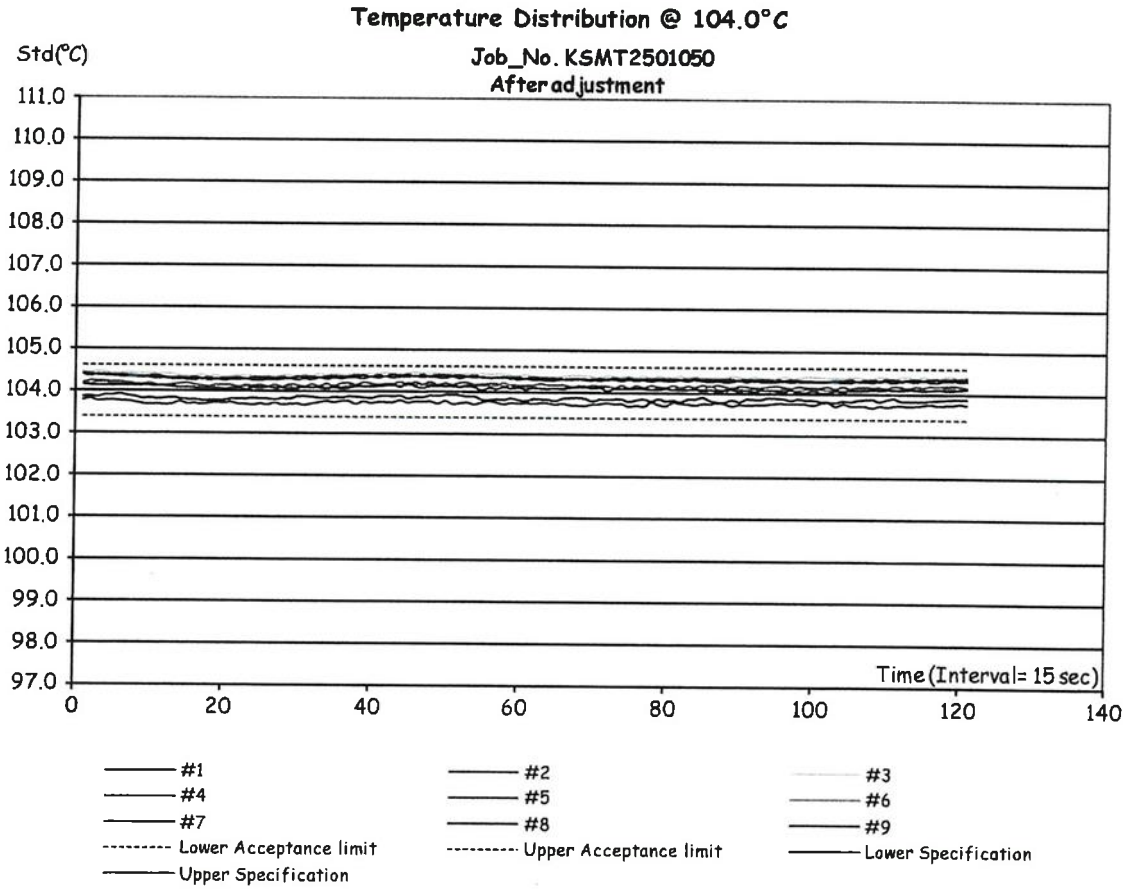
The End of Statements of Conformity

[redacted]

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

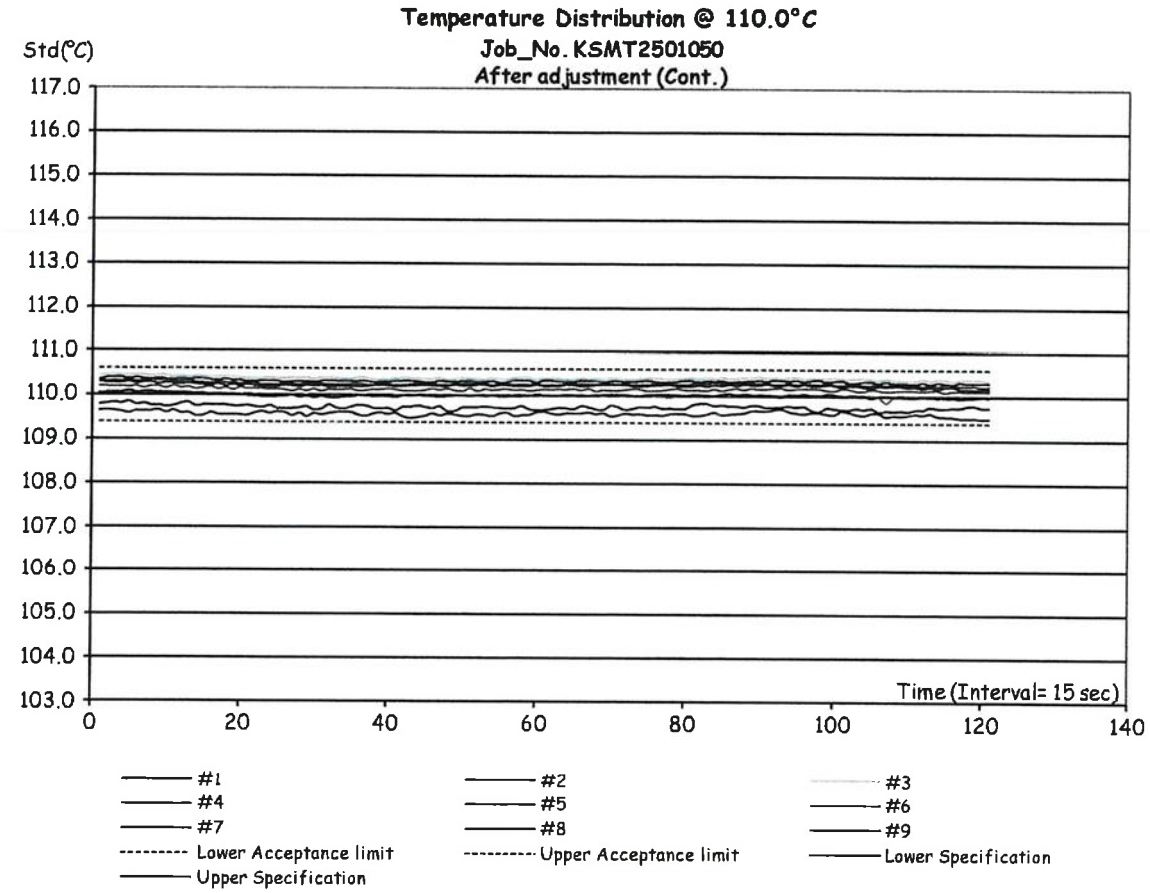
Envilab Co.,Ltd. FC17-03: 27 JAN 2025

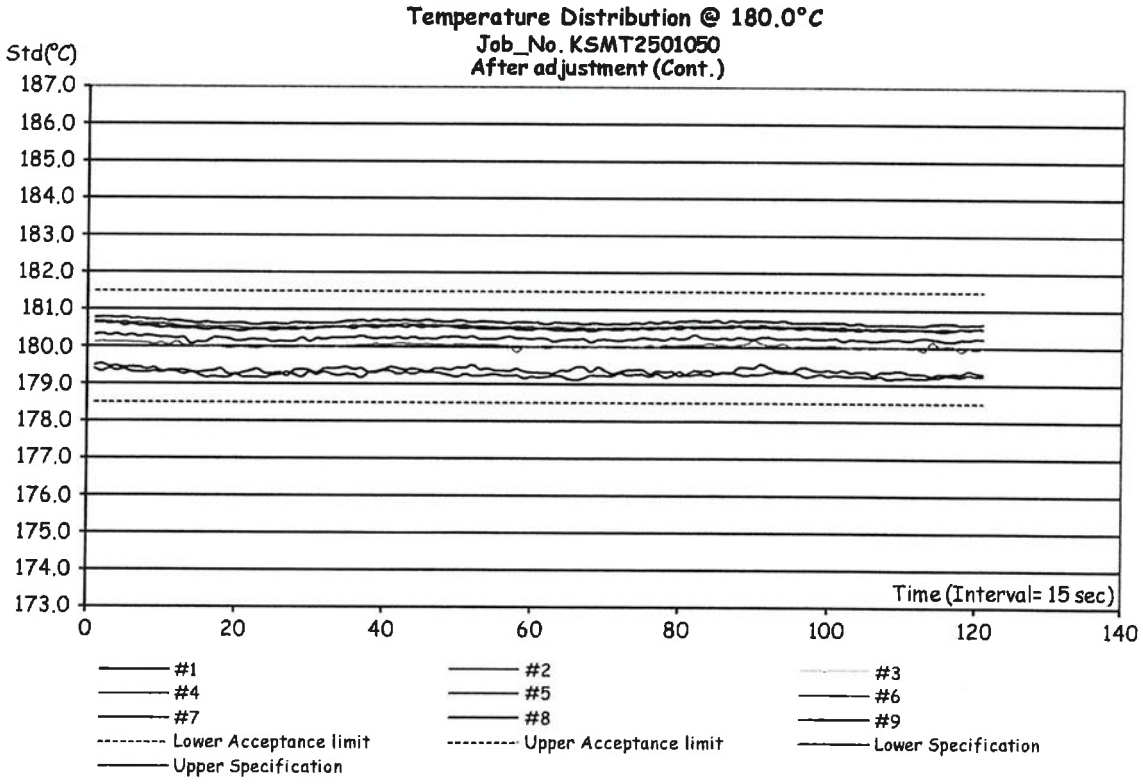




[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501050

ชนิดเครื่องมือ: Hot Air Oven รุ่น: UF75

หมายเลขเครื่อง: B319.0600 (ELABHAOVEN0600)

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☑	☐	6. สภาพ Lever of Ventilation valve	☑	☐	
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☐	☐	10. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	ไม่มี
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายคุณภาพ

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
18/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
mail: scimet2022@gmail.com, Tel: 02 460 9239

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300237-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Cylinder
Manufacturer : BOROSIL Class : A
Capacity : 50 ml Graduation : 1 ml
ID No. : C-WW-004/24

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1015.8 mbar.

Date of Received : 14 March 2025
Date of Calibration : 18 March 2025
Date of Issue : 18 March 2025
Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241002	67-200410-1	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Ca[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-300237-2**

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Nominal Volume (ml)	Measuring Volume (ml)
30	30.07
50	50.08

Uncertainty of measurement with in ± 0.054 ml

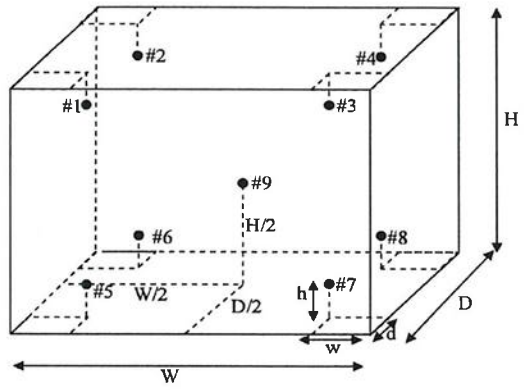
This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

[redacted]



Standard Installation Locations

Volume (Calibration Zone)= 21 (Liters)

Inside chamber:	W = 40 (cm)	D = 33 (cm)	H = 40 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 5 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 5 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	101	102	103	104	105	106	107	108	109

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

ured Temperature: The average reading of standards at any positions or location.

ured Uniformity: The maximum difference of measured temperatures between of any probes and the

ured temperature at the reference location which are observed at same time or at close observation time as

le to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference

is preferably located in the geometric center of the chamber.

ured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

l Variation: The difference of maximum and minimum measured temperatures throughout observation time.

Envilab Co.,Ltd.

[redacted]

นิเมท จำกัด (SCIMET CO., LTD.)
irathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
022@gmail.com, Tel: 02 460 9239

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17240309

Calibration Certificate

Equipment: Oven

Model:	ED53	Job No.:	KSMT2402655
Serial No.(or ID):	13-02277 (ELABHAOVEN2277)	Received Date:	27 September 2024
Manufacturer:	Binder	Issued Date:	30 September 2024
Condition:	In Condition	Page:	1 of 5
Ventilation Valve:	Closed Shelves(pc.): 2		

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B306 CH2 ROOM)

540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

27 September 2024

Environment Condition

Temperature:	30.4 °C	±	1.0 °C
Humidity:	70.3 %RH	±	5.0 %RH

The Method used

In-house method, WI17, based on TLAS-G20

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd.Certificate No. C23240083

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

(M [redacted] m)

Authorized signatory

Calibration Results:

Before adjustment

Desired (°C)	Setting (°C)	Indicating (°C)	#1 (°C)	#2 (°C)	#3 (°C)	#4 (°C)	#5 (°C)	#6 (°C)	#7 (°C)	#8 (°C)	#9 (°C)
85.0	85.0	85.0	87.01	88.17	87.35	87.18	85.19	85.80	85.32	85.05	85.84

After adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 85.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	86.28	1.28	0.58
#2	87.39	2.39	0.58
#3	86.58	1.58	0.58
#4	86.54	1.54	0.58
#5	84.67	-0.33	0.58
#6	85.22	0.22	0.57
#7	84.76	-0.24	0.57
#8	84.63	-0.37	0.58
#9	85.14	0.14	0.58

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
85.0	85.0	85.0	86.28	87.39	86.58	86.54	84.67	85.22	84.76	84.63	85.14	0.58

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
85.0	2.29	0.07	2.89

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	104.52	0.52	0.82
#2	106.25	2.25	0.85
#3	105.03	1.03	0.82
#4	105.00	1.00	0.83
#5	103.10	-0.90	0.82
#6	103.32	-0.68	0.82
#7	103.12	-0.88	0.82
#8	102.58	-1.42	0.82
#9	103.17	-0.83	0.82

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
104.0	104.5	104.5	104.52	106.25	105.03	105.00	103.10	103.32	103.12	102.58	103.17	0.85

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
104.5	3.26	0.21	3.96

Note: * Maximum uncertainty of the each position

Envied Co.,Ltd.

ซายน์เมท จำกัด (SCIMET CO., LTD.)
chirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
t2022@gmail.com, Tel: 02 460 9239

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, TLAS-G20. Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :
- ☐ Choice A Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

[redacted]

Authorized signatory

After adjustment

Desired Temperature : 85.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 85.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	86.28	1.28	0.58	1.0	Condition Fail
#2	87.39	2.39	0.58	1.0	Fail
#3	86.58	1.58	0.58	1.0	Condition Fail
#4	86.54	1.54	0.58	1.0	Condition Fail
#5	84.67	-0.33	0.58	1.0	Pass
#6	85.22	0.22	0.57	1.0	Pass
#7	84.76	-0.24	0.57	1.0	Pass
#8	84.63	-0.37	0.58	1.0	Pass
#9	85.14	0.14	0.58	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

ชายน์เมท จำกัด (SCIMET CO., LTD.)
Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
cimet2022@gmail.com, Tel: 02 460 9239

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 182.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	181.12	1.12	1.1
#2	183.67	3.67	1.3
#3	181.80	1.80	1.1
#4	181.92	1.92	1.1
#5	179.84	-0.16	1.2
#6	180.90	0.90	1.1
#7	179.77	-0.23	1.1
#8	179.38	-0.62	1.2
#9	179.75	-0.25	1.1

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
180.0	182.5	182.5	181.12	183.67	181.80	181.92	179.84	180.90	179.77	179.38	179.75	1.3

Chamber Characterization

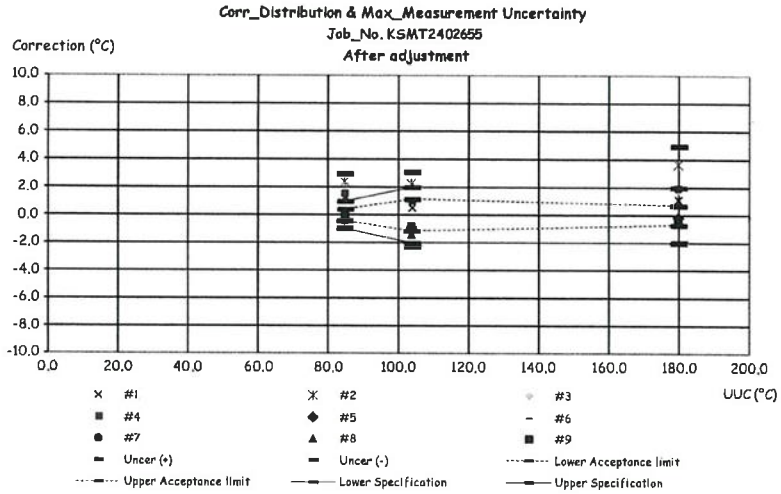
Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
182.5	4.48	0.64	5.29

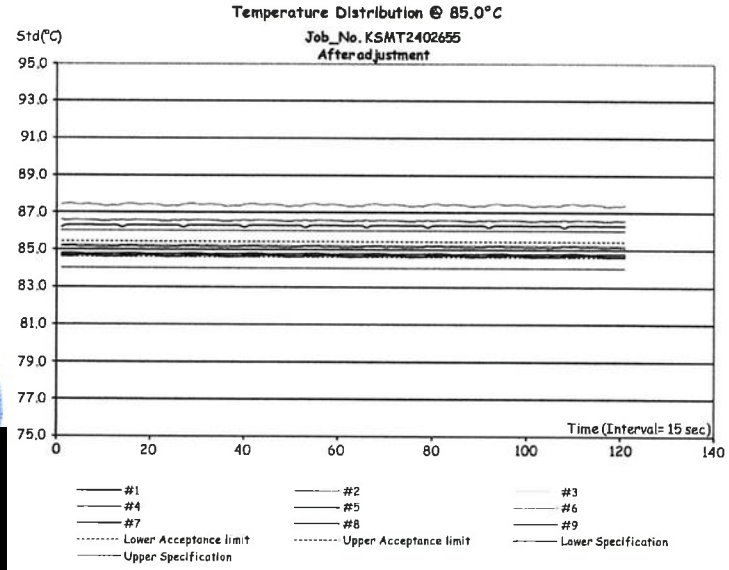
Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ชายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co., Ltd. [redacted]





Envilab Co.,Ltd.

[redacted]

SCIMET

Statements of conformity:(Cont.)

After adjustment (Cont.)

Desired Temperature : 104.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	104.52	0.52	0.82	2.0	Pass
#2	106.25	2.25	0.85	2.0	Condition Fail
#3	105.03	1.03	0.82	2.0	Pass
#4	105.00	1.00	0.83	2.0	Pass
#5	103.10	-0.90	0.82	2.0	Pass
#6	103.32	-0.68	0.82	2.0	Pass
#7	103.12	-0.88	0.82	2.0	Pass
#8	102.58	-1.42	0.82	2.0	Condition Pass
#9	103.17	-0.83	0.82	2.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

After adjustment (Cont.)

Desired Temperature : 180.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 182.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	181.12	1.12	1.1	2.0	Condition Pass
#2	183.67	3.67	1.3	2.0	Fail
#3	181.80	1.80	1.1	2.0	Condition Pass
#4	181.92	1.92	1.1	2.0	Condition Pass
#5	179.84	-0.16	1.2	2.0	Pass
#6	180.90	0.90	1.1	2.0	Pass
#7	179.77	-0.23	1.1	2.0	Pass
#8	179.38	-0.62	1.2	2.0	Pass
#9	179.75	-0.25	1.1	2.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2402655

ชนิดเครื่องมือ: Oven รุ่น: ED53

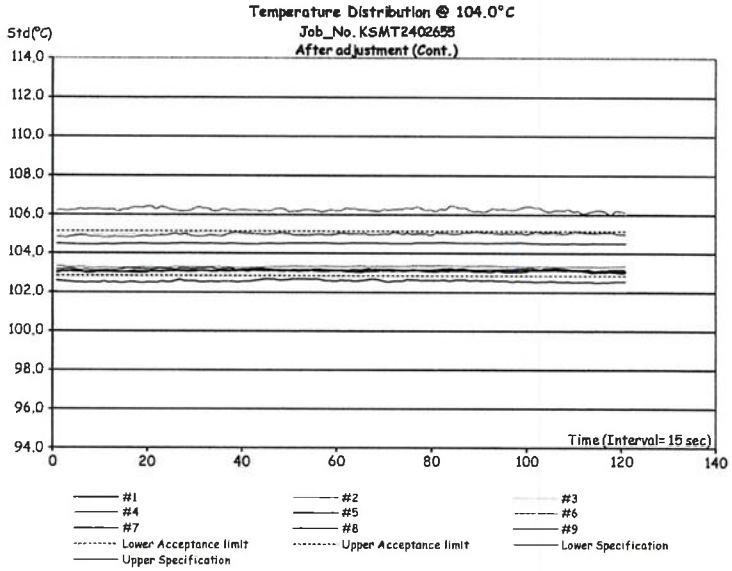
หมายเลขเครื่อง: 13-02277 (ELABHAOVEN2277)

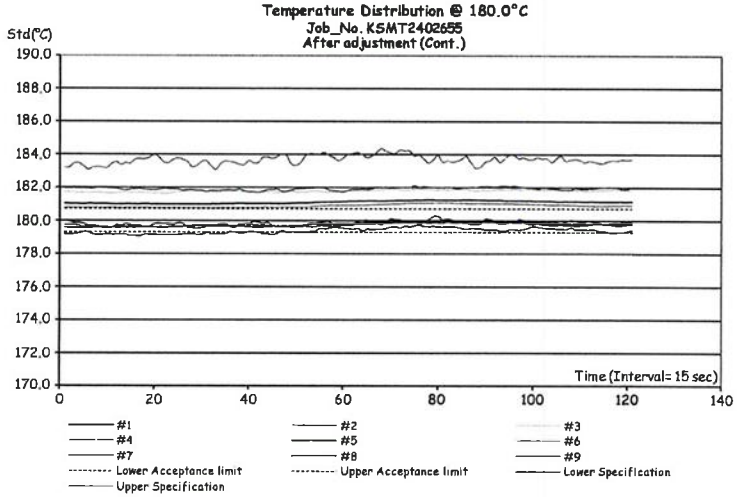
ตรวจสอบ (รับ) 27 Sep 2024 ปกติ	ตรวจสอบ (รับ) 27 Sep 2024 ไม่ปกติ	รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 27 Sep 2024 ปกติ	ตรวจสอบ (ส่ง) 27 Sep 2024 ไม่ปกติ	หมายเหตุ
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	*
☐	☐	5. การทำงาน พัดลม	☐	☐	-
☑	☐	6. สภาพ Lever of Ventilation valve	☑	☐	
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☐	☐	10. การทำงานของระบบทำความเย็น	☐	☐	-
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : * Control Modify Brand M-LAB

Mr. Mongkolwat Hasanon

Service Engineer





[redacted]

เมท จำกัด (SCIMET CO., LTD.)

thamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand

2@gmail.com, Tel: 02 460 9239

Agilent CrossLab
From Insight to Outcome

Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.
- For customers using HF applications, the instrument should be returned to its standard sample introduction system.

Envilab Co.,Ltd. [redacted]

Agilent

Agilent CrossLab
From Insight to Outcome

Agilent CrossLab Start Up Services

SS

Agilent 5100 5110 ICP-OES Preventive Maintenance

[redacted]

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides what you need to reduce unplanned downtime and keep your systems operating at their peak performance.

This checklist is used as a guide for completing the preventive maintenance tasks. A signed copy of this checklist is provided for your records.

Agilent

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "**X**" or tick mark "✓".
- Check **"Service not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in the most logical order relevant to the individual system service in the order of the tasks listed.
- Complete the **Service Review** section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Add relevant page numbers to selected pages and complete the total number of pages field in the Service Completion section
- **Ask the customer to sign the Service Verification section including the customer's and your signature.**

Envilab Co.,Ltd.

Important Customer Web Links

- To access **Agilent University**, visit http://www.agilent.com/crosslab/university/ to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit https://www.agilent.com/en-us/agilentresources. The following information topics are available:
  - Sample Prep and Containment
  - Chemical Standards
  - Analysis
  - Service and Support
  - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at https://www.youtube.com/user/agilent
- **Need to place a service call?** Flexible Repair Options | Agilent

Preparation

- ☑ Discuss any specific issues with the customer before starting.
- ☑ Review the instrument logbook for recorded problems and comments.
- ☑ Save instrument control settings before starting the procedure.
- ☑ Perform a general inspection of the system for cleanliness.
- ☑ Check for proper installation of parts, assemblies, sensors etc.
- ☑ Check system for required installation of components and implementation of Service Notes
- ☑ Check for required firmware/software updates and verify with customers if they would like them installed.
- ☐ For HF application systems, if standard sample introduction system was not installed, ask the customer to install it.
- ☑ Ask the customer to remove any samples from the ICP-OES sample introduction area, auto sampler or around the ICP-OES.

Envilab Co[redacted]

Instrument Maintenance

System Information

☐ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	G8015A / MY17490002
Instrument System Site and Location	Envilab Company Limited

List System Component Product Numbers		List the Serial Numbers of each Component
1.	G8410A	AU17393768
2.	G8015A	MY17490002
3.	G8481	1709-05327
4.		
5.		
6.		
7.		
8.		
9.		

ICP-OES Configuration Table	Circle the type or write in the type if other
Nebulizer Type	SeaSpray | OneNeb | Conikal | Other
Spray Chamber	Cyclonic Single Pass | Cyclonic Double Pass | Other
Torch	Radial | Dual View | Other
Torch Type	One Piece | Semi Demountable | Fully Demountable | Other
Injector Diameter	2.4mm | 1.8mm | 1.4mm | 0.8mm | Other
Injector Material	Quartz | Ceramic | Other

SPS 3 Auto Sampler

Type text here

- ☑ **Service not applicable**
- ☐ Power cycle the autosampler and verify successful initialization.
- ☐ Inspect X and Z axis belts for wear. Replace is necessary.
- ☐ Clean X and Z axis slide shafts.
- ☐ Using customer's racks and the Agilent software move the sample probe to the 4 outermost corners and rinse port, ensure that the probe is approximately centered in the vial.

SPS 4 Auto sampler

- ☐ **Service not applicable**
- ☑ Clean the spill tray, rack location mat, end frames and chassis with a damp soft cloth and diluted mild detergent.
- ☑ Clean the auto sampler cover panels, if cover kit is installed, with domestic window cleaner.
- ☑ Check the X-axis and Z-axis drive belts for cracks, splits, damaged teeth, excessive fraying, color changes or degradation from fumes.
- ☑ Check the X-axis, Theta-axis and Z-axis FFC cables for cracks, incorrect positioning, damaged edges or damaged connectors.
- ☑ Pump Tubing Replacement. Replace peristaltic pump tubing. Replace all tubing that goes from the rinse station to the pump and from the pump to the waste/rinse bottles
- ☑ Test using customer's tray and move the sample probe to the sample vial 1, wash vial and rinse port and ensure that the probe is centered in the vial. If not use calibration wizard and calibrate the position.

AVS 4, 6, 7 Advanced Valve System

- ☑ **Service not applicable**
- ☐ Replace valve rotor seal
- ☐ Check fittings for signs of leaks
- ☐ Check tubing including autosampler tubing for kinks or excessive wear
- ☐ Check high flow pump for signs of leaks

Envilab Co.,LTD.

Preventive Maintenance Procedures

Record Pre-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table – Pre-PM.

Clean and inspect ICP-OES system

- ☑ Look for any obvious external damage or problems.
- ☑ Inspect water cooling hoses, gas lines and power cord for excessive wear or damage.
- ☑ Perform a general internal inspection of the system for excessive dust accumulation, clean if necessary.
- ☑ Inspect sample introduction components and record any recuired maintenance in the Service Engineer Comments and notify the customer as the required actions required.
- ☑ Record the instrument operating conditions in the ICP-OES Status Results Table.
- ☑ Replace the polychromator purge filter.
- ☑ Replace the radial pre-optics window
- ☑ Replace the axial pre-optics window for SVDV and VDV instruments.
- ☑ Check exhaust flow for the correct positive extraction at the exhaust duct to insure they meet minimum specifications.
- ☑ Replace air inlet dust filter.
- ☑ Replace high capacity air inlet dust filter element if installed.
- ☑ Remove and clean instrument water inlet filter.

Agilent Water Recirculator

- ☐ **Service not applicable**
- ☑ Drain cooling fluid and remove any particles from the chiller reservoir
- ☑ Remove, clean and reinstall water inlet metal mesh filter if present.
- ☑ Re fill with Agilent Cool Clear cooling fluid.
- ☑ Clean the cooling system Air filter and the condenser.

Restore Instrument

- ☐ For HF applications, ask the customer to reinstall their sample introduction system.
- ☐ Leave system in an idle state: on and purging.
- ☐ Guidance: If the PM service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Record the PM event in the Smart Alerts logbook, if applicable.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review this service, parts replaced, and test results obtained with the customer.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box. Systems in a compliant environment may need additional documentation.
- ☑ **Complete the Signature Page with both Service Engineer and Customer signatures.**

Envilab Co.,Ltd.
[redacted]

© Agilent Technologies, Inc. 2022

ADS 2 Advanced Dilution System (5110 only)

- ☑ SERVICE NOT APPLICABLE
- ☐ LOOK FOR ANY OBVIOUS EXTERNAL DAMAGE OR PROBLEMS.
- ☐ REPLACE VALVE ROTOR SEAL ON VALVES A AND B.
- ☐ REPLACE BOTH SYRINGES.
- ☐ REPLACE ACID VAPOR FILTER (WASTE VESSEL)
- ☐ REPLACE VENTING VALVE (DILUENT CARRIER BOTTLE)
- ☐ CHECK FITTINGS FOR SIGNS OF LEAKS.
- ☐ CHECK TUBING INCLUDING AUTOSAMPLER TUBING FOR KINKS OR EXCESSIVE WEAR.

ICP-OES adjustment

- ☑ Check position of Zn peak, adjust if required.
- ☑ Check Argon Ratio, adjust to specified value if required.
- ☑ Perform Detector Calibration.
- ☑ Perform Instrument Calibration.

Record Post-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Tab e - Post PM.
- ☑ For systems using ICP Expert version 7.3 and above, run the following Instrument tests
  - ☑ Subsystem Communications Test
  - ☑ Air Flow
  - ☑ Water Flow
  - ☑ Gas Flows
  - ☑ RF Generator
  - ☑ Camera Test
  - ☑ Optics Test
  - ☑ Nebulizer Test
- ☑ Record the result in the Instrument Test Results Table

© Agilent Technologies, Inc. 2022

ICP-OES Status Results Table

Note: These measurements do not form part of any specification and are for reference only.

Measurement	Standby Mode		Plasma On	
Mains Voltage	220.640	VAC	219.053	VAC
Mains Current	0.080	A	0.099	A
Instrument Temperature	23.2	°C	22.3	°C
RF Air Flow (sensor speed)	7.0	Hz	20.0	Hz
Plasma Exhaust Temperature	No measurement		46.5	°C
Water Flow Oscillator	No measurement		1.51	L/min
Water Flow Detector	1.20	L/min	1.17	L/min
Water Inlet Temperature	18.3	°C	18.3	°C
Polychromator Temperature	35.3	°C	35.0	°C
CCD Temperature	-39.7	°C	-39.8	°C
Thermal Stabilizer	35.0	°C	35.0	°C
Argon Supply Pressure	611.44	kPa	564.69	kPa
Purge Gas Supply Pressure*1	610.40	kPa	594.52	kPa
Option Gas Supply Pressure*1	-	kPa	-	kPa
Nebulizer Flow	No measurement		0.70	L/min
Nebulizer Back Pressure	No measurement		280.74	kPa
Plasma Gas Flow	No measurement		12.03	L/min
Auxiliary Gas Flow	No measurement		1.00	L/min
RF Power	No measurement		1203.4	W
RF Supply Current	No measurement		8.244	A
RF Supply Voltage	No measurement		194.614	V

If option installed

Test Results

Instrument Performance Test Results Table

Note: These measurements do not form part of any specification and are for reference only.

	Pre PM Sensitivity Check		Post PM Sensitivity Check	
	Radial	Axial *	Radial	Axial*
Zn 213.857 nm SRBR	2745.8	3632.4	14128.0	23024.3
Mn 257.610 nm SRBR	12504.7	26596.0	86470.0	215311.9
Al 396.152 nm SBR	5.0	14.9	564.1	2335.7
K 766.491 nm SBR	4.4	71.4	639.6	11029.3

* Axial result is not applicable for G8016AA, G8012AA Radial View instruments.

Instrument Test Results Table

Note: The Instrument Test results are for systems using ICP Expert version 7.3 and above only.

Instrument Test	Result
Subsystem Communications Test	Pass
Air Flow	Pass
Water Flow	Pass
Gas Flows	Pass
RF Generator	Pass
Camera Test	Pass
Optics Test	Pass
Nebulizer Test	Pass

Envilab Co.,Ltd.

Part Description	Part Number	Product or Model# where used	Quantity consumed

Signature Page

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the installation or other items of interest for the customer, please write in this box.

-Torch is broken. Should be replaced and should be spaerd.

Service Verification

Service Request Number: 6007747651

Date Service Completed: June 26, 2025

Service Engineer Name: Suwan Onkhom

Customer Name:

© Agilent Technologies, Inc. 2022

Consumed PM Parts

Part Description	Part Number	Product or Model# where used	Quantity consumed
Axial Pre-Optic Window	G8010-68014	G8010A, G8011A, G8014A/G8015A	1
Radial Pre-Optic Window	G8010-68015	All	1
Agilent Cool Clear Coolant Fluid	5799-0037	Agilent Water Recirculator	N/A
Purge Gas Filter	G8010-60136	All	1
Air inlet filter	G8000-68002	All	1
High Capacity Air Filter	G8010-60189	Optional	N/A
Rotor seal for 6-7 port valve for AVS6/7	G8494-60002	G8494A/G8495, ADS 2	N/A
Rotor seal for 4 port valve for AVS4	G8493-60002	G8493A	N/A
Rinse solution to rinse station 2.5mm id x 1m	G8410-80123	SPS 4	N/A
Barb connector 2.5mm-1.5mm ID	G8410-80124	SPS 4	N/A
PVC waste tubing,8mm od x 5mm id, 2m	G8410-80122	SPS 4	N/A
Syringe, 5mL	5299-0037	ADS 2	N/A
Syringe, 10mL	5299-0038	ADS 2	N/A
Acid vapor filter	5043-1193	ADS 2	N/A
Venting valve	5043-1190	ADS 2	N/A
Additional Parts may be required from engineer's stock:			
X axis drive belt	5410047500	SPS 3	N/A
Z axis drive belt	5410047400	SPS 3	N/A
Peristaltic pump tubing, PVC SolvaFlex, 3 bridged,	3710049000	SPS 4	N/A

Consumed Parts Reference (Purchased by customer, not included as part of PM)

☐ **Section Not Applicable.**

Part Description	Part Number	Product or Model# where used	Quantity consumed

© Agilent Technologies, Inc. 2022

Envilab Co.,Ltd.

Agilent CrossLab
From Insight to Outcome

Service Engineer Signature:
Suwan O.

Customer Signature:

Total number of pages in this document:
15 pages



Revision: A.03, Issued: 3 May 2024
Document Number: G8014-90075
© Agilent Technologies, Inc. 2022

Agilent

PinAAcle 900F Preventive Maintenance (PM)			
Company Name:	ENVI LAB Co.,Ltd		
Address (Instrument Location):	540 soi Bangkhae7, Bangkae,Bangkok 10160		
Serial Number:	PFBS20011403	**PM Number:**	2/2
Customer Name (if applicable):	K.Janjira	**Telephone Number:**	095-5500510
Customer Support Engineer Name:	Prasit	**Service Order Number:**	WO-03026378
Date PM Performed: (DD-MMM-YYYY)	4 APR 2025	**Next PM Due Date:** (DD-MMM-YYYY)	4 OCT 2025
Standard Labor Hours to Complete PM :		**5 hours**	

Part Number	Release	Publication Date	PerkinElmer
09370145 Rev.9	A	January 2018	

Scope
The purpose of this PM is to ensure the continued functionality of the PinAAcle 900F by inspecting and replacing any worn or damaged parts. This service should only be performed by a trained representative of PerkinElmer.
The customer should save their method before the PM begins.

General Instructions:
The customer must provide the engineer operational data to demonstrate recent instrument performance prior to starting the PM.
Always check with the customer before making any changes that may affect the customer's analysis or calibration, including a current back-up of system software and/or data files.
The completed document should be signed by an authorized PerkinElmer and customer representative and left with the customer.
Update the PM sticker and instrument logbook as required.

Copyright Information
This document contains proprietary information that is protected by copyright. All rights are reserved.
No part of this publication may be reproduced in any form whatsoever or translated into any language without the prior, written permission of PerkinElmer, Inc.
Copyright © 2013 PerkinElmer, Inc.

Trademarks
Registered names, trademarks, etc. used in this document, even when not specifically marked as such, are protected by law. PerkinElmer is a registered trademark of PerkinElmer, Inc. All other trademarks and registered trademarks not owned by PerkinElmer, Inc. or its subsidiaries that are depicted herein are the property of their respective owners.
Except as specifically set forth in its terms and conditions of sale, PerkinElmer makes no Warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.
PerkinElmer shall not be liable for incidental or consequential damages in connection with the furnishing or use of this document.

Envilab Co.,Ltd.

PerkinElmer
For the Better

PinAAcle 900F Preventive Maintenance Report

Company Name: ENVI LAB Co.,Ltd

Instrument Location: AAS ROOM

540 soi Bangkhae7, Bangkae,Bangkok 10160

Instrument Serial No.: PFBS20011403

Date: 4 APR 2025

Component List

Component / Specific Model	Serial #	Configuration Notes
PinAAcle 900F	PFBS20011403	Syngistix Ver 5.1.0.2066

Parts Lists

Parts Included with the PM		
Part Number (if applicable)	Description	Quantity
B0501696	Fan Filters	N/A
N3160156	O-Ring Kits for Sampling Introduction (Stainless Steels Nebulizer)	N/A
N3160157	O-Ring Kits for Sampling Introduction (Plastic Nebulizer)	N/A
N9301714	Replacement Acetylene Filter Cartridge	N/A
TH001022	Replacement Air Filter Cartridge	N/A

Additional Reagents and Standards Required for PM				
Part Number (if applicable)	Description	Quality	Batch/Lot #	Expired Date (MM/YY)
N9300183	1000 mg/L Copper Standard	AR	26-87CUY1	APR-2025

Additional Reagents and Standards Required for PM (Customer Support Solution)				
Part Number (if applicable)	Description	Quantity	Batch/Lot #	Expiration Date (MM/YY)
N/A	DI Water	250 ml.	AR	AR
N/A	0.5% HNO_3	250 ml.	AR	AR

Additional Tools Required for PM			
Part Number (if applicable)	Description	Quantity	Serial #
N1013000	0.2A Neutral density filter	1	MG0-135
N1013002	1.0A Neutral density filter	1	MG2-258
03030997	System 2 EDL Driver	1	030309-97E
N3050605	As System 2 EDL	1	17986
N3050121	Cu Lumina HCL	1	000003793D12
N3050109	Ba Lumina HCL	1	041123-010120
N3050139	K Lumina HCL	1	0000037B8E1D
N3050152	Ni Lumina HCL	1	

Envilab Co.,Ltd.

7. Flame Interlock Check:

Description: Check to ensure that all safety interlocks are closed.

Parameter	Specification	Test Results	Pass/Fail
Flame Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Drain Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Nebulizer Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
C_2H_2 Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Air Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Burner Head Sensor	Choosing Nitrous Oxide as the oxidant should trigger an interlock shuts down	Active	Passed

8. After PM Performance tests:

8.1 Detector Linearity with Barium

Description: Ensures that the detector is linear in the Visible Range.

Parameter	Specification	Certificate Value at 553.6 nm (Abs.)	Test Results	Pass/Fail
1.0 A ND Filter	± 5% from Cert.	0.9995	1.0277	Passed
0.2 A ND Filter	± 5% from Cert.	0.1936	0.2024	Passed

8.2 Baseline Noise at 1.0 Absorbance with Barium

Description: Ensures that a high absorbance will not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0015	Passed

8.3 AA Baseline Noise with Copper

Description: Check baseline noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.001	0.0003	Passed

Envilab Co.,Ltd.

Procedure Checklist

Use (✓) to check off those steps in the checklist that have been completed.

1. General:

- ☑ Review the instrument performance with the customer and document any recent problems.
- ☑ Inspect the customer log book and make any appropriate PM entries.
- ☑ Perform general inspection of system for cleanliness.

2. PC Instrument Software:

- ☑ Instrument Software user files/databases archived, packed, and/or deleted as needed.

3. Mechanical:

- ☑ Inspect and clean all fans and filters. Replace filters if necessary
- ☑ Inspect all gas lines for leaks and/or wear. Replace if needed.
- ☑ Clean exterior of the instrument.
- ☑ Inspect the burner head, burner chamber, and nebulizer. Clean if needed as stated in the Hardware Guide.
- ☑ Check burner head dimensions with the feeler gauge as stated in the Hardware Guide in the Maintenance chapter section on cleaning the burner head and checking sloth width. Replace if out of specification
- ☑ Check the condition of the end cap, burner head, and nebulizer O-rings. Replace if necessary.
- ☑ Check the drain system for signs of wear. Replace worn or damaged parts.
- ☑ Visually check for proper flame conditions when igniting the Air-C2H2 and N20-C2H2 flames (if applicable).

4. Electrical:

- ☑ Inspect PC boards. Clean if necessary.
- ☑ Carefully check all internal and external cable connections.
- ☑ Check instrument firmware revisions upgrade to current levels (if necessary)
- ☑ Run Diagnostics Test within the Advanced function of the Spectrometer page. Check the results in the service log folder in the Spectrometer BM Log Viewer.

5. Optics:

- ☑ Inspect and clean the sample compartment windows, if needed.
- ☑ Inspect optics. Clean or replace if necessary,

6. Gasses:

- ☑ Verify that the Gasses supplied to the instrument are within the pressure and purity specifications found in the PinAAcle 900 Series Pre-installation Checklist SDB.
- ☑ Verify that the acetylene filter and air filter element is dry. Replace if necessary.

Additional Comments

Additional Comments Regarding the PM

Review

The preventive maintenance checks and if applicable performance tests for PinAAcle 900F have been completed.

This PinAAcle 900F Passes ☑ Fails ☐ the preventive maintenance.

Review of Preventive Maintenance:	
Authorized PerkinElmer Representative: [redacted]	Date: 4 APR 2025 (DD-MMM-YYYY)
Authorized Customer Representative:	Date: 4 APR 2025 (DD-MMM-YYYY)

8.4 D_2 Background Compensation with Copper

Description: Verifies the instruments ability to compensate for Background absorption.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0013	Passed

8.5 AA-BG Baseline Noise with Copper

Description: Ensures that background correction does not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0004	Passed

8.6 AA-BG Baseline Noise with Arsenic

Description: Ensures that background correction does not produce excessive noise at a low wavelength.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0001	Passed

8.7 Flame Sensitivity

Description: Instrument Sensitivity checked against Copper standard.

Standard Copper Sensitivity	Specification	Results (Abs.)	Pass/Fail
5 mg/L Sensitivity SS Neb (if applicable)	> 0.250 Abs.	N/A	Passed
2 mg/L Sensitivity HS Neb (if applicable)	> 0.250 Abs.	0.2987	Passed

10. Review:

- ☑ Review with the customer PM work performed.
- ☑ Review with the customer routine maintenance procedures.
- ☑ Discuss recommended customer supplied materials to have on hand.
- ☑ Attach PM sticker.

Envilab Co.,Ltd. [redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : 68-410024-1 **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Digital Thermo-Hygrometer

Manufacturer :	Jedto	Model :	HTC-1
Range Temperature :	-10 °C to 50 °C	Resolution :	0.1 °C
Range Humidity :	20 %R.H. to 90 %R.H.	Resolution :	1 %R.H.
Serial No. :	PONPE5852094	ID No. :	ELABTMHTC10003

Environment : Ambient Temperature : (23 ± 2) °C
Relative Humidity : (50 ± 15) %

Date of Received : 17 February 2025
Date of Calibration : 22 February 2025
Date of Issue : 22 February 2025
Calibrated by : Chortip Samchusri

Calibration Method : This instrument was calibrated by In-house method comparison technique CAL-M4013 by compared with standard probe sensor humidity/temperature into humidity/temperature chamber.

Reference Standard Instruments : This certification is traceable to the International System of Units

Digital Indicator with Standard Probe Temp&Hum

ID No.	Cert. No.	Due Date	Traceability
400034 & 400036	SG-H-00001/68	04 Jul 2025	Success Gateway Co., Ltd., Accredited by TISI Calibration No.0268

Approv [redacted]

Supervisor

[redacted]

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Ca

Envilab Co.,Ltd. ผู้จัดการฝ่าย[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-410024-1

UUC Condition As-Received : Good

Result of Calibration : Without Adjustment

Function : Temperature measurement

Reference Humidity @ 50 %R.H.

Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
25.00	24.9	0.1	0.46

Result of Calibration : Without Adjustment

Function : Humidity measurement

Reference Temperature @ 25 °C

Standard Humidity (%R.H.)	UUC Reading (%R.H.)	Correction (%R.H.)	Uncertainty (±%R.H.)
50.03	50	0	2.2

Remark

UUC : Unit Under Calibration

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

Envilab Co.,Ltd.

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C07250028

Calibration Certificate

Equipment:	SPECTROPHOTOMETER		
Model:	CARY 60UV-VIS	Job No.:	KSMT2500779
Serial No.(or ID):	MY17490026 (ELABSPECTRO0002)	Received Date:	03 March 2025
Manufacturer:	Agilent	Issued Date:	03 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B301 CO-THC ROOM)

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

03 March 2025

Environment Condition

Temperature:	22.3 °C	±	0.1	°C
Humidity:	66.0 %RH	±	2.2	%RH

The Method used

In-house method, WI07, based on ASTM E 275-08 and ASTM E 387-04

Traceability

This certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Starna Scientific Limited.

The standard for Wavelength Certificate No. 125472 and 125471

The standard for Photometric Certificate No. 125567 and 125517

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

(Mr. Bumrong Boonsopon)

Person in charge

SCIMET CO.,LTD

[redacted]

Envilab Co.,Ltd.

Condition of reference standards Instruments / CRM:

Instruments	Set No.	Certificate No.	Due date
Didymium Oxide Glass Reference	131033	125472	16-Sep-26
Holmium Oxide Glass Reference	136650	125471	16-Sep-26
Neutral Density Filter Reference	45329	125567	17-Sep-26
Potassium Dichromate Solution References	45328	125517	17-Sep-26

Calibration Results:

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Standard Wavelength (nm)	Unit Under Calibration (nm)	Correction (nm)	Uncertainty of Measurement (± nm)
219.39	220.0	-0.61	0.14
241.27	241.5	-0.23	0.14
287.39	287.5	-0.11	0.14
333.65	333.4	0.25	0.14
360.32	360.0	0.32	0.14
417.64	417.0	0.64	0.14
472.50	472.5	0.00	0.14
513.47	513.4	0.07	0.14
528.88	528.9	-0.02	0.14
537.13	537.1	0.03	0.14
640.92	641.7	-0.78	0.14
740.72	741.4	-0.68	0.14
748.55	749.3	-0.75	0.14
807.03	807.5	-0.47	0.14
879.28	879.3	-0.02	0.14

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
235 nm	0.0000	0.0002	-0.0002	0.0080
	0.7328	0.7345	-0.0017	0.0080
257 nm	0.0000	-0.0003	0.0003	0.0080
	0.8537	0.8545	-0.0008	0.0080
313 nm	0.0000	-0.0001	0.0001	0.0080
	0.2855	0.2862	-0.0007	0.0080
350 nm	0.0000	0.0000	0.0000	0.0080
	0.6338	0.6349	-0.0011	0.0080

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
118/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted] EC07504: 27 JAN 2025

SCIMET

Calibration Results:

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
420 nm	0.0000	0.0000	0.0000	0.0045
	0.2352	0.2382	-0.0030	0.0045
	0.5716	0.5740	-0.0024	0.0045
	0.7146	0.7167	-0.0021	0.0045
	1.0179	1.0190	-0.0011	0.0045
440 nm	0.0000	0.0000	0.0000	0.0045
	0.2314	0.2350	-0.0036	0.0045
	0.5566	0.5596	-0.0030	0.0045
	0.7028	0.7060	-0.0032	0.0045
	1.0016	1.0039	-0.0023	0.0045
465 nm	0.0000	0.0000	0.0000	0.0045
	0.2107	0.2137	-0.0030	0.0045
	0.5192	0.5219	-0.0027	0.0045
	0.6638	0.6668	-0.0030	0.0045
	0.9447	0.9471	-0.0024	0.0045
546.1 nm	0.0000	0.0000	0.0000	0.0045
	0.2187	0.2208	-0.0021	0.0045
	0.5207	0.5230	-0.0023	0.0045
	0.7002	0.7025	-0.0023	0.0045
	1.0001	1.0020	-0.0019	0.0045
590 nm	0.0000	0.0000	0.0000	0.0045
	0.2430	0.2449	-0.0019	0.0045
	0.5546	0.5567	-0.0021	0.0045
	0.7756	0.7774	-0.0018	0.0045
	1.1117	1.1123	-0.0006	0.0045
635 nm	0.0000	0.0000	0.0000	0.0045
	0.2635	0.2651	-0.0016	0.0045
	0.5622	0.5639	-0.0017	0.0045
	0.7651	0.7673	-0.0022	0.0045
	1.0974	1.0982	-0.0008	0.0045

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
118/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการเพื่อสิ่งแวดล้อมคุณภาพ
FC07047 27 JAN 2025

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The error of temperature determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E 275-08 and ASTM E 387-04. Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
18/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
mail: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted]

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
220.0	-0.61	0.14	1.0	Pass
241.5	-0.23	0.14	1.0	Pass
287.5	-0.11	0.14	1.0	Pass
333.4	0.25	0.14	1.0	Pass
360.0	0.32	0.14	1.0	Pass
417.0	0.64	0.14	1.0	Pass
472.5	0.00	0.14	1.0	Pass
513.4	0.07	0.14	1.0	Pass
528.9	-0.02	0.14	1.0	Pass
537.1	0.03	0.14	1.0	Pass
641.7	-0.78	0.14	1.0	Pass
741.4	-0.68	0.14	1.0	Pass
749.3	-0.75	0.14	1.0	Pass
807.5	-0.47	0.14	1.0	Pass
879.3	-0.02	0.14	1.0	Pass

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
235 nm	0.0002	-0.0002	0.0080	0.020	Pass
	0.7345	-0.0017	0.0080	0.020	Pass
257 nm	-0.0003	0.0003	0.0080	0.020	Pass
	0.8545	-0.0008	0.0080	0.020	Pass
313 nm	-0.0001	0.0001	0.0080	0.020	Pass
	0.2862	-0.0007	0.0080	0.020	Pass
350 nm	0.0000	0.0000	0.0080	0.020	Pass
	0.6349	-0.0011	0.0080	0.020	Pass

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
118/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ
FC07-04: 27 JAN 2025

SCIMET

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
420 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2382	-0.0030	0.0045	0.015	Pass
	0.5740	-0.0024	0.0045	0.015	Pass
	0.7167	-0.0021	0.0045	0.015	Pass
	1.0190	-0.0011	0.0045	0.015	Pass
440 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2350	-0.0036	0.0045	0.015	Pass
	0.5596	-0.0030	0.0045	0.015	Pass
	0.7060	-0.0032	0.0045	0.015	Pass
	1.0039	-0.0023	0.0045	0.015	Pass
465 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2137	-0.0030	0.0045	0.015	Pass
	0.5219	-0.0027	0.0045	0.015	Pass
	0.6668	-0.0030	0.0045	0.015	Pass
	0.9471	-0.0024	0.0045	0.015	Pass
546.1 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2208	-0.0021	0.0045	0.015	Pass
	0.5230	-0.0023	0.0045	0.015	Pass
	0.7025	-0.0023	0.0045	0.015	Pass
	1.0020	-0.0019	0.0045	0.015	Pass
590 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2449	-0.0019	0.0045	0.015	Pass
	0.5567	-0.0021	0.0045	0.015	Pass
	0.7774	-0.0018	0.0045	0.015	Pass
	1.1123	-0.0006	0.0045	0.015	Pass
635 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2651	-0.0016	0.0045	0.015	Pass
	0.5639	-0.0017	0.0045	0.015	Pass
	0.7673	-0.0022	0.0045	0.015	Pass
	1.0982	-0.0008	0.0045	0.015	Pass

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
118/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
mail: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

SCIMET

ใบตรวจสอบสภาพเครื่อง Spectrophotometer

เลขที่ใบงาน: KSMT2500779

ชนิดเครื่องมือ: SPECTROPHOTOMETER รุ่น: CARY 60UV-VIS หมายเลขเครื่อง: MY17490026

ตรวจสอบ (รับ) 03 Mar 2025 ปกติ	ตรวจสอบ (รับ) 03 Mar 2025 ไม่ปกติ	รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 03 Mar 2025 ปกติ	ตรวจสอบ (ส่ง) 03 Mar 2025 ไม่ปกติ	หมายเหตุ
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. ตัวหมุนเลือกความยาวคลื่น (Wavelength Control)	☑	☐	
☑	☐	7. ความยาวคลื่น (Wavelength Check)	☑	☐	
☑	☐	8. แหล่งกำเนิดแสง (UV < 3,000 hour)	☑	☐	
☑	☐	9. แหล่งกำเนิดแสง (Visible < 5,000 hour)	☑	☐	
☐	☐	10. ช่องวัดหลายตัวอย่าง (Carousel Module)	☐	☐	-

เพิ่มเติม/ข้อแนะนำ :

Mr. Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
118/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C09250024

Calibration Certificate

Equipment:	CONDUCTIVITY METER		
Model:	F-74BW	Job No.:	KSMT2501045
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	25.8 °C	±	0.4	°C
Humidity:	51.7 %RH	±	2.9	%RH

The Method used

In-house method, WI09, based on ASTM D1125-14 and D 5391-14

Traceability

This certificate is traceable to the SI Units maintained by CRM of NIST(SRM) through CPA chem Co., Ltd. (ISO 17034) Certificate No. 1019566, 1019567, 1019568 , Temperature test is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co., Ltd.Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standardlaboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

[redacted]

Envilab Co.,Ltd.

SCIMET

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard conductivity solution	25.001 µS/cm	CS25M0S.L5	1019566	4-Aug-25
Standard conductivity solution	1412.9 µS/cm	CS1413M0S.L5	1019567	4-Aug-25
Standard conductivity solution	111.3 mS/cm	CS111MS.L5	1019568	4-Aug-25
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

Electrode Serial No. 3G1J0088 Model : 3552 Brand : HORIBA

Before Adjustment

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	27.6	µS/cm	-2.599	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1541	µS/cm	-128.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	113.7	mS/cm	-2.4	mS/cm	2.00	0.82	mS/cm

After Adjustment ; at 1412.9 µS/cm

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	25.3	µS/cm	-0.299	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1413	µS/cm	-0.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	106.1	mS/cm	5.2	mS/cm	2.00	0.82	mS/cm

Temperature Electrode

Dimension of Probe ; mm (millimeter) Length : 110 Diameter: 12 Immersion Depth: 80

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.03	24.9	0.13	2.00	0.20

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

SCIMET

ใบตรวจสอบสภาพเครื่อง Conductivity Meter

เลขที่ใบงาน: KSMT2501045

ชนิดเครื่องมือ: CONDUCTIVITY METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025 ปกติ	ตรวจสอบ (รับ) 19 Mar 2025 ไม่ปกติ	รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025 ปกติ	ตรวจสอบ (ส่ง) 19 Mar 2025 ไม่ปกติ	หมายเหตุ
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ : _____

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300233-5** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Measuring Pipette
Manufacturer : witeg Class : A
Capacity : 25 ml Graduation : 0.1 ml
ID No. : G-WW-014/23

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1008.0 mbar.

Date of Received : 14 March 2025

Date of Calibration : 18 March 2025

Date of Issue : 18 March 2025

Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241005	67-200410-4	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by : [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Cal

Envilab Co.,

[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-300233-5**

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Delivery Time : 15.09 sec.

Nominal Volume (ml)	Measuring Volume (ml)
1	1.0096
10	9.9778
25	24.9769

Uncertainty of measurement with in ± 0.0067 ml

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

[redacted]

Envilab Co.,Ltd.

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C08250053

Calibration Certificate

Equipment:	pH METER		
Model:	F-74BW	Job No.:	KSMT2501044
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	26.1 °C	±	0.3	°C
Humidity:	50.2 %RH	±	1.1	%RH

The Method used

In-house method, WI08, based on ASTM E 70-07

Traceability

This certificate is traceable to SI Units, Sample Test is assured through primary meaurement method Harned cell, through CPAchem Ltd. (ISO17034) Certificate No. 1066714, 1066714, 1066716, pH Scale and Temperature test are traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through Industrial Foundation Electrical and Electronics Institute Certificate No. CA20250010EA, through SCIMET Co., Ltd. Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

(Mr. Thalerngkeat Poungngam)

Authorized signatory

[redacted]

Envilab Co.,L

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard Buffer solution	4.007 pH	PH216.L5	1066714	18-Jan-27
Standard Buffer solution	6.965 pH	PH107.L5	1066714	18-Jan-26
Standard Buffer solution	10.010 pH	PH220.L5	1066716	18-Jan-26
DC Voltage and Current Calibrator / XITRON		2000MN	CA20250010EA	19-Jan-26
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

pH Scale

Input	pH Meter Reading			Uncertainty of Measurement (mV)	Coverage Factor *(k)*
(mV)	(mV)	Error (mV)	(pH)		
414.12	414.2	0.08	0.000	0.065	2.00
354.96	355.0	0.04	1.000	0.065	2.00
295.80	295.8	0.00	2.000	0.065	2.00
236.64	236.7	0.06	3.000	0.065	2.00
177.48	177.5	0.02	4.000	0.065	2.00
118.32	118.4	0.08	5.000	0.065	2.00
59.16	59.2	0.04	6.000	0.065	2.00
0.00	0.0	0.00	7.000	0.065	2.00
-59.16	-59.1	0.06	8.000	0.065	2.00
-118.32	-118.2	0.12	9.000	0.065	2.00
-177.48	-177.4	0.08	10.000	0.065	2.00
-236.64	-236.6	0.04	11.000	0.065	2.00
-295.80	-295.7	0.10	12.000	0.065	2.00
-354.96	-354.9	0.06	13.000	0.065	2.00
-414.12	-414.0	0.12	14.000	0.065	2.00

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Electrode Test Results*

The three-point calibration using three standard buffer solutions; pH 4.007 , pH 6.965 and pH 10.010

The practical slope of the pH electrode; 58.31 (mV/pH), 98.57%

The zero point of the pH electrode; 6.58 (pH)

Sample Test Results

Electrode Serial No.: 9X1K0003

Model: 9615S

Manufacturer: HORIBA

Standard Buffer Solution (pH)	Unit Under Calibration (pH)	Difference (pH)	Uncertainty of Measurement (pH)	Coverage Factor (*k*)
4.007	3.995	-0.012	0.011	2.43
6.965	6.970	0.005	0.011	2.07
10.010	10.019	0.009	0.0089	2.06

Temperature Electrode

Dimension of Probe;

Length : 100 mm

Diameter : 12 mm

Immersion Depth : 80 mm

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Uncertainty of Measurement (±°C)	Coverage Factor *(k)*
25.03	25.0	0.03	0.20	2.00

* Calibration Marked for Electrode Test" Not TISI Accredited " in this Certificate have been included for completeness.

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง pH Meter

เลขที่ใบงาน: KSMT2501044

ชนิดเครื่องมือ: pH METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☐	☑	8. ระดับสารละลายใน Electrode (Level KCl)	☑	☐	
☑	☐	9. ฝาปิดกันปลาย Electrode (Dust Protection Hood)	☑	☐	
☑	☐	10. ขาจับอิเล็กโทรด (Stand)	☑	☐	

เพิ่มเติม/ข้อแนะนำ : _____

_____

_____

Mr. Dumrong Boonsopon
Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **67-400639-1** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Temperature controlled enclosure (Refrigerator)
Manufacturer : M-LAB Model : BIC-140
Range : N/A °C Resolution : 0.1 °C
Serial No. : 1011 ID No. : ELABBODC140N03

Environment : On site calibration was carried out at the Laboratory, Envilab Co., Ltd.
Ambient Temperature : (24.4 to 25.0) °C
Relative Humidity : (40 to 45) %
Line Voltage : (227.0 to 230.0) V

Date of Received : 07 November 2024
Date of Calibration : 07 November 2024
Date of Issue : 13 November 2024
Calibrated by : Permpon Chanpu
Calibration Method : CAL-M4004, TLAS G-20
The temperature scale used was based on ITS-90

Reference Standard Instruments : This certification is traceable to the International System of Units
Standard Digital Thermometer with RTD Probe

ID No.	Cert. No.	Due Date	Traceability
400046 & 400042	67-400442-1	26 Jan 2025	National Institute of Metrology Thailand (NIMT)

Appro [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Ca [redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

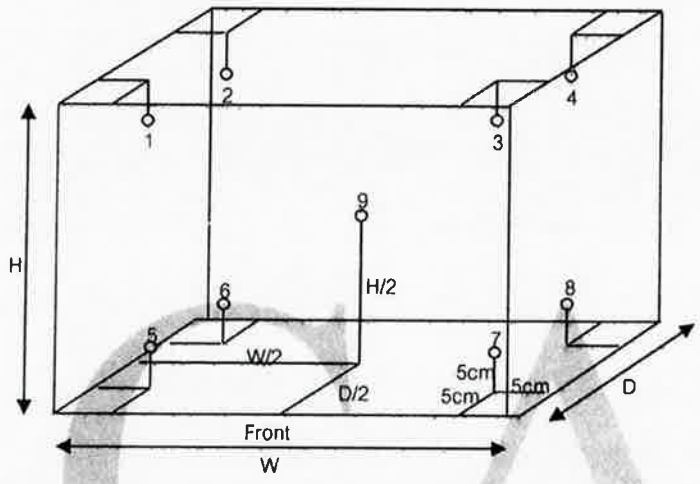
Certificate No. : 67-400639-1

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

This instrument was setting air ventilation at position 0 (close)



Inside of Chamber
W = 0.38 m
D = 0.35 m
H = 1.15 m
Capacity = 0.15 m^3

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Temperature (°C) @ Sensor No.									Uncertainty (± °C)
			1	2	3	4	5	6	7	8	9	
4.0	4.0	4.0	4.09	3.41	3.76	3.42	4.48	4.47	4.49	4.31	4.27	0.36

Test Point (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Uniformity (°C)	Measured Stability (°C)	Overall Variation (°C)
4.0	4.0	4.0	0.88	0.04	1.13

Remark The uncertainty is not combine uniformity of the air chamber

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250552

Calibration Certificate

Equipment:	Cooled Incubator
Model:	BIC-140
Serial No.(or ID):	100613-1 (ELABBODC140N01)
Manufacturer:	M-LAB
Ventilation Valve:	None
Shelves(pc.):	5

Job No.:	KSMT2503905
Received Date:	06 October 2025
Issued Date:	09 October 2025
Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

06 October 2025

Environment Condition

Temperature:	21.0 °C	±	1.3	°C
Humidity:	53.6 %RH	±	3.8	%RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250017

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]
Person in charge

SCIMET CO.,LTD

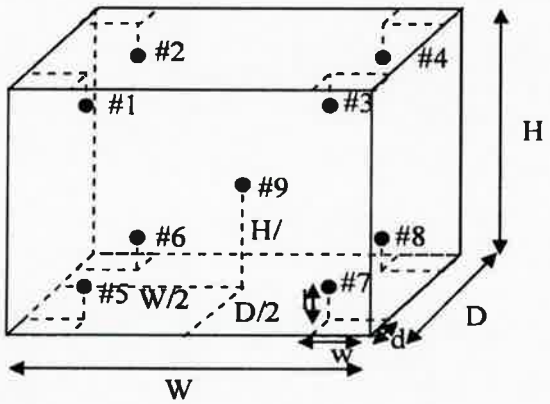
[redacted]
Authorized signatory

Envilab Co.,Ltd.

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 3	34970A	MY44075238	C23250017	28-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 57 (Liters)

Inside chamber:	W = 38 (cm)	D = 32 (cm)	H = 114 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 11 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 11 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	201	202	203	204	205	206	207	208	209

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.1 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	20.30	0.30	0.58
#2	20.40	0.40	0.59
#3	20.53	0.53	0.58
#4	19.55	-0.45	0.57
#5	20.09	0.09	0.66
#6	20.11	0.11	0.77
#7	20.12	0.12	0.64
#8	20.03	0.03	0.72
#9	20.11	0.11	0.63

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
20.0	20.0	20.1	20.30	20.40	20.53	19.55	20.09	20.11	20.12	20.03	20.11	0.77

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
20.1	0.70	0.50	1.57

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted] N 2025

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

Without adjustment

Desired Temperature : 20.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.1 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	20.30	0.30	0.58	1.0	Pass
#2	20.40	0.40	0.59	1.0	Pass
#3	20.53	0.53	0.58	1.0	Condition Pass
#4	19.55	-0.45	0.57	1.0	Condition Pass
#5	20.09	0.09	0.66	1.0	Pass
#6	20.11	0.11	0.77	1.0	Pass
#7	20.12	0.12	0.64	1.0	Pass
#8	20.03	0.03	0.72	1.0	Pass
#9	20.11	0.11	0.63	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

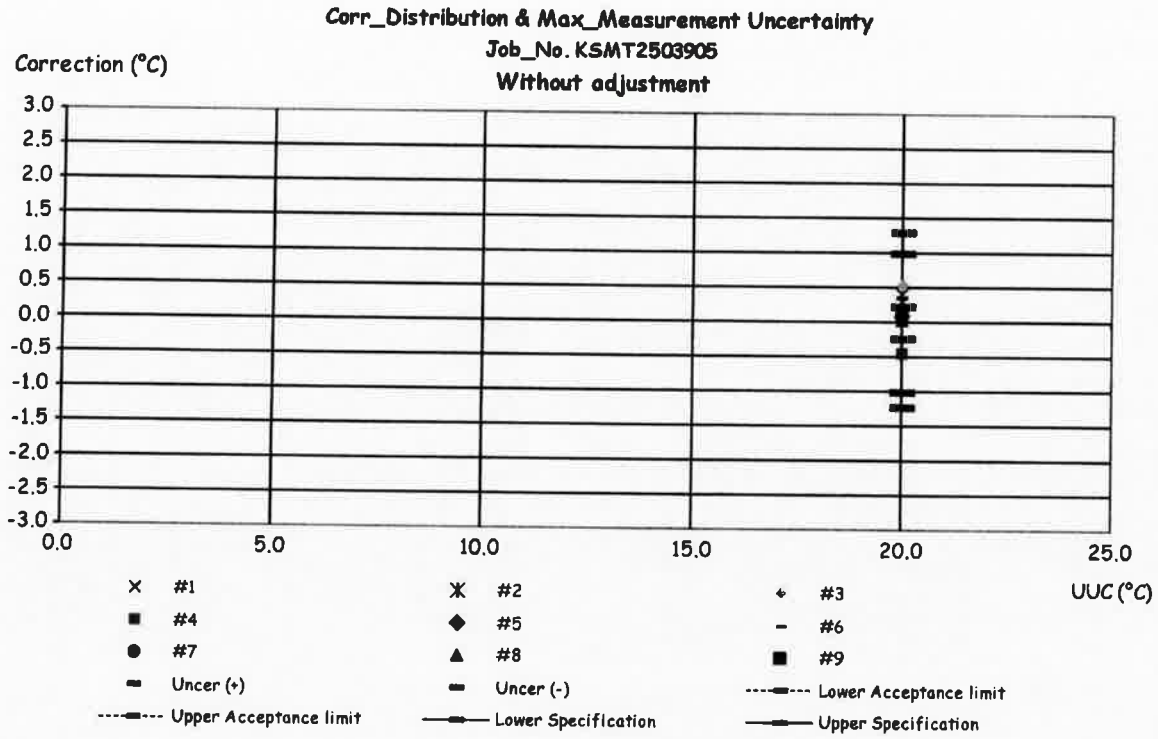
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

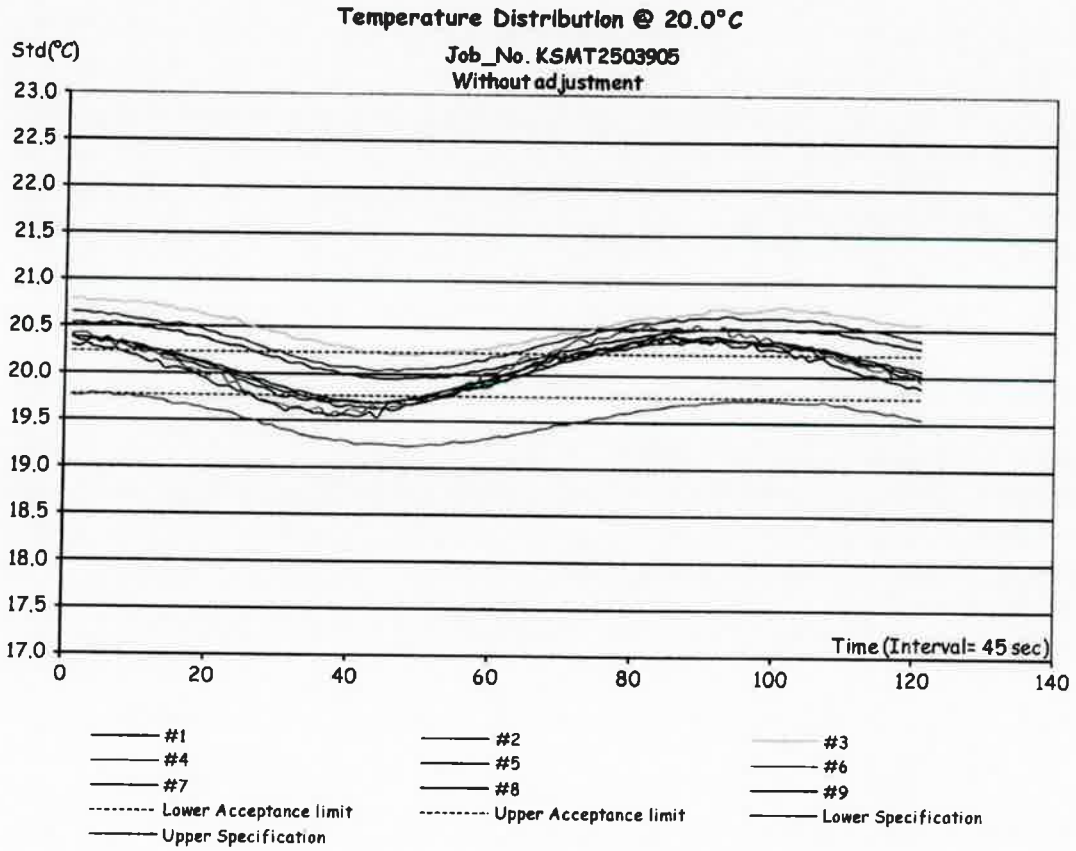
The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Enviab Co.,Ltd.

[redacted]





Envilab Co.,Ltd.

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2503905

ชนิดเครื่องมือ: Cooled Incubator รุ่น: BIC-140

หมายเลขเครื่อง: 100613-1 (ELABBODC140N01)

ตรวจสอบ (รับ) 06 Oct 2025 ปกติ	ตรวจสอบ (รับ) 06 Oct 2025 ไม่ปกติ	รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 06 Oct 2025 ปกติ	ตรวจสอบ (ส่ง) 06 Oct 2025 ไม่ปกติ	หมายเหตุ
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☐	☐	6. สภาพ Lever of Ventilation valve	☐	☐	-
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☑	☐	10. การทำงานของระบบทำความเย็น	☑	☐	
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Mongkolwat Hasanon

Service Engineer

บริษัท ชายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel:095-552-4939

Certificate No. C27250001

Calibration Certificate

Equipment:	DO METER		
Model:	HI9146	Job No.:	KSMT2501049
Serial No.(or ID):	GOOO7931 (ELABDOHI914601)	Received Date:	17 March 2025
Manufacturer:	HANNA	Issued Date:	18 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Environment Laboratory, SCIMET Co., Ltd.

1194 Soi Wachirathamsathit 57, Bangchak, Prakhanong, Bangkok 10260 Thailand

Calibration Date

17 March 2025

Environment Condition

Temperature:	23 °C	±	2	°C
Humidity:	50 %RH	±	15	%RH

The Method used

In-house method, WI27 , By comparison with certified dissloved oxygen solution standard

Traceability

This is certificate is traceable to SI Units , Sample test and temperature test are assured through HANNA instruments company certificare No. 26I42, through Quality Reborn Co.,LTD certificare No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Calibration Results:

Electrode Serial No. -

Model : -

Brand : HANNA

Electrode Test

Atmospheric pressure measured while calibrating.	756.36	mmHg
Temperature measured while calibrating.(± 0.2 °C)	24.7	°C
The Oxygen Solubility was calculated from the ambient conditions.	8.27 ± 0.03	mg/L
The Oxygen Solubility reading from the DO METER	-	mg/L

Sample Test

Standard Oxygen Solution	Unit Under Calibration Reading	Correction	Coverage Factor (k)	Uncertainty of Measurement (±)
0.0 %	0.0 %	0.0 %	2.00	0.20 %

Temperature Electrode

Dimension of Probe;

Length : 85 mn.

Diameter : 18 mn.

Immersion Depth 80 mn.

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.01	25.6	-0.59	2.00	0.15

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 095 552 4939

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Do Meter

เลขที่ใบงาน: KSMT2501049

ชนิดเครื่องมือ: DO METER รุ่น: HI9146 หมายเลขเครื่อง: GOOO7931

ตรวจสอบ (รับ) 17 Mar 2025		รายการตรวจเช็ค		ตรวจสอบ (ส่ง) 17 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ			ปกติ	ไม่ปกติ	
☑	☐	1.	ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2.	ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3.	สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4.	ปุ่มกด (Keypad)	☑	☐	
☑	☐	5.	หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6.	อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7.	สายอิเล็กโทรด	☑	☐	
☑	☐	8.	เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9.	ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ :

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 095 552 4939

Envilab Co.,L

[redacted]

CAL

Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-400323-1**

Submitted by : Envilab Co., Ltd.

540,540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : COD Reactor

Manufacturer : Hanna Model : HI839800

Range : N/A °C Resolution : 0.1 °C

Serial No. : 06480040101 ID No. : ELABHI83980001

Environment : Ambient Temperature : (23 ± 2) °C

Relative Humidity : (50 ± 15) %

Date of Received : 28 May 2025

Date of Calibration : 31 May 2025

Date of Issue : 31 May 2025

Calibrated by : Sarawut Sangiamging

Calibration Method : This instrument was calibrated by In-house method direct measurement with Standard Digital Thermometer with TC Type T probe

The temperature scale used was based on ITS-90

Reference Standard Instruments :

Standard Digital Thermometer with TC Probe

ID No.	Cert. No.	Due Date	Traceability
400046 & 400023	68-400148-1	02 Oct 2025	National Institute of Metrology Thailand (NIMT)
400046 & 400028	68-400148-3	01 Oct 2025	National Institute of Metrology Thailand (NIMT)

Appro [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Calib

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

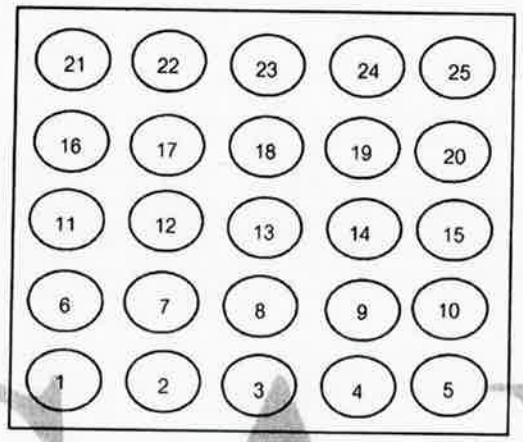
CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-400323-1**

Result of Calibration : Without Adjustment

Function : Temperature measurement



Controller

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)									
			1	2	3	4	5	6	7	8	9	10
150.0	150.0	150.0	149.0	149.2	149.4	149.6	148.6	149.0	150.3	149.7	149.6	149.8

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)									
			11	12	13	14	15	16	17	18	19	20
150.0	150.0	150.0	149.4	149.5	150.2	150.0	149.1	149.1	150.0	150.1	150.1	148.7

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)					Uncertainty (±°C)
			21	22	23	24	25	
150.0	150.0	150.0	148.6	148.7	149.6	148.9	148.6	0.79

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C18250038

Calibration Certificate

Equipment:	Liquid Bath		
Model:	WNB14	Job No.:	KSMT2501047
Serial No.(or ID):	L412.2222 (ELABWBWNB14N01)	Received Date:	19 March 2025
Manufacturer:	Memmert	Issued Date:	24 March 2025
Circulation:	None	Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	28.1 °C	±	0.5	°C
Humidity:	49.2 %RH	±	3	%RH

The Method used

In-house method, WI18, based on ASTM E715-1980 (reapproved 2022)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

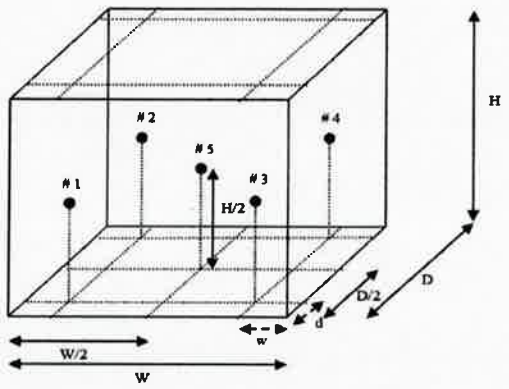
Authorized signatory

Envilab Co.,L[redacted]

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Midway between the diffuser plate and the water surface

Inside bath: W = 37 (cm) D = 33 (cm) H = 16 (cm) Volume = 20 (Liters)

Standard Locations #1: w = 5 (cm) d = 5 (cm)

Standard Locations #2: w = 5 (cm) d = 5 (cm)

Standard Locations #3: w = 5 (cm) d = 5 (cm)

Standard Locations #4: w = 5 (cm) d = 5 (cm)

Standard Locations #5: Center of any probes. (#1 - #4)

Position of Std	#1	#2	#3	#4	#5
Channel of Logger	101	102	103	104	105

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the bath.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the bath at steady-state. The reference probe is preferably located in the geometric center of the bath.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures

Envilab Co.,Ltd.

SCIMET

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	95.08	0.08	0.20
#2	95.12	0.12	0.20
#3	95.03	0.03	0.20
#4	95.07	0.07	0.20
#5	95.08	0.08	0.20

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)					Uncertainty (± °C)*
			#1	#2	#3	#4	#5	
95.0	94.5	94.5	95.08	95.12	95.03	95.07	95.08	0.20

Bath Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
94.5	0.12	0.09	0.28

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E715-1980 (reapproved 2022). Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET CO.,LTD บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

Without adjustment

Desired Temperature : 95.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	95.08	0.08	0.20	1.0	Pass
#2	95.12	0.12	0.20	1.0	Pass
#3	95.03	0.03	0.20	1.0	Pass
#4	95.07	0.07	0.20	1.0	Pass
#5	95.08	0.08	0.20	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

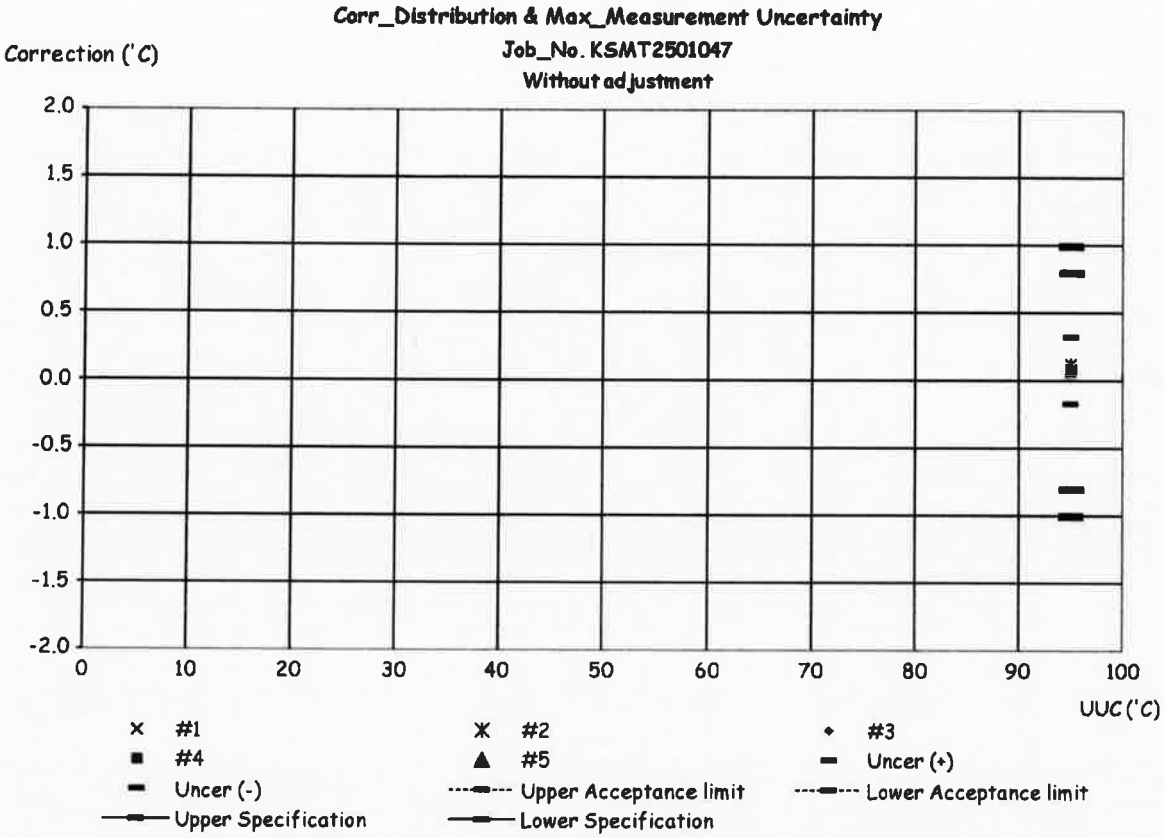
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

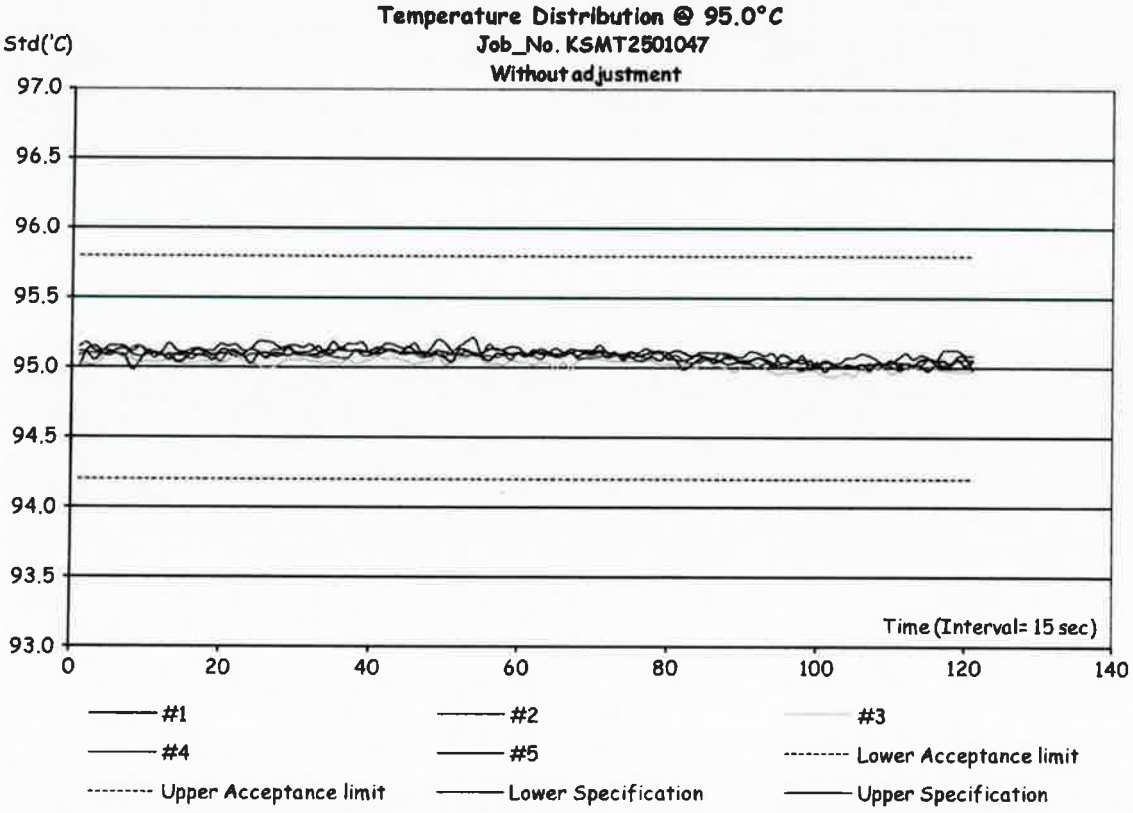
The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501047

ชนิดเครื่องมือ: Liquid Bath รุ่น: WNB14

หมายเลขเครื่อง: L412.2222

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☐	☐	5. การทำงาน Circulator	☐	☐	ไม่มี
☑	☐	6. สภาพ Lever door open / close	☑	☐	
☑	☐	7. ท่อระบายน้ำทิ้ง (DRAIN)	☑	☐	
☐	☐	8. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☑	☐	9. สภาพตัวเครื่อง	☑	☐	
☑	☐	10. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-200066-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : Electronic Balance
Manufacturer : METTLER TOLEDO Model : XSR205DU
Serial No. : B911363567 ID No. : ELABBALANCEN06
Capacity : 220 g Resolution : 0.00001g/81g, 0.0001g/220g

Environment : On site calibration was carried out at the B304 Balance Room, Envilab Co., Ltd.
Ambient Temperature : (21.2 to 21.5) °C
Relative Humidity : (51.4 to 56.2) %
Air Pressure : 1011.0 mbar

Date of Received : 17 February 2025
Date of Calibration : 17 February 2025
Date of Issue : 19 February 2025
Calibrated by : Satja Sangkhum

Calibration Method : In-house method CAL-M2001 based on UKAS Publication ref : LAB 14 Edition 7 - November 2022

Reference Standard Instruments : This certification is traceable to the International System of Units

Standard Weights

ID No.	Cert. No.	Due Date	Traceability
E261-E2624	C02242009	07 Nov 2025	National Institute of Metrology (Thailand), (NIMT)

Approv[redacted]

Laboratory Manager

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the C[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-200066-2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Departure of indication from nominal value

Nominal Value (g)	Correction (g)	Uncertainty ± (g)
0.1	0.00000	0.000016
0.5	0.00000	0.000022
1	0.00000	0.000026
2	-0.00001	0.000034
5	-0.00001	0.000043
10	0.00000	0.000053
50	-0.00002	0.00011
100	0.0000	0.00020
150	0.0000	0.00038
200	0.0000	0.00038

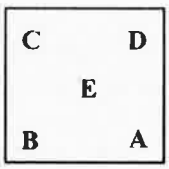
This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty mutiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

Eccentric error

Load test : 50 g

A	B	C	D	E	
-0.00001	-0.00001	0.00003	0.00003	0.00000	g



Repeatability

Load test : 200 g

Stdev. : 0.000032 g

- o0o -

[redacted]

Envilab Co.,Ltd.

[redacted]

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250137

Calibration Certificate

Equipment: Hot Air Oven

Model:	UF75
Serial No.(or ID):	B319.0600 (ELABHAOVEN0600)
Manufacturer:	Memmert
Ventilation Valve:	Closed
Shelves(pc.):	3

Job No.:	KSMT2501050
Received Date:	19 March 2025
Issued Date:	24 March 2025
Page:	1 of 5

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B306 CH2 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	29.4 °C	±	1.2	°C
Humidity:	48 %RH	±	3	%RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

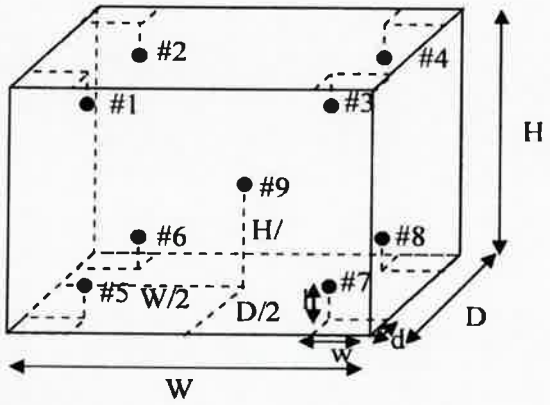
Authorized signatory

Envilab Co.,Ltd.

Condition of reference standards Instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 30 (Liters)

Inside chamber:	W = 40 (cm)	D = 33 (cm)	H = 56 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	301	302	303	304	305	306	307	308	309

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Calibration Results:

Before adjustment

Desired (°C)	Setting (°C)	Indicating (°C)	#1 (°C)	#2 (°C)	#3 (°C)	#4 (°C)	#5 (°C)	#6 (°C)	#7 (°C)	#8 (°C)	#9 (°C)
104.0	104.0	104.0	104.44	104.95	105.08	104.82	104.94	104.72	104.13	104.70	105.02

After adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	103.85	-0.15	0.39
#2	104.35	0.35	0.39
#3	104.40	0.40	0.39
#4	104.17	0.17	0.39
#5	104.33	0.33	0.39
#6	104.12	0.12	0.39
#7	103.73	-0.27	0.39
#8	104.10	0.10	0.39
#9	104.31	0.31	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
104.0	104.0	104.0	103.85	104.35	104.40	104.17	104.33	104.12	103.73	104.10	104.31	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
104.0	0.65	0.09	0.80

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Enviiab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	109.74	-0.26	0.39
#2	110.28	0.28	0.39
#3	110.40	0.40	0.39
#4	110.15	0.15	0.39
#5	110.24	0.24	0.39
#6	110.01	0.01	0.39
#7	109.59	-0.41	0.39
#8	110.02	0.02	0.39
#9	110.33	0.33	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
110.0	110.0	110.0	109.74	110.28	110.40	110.15	110.24	110.01	109.59	110.02	110.33	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
110.0	0.84	0.12	0.98

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	179.37	-0.63	0.49
#2	180.52	0.52	0.48
#3	180.61	0.61	0.47
#4	180.55	0.55	0.47
#5	180.51	0.51	0.48
#6	180.03	0.03	0.50
#7	179.26	-0.74	0.49
#8	180.23	0.23	0.49
#9	180.67	0.67	0.47

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
180.0	179.0	179.0	179.37	180.52	180.61	180.55	180.51	180.03	179.26	180.23	180.67	0.50

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
179.0	1.54	0.17	1.68

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET CO.,LTD. บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

After adjustment

Desired Temperature : 104.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	103.85	-0.15	0.39	1.0	Pass
#2	104.35	0.35	0.39	1.0	Pass
#3	104.40	0.40	0.39	1.0	Pass
#4	104.17	0.17	0.39	1.0	Pass
#5	104.33	0.33	0.39	1.0	Pass
#6	104.12	0.12	0.39	1.0	Pass
#7	103.73	-0.27	0.39	1.0	Pass
#8	104.10	0.10	0.39	1.0	Pass
#9	104.31	0.31	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Enviab Co.,Ltd. [redacted] ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:(Cont.)

After adjustment (Cont.)

Desired Temperature : 110.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	109.74	-0.26	0.39	1.0	Pass
#2	110.28	0.28	0.39	1.0	Pass
#3	110.40	0.40	0.39	1.0	Pass
#4	110.15	0.15	0.39	1.0	Pass
#5	110.24	0.24	0.39	1.0	Pass
#6	110.01	0.01	0.39	1.0	Pass
#7	109.59	-0.41	0.39	1.0	Pass
#8	110.02	0.02	0.39	1.0	Pass
#9	110.33	0.33	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

After adjustment (Cont.)

Desired Temperature : 180.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	179.37	-0.63	0.49	2.0	Pass
#2	180.52	0.52	0.48	2.0	Pass
#3	180.61	0.61	0.47	2.0	Pass
#4	180.55	0.55	0.47	2.0	Pass
#5	180.51	0.51	0.48	2.0	Pass
#6	180.03	0.03	0.5	2.0	Pass
#7	179.26	-0.74	0.49	2.0	Pass
#8	180.23	0.23	0.49	2.0	Pass
#9	180.67	0.67	0.47	2.0	Pass

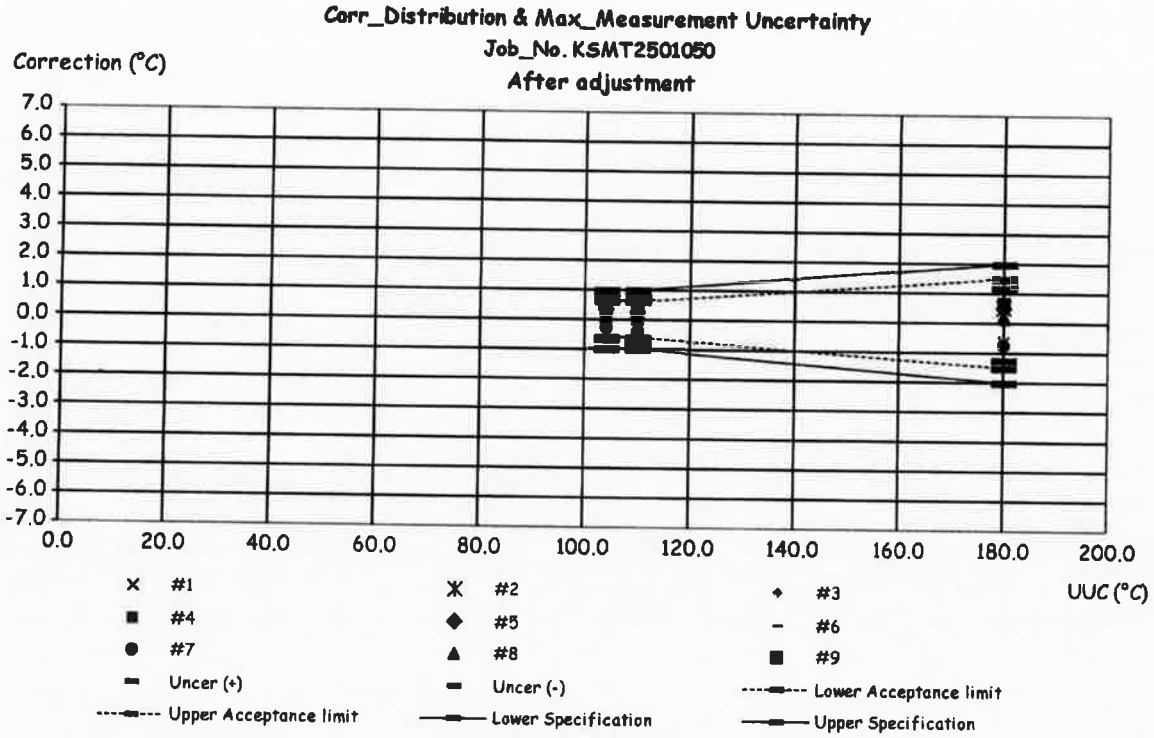
Correction of UUC.* = Measured Temperature - Desired Temperature

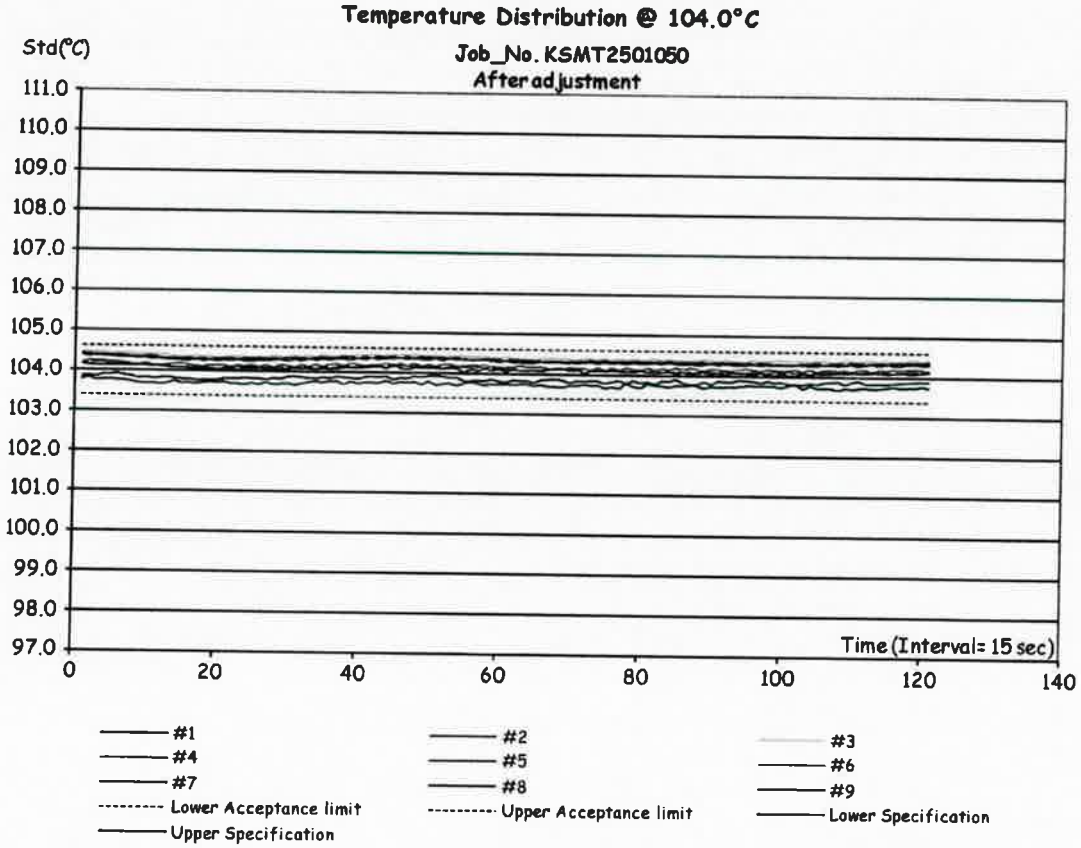
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

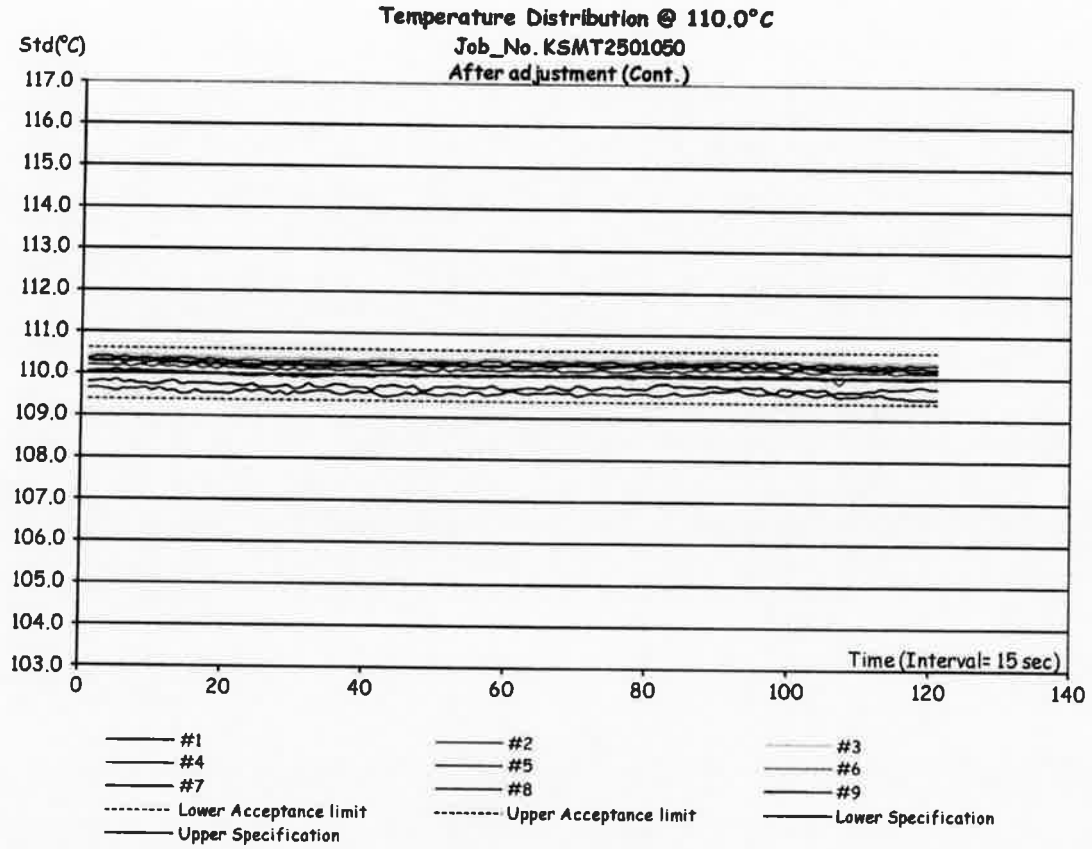
บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: sclmet2022@gmail.com, Tel: 02 460 9239

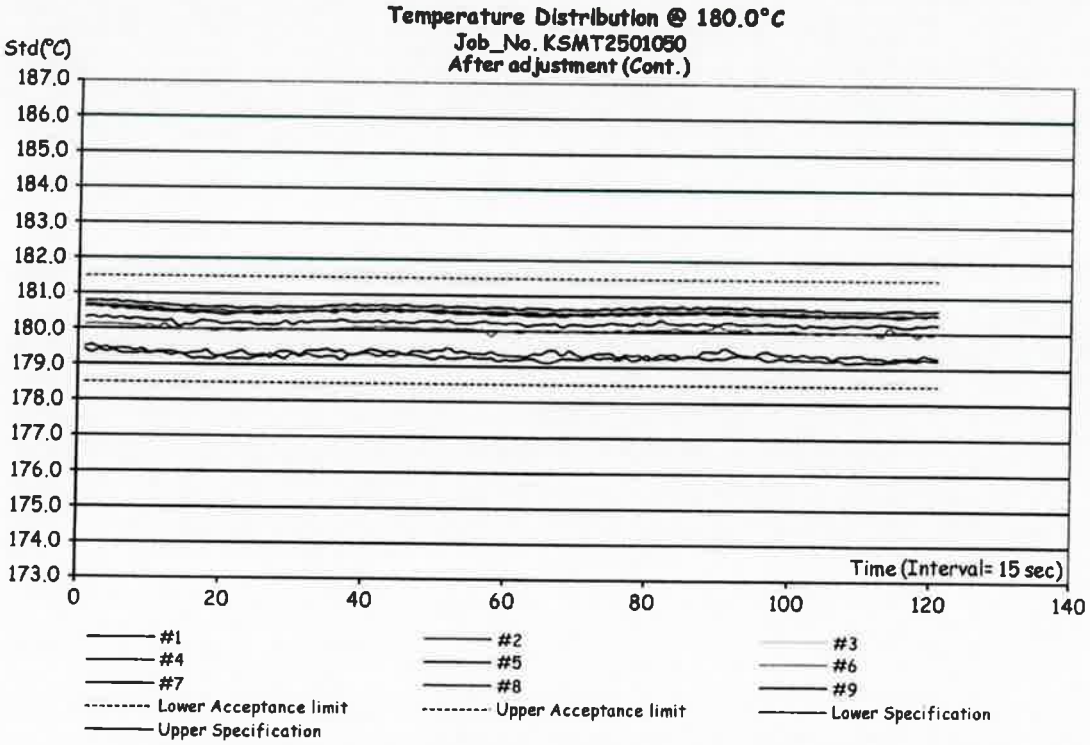
Envilab Co.,Ltd.





Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





Envilab Co.,Ltd. ผู้จัดการฝ่ายความคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501050

ชนิดเครื่องมือ: Hot Air Oven รุ่น: UF75

หมายเลขเครื่อง: B319.0600 (ELABHAOVEN0600)

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☑	☐	6. สภาพ Lever of Ventilation valve	☑	☐	
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☐	☐	10. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	ไม่มี
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300237-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Cylinder
Manufacturer : BOROSIL Class : A
Capacity : 50 ml Graduation : 1 ml
ID No. : C-WW-004/24

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1015.8 mbar.

Date of Received : 14 March 2025
Date of Calibration : 18 March 2025
Date of Issue : 18 March 2025
Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241002	67-200410-1	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by : [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Cali

[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-300237-2

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Nominal Volume (ml)	Measuring Volume (ml)
30	30.07
50	50.08

Uncertainty of measurement with in ± 0.054 ml

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

[redacted]

EnvilaB Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-410024-1** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Digital Thermo-Hygrometer

Manufacturer :	Jedto	Model :	HTC-1
Range Temperature :	-10 °C to 50 °C	Resolution :	0.1 °C
Range Humidity :	20 %R.H. to 90 %R.H.	Resolution :	1 %R.H.
Serial No. :	PONPE5852094	ID No. :	ELABTMHTC10003

Environment : Ambient Temperature : (23 ± 2) °C
Relative Humidity : (50 ± 15) %

Date of Received : 17 February 2025
Date of Calibration : 22 February 2025
Date of Issue : 22 February 2025
Calibrated by : Chortip Samchusri

Calibration Method : This instrument was calibrated by In-house method comparison technique CAL-M4013 by compared with standard probe sensor humidity/temperature into humidity/temperature chamber.

Reference Standard Instruments : This certification is traceable to the International System of Units

Digital Indicator with Standard Probe Temp&Hum

ID No.	Cert. No.	Due Date	Traceability
400034 & 400036	SG-H-00001/68	04 Jul 2025	Success Gateway Co., Ltd., Accredited by TISI Calibration No.0268

A [redacted]
Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full except with the prior written approval of the Ca

[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-410024-1

UUC Condition As-Received : Good

Result of Calibration : Without Adjustment

Function : Temperature measurement

Reference Humidity @ 50 %R.H.

Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
25.00	24.9	0.1	0.46

Result of Calibration : Without Adjustment

Function : Humidity measurement

Reference Temperature @ 25 °C

Standard Humidity (%R.H.)	UUC Reading (%R.H.)	Correction (%R.H.)	Uncertainty (±%R.H)
50.03	50	0	2.2

Remark

UUC : Unit Under Calibration

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C07250028

Calibration Certificate

Equipment:	SPECTROPHOTOMETER		
Model:	CARY 60UV-VIS	Job No.:	KSMT2500779
Serial No.(or ID):	MY17490026 (ELABSPECTRO0002)	Received Date:	03 March 2025
Manufacturer:	Agilent	Issued Date:	03 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B301 CO-THC ROOM)

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

03 March 2025

Environment Condition

Temperature:	22.3 °C	±	0.1	°C
Humidity:	66.0 %RH	±	2.2	%RH

The Method used

In-house method, WI07, based on ASTM E 275-08 and ASTM E 387-04

Traceability

This certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Starna Scientific Limited.

The standard for Wavelength Certificate No. 125472 and 125471

The standard for Photometric Certificate No. 125567 and 125517

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

Authorized signatory

Envilab Co.,Ltd.

SCIMET

Condition of reference standards Instruments / CRM:

Instruments	Set No.	Certificate No.	Due date
Didymium Oxide Glass Reference	131033	125472	16-Sep-26
Holmium Oxide Glass Reference	136650	125471	16-Sep-26
Neutral Density Filter Reference	45329	125567	17-Sep-26
Potassium Dichromate Solution References	45328	125517	17-Sep-26

Calibration Results:

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Standard Wavelength (nm)	Unit Under Calibration (nm)	Correction (nm)	Uncertainty of Measurement (± nm)
219.39	220.0	-0.61	0.14
241.27	241.5	-0.23	0.14
287.39	287.5	-0.11	0.14
333.65	333.4	0.25	0.14
360.32	360.0	0.32	0.14
417.64	417.0	0.64	0.14
472.50	472.5	0.00	0.14
513.47	513.4	0.07	0.14
528.88	528.9	-0.02	0.14
537.13	537.1	0.03	0.14
640.92	641.7	-0.78	0.14
740.72	741.4	-0.68	0.14
748.55	749.3	-0.75	0.14
807.03	807.5	-0.47	0.14
879.28	879.3	-0.02	0.14

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
235 nm	0.0000	0.0002	-0.0002	0.0080
	0.7328	0.7345	-0.0017	0.0080
257 nm	0.0000	-0.0003	0.0003	0.0080
	0.8537	0.8545	-0.0008	0.0080
313 nm	0.0000	-0.0001	0.0001	0.0080
	0.2855	0.2862	-0.0007	0.0080
350 nm	0.0000	0.0000	0.0000	0.0080
	0.6338	0.6349	-0.0011	0.0080

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Calibration Results:

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
420 nm	0.0000	0.0000	0.0000	0.0045
	0.2352	0.2382	-0.0030	0.0045
	0.5716	0.5740	-0.0024	0.0045
	0.7146	0.7167	-0.0021	0.0045
	1.0179	1.0190	-0.0011	0.0045
440 nm	0.0000	0.0000	0.0000	0.0045
	0.2314	0.2350	-0.0036	0.0045
	0.5566	0.5596	-0.0030	0.0045
	0.7028	0.7060	-0.0032	0.0045
	1.0016	1.0039	-0.0023	0.0045
465 nm	0.0000	0.0000	0.0000	0.0045
	0.2107	0.2137	-0.0030	0.0045
	0.5192	0.5219	-0.0027	0.0045
	0.6638	0.6668	-0.0030	0.0045
	0.9447	0.9471	-0.0024	0.0045
546.1 nm	0.0000	0.0000	0.0000	0.0045
	0.2187	0.2208	-0.0021	0.0045
	0.5207	0.5230	-0.0023	0.0045
	0.7002	0.7025	-0.0023	0.0045
	1.0001	1.0020	-0.0019	0.0045
590 nm	0.0000	0.0000	0.0000	0.0045
	0.2430	0.2449	-0.0019	0.0045
	0.5546	0.5567	-0.0021	0.0045
	0.7756	0.7774	-0.0018	0.0045
	1.1117	1.1123	-0.0006	0.0045
635 nm	0.0000	0.0000	0.0000	0.0045
	0.2635	0.2651	-0.0016	0.0045
	0.5622	0.5639	-0.0017	0.0045
	0.7651	0.7673	-0.0022	0.0045
	1.0974	1.0982	-0.0008	0.0045

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The error of temperature determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E 275-08 and ASTM E 387-04. Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET CO.,LTD. บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
220.0	-0.61	0.14	1.0	Pass
241.5	-0.23	0.14	1.0	Pass
287.5	-0.11	0.14	1.0	Pass
333.4	0.25	0.14	1.0	Pass
360.0	0.32	0.14	1.0	Pass
417.0	0.64	0.14	1.0	Pass
472.5	0.00	0.14	1.0	Pass
513.4	0.07	0.14	1.0	Pass
528.9	-0.02	0.14	1.0	Pass
537.1	0.03	0.14	1.0	Pass
641.7	-0.78	0.14	1.0	Pass
741.4	-0.68	0.14	1.0	Pass
749.3	-0.75	0.14	1.0	Pass
807.5	-0.47	0.14	1.0	Pass
879.3	-0.02	0.14	1.0	Pass

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
235 nm	0.0002	-0.0002	0.0080	0.020	Pass
	0.7345	-0.0017	0.0080	0.020	Pass
257 nm	-0.0003	0.0003	0.0080	0.020	Pass
	0.8545	-0.0008	0.0080	0.020	Pass
313 nm	-0.0001	0.0001	0.0080	0.020	Pass
	0.2862	-0.0007	0.0080	0.020	Pass
350 nm	0.0000	0.0000	0.0080	0.020	Pass
	0.6349	-0.0011	0.0080	0.020	Pass

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Enviab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
420 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2382	-0.0030	0.0045	0.015	Pass
	0.5740	-0.0024	0.0045	0.015	Pass
	0.7167	-0.0021	0.0045	0.015	Pass
	1.0190	-0.0011	0.0045	0.015	Pass
440 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2350	-0.0036	0.0045	0.015	Pass
	0.5596	-0.0030	0.0045	0.015	Pass
	0.7060	-0.0032	0.0045	0.015	Pass
	1.0039	-0.0023	0.0045	0.015	Pass
465 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2137	-0.0030	0.0045	0.015	Pass
	0.5219	-0.0027	0.0045	0.015	Pass
	0.6668	-0.0030	0.0045	0.015	Pass
	0.9471	-0.0024	0.0045	0.015	Pass
546.1 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2208	-0.0021	0.0045	0.015	Pass
	0.5230	-0.0023	0.0045	0.015	Pass
	0.7025	-0.0023	0.0045	0.015	Pass
	1.0020	-0.0019	0.0045	0.015	Pass
590 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2449	-0.0019	0.0045	0.015	Pass
	0.5567	-0.0021	0.0045	0.015	Pass
	0.7774	-0.0018	0.0045	0.015	Pass
	1.1123	-0.0006	0.0045	0.015	Pass
635 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2651	-0.0016	0.0045	0.015	Pass
	0.5639	-0.0017	0.0045	0.015	Pass
	0.7673	-0.0022	0.0045	0.015	Pass
	1.0982	-0.0008	0.0045	0.015	Pass

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239



SCIMET

ใบตรวจสอบสภาพเครื่อง Spectrophotometer

เลขที่ใบงาน: KSMT2500779

ชนิดเครื่องมือ: SPECTROPHOTOMETER รุ่น: CARY 60UV-VIS หมายเลขเครื่อง: MY17490026

ตรวจสอบ (รับ) 03 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 03 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. ตัวหมุนเลือกความยาวคลื่น (Wavelength Control)	☑	☐	
☑	☐	7. ความยาวคลื่น (Wavelength Check)	☑	☐	
☑	☐	8. แหล่งกำเนิดแสง (UV < 3,000 hour)	☑	☐	
☑	☐	9. แหล่งกำเนิดแสง (Visible < 5,000 hour)	☑	☐	
☐	☐	10. ช่องวัดหลายตัวอย่าง (Carousel Module)	☐	☐	-

เพิ่มเติม/ข้อแนะนำ :

Mr. Dumrong Boonsopon

Service Engineer

บริษัท ชายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Enviab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C09250024

Calibration Certificate

Equipment:	CONDUCTIVITY METER		
Model:	F-74BW	Job No.:	KSMT2501045
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	25.8 °C	±	0.4	°C
Humidity:	51.7 %RH	±	2.9	%RH

The Method used

In-house method, WI09, based on ASTM D1125-14 and D 5391-14

Traceability

This certificate is traceable to the SI Units maintained by CRM of NIST(SRM) through CPA chem Co., Ltd. (ISO 17034) Certificate No. 1019566, 1019567, 1019568 , Temperature test is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co., Ltd.Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standardlaboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET
SCIMET CO.,LTD

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard conductivity solution	25.001 µS/cm	CS25M0S.L5	1019566	4-Aug-25
Standard conductivity solution	1412.9 µS/cm	CS1413M0S.L5	1019567	4-Aug-25
Standard conductivity solution	111.3 mS/cm	CS111MS.L5	1019568	4-Aug-25
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

Electrode Serial No. 3G1J0088 Model : 3552 Brand : HORIBA

Before Adjustment

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	27.6	µS/cm	-2.599	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1541	µS/cm	-128.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	113.7	mS/cm	-2.4	mS/cm	2.00	0.82	mS/cm

After Adjustment ; at 1412.9 µS/cm

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	25.3	µS/cm	-0.299	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1413	µS/cm	-0.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	106.1	mS/cm	5.2	mS/cm	2.00	0.82	mS/cm

Temperature Electrode

Dimension of Probe ; mm (millimeter) Length : 110 Diameter: 12 Immersion Depth: 80

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.03	24.9	0.13	2.00	0.20

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co [redacted]

SCIMET

ใบตรวจสอบสภาพเครื่อง Conductivity Meter

เลขที่ใบงาน: KSMT2501045

ชนิดเครื่องมือ: CONDUCTIVITY METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ :

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300233-5**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Measuring Pipette
Manufacturer : witeg Class : A
Capacity : 25 ml Graduation : 0.1 ml
ID No. : G-WW-014/23

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1008.0 mbar.

Date of Received : 14 March 2025
Date of Calibration : 18 March 2025
Date of Issue : 18 March 2025
Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241005	67-200410-4	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by : [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Cali[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-300233-5**

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Delivery Time : 15.09 sec.

Nominal Volume (ml)	Measuring Volume (ml)
1	1.0096
10	9.9778
25	24.9769

Uncertainty of measurement with in ± 0.0067 ml

This result of calibration was found accurate as shown on date and place of calibration only.

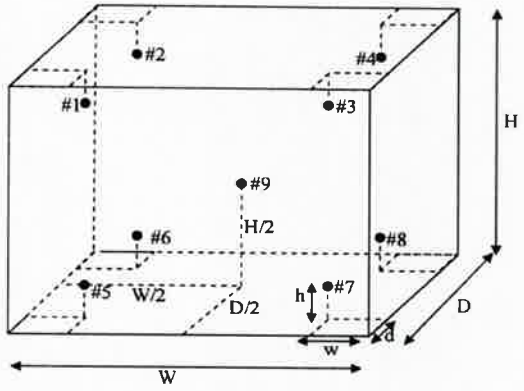
This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

-o0o-

[redacted]

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ



Standard Installation Locations

Volume (Calibration Zone)= 21 (Liters)

Inside chamber:	W = 40 (cm)	D = 33 (cm)	H = 40 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 5 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 5 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	101	102	103	104	105	106	107	108	109

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

easured Uniformity: The maximum difference of measured temperatures between of any probes and the easured temperature at the reference location which are observed at same time or at close observation time as ssible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference obe is preferably located in the geometric center of the chamber.

easured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

verall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

[redacted]

ายน์เมท จำกัด (SCIMET CO., LTD.)
Vachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
met2022@gmail.com, Tel: 02 460 9239

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025 CALIBRATION 0454

Certificate No. C17240309

Calibration Certificate

Equipment: Oven
Model: ED53
Serial No.(or ID): 13-02277 (ELABHAOVEN2277)
Manufacturer: Binder
Condition: In Condition
Ventilation Valve: Closed Shelves(pc.): 2

Job No.: KSMT2402655
Received Date: 27 September 2024
Issued Date: 30 September 2024
Page: 1 of 5

Customer
Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place
Envilab Co., Ltd. (B306 CH2 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date
27 September 2024

Environment Condition
Temperature: 30.4 °C ± 1.0 °C
Humidity: 70.3 %RH ± 5.0 %RH

The Method used
In-house method, WI17, based on TLAS-G20

Traceability
This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd.Certificate No. C23240083

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]
(Mongkolwat Hasanon)
Person in charge

[redacted]
Authorized signatory

Calibration Results:

Before adjustment

Desired (°C)	Setting (°C)	Indicating (°C)	#1 (°C)	#2 (°C)	#3 (°C)	#4 (°C)	#5 (°C)	#6 (°C)	#7 (°C)	#8 (°C)	#9 (°C)
85.0	85.0	85.0	87.01	88.17	87.35	87.18	85.19	85.80	85.32	85.05	85.84

After adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 85.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	86.28	1.28	0.58
#2	87.39	2.39	0.58
#3	86.58	1.58	0.58
#4	86.54	1.54	0.58
#5	84.67	-0.33	0.58
#6	85.22	0.22	0.57
#7	84.76	-0.24	0.57
#8	84.63	-0.37	0.58
#9	85.14	0.14	0.58

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
85.0	85.0	85.0	86.28	87.39	86.58	86.54	84.67	85.22	84.76	84.63	85.14	0.58

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
85.0	2.29	0.07	2.89

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	104.52	0.52	0.82
#2	106.25	2.25	0.85
#3	105.03	1.03	0.82
#4	105.00	1.00	0.83
#5	103.10	-0.90	0.82
#6	103.32	-0.68	0.82
#7	103.12	-0.88	0.82
#8	102.58	-1.42	0.82
#9	103.17	-0.83	0.82

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
104.0	104.5	104.5	104.52	106.25	105.03	105.00	103.10	103.32	103.12	102.58	103.17	0.85

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
104.5	3.26	0.21	3.96

Note: * Maximum uncertainty of the each position

ซายน์เมท จำกัด (SCIMET CO., LTD.)
chirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
t2022@gmail.com, Tel: 02 460 9239

Enlab Co.,Ltd.

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, TLAS-G20. Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :
- ☐ Choice A Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD.

([redacted])
Authorized signatory

After adjustment

Desired Temperature : 85.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 85.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	86.28	1.28	0.58	1.0	Condition Fail
#2	87.39	2.39	0.58	1.0	Fail
#3	86.58	1.58	0.58	1.0	Condition Fail
#4	86.54	1.54	0.58	1.0	Condition Fail
#5	84.67	-0.33	0.58	1.0	Pass
#6	85.22	0.22	0.57	1.0	Pass
#7	84.76	-0.24	0.57	1.0	Pass
#8	84.63	-0.37	0.58	1.0	Pass
#9	85.14	0.14	0.58	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

บริษัท ซายเมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted]

SCIMET

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 182.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	181.12	1.12	1.1
#2	183.67	3.67	1.3
#3	181.80	1.80	1.1
#4	181.92	1.92	1.1
#5	179.84	-0.16	1.2
#6	180.90	0.90	1.1
#7	179.77	-0.23	1.1
#8	179.38	-0.62	1.2
#9	179.75	-0.25	1.1

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
180.0	182.5	182.5	181.12	183.67	181.80	181.92	179.84	180.90	179.77	179.38	179.75	1.3

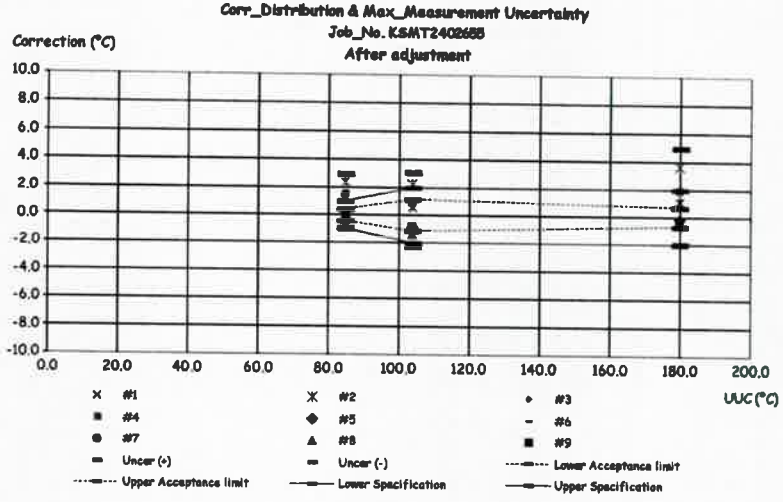
Chamber Charactertzation

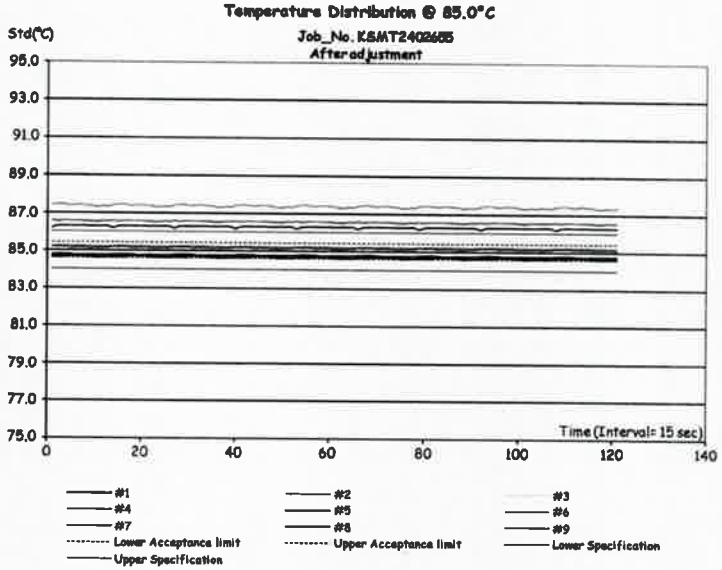
Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
182.5	4.48	0.64	5.29

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายเมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239





Enwlab Co.,Ltd.

[redacted]

SCIMET

Statements of conformity:(Cont.)

After adjustment (Cont.)

Desired Temperature : 104.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	104.52	0.52	0.82	2.0	Pass
#2	106.25	2.25	0.85	2.0	Condition Fail
#3	105.03	1.03	0.82	2.0	Pass
#4	105.00	1.00	0.83	2.0	Pass
#5	103.10	-0.90	0.82	2.0	Pass
#6	103.32	-0.68	0.82	2.0	Pass
#7	103.12	-0.88	0.82	2.0	Pass
#8	102.58	-1.42	0.82	2.0	Condition Pass
#9	103.17	-0.83	0.82	2.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

After adjustment (Cont.)

Desired Temperature : 180.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 182.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	181.12	1.12	1.1	2.0	Condition Pass
#2	183.67	3.67	1.3	2.0	Fail
#3	181.80	1.80	1.1	2.0	Condition Pass
#4	181.92	1.92	1.1	2.0	Condition Pass
#5	179.84	-0.16	1.2	2.0	Pass
#6	180.90	0.90	1.1	2.0	Pass
#7	179.77	-0.23	1.1	2.0	Pass
#8	179.38	-0.62	1.2	2.0	Pass
#9	179.75	-0.25	1.1	2.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2402655

ชนิดเครื่องมือ: Oven รุ่น: ED53

หมายเลขเครื่อง: 13-02277 (ELABHAOVEN2277)

ตรวจสอบ (รับ) 27 Sep 2024 ปกติ	ตรวจสอบ (รับ) 27 Sep 2024 ไม่ปกติ	รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 27 Sep 2024 ปกติ	ตรวจสอบ (ส่ง) 27 Sep 2024 ไม่ปกติ	หมายเหตุ
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	*
☐	☐	5. การทำงาน พัดลม	☐	☐	-
☑	☐	6. สภาพ Lever of Ventilation valve	☑	☐	
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☐	☐	10. การทำงานของระบบทำความเย็น	☐	☐	-
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

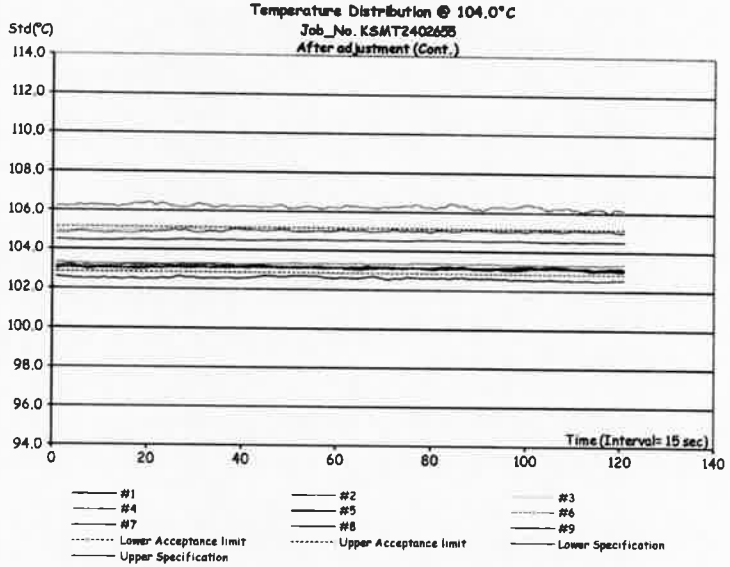
ข้อแนะนำ : * Control Modify Brand M-LAB

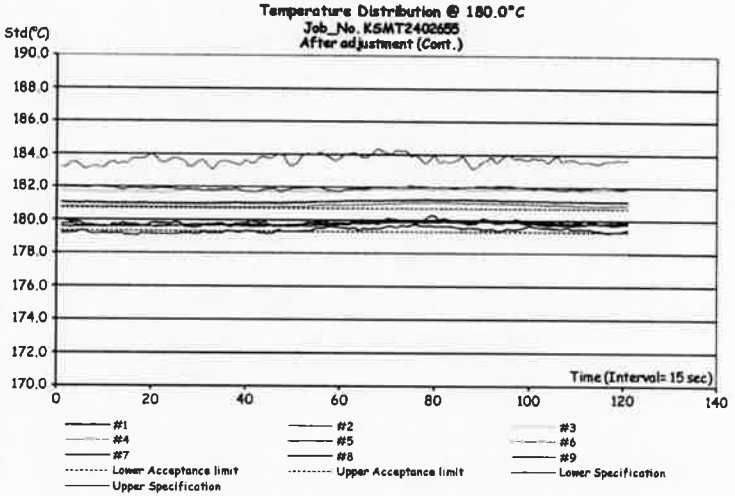
Mr. Mongkolwat Hasanon

Service Engineer

ซายน์เมท จำกัด (SCIMET CO., LTD.)
Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.





Agilent CrossLab
From Insight to Outcome

Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.
- For customers using HF applications, the instrument should be returned to its standard sample introduction system.

Envilab Co.,Ltd.

Agilent CrossLab
From Insight to Outcome

Agilent CrossLab Start Up Services

SS

Agilent 5100 5110 ICP-OES Preventive Maintenance

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides what you need to reduce unplanned downtime and keep your systems operating at their peak performance.

This checklist is used as a guide for completing the preventive maintenance tasks. A signed copy of this checklist is provided for your records.

Agilent CrossLab
From Insight to Outcome

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a **"X"** or tick mark **"✓"**.
- Check **"Service not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in the most logical order relevant to the individual system service in the order of the tasks listed.
- Complete the **Service Review** section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Add relevant page numbers to selected pages and complete the total number of pages field in the Service Completion section
- **Ask the customer to sign the Service Verification section including the customer's and your signature.**

Envlab Co.,Ltd.
[redacted]

Agilent

Agilent CrossLab
From Insight to Outcome

Important Customer Web Links

- To access **Agilent University**, visit http://www.agilent.com/crosslab/university/ to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit https://www.agilent.com/en-us/agilentresources. The following information topics are available:
  - Sample Prep and Containment
  - Chemical Standards
  - Analysis
  - Service and Support
  - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at https://www.youtube.com/user/agilent
- **Need to place a service call?** Flexible Repair Options | Agilent

Agilent

Preparation

- ☑ Discuss any specific issues with the customer before starting.
- ☑ Review the instrument logbook for recorded problems and comments.
- ☑ Save instrument control settings before starting the procedure.
- ☑ Perform a general inspection of the system for cleanliness.
- ☑ Check for proper installation of parts, assemblies, sensors etc.
- ☑ Check system for required installation of components and implementation of Service Notes
- ☑ Check for required firmware/software updates and verify with customers if they would like them installed.
- ☐ For HF application systems, if standard sample introduction system was not installed, ask the customer to install it.
- ☑ Ask the customer to remove any samples from the ICP-OES sample introduction area, auto sampler or around the ICP-OES.

Envilab Co.,Ltd.

Instrument Maintenance

System Information

☐ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	**G8015A / MY17490002**
Instrument System Site and Location	**Envilab Company Limited**

	List System Component Product Numbers	List the Serial Numbers of each Component
1	G8410A	AU17393768
2	G8015A	MY17490002
3	G8481	1709-05327
4		
5		
6		
7		
8		
9		

ICP-OES Configuration Table	Circle the type or write in the type if other
Nebulizer Type	SeaSpray | OneNeb | Conikal | Other
Spray Chamber	Cyclonic Single Pass | Cyclonic Double Pass | Other
Torch	Radial | Dual View | Other
Torch Type	One Piece | Semi Demountable | Fully Demountable | Other
Injector Diameter	2.4mm | 1.8mm | 4mm | 0.8mm | Other
Injector Material	Quartz | Ceramic | Other

Agilent CrossLab
From Insight to Outcome

SPS 3 Auto Sampler

Type text here

- ☑ **Service not applicable**
- ☐ Power cycle the autosampler and verify successful initialization.
- ☐ Inspect X and Z axis belts for wear. Replace is necessary.
- ☐ Clean X and Z axis slide shafts.
- ☐ Using customer's racks and the Agilent software move the sample probe to the 4 outermost corners and rinse port, ensure that the probe is approximately centered in the vial.

SPS 4 Auto sampler

- ☐ **Service not applicable**
- ☑ Clean the spill tray, rack location mat, end frames and chassis with a damp soft cloth and diluted mild detergent.
- ☑ Clean the auto sampler cover panels, if cover kit is installed, with domestic window cleaner.
- ☑ Check the X-axis and Z-axis drive belts for cracks, splits, damaged teeth, excessive fraying, color changes or degradation from fumes.
- ☑ Check the X-axis, Theta-axis and Z-axis FFC cables for cracks, incorrect positioning, damaged edges or damaged connectors.
- ☑ Pump Tubing Replacement. Replace peristaltic pump tubing. Replace all tubing that goes from the rinse station to the pump and from the pump to the waste/rinse bottles
- ☑ Test using customer's tray and move the sample probe to the sample vial 1, wash vial and rinse port and ensure that the probe is centered in the vial. If not use calibration wizard and calibrate the position.

AVS 4, 6, 7 Advanced Valve System

- ☑ **Service not applicable**
- ☐ Replace valve rotor seal
- ☐ Check fittings for signs of leaks
- ☐ Check tubing including autosampler tubing for kinks or excessive wear
- ☐ Check high flow pump for signs of leaks

Envilab Co.,Ltd.

Agilent CrossLab
From Insight to Outcome

Preventive Maintenance Procedures

Record Pre-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table – Pre-PM.

Clean and inspect ICP-OES system

- ☑ Look for any obvious external damage or problems.
- ☑ Inspect water cooling hoses, gas lines and power cord for excessive wear or damage.
- ☑ Perform a general internal inspection of the system for excessive dust accumulation, clean if necessary.
- ☑ Inspect sample introduction components and record any required maintenance in the Service Engineer Comments and notify the customer as the required actions required.
- ☑ Record the instrument operating conditions in the ICP-OES Status Results Table.
- ☑ Replace the polychromator purge filter.
- ☑ Replace the radial pre-optics window
- ☑ Replace the axial pre-optics window for SVDV and VDV instruments.
- ☑ Check exhaust flow for the correct positive extraction at the exhaust duct to insure they meet minimum specifications.
- ☑ Replace air inlet dust filter.
- ☑ Replace high capacity air inlet dust filter element if installed.
- ☑ Remove and clean instrument water inlet filter.

Agilent Water Recirculator

- ☐ **Service not applicable**
- ☑ Drain cooling fluid and remove any particles from the chiller reservoir
- ☑ Remove, clean and reinstall water inlet metal mesh filter if present.
- ☑ Re fill with Agilent Cool Clear cooling fluid.
- ☑ Clean the cooling system Air filter and the condenser.

Agilent CrossLab
From Insight to Outcome

Restore Instrument

- ☐ For HF applications, ask the customer to reinstall their sample introduction system.
- ☐ Leave system in an idle state: on and purging.
- ☐ Guidance: If the PM service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Record the PM event in the Smart Alerts logbook, if applicable.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review this service, parts replaced, and test results obtained with the customer.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box. Systems in a compliant environment may need additional documentation.
- ☑ **Complete the Signature Page with both Service Engineer and Customer signatures.**

Envilab Co.,Ltd.

Agilent

Agilent 5100, 5110 Preventive Maintenance Checklist

Agilent CrossLab
From Insight to Outcome

ADS 2 Advanced Dilution System (5110 only)

- ☑ SERVICE NOT APPLICABLE
- ☐ LOOK FOR ANY OBVIOUS EXTERNAL DAMAGE OR PROBLEMS.
- ☐ REPLACE VALVE ROTOR SEAL ON VALVES A AND B.
- ☐ REPLACE BOTH SYRINGES.
- ☐ REPLACE ACID VAPOR FILTER (WASTE VESSEL)
- ☐ REPLACE VENTING VALVE (DILUENT CARRIER BOTTLE)
- ☐ CHECK FITTINGS FOR SIGNS OF LEAKS.
- ☐ CHECK TUBING INCLUDING AUTOSAMPLER TUBING FOR KINKS OR EXCESSIVE WEAR.

ICP-OES adjustment

- ☑ Check position of Zn peak, adjust if required.
- ☑ Check Argon Ratio, adjust to specified value if required.
- ☑ Perform Detector Calibration.
- ☑ Perform Instrument Calibration.

Record Post-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table - Post PM.
- ☑ For systems using ICP Expert version 7.3 and above, run the following Instrument tests
  - ☑ Subsystem Communications Test
  - ☑ Air Flow
  - ☑ Water Flow
  - ☑ Gas Flows
  - ☑ RF Generator
  - ☑ Camera Test
  - ☑ Optics Test
  - ☑ Nebulizer Test
- ☑ Record the result in the Instrument Test Results Table

Agilent

Agilent CrossLab
From Insight to Outcome

ICP-OES Status Results Table

Note: These measurements do not form part of any specification and are for reference only.

Measurement	Standby Mode		Plasma On	
Mains Voltage	220.640	VAC	219.053	VAC
Mains Current	0.080	A	0.099	A
Instrument Temperature	23.2	°C	22.3	°C
RF Air Flow (sensor speed)	7.0	Hz	20.0	Hz
Plasma Exhaust Temperature	No measurement		46.5	°C
Water Flow Oscillator	No measurement		1.51	L/min
Water Flow Detector	1.20	L/min	1.17	L/min
Water Inlet Temperature	18.3	°C	18.3	°C
Polychromator Temperature	35.3	°C	35.0	°C
CCD Temperature	-39.7	°C	-39.8	°C
Thermal Stabilizer	35.0	°C	35.0	°C
Argon Supply Pressure	611.44	kPa	564.69	kPa
Purge Gas Supply Pressure*1	610.40	kPa	594.52	kPa
Option Gas Supply Pressure*1	-	kPa	-	kPa
Nebulizer Flow	No measurement		0.70	L/min
Nebulizer Back Pressure	No measurement		280.74	kPa
Plasma Gas Flow	No measurement		12.03	L/min
Auxiliary Gas Flow	No measurement		1.00	L/min
RF Power	No measurement		1203.4	W
RF Supply Current	No measurement		8.244	A
RF Supply Voltage	No measurement		194.614	V

*1 If option installed

Agilent

Envilab Co.,Ltd.
[redacted]

Agilent CrossLab
From Insight to Outcome

Test Results

Instrument Performance Test Results Table

Note: These measurements do not form part of any specification and are for reference only.

	Pre PM Sensitivity Check		Post PM Sensitivity Check	
	Radial	Axial *	Radial	Axial*
Zn 213.857 nm SRBR	2745.8	3632.4	14128.0	23024.3
Mn 257.610 nm SRBR	12504.7	26596.0	86470.0	215311.9
Al 396.152 nm SBR	5.0	14.9	564.1	2335.7
K 766.491 nm SBR	4.4	71.4	639.6	11029.3

* Axial result is not applicable for G8016AA, G8012AA Radial View instruments.

Instrument Test Results Table

Note: The Instrument Test results are for systems using ICP Expert version 7.3 and above only.

Instrument Test	Result
Subsystem Communications Test	Pass
Air Flow	Pass
Water Flow	Pass
Gas Flows	Pass
RF Generator	Pass
Camera Test	Pass
Optics Test	Pass
Nebulizer test	Pass

Agilent

Part Description	Part Number	Product or Model# where used	Quantity consumed

Signature Page

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the installation or other items of interest for the customer, please write in this box.

-Torch is broken. Should be replaced and should be spaerd.

Service Verification

Service Request Number: 6007747651

Date Service Completed: June 26, 2025

Service Engineer Name: Suwan Onkhom

Customer Name:

© Agilent Technologies, Inc 2022

Envilab Co.,Ltd. [redacted]

Consumed PM Parts

Part Description	Part Number	Product or Model# where used	Quantity consumed
Axial Pre-Optic Window	G8010-68014	G8010A, G8011A, G8014A/G8015A	1
Radial Pre-Optic Window	G8010-68015	All	1
Agilent Cool Clear Coolant Fluid	5799-0037	Agilent Water Recirculator	N/A
Purge Gas Filter	G8010-60136	All	1
Air inlet filter	G8000-68002	All	1
High Capacity Air Filter	G8010-60189	Optional	N/A
Rotor seal for 6-7 port valve for AVS6/7	G8494-60002	G8494A/G8495, ADS 2	N/A
Rotor seal for 4 port valve for AVS4	G8493-60002	G8493A	N/A
Rinse solution to rinse station 2.5mm id x 1m	G8410-80123	SPS 4	N/A
Barb connector 2.5mm-1.5mm ID	G8410-80124	SPS 4	N/A
PVC waste tubing,8mm od x 5mm id, 2m	G8410-80122	SPS 4	N/A
Syringe, 5mL	5299-0037	ADS 2	N/A
Syringe, 10mL	5299-0038	ADS 2	N/A
Acid vapor filter	5043-1193	ADS 2	N/A
Venting valve	5043-1190	ADS 2	N/A
Additional Parts may be required from engineer's stock:			
X axis drive belt	5410047500	SPS 3	N/A
Z axis drive belt	5410047400	SPS 3	N/A
Peristaltic pump tubing, PVC SolvaFlex, 3 bridged,	3710049000	SPS 4	N/A

Consumed Parts Reference (Purchased by customer, not included as part of PM)

☐ **Section Not Applicable.**

Part Description	Part Number	Product or Model# where used	Quantity consumed

© Agilent Technologies, Inc 2022

Agilent CrossLab
From Insight to Outcome

Service Engineer Signature:
Suwan O.

Customer Signature:

Total number of pages in this document:
15 pages



© Agilent Technologies, Inc. 2022

Agilent

PinAAcle 900F Preventive Maintenance (PM)			
Company Name:	ENVI LAB Co.,Ltd		
Address (Instrument Location):	540 soi Bangkhae7, Bangkae,Bangkok 10160		
Serial Number:	PFBS20011403	PM Number:	2/2
Customer Name (if applicable):	K.Janjira	Telephone Number:	095-5500510
Customer Support Engineer Name:	Prasit	Service Order Number:	WO-03026378
Date PM Performed: (DD-MMM-YYYY)	4 APR 2025	Next PM Due Date: (DD-MMM-YYYY)	4 OCT 2025
Standard Labor Hours to Complete PM :		5 hours	

Part Number	Release	Publication Date	PerkinElmer
09370145 Rev.9	A	January 2018	

Scope

The purpose of this PM is to ensure the continued functionality of the PinAAcle 900F by inspecting and replacing any worn or damaged parts. This service should only be performed by a trained representative of PerkinElmer.

The customer should save their method before the PM begins.

General Instructions:

The customer must provide the engineer operational data to demonstrate recent instrument performance prior to starting the PM.

Always check with the customer before making any changes that may affect the customer's analysis or calibration, including a current back-up of system software and/or data files.

The completed document should be signed by an authorized PerkinElmer and customer representative and left with the customer.

Update the PM sticker and instrument logbook as required.

Copyright Information

This document contains proprietary information that is protected by copyright. All rights are reserved.

No part of this publication may be reproduced in any form whatsoever or translated into any language without the prior, written permission of PerkinElmer, Inc.

Copyright © 2013 PerkinElmer, Inc.

Trademarks

Registered names, trademarks, etc. used in this document, even when not specifically marked as such, are protected by law. PerkinElmer is a registered trademark of PerkinElmer, Inc. All other trademarks and registered trademarks not owned by PerkinElmer, Inc. or its subsidiaries that are depicted herein are the property of their respective owners.

Except as specifically set forth in its terms and conditions of sale, PerkinElmer makes no Warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

PerkinElmer shall not be liable for incidental or consequential damages in connection with the furnishing or use of this document.

Envilab Co.,Ltd.

PerkinElmer
For the Better

PinAAcle 900F Preventive Maintenance Report

Company Name: ENVI LAB Co.,Ltd

Instrument Location: AAS ROOM

540 soi Bangkhae7, Bangkae,Bangkok 10160

Instrument Serial No.: PFBS20011403

Date: 4 APR 2025

Component List

Component / Specific Model	Serial #	Configuration Notes
PinAAcle 900F	PFBS20011403	Syngistix Ver 5.1.0.2066

Parts Lists

Parts Included with the PM		
Part Number (if applicable)	Description	Quantity
B0501696	Fan Filters	N/A
N3160156	O-Ring Kits for Sampling Introduction (Stainless Steels Nebulizer)	N/A
N3160157	O-Ring Kits for Sampling Introduction (Plastic Nebulizer)	N/A
N9301714	Replacement Acetylene Filter Cartridge	N/A
TH001022	Replacement Air Filter Cartridge	N/A

Additional Reagents and Standards Required for PM				
Part Number (if applicable)	Description	Quality	Batch/Lot #	Expired Date (MM/YY)
N9300183	1000 mg/L Copper Standard	AR	26-87CUY1	APR-2025

Additional Reagents and Standards Required for PM (Customer Support Solution)				
Part Number (if applicable)	Description	Quantity	Batch/Lot #	Expiration Date (MM/YY)
N/A	DI Water	250 ml.	AR	AR
N/A	0.5% HNO_3	250 ml.	AR	AR

Additional Tools Required for PM			
Part Number (if applicable)	Description	Quantity	Serial #
N1013000	0.2A Neutral density filter	1	MG0-135
N1013002	1.0A Neutral density filter	1	MG2-258
03030997	System 2 EDL Driver	1	030309-97E
N3050605	As System 2 EDL	1	17986
N3050121	Cu Lumina HCL	1	000003793D12
N3050109	Ba Lumina HCL	1	041123-010120
N3050139	K Lumina HCL	1	0000037B8E1D
N3050152	Ni Lumina HCL	1	

Envilab Co.,Ltd.

Procedure Checklist

Use (✓) to check off those steps in the checklist that have been completed.

1. **General:**
   - ☑ Review the instrument performance with the customer and document any recent problems.
   - ☑ Inspect the customer log book and make any appropriate PM entries.
   - ☑ Perform general inspection of system for cleanliness.

2. **PC Instrument Software:**
   - ☑ Instrument Software user files/databases archived, packed, and/or deleted as needed.

3. **Mechanical:**
   - ☑ Inspect and clean all fans and filters. Replace filters if necessary
   - ☑ Inspect all gas lines for leaks and/or wear. Replace if needed.
   - ☑ Clean exterior of the instrument.
   - ☑ Inspect the burner head, burner chamber, and nebulizer. Clean if needed as stated in the Hardware Guide.
   - ☑ Check burner head dimensions with the feeler gauge as stated in the Hardware Guide in the Maintenance chapter section on cleaning the burner head and checking sloth width. Replace if out of specification
   - ☑ Check the condition of the end cap, burner head, and nebulizer O-rings. Replace if necessary.
   - ☑ Check the drain system for signs of wear. Replace worn or damaged parts.
   - ☑ Visually check for proper flame conditions when igniting the Air-C2H2 and N20-C2H2 flames (if applicable).

4. **Electrical:**
   - ☑ Inspect PC boards. Clean if necessary.
   - ☑ Carefully check all internal and external cable connections.
   - ☑ Check instrument firmware revisions upgrade to current levels (if necessary)
   - ☑ Run Diagnostics Test within the Advanced function of the Spectrometer page. Check the results in the service log folder in the Spectrometer BM Log Viewer.

5. **Optics:**
   - ☑ Inspect and clean the sample compartment windows, if needed.
   - ☑ Inspect optics. Clean or replace if necessary,

6. **Gasses:**
   - ☑ Verify that the Gasses supplied to the instrument are within the pressure and purity specifications found in the PinAAcle 900 Series Pre-installation Checklist SDB.
   - ☑ Verify that the acetylene filter and air filter element is dry. Replace if necessary.

7. **Flame Interlock Check:**

   Description: Check to ensure that all safety interlocks are closed.

Parameter	Specification	Test Results	Pass/Fail
Flame Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Drain Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Nebulizer Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
C_2H_2 Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Air Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Burner Head Sensor	Choosing Nitrous Oxide as the oxidant should trigger an interlock shuts down	Active	Passed

8. **After PM Performance tests:**

   8.1 Detector Linearity with Barium

   Description: Ensures that the detector is linear in the Visible Range.

Parameter	Specification	Certificate Value at 553.6 nm (Abs.)	Test Results	Pass/Fail
1.0 A ND Filter	± 5% from Cert.	0.9995	1.0277	Passed
0.2 A ND Filter	± 5% from Cert.	0.1936	0.2024	Passed

   8.2 Baseline Noise at 1.0 Absorbance with Barium

   Description: Ensures that a high absorbance will not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0015	Passed

   8.3 AA Baseline Noise with Copper

   Description: Check baseline noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.001	0.0003	Passed

Envilab Co.,Ltd. [redacted]

8.4 D_2 Background Compensation with Copper

Description: Verifies the instruments ability to compensate for Background absorption.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0013	Passed

8.5 AA-BG Baseline Noise with Copper

Description: Ensures that background correction does not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0004	Passed

8.6 AA-BG Baseline Noise with Arsenic

Description: Ensures that background correction does not produce excessive noise at a low wavelength.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0001	Passed

8.7 Flame Sensitivity

Description: Instrument Sensitivity checked against Copper standard.

Standard Copper Sensitivity	Specification	Results (Abs.)	Pass/Fail
5 mg/L Sensitivity SS Neb (if applicable)	> 0.250 Abs.	N/A	Passed
2 mg/L Sensitivity HS Neb (if applicable)	> 0.250 Abs.	0.2987	Passed

10. Review:

- ☑ Review with the customer PM work performed.
- ☑ Review with the customer routine maintenance procedures.
- ☑ Discuss recommended customer supplied materials to have on hand.
- ☑ Attach PM sticker.

Additional Comments

Additional Comments Regarding the PM

Review

The preventive maintenance checks and if applicable performance tests for PinAAcle 900F have been completed.

This PinAAcle 900F Passes ☑ Fails ☐ the preventive maintenance.

Review of Preventive Maintenance:	
Authorized PerkinElmer Representative: [redacted]	Date: 4 APR 2025 (DD-MMM-YYYY)
Authorized Customer Representative:	Date: 4 APR 2025 (DD-MMM-YYYY)

Envilab Co.,Ltd. [redacted]

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C08250053

Calibration Certificate

Equipment:	pH METER		
Model:	F-74BW	Job No.:	KSMT2501044
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	26.1 °C	±	0.3	°C
Humidity:	50.2 %RH	±	1.1	%RH

The Method used

In-house method, WI08, based on ASTM E 70-07

Traceability

This certificate is traceable to SI Units, Sample Test is assured through primary meaurement method Harned cell, through CPAchem Ltd. (ISO17034) Certificate No. 1066714, 1066714, 1066716, pH Scale and Temperature test are traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through Industrial Foundation Electrical and Electronics Institute Certificate No. CA20250010EA, through SCIMET Co., Ltd. Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

SCIMET CO.,LTD.

Person in charge

[redacted]

Authorized signatory

[redacted]

Envilab Co

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard Buffer solution	4.007 pH	PH216.L5	1066714	18-Jan-27
Standard Buffer solution	6.965 pH	PH107.L5	1066714	18-Jan-26
Standard Buffer solution	10.010 pH	PH220.L5	1066716	18-Jan-26
DC Voltage and Current Calibrator / XITRON		2000MN	CA20250010EA	19-Jan-26
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

pH Scale

Input	pH Meter Reading			Uncertainty of Measurement (mV)	Coverage Factor *(k)*
(mV)	(mV)	Error (mV)	(pH)		
414.12	414.2	0.08	0.000	0.065	2.00
354.96	355.0	0.04	1.000	0.065	2.00
295.80	295.8	0.00	2.000	0.065	2.00
236.64	236.7	0.06	3.000	0.065	2.00
177.48	177.5	0.02	4.000	0.065	2.00
118.32	118.4	0.08	5.000	0.065	2.00
59.16	59.2	0.04	6.000	0.065	2.00
0.00	0.0	0.00	7.000	0.065	2.00
-59.16	-59.1	0.06	8.000	0.065	2.00
-118.32	-118.2	0.12	9.000	0.065	2.00
-177.48	-177.4	0.08	10.000	0.065	2.00
-236.64	-236.6	0.04	11.000	0.065	2.00
-295.80	-295.7	0.10	12.000	0.065	2.00
-354.96	-354.9	0.06	13.000	0.065	2.00
-414.12	-414.0	0.12	14.000	0.065	2.00

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Electrode Test Results*

The three-point calibration using three standard buffer solutions; pH 4.007 , pH 6.965 and pH 10.010

The practical slope of the pH electrode; 58.31 (mV/pH), 98.57%

The zero point of the pH electrode; 6.58 (pH)

Sample Test Results

Electrode Serial No.: 9X1K0003

Model: 9615S

Manufacturer: HORIBA

Standard Buffer Solution (pH)	Unit Under Calibration (pH)	Difference (pH)	Uncertainty of Measurement (pH)	Coverage Factor (*k*)
4.007	3.995	-0.012	0.011	2.43
6.965	6.970	0.005	0.011	2.07
10.010	10.019	0.009	0.0089	2.06

Temperature Electrode

Dimension of Probe;

Length : 100 mm

Diameter : 12 mm

Immersion Depth : 80 mm

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Uncertainty of Measurement (±°C)	Coverage Factor *(k)*
25.03	25.0	0.03	0.20	2.00

* Calibration Marked for Electrode Test" Not TISI Accredited " in this Certificate have been included for completeness.

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ศูนย์วิเคราะห์ตรวจคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง pH Meter

เลขที่ใบงาน: KSMT2501044

ชนิดเครื่องมือ: pH METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☐	☑	8. ระดับสารละลายใน Electrode (Level KCl)	☑	☐	
☑	☐	9. ฝาปิดกันปลาย Electrode (Dust Protection Hood)	☑	☐	
☑	☐	10. ขาจับอิเล็กโทรด (Stand)	☑	☐	

เพิ่มเติม/ข้อแนะนำ : _____

_____

_____

Mr. Dumrong Boonsopon
Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

MIRACLE INTERNATIONAL TECHNOLOGY CO.,LTD
214 Bangwaek Rd. Bangpai Bangkae Bangkok 10160
Tel.: 0-2865-4647-8 Fax: 0-2865-4649 http://www.mit.in.th

ilac-MRA

NSC-TH-TH 17025
CALIBRATION 0052

CALIBRATION CERTIFICATE

Certificate No. : S2025040468-0002
Date Issued : 25-Apr-25

Customer	: Envilab Co., Ltd. 540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok, Thailand 10160
Equipment	: Lab Refrigerator (TMF-PLR221)
Manufacturer	: Thermo Scientific
Model	: PLR221
Serial No.	: 2210M319042801
ID No./Tag No.	: ELABREFRIGEN02
Date Received	: 24-Apr-25
Date Calibrated	: 24-Apr-25
Calibrated by	: Chanon Konyawong

Calibration Method or Calibration Procedure Used

Standard method : CP-05 TLAS G-20.

This certificate is traceable to national standards, which realize the units of measurement according to the International System of Units (SI).

Result of Calibration

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor k = 2, providing a level confidence approximately 95 percent.

This certificate may not be reproduced other than in full except with the prior written approval of the Miracle International Technology Company Limited.

Approve [redacted]

(Sarayuth Tochua)

CERTIFIED MIT

Envilab Co.,Ltd. [redacted]

Certificate No. : S2025040468-0002

Environment : Ambient Temperature : Start record 25.4 °C, Stop record 25.7 °C

Relative Humidity : Start record 50.5 %RH, Stop record 50.4 %RH

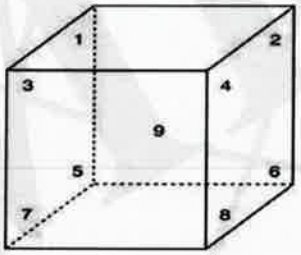
Calibration Temperature (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Stability[1] (°C)	Measured Uniformity[2] (°C)	Overall Variation[3] (°C)
4	4	4	1.29	0.55	2.68

Without adjustment

Calibration Temperature (°C)	STD No. 1 (°C)	STD No. 2 (°C)	STD No. 3 (°C)	STD No. 4 (°C)	STD No. 5 (°C)	STD No. 6 (°C)	STD No. 7 (°C)	STD No. 8 (°C)	STD No. 9 (°C)	Uncertainty[4] (±°C)
4	4.29	4.11	4.12	4.05	4.32	4.38	4.05	4.07	4.00	1.6

Note : Probe No. 9 is Reference Probe

Setting Air Fresh No. -



Condition As-Received : Used Item

The measurment results and statements of conformity with specification only relate to the item calibrated.

Measurement Standards Used & Traceability :

The International System of Units (SI) through

MIT Certificate No. L202412300-0027 for Temperature Indicator with Sensor Serial No. US37020317, Due 09-Sep-25

Notes : 1. The temperature stability is the one-half of greatest maximum difference of measured temperatures at any one probe.

2. The temperature uniformity is the maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time.

3. Overall variation is the difference of maximum and minimum measured temperatures throughout observation time.

4. The uncertainty of measurement is included temperature stability.

5. The temperature uniformity, stability, overall variation and indicating temperature is applicable to all air or gas filled temperature controlled enclosures at atmospheric pressure.

End of Certificate

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250552

Calibration Certificate

Equipment: Cooled Incubator

Model:	BIC-140
Serial No.(or ID):	100613-1 (ELABBODC140N01)
Manufacturer:	M-LAB
Ventilation Valve:	None
Shelves(pc.):	5

Job No.:	KSMT2503905
Received Date:	06 October 2025
Issued Date:	09 October 2025
Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

06 October 2025

Environment Condition

Temperature:	21.0 °C	±	1.3 °C
Humidity:	53.6 %RH	±	3.8 %RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250017

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

[redacted]

Authorized signatory

[redacted]

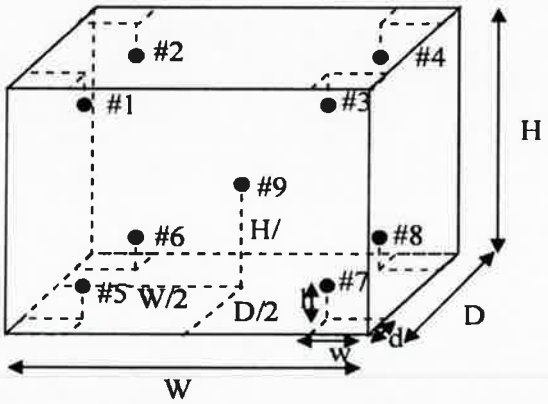
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 3	34970A	MY44075238	C23250017	28-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 57 (Liters)

Inside chamber:	W = 38 (cm)	D = 32 (cm)	H = 114 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 11 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 11 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	201	202	203	204	205	206	207	208	209

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co

[redacted]

SCIMET

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.1 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	20.30	0.30	0.58
#2	20.40	0.40	0.59
#3	20.53	0.53	0.58
#4	19.55	-0.45	0.57
#5	20.09	0.09	0.66
#6	20.11	0.11	0.77
#7	20.12	0.12	0.64
#8	20.03	0.03	0.72
#9	20.11	0.11	0.63

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
20.0	20.0	20.1	20.30	20.40	20.53	19.55	20.09	20.11	20.12	20.03	20.11	0.77

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
20.1	0.70	0.50	1.57

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule : ☐ Choice A Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.

☑ Choice B Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.

☐ Choice C Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]
Authorized signatory

Without adjustment

Desired Temperature : 20.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.1 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	20.30	0.30	0.58	1.0	Pass
#2	20.40	0.40	0.59	1.0	Pass
#3	20.53	0.53	0.58	1.0	Condition Pass
#4	19.55	-0.45	0.57	1.0	Condition Pass
#5	20.09	0.09	0.66	1.0	Pass
#6	20.11	0.11	0.77	1.0	Pass
#7	20.12	0.12	0.64	1.0	Pass
#8	20.03	0.03	0.72	1.0	Pass
#9	20.11	0.11	0.63	1.0	Pass

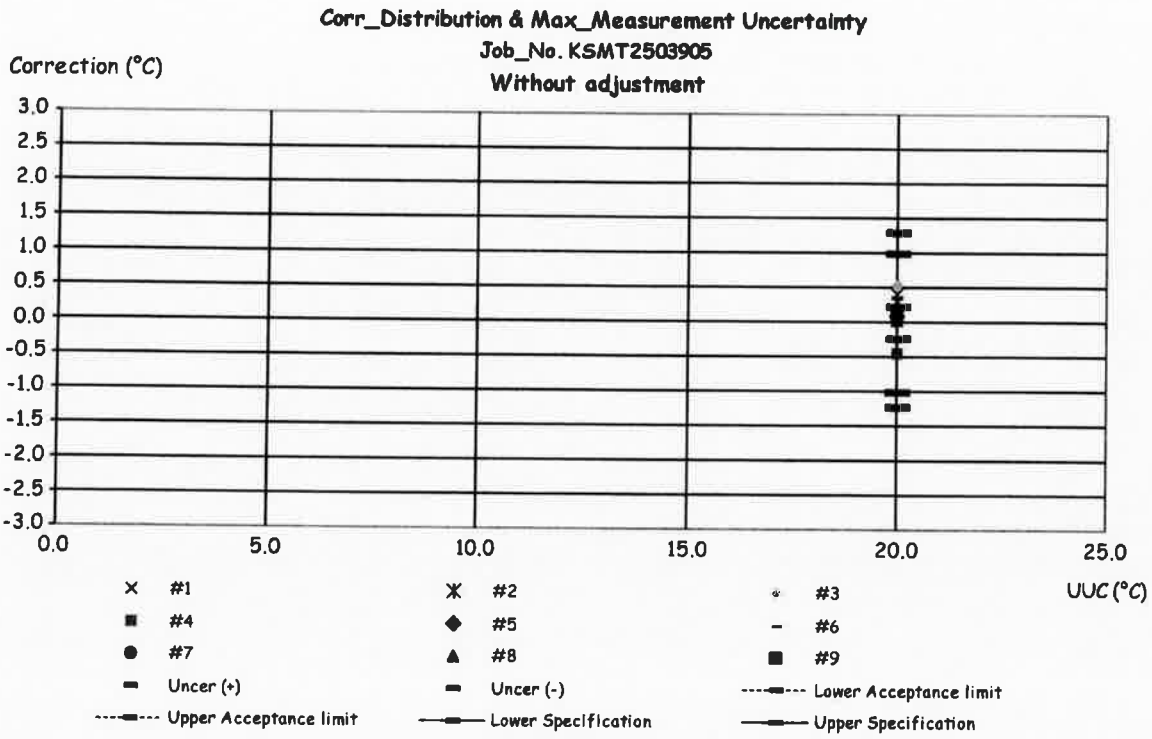
Correction of UUC.* = Measured Temperature - Desired Temperature

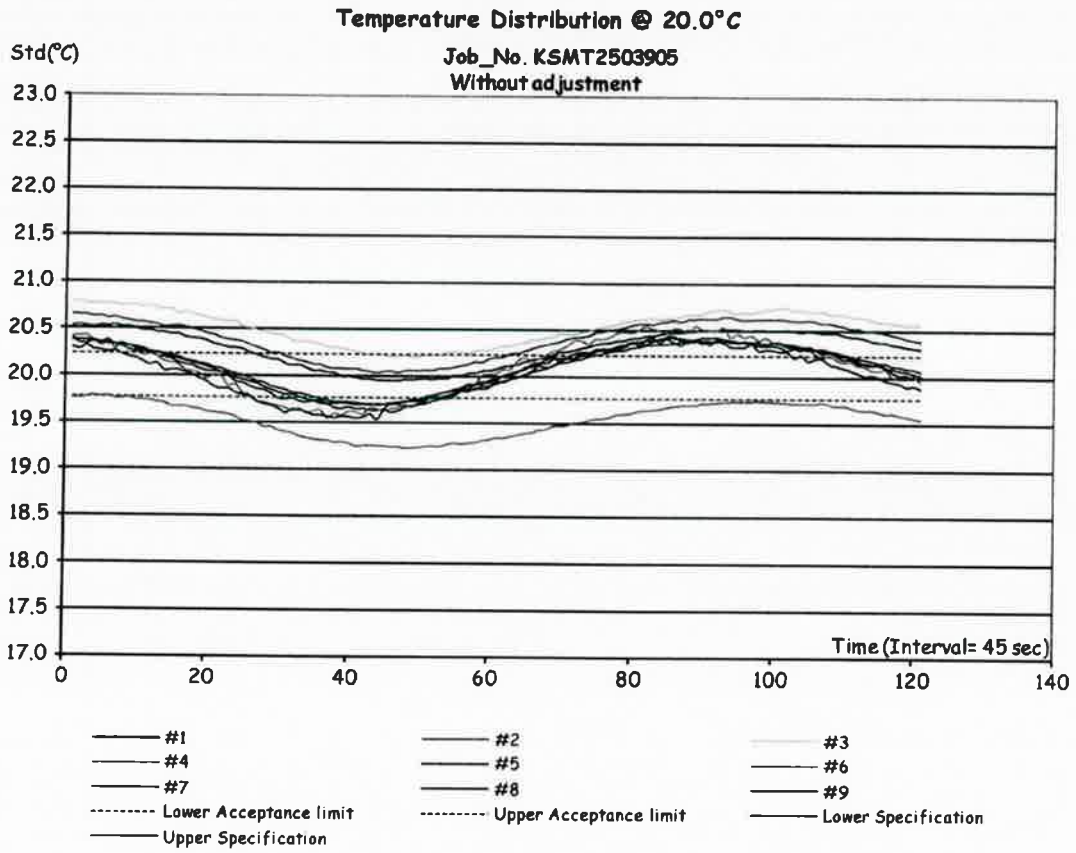
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ


Corr_Distribution & Max_Measurement Uncertainty
Job_No. KSMT2503905
Without adjustment
Correction (°C)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
0.0
5.0
10.0
15.0
20.0
25.0
UUC (°C)
#1
#2
#3
#4
#5
#6
#7
#8
#9
Uncer (+)
Uncer (-)
Lower Acceptance limit
Upper Acceptance limit
Lower Specification
Upper Specification


Temperature Distribution @ 20.0°C
Job_No. KSMT2503905
Without adjustment
Std(°C)
23.0
22.5
22.0
21.5
21.0
20.5
20.0
19.5
19.0
18.5
18.0
17.5
17.0
0
20
40
60
80
100
120
140
Time (Interval= 45 sec)
#1
#2
#3
#4
#5
#6
#7
#8
#9
Lower Acceptance limit
Upper Acceptance limit
Lower Specification
Upper Specification

Envilab Co.,L

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2503905

ชนิดเครื่องมือ: Cooled Incubator รุ่น: BIC-140

หมายเลขเครื่อง: 100613-1 (ELABBODC140N01)

ตรวจสอบ (รับ) 06 Oct 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 06 Oct 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☐	☐	6. สภาพ Lever of Ventilation valve	☐	☐	-
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☑	☐	10. การทำงานของระบบทำความเย็น	☑	☐	
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Mongkolwat Hasanon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel:095-552-4939

Certificate No. C27250001

Calibration Certificate

Equipment:	DO METER		
Model:	HI9146	Job No.:	KSMT2501049
Serial No.(or ID):	GOOO7931 (ELABDOHI914601)	Received Date:	17 March 2025
Manufacturer:	HANNA	Issued Date:	18 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Environment Laboratory, SCIMET Co., Ltd.

1194 Soi Wachirathamsathit 57, Bangchak, Prakhanong, Bangkok 10260 Thailand

Calibration Date

17 March 2025

Environment Condition

Temperature:	23 °C	±	2	°C
Humidity:	50 %RH	±	15	%RH

The Method used

In-house method, WI27 , By comparison with certified dissloved oxygen solution standard

Traceability

This is certificate is traceable to SI Units , Sample test and temperature test are assured through HANNA instruments company certificare No. 26l42, through Quality Reborn Co.,LTD certificare No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

[redacted]

Envilab Co.,Ltd

SCIMET

Calibration Results:

Electrode Serial No. -

Model : -

Brand : HANNA

Electrode Test

Atmospheric pressure measured while calibrating.	756.36	mmHg
Temperature measured while calibrating.(± 0.2 °C)	24.7	°C
The Oxygen Solubility was calculated from the ambient conditions.	8.27 ± 0.03	mg/L
The Oxygen Solubility reading from the DO METER	-	mg/L

Sample Test

Standard Oxygen Solution	Unit Under Calibration Reading	Correction	Coverage Factor (k)	Uncertainty of Measurement (±)
0.0 %	0.0 %	0.0 %	2.00	0.20 %

Temperature Electrode

Dimension of Probe;

Length :	85	mn.
Diameter :	18	mn.
Immersion Depth	80	mn.

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.01	25.6	-0.59	2.00	0.15

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 095 552 4939

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Do Meter

เลขที่ใบงาน: KSMT2501049

ชนิดเครื่องมือ: DO METER รุ่น: HI9146 หมายเลขเครื่อง: GOOO7931

ตรวจสอบ (รับ) 17 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 17 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ :

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 095 552 4939

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-400323-1 **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.

540,540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : COD Reactor

Manufacturer : Hanna Model : HI839800

Range : N/A °C Resolution : 0.1 °C

Serial No. : 06480040101 ID No. : ELABHI83980001

Environment : Ambient Temperature : (23 ± 2) °C

Relative Humidity : (50 ± 15) %

Date of Received : 28 May 2025

Date of Calibration : 31 May 2025

Date of Issue : 31 May 2025

Calibrated by : Sarawut Sangiamging

Calibration Method : This instrument was calibrated by In-house method direct measurement with Standard Digital Thermometer with TC Type T probe

The temperature scale used was based on ITS-90

Reference Standard Instruments :

Standard Digital Thermometer with TC Probe

ID No.	Cert. No.	Due Date	Traceability
400046 & 400023	68-400148-1	02 Oct 2025	National Institute of Metrology Thailand (NIMT)
400046 & 400028	68-400148-3	01 Oct 2025	National Institute of Metrology Thailand (NIMT)

App[redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Calibra[redacted]

Envilab Co.,Ltd.

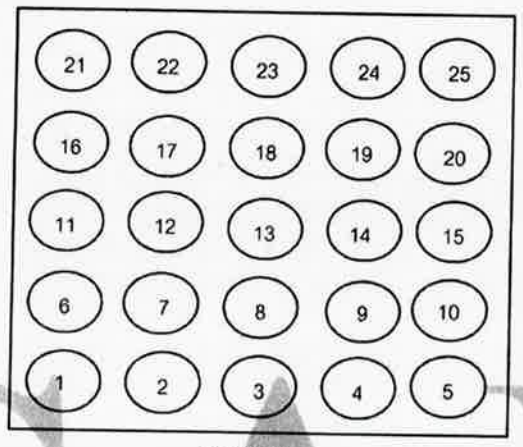
CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-400323-1**

Result of Calibration : Without Adjustment

Function : Temperature measurement



Controller

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)									
			1	2	3	4	5	6	7	8	9	10
150.0	150.0	150.0	149.0	149.2	149.4	149.6	148.6	149.0	150.3	149.7	149.6	149.8

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)									
			11	12	13	14	15	16	17	18	19	20
150.0	150.0	150.0	149.4	149.5	150.2	150.0	149.1	149.1	150.0	150.1	150.1	148.7

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)					Uncertainty (±°C)
			21	22	23	24	25	
150.0	150.0	150.0	148.6	148.7	149.6	148.9	148.6	0.79

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C18250038

Calibration Certificate

Equipment:	Liquid Bath		
Model:	WNB14	Job No.:	KSMT2501047
Serial No.(or ID):	L412.2222 (ELABWBWNB14N01)	Received Date:	19 March 2025
Manufacturer:	Memmert	Issued Date:	24 March 2025
Circulation:	None	Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	28.1 °C	±	0.5	°C
Humidity:	49.2 %RH	±	3	%RH

The Method used

In-house method, WI18, based on ASTM E715-1980 (reapproved 2022)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

[redacted]

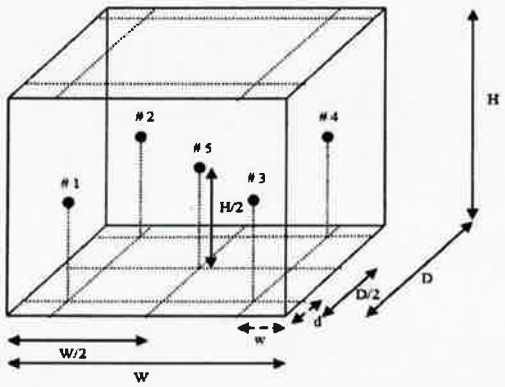
Authorized signatory

Envilab Co.,Ltd.

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Midway between the diffuser plate and the water surface

Inside bath: W = 37 (cm) D = 33 (cm) H = 16 (cm) Volume = 20 (Liters)

Standard Locations #1: w = 5 (cm) d = 5 (cm)

Standard Locations #2: w = 5 (cm) d = 5 (cm)

Standard Locations #3: w = 5 (cm) d = 5 (cm)

Standard Locations #4: w = 5 (cm) d = 5 (cm)

Standard Locations #5: Center of any probes. (#1 - #4)

Position of Std	#1	#2	#3	#4	#5
Channel of Logger	101	102	103	104	105

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the bath.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the bath at steady-state. The reference probe is preferably located in the geometric center of the bath.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe

Overall Variation: The difference of maximum and minimum measured temperature

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	95.08	0.08	0.20
#2	95.12	0.12	0.20
#3	95.03	0.03	0.20
#4	95.07	0.07	0.20
#5	95.08	0.08	0.20

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)					Uncertainty (± °C)*
			#1	#2	#3	#4	#5	
95.0	94.5	94.5	95.08	95.12	95.03	95.07	95.08	0.20

Bath Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
94.5	0.12	0.09	0.28

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E715-1980 (reapproved 2022). Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET
SCIMET CO.,LTD.
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

Without adjustment

Desired Temperature : 95.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	95.08	0.08	0.20	1.0	Pass
#2	95.12	0.12	0.20	1.0	Pass
#3	95.03	0.03	0.20	1.0	Pass
#4	95.07	0.07	0.20	1.0	Pass
#5	95.08	0.08	0.20	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

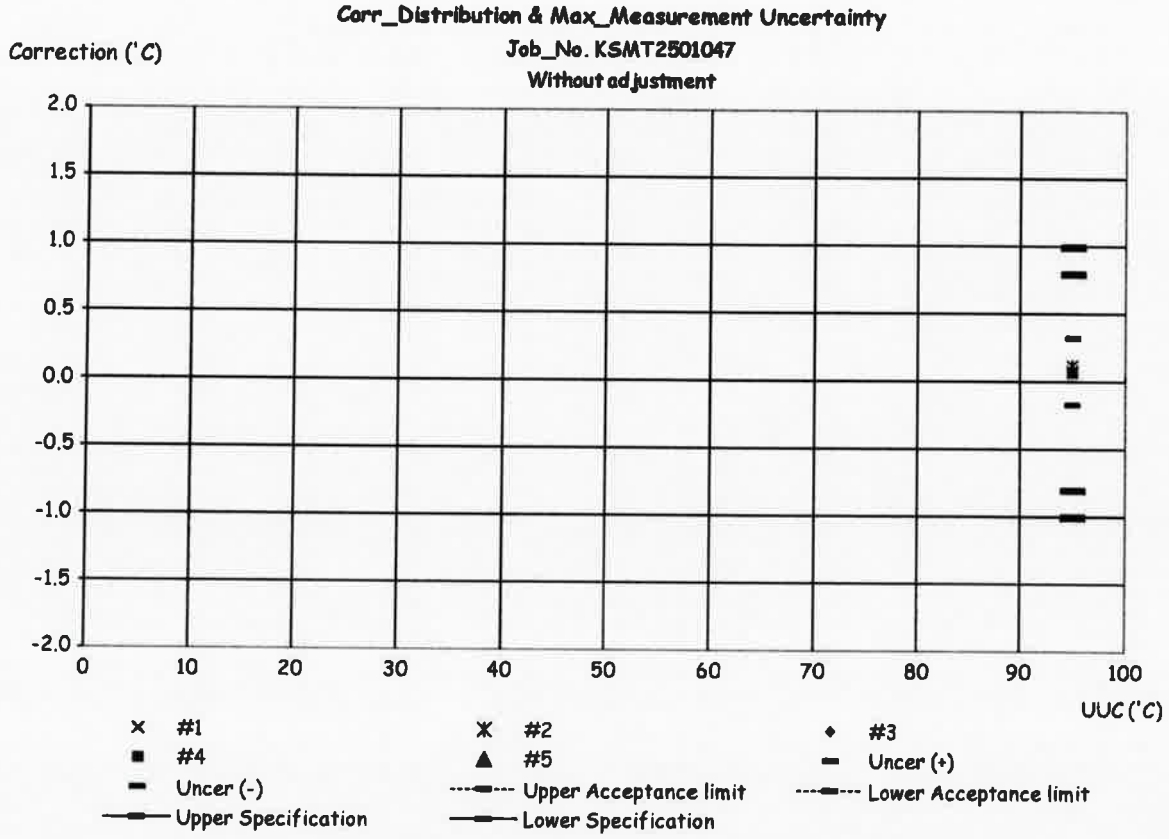
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

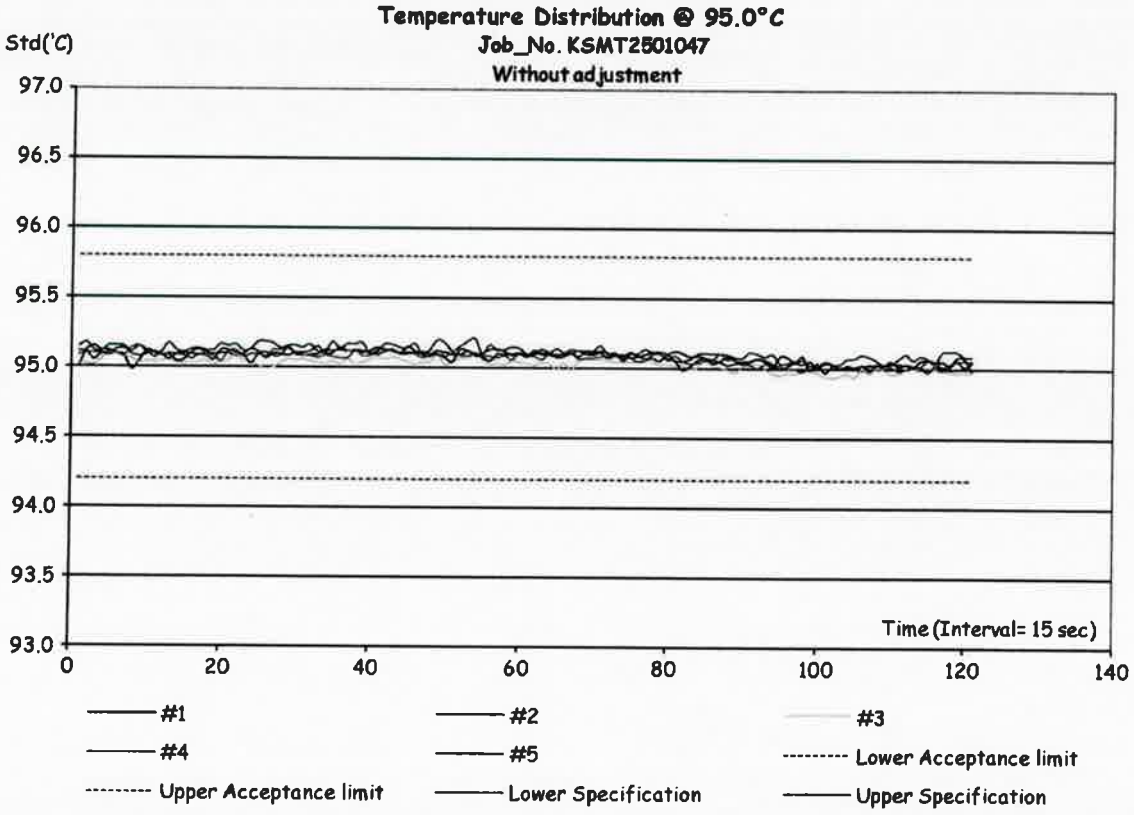
The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

[redacted]


Corr_Distribution & Max_Measurement Uncertainty
Job_No. KSMT2501047
Without adjustment
Correction ('C)
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
0
10
20
30
40
50
60
70
80
90
100
UUC ('C)
#1
#2
#3
#4
#5
Uncer (+)
Uncer (-)
Upper Acceptance limit
Lower Acceptance limit
Upper Specification
Lower Specification


Temperature Distribution @ 95.0°C
Job_No. KSMT2501047
Without adjustment
Std('C)
97.0
96.5
96.0
95.5
95.0
94.5
94.0
93.5
93.0
0
20
40
60
80
100
120
140
Time (Interval= 15 sec)
#1
#2
#3
#4
#5
Lower Acceptance limit
Upper Acceptance limit
Lower Specification
Upper Specification

Envilab Co

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501047

ชนิดเครื่องมือ: Liquid Bath รุ่น: WNB14

หมายเลขเครื่อง: L412.2222

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☐	☐	5. การทำงาน Circulator	☐	☐	ไม่มี
☑	☐	6. สภาพ Lever door open / close	☑	☐	
☑	☐	7. ท่อระบายน้ำทิ้ง (DRAIN)	☑	☐	
☐	☐	8. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☑	☐	9. สภาพตัวเครื่อง	☑	☐	
☑	☐	10. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Enviab Co.,Ltd.

[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-200066-2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : Electronic Balance
Manufacturer : METTLER TOLEDO Model : XSR205DU
Serial No. : B911363567 ID No. : ELABBALANCEN06
Capacity : 220 g Resolution : 0.00001g/81g, 0.0001g/220g

Environment : On site calibration was carried out at the B304 Balance Room, Envilab Co., Ltd.
Ambient Temperature : (21.2 to 21.5) °C
Relative Humidity : (51.4 to 56.2) %
Air Pressure : 1011.0 mbar

Date of Received : 17 February 2025
Date of Calibration : 17 February 2025
Date of Issue : 19 February 2025
Calibrated by : Satja Sangkhum

Calibration Method : In-house method CAL-M2001 based on UKAS Publication ref : LAB 14 Edition 7 - November 2022

Reference Standard Instruments : This certification is traceable to the International System of Units

Standard Weights

ID No.	Cert. No.	Due Date	Traceability
E261-E2624	C02242009	07 Nov 2025	National Institute of Metrology (Thailand), (NIMT)

App[redacted]
(Surachai Promthong)
Laboratory Manager

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Calib[redacted]

Envilab Co.,Ltd. [redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-200066-2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Departure of indication from nominal value

Nominal Value (g)	Correction (g)	Uncertainty ± (g)
0.1	0.00000	0.000016
0.5	0.00000	0.000022
1	0.00000	0.000026
2	-0.00001	0.000034
5	-0.00001	0.000043
10	0.00000	0.000053
50	-0.00002	0.00011
100	0.0000	0.00020
150	0.0000	0.00038
200	0.0000	0.00038

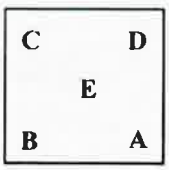
This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty mutiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

Eccentric error

Load test : 50 g

A	B	C	D	E	
-0.00001	-0.00001	0.00003	0.00003	0.00000	g



Repeatability

Load test : 200 g

Stdev. : 0.000032 g

- o0o -

[redacted]

[redacted]

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250137

Calibration Certificate

Equipment: Hot Air Oven

Model:	UF75
Serial No.(or ID):	B319.0600 (ELABHAOVEN0600)
Manufacturer:	Memmert
Ventilation Valve:	Closed
Shelves(pc.):	3

Job No.:	KSMT2501050
Received Date:	19 March 2025
Issued Date:	24 March 2025
Page:	1 of 5

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B306 CH2 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	29.4 °C	±	1.2	°C
Humidity:	48 %RH	±	3	%RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

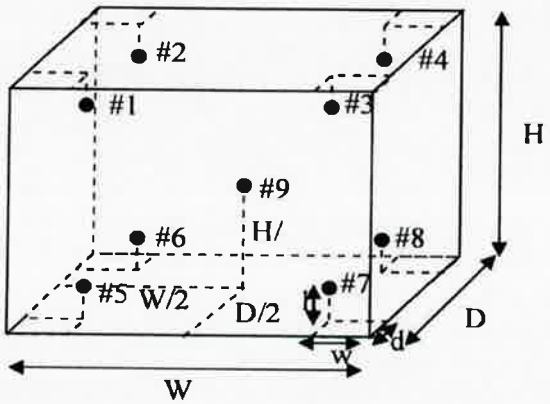
Authorized signatory

Envilab Co.,Ltd.

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 30 (Liters)

Inside chamber:	W = 40 (cm)	D = 33 (cm)	H = 56 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	301	302	303	304	305	306	307	308	309

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

Envilab Co.,Ltd.

[redacted]

Calibration Results:

Before adjustment

Desired (°C)	Setting (°C)	Indicating (°C)	#1 (°C)	#2 (°C)	#3 (°C)	#4 (°C)	#5 (°C)	#6 (°C)	#7 (°C)	#8 (°C)	#9 (°C)
104.0	104.0	104.0	104.44	104.95	105.08	104.82	104.94	104.72	104.13	104.70	105.02

After adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	103.85	-0.15	0.39
#2	104.35	0.35	0.39
#3	104.40	0.40	0.39
#4	104.17	0.17	0.39
#5	104.33	0.33	0.39
#6	104.12	0.12	0.39
#7	103.73	-0.27	0.39
#8	104.10	0.10	0.39
#9	104.31	0.31	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
104.0	104.0	104.0	103.85	104.35	104.40	104.17	104.33	104.12	103.73	104.10	104.31	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
104.0	0.65	0.09	0.80

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	109.74	-0.26	0.39
#2	110.28	0.28	0.39
#3	110.40	0.40	0.39
#4	110.15	0.15	0.39
#5	110.24	0.24	0.39
#6	110.01	0.01	0.39
#7	109.59	-0.41	0.39
#8	110.02	0.02	0.39
#9	110.33	0.33	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
110.0	110.0	110.0	109.74	110.28	110.40	110.15	110.24	110.01	109.59	110.02	110.33	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
110.0	0.84	0.12	0.98

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Enviiab Co.,Ltd.

[redacted]

SCIMET

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	179.37	-0.63	0.49
#2	180.52	0.52	0.48
#3	180.61	0.61	0.47
#4	180.55	0.55	0.47
#5	180.51	0.51	0.48
#6	180.03	0.03	0.50
#7	179.26	-0.74	0.49
#8	180.23	0.23	0.49
#9	180.67	0.67	0.47

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
180.0	179.0	179.0	179.37	180.52	180.61	180.55	180.51	180.03	179.26	180.23	180.67	0.50

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
179.0	1.54	0.17	1.68

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET CO.,LTD

[redacted]

Authorized signatory

After adjustment

Desired Temperature : 104.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	103.85	-0.15	0.39	1.0	Pass
#2	104.35	0.35	0.39	1.0	Pass
#3	104.40	0.40	0.39	1.0	Pass
#4	104.17	0.17	0.39	1.0	Pass
#5	104.33	0.33	0.39	1.0	Pass
#6	104.12	0.12	0.39	1.0	Pass
#7	103.73	-0.27	0.39	1.0	Pass
#8	104.10	0.10	0.39	1.0	Pass
#9	104.31	0.31	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co [redacted]

Statements of conformity:(Cont.)

After adjustment (Cont.)

Desired Temperature : 110.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	109.74	-0.26	0.39	1.0	Pass
#2	110.28	0.28	0.39	1.0	Pass
#3	110.40	0.40	0.39	1.0	Pass
#4	110.15	0.15	0.39	1.0	Pass
#5	110.24	0.24	0.39	1.0	Pass
#6	110.01	0.01	0.39	1.0	Pass
#7	109.59	-0.41	0.39	1.0	Pass
#8	110.02	0.02	0.39	1.0	Pass
#9	110.33	0.33	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

After adjustment (Cont.)

Desired Temperature : 180.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	179.37	-0.63	0.49	2.0	Pass
#2	180.52	0.52	0.48	2.0	Pass
#3	180.61	0.61	0.47	2.0	Pass
#4	180.55	0.55	0.47	2.0	Pass
#5	180.51	0.51	0.48	2.0	Pass
#6	180.03	0.03	0.5	2.0	Pass
#7	179.26	-0.74	0.49	2.0	Pass
#8	180.23	0.23	0.49	2.0	Pass
#9	180.67	0.67	0.47	2.0	Pass

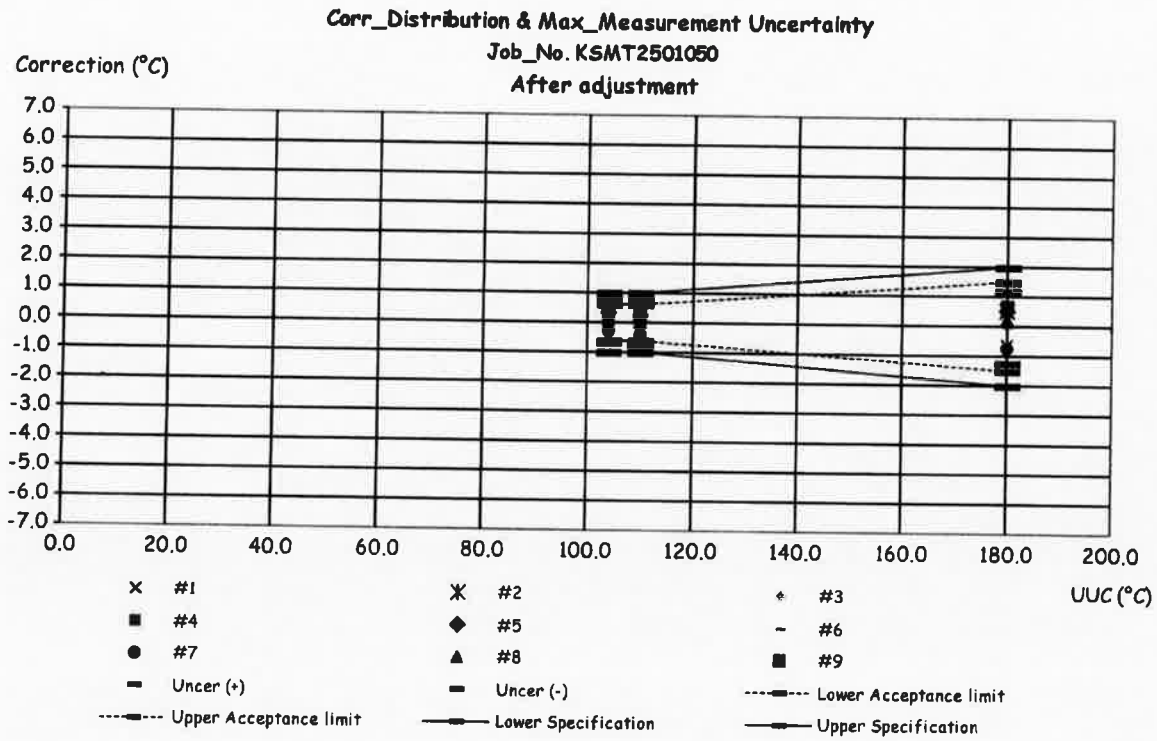
Correction of UUC.* = Measured Temperature - Desired Temperature

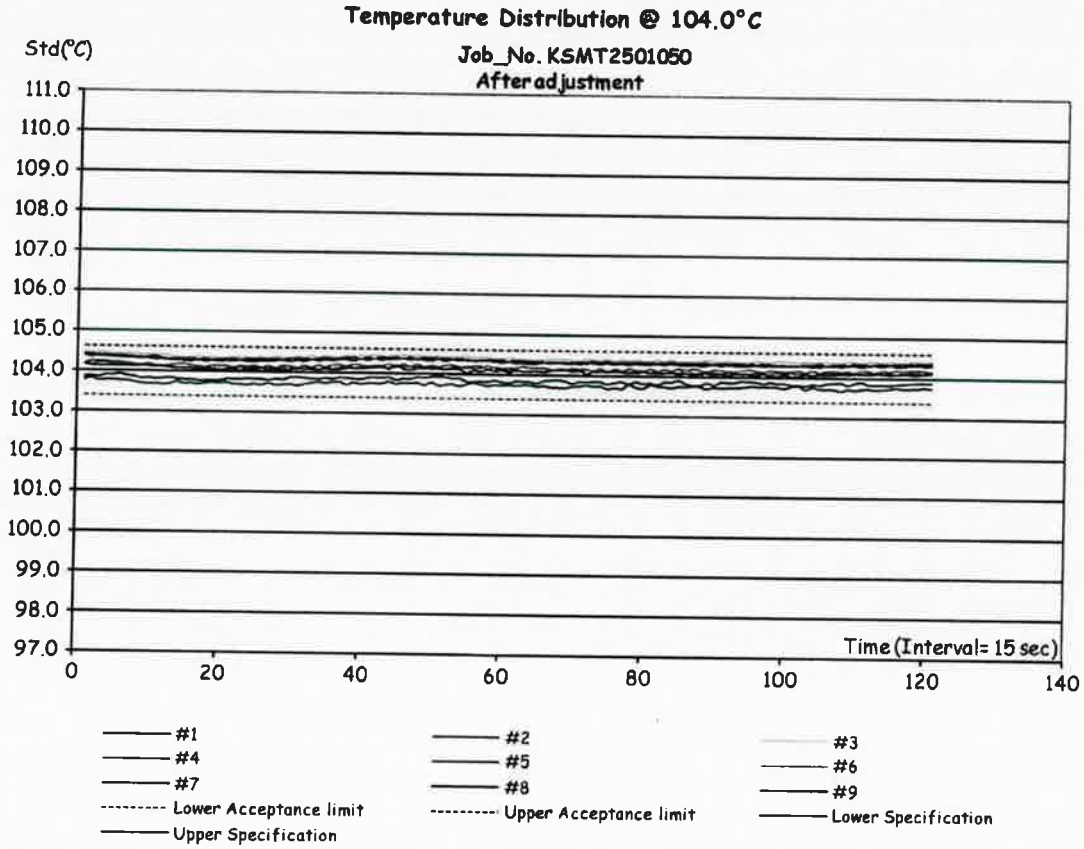
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

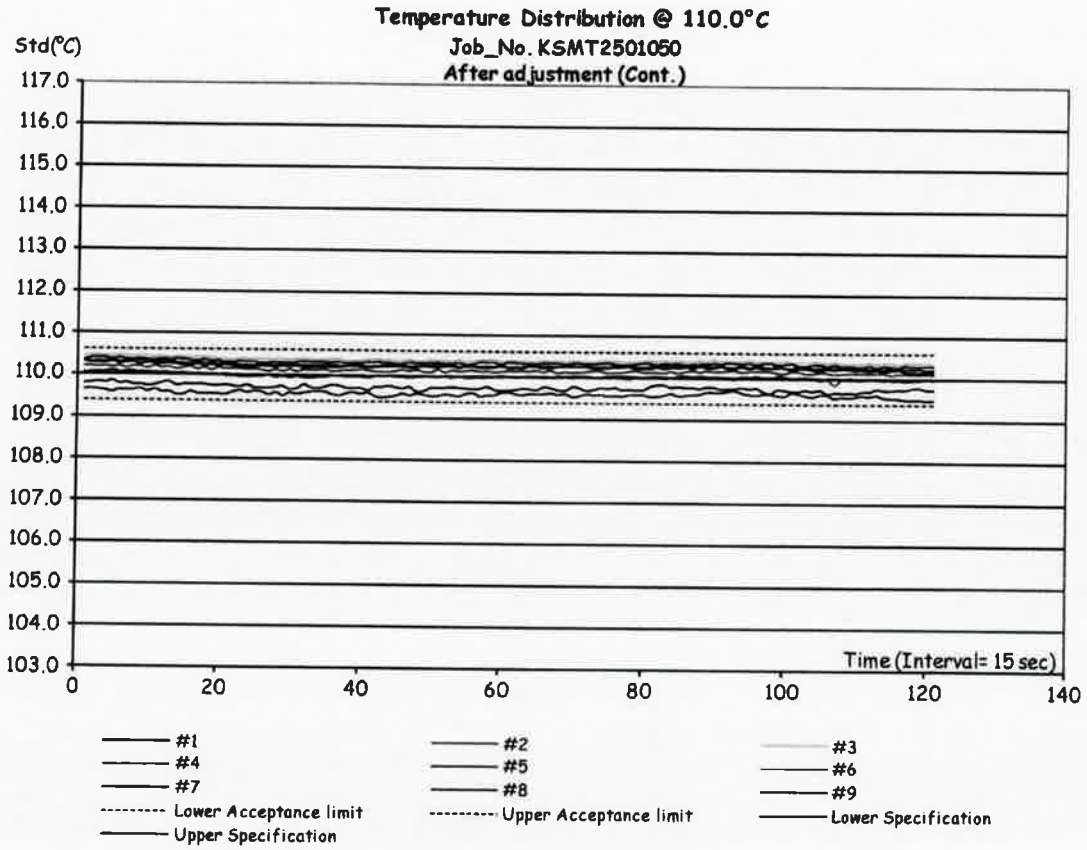
บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

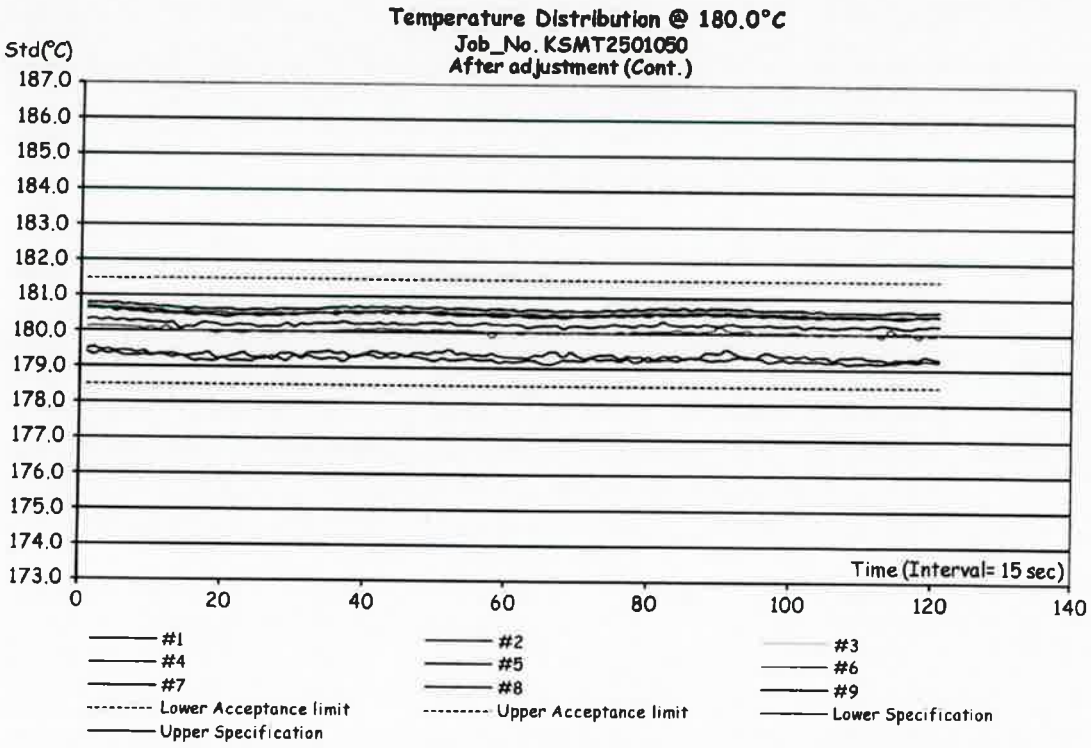
[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ


Corr_Distribution & Max_Measurement Uncertainty
Job_No. KSMT2501050
After adjustment
Correction (°C)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
180.0
200.0
UUC (°C)
#1
#2
#3
#4
#5
#6
#7
#8
#9
Uncer (+)
Uncer (-)
Lower Acceptance limit
Upper Acceptance limit
Lower Specification
Upper Specification


Temperature Distribution @ 104.0°C
Job_No. KSMT2501050
After adjustment
Std(°C)
111.0
110.0
109.0
108.0
107.0
106.0
105.0
104.0
103.0
102.0
101.0
100.0
99.0
98.0
97.0
0
20
40
60
80
100
120
140
Time (Interval= 15 sec)
#1
#2
#3
#4
#5
#6
#7
#8
#9
Lower Acceptance limit
Upper Acceptance limit
Upper Specification
Lower Specification

Envilab Co.





Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501050

ชนิดเครื่องมือ: Hot Air Oven รุ่น: UF75

หมายเลขเครื่อง: B319.0600 (ELABHAOVEN0600)

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☑	☐	6. สภาพ Lever of Ventilation valve	☑	☐	
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☐	☐	10. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	ไม่มี
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300237-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Cylinder
Manufacturer : BOROSIL Class : A
Capacity : 50 ml Graduation : 1 ml
ID No. : C-WW-004/24

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1015.8 mbar.

Date of Received : 14 March 2025
Date of Calibration : 18 March 2025
Date of Issue : 18 March 2025
Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241002	67-200410-1	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by [redacted]
Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full except with the prior written approval of the Calibr[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-300237-2

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Nominal Volume (ml)	Measuring Volume (ml)
30	30.07
50	50.08

Uncertainty of measurement with in ± 0.054 ml

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

-o0o-

[redacted]

[redacted]

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250552

Calibration Certificate

Equipment: Cooled Incubator

Model:	BIC-140
Serial No.(or ID):	100613-1 (ELABBODC140N01)
Manufacturer:	M-LAB
Ventilation Valve:	None
Shelves(pc.):	5

Job No.:	KSMT2503905
Received Date:	06 October 2025
Issued Date:	09 October 2025
Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

06 October 2025

Environment Condition

Temperature:	21.0 °C	±	1.3 °C
Humidity:	53.6 %RH	±	3.8 %RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250017

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

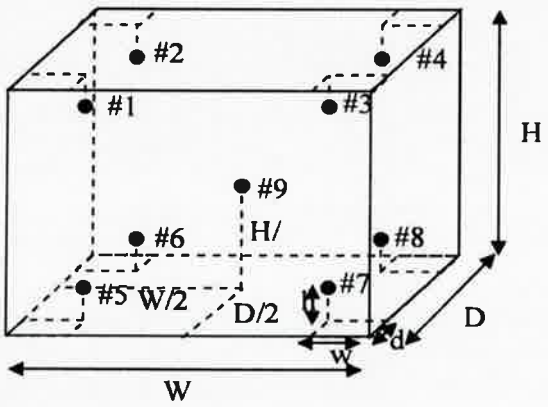
Authorized signatory

Envilab Co.,Ltd.

Condition of reference standards Instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 3	34970A	MY44075238	C23250017	28-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 57 (Liters)

Inside chamber:	W = 38 (cm)	D = 32 (cm)	H = 114 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 11 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 11 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	201	202	203	204	205	206	207	208	209

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.1 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	20.30	0.30	0.58
#2	20.40	0.40	0.59
#3	20.53	0.53	0.58
#4	19.55	-0.45	0.57
#5	20.09	0.09	0.66
#6	20.11	0.11	0.77
#7	20.12	0.12	0.64
#8	20.03	0.03	0.72
#9	20.11	0.11	0.63

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
20.0	20.0	20.1	20.30	20.40	20.53	19.55	20.09	20.11	20.12	20.03	20.11	0.77

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
20.1	0.70	0.50	1.57

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

Without adjustment

Desired Temperature : 20.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.1 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	20.30	0.30	0.58	1.0	Pass
#2	20.40	0.40	0.59	1.0	Pass
#3	20.53	0.53	0.58	1.0	Condition Pass
#4	19.55	-0.45	0.57	1.0	Condition Pass
#5	20.09	0.09	0.66	1.0	Pass
#6	20.11	0.11	0.77	1.0	Pass
#7	20.12	0.12	0.64	1.0	Pass
#8	20.03	0.03	0.72	1.0	Pass
#9	20.11	0.11	0.63	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

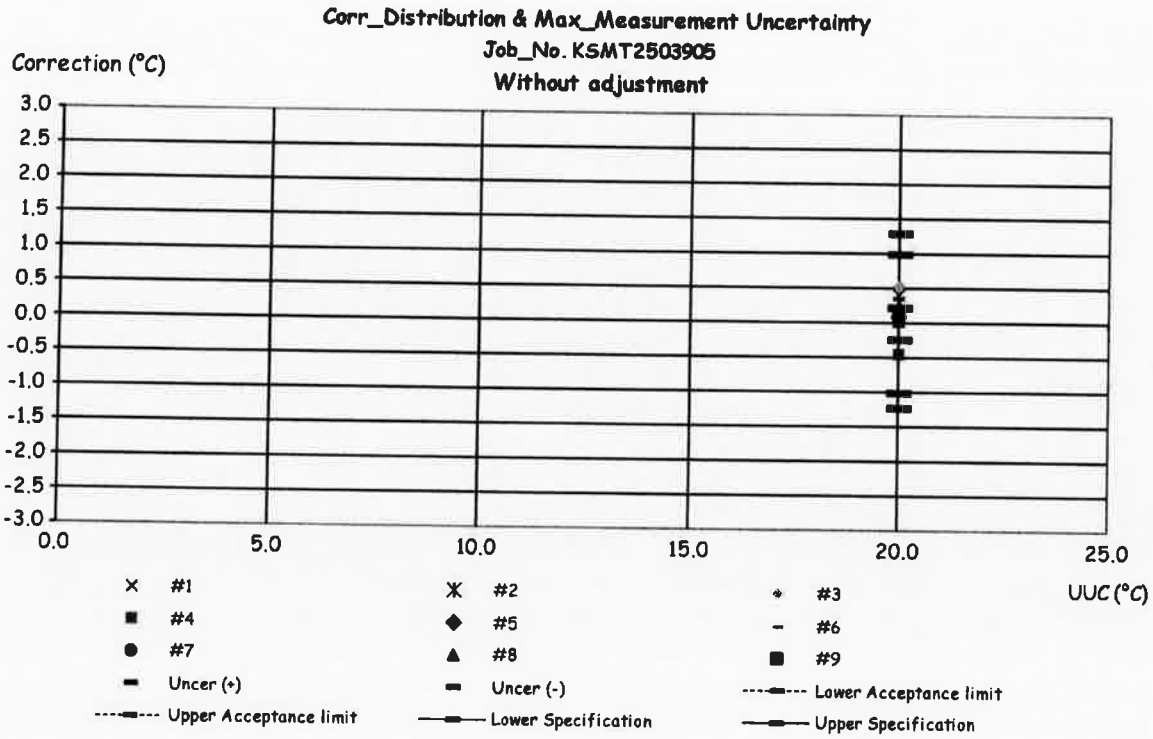
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

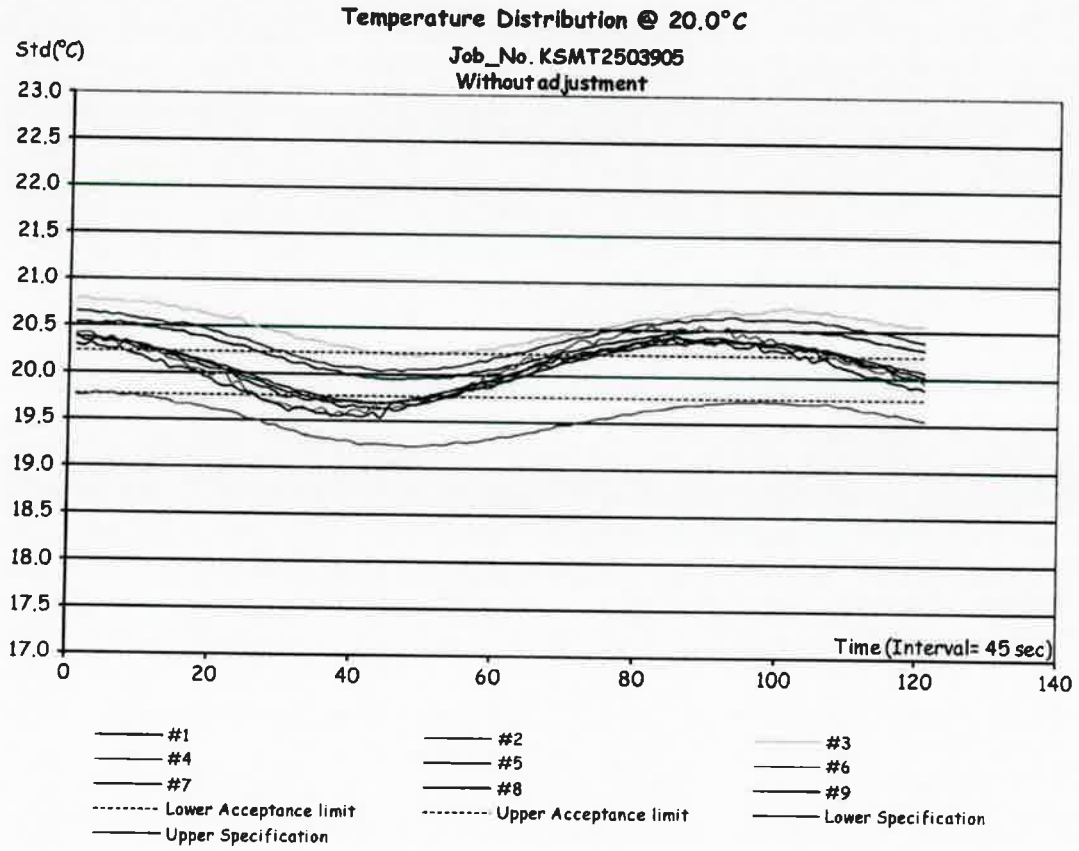
The End of Statements of Conformity

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239





Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2503905

ชนิดเครื่องมือ: Cooled Incubator รุ่น: BIC-140

หมายเลขเครื่อง: 100613-1 (ELABBODC140N01)

ตรวจสอบ (รับ) 06 Oct 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 06 Oct 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☐	☐	6. สภาพ Lever of Ventilation valve	☐	☐	-
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☑	☐	10. การทำงานของระบบทำความเย็น	☑	☐	
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Mongkolwat Hasanon

Service Engineer

บริษัท ชายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-410024-1** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Digital Thermo-Hygrometer

Manufacturer :	Jedto	Model :	HTC-1
Range Temperature :	-10 °C to 50 °C	Resolution :	0.1 °C
Range Humidity :	20 %R.H. to 90 %R.H.	Resolution :	1 %R.H.
Serial No. :	PONPE5852094	ID No. :	ELABTMHTC10003

Environment : Ambient Temperature : (23 ± 2) °C
Relative Humidity : (50 ± 15) %

Date of Received : 17 February 2025
Date of Calibration : 22 February 2025
Date of Issue : 22 February 2025
Calibrated by : Chortip Samchusri

Calibration Method : This instrument was calibrated by In-house method comparison technique CAL-M4013 by compared with standard probe sensor humidity/temperature into humidity/temperature chamber.

Reference Standard Instruments : This certification is traceable to the International System of Units

Digital Indicator with Standard Probe Temp&Hum

ID No.	Cert. No.	Due Date	Traceability
400034 & 400036	SG-H-00001/68	04 Jul 2025	Success Gateway Co., Ltd., Accredited by TISI Calibration No.0268

App [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Ce[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-410024-1

UUC Condition As-Received : Good

Result of Calibration : Without Adjustment

Function : Temperature measurement

Reference Humidity @ 50 %R.H.

Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
25.00	24.9	0.1	0.46

Result of Calibration : Without Adjustment

Function : Humidity measurement

Reference Temperature @ 25 °C

Standard Humidity (%R.H.)	UUC Reading (%R.H.)	Correction (%R.H.)	Uncertainty (±%R.H)
50.03	50	0	2.2

Remark

UUC : Unit Under Calibration

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

รับรองสำเนาถูกต้อง
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C07250028

Calibration Certificate

Equipment:	SPECTROPHOTOMETER		
Model:	CARY 60UV-VIS	Job No.:	KSMT2500779
Serial No.(or ID):	MY17490026 (ELABSPECTRO0002)	Received Date:	03 March 2025
Manufacturer:	Agilent	Issued Date:	03 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B301 CO-THC ROOM)

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

03 March 2025

Environment Condition

Temperature:	22.3 °C	±	0.1	°C
Humidity:	66.0 %RH	±	2.2	%RH

The Method used

In-house method, WI07, based on ASTM E 275-08 and ASTM E 387-04

Traceability

This certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Starna Scientific Limited.

The standard for Wavelength Certificate No. 125472 and 125471

The standard for Photometric Certificate No. 125567 and 125517

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

Envilab Co.,Ltd.

SCIMET

Condition of reference standards Instruments / CRM:

Instruments	Set No.	Certificate No.	Due date
Didymium Oxide Glass Reference	131033	125472	16-Sep-26
Holmium Oxide Glass Reference	136650	125471	16-Sep-26
Neutral Density Filter Reference	45329	125567	17-Sep-26
Potassium Dichromate Solution References	45328	125517	17-Sep-26

Calibration Results:

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Standard Wavelength (nm)	Unit Under Calibration (nm)	Correction (nm)	Uncertainty of Measurement (± nm)
219.39	220.0	-0.61	0.14
241.27	241.5	-0.23	0.14
287.39	287.5	-0.11	0.14
333.65	333.4	0.25	0.14
360.32	360.0	0.32	0.14
417.64	417.0	0.64	0.14
472.50	472.5	0.00	0.14
513.47	513.4	0.07	0.14
528.88	528.9	-0.02	0.14
537.13	537.1	0.03	0.14
640.92	641.7	-0.78	0.14
740.72	741.4	-0.68	0.14
748.55	749.3	-0.75	0.14
807.03	807.5	-0.47	0.14
879.28	879.3	-0.02	0.14

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
235 nm	0.0000	0.0002	-0.0002	0.0080
	0.7328	0.7345	-0.0017	0.0080
257 nm	0.0000	-0.0003	0.0003	0.0080
	0.8537	0.8545	-0.0008	0.0080
313 nm	0.0000	-0.0001	0.0001	0.0080
	0.2855	0.2862	-0.0007	0.0080
350 nm	0.0000	0.0000	0.0000	0.0080
	0.6338	0.6349	-0.0011	0.0080

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Calibration Results:

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
420 nm	0.0000	0.0000	0.0000	0.0045
	0.2352	0.2382	-0.0030	0.0045
	0.5716	0.5740	-0.0024	0.0045
	0.7146	0.7167	-0.0021	0.0045
	1.0179	1.0190	-0.0011	0.0045
440 nm	0.0000	0.0000	0.0000	0.0045
	0.2314	0.2350	-0.0036	0.0045
	0.5566	0.5596	-0.0030	0.0045
	0.7028	0.7060	-0.0032	0.0045
	1.0016	1.0039	-0.0023	0.0045
465 nm	0.0000	0.0000	0.0000	0.0045
	0.2107	0.2137	-0.0030	0.0045
	0.5192	0.5219	-0.0027	0.0045
	0.6638	0.6668	-0.0030	0.0045
	0.9447	0.9471	-0.0024	0.0045
546.1 nm	0.0000	0.0000	0.0000	0.0045
	0.2187	0.2208	-0.0021	0.0045
	0.5207	0.5230	-0.0023	0.0045
	0.7002	0.7025	-0.0023	0.0045
	1.0001	1.0020	-0.0019	0.0045
590 nm	0.0000	0.0000	0.0000	0.0045
	0.2430	0.2449	-0.0019	0.0045
	0.5546	0.5567	-0.0021	0.0045
	0.7756	0.7774	-0.0018	0.0045
	1.1117	1.1123	-0.0006	0.0045
635 nm	0.0000	0.0000	0.0000	0.0045
	0.2635	0.2651	-0.0016	0.0045
	0.5622	0.5639	-0.0017	0.0045
	0.7651	0.7673	-0.0022	0.0045
	1.0974	1.0982	-0.0008	0.0045

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The error of temperature determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E 275-08 and ASTM E 387-04. Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET
SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]
(Mr. Thaicngkeat Poonghgam)
Authorized signatory

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
220.0	-0.61	0.14	1.0	Pass
241.5	-0.23	0.14	1.0	Pass
287.5	-0.11	0.14	1.0	Pass
333.4	0.25	0.14	1.0	Pass
360.0	0.32	0.14	1.0	Pass
417.0	0.64	0.14	1.0	Pass
472.5	0.00	0.14	1.0	Pass
513.4	0.07	0.14	1.0	Pass
528.9	-0.02	0.14	1.0	Pass
537.1	0.03	0.14	1.0	Pass
641.7	-0.78	0.14	1.0	Pass
741.4	-0.68	0.14	1.0	Pass
749.3	-0.75	0.14	1.0	Pass
807.5	-0.47	0.14	1.0	Pass
879.3	-0.02	0.14	1.0	Pass

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
235 nm	0.0002	-0.0002	0.0080	0.020	Pass
	0.7345	-0.0017	0.0080	0.020	Pass
257 nm	-0.0003	0.0003	0.0080	0.020	Pass
	0.8545	-0.0008	0.0080	0.020	Pass
313 nm	-0.0001	0.0001	0.0080	0.020	Pass
	0.2862	-0.0007	0.0080	0.020	Pass
350 nm	0.0000	0.0000	0.0080	0.020	Pass
	0.6349	-0.0011	0.0080	0.020	Pass

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
420 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2382	-0.0030	0.0045	0.015	Pass
	0.5740	-0.0024	0.0045	0.015	Pass
	0.7167	-0.0021	0.0045	0.015	Pass
	1.0190	-0.0011	0.0045	0.015	Pass
440 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2350	-0.0036	0.0045	0.015	Pass
	0.5596	-0.0030	0.0045	0.015	Pass
	0.7060	-0.0032	0.0045	0.015	Pass
	1.0039	-0.0023	0.0045	0.015	Pass
465 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2137	-0.0030	0.0045	0.015	Pass
	0.5219	-0.0027	0.0045	0.015	Pass
	0.6668	-0.0030	0.0045	0.015	Pass
	0.9471	-0.0024	0.0045	0.015	Pass
546.1 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2208	-0.0021	0.0045	0.015	Pass
	0.5230	-0.0023	0.0045	0.015	Pass
	0.7025	-0.0023	0.0045	0.015	Pass
	1.0020	-0.0019	0.0045	0.015	Pass
590 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2449	-0.0019	0.0045	0.015	Pass
	0.5567	-0.0021	0.0045	0.015	Pass
	0.7774	-0.0018	0.0045	0.015	Pass
	1.1123	-0.0006	0.0045	0.015	Pass
635 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2651	-0.0016	0.0045	0.015	Pass
	0.5639	-0.0017	0.0045	0.015	Pass
	0.7673	-0.0022	0.0045	0.015	Pass
	1.0982	-0.0008	0.0045	0.015	Pass

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Spectrophotometer

เลขที่ใบงาน: KSMT2500779

ชนิดเครื่องมือ: SPECTROPHOTOMETER รุ่น: CARY 60UV-VIS หมายเลขเครื่อง: MY17490026

ตรวจสอบ (รับ) 03 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 03 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. ตัวหมุนเลือกความยาวคลื่น (Wavelength Control)	☑	☐	
☑	☐	7. ความยาวคลื่น (Wavelength Check)	☑	☐	
☑	☐	8. แหล่งกำเนิดแสง (UV < 3,000 hour)	☑	☐	
☑	☐	9. แหล่งกำเนิดแสง (Visible < 5,000 hour)	☑	☐	
☐	☐	10. ช่องวัดหลายตัวอย่าง (Carousel Module)	☐	☐	-

เพิ่มเติม/ข้อแนะนำ :

Mr. Dumrong Boonsopon

Service Engineer

บริษัท ชายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C09250024

Calibration Certificate

Equipment:	CONDUCTIVITY METER		
Model:	F-74BW	Job No.:	KSMT2501045
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	25.8 °C	±	0.4	°C
Humidity:	51.7 %RH	±	2.9	%RH

The Method used

In-house method, WI09, based on ASTM D1125-14 and D 5391-14

Traceability

This certificate is traceable to the SI Units maintained by CRM of NIST(SRM) through CPA chem Co., Ltd. (ISO 17034) Certificate No. 1019566, 1019567, 1019568 , Temperature test is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co., Ltd.Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standardlaboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty In Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

Envilab Co.,Ltd.

SCIMET

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard conductivity solution	25.001 µS/cm	CS25M0S.L5	1019566	4-Aug-25
Standard conductivity solution	1412.9 µS/cm	CS1413M0S.L5	1019567	4-Aug-25
Standard conductivity solution	111.3 mS/cm	CS111MS.L5	1019568	4-Aug-25
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

Electrode Serial No. 3G1J0088 Model : 3552 Brand : HORIBA

Before Adjustment

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	27.6	µS/cm	-2.599	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1541	µS/cm	-128.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	113.7	mS/cm	-2.4	mS/cm	2.00	0.82	mS/cm

After Adjustment ; at 1412.9 µS/cm

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	25.3	µS/cm	-0.299	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1413	µS/cm	-0.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	106.1	mS/cm	5.2	mS/cm	2.00	0.82	mS/cm

Temperature Electrode

Dimension of Probe ; mm (millimeter) Length : 110 Diameter: 12 Immersion Depth: 80

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.03	24.9	0.13	2.00	0.20

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Conductivity Meter

เลขที่ใบงาน: KSMT2501045

ชนิดเครื่องมือ: CONDUCTIVITY METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ : _____

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300233-5**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Measuring Pipette
Manufacturer : witeg Class : A
Capacity : 25 ml Graduation : 0.1 ml
ID No. : G-WW-014/23

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1008.0 mbar.

Date of Received : 14 March 2025
Date of Calibration : 18 March 2025
Date of Issue : 18 March 2025
Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241005	67-200410-4	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Calib

[redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-300233-5

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Delivery Time : 15.09 sec.

Nominal Volume (ml)	Measuring Volume (ml)
1	1.0096
10	9.9778
25	24.9769

Uncertainty of measurement with in ± 0.0067 ml

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

-o0o-

[redacted]

[redacted]

Agilent CrossLab
From Insight to Outcome

Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.
- For customers using HF applications, the instrument should be returned to its standard sample introduction system.

Envilab Co

[redacted]

Agilent

Agilent CrossLab
From Insight to Outcome

Agilent CrossLab Start Up Services

SS

Agilent 5100 5110 ICP-OES Preventive Maintenance

[redacted]

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides what you need to reduce unplanned downtime and keep your systems operating at their peak performance.

This checklist is used as a guide for completing the preventive maintenance tasks. A signed copy of this checklist is provided for your records.

Agilent

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a "**X**" or tick mark "✓".
- Check **"Service not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in the most logical order relevant to the individual system service in the order of the tasks listed.
- Complete the **Service Review** section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Add relevant page numbers to selected pages and complete the total number of pages field in the Service Completion section
- **Ask the customer to sign the Service Verification section including the customer's and your signature.**



Enviab Co...

Important Customer Web Links

- To access **Agilent University**, visit http://www.agilent.com/crosslab/university/ to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit https://www.agilent.com/en-us/agilentresources. The following information topics are available:
  - Sample Prep and Containment
  - Chemical Standards
  - Analysis
  - Service and Support
  - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at https://www.youtube.com/user/agilent
- **Need to place a service call?** Flexible Repair Options | Agilent

Preparation

- ☑ Discuss any specific issues with the customer before starting.
- ☑ Review the instrument logbook for recorded problems and comments.
- ☑ Save instrument control settings before starting the procedure.
- ☑ Perform a general inspection of the system for cleanliness.
- ☑ Check for proper installation of parts, assemblies, sensors etc.
- ☑ Check system for required installation of components and implementation of Service Notes
- ☑ Check for required firmware/software updates and verify with customers if they would like them installed.
- ☐ For HF application systems, if standard sample introduction system was not installed, ask the customer to install it.
- ☑ Ask the customer to remove any samples from the ICP-OES sample introduction area, auto sampler or around the ICP-OES.

Envilab Co.,Ltd

Instrument Maintenance

System Information

☐ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	**G8015A / MY17490002**
Instrument System Site and Location	**Envilab Company Limited**

	List System Component Product Numbers	List the Serial Numbers of each Component
1	G8410A	AU17393768
2	G8015A	MY17490002
3	G8481	1709-05327
4		
5		
6		
7		
8		
9		

ICP-OES Configuration Table	Circle the type or write in the type if other
Nebulizer Type	**SeaSpray** | OneNeb | Conikal | Other
Spray Chamber	Cyclonic Single Pass | **Cyclonic Double Pass** | Other
Torch	Radial | **Dual View** | Other
Torch Type	**One Piece** | Semi Demountable | Fully Demountable | Other
Injector Diameter	2.4mm | **1.8mm** | 4mm | 0.8mm | Other
Injector Material	**Quartz** | Ceramic | Other

SPS 3 Auto Sampler

Type text here

- ☑ **Service not applicable**
- ☐ Power cycle the autosampler and verify successful initialization.
- ☐ Inspect X and Z axis belts for wear. Replace is necessary.
- ☐ Clean X and Z axis slide shafts.
- ☐ Using customer's racks and the Agilent software move the sample probe to the 4 outermost corners and rinse port, ensure that the probe is approximately centered in the vial.

SPS 4 Auto sampler

- ☐ **Service not applicable**
- ☑ Clean the spill tray, rack location mat, end frames and chassis with a damp soft cloth and diluted mild detergent.
- ☑ Clean the auto sampler cover panels, if cover kit is installed, with domestic window cleaner.
- ☑ Check the X-axis and Z-axis drive belts for cracks, splits, damaged teeth, excessive fraying, color changes or degradation from fumes.
- ☑ Check the X-axis, Theta-axis and Z-axis FFC cables for cracks, incorrect positioning, damaged edges or damaged connectors.
- ☑ Pump Tubing Replacement. Replace peristaltic pump tubing. Replace all tubing that goes from the rinse station to the pump and from the pump to the waste/rinse bottles
- ☑ Test using customer's tray and move the sample probe to the sample vial 1, wash vial and rinse port and ensure that the probe is centered in the vial. If not use calibration wizard and calibrate the position.

AVS 4, 6, 7 Advanced Valve System

- ☑ **Service not applicable**
- ☐ Replace valve rotor seal
- ☐ Check fittings for signs of leaks
- ☐ Check tubing including autosampler tubing for kinks or excessive wear
- ☐ Check high flow pump for signs of leaks

© Agilent Technologies, Inc. 2022

Preventive Maintenance Procedures

Record Pre-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table – Pre-PM.

Clean and inspect ICP-OES system

- ☑ Look for any obvious external damage or problems.
- ☑ Inspect water cooling hoses, gas lines and power cord for excessive wear or damage.
- ☑ Perform a general internal inspection of the system for excessive dust accumulation, clean if necessary.
- ☑ Inspect sample introduction components and record any required maintenance in the Service Engineer Comments and notify the customer as the required actions required.
- ☑ Record the instrument operating conditions in the ICP-OES Status Results Table.
- ☑ Replace the polychromator purge filter.
- ☑ Replace the radial pre-optics window
- ☑ Replace the axial pre-optics window for SVDV and VDV instruments.
- ☑ Check exhaust flow for the correct positive extraction at the exhaust duct to insure they meet minimum specifications.
- ☑ Replace air inlet dust filter.
- ☑ Replace high capacity air inlet dust filter element if installed.
- ☑ Remove and clean instrument water inlet filter.

Agilent Water Recirculator

- ☐ **Service not applicable**
- ☑ Drain cooling fluid and remove any particles from the chiller reservoir
- ☑ Remove, clean and reinstall water inlet metal mesh filter if present.
- ☑ Re fill with Agilent Cool Clear cooling fluid.
- ☑ Clean the cooling system Air filter and the condenser.

© Agilent Technologies, Inc. 2022

Agilent CrossLab
From Insight to Outcome

ADS 2 Advanced Dilution System (5110 only)

- ☑ SERVICE NOT APPLICABLE
- ☐ LOOK FOR ANY OBVIOUS EXTERNAL DAMAGE OR PROBLEMS.
- ☐ REPLACE VALVE ROTOR SEAL ON VALVES A AND B.
- ☐ REPLACE BOTH SYRINGES.
- ☐ REPLACE ACID VAPOR FILTER (WASTE VESSEL)
- ☐ REPLACE VENTING VALVE (DILUENT CARRIER BOTTLE)
- ☐ CHECK FITTINGS FOR SIGNS OF LEAKS.
- ☐ CHECK TUBING INCLUDING AUTOSAMPLER TUBING FOR KINKS OR EXCESSIVE WEAR.

ICP-OES adjustment

- ☑ Check position of Zn peak, adjust if required.
- ☑ Check Argon Ratio, adjust to specified value if required.
- ☑ Perform Detector Calibration.
- ☑ Perform Instrument Calibration.

Record Post-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table - Post PM.
- ☑ For systems using ICP Expert version 7.3 and above, run the following Instrument tests
  - ☑ Subsystem Communications Test
  - ☑ Air Flow
  - ☑ Water Flow
  - ☑ Gas Flows
  - ☑ RF Generator
  - ☑ Camera Test
  - ☑ Optics Test
  - ☑ Nebulizer Test
- ☑ Record the result in the Instrument Test Results Table

Agilent CrossLab
From Insight to Outcome

Restore Instrument

- ☐ For HF applications, ask the customer to reinstall their sample introduction system.
- ☐ Leave system in an idle state: on and purging.
- ☐ Guidance: If the PM service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Record the PM event in the Smart Alerts logbook, if applicable.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review this service, parts replaced, and test results obtained with the customer.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box. Systems in a compliant environment may need additional documentation.
- ☑ **Complete the Signature Page with both Service Engineer and Customer signatures.**

Envilab Co.,Ltd.

Agilent CrossLab
From Insight to Outcome

ICP-OES Status Results Table

Note: These measurements do not form part of any specification and are for reference only.

Measurement	Standby Mode		Plasma On	
Mains Voltage	220.640	VAC	219.053	VAC
Mains Current	0.080	A	0.099	A
Instrument Temperature	23.2	°C	22.3	°C
RF Air Flow (sensor speed)	7.0	Hz	20.0	Hz
Plasma Exhaust Temperature	No measurement		46.5	°C
Water Flow Oscillator	No measurement		1.51	L/min
Water Flow Detector	1.20	L/min	1.17	L/min
Water Inlet Temperature	18.3	°C	18.3	°C
Polychromator Temperature	35.3	°C	35.0	°C
CCD Temperature	-39.7	°C	-39.8	°C
Thermal Stabilizer	35.0	°C	35.0	°C
Argon Supply Pressure	611.44	kPa	564.69	kPa
Purge Gas Supply Pressure*1	610.40	kPa	594.52	kPa
Option Gas Supply Pressure*1	-	kPa	-	kPa
Nebulizer Flow	No measurement		0.70	L/min
Nebulizer Back Pressure	No measurement		280.74	kPa
Plasma Gas Flow	No measurement		12.03	L/min
Auxiliary Gas Flow	No measurement		1.00	L/min
RF Power	No measurement		1203.4	W
RF Supply Current	No measurement		8.244	A
RF Supply Voltage	No measurement		194.614	V

1 If option installed

Agilent

Agilent CrossLab
From Insight to Outcome

Test Results

Instrument Performance Test Results Table

Note: These measurements do not form part of any specification and are for reference only.

	Pre PM Sensitivity Check		Post PM Sensitivity Check	
	Radial	Axial *	Radial	Axial*
Zn 213.857 nm SRBR	2745.8	3632.4	14128.0	23024.3
Mn 257.610 nm SRBR	12504.7	26596.0	86470.0	215311.9
Al 396.152 nm SBR	5.0	14.9	564.1	2335.7
K 766.491 nm SBR	4.4	71.4	639.6	11029.3

* Axial result is not applicable for G8016AA, G8012AA Radial View instruments.

Instrument Test Results Table

Note: The Instrument Test results are for systems using ICP Expert version 7.3 and above only.

Instrument Test	Result
Subsystem Communications Test	Pass
Air Flow	Pass
Water Flow	Pass
Gas Flows	Pass
RF Generator	Pass
Camera Test	Pass
Optics Test	Pass
Nebulizer test	Pass

Agilent

Envilab Co.,Ltd.

Part Description	Part Number	Product or Model# where used	Quantity consumed

Signature Page

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the installation or other items of interest for the customer, please write in this box.

-Torch is broken. Should be replaced and should be spaerd.

Service Verification

rvice Request Number:
6007747651

Date Service Completed:
June 26, 2025

rvice Engineer Name:
Suwan Onkhom

Customer Name:

Enviab Co.,Ltd.
หนังสือรับรองการขึ้นทะเบียนเป็นผู้ประกอบการ

Consumed PM Parts

Part Description	Part Number	Product or Model# where used	Quantity consumed
Axial Pre-Optic Window	G8010-68014	G8010A, G8011A, G8014A/G8015A	1
Radial Pre-Optic Window	G8010-68015	All	1
Agilent Cool Clear Coolant Fluid	5799-0037	Agilent Water Recirculator	N/A
Purge Gas Filter	G8010-60136	All	1
Air inlet filter	G8000-68002	All	1
High Capacity Air Filter	G8010-60189	Optional	N/A
Rotor seal for 6-7 port valve for AVS6/7	G8494-60002	G8494A/G8495, ADS 2	N/A
Rotor seal for 4 port valve for AVS4	G8493-60002	G8493A	N/A
Rinse solution to rinse station 2.5mm id x 1m	G8410-80123	SPS 4	N/A
Barb connector 2.5mm-1.5mm ID	G8410-80124	SPS 4	N/A
PVC waste tubing,8mm od x 5mm id, 2m	G8410-80122	SPS 4	N/A
Syringe, 5mL	5299-0037	ADS 2	N/A
Syringe, 10mL	5299-0038	ADS 2	N/A
Acid vapor filter	5043-1193	ADS 2	N/A
Venting valve	5043-1190	ADS 2	N/A
Additional Parts may be required from engineer's stock:			
X axis drive belt	5410047500	SPS 3	N/A
Z axis drive belt	5410047400	SPS 3	N/A
Peristaltic pump tubing, PVC SolvaFlex, 3 bridged,	3710049000	SPS 4	N/A

Consumed Parts Reference (Purchased by customer, not included as part of PM)

☐ **Section Not Applicable.**

Part Description	Part Number	Product or Model# where used	Quantity consumed

Service Engineer Signature:
Suwan O.

Customer Signature:

Total number of pages in this document:
15 pages



[redacted]

© Agilent Technologies, Inc. 2022

PinAAcle 900F Preventive Maintenance (PM)			
Company Name:	ENVI LAB Co.,Ltd		
Address (Instrument Location):	540 soi Bangkhae7, Bangkae,Bangkok 10160		
Serial Number:	PFBS20011403	PM Number:	2/2
Customer Name (if applicable):	K.Janjira	Telephone Number:	095-5500510
Customer Support Engineer Name:	Prasit	Service Order Number:	WO-03026378
Date PM Performed: (DD-MMM-YYYY)	4 APR 2025	Next PM Due Date: (DD-MMM-YYYY)	4 OCT 2025
Standard Labor Hours to Complete PM :		5 hours	

Part Number	Release	Publication Date	PerkinElmer
09370145 Rev.9	A	January 2018	

Scope
The purpose of this PM is to ensure the continued functionality of the PinAAcle 900F by inspecting and replacing any worn or damaged parts. This service should only be performed by a trained representative of PerkinElmer.
The customer should save their method before the PM begins.

General Instructions
The customer must provide the engineer operational data to demonstrate recent instrument performance prior to starting the PM.
Always check with the customer before making any changes that may affect the customer's analysis or calibration, including a current back-up of system software and/or data files.
The completed document should be signed by an authorized PerkinElmer and customer representative and left with the customer.
Update the PM sticker and instrument logbook as required.

Copyright Information
This document contains proprietary information that is protected by copyright. All rights are reserved.
No part of this publication may be reproduced in any form whatsoever or translated into any language without the prior, written permission of PerkinElmer, Inc.
Copyright © 2013 PerkinElmer, Inc.

Trademarks
Registered names, trademarks, etc. used in this document, even when not specifically marked as such, are protected by law. PerkinElmer is a registered trademark of PerkinElmer, Inc. All other trademarks and registered trademarks not owned by PerkinElmer, Inc. or its subsidiaries that are depicted herein are the property of their respective owners.
Except as specifically set forth in its terms and conditions of sale, PerkinElmer makes no Warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.
PerkinElmer shall not be liable for incidental or consequential damages in connection with the furnishing or use of this document.

PerkinElmer
For the Better

PinAAcle 900F Preventive Maintenance Report

Company Name: ENVI LAB Co.,Ltd

Instrument Location: AAS ROOM

540 soi Bangkhae7, Bangkae,Bangkok 10160

Instrument Serial No.: PFBS20011403

Date: 4 APR 2025

Component List

Component / Specific Model	Serial #	Configuration Notes
PinAAcle 900F	PFBS20011403	Syngistix Ver 5.1.0.2066

Parts Lists

Parts Included with the PM		
Part Number (If applicable)	Description	Quantity
B0501696	Fan Filters	N/A
N3160156	O-Ring Kits for Sampling Introduction (Stainless Steels Nebulizer)	N/A
N3160157	O-Ring Kits for Sampling Introduction (Plastic Nebulizer)	N/A
N9301714	Replacement Acetylene Filter Cartridge	N/A
TH001022	Replacement Air Filter Cartridge	N/A

Additional Reagents and Standards Required for PM				
Part Number (If applicable)	Description	Quality	Batch/Lot #	Expired Date (MM/YY)
N9300183	1000 mg/L Copper Standard	AR	26-87CUY1	APR-2025

Additional Reagents and Standards Required for PM (Customer Support Solution)				
Part Number (if applicable)	Description	Quantity	Batch/Lot #	Expiration Date (MM/YY)
N/A	DI Water	250 ml.	AR	AR
N/A	0.5% HNO_3	250 ml.	AR	AR

Additional Tools Required for PM			
Part Number (If applicable)	Description	Quantity	Serial #
N1013000	0.2A Neutral density filter	1	MG0-135
N1013002	1.0A Neutral density filter	1	MG2-258
03030997	System 2 EDL Driver	1	030309-97E
N3050605	As System 2 EDL	1	17986
N3050121	Cu Lumina HCL	1	000003793D12
N3050109	Ba Lumina HCL	1	041123-010120
N3050139	K Lumina HCL	1	0000037B8E1D
N3050152	Ni Lumina HCL	1	

Enviro Co.,Ltd. [redacted]

Procedure Checklist

Use (✓) to check off those steps in the checklist that have been completed.

1. **General:**
   - ☑ Review the instrument performance with the customer and document any recent problems.
   - ☑ Inspect the customer log book and make any appropriate PM entries.
   - ☑ Perform general inspection of system for cleanliness.

2. **PC Instrument Software:**
   - ☑ Instrument Software user files/databases archived, packed, and/or deleted as needed.

3. **Mechanical:**
   - ☑ Inspect and clean all fans and filters. Replace filters if necessary
   - ☑ Inspect all gas lines for leaks and/or wear. Replace if needed.
   - ☑ Clean exterior of the instrument.
   - ☑ Inspect the burner head, burner chamber, and nebulizer. Clean if needed as stated in the Hardware Guide.
   - ☑ Check burner head dimensions with the feeler gauge as stated in the Hardware Guide in the Maintenance chapter section on cleaning the burner head and checking sloth width. Replace if out of specification
   - ☑ Check the condition of the end cap, burner head, and nebulizer O-rings. Replace if necessary.
   - ☑ Check the drain system for signs of wear. Replace worn or damaged parts.
   - ☑ Visually check for proper flame conditions when igniting the Air-C2H2 and N20-C2H2 flames (if applicable).

4. **Electrical:**
   - ☑ Inspect PC boards. Clean if necessary.
   - ☑ Carefully check all internal and external cable connections.
   - ☑ Check instrument firmware revisions upgrade to current levels (if necessary)
   - ☑ Run Diagnostics Test within the Advanced function of the Spectrometer page. Check the results in the service log folder in the Spectrometer BM Log Viewer.

5. **Optics:**
   - ☑ Inspect and clean the sample compartment windows, if needed.
   - ☑ Inspect optics. Clean or replace if necessary,

6. **Gasses:**
   - ☑ Verify that the Gasses supplied to the instrument are within the pressure and purity specifications found in the PinAAcle 900 Series Pre-installation Checklist SDB.
   - ☑ Verify that the acetylene filter and air filter element is dry. Replace if necessary.

7. **Flame Interlock Check:**

   Description: Check to ensure that all safety interlocks are closed.

Parameter	Specification	Test Results	Pass/Fail
Flame Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Drain Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Nebulizer Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
C_2H_2 Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Air Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Burner Head Sensor	Choosing Nitrous Oxide as the oxidant should trigger an interlock shuts down	Active	Passed

8. **After PM Performance tests:**

   8.1 Detector Linearity with Barium

   Description: Ensures that the detector is linear in the Visible Range.

Parameter	Specification	Certificate Value at 553.6 nm (Abs.)	Test Results	Pass/Fail
1.0 A ND Filter	± 5% from Cert.	0.9995	1.0277	Passed
0.2 A ND Filter	± 5% from Cert.	0.1936	0.2024	Passed

   8.2 Baseline Noise at 1.0 Absorbance with Barium

   Description: Ensures that a high absorbance will not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0015	Passed

   8.3 AA Baseline Noise with Copper

   Description: Check baseline noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.001	0.0003	Passed

Enviab Co.,Ltd. [redacted]

8.4 D_2 Background Compensation with Copper

Description: Verifies the instruments ability to compensate for Background absorption.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0013	Passed

8.5 AA-BG Baseline Noise with Copper

Description: Ensures that background correction does not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0004	Passed

8.6 AA-BG Baseline Noise with Arsenic

Description: Ensures that background correction does not produce excessive noise at a low wavelength.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0001	Passed

8.7 Flame Sensitivity

Description: Instrument Sensitivity checked against Copper standard.

Standard Copper Sensitivity	Specification	Results (Abs.)	Pass/Fail
5 mg/L Sensitivity SS Neb (if applicable)	> 0.250 Abs.	N/A	Passed
2 mg/L Sensitivity HS Neb (if applicable)	> 0.250 Abs.	0.2987	Passed

10. Review:

- ☑ Review with the customer PM work performed.
- ☑ Review with the customer routine maintenance procedures.
- ☑ Discuss recommended customer supplied materials to have on hand.
- ☑ Attach PM sticker.

Additional Comments

Additional Comments Regarding the PM

Review

The preventive maintenance checks and if applicable performance tests for PinAAcle 900F have been completed.

This PinAAcle 900F Passes ☑ Fails ☐ the preventive maintenance.

Review of Preventive Maintenance:	
Authorized PerkinElmer Representative: Rasit	Date: 4 APR 2025 (DD-MMM-YYYY)
Authorized Customer Representative:	Date: 4 APR 2025 (DD-MMM-YYYY)

[redacted]

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C08250053

Calibration Certificate

Equipment	pH METER		
Model:	F-74BW	Job No.:	KSMT2501044
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	26.1 °C	±	0.3	°C
Humidity:	50.2 %RH	±	1.1	%RH

The Method used

In-house method, WI08, based on ASTM E 70-07

Traceability

This certificate is traceable to SI Units, Sample Test is assured through primary meaurement method Harned cell, through CPAchem Ltd. (ISO17034) Certificate No. 1066714, 1066714, 1066716, pH Scale and Temperature test are traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through Industrial Foundation Electrical and Electronics Institute Certificate No. CA20250010EA, through SCIMET Co., Ltd. Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

(Mr. Thaleerngkeat Poungngam)

Auth[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard Buffer solution	4.007 pH	PH216.L5	1066714	18-Jan-27
Standard Buffer solution	6.965 pH	PH107.L5	1066714	18-Jan-26
Standard Buffer solution	10.010 pH	PH220.L5	1066716	18-Jan-26
DC Voltage and Current Calibrator / XITRON		2000MN	CA20250010EA	19-Jan-26
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

pH Scale

Input	pH Meter Reading			Uncertainty of Measurement (mV)	Coverage Factor *(k)*
(mV)	(mV)	Error (mV)	(pH)		
414.12	414.2	0.08	0.000	0.065	2.00
354.96	355.0	0.04	1.000	0.065	2.00
295.80	295.8	0.00	2.000	0.065	2.00
236.64	236.7	0.06	3.000	0.065	2.00
177.48	177.5	0.02	4.000	0.065	2.00
118.32	118.4	0.08	5.000	0.065	2.00
59.16	59.2	0.04	6.000	0.065	2.00
0.00	0.0	0.00	7.000	0.065	2.00
-59.16	-59.1	0.06	8.000	0.065	2.00
-118.32	-118.2	0.12	9.000	0.065	2.00
-177.48	-177.4	0.08	10.000	0.065	2.00
-236.64	-236.6	0.04	11.000	0.065	2.00
-295.80	-295.7	0.10	12.000	0.065	2.00
-354.96	-354.9	0.06	13.000	0.065	2.00
-414.12	-414.0	0.12	14.000	0.065	2.00

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Electrode Test Results*

The three-point calibration using three standard buffer solutions; pH 4.007 , pH 6.965 and pH 10.010

The practical slope of the pH electrode; 58.31 (mV/pH), 98.57%

The zero point of the pH electrode; 6.58 (pH)

Sample Test Results

Electrode Serial No.: 9X1K0003

Model: 9615S

Manufacturer: HORIBA

Standard Buffer Solution (pH)	Unit Under Calibration (pH)	Difference (pH)	Uncertainty of Measurement (pH)	Coverage Factor (*k*)
4.007	3.995	-0.012	0.011	2.43
6.965	6.970	0.005	0.011	2.07
10.010	10.019	0.009	0.0089	2.06

Temperature Electrode

Dimension of Probe;

Length : 100 mm

Diameter : 12 mm

Immersion Depth : 80 mm

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Uncertainty of Measurement (±°C)	Coverage Factor *(k)*
25.03	25.0	0.03	0.20	2.00

* Calibration Marked for Electrode Test" Not TISI Accredited " in this Certificate have been included for completeness.

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง pH Meter

เลขที่ใบงาน: KSMT2501044

ชนิดเครื่องมือ: pH METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☐	☑	8. ระดับสารละลายใน Electrode (Level KCl)	☑	☐	
☑	☐	9. ฝาปิดกันปลาย Electrode (Dust Protection Hood)	☑	☐	
☑	☐	10. ขาจับอิเล็กโทรด (Stand)	☑	☐	

เพิ่มเติม/ข้อแนะนำ : _____

Mr. Dumrong Boonsopon
Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd.

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250552

Calibration Certificate

Equipment: Cooled Incubator

Model:	BIC-140
Serial No.(or ID):	100613-1 (ELABBODC140N01)
Manufacturer:	M-LAB
Ventilation Valve:	None
Shelves(pc.):	5

Job No.:	KSMT2503905
Received Date:	06 October 2025
Issued Date:	09 October 2025
Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

06 October 2025

Environment Condition

Temperature:	21.0 °C	±	1.3 °C
Humidity:	53.6 %RH	±	3.8 %RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250017

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

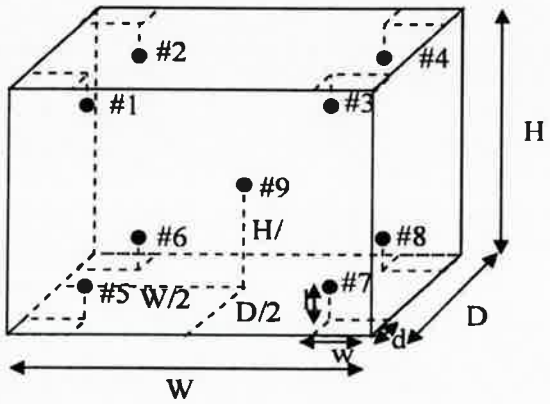
Authorized signatory

Envilab Co.,L

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 3	34970A	MY44075238	C23250017	28-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 57 (Liters)

Inside chamber:	W = 38 (cm)	D = 32 (cm)	H = 114 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 11 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 11 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	201	202	203	204	205	206	207	208	209

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.1 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	20.30	0.30	0.58
#2	20.40	0.40	0.59
#3	20.53	0.53	0.58
#4	19.55	-0.45	0.57
#5	20.09	0.09	0.66
#6	20.11	0.11	0.77
#7	20.12	0.12	0.64
#8	20.03	0.03	0.72
#9	20.11	0.11	0.63

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
20.0	20.0	20.1	20.30	20.40	20.53	19.55	20.09	20.11	20.12	20.03	20.11	0.77

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
20.1	0.70	0.50	1.57

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule : ☐ Choice A Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.

☑ Choice B Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.

☐ Choice C Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

Without adjustment

Desired Temperature : 20.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.1 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	20.30	0.30	0.58	1.0	Pass
#2	20.40	0.40	0.59	1.0	Pass
#3	20.53	0.53	0.58	1.0	Condition Pass
#4	19.55	-0.45	0.57	1.0	Condition Pass
#5	20.09	0.09	0.66	1.0	Pass
#6	20.11	0.11	0.77	1.0	Pass
#7	20.12	0.12	0.64	1.0	Pass
#8	20.03	0.03	0.72	1.0	Pass
#9	20.11	0.11	0.63	1.0	Pass

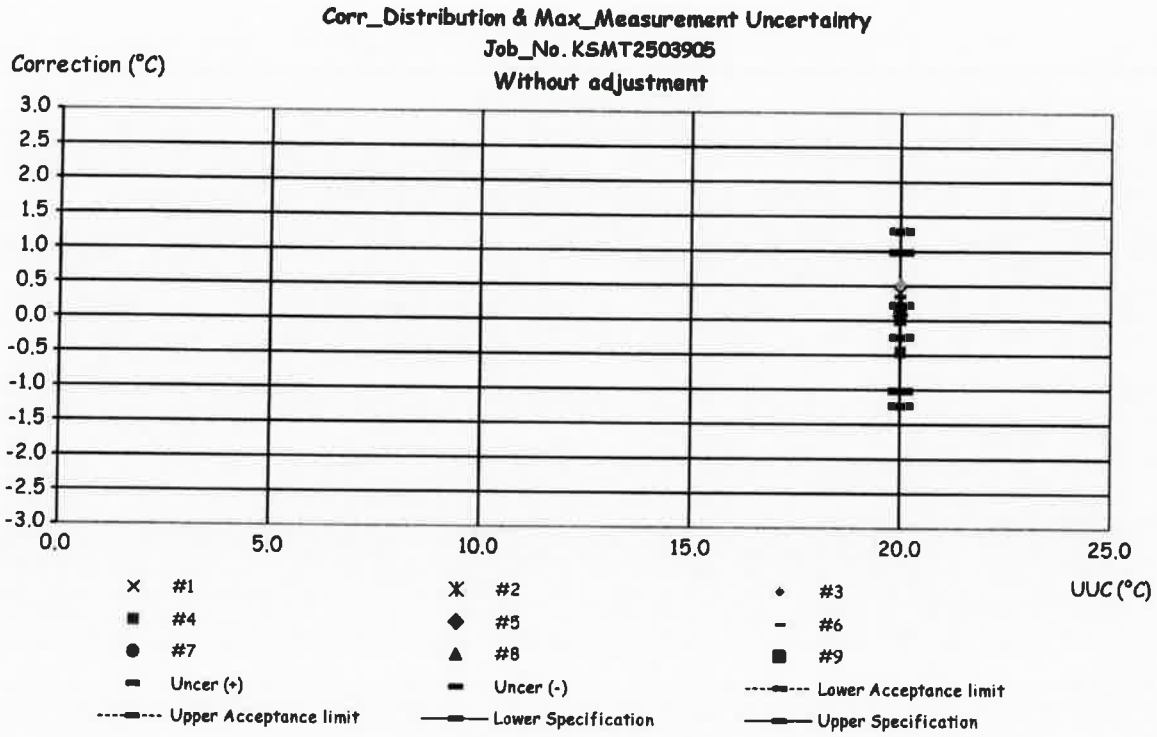
Correction of UUC.* = Measured Temperature - Desired Temperature

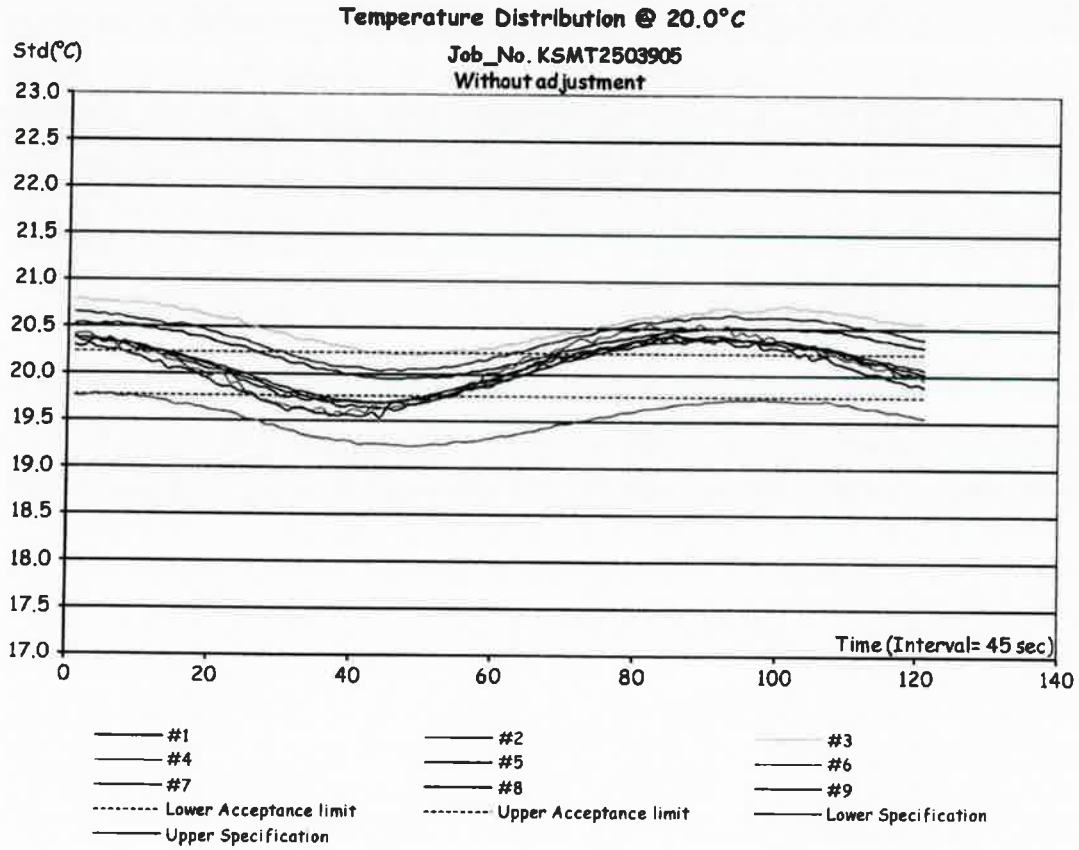
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab [redacted]





Envilab Co.,Ltd.

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2503905

ชนิดเครื่องมือ: Cooled Incubator รุ่น: BIC-140

หมายเลขเครื่อง: 100613-1 (ELABBODC140N01)

ตรวจสอบ (รับ) 06 Oct 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 06 Oct 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☐	☐	6. สภาพ Lever of Ventilation valve	☐	☐	-
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☑	☐	10. การทำงานของระบบทำความเย็น	☑	☐	
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Mongkolwat Hasanon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
1194 Soi Wachirathamsathit 57, Bangchak,
Phrakhanong, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel:095-552-4939

Certificate No. C27250001

Calibration Certificate

Equipment:	DO METER		
Model:	HI9146	Job No.:	KSMT2501049
Serial No.(or ID):	GOOO7931 (ELABDOHI914601)	Received Date:	17 March 2025
Manufacturer:	HANNA	Issued Date:	18 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Environment Laboratory, SCIMET Co., Ltd.

1194 Soi Wachirathamsathit 57, Bangchak, Prakhanong, Bangkok 10260 Thailand

Calibration Date

17 March 2025

Environment Condition

Temperature:	23	°C	±	2	°C
Humidity:	50	%RH	±	15	%RH

The Method used

In-house method, WI27 , By comparison with certified dissloved oxygen solution standard

Traceability

This is certificate is traceable to SI Units , Sample test and temperature test are assured through HANNA instruments company certificare No. 26I42, through Quality Reborn Co.,LTD certificare No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

[redacted]

Envilab C[redacted]

SCIMET

Calibration Results:

Electrode Serial No. -

Model : -

Brand : HANNA

Electrode Test

Atmospheric pressure measured while calibrating.	756.36	mmHg		
Temperature measured while calibrating.(± 0.2 °C)	24.7	°C		
The Oxygen Solubility was calculated from the ambient conditions.	8.27	±	0.03	mg/L
The Oxygen Solubility reading from the DO METER	-	mg/L		

Sample Test

Standard Oxygen Solution	Unit Under Calibration Reading	Correction	Coverage Factor (k)	Uncertainty of Measurement (±)
0.0 %	0.0 %	0.0 %	2.00	0.20 %

Temperature Electrode

Dimension of Probe;

Length : 85 mn.

Diameter : 18 mn.

Immersion Depth 80 mn.

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.01	25.6	-0.59	2.00	0.15

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 095 552 4939

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Do Meter

เลขที่ใบงาน: KSMT2501049

ชนิดเครื่องมือ: DO METER รุ่น: HI9146 หมายเลขเครื่อง: GOOO7931

ตรวจสอบ (รับ) 17 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 17 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ :

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
1194 Soi Wachirathamsathit 57, Bangchak, Phrakhanong, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 095 552 4939

[redacted]

Enviiab Co.,Ltd.

CAL

Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-400323-1**

Submitted by : Envilab Co., Ltd.

540,540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : COD Reactor

Manufacturer : Hanna Model : HI839800

Range : N/A °C Resolution : 0.1 °C

Serial No. : 06480040101 ID No. : ELABHI83980001

Environment : Ambient Temperature : (23 ± 2) °C

Relative Humidity : (50 ± 15) %

Date of Received : 28 May 2025

Date of Calibration : 31 May 2025

Date of Issue : 31 May 2025

Calibrated by : Sarawut Sangiamging

Calibration Method : This instrument was calibrated by In-house method direct measurement with Standard Digital Thermometer with TC Type T probe

The temperature scale used was based on ITS-90

Reference Standard Instruments :

Standard Digital Thermometer with TC Probe

ID No.	Cert. No.	Due Date	Traceability
400046 & 400023	68-400148-1	02 Oct 2025	National Institute of Metrology Thailand (NIMT)
400046 & 400028	68-400148-3	01 Oct 2025	National Institute of Metrology Thailand (NIMT)

Ap[redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Calibrat[redacted]

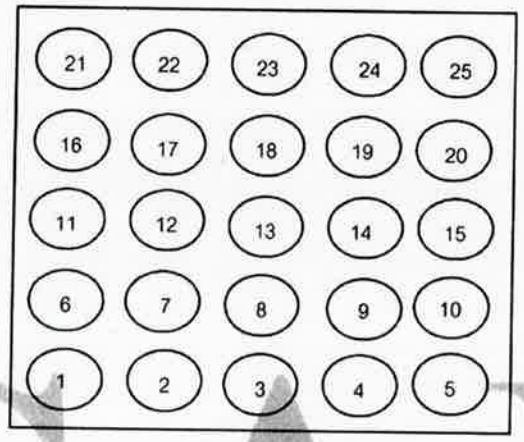
CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-400323-1**

Result of Calibration : Without Adjustment

Function : Temperature measurement



Controller

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)									
			1	2	3	4	5	6	7	8	9	10
150.0	150.0	150.0	149.0	149.2	149.4	149.6	148.6	149.0	150.3	149.7	149.6	149.8

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)									
			11	12	13	14	15	16	17	18	19	20
150.0	150.0	150.0	149.4	149.5	150.2	150.0	149.1	149.1	150.0	150.1	150.1	148.7

Test Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Standard Reading at Position (°C)					Uncertainty (± °C)
			21	22	23	24	25	
150.0	150.0	150.0	148.6	148.7	149.6	148.9	148.6	0.79

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

Envirotech Co.,Ltd. หุ้นส่วนจำกัดความคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C18250038

Calibration Certificate

Equipment:	Liquid Bath		
Model:	WNB14	Job No.:	KSMT2501047
Serial No.(or ID):	L412.2222 (ELABWBWNB14N01)	Received Date:	19 March 2025
Manufacturer:	Memmert	Issued Date:	24 March 2025
Circulation:	None	Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	28.1 °C	±	0.5	°C
Humidity:	49.2 %RH	±	3	%RH

The Method used

In-house method, WI18, based on ASTM E715-1980 (reapproved 2022)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through C23250016

[redacted]

(Mr. Hattapong Pumnil)
Person in charge

SCIMET CO.,LTD

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Authorized signatory

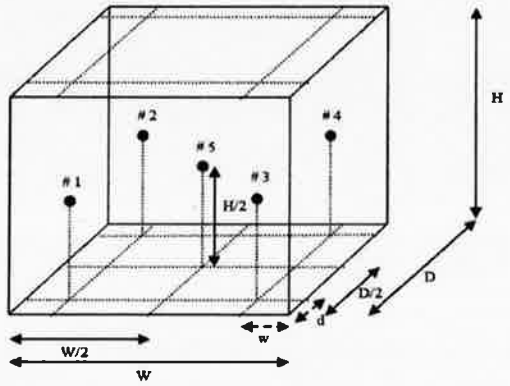
[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Midway between the diffuser plate and the water surface

Inside bath: W = 37 (cm) D = 33 (cm) H = 16 (cm) Volume = 20 (Liters)

Standard Locations #1: w = 5 (cm) d = 5 (cm)

Standard Locations #2: w = 5 (cm) d = 5 (cm)

Standard Locations #3: w = 5 (cm) d = 5 (cm)

Standard Locations #4: w = 5 (cm) d = 5 (cm)

Standard Locations #5: Center of any probes. (#1 - #4)

Position of Std	#1	#2	#3	#4	#5
Channel of Logger	101	102	103	104	105

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the bath.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the bath at steady-state. The reference probe is preferably located in the geometric center of the bath.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	95.08	0.08	0.20
#2	95.12	0.12	0.20
#3	95.03	0.03	0.20
#4	95.07	0.07	0.20
#5	95.08	0.08	0.20

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)					Uncertainty (± °C)*
			#1	#2	#3	#4	#5	
95.0	94.5	94.5	95.08	95.12	95.03	95.07	95.08	0.20

Bath Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
94.5	0.12	0.09	0.28

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E715-1980 (reapproved 2022). Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET
SCIMET CO.,LTD.
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

Without adjustment

Desired Temperature : 95.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 94.5 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	95.08	0.08	0.20	1.0	Pass
#2	95.12	0.12	0.20	1.0	Pass
#3	95.03	0.03	0.20	1.0	Pass
#4	95.07	0.07	0.20	1.0	Pass
#5	95.08	0.08	0.20	1.0	Pass

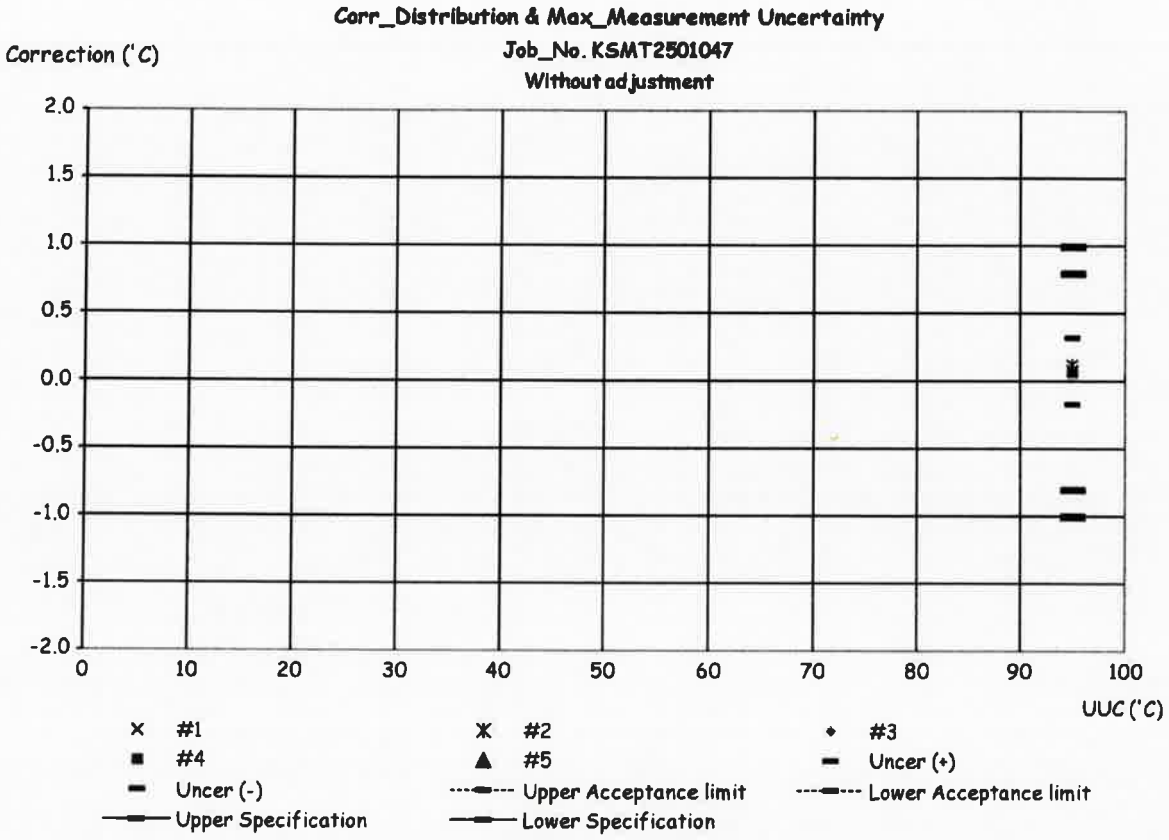
Correction of UUC.* = Measured Temperature - Desired Temperature

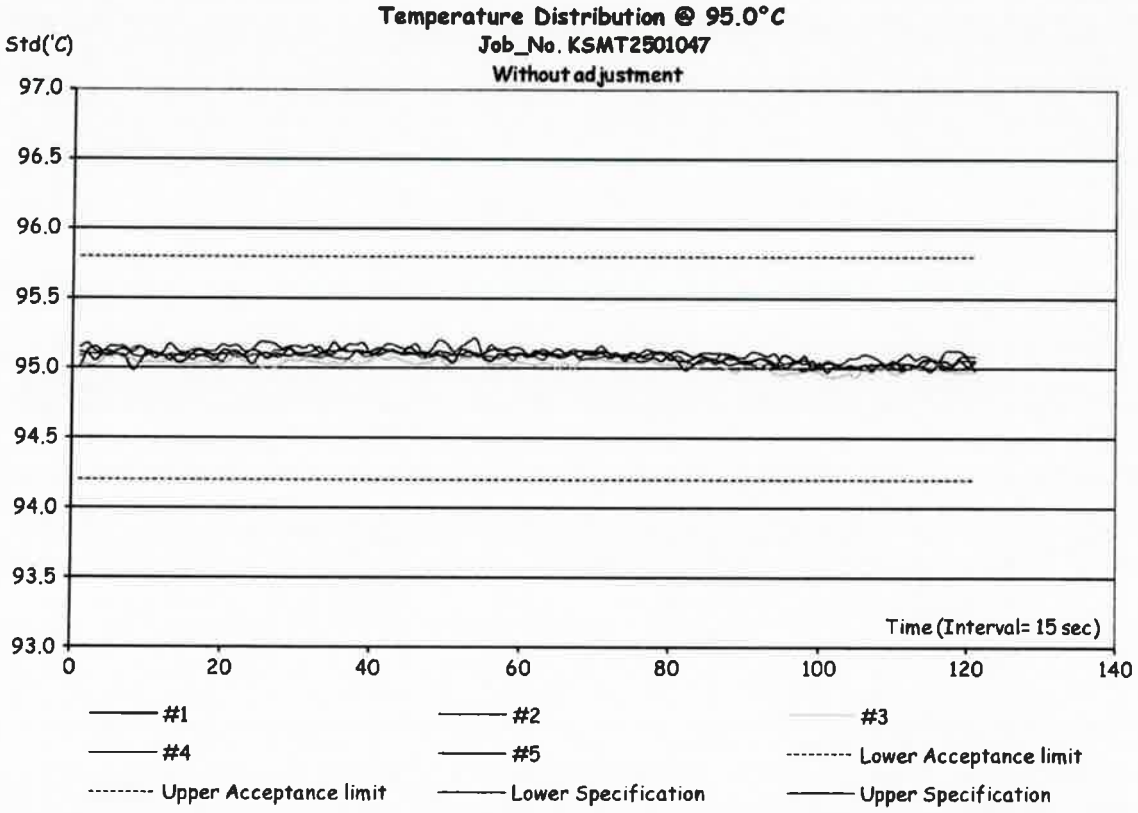
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. [redacted] ผู้จัดการฝ่ายควบคุมคุณภาพ





Enviiab Co.,Ltd.

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501047

ชนิดเครื่องมือ: Liquid Bath รุ่น: WNB14

หมายเลขเครื่อง: L412.2222

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☐	☐	5. การทำงาน Circulator	☐	☐	ไม่มี
☑	☐	6. สภาพ Lever door open / close	☑	☐	
☑	☐	7. ท่อระบายน้ำทิ้ง (DRAIN)	☑	☐	
☐	☐	8. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☑	☐	9. สภาพตัวเครื่อง	☑	☐	
☑	☐	10. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

[redacted]

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-200066-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae7, Bangkhae, Bangkok 10160

Equipment : Electronic Balance
Manufacturer : METTLER TOLEDO Model : XSR205DU
Serial No. : B911363567 ID No. : ELABBALANCEN06
Capacity : 220 g Resolution : 0.00001g/81g, 0.0001g/220g

Environment : On site calibration was carried out at the B304 Balance Room, Envilab Co., Ltd.
Ambient Temperature : (21.2 to 21.5) °C
Relative Humidity : (51.4 to 56.2) %
Air Pressure : 1011.0 mbar

Date of Received : 17 February 2025
Date of Calibration : 17 February 2025
Date of Issue : 19 February 2025
Calibrated by : Satja Sangkhum

Calibration Method : In-house method CAL-M2001 based on UKAS Publication ref : LAB 14 Edition 7 - November 2022

Reference Standard Instruments : This certification is traceable to the International System of Units

Standard Weights

ID No.	Cert. No.	Due Date	Traceability
E261-E2624	C02242009	07 Nov 2025	National Institute of Metrology (Thailand), (NIMT)

Approv[redacted]

Laboratory Manager

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Calibra[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-200066-2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Departure of indication from nominal value

Nominal Value (g)	Correction (g)	Uncertainty ± (g)
0.1	0.00000	0.000016
0.5	0.00000	0.000022
1	0.00000	0.000026
2	-0.00001	0.000034
5	-0.00001	0.000043
10	0.00000	0.000053
50	-0.00002	0.00011
100	0.0000	0.00020
150	0.0000	0.00038
200	0.0000	0.00038

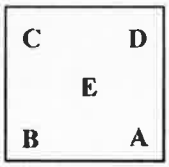
This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty mutiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

Eccentric error

Load test : 50 g

A	B	C	D	E	
-0.00001	-0.00001	0.00003	0.00003	0.00000	g



Repeatability

Load test : 200 g

Stdev. : 0.000032 g

- o0o -

[redacted]

[redacted]

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250137

Calibration Certificate

Equipment: Hot Air Oven

Model:	UF75
Serial No.(or ID):	B319.0600 (ELABHAOVEN0600)
Manufacturer:	Memmert
Ventilation Valve:	Closed
Shelves(pc.):	3

Job No.:	KSMT2501050
Received Date:	19 March 2025
Issued Date:	24 March 2025
Page:	1 of 5

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B306 CH2 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	29.4 °C	±	1.2	°C
Humidity:	48 %RH	±	3	%RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250016

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET
SCIMET CO.,LTD.

[redacted]

Authorized signatory

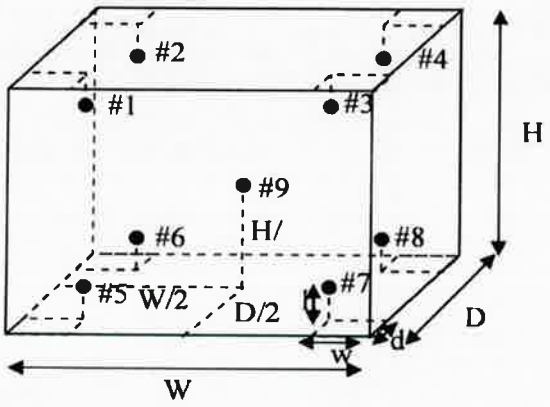
[redacted]

Envilab Co.,Ltd.

Condition of reference standards Instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 1	34972A	MY59003249	C23250016	30-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 30 (Liters)

Inside chamber:	W = 40 (cm)	D = 33 (cm)	H = 56 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 6 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	301	302	303	304	305	306	307	308	309

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Calibration Results:

Before adjustment

Desired (°C)	Setting (°C)	Indicating (°C)	#1 (°C)	#2 (°C)	#3 (°C)	#4 (°C)	#5 (°C)	#6 (°C)	#7 (°C)	#8 (°C)	#9 (°C)
104.0	104.0	104.0	104.44	104.95	105.08	104.82	104.94	104.72	104.13	104.70	105.02

After adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	103.85	-0.15	0.39
#2	104.35	0.35	0.39
#3	104.40	0.40	0.39
#4	104.17	0.17	0.39
#5	104.33	0.33	0.39
#6	104.12	0.12	0.39
#7	103.73	-0.27	0.39
#8	104.10	0.10	0.39
#9	104.31	0.31	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
104.0	104.0	104.0	103.85	104.35	104.40	104.17	104.33	104.12	103.73	104.10	104.31	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
104.0	0.65	0.09	0.80

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	109.74	-0.26	0.39
#2	110.28	0.28	0.39
#3	110.40	0.40	0.39
#4	110.15	0.15	0.39
#5	110.24	0.24	0.39
#6	110.01	0.01	0.39
#7	109.59	-0.41	0.39
#8	110.02	0.02	0.39
#9	110.33	0.33	0.39

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
110.0	110.0	110.0	109.74	110.28	110.40	110.15	110.24	110.01	109.59	110.02	110.33	0.39

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
110.0	0.84	0.12	0.98

Note: * Maximum uncertainty of the each position

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

After adjustment (Cont.)

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	179.37	-0.63	0.49
#2	180.52	0.52	0.48
#3	180.61	0.61	0.47
#4	180.55	0.55	0.47
#5	180.51	0.51	0.48
#6	180.03	0.03	0.50
#7	179.26	-0.74	0.49
#8	180.23	0.23	0.49
#9	180.67	0.67	0.47

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
180.0	179.0	179.0	179.37	180.52	180.61	180.55	180.51	180.03	179.26	180.23	180.67	0.50

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
179.0	1.54	0.17	1.68

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

After adjustment

Desired Temperature : 104.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 104.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	103.85	-0.15	0.39	1.0	Pass
#2	104.35	0.35	0.39	1.0	Pass
#3	104.40	0.40	0.39	1.0	Pass
#4	104.17	0.17	0.39	1.0	Pass
#5	104.33	0.33	0.39	1.0	Pass
#6	104.12	0.12	0.39	1.0	Pass
#7	103.73	-0.27	0.39	1.0	Pass
#8	104.10	0.10	0.39	1.0	Pass
#9	104.31	0.31	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd.

SCIMET

Statements of conformity:(Cont.)

After adjustment (Cont.)

Desired Temperature : 110.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 110.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	109.74	-0.26	0.39	1.0	Pass
#2	110.28	0.28	0.39	1.0	Pass
#3	110.40	0.40	0.39	1.0	Pass
#4	110.15	0.15	0.39	1.0	Pass
#5	110.24	0.24	0.39	1.0	Pass
#6	110.01	0.01	0.39	1.0	Pass
#7	109.59	-0.41	0.39	1.0	Pass
#8	110.02	0.02	0.39	1.0	Pass
#9	110.33	0.33	0.39	1.0	Pass

Correction of UUC.* = Measured Temperature - Desired Temperature

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

After adjustment (Cont.)

Desired Temperature : 180.0°C **Tolerances : 2.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 179.0 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	179.37	-0.63	0.49	2.0	Pass
#2	180.52	0.52	0.48	2.0	Pass
#3	180.61	0.61	0.47	2.0	Pass
#4	180.55	0.55	0.47	2.0	Pass
#5	180.51	0.51	0.48	2.0	Pass
#6	180.03	0.03	0.5	2.0	Pass
#7	179.26	-0.74	0.49	2.0	Pass
#8	180.23	0.23	0.49	2.0	Pass
#9	180.67	0.67	0.47	2.0	Pass

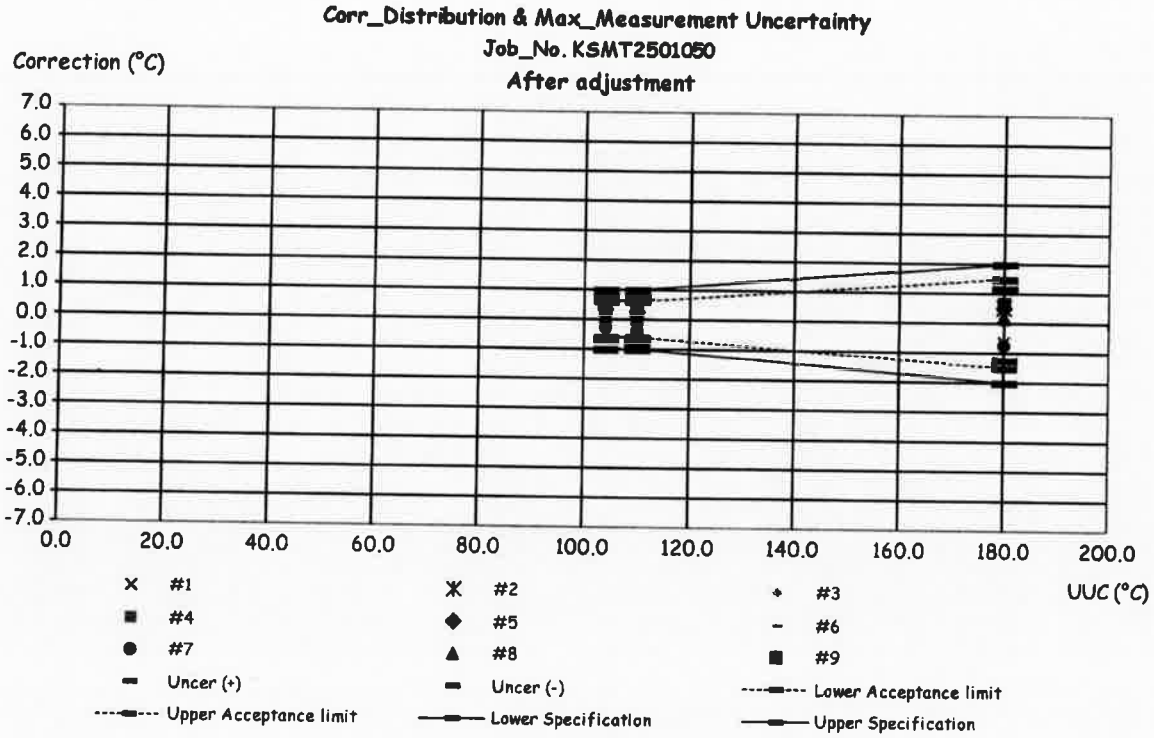
Correction of UUC.* = Measured Temperature - Desired Temperature

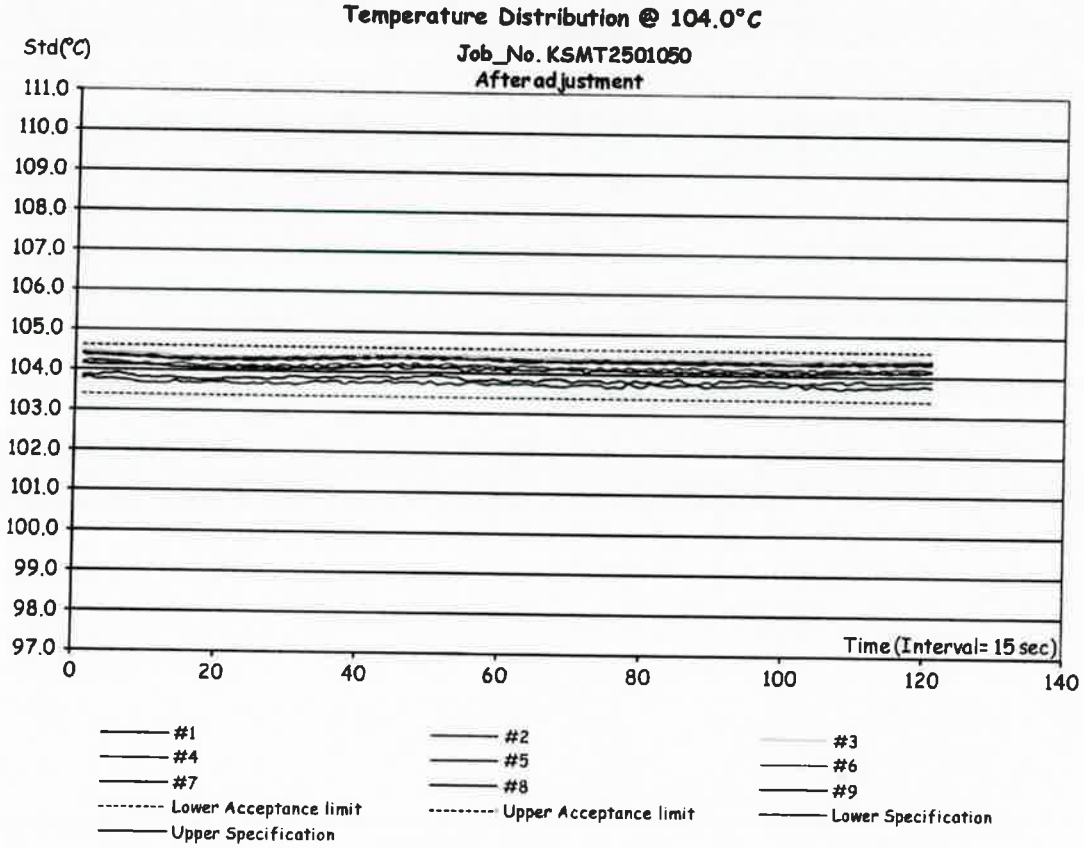
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

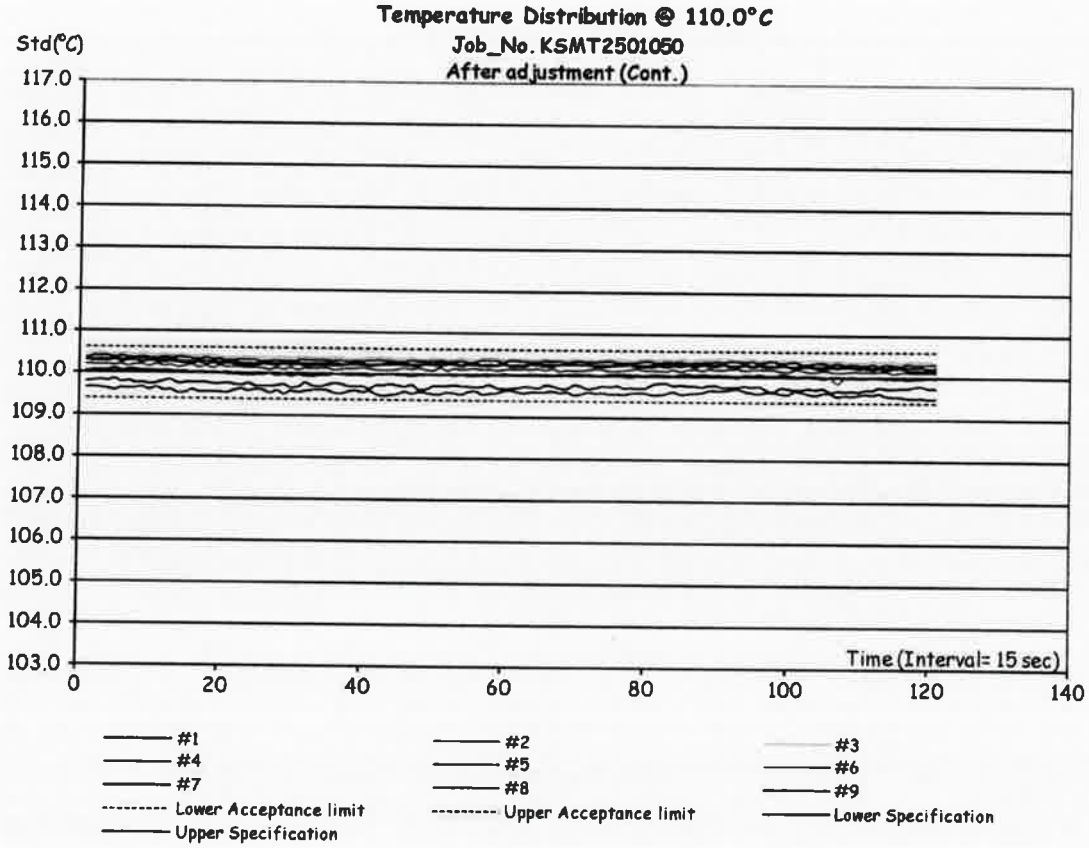
บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

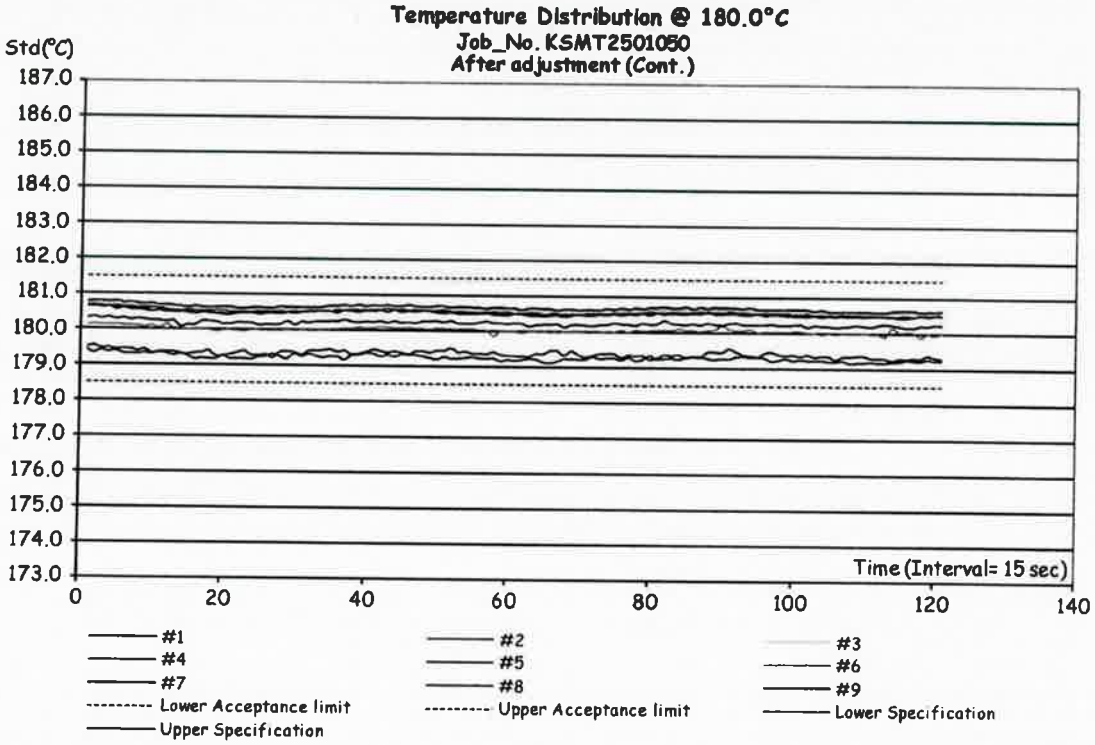
Enviiab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2501050

ชนิดเครื่องมือ: Hot Air Oven รุ่น: UF75

หมายเลขเครื่อง: B319.0600 (ELABHAOVEN0600)

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☑	☐	6. สภาพ Lever of Ventilation valve	☑	☐	
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☐	☐	10. การทำงานของระบบทำความเย็น	☐	☐	ไม่มี
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	ไม่มี
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Hattapong Pumnil

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300237-2** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Cylinder
Manufacturer : BOROSIL Class : A
Capacity : 50 ml Graduation : 1 ml
ID No. : C-WW-004/24

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1015.8 mbar.

Date of Received : 14 March 2025

Date of Calibration : 18 March 2025

Date of Issue : 18 March 2025

Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241002	67-200410-1	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Calib[redacted]

Envilab Co.,Ltd. [redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech.cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-300237-2

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Nominal Volume (ml)	Measuring Volume (ml)
30	30.07
50	50.08

Uncertainty of measurement with in ± 0.054 ml

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

[redacted]

Envilab Co.,Ltd.

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C17250552

Calibration Certificate

Equipment: Cooled Incubator

Model:	BIC-140
Serial No.(or ID):	100613-1 (ELABBODC140N01)
Manufacturer:	M-LAB
Ventilation Valve:	None
Shelves(pc.):	5

Job No.:	KSMT2503905
Received Date:	06 October 2025
Issued Date:	09 October 2025
Page:	1 of 3

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

06 October 2025

Environment Condition

Temperature:	21.0 °C	±	1.3 °C
Humidity:	53.6 %RH	±	3.8 %RH

The Method used

In-house method, WI17, based on G-20-1/02-08 (E)

Traceability

This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co.,Ltd. Certificate No. C23250017

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

[redacted]

Envilab Co.,Ltd.

[redacted]

FO17-03 27 JAN 2025

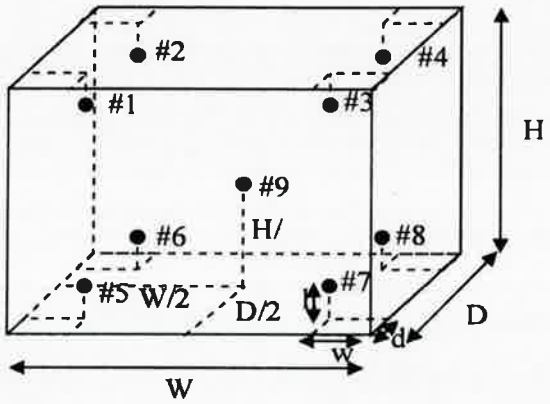
ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Condition of reference standards instruments:

Instruments	Model	S/N or ID.	Certificate No.	Due Date
Datalogger 3	34970A	MY44075238	C23250017	28-Jan-2026

Condition of Calibration Item : In Condition



Standard Installation Locations

Volume (Calibration Zone)= 57 (Liters)

Inside chamber:	W = 38 (cm)	D = 32 (cm)	H = 114 (cm)
Standard Locations (#1, #2, #3, #4):	w = 5 (cm)	d = 5 (cm)	h = 11 (cm)
Standard Locations (#5, #6, #7, #8):	w = 5 (cm)	d = 5 (cm)	h = 11 (cm)

#9: Geometric center of the chamber

Position of Std	#1	#2	#3	#4	#5	#6	#7	#8	#9
Channel of Logger	201	202	203	204	205	206	207	208	209

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the enclosure.

Measured Temperature: The average reading of standards at any positions or location.

Measured Uniformity: The maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time or at close observation time as possible to determine the temperature pattern or homogeneity with the chamber at steady-state. The reference probe is preferably located in the geometric center of the chamber.

Measured Stability: The one-half of greatest maximum difference of measured temperatures at any one probe.

Overall Variation: The difference of maximum and minimum measured temperatures throughout observation time.

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Calibration Results:

Without adjustment

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.1 °C

Locations	Measured Temperature (°C)	Correction (°C)	Uncertainty (± °C)
#1	20.30	0.30	0.58
#2	20.40	0.40	0.59
#3	20.53	0.53	0.58
#4	19.55	-0.45	0.57
#5	20.09	0.09	0.66
#6	20.11	0.11	0.77
#7	20.12	0.12	0.64
#8	20.03	0.03	0.72
#9	20.11	0.11	0.63

Temperature Distribution

Desired (°C)	Setting (°C)	Indicating (°C)	Measured Temperature at Spread Locations (°C)									Uncertainty (± °C)*
			#1	#2	#3	#4	#5	#6	#7	#8	#9	
20.0	20.0	20.1	20.30	20.40	20.53	19.55	20.09	20.11	20.12	20.03	20.11	0.77

Chamber Characterization

Indicating (°C)	Measured Uniformity (°C)	Measured Stability (± °C)	Overall Variation (°C)
20.1	0.70	0.50	1.57

Note: * Maximum uncertainty of the each position

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The correction of indication determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, G20-1/02-08(E). Therefore, those parameters have not

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule : ☐ Choice A Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.

☑ Choice B Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.

☐ Choice C Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA: Probability of False Accept

SCIMET
SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]
Authorized signatory

Without adjustment

Desired Temperature : 20.0°C **Tolerances : 1.0 °C**

Measurement Temperature at Spread Locations, Indicating of Unit Under Calibration: 20.1 °C

Locations	Measured (°C)	Correction of UUC. (°C)	Guard band (W) (± °C)	Tolerance (± °C)	Conformity
#1	20.30	0.30	0.58	1.0	Pass
#2	20.40	0.40	0.59	1.0	Pass
#3	20.53	0.53	0.58	1.0	Condition Pass
#4	19.55	-0.45	0.57	1.0	Condition Pass
#5	20.09	0.09	0.66	1.0	Pass
#6	20.11	0.11	0.77	1.0	Pass
#7	20.12	0.12	0.64	1.0	Pass
#8	20.03	0.03	0.72	1.0	Pass
#9	20.11	0.11	0.63	1.0	Pass

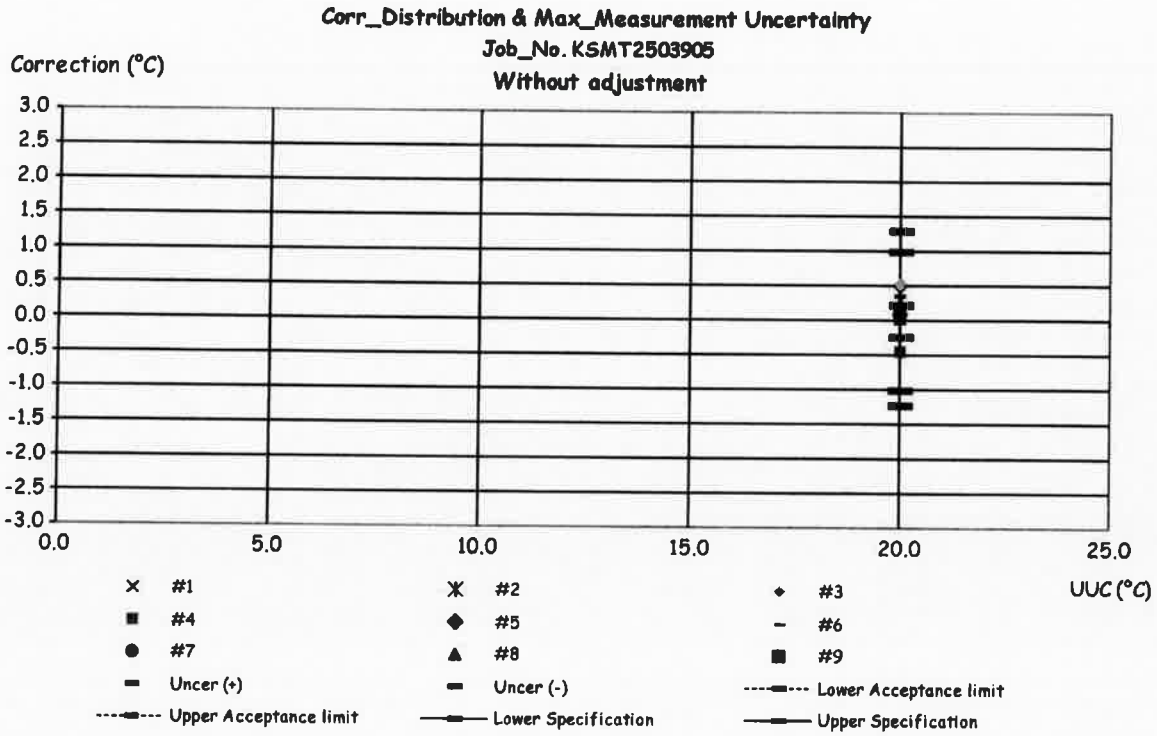
Correction of UUC.* = Measured Temperature - Desired Temperature

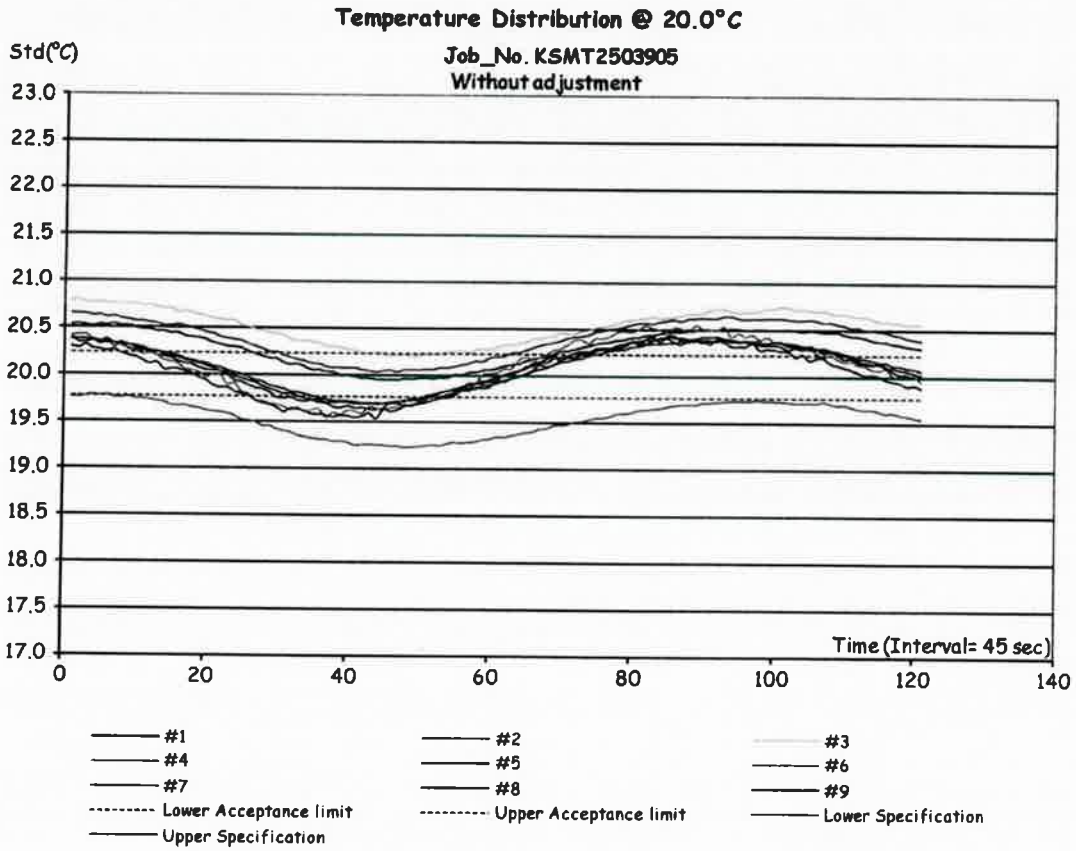
The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]
Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ





Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSMT2503905

ชนิดเครื่องมือ: Cooled Incubator รุ่น: BIC-140

หมายเลขเครื่อง: 100613-1 (ELABBODC140N01)

ตรวจสอบ (รับ) 06 Oct 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 06 Oct 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
		General			
☑	☐	1. สายไฟ	☑	☐	
☑	☐	2. การทำงาน Main Switch	☑	☐	
☑	☐	3. การทำงาน Selector Key	☑	☐	
☑	☐	4. การแสดงผล Display	☑	☐	
☑	☐	5. การทำงาน พัดลม	☑	☐	
☐	☐	6. สภาพ Lever of Ventilation valve	☐	☐	-
☑	☐	7. สภาพ Lever door open / close	☑	☐	
☑	☐	8. สภาพ Door seal	☑	☐	
☑	☐	9. การทำงานของระบบ Safety	☑	☐	
☑	☐	10. การทำงานของระบบทำความเย็น	☑	☐	
☐	☐	11. การทำงานของระบบทำความชื้น	☐	☐	-
☑	☐	12. สภาพตัวเครื่อง	☑	☐	
☑	☐	13. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง	☑	☐	

ข้อแนะนำ : _____

_____

Mr. Mongkolwat Hasanon

Service Engineer

บริษัท ชายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : 68-410024-1 **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Digital Thermo-Hygrometer

Manufacturer :	Jedto	Model :	HTC-1
Range Temperature :	-10 °C to 50 °C	Resolution :	0.1 °C
Range Humidity :	20 %R.H. to 90 %R.H.	Resolution :	1 %R.H.
Serial No. :	PONPE5852094	ID No. :	ELABTMHTC10003

Environment : Ambient Temperature : (23 ± 2) °C
Relative Humidity : (50 ± 15) %

Date of Received : 17 February 2025
Date of Calibration : 22 February 2025
Date of Issue : 22 February 2025
Calibrated by : Chortip Samchusri

Calibration Method : This instrument was calibrated by In-house method comparison technique CAL-M4013 by compared with standard probe sensor humidity/temperature into humidity/temperature chamber.

Reference Standard Instruments : This certification is traceable to the International System of Units

Digital Indicator with Standard Probe Temp&Hum

ID No.	Cert. No.	Due Date	Traceability
400034 & 400036	SG-H-00001/68	04 Jul 2025	Success Gateway Co., Ltd., Accredited by TISI Calibration No.0268

Appro[redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This cerificate may not be reproduced other than in full except with the prior written approval of the Cal[redacted]

Envilab Co.,Ltd. [redacted]

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : 68-410024-1

UUC Condition As-Received : Good

Result of Calibration : Without Adjustment

Function : Temperature measurement

Reference Humidity @ 50 %R.H.

Standard Temperature (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
25.00	24.9	0.1	0.46

Result of Calibration : Without Adjustment

Function : Humidity measurement

Reference Temperature @ 25 °C

Standard Humidity (%R.H.)	UUC Reading (%R.H.)	Correction (%R.H.)	Uncertainty (±%R.H)
50.03	50	0	2.2

Remark

UUC : Unit Under Calibration

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2 , providing a level of confidence of approximately 95%

- ๐๐๑ -

[redacted]

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C07250028

Calibration Certificate

Equipment:	SPECTROPHOTOMETER		
Model:	CARY 60UV-VIS	Job No.:	KSMT2500779
Serial No.(or ID):	MY17490026 (ELABSPECTRO0002)	Received Date:	03 March 2025
Manufacturer:	Agilent	Issued Date:	03 March 2025
Condition:	In Condition	Page:	1 of 3

Customer

Envilab Co., Ltd.

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B301 CO-THC ROOM)

540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

03 March 2025

Environment Condition

Temperature:	22.3 °C	±	0.1	°C
Humidity:	66.0 %RH	±	2.2	%RH

The Method used

In-house method, WI07, based on ASTM E 275-08 and ASTM E 387-04

Traceability

This certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Starna Scientific Limited.

The standard for Wavelength Certificate No. 125472 and 125471

The standard for Photometric Certificate No. 125567 and 125517

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD

[redacted]

Envilab Co.,Ltd.

SCIMET

Condition of reference standards Instruments / CRM:

Instruments	Set No.	Certificate No.	Due date
Didymium Oxide Glass Reference	131033	125472	16-Sep-26
Holmium Oxide Glass Reference	136650	125471	16-Sep-26
Neutral Density Filter Reference	45329	125567	17-Sep-26
Potassium Dichromate Solution References	45328	125517	17-Sep-26

Calibration Results:

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Standard Wavelength (nm)	Unit Under Calibration (nm)	Correction (nm)	Uncertainty of Measurement (± nm)
219.39	220.0	-0.61	0.14
241.27	241.5	-0.23	0.14
287.39	287.5	-0.11	0.14
333.65	333.4	0.25	0.14
360.32	360.0	0.32	0.14
417.64	417.0	0.64	0.14
472.50	472.5	0.00	0.14
513.47	513.4	0.07	0.14
528.88	528.9	-0.02	0.14
537.13	537.1	0.03	0.14
640.92	641.7	-0.78	0.14
740.72	741.4	-0.68	0.14
748.55	749.3	-0.75	0.14
807.03	807.5	-0.47	0.14
879.28	879.3	-0.02	0.14

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
235 nm	0.0000	0.0002	-0.0002	0.0080
	0.7328	0.7345	-0.0017	0.0080
257 nm	0.0000	-0.0003	0.0003	0.0080
	0.8537	0.8545	-0.0008	0.0080
313 nm	0.0000	-0.0001	0.0001	0.0080
	0.2855	0.2862	-0.0007	0.0080
350 nm	0.0000	0.0000	0.0000	0.0080
	0.6338	0.6349	-0.0011	0.0080

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd.

SCIMET

Calibration Results:

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance (Abs)	Unit Under Calibration (Abs)	Correction (Abs)	Uncertainty of Measurement(± Abs)
420 nm	0.0000	0.0000	0.0000	0.0045
	0.2352	0.2382	-0.0030	0.0045
	0.5716	0.5740	-0.0024	0.0045
	0.7146	0.7167	-0.0021	0.0045
	1.0179	1.0190	-0.0011	0.0045
440 nm	0.0000	0.0000	0.0000	0.0045
	0.2314	0.2350	-0.0036	0.0045
	0.5566	0.5596	-0.0030	0.0045
	0.7028	0.7060	-0.0032	0.0045
	1.0016	1.0039	-0.0023	0.0045
465 nm	0.0000	0.0000	0.0000	0.0045
	0.2107	0.2137	-0.0030	0.0045
	0.5192	0.5219	-0.0027	0.0045
	0.6638	0.6668	-0.0030	0.0045
	0.9447	0.9471	-0.0024	0.0045
546.1 nm	0.0000	0.0000	0.0000	0.0045
	0.2187	0.2208	-0.0021	0.0045
	0.5207	0.5230	-0.0023	0.0045
	0.7002	0.7025	-0.0023	0.0045
	1.0001	1.0020	-0.0019	0.0045
590 nm	0.0000	0.0000	0.0000	0.0045
	0.2430	0.2449	-0.0019	0.0045
	0.5546	0.5567	-0.0021	0.0045
	0.7756	0.7774	-0.0018	0.0045
	1.1117	1.1123	-0.0006	0.0045
635 nm	0.0000	0.0000	0.0000	0.0045
	0.2635	0.2651	-0.0016	0.0045
	0.5622	0.5639	-0.0017	0.0045
	0.7651	0.7673	-0.0022	0.0045
	1.0974	1.0982	-0.0008	0.0045

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd.

Statements of conformity:

This conformity certificate documents the validity of the following statements of conformity based on the measurement results of corresponding calibration certificate:

The error of temperature determined during calibration are under given measurement and environmental conditions and considering the expanded measurement uncertainty (coverage probability 95%) within the specification. The given measurement uncertainty already includes other all effects by according to the standard method, ASTM E 275-08 and ASTM E 387-04. Therefore, those parameters have not been assessed separately.

Tolerance and Decision rules:

Assessment of the conformity of the measurement device are done based on direct comparison of the relevant measurement results with the tolerances and decision rule are prescribed by the customer.

Decision rule :

- ☐ Choice A — Binary Statement for Simple Acceptance Rule (w = 0), Specific Risk < 50% PFA.
- ☑ Choice B — Non-binary statement with guard band (w = 1 U), Pass or Fail Specific Risk < 2.5% PFA and Condition Pass or Condition Fail Specific Risk < 50% PFA.
- ☐ Choice C — Customer defined, Customers may define arbitrary multiple of r to have applied as guard band (w = r U) .

; PFA – Probability of False Accept

SCIMET CO.,LTD
บริษัท ซายน์เมท จำกัด

[redacted]

Authorized signatory

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

Envilab Co.,Ltd.

[redacted]

Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 1.5 nm and UUC at 1.5 nm

Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
220.0	-0.61	0.14	1.0	Pass
241.5	-0.23	0.14	1.0	Pass
287.5	-0.11	0.14	1.0	Pass
333.4	0.25	0.14	1.0	Pass
360.0	0.32	0.14	1.0	Pass
417.0	0.64	0.14	1.0	Pass
472.5	0.00	0.14	1.0	Pass
513.4	0.07	0.14	1.0	Pass
528.9	-0.02	0.14	1.0	Pass
537.1	0.03	0.14	1.0	Pass
641.7	-0.78	0.14	1.0	Pass
741.4	-0.68	0.14	1.0	Pass
749.3	-0.75	0.14	1.0	Pass
807.5	-0.47	0.14	1.0	Pass
879.3	-0.02	0.14	1.0	Pass

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
235 nm	0.0002	-0.0002	0.0080	0.020	Pass
	0.7345	-0.0017	0.0080	0.020	Pass
257 nm	-0.0003	0.0003	0.0080	0.020	Pass
	0.8545	-0.0008	0.0080	0.020	Pass
313 nm	-0.0001	0.0001	0.0080	0.020	Pass
	0.2862	-0.0007	0.0080	0.020	Pass
350 nm	0.0000	0.0000	0.0080	0.020	Pass
	0.6349	-0.0011	0.0080	0.020	Pass

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Unit Under Calibration	Correction	Guard Band (w)	Tolerance (±)	Conformity
420 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2382	-0.0030	0.0045	0.015	Pass
	0.5740	-0.0024	0.0045	0.015	Pass
	0.7167	-0.0021	0.0045	0.015	Pass
	1.0190	-0.0011	0.0045	0.015	Pass
440 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2350	-0.0036	0.0045	0.015	Pass
	0.5596	-0.0030	0.0045	0.015	Pass
	0.7060	-0.0032	0.0045	0.015	Pass
	1.0039	-0.0023	0.0045	0.015	Pass
465 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2137	-0.0030	0.0045	0.015	Pass
	0.5219	-0.0027	0.0045	0.015	Pass
	0.6668	-0.0030	0.0045	0.015	Pass
	0.9471	-0.0024	0.0045	0.015	Pass
546.1 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2208	-0.0021	0.0045	0.015	Pass
	0.5230	-0.0023	0.0045	0.015	Pass
	0.7025	-0.0023	0.0045	0.015	Pass
	1.0020	-0.0019	0.0045	0.015	Pass
590 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2449	-0.0019	0.0045	0.015	Pass
	0.5567	-0.0021	0.0045	0.015	Pass
	0.7774	-0.0018	0.0045	0.015	Pass
	1.1123	-0.0006	0.0045	0.015	Pass
635 nm	0.0000	0.0000	0.0045	0.015	Pass
	0.2651	-0.0016	0.0045	0.015	Pass
	0.5639	-0.0017	0.0045	0.015	Pass
	0.7673	-0.0022	0.0045	0.015	Pass
	1.0982	-0.0008	0.0045	0.015	Pass

The validity of the statements of conformity cannot be guaranteed for different places of use, environmental conditions or improper use.

The End of Statements of Conformity

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Spectrophotometer

เลขที่ใบงาน: KSMT2500779

ชนิดเครื่องมือ: SPECTROPHOTOMETER รุ่น: CARY 60UV-VIS หมายเลขเครื่อง: MY17490026

ตรวจสอบ (รับ) 03 Mar 2025		รายการตรวจเช็ค		ตรวจสอบ (ส่ง) 03 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ			ปกติ	ไม่ปกติ	
☑	☐	1.	ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2.	ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3.	สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4.	ปุ่มกด (Keypad)	☑	☐	
☑	☐	5.	หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6.	ตัวหมุนเลือกความยาวคลื่น (Wavelength Control)	☑	☐	
☑	☐	7.	ความยาวคลื่น (Wavelength Check)	☑	☐	
☑	☐	8.	แหล่งกำเนิดแสง (UV < 3,000 hour)	☑	☐	
☑	☐	9.	แหล่งกำเนิดแสง (Visible < 5,000 hour)	☑	☐	
☐	☐	10.	ช่องวัดหลายตัวอย่าง (Carousel Module)	☐	☐	-

เพิ่มเติม/ข้อแนะนำ :

Mr. Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET Co., Ltd.
818/124 Udomsuk Rd., Bangna-Nuea,
Bangna, Bangkok 10260 Thailand
Email:scimet2022@gmail.com, Tel: 02 460 9239
https://www.scimet.co.th

NSC-TISI-TIS 17025
CALIBRATION 0454

Certificate No. C09250024

Calibration Certificate

Equipment:	CONDUCTIVITY METER		
Model:	F-74BW	Job No.:	KSMT2501045
Serial No.(or ID):	B41J0001 (ELABPHHB74BW01)	Received Date:	19 March 2025
Manufacturer:	HORIBA	Issued Date:	19 March 2025
Condition:	In Condition	Page:	1 of 2

Customer

Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Place

Envilab Co., Ltd. (B300 CH1 ROOM)
540, 540/1 Soi Bangkhae 7,Bangkhae, Bangkhae, Bangkok 10160

Calibration Date

19 March 2025

Environment Condition

Temperature:	25.8 °C	±	0.4	°C
Humidity:	51.7 %RH	±	2.9	%RH

The Method used

In-house method, WI09, based on ASTM D1125-14 and D 5391-14

Traceability

This certificate is traceable to the SI Units maintained by CRM of NIST(SRM) through CPA chem Co., Ltd. (ISO 17034) Certificate No. 1019566, 1019567, 1019568 , Temperature test is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through SCIMET Co., Ltd.Certificate No.C23240075

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standardlaboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SCIMET Co., Ltd.

[redacted]

Person in charge

SCIMET CO.,LTD.

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

Condition of reference standards Instruments / CRM:

Instruments		Model or S/N.	Certificate No.	Due date
Standard conductivity solution	25.001 µS/cm	CS25M0S.L5	1019566	4-Aug-25
Standard conductivity solution	1412.9 µS/cm	CS1413M0S.L5	1019567	4-Aug-25
Standard conductivity solution	111.3 mS/cm	CS111MS.L5	1019568	4-Aug-25
Digital Thermometer		376	C23240075	30-Jul-25

Calibration Results:

Electrode Serial No. 3G1J0088 Model : 3552 Brand : HORIBA

Before Adjustment

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	27.6	µS/cm	-2.599	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1541	µS/cm	-128.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	113.7	mS/cm	-2.4	mS/cm	2.00	0.82	mS/cm

After Adjustment ; at 1412.9 µS/cm

Standard Conductivity Solution		Unit Under Calibration Reading		Correction		Coverage Factor (k)	Uncertainty of Measurement (±)	
25.001	µS/cm	25.3	µS/cm	-0.299	µS/cm	2.00	0.25	µS/cm
1412.9	µS/cm	1413	µS/cm	-0.1	µS/cm	2.00	11	µS/cm
111.3	mS/cm	106.1	mS/cm	5.2	mS/cm	2.00	0.82	mS/cm

Temperature Electrode

Dimension of Probe ; mm (millimeter) Length : 110 Diameter: 12 Immersion Depth: 80

STD. Reading (°C)	UUC. Reading (°C)	Correction of UUC (°C)	Coverage Factor (k)	Uncertainty of Measurement (±°C)
25.03	24.9	0.13	2.00	0.20

The End of Certificate

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

SCIMET

ใบตรวจสอบสภาพเครื่อง Conductivity Meter

เลขที่ใบงาน: KSMT2501045

ชนิดเครื่องมือ: CONDUCTIVITY METER รุ่น: F-74BW หมายเลขเครื่อง: B41J0001

ตรวจสอบ (รับ) 19 Mar 2025		รายการตรวจเช็ค	ตรวจสอบ (ส่ง) 19 Mar 2025		หมายเหตุ
ปกติ	ไม่ปกติ		ปกติ	ไม่ปกติ	
☑	☐	1. ความสมบูรณ์เครื่อง	☑	☐	
☑	☐	2. ความสะอาด (ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง)	☑	☐	
☑	☐	3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Swicth)	☑	☐	
☑	☐	4. ปุ่มกด (Keypad)	☑	☐	
☑	☐	5. หน้าจอ (Display, Screen Contrast)	☑	☐	
☑	☐	6. อิเล็กโทรด (Electrode and Connection Cable)	☑	☐	
☑	☐	7. สายอิเล็กโทรด	☑	☐	
☑	☐	8. เซ็นเซอร์อิเล็กโทรด	☑	☐	
☑	☐	9. ขาจับอิเล็กโทรด (Stand)	☑	☐	

ข้อแนะนำ : _____

Mr.Dumrong Boonsopon

Service Engineer

บริษัท ซายน์เมท จำกัด (SCIMET CO., LTD.)
818/124 Udomsuk rd., Bangna-Nuea, Bangna, Bangkok 10260 Thailand
Email: scimet2022@gmail.com, Tel: 02 460 9239

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

NSC-TISI-TIS17025
CALIBRATION 0030

Certificate of Calibration

Certificate No. : **68-300233-5** **Page : 1 of 2**

Submitted by : Envilab Co., Ltd.
540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkok 10160

Equipment : Measuring Pipette
Manufacturer : witeg Class : A
Capacity : 25 ml Graduation : 0.1 ml
ID No. : G-WW-014/23

Environment : Ambient Temperature : (20 ± 3) °C
Relative Humidity : (50 ± 10) %
Air Pressure : 1008.0 mbar.

Date of Received : 14 March 2025
Date of Calibration : 18 March 2025
Date of Issue : 18 March 2025
Calibrated by : Areerat Sombun

Calibration Method : In-house method CAL-M3001 based on ASTM E 542-22

Reference Standard Instruments : This certification is traceable to the International System of Units

Electronic Balance

ID No.	Cert. No.	Due Date	Traceability
241005	67-200410-4	02 Jun 2025	National Institute of Metrology (Thailand) (NIMT)

Approved by : [redacted]

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full except with the prior written approval of the Cali

[redacted]

Envilab Co.,Ltd.

CAL
Calibratech Co.,Ltd.
7/106-7 Moo 2, Sukhaprachasan 3 Rd., Bangpood, Pakkred, Nonthaburi 11120
Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech_cal@yahoo.com, calibratech_cal@hotmail.com

Certificate of Calibration

Certificate No. : **68-300233-5**

Result of Calibration : This result of true Volume is referred to standard temperature at 20 °C

UUC Condition As-Received : Good

Delivery Time : 15.09 sec.

Nominal Volume (ml)	Measuring Volume (ml)
1	1.0096
10	9.9778
25	24.9769

Uncertainty of measurement with in ± 0.0067 ml

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.00 , providing a level of confidence of approximately 95%

- o0o -

[redacted]

[redacted]

Envilas Co.,Ltd. พนักงานฝ่ายควบคุมคุณภาพ

MIRACLE INTERNATIONAL TECHNOLOGY CO.,LTD
214 Bangwaek Rd. Bangpai Bangkae Bangkok 10160
Tel.: 0-2865-4647-8 Fax: 0-2865-4649 http://www.mit.in.th

ilac-MRA

NSC-TISI-TIS 17025
CALIBRATION 0052

CALIBRATION CERTIFICATE

Certificate No. : S2025040468-0002
Date Issued : 25-Apr-25

Customer	: Envilab Co., Ltd. 540, 540/1 Soi Bangkhae 7, Bangkhae, Bangkhae, Bangkok, Thailand 10160
Equipment	: Lab Refrigerator (TMF-PLR221)
Manufacturer	: Thermo Scientific
Model	: PLR221
Serial No.	: 2210M319042801
ID No./Tag No.	: ELABREFRIGEN02
Date Received	: 24-Apr-25
Date Calibrated	: 24-Apr-25
Calibrated by	: Chanon Konyawong

Calibration Method or Calibration Procedure Used

Standard method : CP-05 TLAS G-20.

This certificate is traceable to national standards, which realize the units of measurement according to the International System of Units (SI).

Result of Calibration

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor k = 2, providing a level confidence approximately 95 percent.

This certificate may not be reproduced other than in full except with the prior written approval of the Miracle International Technology Company Limited.

Appr [redacted]

CERTIFIED MIT

[redacted]

Envilab Co.,Ltd. ผู้จัดการฝ่ายควบคุมคุณภาพ

Certificate No. : S2025040468-0002

Environment : Ambient Temperature : Start record 25.4 °C, Stop record 25.7 °C

Relative Humidity : Start record 50.5 %RH, Stop record 50.4 %RH

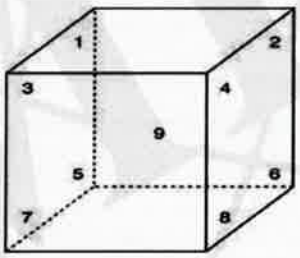
Calibration Temperature (°C)	Setting Temperature (°C)	Indicating Temperature (°C)	Measured Stability[1] (°C)	Measured Uniformity[2] (°C)	Overall Variation[3] (°C)
4	4	4	1.29	0.55	2.68

Without adjustment

Calibration Temperature (°C)	STD No. 1 (°C)	STD No. 2 (°C)	STD No. 3 (°C)	STD No. 4 (°C)	STD No. 5 (°C)	STD No. 6 (°C)	STD No. 7 (°C)	STD No. 8 (°C)	STD No. 9 (°C)	Uncertainty[4] (±°C)
4	4.29	4.11	4.12	4.05	4.32	4.38	4.05	4.07	4.00	1.6

Note : Probe No. 9 is Reference Probe

Setting Air Fresh No. -



Condition As-Received : Used Item

The measurment results and statements of conformity with specification only relate to the item calibrated.

Measurement Standards Used & Traceability :

The International System of Units (SI) through

MIT Certificate No. L202412300-0027 for Temperature Indicator with Sensor Serial No. US37020317, Due 09-Sep-25

Notes : 1. The temperature stability is the one-half of greatest maximum difference of measured temperatures at any one probe.

2. The temperature uniformity is the maximum difference of measured temperatures between of any probes and the measured temperature at the reference location which are observed at same time.

3. Overall variation is the difference of maximum and minimum measured temperatures throughout observation time.

4. The uncertainty of measurement is included temperature stability.

5. The temperature uniformity, stability, overall variation and indicating temperature is applicable to all air or gas filled temperature controlled enclosures at atmospheric pressure.

End of Certificate

Envilab Co [redacted]

Agilent CrossLab
From Insight to Outcome

Introduction

Customer Information

- Customers should provide all necessary operating supplies upon request of the engineer.
- A customer representative should be available to the engineer while performing the preventive maintenance procedures. Customers are responsible for regular maintenance and are encouraged to observe the service representative.
- Any parts not included in the Parts Lists section of this document are not part of the recommended Preventive Maintenance service nor are they included in the price of this service.
- If a system requires the use of extra or special procedures and/or parts for the maintenance service, then these must be ordered separately and charged as a repair, which may incur additional costs.
- For customers using HF applications, the instrument should be returned to its standard sample introduction system.

Envilab C

[redacted]

Agilent

Agilent CrossLab
From Insight to Outcome

Agilent CrossLab Start Up Services

SS

Agilent 5100 5110 ICP-OES Preventive Maintenance

[redacted]

Agilent Preventive Maintenance provides factory recommended service for your analytical instruments to assure reliable operation and the accuracy of your results

Delivered by highly trained and certified service engineers using genuine Agilent parts and supplies, Agilent Preventive Maintenance provides what you need to reduce unplanned downtime and keep your systems operating at their peak performance.

This checklist is used as a guide for completing the preventive maintenance tasks. A signed copy of this checklist is provided for your records.

Agilent

Service Engineer's Responsibilities

- Contact the customer and ensure that all necessary supplies are available before the preventive maintenance visit.
- Only select those pages that relate to the system or module being serviced.
- Complete empty fields with the relevant information.
- Complete the relevant checkboxes in the checklist using either a **"X"** or tick mark **"✓"**.
- Check **"Service not applicable"** check boxes to indicate services/tasks not delivered, as appropriate.
- Complete the Preventive Maintenance services in the most logical order relevant to the individual system service in the order of the tasks listed.
- Complete the **Service Review** section together with the customer.
- Complete the fields for page numbers at the foot of each selected page
- Add relevant page numbers to selected pages and complete the total number of pages field in the Service Completion section
- **Ask the customer to sign the Service Verification section including the customer's and your signature.**

Envlab

Important Customer Web Links

- To access **Agilent University**, visit http://www.agilent.com/crosslab/university/ to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit https://www.agilent.com/en-us/agilentresources. The following information topics are available:
  - Sample Prep and Containment
  - Chemical Standards
  - Analysis
  - Service and Support
  - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit https://community.agilent.com/welcome
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at https://www.youtube.com/user/agilent
- **Need to place a service call?** Flexible Repair Options | Agilent

Preparation

- ☑ Discuss any specific issues with the customer before starting.
- ☑ Review the instrument logbook for recorded problems and comments.
- ☑ Save instrument control settings before starting the procedure.
- ☑ Perform a general inspection of the system for cleanliness.
- ☑ Check for proper installation of parts, assemblies, sensors etc.
- ☑ Check system for required installation of components and implementation of Service Notes
- ☑ Check for required firmware/software updates and verify with customers if they would like them installed.
- ☐ For HF application systems, if standard sample introduction system was not installed, ask the customer to install it.
- ☑ Ask the customer to remove any samples from the ICP-OES sample introduction area, auto sampler or around the ICP-OES.



© Agilent Technologies, Inc. 2022

Instrument Maintenance

System Information

☐ Check this box if an instrument configuration report is attached instead of completing the table.

Instrument System Name and ID	**G8015A / MY17490002**
Instrument System Site and Location	**Envilab Company Limited**

	List System Component Product Numbers	List the Serial Numbers of each Component
1	G8410A	AU17393768
2	G8015A	MY17490002
3	G8481	1709-05327
4		
5		
6		
7		
8		
9		

ICP-OES Configuration Table	Circle the type or write in the type if other
Nebulizer Type	SeaSpray | OneNeb | Conikal | Other
Spray Chamber	Cyclonic Single Pass | Cyclonic Double Pass | Other
Torch	Radial | Dual View | Other
Torch Type	One Piece | Semi Demountable | Fully Demountable | Other
Injector Diameter	2.4mm | 1.8mm | 4mm | 0.8mm | Other
Injector Material	Quartz | Ceramic | Other

© Agilent Technologies, Inc. 2022

Agilent CrossLab
From Insight to Outcome

SPS 3 Auto Sampler

Type text here

- ☑ **Service not applicable**
- ☐ Power cycle the autosampler and verify successful initialization.
- ☐ Inspect X and Z axis belts for wear. Replace is necessary.
- ☐ Clean X and Z axis slide shafts.
- ☐ Using customer's racks and the Agilent software move the sample probe to the 4 outermost corners and rinse port, ensure that the probe is approximately centered in the vial.

SPS 4 Auto sampler

- ☐ **Service not applicable**
- ☑ Clean the spill tray, rack location mat, end frames and chassis with a damp soft cloth and diluted mild detergent.
- ☑ Clean the auto sampler cover panels, if cover kit is installed, with domestic window cleaner.
- ☑ Check the X-axis and Z-axis drive belts for cracks, splits, damaged teeth, excessive fraying, color changes or degradation from fumes.
- ☑ Check the X-axis, Theta-axis and Z-axis FFC cables for cracks, incorrect positioning, damaged edges or damaged connectors.
- ☑ Pump Tubing Replacement. Replace peristaltic pump tubing. Replace all tubing that goes from the rinse station to the pump and from the pump to the waste/rinse bottles
- ☑ Test using customer's tray and move the sample probe to the sample vial 1, wash vial and rinse port and ensure that the probe is centered in the vial. If not use calibration wizard and calibrate the position.

AVS 4, 6, 7 Advanced Valve System

- ☑ **Service not applicable**
- ☐ Replace valve rotor seal
- ☐ Check fittings for signs of leaks
- ☐ Check tubing including autosampler tubing for kinks or excessive wear
- ☐ Check high flow pump for signs of leaks

Envilab Co.,Ltd.
[redacted]

Agilent

Agilent CrossLab
From Insight to Outcome

Preventive Maintenance Procedures

Record Pre-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table – Pre-PM.

Clean and inspect ICP-OES system

- ☑ Look for any obvious external damage or problems.
- ☑ Inspect water cooling hoses, gas lines and power cord for excessive wear or damage.
- ☑ Perform a general internal inspection of the system for excessive dust accumulation, clean if necessary.
- ☑ Inspect sample introduction components and record any required maintenance in the Service Engineer Comments and notify the customer as the required actions required.
- ☑ Record the instrument operating conditions in the ICP-OES Status Results Table.
- ☑ Replace the polychromator purge filter.
- ☑ Replace the radial pre-optics window
- ☑ Replace the axial pre-optics window for SVDV and VDV instruments.
- ☑ Check exhaust flow for the correct positive extraction at the exhaust duct to insure they meet minimum specifications.
- ☑ Replace air inlet dust filter.
- ☑ Replace high capacity air inlet dust filter element if installed.
- ☑ Remove and clean instrument water inlet filter.

Agilent Water Recirculator

- ☐ **Service not applicable**
- ☑ Drain cooling fluid and remove any particles from the chiller reservoir
- ☑ Remove, clean and reinstall water inlet metal mesh filter if present.
- ☑ Re fill with Agilent Cool Clear cooling fluid.
- ☑ Clean the cooling system Air filter and the condenser.

Agilent

ADS 2 Advanced Dilution System (5110 only)

- ☑ SERVICE NOT APPLICABLE
- ☐ LOOK FOR ANY OBVIOUS EXTERNAL DAMAGE OR PROBLEMS.
- ☐ REPLACE VALVE ROTOR SEAL ON VALVES A AND B.
- ☐ REPLACE BOTH SYRINGES.
- ☐ REPLACE ACID VAPOR FILTER (WASTE VESSEL)
- ☐ REPLACE VENTING VALVE (DILUENT CARRIER BOTTLE)
- ☐ CHECK FITTINGS FOR SIGNS OF LEAKS.
- ☐ CHECK TUBING INCLUDING AUTOSAMPLER TUBING FOR KINKS OR EXCESSIVE WEAR.

ICP-OES adjustment

- ☑ Check position of Zn peak, adjust if required.
- ☑ Check Argon Ratio, adjust to specified value if required.
- ☑ Perform Detector Calibration.
- ☑ Perform Instrument Calibration.

Record Post-PM instrument performance

- ☑ Run Instrument Performance test.
- ☑ Record results in Instrument Performance Test Results Table - Post PM.
- ☑ For systems using ICP Expert version 7.3 and above, run the following Instrument tests
  - ☑ Subsystem Communications Test
  - ☑ Air Flow
  - ☑ Water Flow
  - ☑ Gas Flows
  - ☑ RF Generator
  - ☑ Camera Test
  - ☑ Optics Test
  - ☑ Nebulizer Test
- ☑ Record the result in the Instrument Test Results Table

Restore Instrument

- ☐ For HF applications, ask the customer to reinstall their sample introduction system.
- ☐ Leave system in an idle state: on and purging.
- ☐ Guidance: If the PM service is performed prior to a qualification service, then use the qualification procedure as a guide for final instrument set up and checkout.

Service Review

- ☑ Attach available reports/printouts of all tests to this documentation.
- ☑ Record the Preventive Maintenance service activity in the customer's records/logbook.
- ☑ Record the PM event in the Smart Alerts logbook, if applicable.
- ☑ Update/reset instrument maintenance counters as appropriate.
- ☑ Affix the PM sticker to the system or instrument logbook based on the customer's request.
- ☑ Complete the Service Engineer Comments section if there are additional comments.
- ☑ Review this service, parts replaced, and test results obtained with the customer.
- ☐ If the instrument firmware was updated, record the details of the change in the Service Engineer's Comments box. Systems in a compliant environment may need additional documentation.
- ☑ **Complete the Signature Page with both Service Engineer and Customer signatures.**

Envilab Co.,Ltd.

Agilent CrossLab
From Insight to Outcome

ICP-OES Status Results Table

Note: These measurements do not form part of any specification and are for reference only.

Measurement	Standby Mode		Plasma On	
Mains Voltage	220.640	VAC	219.053	VAC
Mains Current	0.080	A	0.099	A
Instrument Temperature	23.2	°C	22.3	°C
RF Air Flow (sensor speed)	7.0	Hz	20.0	Hz
Plasma Exhaust Temperature	No measurement		46.5	°C
Water Flow Oscillator	No measurement		1.51	L/min
Water Flow Detector	1.20	L/min	1.17	L/min
Water Inlet Temperature	18.3	°C	18.3	°C
Polychromator Temperature	35.3	°C	35.0	°C
CCD Temperature	-39.7	°C	-39.8	°C
Thermal Stabilizer	35.0	°C	35.0	°C
Argon Supply Pressure	611.44	kPa	564.69	kPa
Purge Gas Supply Pressure*1	610.40	kPa	594.52	kPa
Option Gas Supply Pressure*1	-	kPa	-	kPa
Nebulizer Flow	No measurement		0.70	L/min
Nebulizer Back Pressure	No measurement		280.74	kPa
Plasma Gas Flow	No measurement		12.03	L/min
Auxiliary Gas Flow	No measurement		1.00	L/min
RF Power	No measurement		1203.4	W
RF Supply Current	No measurement		8.244	A
RF Supply Voltage	No measurement		194.614	V

*1 If option installed

© Agilent Technologies, Inc. 2022

Agilent

Agilent CrossLab
From Insight to Outcome

Test Results

Instrument Performance Test Results Table

Note: These measurements do not form part of any specification and are for reference only.

	Pre PM Sensitivity Check		Post PM Sensitivity Check	
	Radial	Axial *	Radial	Axial*
Zn 213.857 nm SRBR	2745.8	3632.4	14128.0	23024.3
Mn 257.610 nm SRBR	12504.7	26596.0	86470.0	215311.9
Al 396.152 nm SBR	5.0	14.9	564.1	2335.7
K 766.491 nm SBR	4.4	71.4	639.6	11029.3

* Axial result is not applicable for G8016AA, G8012AA Radial View instruments.

Instrument Test Results Table

Note: The Instrument Test results are for systems using ICP Expert version 7.3 and above only.

Instrument Test	Result
Subsystem Communications Test	Pass
Air Flow	Pass
Water Flow	Pass
Gas Flows	Pass
RF Generator	Pass
Camera Test	Pass
Optics Test	Pass
Nebulizer test	Pass

© Agilent Technologies, Inc. 2022

Agilent

Envilab Co.,Ltd.

Part Description	Part Number	Product or Model# where used	Quantity consumed

Signature Page

Service Engineer Comments (optional)

If there are any specific points you wish to note as part of performing the installation or other items of interest for the customer, please write in this box.

-Torch is broken. Should be replaced and should be spaerd.

Service Verification

Service Request Number:
6007747651

Date Service Completed:
June 26, 2025

Service Engineer Name:
Suwan Onkhom

Customer Name:

© Agilent Technologies, Inc. 2022

Envilab Co.,Ltd.

Consumed PM Parts

Part Description	Part Number	Product or Model# where used	Quantity consumed
Axial Pre-Optic Window	G8010-68014	G8010A, G8011A, G8014A/G8015A	1
Radial Pre-Optic Window	G8010-68015	All	1
Agilent Cool Clear Coolant Fluid	5799-0037	Agilent Water Recirculator	N/A
Purge Gas Filter	G8010-60136	All	1
Air inlet filter	G8000-68002	All	1
High Capacity Air Filter	G8010-60189	Optional	N/A
Rotor seal for 6-7 port valve for AVS6/7	G8494-60002	G8494A/G8495, ADS 2	N/A
Rotor seal for 4 port valve for AVS4	G8493-60002	G8493A	N/A
Rinse solution to rinse station 2.5mm id x 1m	G8410-80123	SPS 4	N/A
Barb connector 2.5mm-1.5mm ID	G8410-80124	SPS 4	N/A
PVC waste tubing,8mm od x 5mm id, 2m	G8410-80122	SPS 4	N/A
Syringe, 5mL	5299-0037	ADS 2	N/A
Syringe, 10mL	5299-0038	ADS 2	N/A
Acid vapor filter	5043-1193	ADS 2	N/A
Venting valve	5043-1190	ADS 2	N/A
Additional Parts may be required from engineer's stock:			
X axis drive belt	5410047500	SPS 3	N/A
Z axis drive belt	5410047400	SPS 3	N/A
Peristaltic pump tubing, PVC SolvaFlex, 3 bridged,	3710049000	SPS 4	N/A

Consumed Parts Reference (Purchased by customer, not included as part of PM)

☐ **Section Not Applicable.**

Part Description	Part Number	Product or Model# where used	Quantity consumed

© Agilent Technologies, Inc. 2022

Agilent CrossLab
From Insight to Outcome

Service Engineer Signature:
Suwan O.

Customer Signature:

Total number of pages in this document:
15 pages



© Agilent Technologies, Inc. 2022

Agilent

PinAAcle 900F Preventive Maintenance (PM)			
Company Name:	ENVI LAB Co.,Ltd		
Address (Instrument Location):	540 soi Bangkhae7, Bangkae,Bangkok 10160		
Serial Number:	PFBS20011403	PM Number:	2/2
Customer Name (if applicable):	K.Janjira	Telephone Number:	095-5500510
Customer Support Engineer Name:	Prasit	Service Order Number:	WO-03026378
Date PM Performed: (DD-MMM-YYYY)	4 APR 2025	Next PM Due Date: (DD-MMM-YYYY)	4 OCT 2025
Standard Labor Hours to Complete PM :		5 hours	

Part Number	Release	Publication Date
09370145 Rev.9	A	January 2018

Scope

The purpose of this PM is to ensure the continued functionality of the PinAAcle 900F by inspecting and replacing any worn or damaged parts. This service should only be performed by a trained representative of PerkinElmer.

The customer should save their method before the PM begins.

General Instructions:

The customer must provide the engineer operational data to demonstrate recent instrument performance prior to starting the PM.

Always check with the customer before making any changes that may affect the customer's analysis or calibration, including a current back-up of system software and/or data files.

The completed document should be signed by an authorized PerkinElmer and customer representative and left with the customer.

Update the PM sticker and instrument logbook as required.

Copyright Information

This document contains proprietary information that is protected by copyright. All rights are reserved.

No part of this publication may be reproduced in any form whatsoever or translated into any language without the prior, written permission of PerkinElmer, Inc.

Copyright © 2013 PerkinElmer, Inc.

Trademarks

Registered names, trademarks, etc. used in this document, even when not specifically marked as such, are protected by law. PerkinElmer is a registered trademark of PerkinElmer, Inc. All other trademarks and registered trademarks not owned by PerkinElmer, Inc. or its subsidiaries that are depicted herein are the property of their respective owners.

Except as specifically set forth in its terms and conditions of sale, PerkinElmer makes no Warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

PerkinElmer shall not be liable for incidental or consequential damages in connection with the furnishing or use of this document.

Envilab Co.,Ltd

PerkinElmer
For the Better

PinAAcle 900F Preventive Maintenance Report

Company Name: ENVI LAB Co.,Ltd

Instrument Location: AAS ROOM

540 soi Bangkhae7, Bangkae,Bangkok 10160

Instrument Serial No.: PFBS20011403

Date: 4 APR 2025

Component List

Component / Specific Model	Serial #	Configuration Notes
PinAAcle 900F	PFBS20011403	Syngistix Ver 5 1.0.2066

Parts Lists

Parts Included with the PM		
Part Number (if applicable)	Description	Quantity
B0501696	Fan Filters	N/A
N3160156	O-Ring Kits for Sampling Introduction (Stainless Steels Nebulizer)	N/A
N3160157	O-Ring Kits for Sampling Introduction (Plastic Nebulizer)	N/A
N9301714	Replacement Acetylene Filter Cartridge	N/A
TH001022	Replacement Air Filter Cartridge	N/A

Additional Reagents and Standards Required for PM				
Part Number (if applicable)	Description	Quality	Batch/Lot #	Expired Date (MM/YY)
N9300183	1000 mg/L Copper Standard	AR	26-87CUY1	APR-2025

Additional Reagents and Standards Required for PM (Customer Support Solution)				
Part Number (if applicable)	Description	Quantity	Batch/Lot #	Expiration Date (MM/YY)
N/A	DI Water	250 ml.	AR	AR
N/A	0.5% HNO_3	250 ml.	AR	AR

Additional Tools Required for PM			
Part Number (if applicable)	Description	Quantity	Serial #
N1013000	0.2A Neutral density filter	1	MG0-135
N1013002	1.0A Neutral density filter	1	MG2-258
03030997	System 2 EDL Driver	1	030309-97E
N3050605	As System 2 EDL	1	17986
N3050121	Cu Lumina HCL	1	000003793D12
N3050109	Ba Lumina HCL	1	041123-010120
N3050139	K Lumina HCL	1	0000037B8E1D
N3050152	Ni Lumina HCL	1	

Envilab Co.,Ltd. [redacted]

7. Flame Interlock Check:

Description: Check to ensure that all safety interlocks are closed.

Parameter	Specification	Test Results	Pass/Fail
Flame Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Drain Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Nebulizer Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
C_2H_2 Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Air Pressure Sensor	Air/C_2H_2 Flame correctly shuts down	Active	Passed
Burner Head Sensor	Choosing Nitrous Oxide as the oxidant should trigger an interlock shuts down	Active	Passed

8. After PM Performance tests:

8.1 Detector Linearity with Barium

Description: Ensures that the detector is linear in the Visible Range.

Parameter	Specification	Certificate Value at 553.6 nm (Abs.)	Test Results	Pass/Fail
1.0 A ND Filter	± 5% from Cert.	0.9995	1.0277	Passed
0.2 A ND Filter	± 5% from Cert.	0.1936	0.2024	Passed

8.2 Baseline Noise at 1.0 Absorbance with Barium

Description: Ensures that a high absorbance will not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0015	Passed

8.3 AA Baseline Noise with Copper

Description: Check baseline noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.001	0.0003	Passed

Envilab Co.,

Procedure Checklist

Use (✓) to check off those steps in the checklist that have been completed.

1. General:

- ☑ Review the instrument performance with the customer and document any recent problems.
- ☑ Inspect the customer log book and make any appropriate PM entries.
- ☑ Perform general inspection of system for cleanliness.

2. PC Instrument Software:

- ☑ Instrument Software user files/databases archived, packed, and/or deleted as needed.

3. Mechanical:

- ☑ Inspect and clean all fans and filters. Replace filters if necessary
- ☑ Inspect all gas lines for leaks and/or wear. Replace if needed.
- ☑ Clean exterior of the instrument.
- ☑ Inspect the burner head, burner chamber, and nebulizer. Clean if needed as stated in the Hardware Guide.
- ☑ Check burner head dimensions with the feeler gauge as stated in the Hardware Guide in the Maintenance chapter section on cleaning the burner head and checking sloth width. Replace if out of specification
- ☑ Check the condition of the end cap, burner head, and nebulizer O-rings. Replace if necessary.
- ☑ Check the drain system for signs of wear. Replace worn or damaged parts.
- ☑ Visually check for proper flame conditions when igniting the Air-C2H2 and N20-C2H2 flames (if applicable).

4. Electrical:

- ☑ Inspect PC boards. Clean if necessary.
- ☑ Carefully check all internal and external cable connections.
- ☑ Check instrument firmware revisions upgrade to current levels (if necessary)
- ☑ Run Diagnostics Test within the Advanced function of the Spectrometer page. Check the results in the service log folder in the Spectrometer BM Log Viewer.

5. Optics:

- ☑ Inspect and clean the sample compartment windows, if needed.
- ☑ Inspect optics. Clean or replace if necessary,

6. Gasses:

- ☑ Verify that the Gasses supplied to the instrument are within the pressure and purity specifications found in the PinAAcle 900 Series Pre-installation Checklist SDB.
- ☑ Verify that the acetylene filter and air filter element is dry. Replace if necessary.

8.4 D_2 Background Compensation with Copper

Description: Verifies the instruments ability to compensate for Background absorption.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.010	0.0013	Passed

8.5 AA-BG Baseline Noise with Copper

Description: Ensures that background correction does not produce excessive noise.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0004	Passed

8.6 AA-BG Baseline Noise with Arsenic

Description: Ensures that background correction does not produce excessive noise at a low wavelength.

Parameter	Specification	Results	Pass/Fail
Standard Deviation	≤ 0.005	0.0001	Passed

8.7 Flame Sensitivity

Description: Instrument Sensitivity checked against Copper standard.

Standard Copper Sensitivity	Specification	Results (Abs.)	Pass/Fail
5 mg/L Sensitivity SS Neb (if applicable)	> 0.250 Abs.	N/A	Passed
2 mg/L Sensitivity HS Neb (if applicable)	> 0.250 Abs.	0.2987	Passed

10. Review:

- ☑ Review with the customer PM work performed.
- ☑ Review with the customer routine maintenance procedures.
- ☑ Discuss recommended customer supplied materials to have on hand.
- ☑ Attach PM sticker.

Additional Comments

Additional Comments Regarding the PM

Review

The preventive maintenance checks and if applicable performance tests for PinAAcle 900F have been completed.

This PinAAcle 900F Passes ☑ ***Fails*** ☐ ***the preventive maintenance.***

Review of Preventive Maintenance:	
Authorized PerkinElmer Representative: Rasit	Date: 4 APR 2025 (DD-MMM-YYYY)
Authorized Customer Representative:	Date: 4 APR 2025 (DD-MMM-YYYY)

[redacted]