ภาคผนวกที่ 3

เอกสารขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน



ที่ อก ๐๓๒๒/๑๗๕๖๕

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๒๘ ธ.ค. ๒๕๖๖

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท เซ้าเทิร์นไทยคอนซัลติ้ง จำกัด

อ้างถึง คำขอต่ออายุของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๑๐ พฤศจิกายน ๒๕๖๖

สิ่งที่ส่งมาด้วย เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท เซ้าเทิร์นไทยคอนซัลติ้ง จำกัด จำนวน ๑ แผ่น

ตามหนังสือที่อ้างถึง บริษัท เซ้าเทิร์นไทยคอนซัลติ้ง จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๑๗๖ สถานที่ตั้ง เลขที่ ๕๙/๔๕ หมู่ที่ ๕ ตำบลศรีสุนทร อำเภอถลาง จังหวัดภูเก็ต ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท เซ้าเทิร์นไทยคอนซัลติ้ง จำกัด ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์

๑) นายพิมุข สอนมี	ทะเบียนเลขที่ ว-๑๗๖-ค-๐๐๐๑
๒) นายศิริพงศ์ พะสริ	ทะเบียนเลขที่ ว-๑๗๖-ค-๐๐๐๒
๓) นางเพ็ญนภา จันทร์เพ็ญ	ทะเบียนเลขที่ ว-๑๗๖-ค-๐๐๐๓
๔) นางสาวพรรวิษา จินรัตน์	ทะเบียนเลขที่ ว-๑๗๖-ค-๐๐๐๔

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์

๑) นางสาวกรรณิกา แก้วสามเขียว	ทะเบียนเลขที่ ว-๑๗๖-จ-๐๐๐๑
๒) นางสาวศิริรัตน์ นิเทศนพกุล	ทะเบียนเลขที่ ว-๑๗๖-จ-๐๐๐๒
๓) นางสาวจุฑาทิพย์ ชูถึง	ทะเบียนเลขที่ ว-๑๗๖-จ-๐๐๐๓
๔) นางสาวปรีชญา หมุกแก้ว	ทะเบียนเลขที่ ว-๑๗๖-จ-๐๐๐๔
๕) นางสาวบุษยา ประกอบแสง	ทะเบียนเลขที่ ว-๑๗๖-จ-๐๐๐๕
๖) นางสาวจุฑาภรณ์ จุฑามาตย์	ทะเบียนเลขที่ ว-๑๗๖-จ-๐๐๐๖
๗) นางสาวกรรณนิการ์ ประทุมเพชร	ทะเบียนเลขที่ ว-๑๗๖-จ-๐๐๐๗
๘) นางสาวสุธาสินี ละเมาะ	ทะเบียนเลขที่ ว-๑๗๖-จ-๐๐๐๘

ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนให้วิเคราะห์ในน้ำเสีย ตามสิ่งที่ส่งมาด้วย

[redacted]

หนังสือ....

หนังสือฉบับนี้จะหมดอายุในวันที่ ๑ ธันวาคม ๒๕๖๙ หากประสงค์จะต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อกรมโรงงานอุตสาหกรรม ภายใน ๓๐ วัน ก่อนวันสิ้นอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ทั้งนี้ สามารถยื่นคำขอผ่านระบบอิเล็กทรอนิกส์ได้ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายนเรศวร์ ตรียงค์)
ผู้อำนวยการศูนย์วิจัยและเตือนภัยมลพิษโรงงานภาคใต้
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

[redacted]

ศูนย์วิจัยและเตือนภัยมลพิษโรงงานภาคใต้
โทร. ๐ ๗๔๓๒ ๕๐๒๙, ๐ ๗๔๘๙ ๐๖๓๔ ต่อ ๕๒๐๑
ไปรษณีย์อิเล็กทรอนิกส์ sirw@diw.mail.go.th

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท เช้าเทิร์นไทยคอนซัลติ้ง จำกัด เลขทะเบียน ว-๑๗๖
ที่ อก ๐๓๒๒/ ลงวันที่

ขอบข่ายสารมลพิษที่ได้รับการขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๙ รายการ

น้ำเสีย จำนวน 9 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Biochemical Oxygen Demand	5-Day BOD Test, Azide Modification Method
2	Chemical Oxygen Demand	Closed Reflux, Titrimetric Method
3	Oil & Grease	Liquid-Liquid, Partition-Gravimetric Method
4	pH	Electrometric Method
5	Sulfide	Iodometric Method
6	Temperature	Laboratory and Field Method
7	Total Dissolved Solids	Dried at 180 °C
8	Total Kjeldahl Nitrogen	Macro-Kjeldahl, Titrimetric Method
9	Total Suspended Solids	Dried at 103-105 °C

เอกสารอ้างอิง

APHA, AWWA, WEF. Standard Methods for the Examination of Water and Wastewater. 24th ed. Washington, DC: APHA, 2023.

[redacted]

(นางสาวบุษยา รัตนสุภา)
นักวิทยาศาสตร์ชำนาญการ

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
(Details of the scheme and scope of the certificate are shown in QR CODE and www.tisi.go.th)

ออกให้ ณ วันที่ ๑๕ ธันวาคม พ.ศ. ๒๕๖๘
(Issue date : 15 December B.E. 2568 (2025))

[redacted]

ผู้อำนวยการสำนักงานคณะกรรมการการมาตรฐานแห่งชาติ
ปฏิบัติราชการแทน
เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

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

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) บริษัท เซ้าเทิร์นไทยคอนซัลติ้ง จำกัด (Southern Thai Consulting Company Limited)

หมายเลขการรับรองที่ (Accreditation No.) ทดสอบ 1834 (Testing 1834)

ฉบับที่ 01 (Issue No. 01) ออกให้ตั้งแต่วันที่ 24 พฤศจิกายน พ.ศ. 2568 (Valid from 24 November B.E. 2568 (2025)) ถึงวันที่ 23 พฤศจิกายน พ.ศ. 2573 (Until 23 November B.E. 2573 (2030))

สถานภาพห้องปฏิบัติการ (Laboratory status) ☑ ถาวร (Permanent) ☐ นอกสถานที่ (Site) ☐ ชั่วคราว (Temporary) ☐ เคลื่อนที่ (Mobile) ☐ หลายสถานที่ (Multisite)

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

[redacted]

ภาคผนวกที่ 4

เอกสารสอบเทียบอุปกรณ์เครื่องมือห้องปฏิบัติการ

PREMIER SYSTEM ENGINEERING CO., LTD.
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

CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1279
CSR No. : 260511

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 BY [redacted]

(/) M
( ) M

Calibrated By : Mr. Athiwat Supacheewa
(Temperature Supervisor)

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-CAL

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 measurment 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



[redacted]

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.

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 (°C)	Measured Standard Temperature (°C) at Spread Locations									Uncertainty (± °C)
	#1	#2	#3	#4	#5	#6	#7	#8	#9	
	150.753	150.439	149.034	151.036	151.064	151.362	151.430	151.046	148.679	
	#10	#11	#12	#13	#14	#15	#16	#17	#18	
150	150.421	150.212	151.745	151.545	151.445	150.057	150.774	150.723	151.535	0.21
	#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 (°C)	UUC Setting (°C)	UUC Reading (°C)	Block Stability (± °C)
150	150	-	0.13

[redacted]

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.

-- End --

PREMIER SYSTEM ENGINEERING CO., LTD.
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. : T26-1280

CSR No. : 260511

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 BY

Calibrated By : Mr. Athiwat Supacheewa
(Temperature Supervisor)

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-CAL

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.

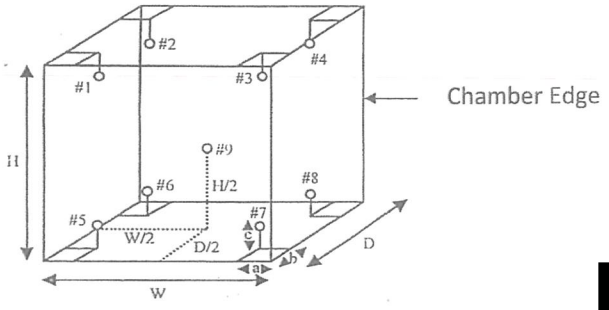
TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurment 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



[redacted]

Dimension of the chamber	:	W x H x D	=	39.5 x 110 x 50.5	cm
Sensor Installation	:	a x b x c	=	5 x 5 x 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.

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

Incubator Performance Result

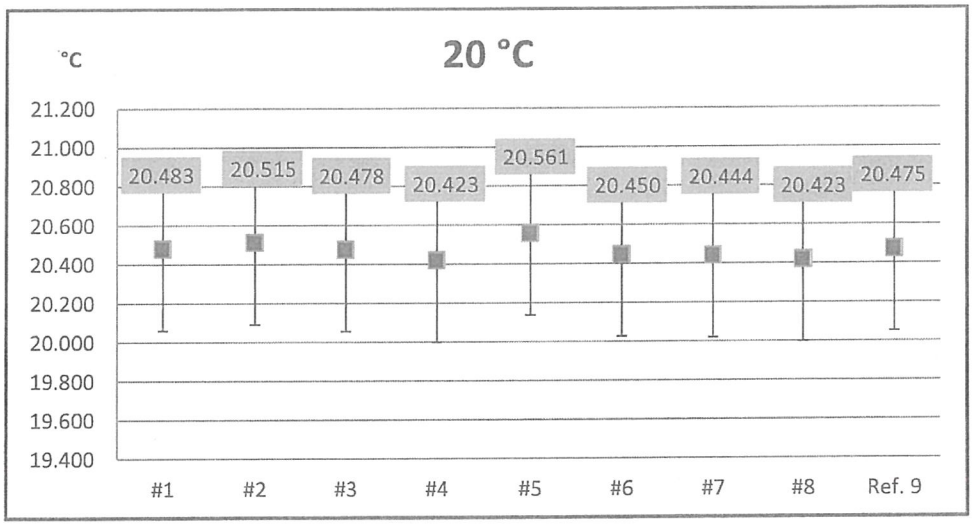
The performance of the incubator are reported as shown below

Cal Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Chamber Stability (± °C)	Chamber Uniformity (± °C)	Overall Variation (± °C)
20	20.0	20.0	0.13	0.17	0.35

[redacted]

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.

Report Graph



[redacted]

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 --

PREMIER SYSTEM ENGINEERING CO., LTD.
123 Moo 8 Kanjanavanit Rd., Banpru, Hatyai, Songkhla 90250
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NSC-TISI-TIS 17025
CALIBRATION 0024

CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1282
CSR No. : 260511

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 Calibratior	:	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

[redacted]

Calibrated By : Mr. Athiwat Supacheewa
(Temperature Supervisor)

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(cer

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

@PSE-CAL

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 :

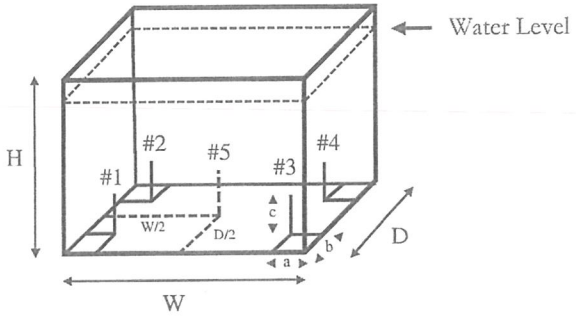
This Calibration Certificate is traceable to national standards which realize the unit of measurment according to the International System of Unit (SI) through :

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

CALIBRATION RESULTS :

(/) Without Adjustment ( ) After Adjustment

Sensor Installation Diagram



[redacted]

Dimension of the chamber	:	W x H x D	=	35 x 22 x 29	cm
Sensor Installation	:	a x b x c	=	5 x 5 x 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.

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 (°C)	Measured Standard Temperature (°C) at Spread Locations					Uncertainty (± °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 (°C)	UUC Setting (°C)	UUC Reading (°C)	Water Bath Stability (± °C)	Water Bath Uniformity (± °C)	Overall Variation (± °C)
85	85.0	85.0	0.053	0.11	0.20
95	95.0	95.0	0.067	0.24	0.31

[redacted]

UUC : Unit Under Calibration

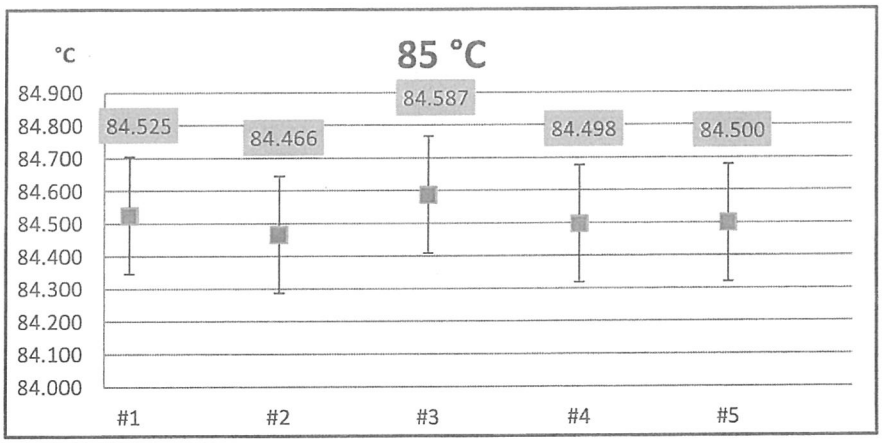
The uncertainty is not combine uniformity of the water bath

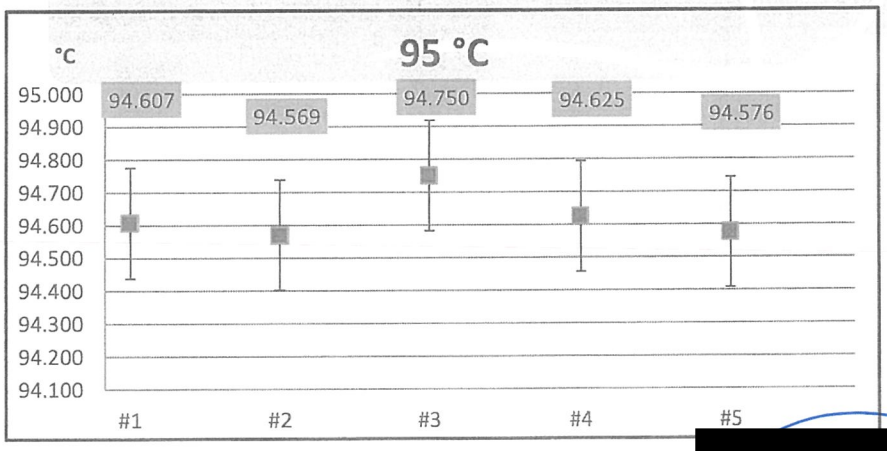
The uncertainties are for a confidence probability of approximately 95 % .

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

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

Report Graph





[redacted]

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 --

PREMIER SYSTEM ENGINEERING CO., LTD.
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. : T26-1283
CSR No. : 260511

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 ± 15) °C
Relative Humidity	:	(60 ± 20) %
Date of Received	:	7-May-2026
Date of Calibration	:	7-May-2026
Date of Issued	:	11-May-2026

[redacted]

APPROVED

Calibrated By : Mr. Athiwat Supacheewa
(Temperature Supervisor)

Manager
ineer

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

@PSE-CAL

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.

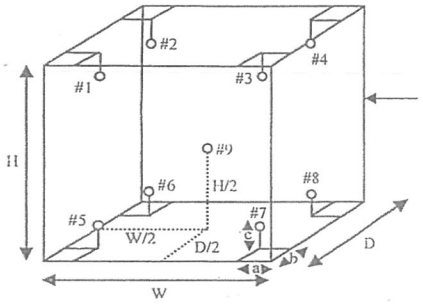
TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurment 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



[redacted]

Dimension of the chamber	:	W x H x D	=	110 x 120 x 48	cm
Sensor Installation	:	a x b x c	=	5 x 5 x 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.

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

Refrigerator Performance Result

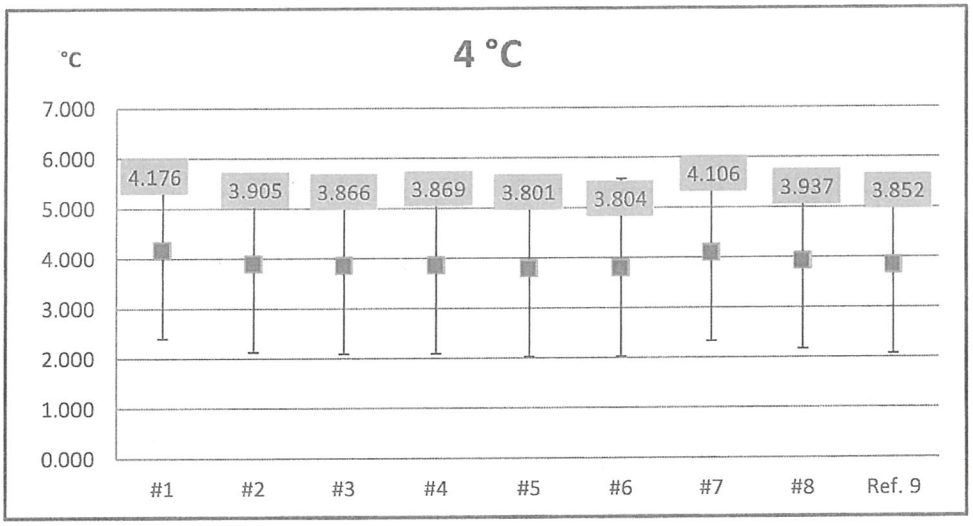
The performance of the refrigerator are reported as shown below

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

[redacted]

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.

Report Graph



[redacted]

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

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

[redacted]

APPROV

Calibrated By : Mr. Athiwat Supacheewa
(Temperature Supervisor)

tion Manager
Engineer

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

@PSE-CAL

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.

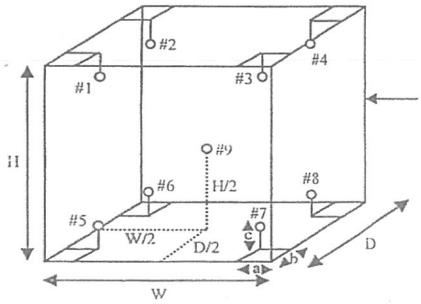
TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurment 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



Chamber Edge

[redacted]

Dimension of the chamber	:	W x H x D	=	40 x 40 x 34.5	cm
Sensor Installation	:	a x b x c	=	5 x 5 x 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.

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	Measured Standard Temperature (°C) at Spread Locations									Uncertainty
(°C)	#1	#2	#3	#4	#5	#6	#7	#8	Ref. 9	(± °C)
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 (°C)	UUC Setting (°C)	UUC Reading (°C)	Chamber Stability (± °C)	Chamber Uniformity (± °C)	Overall Variation (± °C)
104	104	104	0.082	0.19	0.37
180	180	180	0.65	2.4	3.17

[redacted]

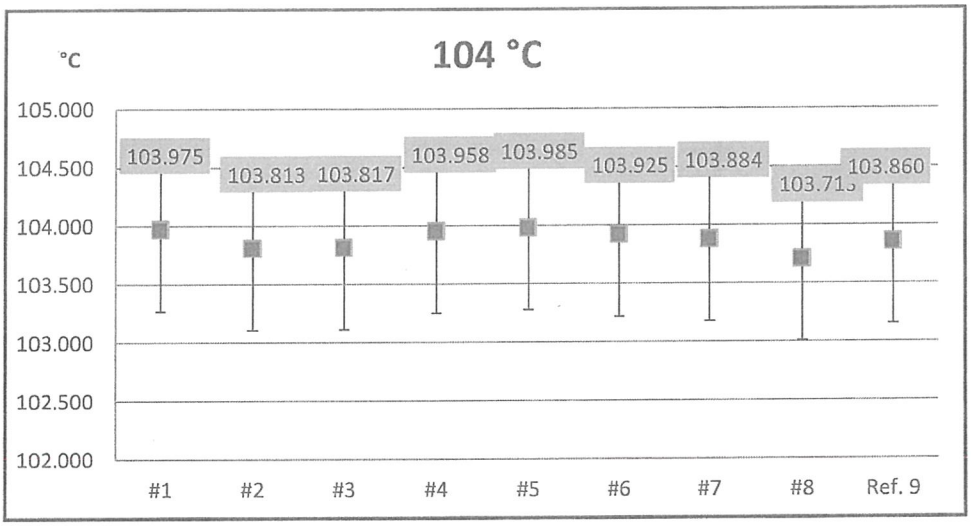
UUC : Unit Under Calibration

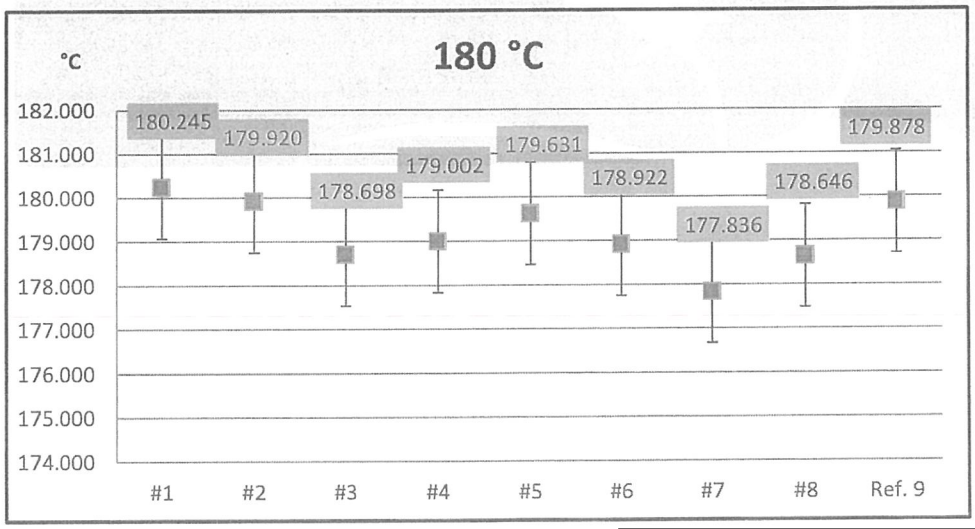
The uncertainties are for a confidence probability of approximately 95 % .

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.

Report Graph





[redacted]

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

NSC-TISI-TIS 17025
CALIBRATION 0024

CALIBRATION CERTIFICATE

CERTIFICATE No. : M26-0664
CSR No. : 260511

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 ± 10) °C
Relative Humidity	:	(50 ± 20) %
Barometric Pressure	:	(1010 ±10) hPa
Date of Received	:	7-May-2026
Date of Calibration	:	7-May-2026
Date of Issued	:	11-May-2026

APPROVED BY

[redacted]

Calibrated By : Mr. Bowornnan Langlea
(Calibration Engineer)

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

@PSE-CAL

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	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

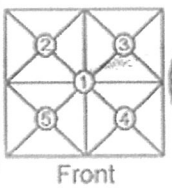
DETERMINATION OF THE STANDARD DEVIATION OF WEIGHT MACHINE (N=5)

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

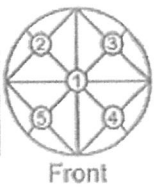
[redacted]

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



Front ☐



Front ☑

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

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 (g)	UUC* Reading (g)	Correction (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 (g)	UUC* Reading (g)	Correction (g)	Uncertainty (±g)	Coverage Factor (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	2.23
320	319.7	0.30	0.25	2.23
360	359.6	0.40	0.25	2.23
400	399.6	0.40	0.25	2.23

[redacted]

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

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 ± 10) °C
Relative Humidity	:	(50 ± 20) %
Barometric Pressure	:	(1010 ±10) hPa
Date of Received	:	7-May-2026
Date of Calibration	:	7-May-2026
Date of Issued	:	11-May-2026

APPROVED B

[redacted]

Calibrated By : Mr. Bowornnan Langlea
(Calibration Engineer)

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

@PSE-CAL

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	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

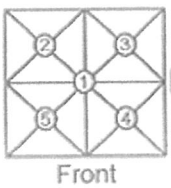
DETERMINATION OF THE STANDARD DEVIATION OF WEIGHT MACHINE (N=5)

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

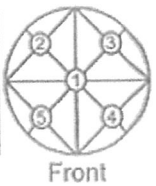
[redacted]

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



Front ☐



Front ☑

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

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 (g)	UUC* Reading (g)	Correction (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 (g)	UUC* Reading (g)	Correction (g)	Uncertainty (± g)	Coverage Factor (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	2.01
140	139.9999	0.00017	0.00026	2.01
160	159.9999	0.00022	0.00026	2.01
180	180.0000	0.00011	0.00028	2.00
200	200.0001	0.00001	0.00029	2.00

[redacted]

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 --

PREMIER SYSTEM ENGINEERING CO., LTD.
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. : V26-0993
CSR No. : 260511

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	:	0.1µS/cm, 0.01mS/cm, 0.1mS/cm
Instrument Condition	:	Good Condition
Location of Calibration	:	Customer Laboratory
Ambient Temperature	:	(25 ± 5) °C
Relative Humidity	:	(55 ± 15) %
Date of Received	:	7-May-2026
Date of Calibration	:	7-May-2026
Date of Issued	:	11-May-2026

APPROVE[redacted]

Calibrated By : Mr. Settawut Paotong
(Calibration Technician)

[redacted] Manager
( ) MR. ATTAPOL JUNTASURAT / Calibration Engineer

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

@PSE-CAL

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 measurment 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 (µS/cm)	UUC Reading (µS/cm)	Correction (µS/cm)	Uncertianty (±µS/cm)	Coverage Factor (k)
* 84.05	84.4	-0.35	1.2	2.00

Standard Buffer Solutions (mS/cm)	UUC Reading (mS/cm)	Correction (mS/cm)	Uncertianty (± mS/cm)	Coverage Factor (k)
12.8895	12.87	0.0195	0.18	2.00
* 111.8	112.1	-0.3	0.42	2.00

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.

[redacted]

-- End --

PREMIER SYSTEM ENGINEERING CO., LTD.
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. : V26-0994
CSR No. : 260511

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 ± 3)°C
Relative Humidity	:	(55 ± 15) %
Date of Received	:	7-May-2026
Date of Calibration	:	7-May-2026
Date of Issued	:	11-May-2026

APPROVED BY

( ) Manager

Calibrated By : Mr. Settawut Paotong
(Calibration Technician)

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

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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 measurment 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 (mV)	pH meter Reading (mV)	Correction (mV)	Uncertainty (± mV)	Coverage Factor (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 (pH)	pH meter Reading (pH)	Correction (pH)	Uncertainty (± pH)	Coverage Factor (k)
3.986	3.99	-0.004	0.018	2.07
6.988	6.99	-0.002	0.020	2.21
10.010	10.06	-0.050	0.058	2.08

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 onl

[redacted]

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

[redacted]

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.

--End--

PREMIER SYSTEM ENGINEERING CO., LTD.
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NSC-TISI-TIS 17025
CALIBRATION 0024

CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1281

CSR No. : 260512

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

[redacted]

APPROVED BY

Calibrated By : Mr. Athiwat Supacheewa
(Temperature Supervisor)

( ) M
( ) M

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

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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.

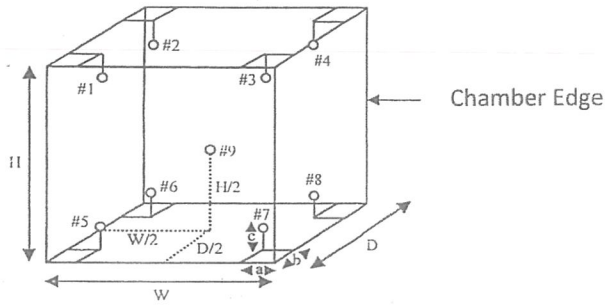
TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurment 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 x H x D	=	40 x 40 x 34.5	cm
Sensor Installation	:	a x b x c	=	5 x 5 x 5	cm

[redacted]

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.

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	Measured Standard Temperature (°C) at Spread Locations									Uncertainty
(°C)	#1	#2	#3	#4	#5	#6	#7	#8	Ref. 9	(± °C)
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

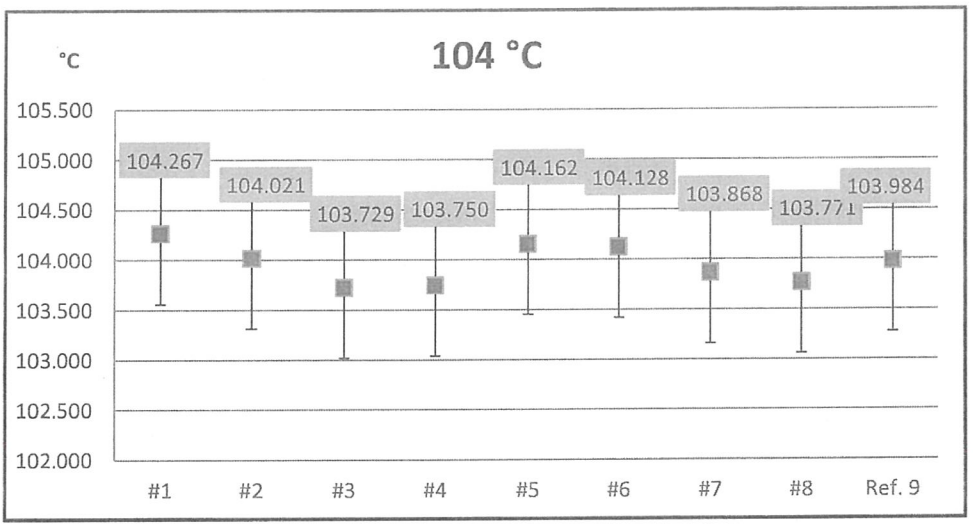
The performance of the hot air oven are reported as shown below

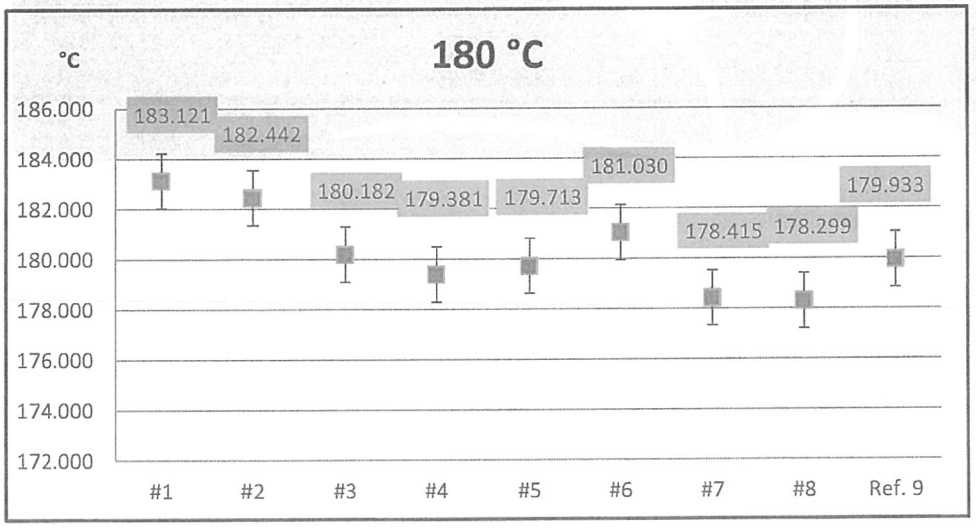
Cal Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Chamber Stability (± °C)	Chamber Uniformity (± °C)	Overall Variation (± °C)
104	104	104	0.083	0.35	0.67
180	180	180	0.25	3.5	5.2

[redacted]

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.

Report Graph





[redacted]

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 --

PREMIER SYSTEM ENGINEERING CO., LTD.
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

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 Calibratior	:	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)

[redacted]
Manager
ineer

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

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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 :

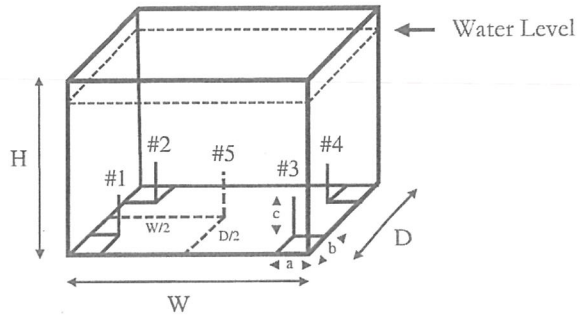
This Calibration Certificate is traceable to national standards which realize the unit of measurment according to the International System of Unit (SI) through :

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 x H x D	=	35 x 22 x 29	cm
Sensor Installation	:	a x b x c	=	5 x 5 x 5	cm

[redacted]

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.

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	Measured Standard Temperature (°C) at Spread Locations					Uncertainty
(°C)	#1	#2	#3	#4	#5	(± °C)
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 (°C)	UUC Setting (°C)	UUC Reading (°C)	Water Bath Stability (± °C)	Water Bath Uniformity (± °C)	Overall Variation (± °C)
85	85.0	85.0	0.068	0.14	0.22
95	95.0	95.0	0.095	0.19	0.28

[redacted]

UUC : Unit Under Calibration

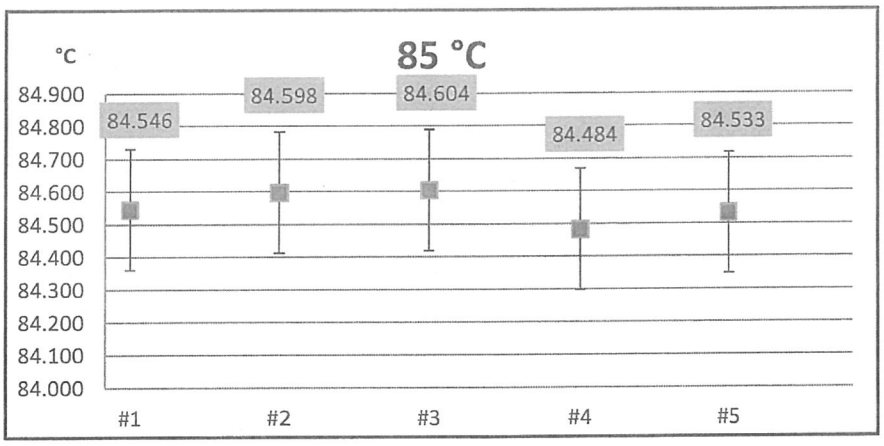
The uncertainty is not combine uniformity of the water bath

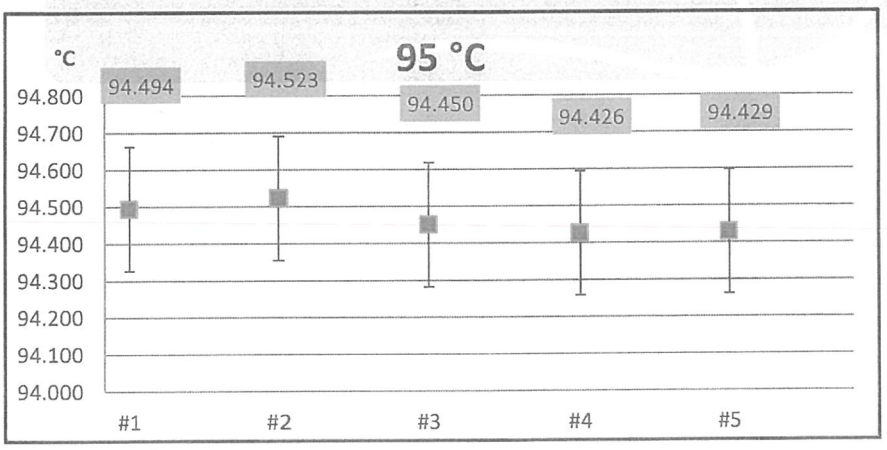
The uncertainties are for a confidence probability of approximately 95 % .

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

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

Report Graph





[redacted]

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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123 Moo 8 Kanjanavanit Rd., Banpru, Hatyai, Songkhla 90250
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NSC-TISI-TIS 17025
CALIBRATION 0024

CALIBRATION CERTIFICATE

CERTIFICATE No. : T26-1286
CSR No. : 260512

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

APPROVED [redacted]

Calibrated By : Mr. Athiwat Supacheewa
(Temperature Supervisor)

Manager
ineer

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

@PSE-CAL

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.

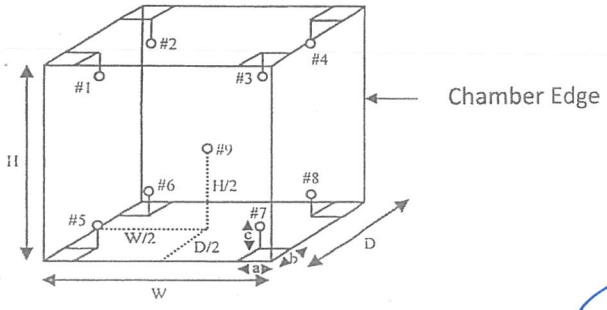
TRACEABILITY :

This Calibration Certificate is traceable to national standards which realize the unit of measurment 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



[redacted]

Dimension of the chamber	:	W x H x D	=	100 x 120 x 48	cm
Sensor Installation	:	a x b x c	=	5 x 5 x 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.

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

Refrigerator Performance Result

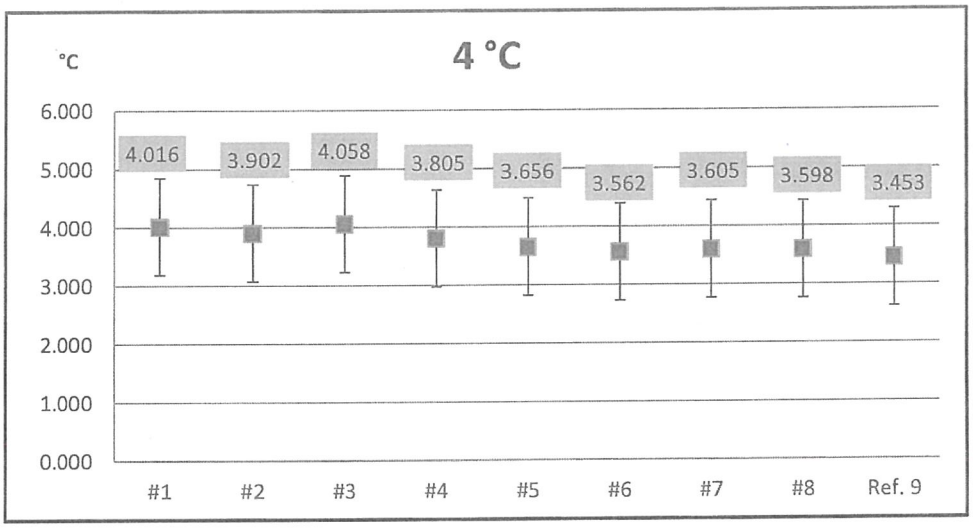
The performance of the refrigerator are reported as shown below

Cal Point (°C)	UUC Setting (°C)	UUC Reading (°C)	Chamber Stability (± °C)	Chamber Uniformity (± °C)	Overall Variation (± °C)
4	4	4	0.36	0.82	1.1

[redacted]

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.

Report Graph



[redacted]

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 --

PREMIER SYSTEM ENGINEERING CO., LTD.
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. : M26-0666
CSR No. : 260512

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 ± 10) °C
Relative Humidity	:	(50 ± 20) %
Barometric Pressure	:	(1010 ±10) hPa
Date of Received	:	7-May-2026
Date of Calibration	:	7-May-2026
Date of Issued	:	11-May-2026

APPROVED

[redacted]

Calibrated By : Mr. Bowornnan Langlea
(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-CAL

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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

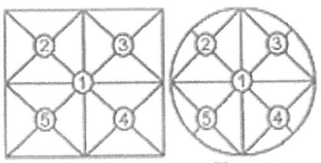
DETERMINATION OF THE STANDARD DEVIATION OF WEIGHT MACHINE (N=5)

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

[redacted]

EFFECT OF OFF CENTER LOADING AT 100 g

Position					Maximum Difference (g)
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 % .

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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 (g)	UUC* Reading (g)	Correction (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 (g)	UUC* Reading (g)	Correction (g)	Uncertainty (±g)	Coverage Factor (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

[redacted]

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 --

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
(Details of the scheme and scope of the certificate are shown in QR CODE and www.tisi.go.th)

ออกให้ ณ วันที่ ๑๕ ธันวาคม พ.ศ. ๒๕๖๘
(Issue date : 15 December B.E. 2568 (2025))

[redacted]

ผู้อำนวยการสำนัก
ปฏิบัติราชการแทน
เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

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

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) บริษัท เซ้าเทิร์นไทยคอนซัลติ้ง จำกัด (Southern Thai Consulting Company Limited)

หมายเลขการรับรองที่ (Accreditation No.) ทดสอบ 1834 (Testing 1834)

ฉบับที่ 01 (Issue No. 01) ออกให้ตั้งแต่วันที่ 24 พฤศจิกายน พ.ศ. 2568 (Valid from 24 November B.E. 2568 (2025)) ถึงวันที่ 23 พฤศจิกายน พ.ศ. 2573 (Until 23 November B.E. 2573 (2030))

สถานภาพห้องปฏิบัติการ (Laboratory status) ☑ ถาวร (Permanent) ☐ นอกสถานที่ (Site) ☐ ชั่วคราว (Temporary) ☐ เคลื่อนที่ (Mobile) ☐ หลายสถานที่ (Multisite)

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

[redacted]