

ภาคผนวกที่ 4

เอกสารสอบเทียบอุปกรณ์เครื่องมือห้องปฏิบัติการ



PREMIER SYSTEM ENGINEERING CO., LTD.

123 Moo 8 Kanjanavanit Rd., Banpru, Hatyai, Songkhla 90250

E-mail : pse-cal@sriranggroup.com ,Fax. : (074)222912 Tel. : 084-2148162, 084-2148165, 074-222900-9

## CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1279

CSR No. : 260511

Page : 1 of 3

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : COD Reactor

Manufacturer : Lovibond

Model : RD125

Serial No. : 0423/00542

ID. No. : -

Resolution : 1 °C

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature : (30 ± 15) °C

Relative Humidity : (60 ± 20) %

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVED

Calibrated By : Mr. Athiwat Supacheewa  
(Temperature Supervisor)

( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

This certificate may not be reproduced other than in full except with the prior written approval of PREMIER SYSTEM ENGINEERING CO., LTD.  
The uncertainties are for a confidence probability of approximately 95 % .



PSE.CA.AP.11.015-161124 R.04



CERTIFICATE No. : T26-1279

CSR No. : 260511

Page : 2 of 3

Equipment : COD Reactor  
Manufacturer : Lovibond  
Model : RD125  
Serial No. : 0423/00542  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**REFERENCE STANDARD INSTRUMENT :**

| Instrument Type                 | Model   | Serial No.  | Cert. No.   | Due Date   | Traceability |
|---------------------------------|---------|-------------|-------------|------------|--------------|
| Digital Thermometer with Sensor | 34970 A | MY 44042662 | DAT003/0825 | 31-07-2026 | PSE          |

**CALIBRATION METHOD :**

This instrument was calibrated under procedure No. PSE.CA.WI.11.160 based on ASTM E145 : 94 (re-approved 2021) as calibration guidelines.

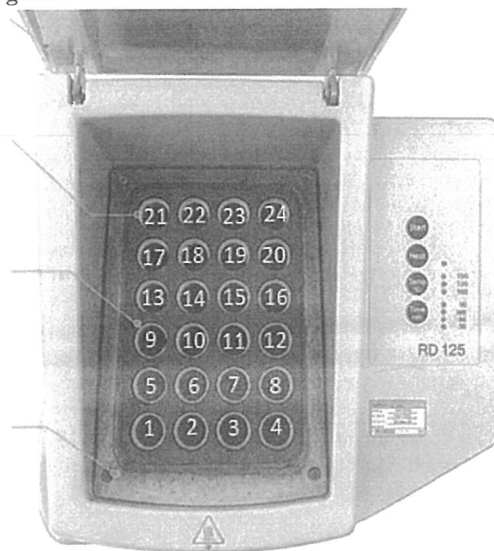
**TRACEABILITY :**

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit (SI) through :

PSE : Premier System Engineering Co., Ltd. ,(NSC-TISI-TIS 17025 CALIBRATION 0024)

**CALIBRATION RESULTS :**

**Sensor Installation Diagram**



The uncertainties are for a confidence probability of approximately 95 % .  
The above results are valid exclusively for calibration sample as mentioned in the report.  
This result of calibration was found accurate as shown on date and place of calibration only.



CERTIFICATE NO. : T26-1279

CSR No. : 260511

Page : 3 of 3

Equipment : COD Reactor  
Manufacture : Lovibond  
Model : RD125  
Serial No. : 0423/00542  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**CALIBRATION RESULTS : ( Cont.)**

( / ) Without Adjustment

( ) After Adjustment

**Temperature Measurement Accuracy Test**

The measurement results of the COD Reactor and associates are reported in the manner as shown below

| Cal Point<br>(°C) | Measured Standard Temperature (°C) at Spread Locations |         |         |         |         |         |         |         |         | Uncertainty<br>( ± °C ) |
|-------------------|--------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------------|
|                   | #1                                                     | #2      | #3      | #4      | #5      | #6      | #7      | #8      | #9      |                         |
| 150               | 150.753                                                | 150.439 | 149.034 | 151.036 | 151.064 | 151.362 | 151.430 | 151.046 | 148.679 | 0.21                    |
|                   | #10                                                    | #11     | #12     | #13     | #14     | #15     | #16     | #17     | #18     |                         |
|                   | 150.421                                                | 150.212 | 151.745 | 151.545 | 151.445 | 150.057 | 150.774 | 150.723 | 151.535 |                         |
|                   | #19                                                    | #20     | #21     | #22     | #23     | #24     |         |         |         |                         |
|                   | 151.542                                                | 150.907 | 151.560 | 151.077 | 150.774 | 150.723 |         |         |         |                         |

**COD Reactor Performance Result**

The performance of the COD Reactor are reported as shown below

| Cal Point | UUC<br>Setting | UUC<br>Reading | Block<br>Stability |
|-----------|----------------|----------------|--------------------|
| (°C)      | (°C)           | (°C)           | ( ± °C )           |
| 150       | 150            | -              | 0.13               |

UUC : Unit Under Calibration

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report

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

-- End --



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## CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1280

CSR No. : 260511

Page : 1 of 4

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Incubator

Manufacturer : ACCUPLUS

Model : I250

Serial No. : 0408-0415-0034

ID. No. : -

Resolution : 0.1 °C

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature : (30 ± 15) °C

Relative Humidity : (60 ± 20) %

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVED

Calibrated By : Mr. Athiwat Supacheewa  
(Temperature Supervisor)

( / ) MR. PIYAPONG RATTANAKAN / Calibration Manager  
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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The uncertainties are for a confidence probability of approximately 95 % .





CERTIFICATE No. : T26-1280

CSR No. : 260511

Page : 2 of 4

Equipment : Incubator  
Manufacturer : ACCUPLUS  
Model : I250  
Serial No. : 0408-0415-0034  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

REFERENCE STANDARD INSTRUMENT :

| Instrument Type                 | Model   | Serial No.  | Cert. No.   | Due Date   | Traceability |
|---------------------------------|---------|-------------|-------------|------------|--------------|
| Digital Thermometer with Sensor | 34970 A | MY 44042662 | DAT003/0825 | 31-07-2026 | PSE          |

CALIBRATION METHOD :

This instrument was calibrated under procedure No. PSE.CA.WI.11.160 based on ASTM E145 : 94 (re-approved 2021) as calibration guidelines.

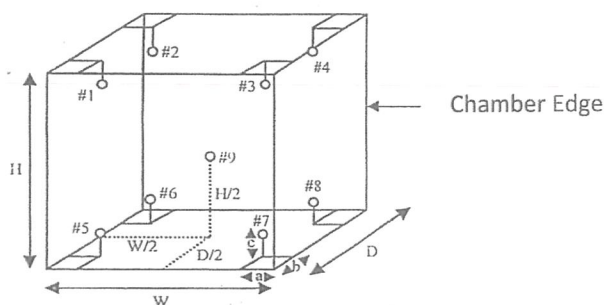
TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit ( SI ) through :

PSE : Premier System Engineering Co., Ltd. ,(NSC-TISI-TIS 17025 CALIBRATION 0024)

CALIBRATION RESULTS :

Sensor Installation Diagram



Dimension of the chamber :  $W \times H \times D = 39.5 \times 110 \times 50.5 \text{ cm}$

Sensor Installation :  $a \times b \times c = 5 \times 5 \times 5 \text{ cm}$

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report.

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

PSE.CA.AP.11.015-161124 R.04



CERTIFICATE NO. : T26-1280

CSR No. : 260511

Page : 3 of 4

Equipment : Incubator  
Manufacture : ACCUPLUS  
Model : I250  
Serial No. : 0408-0415-0034  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**CALIBRATION RESULTS : ( Cont.)**

( / ) Without Adjustment

( ) After Adjustment

**Temperature Measurement Accuracy Test**

The measurement results of the incubator and associates are reported in the manner as shown below

| Cal Point<br>(°C) | Measured Standard Temperature (°C) at Spread Locations |        |        |        |        |        |        |        |        | Uncertainty<br>( ± °C ) |
|-------------------|--------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|-------------------------|
|                   | #1                                                     | #2     | #3     | #4     | #5     | #6     | #7     | #8     | Ref. 9 |                         |
| 20                | 20.483                                                 | 20.515 | 20.478 | 20.423 | 20.561 | 20.450 | 20.444 | 20.423 | 20.475 | 0.42                    |

**Incubator Performance Result**

The performance of the incubator are reported as shown below

| Cal Point<br>(°C) | UUC<br>Setting<br>(°C) | UUC<br>Reading<br>(°C) | Chamber<br>Stability<br>( ± °C ) | Chamber<br>Uniformity<br>( ± °C ) | Overall<br>Variation<br>( ± °C ) |
|-------------------|------------------------|------------------------|----------------------------------|-----------------------------------|----------------------------------|
| 20                | 20.0                   | 20.0                   | 0.13                             |                                   |                                  |

UUC : Unit Under Calibration

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report.

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

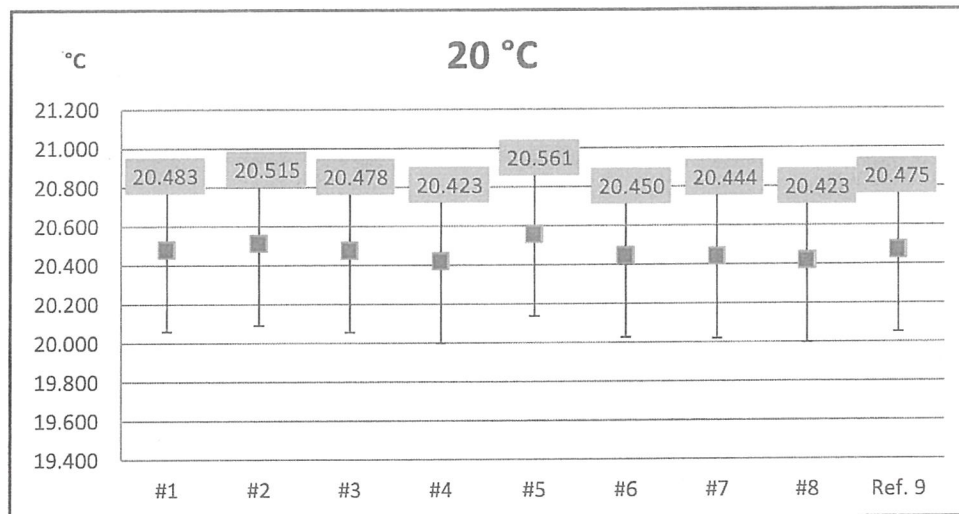


CERTIFICATE NO. : T26-1280

CSR No. : 260511

Page : 4 of 4

## Report Graph



The above results are valid exclusively for calibration sample as mentioned in the

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

-- End --



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NSC-TISI-TIS 17025  
CALIBRATION 0024

## CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1282

CSR No. : 260511

Page : 1 of 4

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Water Bath

Manufacturer : Memmert

Model : WNB22

Serial No. : L522.1030

ID. No. : -

Resolution : 0.1 °C

Instrument Condition : Good Condition

Location of Calibrator : Customer Laboratory

Ambient Temperature : (30 ± 10) °C

Relative Humidity : (50 ± 20) %

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVED

Calibrated By : Mr. Athiwat Supacheewa  
(Temperature Supervisor)

( / ) MR. PIYAPONG RATTANAKAN / Calibration Manager  
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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CERTIFICATE No. : T26-1282

CSR No. : 260511

Page : 2 of 4

Equipment : Water Bath  
Manufacturer : Memmert  
Model : WNB22  
Serial No. : L522.1030  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**REFERENCE STANDARD INSTRUMENT :**

| Instrument Type                 | Model   | Serial No.  | Cert. No.    | Due Date   | Traceability |
|---------------------------------|---------|-------------|--------------|------------|--------------|
| Digital Thermometer with Sensor | 34970 A | MY 44042662 | DAT003W/0825 | 31-07-2026 | PSE          |

**CALIBRATION METHOD :**

This instrument was calibrated under procedure No. PSE.CA.WI.11.161 based on ASTM E715 : 80 (re-approved 2022) as calibration guidelines.

**TRACEABILITY :**

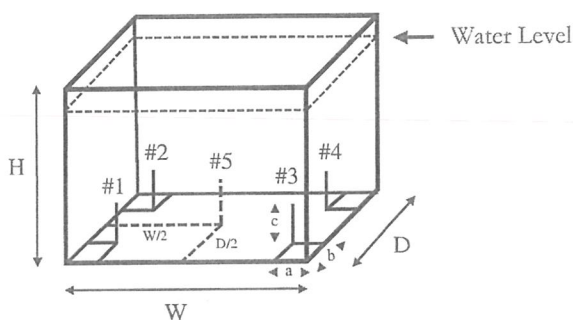
This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit (SI) through :

PSE : Premier System Engineering Co., Ltd. ,(NSC-TISI-TIS 17025 CALIBRATION 0024)

**CALIBRATION RESULTS :**

( / ) Without Adjustment ( ) After Adjustment

Sensor Installation Diagram



Dimension of the chamber :  $W \times H \times D = 35 \times 22 \times 29$  cm  
Sensor Installation :  $a \times b \times c = 5 \times 5 \times 5$  cm

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report.

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



CERTIFICATE NO. : T26-1282

CSR No. : 260511

Page : 3 of 4

Equipment : Water Bath  
Manufacture : Memmert  
Model : WNB22  
Serial No. : L522.1030  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Received : 7-May-2026

**CALIBRATION RESULTS : ( Cont.)**

( / ) Without Adjustment

( ) After Adjustment

**Temperature Measurement Accuracy Test**

The measurement results of the water bath and associates are reported in the manner as shown below

| Cal Point<br>(°C) | Measured Standard Temperature (°C) at Spread Locations |        |        |        |        | Uncertainty<br>(± °C) |
|-------------------|--------------------------------------------------------|--------|--------|--------|--------|-----------------------|
|                   | #1                                                     | #2     | #3     | #4     | #5     |                       |
| 85                | 84.525                                                 | 84.466 | 84.587 | 84.498 | 84.500 | 0.18                  |
| 95                | 94.607                                                 | 94.569 | 94.750 | 94.625 | 94.576 | 0.19                  |

**Water Bath Performance Result**

The performance of the water bath are reported as shown below

| Cal Point<br>(°C) | UUC<br>Setting<br>(°C) | UUC<br>Reading<br>(°C) | Water Bath<br>Stability<br>(± °C) | Water Bath<br>Uniformity<br>(± °C) | Overall<br>Variation<br>(± °C) |
|-------------------|------------------------|------------------------|-----------------------------------|------------------------------------|--------------------------------|
| 85                | 85.0                   | 85.0                   | 0.053                             | 0.11                               | 0.20                           |
| 95                | 95.0                   | 95.0                   | 0.067                             | 0.21                               | 0.21                           |

UUC : Unit Under Calibration

The uncertainty is not combine uniformity of the water bath

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the r

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

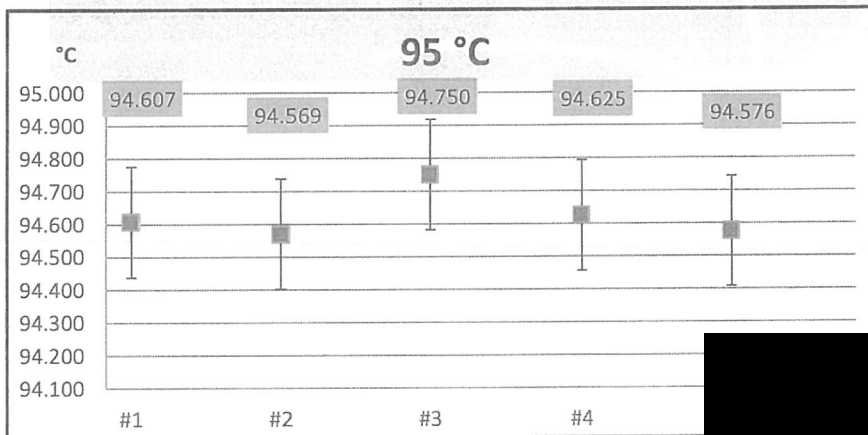
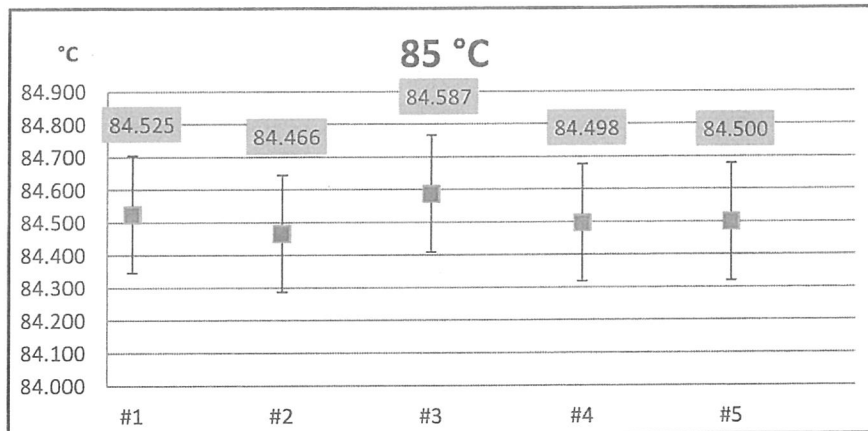


CERTIFICATE NO. : T26-1282

CSR No. : 260511

Page : 4 of 4

### Report Graph



The above results are valid exclusively for calibration sample as mentioned in the

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

-- End --



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## CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1283

CSR No. : 260511

Page : 1 of 4

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Refrigerator

Manufacturer : SANDEN INTERCOOL

Model : SEA-0405

Serial No. : SEA0405-191200194

ID. No. : -

Resolution : -

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature :  $(30 \pm 15) ^\circ\text{C}$

Relative Humidity :  $(60 \pm 20) \%$

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVE

Calibrated By : Mr. Athiwat Supacheewa  
(Temperature Supervisor)

( / ) MR. PIYAPONG RATTANAKAN / Calibration Manager  
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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The uncertainties are for a confidence probability of approximately 95 % .



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CERTIFICATE No. : T26-1283

CSR No. : 260511

Page : 2 of 4

Equipment : Refrigerator  
Manufacturer : SANDEN INTERCOOL  
Model : SEA-0405  
Serial No. : SEA0405-191200194  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

REFERENCE STANDARD INSTRUMENT :

| Instrument Type                 | Model   | Serial No.  | Cert. No.   | Due Date   | Traceability |
|---------------------------------|---------|-------------|-------------|------------|--------------|
| Digital Thermometer with Sensor | 34970 A | MY 44042662 | DAT003/0825 | 31-07-2026 | PSE          |

CALIBRATION METHOD :

This instrument was calibrated under procedure No. PSE.CA.WI.11.160 based on ASTM E145 : 94 (re-approved 2021) as calibration guidelines.

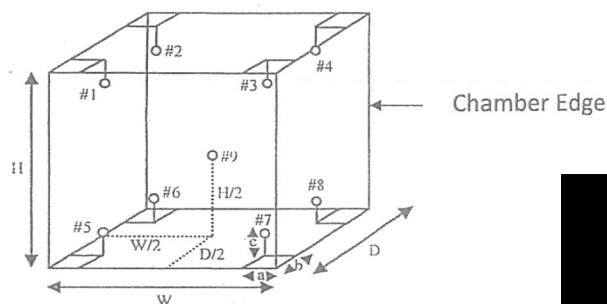
TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit ( SI ) through :

PSE : Premier System Engineering Co., Ltd. ,(NSC-TISI-TIS 17025 CALIBRATION 0024)

CALIBRATION RESULTS :

Sensor Installation Diagram



Dimension of the chamber :  $W \times H \times D = 110 \times 120 \times 48$  cm  
Sensor Installation :  $a \times b \times c = 5 \times 5 \times 5$  cm

The uncertainties are for a confidence probability of approximately 95 % .  
The above results are valid exclusively for calibration sample as mentioned in the report.  
This result of calibration was found accurate as shown on date and place of calibration only.



CERTIFICATE NO. : T26-1283

CSR No. : 260511

Page : 3 of 4

Equipment : Refrigerator  
Manufacture : SANDEN INTERCOOL  
Model : SEA-0405  
Serial No. : SEA0405-191200194  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**CALIBRATION RESULTS : ( Cont.)**

( / ) Without Adjustment

( ) After Adjustment

**Temperature Measurement Accuracy Test**

The measurement results of the refrigerator and associates are reported in the manner as shown below

| Cal Point<br>(°C) | Measured Standard Temperature (°C) at Spread Locations |       |       |       |       |       |       |       |        | Uncertainty<br>( ± °C ) |
|-------------------|--------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------------------------|
|                   | #1                                                     | #2    | #3    | #4    | #5    | #6    | #7    | #8    | Ref. 9 |                         |
| 4                 | 4.176                                                  | 3.905 | 3.866 | 3.869 | 3.801 | 3.804 | 4.106 | 3.937 | 3.852  | 1.8                     |

**Refrigerator Performance Result**

The performance of the refrigerator are reported as shown below

| Cal Point<br>(°C) | UUC<br>Setting<br>(°C) | UUC<br>Reading<br>(°C) | Chamber<br>Stability<br>( ± °C ) | Chamber<br>Uniformity<br>( ± °C ) | Overall<br>Variation<br>( ± °C ) |
|-------------------|------------------------|------------------------|----------------------------------|-----------------------------------|----------------------------------|
| 4                 | 4                      | -                      | 1.4                              | 2.1                               | 3.0                              |

UUC : Unit Under Calibration

The uncertainties are for a confidence probability of approximately 95 %

The above results are valid exclusively for calibration sample as mentioned in the report.

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

PSE.CA.AP.11.015-161124 R.04

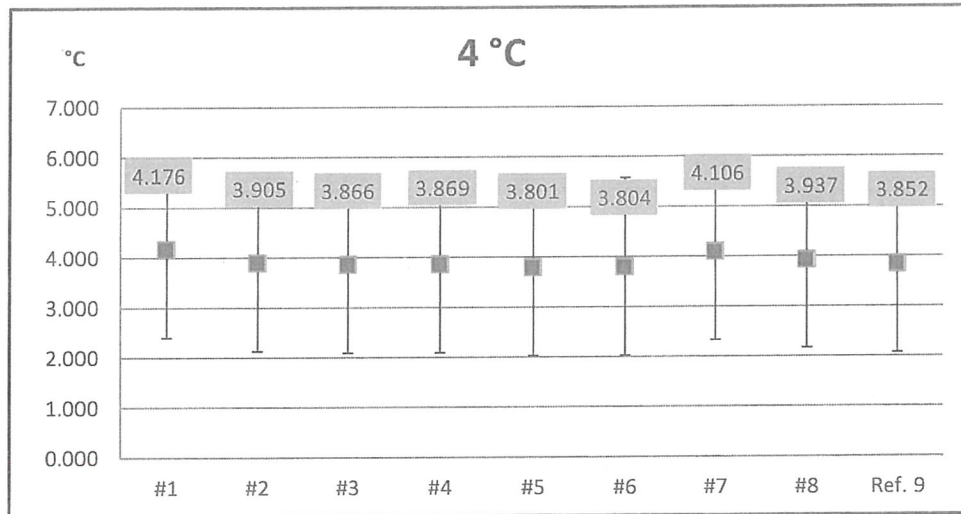


CERTIFICATE NO. : T26-1283

CSR No. : 260511

Page : 4 of 4

### Report Graph



The above results are valid exclusively for calibration sample as mentioned in the report.

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

-- End --



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NSC-TISI-TIS 17025  
CALIBRATION 0024

## CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1284

CSR No. : 260511

Page : 1 of 4

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Hot Air Oven

Manufacturer : Binder

Model : FD 56

Serial No. : 20220000017352

ID. No. : -

Resolution : 1 °C

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature : (30 ± 15) °C

Relative Humidity : (60 ± 20) %

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVED SIGNATURE

Calibrated By : Mr. Athiwat Supachewa  
(Temperature Supervisor)

( / ) MR. PIYAPONG RATTANAKAN / Calibration Manager  
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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The uncertainties are for a confidence probability of approximately 95 % .



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CERTIFICATE No. : T26-1284

CSR No. : 260511

Page : 2 of 4

Equipment : Hot Air Oven  
Manufacturer : Binder  
Model : FD 56  
Serial No. : 20220000017352  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

REFERENCE STANDARD INSTRUMENT :

| Instrument Type                 | Model   | Serial No.  | Cert. No.   | Due Date   | Traceability |
|---------------------------------|---------|-------------|-------------|------------|--------------|
| Digital Thermometer with Sensor | 34970 A | MY 44042662 | DAT003/0825 | 31-07-2026 | PSE          |

CALIBRATION METHOD :

This instrument was calibrated under procedure No. PSE.CA.WI.11.160 based on ASTM E145 : 94 (re-approved 2021) as calibration guidelines.

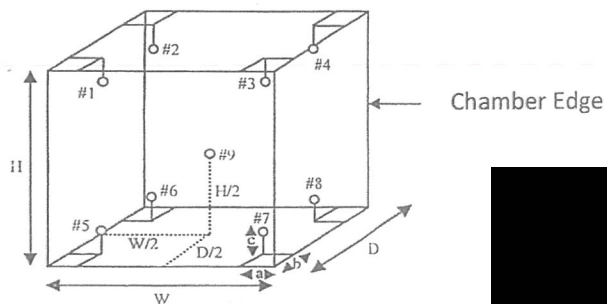
TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit (SI) through :

PSE : Premier System Engineering Co., Ltd. ,(NSC-TISI-TIS 17025 CALIBRATION 0024)

CALIBRATION RESULTS :

Sensor Installation Diagram



Dimension of the chamber :  $W \times H \times D = 40 \times 40 \times 30$   
Sensor Installation :  $a \times b \times c = 5 \times 5 \times 5$

The uncertainties are for a confidence probability of approximately 95 % .  
The above results are valid exclusively for calibration sample as mentioned in the report.  
This result of calibration was found accurate as shown on date and place of calibration only.



CERTIFICATE NO. : T26-1284

CSR No. : 260511

Page : 3 of 4

Equipment : Hot Air Oven  
Manufacture : Binder  
Model : FD 56  
Serial No. : 20220000017352  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**CALIBRATION RESULTS : ( Cont.)**

( / ) Without Adjustment

( ) After Adjustment

**Temperature Measurement Accuracy Test**

The measurement results of the hot air oven and associates are reported in the manner as shown below

| Cal Point<br>(°C) | Measured Standard Temperature (°C) at Spread Locations |         |         |         |         |         |         |         |         | Uncertainty<br>(± °C) |
|-------------------|--------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-----------------------|
|                   | #1                                                     | #2      | #3      | #4      | #5      | #6      | #7      | #8      | Ref. 9  |                       |
| 104               | 103.975                                                | 103.813 | 103.817 | 103.958 | 103.985 | 103.925 | 103.884 | 103.713 | 103.860 | 0.70                  |
| 180               | 180.245                                                | 179.920 | 178.698 | 179.002 | 179.631 | 178.922 | 177.836 | 178.646 | 179.878 | 1.2                   |

**Hot Air Oven Performance Result**

The performance of the hot air oven are reported as shown below

| Cal Point<br>(°C) | UUC<br>Setting<br>(°C) | UUC<br>Reading<br>(°C) | Chamber<br>Stability<br>(± °C) | Chamber<br>Uniformity<br>(± °C) | Overall<br>Variation<br>(± °C) |
|-------------------|------------------------|------------------------|--------------------------------|---------------------------------|--------------------------------|
| 104               | 104                    | 104                    | 0.082                          | 0.19                            | 0.37                           |
| 180               | 180                    | 180                    | 0.65                           | 2.4                             | 3.17                           |

UUC : Unit Under Calibration

The uncertainties are for a confidence probability of approximately

The above results are valid exclusively for calibration sample as m

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

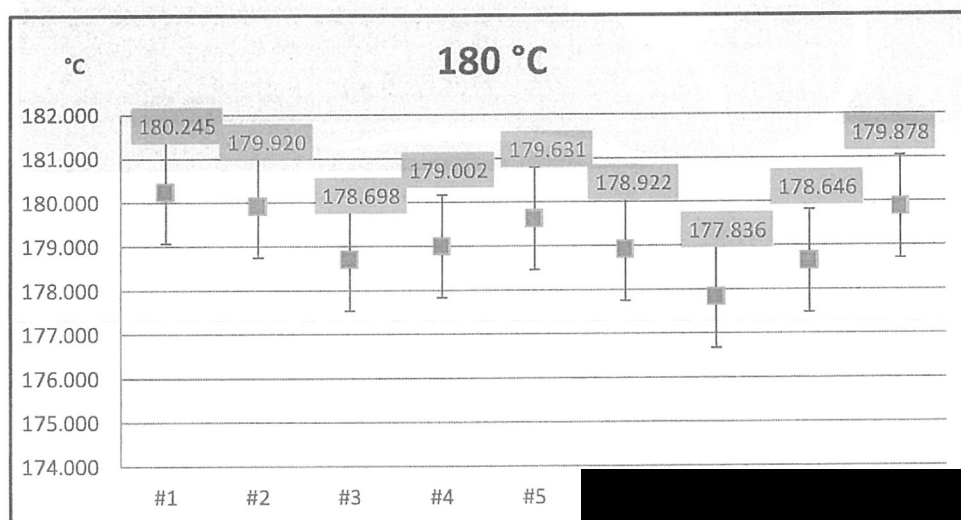
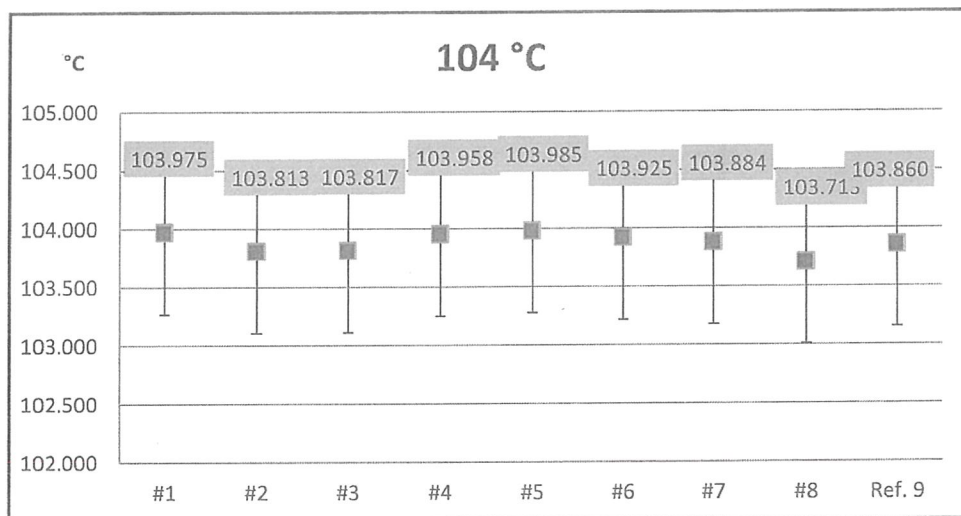


CERTIFICATE NO. : T26-1284

CSR No. : 260511

Page : 4 of 4

## Report Graph



The above results are valid exclusively for calibration sample as mentioned.

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

-- End --



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## CALIBRATION CERTIFICATE

CERTIFICATE No. : M26-0664

CSR No. : 260511

Page : 1 of 3

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Analytical Balance

Manufacturer : Sartorius

Model : PRACTUM2101-1S

Serial No. : 0033508410

ID. No. : -

Capacity : 2100 g

Resolution : 0.1 g

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature :  $(30 \pm 10) ^\circ\text{C}$

Relative Humidity :  $(50 \pm 20) \%$

Barometric Pressure :  $(1010 \pm 10)$  hPa

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVED

APPROVED SIGNATORY

Calibrated By : Mr. Bowornnan Langlea  
( Calibration Engineer )

( / ) MR. PIYAPONG RATTANAKAN / Calibration Manager  
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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The uncertainties are for a confidence probability of approximately 95 % .





CERTIFICATE No. : M26-0664

CSR No. : 260511

Page : 2 of 3

Equipment : Analytical Balance  
Manufacturer : Sartorius  
Model : PRACTUM2101-1S  
Serial No. : 0033508410  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

## REFERENCE STANDARD INSTRUMENT :

| Instrument Type     | Nominal Value | Serial No. | Cert. No. | Due Date   | Traceability |
|---------------------|---------------|------------|-----------|------------|--------------|
| Standard Weight Set | 1 mg ~ 500 g  | -          | M2511127S | 20-11-2026 | TCS          |

## CALIBRATION METHOD :

This instrument was calibrated under procedure No. PSE.CA.WI.11.015 based on UKAS LAB 14 : 2022 as calibration guidelines.

## TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit ( SI ) through :  
TCS : Thai Calibration Services Co.,Ltd. , (NSC-TISI-TIS 17025 CALIBRATION 0189)

## CALIBRATION RESULTS :

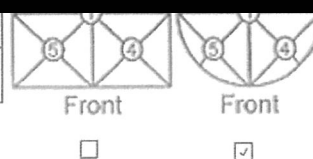
( / ) Without Adjustment ( ) After Adjustment

## DETERMINATION OF THE STANDARD DEVIATION OF WEIGHT MACHINE (N=5)

| Nominal Value ( g ) | Standard Deviation ( g ) |
|---------------------|--------------------------|
| 400                 | 0.10                     |

EFFECT OF OFF CENTER LOADING AT 200 g

| Position |       |       |       |       | Maximum Difference (g) |
|----------|-------|-------|-------|-------|------------------------|
| 1        | 2     | 3     | 4     | 5     |                        |
| 199.8    | 196.3 | 195.1 | 199.5 | 200.7 | 4.7                    |



The uncertainties are for a confidence probability of approximately 95 % .



CERTIFICATE NO. : M26-0664

CSR No. : 260511

Page : 3 of 3

Equipment : Analytical Balance  
Manufacturer : Sartorius  
Model : PRACTUM2101-1S  
Serial No. : 0033508410  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

## CALIBRATION RESULTS : ( Cont.)

( / ) Without Adjustment

( ) After Adjustment

EFFECT OF TARE AT 200 g

| Nominal Value<br>( g ) | UUC* Reading<br>( g ) | Correction<br>( g ) |
|------------------------|-----------------------|---------------------|
| 40                     | 40.4                  | -0.40               |
| 80                     | 80.5                  | -0.50               |
| 120                    | 120.3                 | -0.30               |
| 160                    | 160.3                 | -0.30               |
| 200                    | 200.1                 | -0.10               |

## ERROR OF INDICATION FROM NOMINAL VALUE

| Nominal Value<br>( g ) | UUC* Reading<br>( g ) | Correction<br>( g ) | Uncertainty<br>( $\pm$ g ) | Coverage Factor<br>( k ) |
|------------------------|-----------------------|---------------------|----------------------------|--------------------------|
| * Unload               | 0.0                   | 0.00                | 0.29                       | 2.65                     |
| 0.5                    | 0.5                   | 0.00                | 0.29                       | 2.65                     |
| 1                      | 1.0                   | 0.00                | 0.29                       | 2.65                     |
| 2                      | 2.0                   | 0.00                | 0.29                       | 2.65                     |
| 5                      | 5.0                   | 0.00                | 0.29                       | 2.65                     |
| 10                     | 10.0                  | 0.00                | 0.29                       | 2.65                     |
| 20                     | 20.0                  | 0.00                | 0.29                       | 2.65                     |
| 40                     | 40.0                  | 0.00                | 0.29                       | 2.65                     |
| 80                     | 79.9                  | 0.10                | 0.29                       | 2.65                     |
| 120                    | 119.9                 | 0.10                | 0.29                       | 2.65                     |
| 160                    | 159.8                 | 0.20                | 0.29                       | 2.65                     |
| 200                    | 199.8                 | 0.20                | 0.29                       | 2.65                     |
| 240                    | 239.7                 | 0.30                | 0.29                       | 2.65                     |
| 280                    | 279.7                 | 0.30                | 0.25                       | 2.65                     |
| 320                    | 319.7                 | 0.30                | 0.25                       | 2.65                     |
| 360                    | 359.6                 | 0.40                | 0.25                       | 2.65                     |
| 400                    | 399.6                 | 0.40                | 0.25                       | 2.65                     |

UUC : Unit Under Calibration

The table as per (\*) marked are not NSC-ONSC accreditation scope.

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report.

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

-- End --



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NSC-TISI-TIS 17025  
CALIBRATION 0024

## CALIBRATION CERTIFICATE

CERTIFICATE No. : M26-0665

CSR No. : 260511

Page : 1 of 3

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Analytical Balance

Manufacturer : Sartorius

Model : PRACTUM224-1S

Serial No. : 0035106544

ID. No. : -

Capacity : 220 g

Resolution : 0.0001 g

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature :  $(30 \pm 10) ^\circ\text{C}$

Relative Humidity :  $(50 \pm 20) \%$

Barometric Pressure :  $(1010 \pm 10)$

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROV

Calibrated By : Mr. Bowornnan Langlea  
( Calibration Engineer )

( ) MR. PIYAPONG KATTANAKAN / Calibration Manager  
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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PSE.CA.AP.11.021-161124 R.05



CERTIFICATE No. : M26-0665

CSR No. : 260511

Page : 2 of 3

Equipment : Analytical Balance  
Manufacturer : Sartorius  
Model : PRACTUM224-1S  
Serial No. : 0035106544  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

## REFERENCE STANDARD INSTRUMENT :

| Instrument Type     | Normal Value | Serial No. | Cert. No. | Due Date   | Traceability |
|---------------------|--------------|------------|-----------|------------|--------------|
| Standard Weight Set | 1 mg ~ 500 g | -          | M2511127S | 20-11-2026 | TCS          |

## CALIBRATION METHOD :

This instrument was calibrated under procedure No. PSE.CA.WI.11.015 based on UKAS LAB 14 : 2022 as calibration guidelines.

## TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit ( SI ) through :  
TCS : Thai Calibration Services Co.,Ltd. , (NSC-TISI-TIS 17025 CALIBRATION 0189)

## CALIBRATION RESULTS :

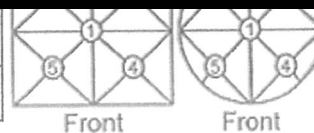
( / ) Without Adjustment ( ) After Adjustment

## DETERMINATION OF THE STANDARD DEVIATION OF WEIGHT MACHINE

| Nominal Value ( g ) | Standard Deviation ( g ) |
|---------------------|--------------------------|
| 200                 | 0.00005                  |

EFFECT OF OFF CENTER LOADING AT 100 g

| Position |          |          |          |          | Maximum Difference ( g ) |
|----------|----------|----------|----------|----------|--------------------------|
| 1        | 2        | 3        | 4        | 5        |                          |
| 100.0000 | 100.0001 | 100.0002 | 100.0002 | 100.0000 | 0.0002                   |



The uncertainties are for a confidence probability of approximately 95 % .



CERTIFICATE NO. : M26-0665

CSR No. : 260511

Page : 3 of 3

Equipment : Analytical Balance  
Manufacturer : Sartorius  
Model : PRACTUM224-1S  
Serial No. : 0035106544  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**CALIBRATION RESULTS : ( Cont.)**

( / ) Without Adjustment

( ) After Adjustment

**EFFECT OF TARE AT 100 g**

| Nominal Value<br>( g ) | UUC* Reading<br>( g ) | Correction<br>( g ) |
|------------------------|-----------------------|---------------------|
| 20                     | 20.0000               | 0.00000             |
| 40                     | 40.0000               | -0.00002            |
| 60                     | 60.0000               | 0.00003             |
| 80                     | 80.0000               | 0.00003             |
| 100                    | 100.0000              | 0.00009             |

**ERROR OF INDICATION FROM NOMINAL VALUE**

| Nominal Value<br>( g ) | UUC* Reading<br>( g ) | Correction<br>( g ) | Uncertainty<br>( $\pm$ g ) | Coverage Factor<br>( k ) |
|------------------------|-----------------------|---------------------|----------------------------|--------------------------|
| * Unload               | 0.0000                | 0.00000             | 0.00014                    | 2.25                     |
| 0.01                   | 0.0100                | 0.00000             | 0.00014                    | 2.25                     |
| 0.05                   | 0.0500                | 0.00000             | 0.00014                    | 2.25                     |
| 0.1                    | 0.1000                | 0.00001             | 0.00014                    | 2.25                     |
| 0.5                    | 0.5001                | -0.00010            | 0.00014                    | 2.25                     |
| 1                      | 0.9999                | 0.00009             | 0.00014                    | 2.25                     |
| 2                      | 2.0000                | 0.00000             | 0.00014                    | 2.25                     |
| 5                      | 4.9999                | 0.00011             | 0.00015                    | 2.25                     |
| 10                     | 10.0000               | 0.00001             | 0.00014                    | 2.23                     |
| 20                     | 20.0001               | -0.00010            | 0.00015                    | 2.21                     |
| 40                     | 40.0000               | -0.00002            | 0.00016                    | 2.14                     |
| 60                     | 60.0000               | 0.00003             | 0.00017                    | 2.08                     |
| 80                     | 80.0000               | 0.00003             | 0.00018                    | 2.06                     |
| 100                    | 100.0000              | 0.00009             | 0.00018                    | 2.02                     |
| 120                    | 120.0000              | 0.00008             | 0.00026                    |                          |
| 140                    | 139.9999              | 0.00017             | 0.00026                    |                          |
| 160                    | 159.9999              | 0.00022             | 0.00026                    |                          |
| 180                    | 180.0000              | 0.00011             | 0.00028                    |                          |
| 200                    | 200.0001              | 0.00001             | 0.00029                    |                          |

UUC : Unit Under Calibration

The table as per (\*) marked are not NSC-ONSC accreditation scope.

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in

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

-- End --



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## CALIBRATION CERTIFICATE

CERTIFICATE No. : V26-0993

CSR No. : 260511

Page : 1 of 2

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Conductivity

Manufacturer : APERA

Model : EC 8500

Serial No. : EC85001323271005

ID. No. : -

Resolution : 0.1 $\mu$ S/cm, 0.01mS/cm, 0.1mS/cm

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature : (25  $\pm$  5)  $^{\circ}$ C

Relative Humidity : (55  $\pm$  15) %

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVED

Calibrated By : Mr. Settawut Paotong  
( Calibration Technician )

( / ) MR. PIYAPONG RATTANAKAN / Calibration Manager  
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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The uncertainties are for a confidence probability of approximately 95 % .



PSE.CA.AP.11.038-161124 R.03



CERTIFICATE NO. : V26-0993

CSR No. : 260511

Page : 2 of 2

Equipment : Conductivity  
Manufacturer : APERA  
Model : EC 8500  
Serial No. : EC85001323271005  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

## REFERENCE STANDARD INSTRUMENT :

| Instrument Type       | Nominal Value/Model | Lot No.  | Batch. No. | Due Date   | Traceability   |
|-----------------------|---------------------|----------|------------|------------|----------------|
| Conductivity Standard | 84 uS/cm            | CS8425A1 | CS8425A1   | 28-01-2027 | METTLER TOLEDO |
| Conductivity Standard | 12.88 mS/cm         | 1209497  | 1209497    | 02-04-2027 | CPA Chem       |
| Conductivity Standard | 111.8 mS/cm         | 6877     | 6877       | 03-09-2026 | HANNA          |

## CALIBRATION METHOD :

This instrument was calibrated under procedure No. PSE.CA.WI.11.181 based on direct measurement by using certified reference material as calibration guidelines.

## TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit ( SI ) through :

METTLER TOLEDO : Mettler-Toledo GmbH, Analytical, Im Longacher 44, 8606 Greifensee, Switzerland

CPA Chem : CPA chem Ltd. (ANAB Cert No. AR-1835)

HANNA : Hanna Instruments Inc.

## CALIBRATION RESULTS :

( / ) Without Adjustment

( ) After Adjustment

Function : Chemical Measurement

| Standard Buffer Solutions<br>( $\mu\text{S/cm}$ ) | UUC Reading<br>( $\mu\text{S/cm}$ ) | Correction<br>( $\mu\text{S/cm}$ ) | Uncertainty<br>( $\pm\mu\text{S/cm}$ ) | Coverage Factor<br>( k ) |
|---------------------------------------------------|-------------------------------------|------------------------------------|----------------------------------------|--------------------------|
| * 84.05                                           | 84.4                                | -0.35                              | 1.2                                    | 2.00                     |

| Standard Buffer Solutions<br>( $\text{mS/cm}$ ) | UUC Reading<br>( $\text{mS/cm}$ ) | Correction<br>( $\text{mS/cm}$ ) | Uncertainty<br>( $\pm \text{mS/cm}$ ) | Coverage Factor<br>( k ) |
|-------------------------------------------------|-----------------------------------|----------------------------------|---------------------------------------|--------------------------|
| 12.8895                                         | 12.87                             | 0.0195                           | 0.18                                  |                          |
| * 111.8                                         | 112.1                             | -0.3                             | 0.42                                  |                          |

UUC : Unit Under Calibration

The table as per (\*) marked are not NSC-ONSC accreditation scope.

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report.

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

-- End --



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## CALIBRATION CERTIFICATE

CERTIFICATE No. : V26-0994

CSR No. : 260511

Page : 1 of 3

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : pH Meter

Manufacturer : SI Analytics

Model : lab 845

Serial No. : 21021943

ID. No. : -

Resolution : 0.01 pH

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature :  $(25 \pm 3)^{\circ}\text{C}$

Relative Humidity :  $(55 \pm 15) \%$

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVED

Calibrated By : Mr. Settawut Paotong  
( Calibration Technician )

APPROVED SIGNATORY

( / ) MR. PIYAPONG RATTANAKAN / Calibration Manager  
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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The uncertainties are for a confidence probability of approximately 95 % .





CERTIFICATE NO. : V26-0994

CSR No. : 260511

Page : 2 of 3

Equipment : pH Meter  
Manufacturer : SI Analytics  
Model : lab 845  
Serial No. : 21021943  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**REFERENCE STANDARD INSTRUMENT :**

| Instrument Type                   | Nominal Value/Model | Serial No. | Cert. No.       | Due Date   | Traceability |
|-----------------------------------|---------------------|------------|-----------------|------------|--------------|
| pH Calibration Standard           | 4.00                | 1127311    | 1127311         | 28-08-2026 | CPA Chem     |
| pH Calibration Standard           | 7.00                | 1127312    | 1127312         | 28-08-2026 | CPA Chem     |
| pH Calibration Standard           | 10.00               | 1127313    | 1127313         | 28-08-2026 | CPA Chem     |
| Temperature/Electrical Calibrator | MC2-TE              | 10548      | CAL0252-26P0032 | 26-01-2027 | RKT          |

**CALIBRATION METHOD :**

This instrument was calibrated under procedure No. PSE.CA.WI.11.117 based on direct measurement by using standard voltage calibrator as calibration guidelines.

This instrument was calibrated under procedure No. PSE.CA.WI.11.117 based on direct measurement by using certified reference material (CRM) as calibration guidelines.

**TRACEABILITY :**

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit (SI) through :

CPA Chem : CPA chem Ltd. (ANAB Cert No. AR-1835)

RKT : Rockertek (Thailand) Co.,Ltd. , (NSC-TISI-TIS 17025 CALIBRATION 0069)

**CALIBRATION RESULTS :****Function : Electrical Measurement**

| Applied Voltage<br>(mV) | pH meter<br>Reading<br>(mV) | Correction<br>(mV) | Uncertainty<br>( $\pm$ mV) | Coverage Factor<br>(k) |
|-------------------------|-----------------------------|--------------------|----------------------------|------------------------|
| 177.48                  | 178                         | -0.52              | 0.60                       | 2.00                   |
| 0.00                    | 0                           | 0.00               | 0.59                       | 2.00                   |
| -177.48                 | -177                        | -0.48              | 0.60                       | 2.00                   |

**Function : Chemical Measurement**

| Standard Buffer Solutions<br>(pH) | pH meter Reading<br>(pH) | Correction<br>(pH) | Uncertainty<br>( $\pm$ pH) | Coverage Factor<br>(k) |
|-----------------------------------|--------------------------|--------------------|----------------------------|------------------------|
| 3.986                             | 3.99                     | -0.004             | 0.010                      | 2.07                   |
| 6.988                             | 6.99                     | -0.002             | 0.010                      | 2.07                   |
| 10.010                            | 10.06                    | -0.050             | 0.010                      | 2.07                   |

Calibration curve - % off set - mV

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report

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



CERTIFICATE No. : V26-0994

CSR No. : 260511

Page : 3 of 3

Equipment : pH Meter  
Manufacturer : SI Analytics  
Model : lab 845  
Serial No. : 21021943  
ID. No. : -  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**REFERENCE STANDARD INSTRUMENT :**

| Instrument Type                 | Model | Serial No. | Cert. No.     | Due Date   | Traceability |
|---------------------------------|-------|------------|---------------|------------|--------------|
| Digital Thermometer with Sensor | 376   | 220608721  | SDTH-002/1025 | 27-10-2026 | PSE          |

**CALIBRATION METHOD :**

In-house method : CA.WI.11.180 comparison with standard thermometer

**TRACEABILITY :**

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit ( SI ) through :

PSE : Premier System Engineering Co., Ltd. ,(NSC-TISI-TIS 17025 CALIBRATION 0024)

**CALIBRATION RESULTS : ( Cont.)**

( / ) Without Adjustment

( ) After Adjustment

| Cal Point | Standard Temperature | UUC Reading | Correction | Uncertainty |
|-----------|----------------------|-------------|------------|-------------|
| (°C)      | (°C)                 | (°C)        | (°C)       | (±°C)       |
| 25        | 25.16                | 25.3        | -0.14      | 0.25        |

UUC : Unit Under Calibration

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report

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

--End--

PSE.CA.AP.11.017-161124 R.04



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## CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1281

CSR No. : 260512

Page : 1 of 4

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Hot Air Oven

Manufacturer : Binder

Model : FD 56

Serial No. : 20210000003365

ID. No. : ST64030140

Resolution : 1 °C

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature : (30 ± 15) °C

Relative Humidity : (60 ± 20) %

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVED

Calibrated By : Mr. Athiwat Supacheewa  
(Temperature Supervisor)

APPROVED SIGNATORY

( / ) MR. PIYAPONG RATTANAKAN / Calibration Manager  
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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The uncertainties are for a confidence probability of approximately 95 % .





CERTIFICATE No. : T26-1281

CSR No. : 260512

Page : 2 of 4

Equipment : Hot Air Oven  
Manufacturer : Binder  
Model : FD 56  
Serial No. : 20210000003365  
ID. No. : ST64030140  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**REFERENCE STANDARD INSTRUMENT :**

| Instrument Type                 | Model   | Serial No.  | Cert. No.   | Due Date   | Traceability |
|---------------------------------|---------|-------------|-------------|------------|--------------|
| Digital Thermometer with Sensor | 34970 A | MY 44042662 | DAT003/0825 | 31-07-2026 | PSE          |

**CALIBRATION METHOD :**

This instrument was calibrated under procedure No. PSE.CA.WI.11.160 based on ASTM E145 : 94 (re-approved 2021) as calibration guidelines.

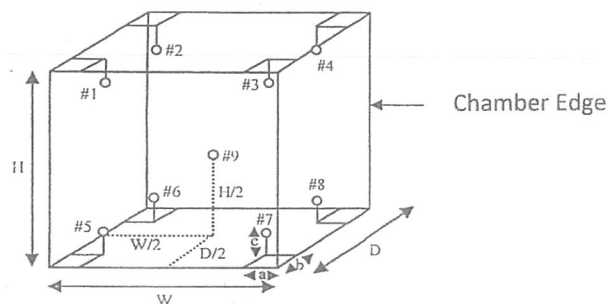
**TRACEABILITY :**

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit (SI) through :

PSE : Premier System Engineering Co., Ltd. ,(NSC-TISI-TIS 17025 CALIBRATION 0024)

**CALIBRATION RESULTS :**

**Sensor Installation Diagram**



Dimension of the chamber :  $W \times H \times D = 40 \times 40 \times 34.5$  cm  
Sensor Installation :  $a \times b \times c = 5 \times 5 \times 5$  cm

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report

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



CERTIFICATE NO. : T26-1281

CSR No. : 260512

Page : 3 of 4

Equipment : Hot Air Oven  
Manufacture : Binder  
Model : FD 56  
Serial No. : 20210000003365  
ID. No. : ST64030140  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

## CALIBRATION RESULTS : ( Cont.)

( / ) Without Adjustment

( ) After Adjustment

## Temperature Measurement Accuracy Test

The measurement results of the hot air oven and associates are reported in the manner as shown below

| Cal Point<br>(°C) | Measured Standard Temperature (°C) at Spread Locations |         |         |         |         |         |         |         |         | Uncertainty<br>( ± °C ) |
|-------------------|--------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------------|
|                   | #1                                                     | #2      | #3      | #4      | #5      | #6      | #7      | #8      | Ref. 9  |                         |
| 104               | 104.267                                                | 104.021 | 103.729 | 103.750 | 104.162 | 104.128 | 103.868 | 103.771 | 103.984 | 0.71                    |
| 180               | 183.121                                                | 182.442 | 180.182 | 179.381 | 179.713 | 181.030 | 178.415 | 178.299 | 179.933 | 1.1                     |

## Hot Air Oven Performance Result

The performance of the hot air oven are reported as shown below

| Cal Point<br>(°C) | UUC<br>Setting<br>(°C) | UUC<br>Reading<br>(°C) | Chamber<br>Stability<br>( ± °C ) | Chamber<br>Uniformity<br>( ± °C ) | Overall<br>Variation<br>( ± °C ) |
|-------------------|------------------------|------------------------|----------------------------------|-----------------------------------|----------------------------------|
| 104               | 104                    | 104                    | 0.083                            | 0.35                              | 0.67                             |
| 180               | 180                    | 180                    | 0.25                             | 3.5                               | 5.2                              |

UUC : Unit Under Calibration

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the re

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

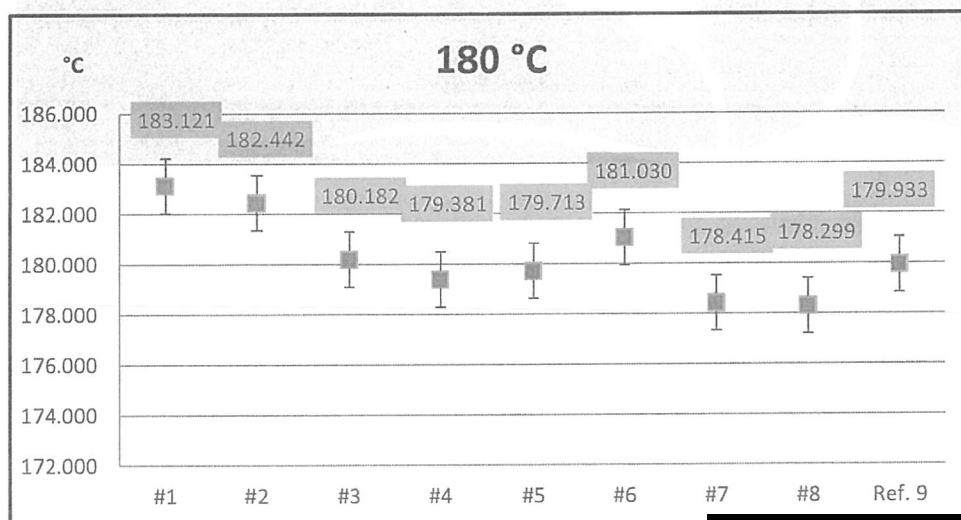
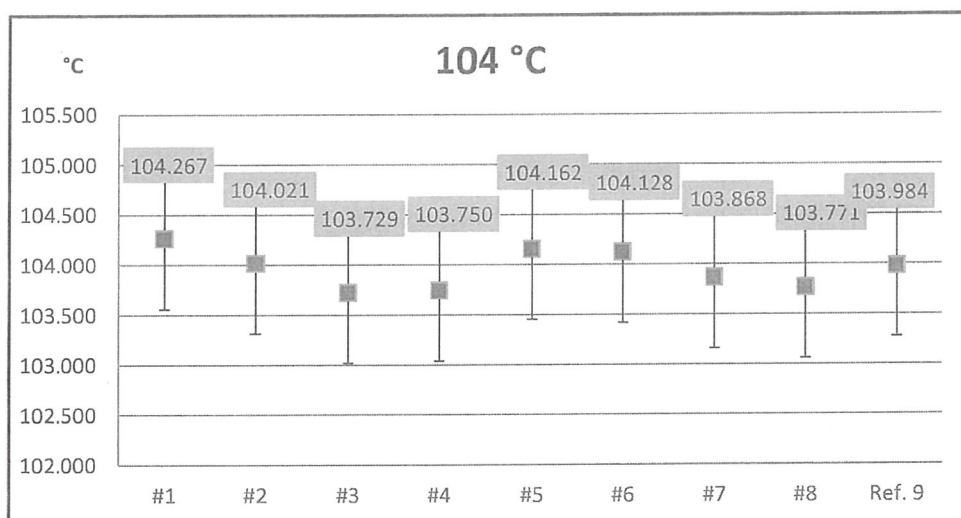


CERTIFICATE NO. : T26-1281

CSR No. : 260512

Page : 4 of 4

## Report Graph



The above results are valid exclusively for calibration sample as mentioned in the re

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

-- End --



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123 Moo 8 Kanjanavanit Rd., Banpru, Hatyai, Songkhla 90250

E-mail : pse-cal@sritranggroup.com ,Fax. : (074)222912 Tel. : 084-2148162, 084-2148165, 074-222900-9



NSC-TISI-TIS 17025  
CALIBRATION 0024

## CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1285

CSR No. : 260512

Page : 1 of 4

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Water Bath

Manufacturer : Memmert

Model : WNB 22

Serial No. : L519.1143

ID. No. : ST65030144

Resolution : 0.1 °C

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature : (30 ± 10) °C

Relative Humidity : (50 ± 20) %

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVED

Calibrated By : Mr. Athiwat Supacheewa  
( Temperature Supervisor )

APPROVED SIGNATORY

( / ) MR. PIYAPONG RATTANAKAN / Calibration Manager  
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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The uncertainties are for a confidence probability of approximately 95 % .





CERTIFICATE No. : T26-1285

CSR No. : 260512

Page : 2 of 4

Equipment : Water Bath  
Manufacturer : Memmert  
Model : WNB 22  
Serial No. : L519.1143  
ID. No. : ST65030144  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

REFERENCE STANDARD INSTRUMENT :

| Instrument Type                 | Model   | Serial No.  | Cert. No.    | Due Date   | Traceability |
|---------------------------------|---------|-------------|--------------|------------|--------------|
| Digital Thermometer with Sensor | 34970 A | MY 44042662 | DAT003W/0825 | 31-07-2026 | PSE          |

CALIBRATION METHOD :

This instrument was calibrated under procedure No. PSE.CA.WI.11.161 based on ASTM E715 : 80 (re-approved 2022) as calibration guidelines.

TRACEABILITY :

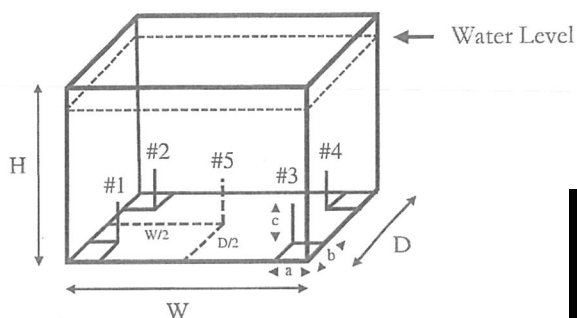
This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit ( SI ) through :

PSE : Premier System Engineering Co., Ltd. ,(NSC-TISI-TIS 17025 CALIBRATION 0024)

CALIBRATION RESULTS :

( / ) Without Adjustment ( ) After Adjustment

Sensor Installation Diagram



Dimension of the chamber :  $W \times H \times D = 35 \times 22 \times 29$   
Sensor Installation :  $a \times b \times c = 5 \times 5 \times 5$

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report.

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



CERTIFICATE NO. : T26-1285

CSR No. : 260512

Page : 3 of 4

Equipment : Water Bath  
Manufacture : Memmert  
Model : WNB 22  
Serial No. : L519.1143  
ID. No. : ST65030144  
Date of Received : 7-May-2026  
Date of Received : 7-May-2026

**CALIBRATION RESULTS : ( Cont.)**

( / ) Without Adjustment

( ) After Adjustment

**Temperature Measurement Accuracy Test**

The measurement results of the water bath and associates are reported in the manner as shown below

| Cal Point<br>(°C) | Measured Standard Temperature (°C) at Spread Locations |        |        |        |        | Uncertainty<br>( ± °C ) |
|-------------------|--------------------------------------------------------|--------|--------|--------|--------|-------------------------|
|                   | #1                                                     | #2     | #3     | #4     | #5     |                         |
| 85                | 84.546                                                 | 84.598 | 84.604 | 84.484 | 84.533 | 0.19                    |
| 95                | 94.494                                                 | 94.523 | 94.450 | 94.426 | 94.429 | 0.20                    |

**Water Bath Performance Result**

The performance of the water bath are reported as shown below

| Cal Point<br>(°C) | UUC<br>Setting<br>(°C) | UUC<br>Reading<br>(°C) | Water Bath<br>Stability<br>( ± °C ) | Water Bath<br>Uniformity<br>( ± °C ) | Overall<br>Variation<br>( ± °C ) |
|-------------------|------------------------|------------------------|-------------------------------------|--------------------------------------|----------------------------------|
| 85                | 85.0                   | 85.0                   | 0.068                               | 0.14                                 | 0.22                             |
| 95                | 95.0                   | 95.0                   | 0.095                               | 0.19                                 | 0.28                             |

UUC : Unit Under Calibration

The uncertainty is not combine uniformity of the water bath

The uncertainties are for a confidence probability of approximately 95 %

The above results are valid exclusively for calibration sample as mentioned

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

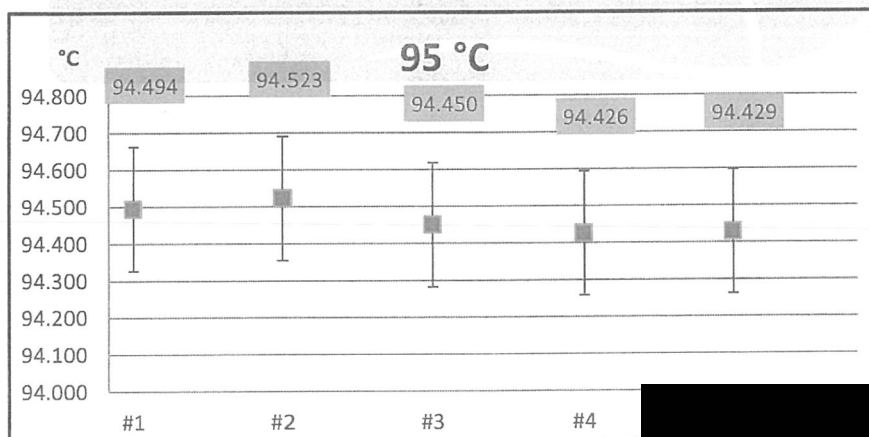
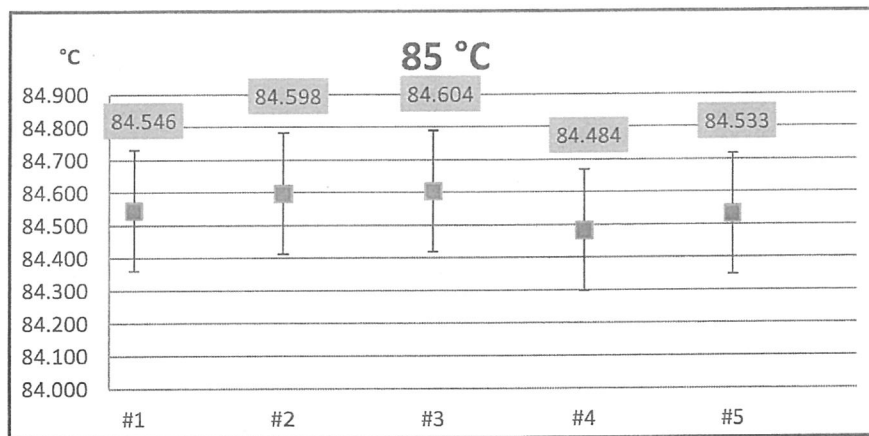


CERTIFICATE NO. : T26-1285

CSR No. : 260512

Page : 4 of 4

### Report Graph



The above results are valid exclusively for calibration sample as mentioned.

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

-- End --



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E-mail : pse-cal@sriranggroup.com ,Fax. : (074)222912 Tel. : 084-2148162, 084-2148165, 074-222900-9



## CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1286

CSR No. : 260512

Page : 1 of 4

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Refrigerator

Manufacturer : Senden Intercool

Model : SEA-0405

Serial No. : SRR3375A-220900366R

ID. No. : ST660500419

Resolution : 1 °C

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature : (30 ± 15) °C

Relative Humidity : (60 ± 20) %

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPR

Calibrated By : Mr. Athiwat Supacheewa  
(Temperature Supervisor)

in Manager  
Engineer

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The uncertainties are for a confidence probability of approximately 95 % .





CERTIFICATE No. : T26-1286

CSR No. : 260512

Page : 2 of 4

Equipment : Refrigerator  
Manufacturer : Senden Intercool  
Model : SEA-0405  
Serial No. : SRR3375A-220900366R  
ID. No. : ST660500419  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**REFERENCE STANDARD INSTRUMENT :**

| Instrument Type                 | Model   | Serial No.  | Cert. No.   | Due Date   | Traceability |
|---------------------------------|---------|-------------|-------------|------------|--------------|
| Digital Thermometer with Sensor | 34970 A | MY 44042662 | DAT003/0825 | 31-07-2026 | PSE          |

**CALIBRATION METHOD :**

This instrument was calibrated under procedure No. PSE.CA.WI.11.160 based on ASTM E145 : 94 (re-approved 2021) as calibration guidelines.

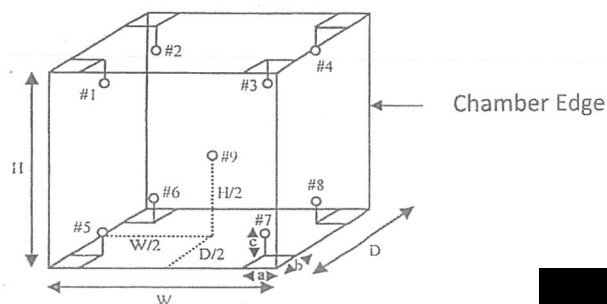
**TRACEABILITY :**

This Calibration Certificate is traceable to national standards which realize the unit of measurement according to the International System of Unit ( SI ) through :

PSE : Premier System Engineering Co., Ltd. ,(NSC-TISI-TIS 17025 CALIBRATION 0024)

**CALIBRATION RESULTS :**

**Sensor Installation Diagram**



Dimension of the chamber :  $W \times H \times D = 100 \times 120 \times 48$   
Sensor Installation :  $a \times b \times c = 5 \times 5 \times 5$

The uncertainties are for a confidence probability of approximately 95 % .  
The above results are valid exclusively for calibration sample as mentioned in the certificate.  
This result of calibration was found accurate as shown on date and place of calibration.



CERTIFICATE NO. : T26-1286

CSR No. : 260512

Page : 3 of 4

Equipment : Refrigerator  
Manufacture : Senden Intercool  
Model : SEA-0405  
Serial No. : SRR3375A-220900366R  
ID. No. : ST660500419  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**CALIBRATION RESULTS : ( Cont.)**

( / ) Without Adjustment

( ) After Adjustment

**Temperature Measurement Accuracy Test**

The measurement results of the refrigerator and associates are reported in the manner as shown below

| Cal Point<br>(°C) | Measured Standard Temperature (°C) at Spread Locations |       |       |       |       |       |       |       |        | Uncertainty<br>( ± °C ) |
|-------------------|--------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------------------------|
|                   | #1                                                     | #2    | #3    | #4    | #5    | #6    | #7    | #8    | Ref. 9 |                         |
| 4                 | 4.016                                                  | 3.902 | 4.058 | 3.805 | 3.656 | 3.562 | 3.605 | 3.598 | 3.453  | 0.83                    |

**Refrigerator Performance Result**

The performance of the refrigerator are reported as shown below

| Cal Point<br>(°C) | UUC<br>Setting<br>(°C) | UUC<br>Reading<br>(°C) | Chamber<br>Stability<br>( ± °C ) | Chamber<br>Uniformity<br>( ± °C ) | Overall<br>Variation<br>( ± °C ) |
|-------------------|------------------------|------------------------|----------------------------------|-----------------------------------|----------------------------------|
| 4                 | 4                      | 4                      | 0.36                             | 0.82                              | 1.1                              |

UUC : Unit Under Calibration

The uncertainties are for a confidence probability of approximately 95%

The above results are valid exclusively for calibration sample as mentioned in the report.

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

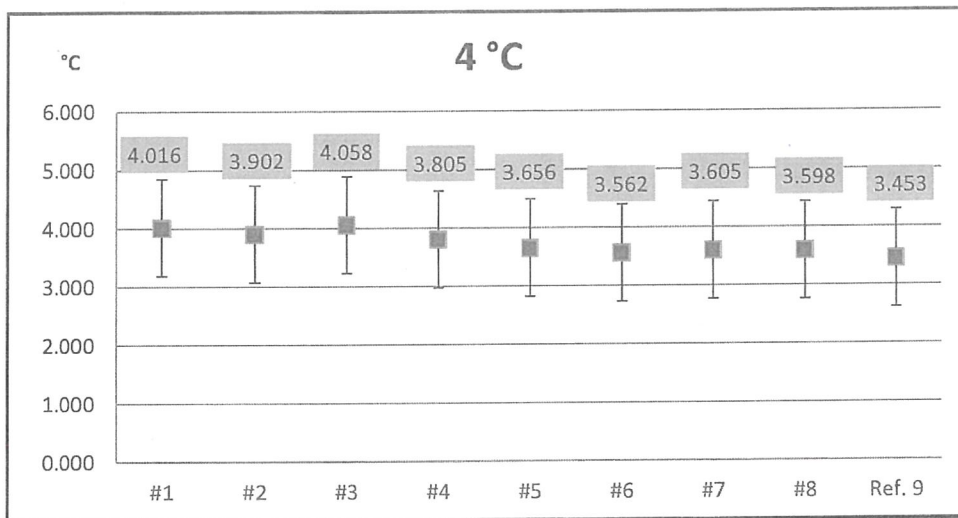


CERTIFICATE NO. : T26-1286

CSR No. : 260512

Page : 4 of 4

## Report Graph



The above results are valid exclusively for calibration sample as mentioned in the report.

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

-- End --



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E-mail : pse-cal@sriranggroup.com ,Fax. : (074)222912 Tel. : 084-2148162, 084-2148165, 074-222900-9



## CALIBRATION CERTIFICATE

CERTIFICATE No. : M26-0666

CSR No. : 260512

Page : 1 of 3

Customer : Southern Thai Consulting Co., Ltd.  
59/45 Moo5 Srisoontorn, Talang, Phuket  
83110

Equipment : Analytical Balance

Manufacturer : Sartorius

Model : BCA2241I-1S

Serial No. : 39506504

ID. No. : ST640202139

Capacity : 220 g

Resolution : 0.0001 g

Instrument Condition : Good Condition

Location of Calibration : Customer Laboratory

Ambient Temperature :  $(30 \pm 10) ^\circ\text{C}$

Relative Humidity :  $(50 \pm 20) \%$

Barometric Pressure :  $(1010 \pm 10)$  hPa

Date of Received : 7-May-2026

Date of Calibration : 7-May-2026

Date of Issued : 11-May-2026

APPROVED

Calibrated By : Mr. Bowornnan Langlea  
( Calibration Engineer )

( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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The uncertainties are for a confidence probability of approximately 95 % .





CERTIFICATE No. : M26-0666

CSR No. : 260512

Page : 2 of 3

Equipment : Analytical Balance  
Manufacturer : Sartorius  
Model : BCA2241I-1S  
Serial No. : 39506504  
ID. No. : ST640202139  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

REFERENCE STANDARD INSTRUMENT :

| Instrument Type     | Norminal Value | Serial No. | Cert. No. | Due Date   | Traceability |
|---------------------|----------------|------------|-----------|------------|--------------|
| Standard Weight Set | 1 mg ~ 500 g   | -          | M2511127S | 20-11-2026 | TCS          |

CALIBRATION METHOD :

This instrument was calibrated under procedure No. PSE.CA.WI.11.015 based on UKAS LAB 14 : 2022 as calibration guidelines.

TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurment according to the International System of Unit ( SI ) through :  
TCS : Thai Calibration Services Co.,Ltd. , (NSC-TISI-TIS 17025 CALIBRATION 0189)

CALIBRATION RESULTS :

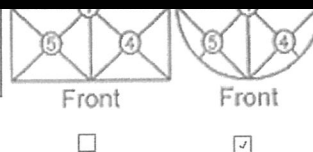
( / ) Without Adjustment ( ) After Adjustment

DETERMINATION OF THE STANDARD DEVIATION OF WEIGHT MACHINE (N=5)

| Nominal Value ( g ) | Standard Deviation ( g ) |
|---------------------|--------------------------|
| 200                 | 0.00006                  |

EFFECT OF OFF CENTER LOADING AT 100 g

| Position |          |          |          |          | Max<br>Differ |
|----------|----------|----------|----------|----------|---------------|
| 1        | 2        | 3        | 4        | 5        |               |
| 100.0000 | 100.0000 | 100.0000 | 100.0001 | 100.0001 | 0.0001        |



The uncertainties are for a confidence probability of approximately 95 % .



CERTIFICATE NO. : M26-0666

CSR No. : 260512

Page : 3 of 3

Equipment : Analytical Balance  
Manufacturer : Sartorius  
Model : BCA2241I-1S  
Serial No. : 39506504  
ID. No. : ST640202139  
Date of Received : 7-May-2026  
Date of Calibration : 7-May-2026

**CALIBRATION RESULTS : ( Cont.)**

( / ) Without Adjustment

( ) After Adjustment

EFFECT OF TARE AT 100 g

| Nominal Value<br>( g ) | UUC* Reading<br>( g ) | Correction<br>( g ) |
|------------------------|-----------------------|---------------------|
| 20                     | 20.0000               | 0.00000             |
| 40                     | 40.0000               | -0.00002            |
| 60                     | 60.0000               | 0.00003             |
| 80                     | 80.0000               | 0.00003             |
| 100                    | 100.0000              | 0.00009             |

**ERROR OF INDICATION FROM NOMINAL VALUE**

| Nominal Value<br>( g ) | UUC* Reading<br>( g ) | Correction<br>( g ) | Uncertainty<br>( $\pm$ g ) | Coverage Factor<br>( k ) |
|------------------------|-----------------------|---------------------|----------------------------|--------------------------|
| * Unload               | 0.0000                | 0.00000             | 0.00018                    | 2.37                     |
| 0.1                    | 0.1000                | 0.00001             | 0.00018                    | 2.37                     |
| 0.2                    | 0.2000                | 0.00001             | 0.00018                    | 2.37                     |
| 0.5                    | 0.5000                | 0.00000             | 0.00018                    | 2.37                     |
| 1                      | 1.0000                | -0.00001            | 0.00018                    | 2.37                     |
| 2                      | 2.0000                | 0.00000             | 0.00018                    | 2.37                     |
| 5                      | 5.0000                | 0.00001             | 0.00018                    | 2.37                     |
| 10                     | 10.0000               | 0.00001             | 0.00018                    | 2.37                     |
| 20                     | 20.0000               | 0.00000             | 0.00018                    | 2.37                     |
| 40                     | 40.0000               | -0.00002            | 0.00019                    | 2.23                     |
| 60                     | 60.0000               | 0.00003             | 0.00020                    | 2.16                     |
| 80                     | 80.0000               | 0.00003             | 0.00021                    | 2.12                     |
| 100                    | 100.0000              | 0.00009             | 0.00021                    | 2.11                     |
| 120                    | 120.0000              | 0.00008             | 0.00026                    | 2.03                     |
| 140                    | 139.9999              | 0.00017             | 0.00026                    | 2.02                     |
| 160                    | 159.9999              | 0.00022             | 0.00026                    | 2.02                     |
| 180                    | 179.9998              | 0.00031             | 0.00029                    | 2.01                     |
| 200                    | 199.9998              | 0.00031             | 0.00030                    | 2.01                     |

UUC : Unit Under Calibration

The table as per (\*) marked are not NSC-ONSC accreditation scope.

The uncertainties are for a confidence probability of approximately 95 % .

The above results are valid exclusively for calibration sample as mentioned in the report

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

-- End --



แบบ กมช./สมอ.๒  
Form NSC/TISI 2

ใบรับรองเลขที่ 26-LB0015  
(Certificate No.)

## ใบรับรองระบบงาน (Certificate of Accreditation)

อาศัยอำนาจตามความในพระราชบัญญัติการมาตรฐานแห่งชาติ พ.ศ. ๒๕๕๑  
(By Virtue of National Standardization Act B.E. 2551 (2008))

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม  
(Secretary-General, Thai Industrial Standards Institute)

ออกใบรับรองฉบับนี้ให้  
(Issues this certificate to)

บริษัท เซ้าเทิร์นไทยคอนซัลติ้ง จำกัด  
(Southern Thai Consulting Company Limited)

ตั้งอยู่เลขที่  
(Address)

๕๙/๔๕ หมู่ที่ ๕ ตำบลศรีสุนทร อำเภอถลาง จังหวัดภูเก็ต  
(59/45 Moo 5, Si Sunthon, Thalang, Phuket)

ได้รับการรับรองความสามารถ  
(Certificate of competence)

ตามมาตรฐานเลขที่ มอก. ๑๗๐๒๕ - ๒๕๖๑  
(Standard No. TIS 17025-2561 (2018) (ISO/IEC 17025: 2017))

ข้อกำหนดทั่วไปว่าด้วยความสามารถของ ห้องปฏิบัติการทดสอบและห้องปฏิบัติการสอบเทียบ  
(General requirements for the competence of testing and calibration laboratories)

หมายเลขการรับรองที่ ทดสอบ ๑๘๓๔  
(Accreditation No. Testing 1834)

โดยมีรายละเอียดสาขาและขอบข่ายที่ได้ใบรับรอง แสดงไว้ใน QR CODE และ [www.tisi.go.th](http://www.tisi.go.th)  
(Details of the scheme and scope of the certificate are shown in QR CODE and [www.tisi.go.th](http://www.tisi.go.th))

ออกให้ ณ วันที่ ๑๕ ธันวาคม พ.ศ. ๒๕๖๘  
(Issue date : 15 December 2025)



Signed by สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม (สมอ.)  
Thai Industrial Standards Institute (TISI)  
Date: 2025-12-15T15:01:47.283+07:00  
bf8ba089

(นายวิ  
ผู้อำนวยการสำนักงานค  
ปฏิบัติ  
เลขานุการสำนักงานค

กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม  
(Ministry of Industry Thailand, Thai Industrial Standards Institute)



รายละเอียดสาขาและขอบข่ายใบรับรองห้องปฏิบัติการ

(Scope of Accreditation for Testing)

ใบรับรองเลขที่ 26-LB0015

(Certification No. 26-LB0015)



ชื่อห้องปฏิบัติการ

(Laboratory Name)

หมายเลขการรับรองที่

(Accreditation No.)

ฉบับที่ 01

(Issue No. 01)

สถานภาพห้องปฏิบัติการ

(Laboratory status)

บริษัท เซ้าเทิร์นไทยคอนซัลติ้ง จำกัด

(Southern Thai Consulting Company Limited)

ทดสอบ 1834

(Testing 1834)

ออกให้ตั้งแต่วันที่ 24 พฤศจิกายน พ.ศ. 2568

(Valid from 24 November B.E. 2568 (2025))

☒ ถาวร

(Permanent)

☐ นอกสถานที่

(Site)

☐ ชั่วคราว

(Temporary)

ถึงวันที่ 23 พฤศจิกายน พ.ศ. 2573

(Until 23 November B.E. 2573 (2030))

☐ เคลื่อนที่

(Mobile)

☐ หลายสถานที่

(Multisite)

| สาขาการทดสอบ<br>(Field of Testing)                                          | รายการทดสอบ<br>(Parameter)                                                                                                     | วิธีทดสอบ<br>(Test Method)                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>สาขาส่งแวดล้อม<br/>(environmental field)</p> <p>Water and wastewater</p> | <p>- Total dissolved solids (TDS)<br/>25 mg/L to 5 000 mg/L</p> <p>- Total suspended solids (TSS)<br/>5 mg/L to 2 000 mg/L</p> | <p>- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24<sup>th</sup> edition, 2023, part 2540 C</p> <p>- Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 24<sup>th</sup> edition, 2023, part 2540 D</p> |

กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

(Ministry of Industry, Thai Industrial Standards Institute)