



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

Certificate of Calibration

Cert.No.: 26CH18
Page.: 1 of 2

Equipment : pH Meter
Manufacturer : Eutech
Model : pHTestr 30
Serial No. : 2561366
ID No. : -
Condition As-Received: Used Item
Received Date : 06 January 2026
Calibration Date : 08 January 2026
Reference : 2601-0066DN-3
Submitted by : Environment Research & Technology Company Limited.
25/114 Moo 6, Soi Chinaket 1, Ngamwongwan Road,
Toongsonghong, Laksi, Bangkok 10210

Ambient Temperature : (25 ± 2.5) °C
Relative Humidity : (50 ± 15) %
Calibration Procedure : In - house method :
- CP-CH5 by direct measurement with
reference material (RM)

Calibrated by : Warakorn Lernagtrakul

Approved by :

Saithip

Approved Signatory

- () Chakrit Waewwanjua
() Ponpan Paipim
(✓) Saithip Meangmai

Issue Date : 09 January 2026

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 Calibration and Testing Equipment Services.



Cert.No.: 26CH18

Page.: 2 of 2

Condition of this calibration result

1. Certified Reference Materials : Standard buffer solution (Traceable to NIST, U.S.A.)

<u>Buffer Solution</u>	<u>Manufacturer</u>	<u>Lot No.</u>	<u>Exp. date</u>
pH 4.01	Thermo Scientific	234/04	07 June 2027
pH 7.00	Thermo Scientific	174/01	26 Apr 2027
pH 10.01	Thermo Scientific	363/03	08 Sep 2026

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

Calibration Results

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 ($\pm$)	Coverage factor k
pH Electrode S/N.: 2561366	4.01	4.01	N/A	0.012	2.00
	7.00	7.00	N/A	0.013	2.00
	10.01	10.01	N/A	0.016	2.00

Remark

- pH meter does not have voltage mode.
- Can not connect the BNC because the plug does not match with the socket.
- N/A = Not Available

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-



TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
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534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250

TEL. 0-2717-3000 FAX. 0-2719-9484

Certificate of Testing

Cert.No.: 25TW195

Page.: 1 of 2

Equipment :	DO Meter
Manufacturer :	YSI
Model :	5000-115
Serial No. :	17H104220
ID No. :	ERTC-L-In.137
Received Date :	23 September 2025
Test Date :	25 September 2025
Reference :	2509-0785DN-1
Submitted by :	Environment Research & Technology Company Limited. 25/114 Moo 6, Soi Chinaket 1, Ngamwongwan Road, Toongsonghong, Laksi, Bangkok 10210
Laboratory Condition :	Temperature (25 ± 5) °C Humidity (50 ± 20) %
Test Procedure :	In - house method : CP-CH9 by Comparison Technique with Azide Modification Method
Tested by :	Walalak Sirithean
Approved by :	Approved Signatory
() Chakrit Waewwanjua	
() Ponpan Paipim	
(✓) Saithip Meangmai	
Issue Date :	26 September 2025



Cert.No.: 25TW195

Page.: 2 of 2

Condition of this result of calibration

1. Reference Standard Instruments :

This measurement result is traceable to the International System of Unit through the reference standards laboratory of Industrial Calibration Center, Technology Promotion Association (Thailand-Japan).

<u>Instruments</u>	<u>ID No.</u>	<u>Certificate No.</u>	<u>Due Date</u>
1. Burette	130BU10	25CG1126	18 Mar 2027
2. Balance	110RC001	25MM316	02 July 2026

2. Standard Material :-

<u>Material</u>	<u>Manufacturer</u>	<u>Lot.No.</u>	<u>Assay</u>
Sodium Thiosulfate 5-Hydrate AR	KEMAUS	2203162447	99.6%

Result : **Dissolved Oxygen Meter Adjustment With Air 100 %**

Dissolved Oxygen Probe No.: 5010 03G1489

Titration Method (Azide Modification Method) (mg/L)	DO Meter Reading (mg/L)	Standard Deviation (mg/L)
8.20	8.22	0.0055

This report was certified only for the instrument we tested. It is allowable to use for study
Intend to use for advertising and referral purpose is prohibited. This report may not be reproduced
other in full, without written approval of the laboratory

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**Inctech Metrological Center Co.Ltd.**

39/1 Soi 82, Sukhapiban 5 Rd., O ngoen.

Saimai, Bangkok 10220, Thailand

Tel. (662) 909-8820 (Auto 10 lines) www.imcinstrument.comCalibration Cert. # 3884.01
ISO/IEC 17025

Certificate of Calibration

Certificate No. : MT25-7002

Page : 1 of 2

Customer : Environment Research & Technology Company Limited
Address : 25/114 Moo 6 Soi Chinaket 1, Ngamwongwan Road, Toongsonghong, Laksi, Bangkok 10210

Description : Incubator
Manufacturer : Accuplus
Model : SMART i250
Serial No. : 2059-0218-0002
Identification No. : ERTC-L-In-143
Calibration Place : Customer Laboratory

Order No. : 3296/25
Received date : Oct 03, 2025
Calibration date : Oct 03, 2025
Environment Condition :
Temperature : (25+/-10) °C
Humidity : (50+/-30) %RH

Calibration Method : Calibration were conducted using In-house calibration procedure *CP-MT-006* According to comparison with LXI Data Acquisition Switch Unit with sensor. The calibration methods based on Euramet Calibration Guide No.20 - guidelines on the Calibration of Temperature and/or Humidity Controlled Enclosures.

Reference Standard Instruments :

<u>Instrument</u>	<u>Model</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>
Data Acquisition System with Sensor	DAQ970A	MY58029872	MT25-5654	Aug 15, 2026

The effect that the result relate only to the items calibrated. It was found accurate as shown on date and place of calibration only.

Traceability : This measurement are traceable to the International System of Unit (SI), through National Institute of Metrology Thailand (NIMT)

The reported expanded uncertainty of measurement was based on standard uncertainty multiplied by coverage factor $k = 2$, providing a level of confidence of not less than 95%

**Calibrated by :** Mr.Yuttakorn Jamneansri**Approved by :** (Mr.Panuwat Phuklan)**Issue date :** Oct 09, 2025

This calibration certificate shall not be reproduced other than in full except with the prior written approval of Inctech Metrological Center Co.,Ltd



Certificate No. : MT25-7002

Page : 2 of 2

Function : Temperature measurement

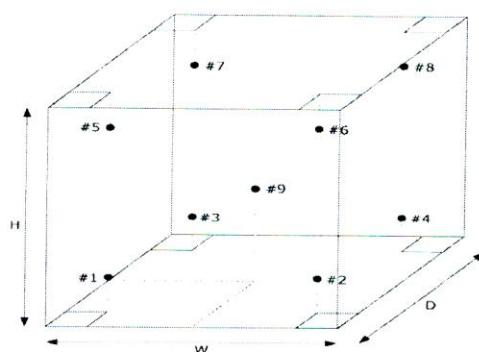
Result : Without adjustment

Calibration point : 20 °C

Resolution : 0.1 °C

Calibration point (°C)	Temperature of UUC* at each position (°C)									Uncertainty of measurement (+/- °C)
	Ch.1	Ch.2	Ch.3	Ch.4	Ch.5	Ch.6	Ch.7	Ch.8	Ch.9	
20	20.442	20.192	20.437	20.294	20.569	20.361	20.531	20.424	19.997	0.42

Setting temperature (°C)	Indicating Temperature (°C)	Measured stability (+/- °C)	Measured uniformity (°C)	Overall variation (°C)
20.0	20.0 to 20.2	0.29	0.88	1.0

**Front view**

- #1 Lower Left Front
- #2 Lower Right Front
- #3 Lower Left Rear
- #4 Lower Right Rear
- #5 Upper Left Front
- #6 Upper Right Front
- #7 Upper Left Rear
- #8 Upper Right Rear
- #9 Geometric Center

UUC* = Unit under calibration**Uniformity** = Maximum and Minimum difference of measured temperature at any probes and the measured temperature at the reference and same time.**Overall Variation** = Difference of temperature value between the maximum and minimum any time.**Stability** = One half of the maximum difference of measured temperatures at any one probe.

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Mettler-Toledo (Thailand) Limited

846/4 - 846/5 Lasalle Rd., Bangna Tai Sub-District

Bangna District, Bangkok 10260

+662 723 0382

MT-TH.ServiceSupport@mt.com



Accuracy Calibration Certificate

Customer

Company: Environment Research & Technology Co., Ltd.
Address: 25/114 Moo 6, Soi Chinaket 1, Ngamwongwan Rd., Toongsonghong
City: Laksi Contact: Ramita Taengthai
Zip / Postal: 10210
State / Province: Bangkok
Order Number: 
0 3 3 3 7 8 4 4 8 2

Weighing Device

Manufacturer: Mettler Toledo Terminal Model: N/A
Model: MS204S/01 Terminal Serial No.: N/A
Serial No.: B334691537 Terminal Asset No.: N/A
Instrument Type: Weighing Instrument Building: N/A
Asset Number: ERTC-L-IN-088 Floor: 5
Room: 504

Range	Max. Capacity	Readability (d)
1	220 g	0.0001 g

Procedure

Calibration Guideline: EURAMET cg-18 v. 4.0 (11/2015)
METTLER TOLEDO Work Instruction: CP/W002/20

This calibration certificate contains measurements for As Found calibration. No As Left calibration was performed because the device was not modified after As Found calibration. Therefore, results for As Left correspond to As Found.

The sensitivity/span of the weighing instrument was adjusted before calibration with a built-in weight.

In accordance with EURAMET cg-18 (11/2015), the test loads were selected to reflect the specific use of the weighing device or to accommodate specific calibration conditions.

As Found	Temperature		Humidity	
	Start: 24.2 °C	End: 23.8 °C	Start: 39.3 %	End: 33.6 %

As Found Calibration Date: 26-Jan-2026
As Left Calibration Date: N/A
Issue Date: 27-Jan-2026

Calibrator: 
Surachai Pidkanpai

Approved Signatory: 
Technical Manager / Head of Calibration Center

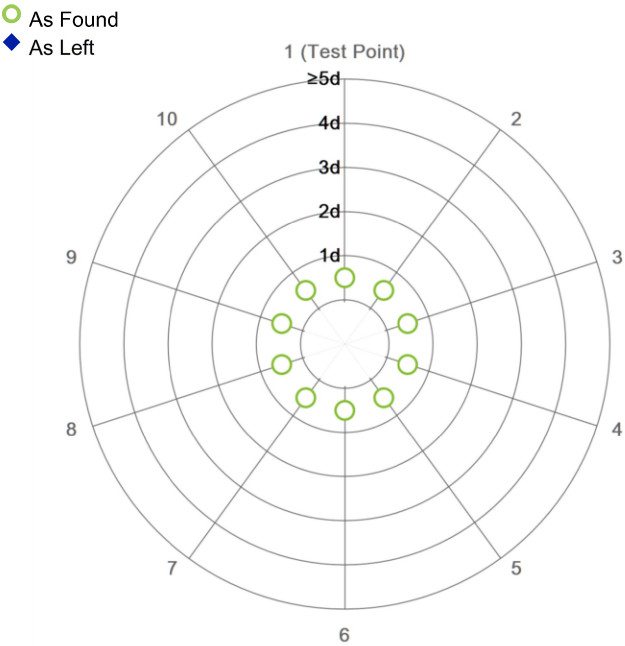
Measurement Results

Repeatability

Test Load: 100 g

	As Found	As Left
1	100.0001 g	N/A
2	100.0001 g	N/A
3	100.0000 g	N/A
4	100.0001 g	N/A
5	100.0001 g	N/A
6	100.0000 g	N/A
7	100.0000 g	N/A
8	100.0001 g	N/A
9	100.0000 g	N/A
10	100.0000 g	N/A

Standard Deviation	0.00005 g	N/A
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The "d" in the graph represents the readability of the range/interval in which the test was performed.

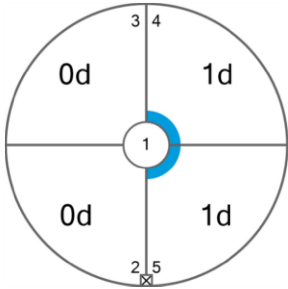
The results of this graph are based upon the absolute values of the differences from the mean value.

Eccentricity

Test Load: 100 g

Position	As Found	As Left
1	100.0001 g	N/A
2	100.0001 g	N/A
3	100.0001 g	N/A
4	100.0002 g	N/A
5	100.0002 g	N/A

Maximum Deviation	0.0001 g	N/A
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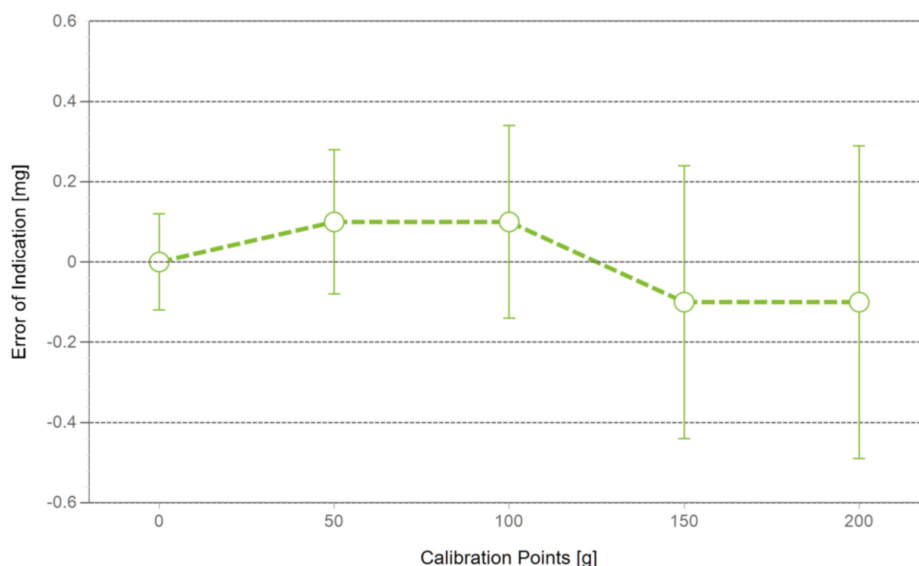
As Found

The "d" in the graph represents the readability of the range/interval in which the test was performed.

Error of Indication

As Found

	Reference Value	Indication	Error of Indication	Expanded Uncertainty	k
1	0.0000 g	0.0000 g	0.0000 g	0.12 mg	2
2	0.0500 g	0.0500 g	0.0000 g	0.13 mg	2
3	0.1000 g	0.1000 g	0.0000 g	0.13 mg	2
4	0.5000 g	0.5001 g	0.0001 g	0.14 mg	2
5	1.0000 g	1.0000 g	0.0000 g	0.14 mg	2
6	5.0000 g	5.0000 g	0.0000 g	0.14 mg	2
7	10.0000 g	10.0001 g	0.0001 g	0.15 mg	2
8	50.0000 g	50.0001 g	0.0001 g	0.18 mg	2
9	100.0000 g	100.0001 g	0.0001 g	0.24 mg	2
10	150.0001 g	150.0000 g	-0.0001 g	0.34 mg	2
11	200.0001 g	200.0000 g	-0.0001 g	0.39 mg	2



○ As Found

◆ As Left

For improved legibility of the graphics only increasing measurement points are shown and measurement points close to zero are not displayed.

The expanded measurement uncertainty is reported as the standard measurement uncertainty multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95 %.

The user is responsible for maintaining environmental conditions and the settings of the weighing instrument when it was calibrated.
The results of this calibration certificate relate only to the calibrated item.

Test Equipment

All weights used for metrological testing are traceable to national or international standards. The weights were calibrated and certified by an accredited calibration laboratory.

Weight Set 1: OIML E2

Weight Set No.:	WS105	Date of Issue:	14-Apr-2025
Certificate Number:	C515828262	Calibration Due Date:	02-Oct-2026

Thermo Hygrometer

Equipment No.:	IN305	Date of Issue:	17-Oct-2025
Certificate Number:	SG-H-00885/68	Calibration Due Date:	14-Oct-2026

Remarks

FACT adjustment functionality activated

Equipment condition: Good

Next calibration according to customer's procedure

Calibration data not decide by calibration laboratory

Calibration Guideline: Based on EURAMET cg-18 v.4.0 (11/2015)

End of Accredited Section

The information below and any attachments to this calibration certificate are not part of the accredited calibration.

Measurement Uncertainty of the Weighing Instrument in Use

Stated is the expanded uncertainty with $k=2$ in use. The formula shall be used for the estimation of the uncertainty under consideration of the errors of indication. The value R represents the net load indication in the unit of measure of the device.

Temperature coefficient for the evaluation of the measurement uncertainty in use: $1.5 \cdot 10^{-6} / K$

Temperature range on site for the evaluation of the measurement uncertainty in use: 3 K

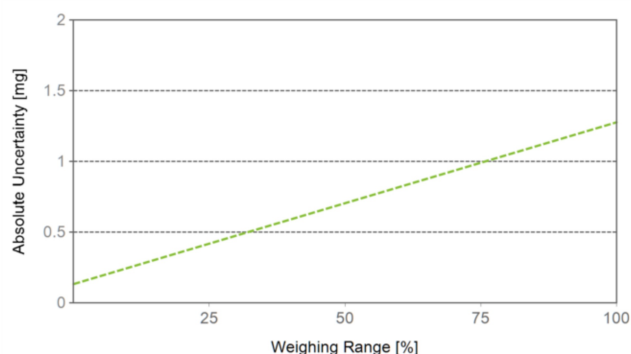
Linearization of Uncertainty Equation

Range			As Found	As Left
	d	Max		
1	0.0001 g	220 g	$U_1 = 0.13 \text{ mg} + 0.00520 \text{ mg/g} \cdot R$	N/A

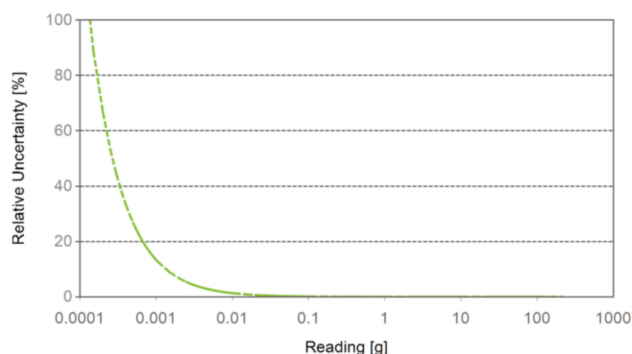
To optimize the stability of the linearization, besides of the zero load only increasing measurement points with a test load of 5% of the measurement range or larger are taken for the calculation of the linear equation.

Absolute and Relative Measurement Uncertainty in Use for Various Net Indications (Examples)

Net Indication	As Found		As Left	
0.0220 g	0.13 mg	0.59%	N/A	N/A
0.2200 g	0.13 mg	0.060%	N/A	N/A
2.2000 g	0.14 mg	0.0064%	N/A	N/A
22.0000 g	0.24 mg	0.0011%	N/A	N/A
220.0000 g	1.3 mg	0.00058%	N/A	N/A



As Found



As Left



Are you looking for some clarifications on the terms and graphs in your ACC calibration certificate? Do you know how to leverage its full value?

More information at:
► www.mt.com/ACC-Cert-Info



GWP™ Certificate



Process Requirements

Weighing Tolerance	1%
Smallest Net Weight	0.0500 g
Safety Factor	As found = 1; As left = 2

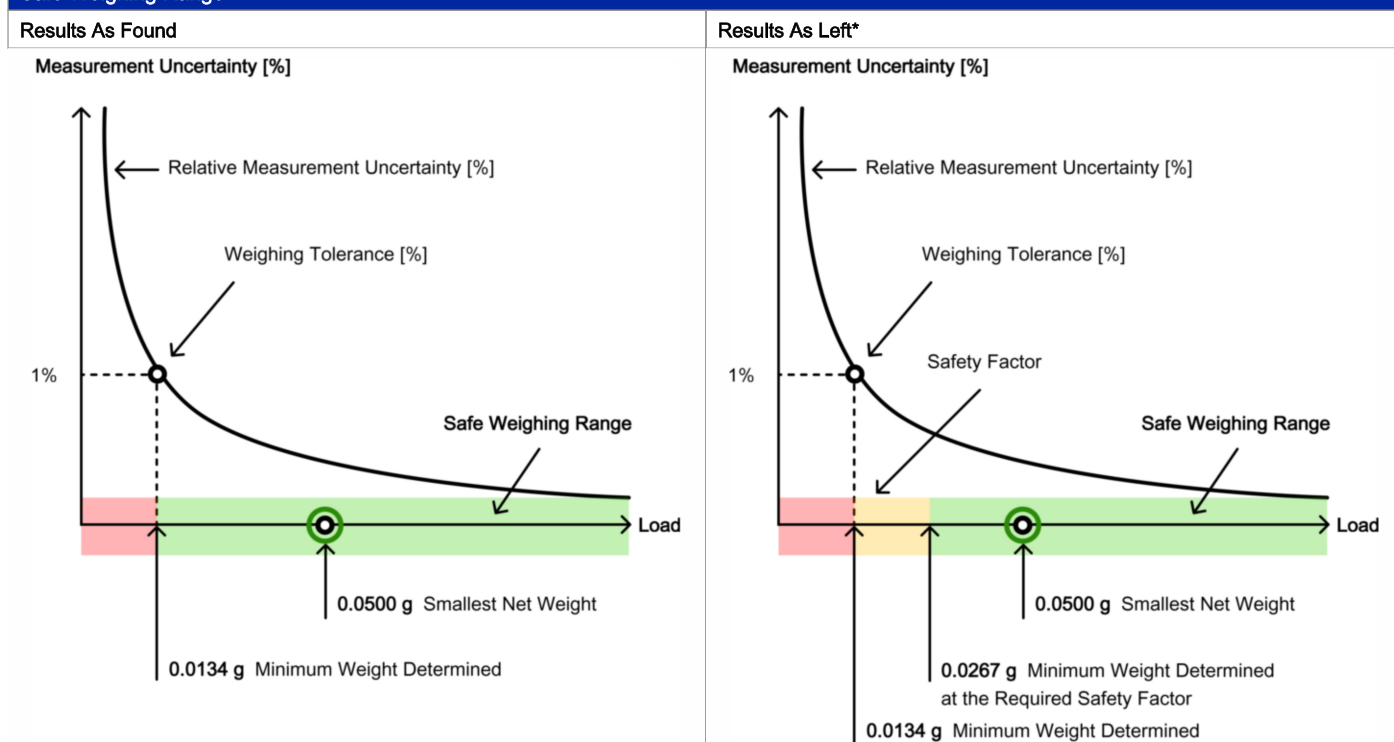
Results As Found

Minimum Weight Determined	0.0134 g	The instrument meets the process requirements.
Measurement Uncertainty at the Smallest Net Weight	0.27%	

Results As Left*

Minimum Weight Determined at the Safety Factor	0.0267 g	The instrument meets the process requirements.
Minimum Weight Determined	0.0134 g	
Measurement Uncertainty at the Smallest Net Weight	0.27%	

Safe Weighing Range



* No adjustments/modifications made. As Left results correspond to As Found.



Are you looking for some clarifications on the terms and Safe Weighing Range graph?

More information at:

► www.mt.com/GWP-Cert-Info



Minimum Weight

As Found Minimum Weight Table: Minimum weights for different weighing tolerances and safety factors

Weighing Tolerance	Safety Factor				
	1	2	3	5	10
0.1%	0.1341 g	0.2695 g	0.4064 g	0.6845 g	1.4065 g
0.2%	0.0669 g	0.1341 g	0.2016 g	0.3378 g	0.6845 g
0.5%	0.0267 g	0.0535 g	0.0803 g	0.1341 g	0.2695 g
1%	0.0134 g	0.0267 g	0.0401 g	0.0669 g	0.1341 g
2%	0.0067 g	0.0134 g	0.0201 g	0.0334 g	0.0669 g
5%	0.0027 g	0.0054 g	0.0081 g	0.0134 g	0.0267 g

Result:



Pass

The instrument meets the process requirements.

As Left Minimum Weight Table: Minimum weights for different weighing tolerances and safety factors

Weighing Tolerance	Safety Factor				
	1	2	3	5	10
0.1%	0.1341 g	0.2695 g	0.4064 g	0.6845 g	1.4065 g
0.2%	0.0669 g	0.1341 g	0.2016 g	0.3378 g	0.6845 g
0.5%	0.0267 g	0.0535 g	0.0803 g	0.1341 g	0.2695 g
1%	0.0134 g	0.0267 g	0.0401 g	0.0669 g	0.1341 g
2%	0.0067 g	0.0134 g	0.0201 g	0.0334 g	0.0669 g
5%	0.0027 g	0.0054 g	0.0081 g	0.0134 g	0.0267 g

Result:



Pass

The instrument meets the process requirements.

No adjustments or modifications were made and thus As Left results correspond to As Found.

The minimum weight values are calculated from the measurement uncertainty in use equation for various weighing tolerances and safety factors.

At the minimum weight, the relative uncertainty in use equals the weighing tolerance divided by the safety factor. If "N/A" is shown in the minimum weight table, no appropriate value could be calculated.

METTLER TOLEDO is not responsible for the definition of the process requirements. The user is responsible for maintaining environmental conditions and the settings of the weighing instrument when it was calibrated.



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



Certificate of Calibration

Cert. No.: 26TM91

Page : 1 of 3

Equipment : Hot Air Oven

Manufacturer : Binder

Model : FED 115 E2

Serial No. : 11-22823

ID No. : ERTC-L-In-076

Submitted by : Environment Research & Technology Company Limited.
25/114 Moo 6, Soi Chinaket 1, Ngamwongwan Road,
Toongsonghong, Laksi,
Bangkok 10210

Location : หน้าห้อง 510

Received Order : 06 January 2026

Calibration Date : 06 January 2026

Ambient Temperature : (26 ± 10) °C

Relative Humidity : (50 ± 30) %

AC Line Voltage : (220 ± 22) V

Calibrated by : Preecha Hlahib

Approved by :

Kunchit

Approved Signatory

- () Chakrit Waewwanjua
() Suwit Imjai
(✓) Kunchit Promprat

Issue Date : 23 January 2026

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.



Equipment : Hot Air Oven
Condition As-Received : Used Item
Reference : 2601-0016ON-2

Cert. No.: 26TM91

Page : 2 of 3

Procedure Used :-

Calibration were conducted using calibration procedure CP-OT02 based on TLAS G-20 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:-

<u>Instrument</u>	<u>Serial No.</u>	<u>Cert. No.</u>	<u>Traceable</u>	<u>Due Date</u>
1) Data Acquisition	MY49001451	25LM45	TPA	15 Mar 2026

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

3. This measurement result is traceable to the International System of Unit maintained through :

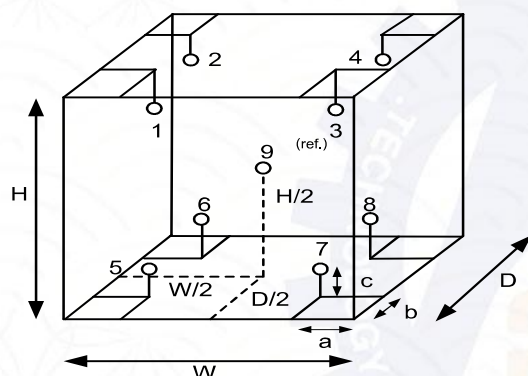
Remark : TPA : Technology Promotion Association (Thailand - Japan)

Result of Calibration :- (*) Without Adjustment

Function of UUC* : Temperature Source

Fresh air setting : Close

Environment during calibration		
	Beginning	Finished
Temp. (°C)	28	30
REL.Humid. (%)	47	53
AC Supply (Volt)	220	221



Ref. Std. ID No.: @ Calibration Point		
Position :	(104) °C	(180) °C
1	19RTD-2/1	24-19TC-01
2	19RTD-2/2	24-19TC-02
3	19RTD-2/3	24-19TC-03
4	19RTD-2/4	24-19TC-04
5	19RTD-2/5	24-19TC-05
6	24-19RTD-2/6	24-19TC-06
7	19RTD-2/7	24-19TC-07
8	19RTD-2/8	24-19TC-08
9 (ref.)	19RTD-2/9	24-19TC-09

Probe Installation Details :

a = 5.0 cm
b = 5.0 cm
c = 5.0 cm

Dimension of Chamber :

D = 0.40 m
W = 0.60 m
H = 0.48 m
Capacity = 0.12 m³



Equipment : Hot Air Oven
Condition As-Received : Used Item
Reference : 2601-0016ON-2
Result of Calibration :- (*) Without Adjustment
Function of UUC* : Temperature Source
Fresh air setting : Close

Cert. No.: 26TM91

Page : 3 of 3

Calibration Point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Temperature stability (± °C)	Temperature uniformity (°C)	Overall Variation (°C)	Coverage Factor <i>k</i>
104	105	105	0.13	2.7	3.0	2
180	180	180	0.37	5.0	6.1	2

Calibration Point (°C)	Measured Temperature (°C)									Uncertainty (± °C)
	Position									
	1	2	3	4	5	6	7	8	9 (ref.)	
104	105.267	104.091	105.896	104.807	104.687	103.614	106.458	104.250	103.847	0.90
180	179.002	177.717	181.894	179.943	179.396	177.051	182.606	178.649	178.035	1.7

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



Certificate of Calibration

Cert. No.: 26TM92

Page : 1 of 3

Equipment : Hot Air Oven

Manufacturer : Memmert

Model : UF 110

Serial No. : B414.0652

ID No. : ERTC-L-In-098

Submitted by : Environment Research & Technology Company Limited.
25/114 Moo 6, Soi Chinaket 1, Ngamwongwan Road,
Toongsonghong, Laksi,
Bangkok 10210

Location : หน้าห้อง 510

Received Order : 06 January 2026

Calibration Date : 06 January 2026

Ambient Temperature : (26 ± 10) °C

Relative Humidity : (50 ± 30) %

AC Line Voltage : (220 ± 22) V

Calibrated by : Preecha Hlahib

Approved by :

Approved Signatory

() Chakrit Waewwanjua

() Suwit Imjai

(✓) Kunchit Promprat

Issue Date : 23 January 2026

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.



Equipment : Hot Air Oven
Condition As-Received : Used Item
Reference : 2601-0016ON-3

Cert. No.: 26TM92

Page : 2 of 3

Procedure Used :-

Calibration were conducted using calibration procedure CP-OT02 based on TLAS G-20 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:-

<u>Instrument</u>	<u>Serial No.</u>	<u>Cert. No.</u>	<u>Traceable</u>	<u>Due Date</u>
1) Data Acquisition	MY49001451	25LM45	TPA	15 Mar 2026

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

3. This measurement result is traceable to the International System of Unit maintained through :

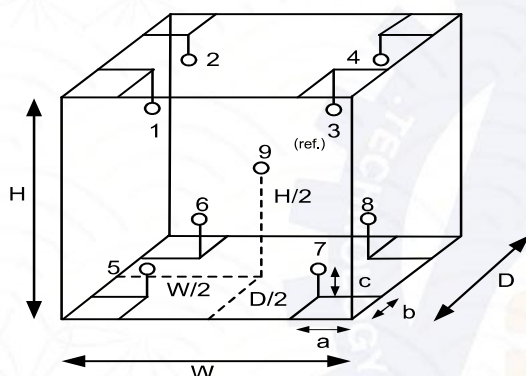
Remark : TPA : Technology Promotion Association (Thailand - Japan)

Result of Calibration :- (*) Without Adjustment

Function of UUC* : Temperature Source

Fresh air setting : Close

Environment during calibration		
	Beginning	Finished
Temp. (°C)	28	30
REL.Humid. (%)	47	53
AC Supply (Volt)	220	221



Ref. Std. ID No.: @ Calibration Point

Position :	(104) °C	(180) °C
1	19RTD-2/1	24-19TC-01
2	19RTD-2/2	24-19TC-02
3	19RTD-2/3	24-19TC-03
4	19RTD-2/4	24-19TC-04
5	19RTD-2/5	24-19TC-05
6	24-19RTD-2/6	24-19TC-06
7	19RTD-2/7	24-19TC-07
8	19RTD-2/8	24-19TC-08
9 (ref.)	19RTD-2/9	24-19TC-09

Probe Installation Details :

a = 5.0 cm
b = 5.0 cm
c = 5.0 cm

Dimension of Chamber :

D = 0.40 m
W = 0.56 m
H = 0.48 m
Capacity = 0.11 m³



Equipment : Hot Air Oven
Condition As-Received : Used Item
Reference : 2601-0016ON-3
Result of Calibration :- (*) Without Adjustment
Function of UUC* : Temperature Source
Fresh air setting : Close

Cert. No.: 26TM92

Page : 3 of 3

Calibration Point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Temperature stability (± °C)	Temperature uniformity (°C)	Overall Variation (°C)	Coverage Factor <i>k</i>
104.0	104.0	104.0	0.087	0.76	1.3	2
180.0	180.0	180.0	0.26	2.1	3.3	2

Calibration Point (°C)	Measured Temperature (°C)									Uncertainty (±°C)
	Position									
	1	2	3	4	5	6	7	8	9 (ref.)	
104.0	104.789	103.617	103.728	104.014	104.595	104.034	104.201	103.758	104.320	0.42
180.0	181.961	178.946	179.766	180.263	181.771	180.723	179.204	180.550	180.823	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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Mettler-Toledo (Thailand) Limited

846/4 - 846/5 Lasalle Rd., Bangna Tai Sub-District

Bangna District, Bangkok 10260

+662 723 0382

MT-TH.ServiceSupport@mt.com



Accuracy Calibration Certificate

Customer

Company: Environment Research & Technology Co., Ltd.
Address: 25/114 Moo 6, Soi Chinaket 1, Ngamwongwan Rd., Toongsonghong
City: Laksi Contact: Ramita Taengthai
Zip / Postal: 10210
State / Province: Bangkok
Order Number: 

Weighing Device

Manufacturer: Mettler Toledo Terminal Model: N/A
Model: MS204TS/00 Terminal Serial No.: N/A
Serial No.: B547728937 Terminal Asset No.: N/A
Instrument Type: Weighing Instrument Building: N/A
Asset Number: ERTC-L-IN-114 Floor: 5
Room: 504

Range	Max. Capacity	Readability (d)
1	220 g	0.0001 g

Procedure

Calibration Guideline: EURAMET cg-18 v. 4.0 (11/2015)
METTLER TOLEDO Work Instruction: CP/W002/20

This calibration certificate contains measurements for As Found calibration. No As Left calibration was performed because the device was not modified after As Found calibration. Therefore, results for As Left correspond to As Found.

The sensitivity/span of the weighing instrument was adjusted before calibration with a built-in weight.

In accordance with EURAMET cg-18 (11/2015), the test loads were selected to reflect the specific use of the weighing device or to accommodate specific calibration conditions.

As Found	Temperature		Humidity	
	Start: 24.8 °C	End: 24.6 °C	Start: 37.9 %	End: 37.9 %

As Found Calibration Date: 26-Jan-2026
As Left Calibration Date: N/A
Issue Date: 27-Jan-2026

Calibrator: 
Surachai Pidkanpai

Approved Signatory: 
Technical Manager / Head of Calibration Center

Measurement Results

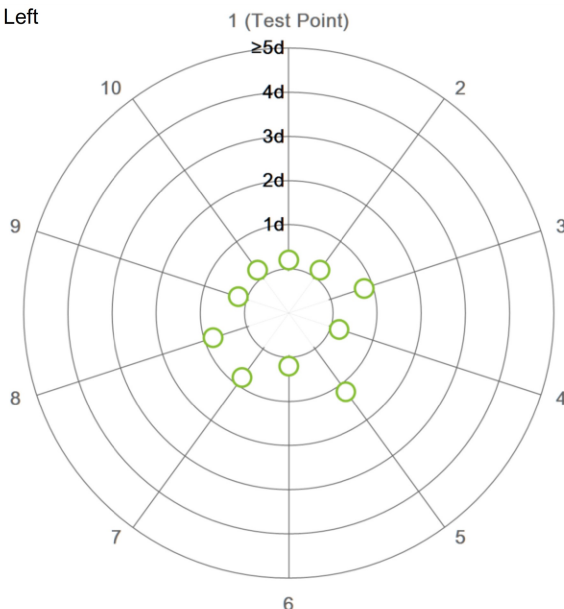
Repeatability

Test Load: 100 g

	As Found	As Left
1	100.0000 g	N/A
2	100.0000 g	N/A
3	99.9999 g	N/A
4	100.0000 g	N/A
5	100.0001 g	N/A
6	100.0000 g	N/A
7	99.9999 g	N/A
8	99.9999 g	N/A
9	100.0000 g	N/A
10	100.0000 g	N/A

Standard Deviation	0.00006 g	N/A
--------------------	-----------	-----

○ As Found
◆ As Left



The "d" in the graph represents the readability of the range/interval in which the test was performed.

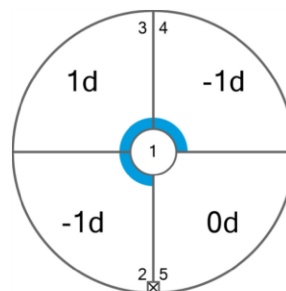
The results of this graph are based upon the absolute values of the differences from the mean value.

Eccentricity

Test Load: 100 g

Position	As Found	As Left
1	100.0000 g	N/A
2	99.9999 g	N/A
3	100.0001 g	N/A
4	99.9999 g	N/A
5	100.0000 g	N/A

Maximum Deviation	0.0001 g	N/A
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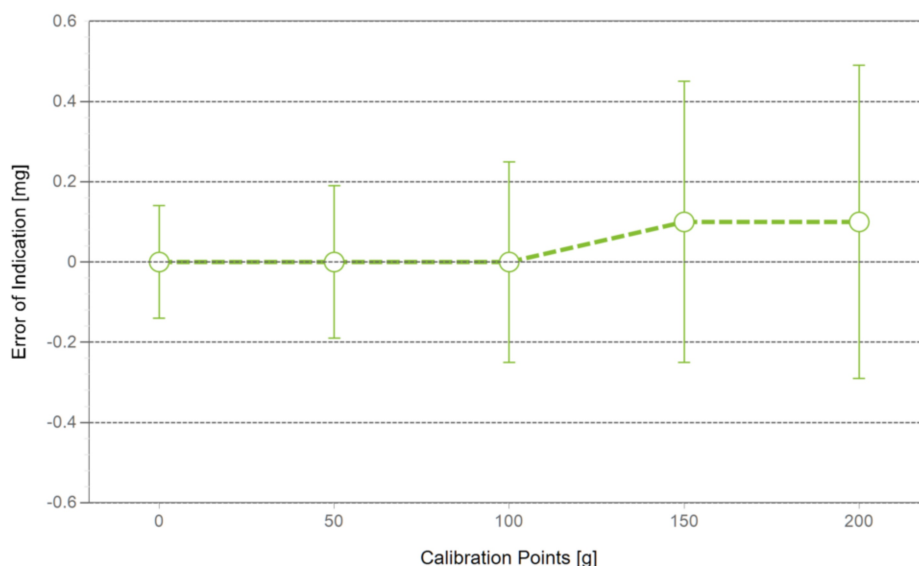
As Found

The "d" in the graph represents the readability of the range/interval in which the test was performed.

Error of Indication

As Found

	Reference Value	Indication	Error of Indication	Expanded Uncertainty	k
1	0.0000 g	0.0000 g	0.0000 g	0.14 mg	2
2	0.0500 g	0.0500 g	0.0000 g	0.15 mg	2
3	0.1000 g	0.1000 g	0.0000 g	0.15 mg	2
4	0.5000 g	0.5001 g	0.0001 g	0.15 mg	2
5	1.0000 g	1.0000 g	0.0000 g	0.15 mg	2
6	5.0000 g	4.9999 g	-0.0001 g	0.16 mg	2
7	10.0000 g	10.0000 g	0.0000 g	0.16 mg	2
8	50.0000 g	50.0000 g	0.0000 g	0.19 mg	2
9	100.0000 g	100.0000 g	0.0000 g	0.25 mg	2
10	150.0001 g	150.0002 g	0.0001 g	0.35 mg	2
11	200.0001 g	200.0002 g	0.0001 g	0.39 mg	2



○ As Found

◆ As Left

For improved legibility of the graphics only increasing measurement points are shown and measurement points close to zero are not displayed.

The expanded measurement uncertainty is reported as the standard measurement uncertainty multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95 %.

The user is responsible for maintaining environmental conditions and the settings of the weighing instrument when it was calibrated.
The results of this calibration certificate relate only to the calibrated item.

Test Equipment

All weights used for metrological testing are traceable to national or international standards. The weights were calibrated and certified by an accredited calibration laboratory.

Weight Set 1: OIML E2

Weight Set No.:	WS105	Date of Issue:	14-Apr-2025
Certificate Number:	C515828262	Calibration Due Date:	02-Oct-2026

Thermo Hygrometer

Equipment No.:	IN305	Date of Issue:	17-Oct-2025
Certificate Number:	SG-H-00885/68	Calibration Due Date:	14-Oct-2026

Remarks

FACT adjustment functionality activated

Equipment condition: Good

Next calibration according to customer's procedure

Calibration data not decide by calibration laboratory

Calibration Guideline: Based on EURAMET cg-18 v.4.0 (11/2015)

End of Accredited Section

The information below and any attachments to this calibration certificate are not part of the accredited calibration.

Measurement Uncertainty of the Weighing Instrument in Use

Stated is the expanded uncertainty with $k=2$ in use. The formula shall be used for the estimation of the uncertainty under consideration of the errors of indication. The value R represents the net load indication in the unit of measure of the device.

Temperature coefficient for the evaluation of the measurement uncertainty in use: $3.0 \cdot 10^{-6} / K$

Temperature range on site for the evaluation of the measurement uncertainty in use: 3 K

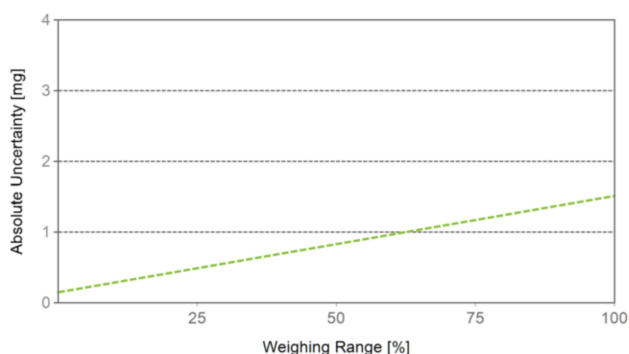
Linearization of Uncertainty Equation

Range			As Found	As Left
	d	Max		
1	0.0001 g	220 g	$U_1 = 0.15 \text{ mg} + 0.00620 \text{ mg/g} \cdot R$	N/A

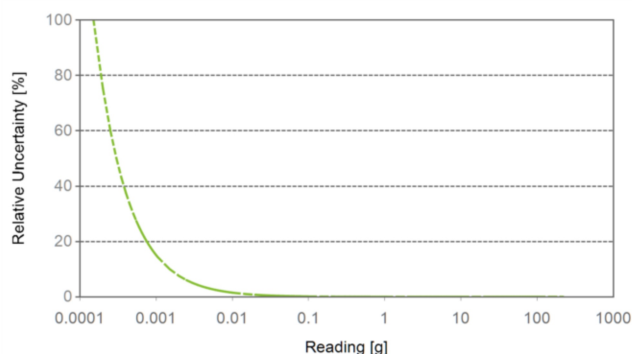
To optimize the stability of the linearization, besides of the zero load only increasing measurement points with a test load of 5% of the measurement range or larger are taken for the calculation of the linear equation.

Absolute and Relative Measurement Uncertainty in Use for Various Net Indications (Examples)

Net Indication	As Found		As Left	
0.0220 g	0.15 mg	0.68%	N/A	N/A
0.2200 g	0.15 mg	0.069%	N/A	N/A
2.2000 g	0.16 mg	0.0074%	N/A	N/A
22.0000 g	0.29 mg	0.0013%	N/A	N/A
220.0000 g	1.5 mg	0.00069%	N/A	N/A



As Found



As Left



Are you looking for some clarifications on the terms and graphs in your ACC calibration certificate? Do you know how to leverage its full value?

More information at:
► www.mt.com/ACC-Cert-Info



GWP™ Certificate



Process Requirements

Weighing Tolerance	1%
Smallest Net Weight	0.0500 g
Safety Factor	As found = 1; As left = 2

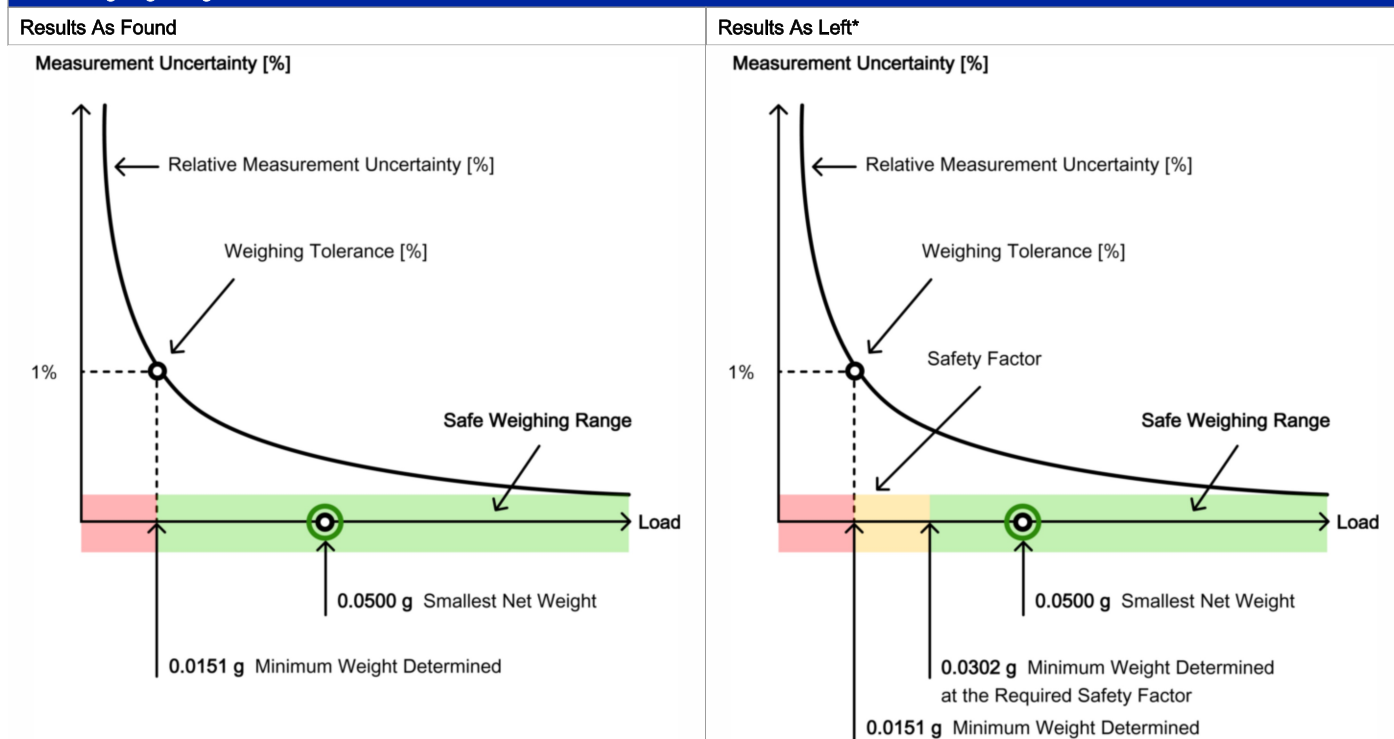
Results As Found

Minimum Weight Determined	0.0151 g	The instrument meets the process requirements.
Measurement Uncertainty at the Smallest Net Weight	0.30%	

Results As Left*

Minimum Weight Determined at the Safety Factor	0.0302 g	The instrument meets the process requirements.
Minimum Weight Determined	0.0151 g	
Measurement Uncertainty at the Smallest Net Weight	0.30%	

Safe Weighing Range



* No adjustments/modifications made. As Left results correspond to As Found.



Are you looking for some clarifications on the terms and Safe Weighing Range graph?

More information at:

► www.mt.com/GWP-Cert-Info



Minimum Weight

As Found Minimum Weight Table: Minimum weights for different weighing tolerances and safety factors

Weighing Tolerance	Safety Factor				
	1	2	3	5	10
0.1%	0.1515 g	0.3049 g	0.4603 g	0.7769 g	1.6051 g
0.2%	0.0756 g	0.1515 g	0.2280 g	0.3824 g	0.7769 g
0.5%	0.0302 g	0.0604 g	0.0907 g	0.1515 g	0.3049 g
1%	0.0151 g	0.0302 g	0.0453 g	0.0756 g	0.1515 g
2%	0.0076 g	0.0151 g	0.0227 g	0.0377 g	0.0756 g
5%	0.0031 g	0.0061 g	0.0091 g	0.0151 g	0.0302 g

Result:



Pass

The instrument meets the process requirements.

As Left Minimum Weight Table: Minimum weights for different weighing tolerances and safety factors

Weighing Tolerance	Safety Factor				
	1	2	3	5	10
0.1%	0.1515 g	0.3049 g	0.4603 g	0.7769 g	1.6051 g
0.2%	0.0756 g	0.1515 g	0.2280 g	0.3824 g	0.7769 g
0.5%	0.0302 g	0.0604 g	0.0907 g	0.1515 g	0.3049 g
1%	0.0151 g	0.0302 g	0.0453 g	0.0756 g	0.1515 g
2%	0.0076 g	0.0151 g	0.0227 g	0.0377 g	0.0756 g
5%	0.0031 g	0.0061 g	0.0091 g	0.0151 g	0.0302 g

Result:



Pass

The instrument meets the process requirements.

No adjustments or modifications were made and thus As Left results correspond to As Found.

The minimum weight values are calculated from the measurement uncertainty in use equation for various weighing tolerances and safety factors.

At the minimum weight, the relative uncertainty in use equals the weighing tolerance divided by the safety factor. If "N/A" is shown in the minimum weight table, no appropriate value could be calculated.

METTLER TOLEDO is not responsible for the definition of the process requirements. The user is responsible for maintaining environmental conditions and the settings of the weighing instrument when it was calibrated.



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



Certificate of Calibration

Cert. No.: 26TM123

Page : 1 of 3

Equipment : Incubator

Manufacturer : Memmert

Model : IF160

Serial No. : D522.0070

ID No. : ERTC-L-In-181

Submitted by : Environment Research & Technology Company Limited
25/114 Moo 6 Soi Chinaket 1,
Ngamwongwan Road, Toongsonghong, Laksi,
Bangkok 10210

Location : 408/2 ห้องปฏิบัติการบ่มอาหารเลี้ยงเชื้อ

Received Order : 06 January 2026

Calibration Date : 07 January 2026

Ambient Temperature : (26 ± 10) °C

Relative Humidity : (50 ± 30) %

AC Line Voltage : (220 ± 22) V

Calibrated by : Uthen Kankawi

Approved by :

Approved Signatory

() Chakrit Waewwanjua

() Suwit Imjai

(✓) Kunchit Promprat

Issue Date : 23 January 2026

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.



Equipment : Incubator
Condition As-Received : Used Item
Reference : 2601-0016ON-5

Cert. No.: 26TM123
Page : 2 of 3

Procedure Used :-

Calibration were conducted using calibration procedure CP-OT02 based on TLAS G-20 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:-

<u>Instrument</u>	<u>Serial No.</u>	<u>Cert. No.</u>	<u>Traceable</u>	<u>Due Date</u>
1) Data Acquisition	MY57013711	25LM117	TPA	17 Jul 2026

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

3. This measurement result is traceable to the International System of Unit maintained through :

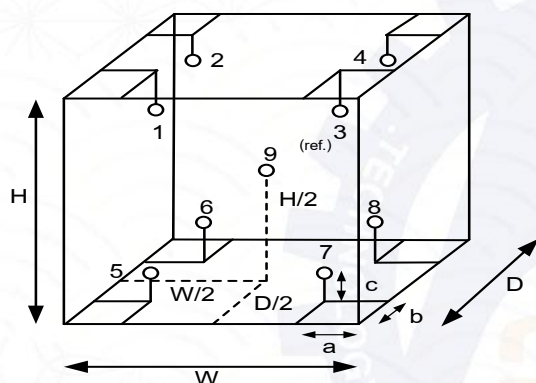
Remark : TPA : Technology Promotion Association (Thailand - Japan)

Result of Calibration :- (*) Without Adjustment

Function of UUC* : Temperature Source

Fresh air setting : Close

Environment during calibration		
	Beginning	Finished
Temp. (°C)	24	23
REL.Humid. (%)	46	45
AC Supply (Volt)	222	222



Position :	Ref. Std. ID No.:
1	18-18RTD-01
2	24-18RTD-02
3	18-18RTD-03
4	18-18RTD-04
5	18-18RTD-05
6	23-18RTD-06
7	18-18RTD-07
8	22-18RTD-08
9 (ref.)	24-18RTD-09

Probe Installation Details :

a = 5.0 cm
 b = 5.0 cm
 c = 5.0 cm

Dimension of Chamber :

D = 0.40 m
 W = 0.56 m
 H = 0.73 m
 Capacity = 0.16 m³



Equipment : Incubator
Condition As-Received : Used Item
Reference : 2601-0016ON-5
Result of Calibration :- (*) Without Adjustment
Function of UUC* : Temperature Source
Fresh air setting : Close

Cert. No.: 26TM123

Page : 3 of 3

Calibration Point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Temperature stability (± °C)	Temperature uniformity (°C)	Overall Variation (°C)	Coverage Factor <i>k</i>
35.0	35.0	35.0	0.017	0.14	0.19	2

Calibration Point (°C)	Measured Temperature (°C)									Uncertainty (±°C)
	Position									
	1	2	3	4	5	6	7	8	9 (ref.)	
35.0	35.004	35.048	34.997	34.981	35.024	34.977	34.885	35.005	35.014	0.30

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



Certificate of Calibration

Cert. No.: 26TM121

Page : 1 of 3

Equipment : Incubator

Manufacturer : Ehret

Model : BK 4106

Serial No. : 22162

ID No. : ERTC-L-In-022

Submitted by : Environment Research & Technology Company Limited
25/114 Moo 6 Soi Chinaket 1,
Ngamwongwan Road, Toongsonghong, Laksi,
Bangkok 10210

Location : 408/2 ห้องปฏิบัติการบ่มอาหารเลี้ยงเชื้อ

Received Order : 06 January 2026

Calibration Date : 06 January 2026

Ambient Temperature : (26 ± 10) °C

Relative Humidity : (50 ± 30) %

AC Line Voltage : (220 ± 22) V

Calibrated by : Uthen Kankawi

Approved by :

Approved Signatory

() Chakrit Waewwanjua

() Suwit Imjai

(✓) Kunchit Promprat

Issue Date : 23 January 2026

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.



Equipment : Incubator
Condition As-Received : Used Item
Reference : 2601-0016ON-6

Cert. No.: 26TM121

Page : 2 of 3

Procedure Used :-

Calibration were conducted using calibration procedure CP-OT02 based on TLAS G-20 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:-

<u>Instrument</u>	<u>Serial No.</u>	<u>Cert. No.</u>	<u>Traceable</u>	<u>Due Date</u>
1) Data Acquisition	MY57013711	25LM117	TPA	17 Jul 2026

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

3. This measurement result is traceable to the International System of Unit maintained through :

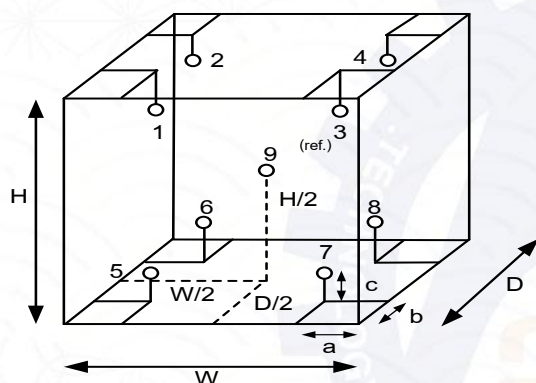
Remark : TPA : Technology Promotion Association (Thailand - Japan)

Result of Calibration :- (*) Without Adjustment

Function of UUC* : Temperature Source

Fresh air setting : Close

Environment during calibration		
	Beginning	Finished
Temp. (°C)	22	22
REL.Humid. (%)	34	33
AC Supply (Volt)	225	225



Position :	Ref. Std. ID No.:
1	18-18RTD-01
2	24-18RTD-02
3	18-18RTD-03
4	18-18RTD-04
5	18-18RTD-05
6	23-18RTD-06
7	18-18RTD-07
8	22-18RTD-08
9 (ref.)	24-18RTD-09

Probe Installation Details :

a = 5.0 cm
 b = 5.0 cm
 c = 5.0 cm

Dimension of Chamber :

D = 0.50 m
 W = 0.60 m
 H = 0.50 m
 Capacity = 0.15 m³



Equipment : Incubator
Condition As-Received : Used Item
Reference : 2601-0016ON-6
Result of Calibration :- (*) Without Adjustment
Function of UUC* : Temperature Source
Fresh air setting : Close

Cert. No.: 26TM121

Page : 3 of 3

Calibration Point (°C)	UUC* Setting (°C)	UUC* Reading (°C)	Temperature stability (± °C)	Temperature uniformity (°C)	Overall Variation (°C)	Coverage Factor <i>k</i>
44.5	44.5	45.0	0.15	0.70	1.4	2

Calibration Point (°C)	Measured Temperature (°C)									Uncertainty (±°C)
	Position									
	1	2	3	4	5	6	7	8	9 (ref.)	
44.5	44.114	44.775	44.550	44.796	43.564	43.812	43.915	44.415	44.165	0.67

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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