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## เอกสารสอบเทียบเครื่องมือที่ใช้ในการวิเคราะห์



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES  
53/44 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250  
TEL. 0-2717-5000-29 FAX. 0-2719-9484



NIST-TPA  
CALIBRATION 0008

Cert.No.: 23CH276  
Page.: 1 of 2

## Certificate of Calibration

**Equipment :** pH Meter  
**Manufacturer :** Eutech  
**Model :** pH 510  
**Serial No. :** 293152  
**ID No. :** PHM-03  
**Condition As-Received:**  
**Received Date :** 10 February 2023  
**Calibration Date :** 27 February 2023  
**Reference :** 2302-0368DC-1  
**Submitted by :** Environment & Laboratory Co.,Ltd.  
40 Soi Liangmueangnonthaburi 13 Talad Kwan,  
Mueang, Nonthaburi 11000  
(25 ± 2.5) °C  
(50 ± 15) %  
**Ambient Temperature :**  
**Relative Humidity :**  
**Calibration Procedure :** In - house method :  
- CP-CH5 by direct measurement with standard  
voltage calibrator and direct measurement  
with certified reference material (CRM)

**Calibrated by :** Warakorn Lergagtrakul

**Approved by :**

( ) Malee Buikruea  
( ) Sathip Meangmai  
( ) Warakorn Lergagtrakul

**Issue Date :** 7 March 2023

The Uncertainties are for a confidence probability of approximately 95%

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A 0051726



### Condition of this calibration result

- Reference Standard Instrument : -  

Instrument	Serial No.	ID No.	Cert. No.	Due Date
1) Document Process Calibrator	54030049	130RC116	22E2769	24 Aug 2023

This certification is traceable to the International System of Unit maintained at:-  
- Traceable to National Institute of Metrology (Thailand), NIMT
- Certified Reference Materials : The measurement results are traceable to SI through CPA chem Ltd.,  
ANSI-ASQ National Accreditation Board, Accredited No. AR-1835  

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.008	CPA chem	826588	09 July 2024
pH 6.987	CPA chem	826589	09 July 2023
pH 10.010	CPA chem	863835	28 Dec 2023
- This certificate is valid only to the item calibrated on date and place of calibration.

### Calibration Results

Function : mV Measurement

Performing standard curve by Fluke at pH (4.7,10)

Unit Under Calibration	Nominal Value		Standard Voltage Input mV	Actual Reading		Uncertainty of Measurement (±mV)	Coverage factor k
	pH			mV	pH		
pH Meter S/N.: 293152	4.00		177.48	177.4	4.01	0.058	2.00
	7.00		0.00	0.0	7.00	0.058	2.00
	10.00		-177.48	-177.3	10.01	0.058	2.00

Function : pH Measurement

Performing three buffers standard curve by using buffer nominal pH (4.7,10)

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH measurement (±)	Coverage factor k
pH Electrode S/N.: ECF7252101B 262	4.008	4.01	176.5	0.0085	2.05
	6.987	7.00	1.7	0.011	2.00
	10.010	10.01	-173.6	0.0092	2.00

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

-o0o-

a 1150714



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
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5344 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250  
TEL. 0-2717-3000-29 FAX. 0-2719-9484



Cert. No.: 23TM1173  
Page : 1 of 3

## Certificate of Calibration

Equipment : Water Bath  
Manufacturer : Memmert  
Model : WB 22  
Serial No. : I505.0053  
ID No. : WAB-01  
Submitted by : Environment & Laboratory Co.,Ltd.  
40 Soi Liangmueangnonthaburi 13,  
Talad Kwan, Mueang,  
Nonthaburi 11000  
Room No. 303  
Location :

Received Order : 12 July 2023  
Calibration Date : 12 - 13 July 2023  
Ambient Temperature :  $(26 \pm 10) ^\circ\text{C}$   
Relative Humidity :  $(50 \pm 30) \%$

Calibrated by : Khit Ruttanaprapachai

Approved by :

( ) Pornthippa Tameyakul  
(/ ) Malee Butkruea  
( ) Suwit Imjai

Issue Date : 24 July 2023

The Uncertainties are for a confidence probability of approximately 95%

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Approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.

A 0056487



Equipment : Water Bath  
Condition As-Received : Used Item  
Reference : 2307-0094OC-3  
Procedure Used :-  
Cert. No.: 23TM1173  
Page : 2 of 3

Calibration were conducted using in-house calibration procedure CP-OT04 according to direct measurement method with Data Acquisition which connected with Industrial Platinum Resistance Thermometer ( IPRT ).

The temperature scale used was based on ITS-90.

### Condition of this result of calibration

1. Reference standard instrument:-

Instrument Serial No. Cert. No. Traceable Due Date  
1 ) Data Acquisition MY44073381 23LM95 TPA 19 May 2024  
2. This certificate is valid only to the item calibrated on date and place of calibration.  
3. This certification is traceable to the International System of Unit.

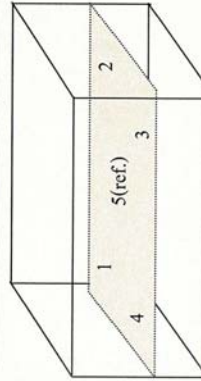
Remark : TPA : Technology Promotion Association ( Thailand - Japan )

Result of Calibration :- ( \* ) Without Adjustment

Function of UUC\* : Temperature Source

Heat transfer medium used : Water

	Environmental		AC Voltage Supply
	( °C )	( %R.H. )	( Volt )
Beginning of Calibration	30	47	220
Finished of Calibration	31	50	221



Front

Position :	Ref. Std. S/N.:
1	4803988-006
2	4803988-007
3	4804539-014
4	4804539-015
5(ref.)	4804539-016

a 1172193





**Equipment :** Water Bath  
**Condition As-Received :** Used Item  
**Reference :** 2307-0094OC-3  
**Result of Calibration :-** ( \* ) Without Adjustment  
**Function of UUC\* :** Temperature Source

**Cert. No.:** 23TM1173  
**Page :** 3 of 3

Calibration point ( °C )	UUC* Setting ( °C )	UUC* Reading ( °C )	Average* Standard Reading ( °C )					Uncertainty ( ± °C )
			Position					
			1	2	3	4	5 (ref.)	
44.5	44.5	44.5	44.507	44.503	44.498	44.509	44.502	0.15
60.0	60.0	60.0	59.914	59.928	59.912	59.899	59.894	0.15

Calibration point ( °C )	Uniformity ( °C )	Stability ( ± °C )	Coverage Factor k
44.5	0.039	0.023	2
60.0	0.098	0.042	2

**Average\* :** The average of 30 values in each position.  
**Uniformity :** The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.  
**Stability :** One-half of the greatest maximum difference of measured temperature at any one probe.  
**UUC\* :** Unit Under Calibration  
**Note :** The reported uncertainty of measurement was included stability and excluded uniformity.

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

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a 1172192



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**Cert. No.:** 23TM1099  
**Page :** 1 of 3

## Certificate of Calibration

**Equipment :** Autoclave  
**Manufacturer :** Rexell  
**Model :** LS-2D  
**Serial No. :** 04131  
**ID No. :** AUT-01  
**Submitted by :** Environment & Laboratory Co., Ltd.  
40 Soi Liangmueangnonthaburi 13,  
Talad Kwan, Mueang,  
Nonthaburi 11000  
Room No. 205  
**Received Order :** 12 July 2023  
**Calibration Date :** 12 July 2023  
**Ambient Temperature :** ( 26 ± 10 ) °C  
**Relative Humidity :** ( 50 ± 30 ) %  
**Calibrated by :** Preecha Hiahib

**Approved by :**

( ) Pornthippa Tameyakul  
( ✓ ) Malee Bulkruea  
( ) Suwit Imjai

**Issue Date :** 24 July 2023

**The Uncertainties are for a confidence probability of approximately 95%**

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Approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.

A 0056477



Equipment : Autoclave  
Condition As-Received : Used Item  
Reference : 2307-0094OC-7  
Cert. No.: 23TM1099  
Page : 2 of 3

**Procedure Used :-**

Calibration were conducted using in-house calibration procedure CP-OT03 according to direct measurement method with Data Acquisition which connected with Thermocouple Type T  
The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

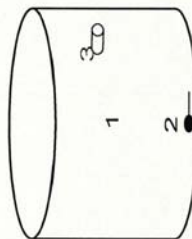
1. Reference standard instrument:-
- | Instrument          | Serial No. | Cert. No. | Traceable | Due Date    |
|---------------------|------------|-----------|-----------|-------------|
| 1) Data Acquisition | MY41021843 | 22LM172   | TPA       | 27 Dec 2023 |
2. This certificate is valid only to the item calibrated on date and place of calibration.  
3. This certification is traceable to the International System of Unit.  
4. This result of calibration covers laboratory autoclaves for the sterilization of goods and material which could be infected with organisms categorized as Hazard Group 1, 2 and 3\*\*

(\*\* = Categorization of pathogens according to hazard and categories of containment, second edition, 1990 )  
It does not cover autoclaves for use with material infect with organisms in Hazard Group 4, for which complete containment and sterilization of infected condensate is considered to be essential.  
This result of calibration does not apply to sterilizers or disinfectors used for medical, dental, pharmaceutical or veterinary purposes which are directly concerned with patient care, or those used for fabrics subjected to sterilization which are required to be dry at the end of cycle.

**Remark :** TPA : Technology Promotion Association ( Thailand - Japan )

**Result of Calibration :-** ( \* ) Without Adjustment

**Function of UUC\* :** Temperature Source



		Environmental	
		( °C )	( %R.H. ) ( Volt )
Beginning of Calibration	30	55	220
Finished of Calibration	30	57	220

Position	Description	Ref. Std. ID No.:
1 =	Center of chamber	21-04TC-01
2 =	Temperature sensor	21-04TC-02
3 =	Exhaust port	21-04TC-03



Equipment : Autoclave  
Condition As-Received : Used Item  
Reference : 2307-0094OC-7  
Cert. No.: 23TM1099  
Page : 3 of 3

**Result of Calibration :-**

( \* ) Without Adjustment

**Function of UUC\* :** Temperature Source

**Operating parameter Set : Temperature =** 121 °C

**Sterilization period =** 15 minute

UUC* Setting ( °C )	UUC* Reading ( °C )	Position	Average* Standard Reading ( °C )	Stability ( ± °C )	Pressure Reading ( kg/cm <sup>2</sup> )	Uncertainty ( ± °C )	Coverage Factor k
121	-	1	121.837	0.89	1.2	1.3	2
		2	121.869				
		3	121.875				

**Average\* :** The average of 30 values in each position.

**Stability :** One-half of the greatest maximum difference of measured temperature at any one probe.

**UUC\* :** Unit Under Calibration

**Note :** The reported uncertainty of measurement was included stability and excluded uniformity .

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

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
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Cert.No.: 23MM176  
Page.: 1 of 3

## Certificate of Calibration

**Equipment :** Electronic Balance  
**Manufacturer :** Mettler Toledo  
**Model :** ML204T /00  
**Serial No. :** B647342339  
**ID No. :** ANB-003  
**Submitted by :** Environment & Laboratory Co.,Ltd.  
40 Soi Liangmueangnonthaburi 13,  
Taled Kwan, Mueang,  
Nonthaburi 11000  
**Location :** Room No. 304  
**Received order :** 12 July 2023  
**Calibration Date :** 13 July 2023  
**Ambient Temperature :** 15 °C to 40 °C  
**Relative Humidity :** 30 % to 90 %  
**Calibrated by :** Khit Ruttanaprapachai

**Approved by :**

( ) Pornthippa Tameyakul  
(✓) Malee Butkruea  
( ) Suwit Imjai

**Issue Date :** 24 July 2023

The Uncertainties are for a confidence probability of approximately 95 %

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A 0056485



**Equipment :** Electronic Balance  
**Condition As-Received :** Used Item  
**Reference :** 2307-0094OC-8

Cert.No.: 23MM176  
Page: 2 of 3

**Procedure used :-**

Calibration were conducted using in-house calibration procedure CP-OB01 according to direct measurement method against standard weight.

**Condition of this result of calibration**

1. Reference standard instruments:-

- | Instruments                 | Model | Serial No. | ID No.  | Test report No. | Due date    |
|-----------------------------|-------|------------|---------|-----------------|-------------|
| 1) Standard Weight Set (E2) | 15884 | 24053      | 70RC007 | MM-0010-22      | 20 Jan 2024 |
2. This certificate is valid only to the item calibrated on date and place of calibration.  
3. This result of calibration was made on requested at the point specified by customer.  
4. This certificate is not certified for any commercial transaction.  
5. This certification is traceable to the International System of Unit.

**Result of calibration** ( ) Without Adjustment ( \* ) After Adjustment by Internal Calibration

**Range capacity :** 0 g to 220 g **Resolution** 0.0001 g

**Before Adjustment :**

Applied Weight ( g )	Balance Reading ( g )	Correction ( g )	Measurement Uncertainty ( ± mg )	Coverage Factor ( k )
100	99.9999	+0.0001	0.17	2.00
200	199.9998	+0.0002	0.29	2.00

**After Adjustment :**

1. Determination of the standard deviation of weighing machine ( n = 10 )

Applied Weight ( g )	Standard Deviation of Reading ( g )
100	0.00005
200	0.00007

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Equipment : Electronic Balance  
Condition As-Received : Used Item  
Reference : 2307-0094OC-8

### Result of calibration

#### 2. Effect of off center loading

A mass of 100 g was placed to various position on the pan.  
The weighing machine reading error obtained is given in the table

Position 1 (g)	Position 2 (g)	Position 3 (g)	Position 4 (g)	Position 5 (g)
-0.0003	-0.0001	-0.0004	-0.0004	-0.0003

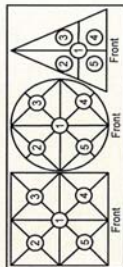
#### 3. Departure from nominal value

Applied Weight (g)	Balance		Correction (g)	Measurement Uncertainty (± mg)	Coverage Factor (k)
	Reading (g)				
Unload	0.0000		0.0000	0.11	2.05
0.2	0.2000		0.0000	0.11	2.05
0.5	0.5000		0.0000	0.11	2.05
2	2.0001		-0.0001	0.11	2.05
5	5.0000		0.0000	0.12	2.05
10	9.9999		+0.0001	0.12	2.05
20	20.0001		-0.0001	0.12	2.04
50	50.0001		-0.0001	0.14	2.00
100	100.0000		0.0000	0.17	2.00
150	149.9999		+0.0001	0.29	2.00
200	200.0000		0.0000	0.29	2.00

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

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Cert.No.: 23MM176  
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Maximum difference between  
off-center and central loading  
(g)  
0.0002

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NSC-TS1-TS17025  
CALIBRATION 0008

Cert. No.: 23TM1171  
Page : 1 of 3

## Certificate of Calibration

Equipment : Hot Air Oven  
Manufacturer : FRANCE ETUVES  
Model : XU058  
Serial No. : P427  
ID No. : CHO-003  
Submitted by : Environment & Laboratory Co.,Ltd.  
40 Soi Liangmueangnonthaburi 13,  
Talat Kwan, Mueang,  
Nonthaburi 11000  
Location : Room No. 303  
Received Order : 12 July 2023  
Calibration Date : 12 July 2023  
Ambient Temperature : ( 26 ± 10 ) °C  
Relative Humidity : ( 50 ± 30 ) %  
Calibrated by : Khit Ruttanapachai

### Approved by :

( ) Pornthippa Tameyakul  
( ) Malee Butkruea  
( ) Suwit Imjai

### Issue Date :

24 July 2023

The Uncertainties are for a confidence probability of approximately 95 %

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Approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.

A 0056482





**Equipment :** Hot Air Oven  
**Condition As-Received :** Used Item  
**Reference :** 2307-0094OC-1  
**Procedure Used :-**

Calibration were conducted using calibration procedure CP-OT02 according to direct measurement method with Data Acquisition which connected with Resistance Temperature Detector ( RTD ) and Thermocouple Type T.

The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

1. Reference standard instrument:-

**Instrument** **Serial No.** **Cert. No.** **Traceable** **Due Date**  
1 ) Data Acquisition MY44073381 23LM95 TPA 19 Jun 2024

2. This certificate is valid only to the item calibrated on date and place of calibration.

3. This certification is traceable to the International System of Unit.

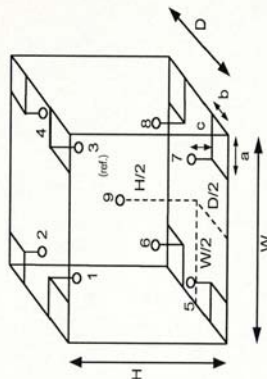
**Remark :** TPA : Technology Promotion Association ( Thailand - Japan )

**Result of Calibration :-**

( \* ) Without Adjustment

**Function of UUC\* :** Temperature Source

**Fresh air setting :** Close



**Probe Installation Details :**

a =	5.0	cm	D =	0.36	m
b =	5.0	cm	W =	0.40	m
c =	5.0	cm	H =	0.40	m
				Capacity =	0.058 m <sup>3</sup>

Position :	( 104 ) °C	( 180 ) °C
1	1RTD-2/1	23-01TC-01
2	1RTD-2/2	23-01TC-02
3	22-01RTD-03	23-01TC-03
4	1RTD-2/4	23-01TC-04
5	1RTD-2/5	23-01TC-05
6	1RTD-2/6	23-01TC-06
7	23-01RTD-07	23-01TC-07
8	1RTD-2/8	23-01TC-08
9 (ref.)	23-01RTD-09	23-01TC-09

Ref. Std. ID No. : @	Calibration Point
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**Environment during calibration**

	Beginning	Finished
Temp. ( °C )	30	31
REL.Humid. ( % )	47	50
AC Supply ( Volt )	220	221



**Equipment :** Hot Air Oven  
**Condition As-Received :** Used Item  
**Reference :** 2307-0094OC-1  
**Result of Calibration :-** ( \* ) Without Adjustment  
**Function of UUC\* :** Temperature Source  
**Fresh air setting :** Close

Calibration Point ( °C )	UUC* Setting ( °C )	UUC* Reading ( °C )	Temperature stability ( ± °C )	Temperature uniformity ( °C )	Overall Variation ( °C )	Coverage Factor k
104.0	104.0	104.0	0.11	0.78	1.1	2
180.0	180.0	180.0	0.16	1.2	1.4	2

Calibration Point ( °C )	Measured Temperature ( °C )									Uncertainty ( ± °C )
	1	2	3	4	5	6	7	8	9 (ref.)	
104.0	104.477	104.168	104.138	103.871	103.794	103.878	103.580	104.030	104.311	0.42
180.0	180.089	180.200	179.313	179.510	179.867	180.455	179.576	180.135	180.394	1.1

**Average\* :** The average of 30 values in each position.

**Temperature stability :** One-half of the greatest maximum difference of measured temperature at any one sensor.

**Temperature uniformity :** The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.

**Overall Variation :** The Difference of the maximum and minimum measured temperatures throughout observation.

**UUC\* :** Unit Under Calibration

**Note :** The reported uncertainty of measurement was included stability and excluded uniformity .

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

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Cert. No.: 23TM1273  
Page : 1 of 3

## Certificate of Calibration

**Equipment :** Incubator  
**Manufacturer :** EnviLab-Intelligent  
**Model :** -  
**Serial No. :** -  
**ID No. :** CHI-005  
**Submitted by :** Environment & Laboratory Co.,Ltd.  
40 Soi Liangmueangnonthaburi 13,  
Talad Kwan, Mueang,  
Nonthaburi 11000  
**Location :** Room No. 204  
**Received Order :** 24 August 2023  
**Calibration Date :** 24 August 2023  
**Ambient Temperature :** ( 26 ± 10 ) °C  
**Relative Humidity :** ( 50 ± 30 ) %  
**Calibrated by :** Preecha Hlahib  
**Approved by :**   
( ) Pornthippa Tameyakul  
( ) Ponpan Paipim  
(✓) Suwit Imjai  
**Issue Date :** 29 August 2023

The Uncertainties are for a confidence probability of approximately 95%

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Approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.

A 0057741



**Equipment :** Incubator  
**Condition As-Received :** Used Item  
**Reference :** 2308-0600OC-1  
**Procedure Used :-**

Calibration were conducted using calibration procedure CP-OT02 according to direct measurement method with Data Acquisition which connected with Resistance Temperature Detector ( RTD ).  
The temperature scale used was based on ITS-90.

### Condition of this result of calibration

1. Reference standard instrument:-  

Instrument	Serial No.	Cert. No.	Traceable	Due Date
1 ) Data Acquisition	MY44035217	22LM170	TPA	16 Dec 2023
2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.

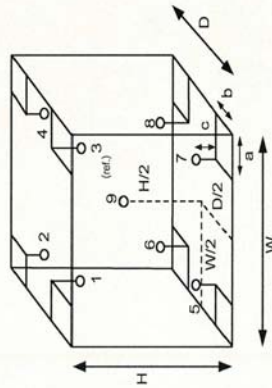
**Remark :** TPA : Technology Promotion Association ( Thailand - Japan )

**Result of Calibration :-** ( \* ) Without Adjustment

**Function of UUC\* :** Temperature Source

**Fresh air setting :** Not Available

Environment during calibration		
	Beginning	Finished
Temp. ( °C )	23	23
REL.Humid. ( % )	50	54
AC Supply ( Volt )	220	220



Position :	Ref. Std. ID No.:
1	18-10RTD-01
2	18-10RTD-02
3	18-10RTD-03
4	18-10RTD-04
5	18-10RTD-05
6	18-10RTD-06
7	18-10RTD-07
8	18-10RTD-08
9 (ref.)	18-10RTD-09

**Probe Installation Details :**

a =	5.0 cm	D =	0.40 m
b =	5.0 cm	W =	0.70 m
c =	5.0 cm	H =	1.0 m
		Capacity =	0.28 m³



a 1176747



Equipment : Incubator  
Condition As-Received : Used Item  
Reference : 2308-06000C-1  
Result of Calibration :- (\*) Without Adjustment  
Function of UUC\* : Temperature Source  
Fresh air setting : Not Available

Cert. No.: 23TM1273  
Page : 3 of 3

Calibration Point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Temperature stability (± °C)	Temperature uniformity (°C)	Overall Variation (°C)	Coverage Factor k
35.0	35.0	35.0	0.47	1.2	1.8	2

Calibration Point (°C)	Measured Temperature (°C)									Uncertainty (±°C)
	1	2	3	4	5	6	7	8	9 (ref.)	
35.0	34.805	34.737	34.701	34.435	34.724	34.783	35.228	35.604	34.816	0.71

Average\* : The average of 30 values in each position.  
Temperature stability : One-half of the greatest maximum difference of measured temperature at any one sensor.  
Temperature uniformity : The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.  
Overall Variation : The Difference of the maximum and minimum measured temperatures throughout observation.  
UUC\* : Unit Under Calibration

Note : The reported uncertainty of measurement was included stability and excluded uniformity .

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

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)  
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES  
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250  
TEL. 0-2717-3000-29 FAX. 0-2719-9484



NSC-TSI-71517025  
CALIBRATION 0008

Cert. No.: 23TM1101  
Page : 1 of 3

## Certificate of Calibration

Equipment : Incubator  
Manufacturer : Songserm Intercool  
Model : -  
Serial No. : -  
ID No. : CHI-001  
Submitted by : Environment & Laboratory Co., Ltd.  
40 Soi Liangmueangnonthaburi 13,  
Talaiad Kwan, Mueang,  
Nonthaburi 11000  
Room No. 301  
Location :  
Received Order : 12 July 2023  
Calibration Date : 13 July 2023  
Ambient Temperature : ( 26 ± 10 ) °C  
Relative Humidity : ( 50 ± 30 ) %  
Calibrated by : Preecha Hlahib  
Approved by :  
( ) Pornthippa Tameyakul  
( / ) Malee Bukruea  
( ) Suwit Imjai  
Issue Date : 24 July 2023

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written  
Approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.

A 0056479





Equipment : Incubator  
Condition As-Received : Used Item

Result of Calibration :-	( * ) Without Adjustment
Function of UUC* :	Temperature Source
Fresh air setting :	Not Available

Condition of this result of calibration			
1. Reference standard instrument-			
Instrument	Serial No.	Cert. No.	Traceable
1 ) Data Acquisition	MY41021843	22LM172	TPA
			Due Date
			27 Dec 2023

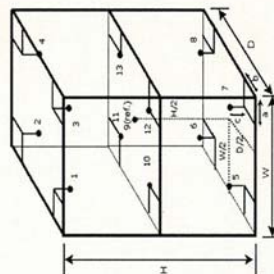
<u>Instrument</u>	<u>Serial No.</u>	<u>Cert. No.</u>	<u>Traceable</u>	<u>Due Date</u>
1 ) Data Acquisition	MY41021843	22LM172	TPA	27 Dec 2023

**Result of Calibration :-**

Function of UUC* :	Temperature Source

**Fresh air setting :**

Position :	Ref. Std. ID No.:
1	18-04RTD-01
2	18-04RTD-02
3	18-04RTD-03
4	18-04RTD-04
5	18-04RTD-05
6	18-04RTD-06
7	18-04RTD-07
8	18-04RTD-08
9 (ref.)	18-04RTD-09
10	18-04RTD-10
11	21-04RTD-11
12	21-04RTD-12
13	21-04RTD-13



### Probe Installation Details :

D =	0.60	m	a =	10	cm
W =	0.60	m	b =	10	cm
H =	1.2	m	c =	10	cm
Capacity =	0.43	m <sup>3</sup>			

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

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