

ภาคผนวกที่ 4

ใบรับรองการสอบเทียบเครื่องมือ

Certificate of Calibration

Certificate No. : 66-400618-1

Page : 1 of 2

Submitted by : M E T Company Limited
36/659 Moo 6, T.Bangrakpattana, A.Bangbuatong, Nonthaburi 11110

Equipment : Digital Thermometer with Thermistor Probe
Temperature Indicator

| | | | |
|------------------|-------------|-------------------|-------------|
| Manufacturer : | Hanna | Model : | HI8424 |
| Range : | N/A °C | Resolution : | 0.1 °C |
| Serial No. : | 06190028101 | ID No. : | MET-pH09/64 |
| Thermistor Probe | | | |
| Model : | HI7662 | Sheath Material : | Stainless |
| Diameter : | 3 mm. | Length : | 115 mm. |
| Serial No. : | 0815071N | ID No. : | MET-pH09/64 |

Environment : On site calibration was carried out at the Laboratoty, M E T Company Limited

| | |
|-----------------------|----------------------|
| Ambient Temperature : | (24.8 to 25.7) °C |
| Relative Humidity : | (55 to 60) % |
| Line Voltage : | (224.5 to 225.0) VAC |

Date of Received : 07 November 2023

Date of Calibration : 07 November 2023

Date of Issue : 11 November 2023

Calibrated by : Permpon Chanpu

Calibration Method : This instrument was calibrated by In-house method comparison technique CAL-M4003 by compared with PRT in the dry-well calibrator at the constant controlled temperature.

The temperature scale used was based on ITS-90

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

1. Platinum Resistance Thermometer (PRT)

| ID No. | Cert. No. | Due Date | Traceability |
|--------|------------|-------------|---|
| 400002 | TT-0074-22 | 20 Jun 2024 | National Institute of Metrology Thailand (NIMT) |

2. Standard Digital Thermometer

| ID No. | Cert. No. | Due Date | Traceability |
|--------|-----------|-------------|---|
| 400033 | 22E569 | 22 Feb 2024 | National Institute of Metrology Thailand (NIMT) |

Approved by

Laboratory Manager

The Uncertainties are for a confidence probability of approximately 95%

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Certificate of Calibration

Certificate No. : 66-400618-1

Page : 2 of 2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

| Immersion Depth (mm.) | Standard Reading (°C) | UUC Reading (°C) | Correction (°C) | Uncertainty (± °C) |
|----------------------------|----------------------------|-----------------------|----------------------|-------------------------|
| 115 | 10.005 | 10.0 | 0.0 | 0.19 |
| 115 | 30.003 | 30.0 | 0.0 | 0.19 |
| 115 | 50.006 | 50.0 | 0.0 | 0.19 |

Remark

UUC : Unit Under Calibration

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

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

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Certificate of Calibration

Certificate No. : 66-420109-2

Page : 1 of 2

Submitted by : M E T Company Limited

36/659 Moo 6, T.Bangrakpattana, A.Bangbuatong, Nonthaburi 11110

Equipment : pH Meter with electrode

pH meter

Manufacturer : Hanna

Model : HI8424

Range : N/A

pH

Resolution : 0.01 pH

Serial No. : 06190028101

ID No. : MET-pH09/64

Electrode

Model : HI1230

Serial No. : 081319AN

Environment : On site calibration was carried out at the Laboratoty, M E T Company Limited

Ambient Temperature : (24.8 to 25.7) ° C

Relative Humidity : (55 to 60) %

Date of Received : 07 November 2023

Date of Calibration : 07 November 2023

Date of Issue : 11 November 2023

Calibrated by : Permpon Chanpu

Calibration Method : In-house method CAL-M4201 direct measurement by using standard voltage calibrator and using certified reference material (CRM)

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

1. Multiproduct Calibrator

| ID No. | Cert. No. | Due Date | Traceability |
|--------|---------------|-------------|---|
| 400005 | SG-E-00307/66 | 23 Aug 2025 | National Institute of Metrology Thailand (NIMT) |

2. Certified Reference Material (CRM)

| pH | Cert. No. | Lot No. | Exp. Date | Traceability |
|-------|-----------|---------|-------------|---|
| 4.008 | 61270213 | 915161 | 19 Jul 2025 | CPA Chem Ltd. Accredited to ISO 17034 and ISO/IEC 17025 |
| 6.985 | 61275614 | 898428 | 28 May 2024 | CPA Chem Ltd. Accredited to ISO 17034 and ISO/IEC 17025 |
| 9.997 | 61281073 | 915163 | 19 Jul 2024 | CPA Chem Ltd. Accredited to ISO 17034 and ISO/IEC 17025 |

Approved by

Laboratory Manager

The Uncertainties are for a confidence probability of approximately 95%

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Certificate of Calibration

Certificate No. : 66-420109-2

Page : 2 of 2

Result of Calibration :

UUC Condition As-Received : Good

Function : Electrical measurement

pH meter

Performing standard curve by Multiproduct Calibrator at pH (4,7) and (7,10)

| Adjustment Curve at nominal pH | Applied Voltage (mV) | Nominal Value (pH) | UUC Reading | | Correction (mV) | Uncertainty (± mV) |
|-----------------------------------|---------------------------|-------------------------|-------------|--------|----------------------|-------------------------|
| | | | (pH) | (mV) | | |
| 4, 7 | 177.4800 | 4 | 4.00 | 177.5 | 0.0 | 0.12 |
| | 0.0000 | 7 | 7.00 | 0.1 | -0.1 | 0.086 |
| 7,10 | 0.0000 | 7 | 7.00 | 0.1 | -0.1 | 0.086 |
| | -177.4800 | 10 | 10.00 | -177.3 | -0.2 | 0.12 |

Function : pH meter with electrode

Performing a three - buffer standard curve using buffer nominal pH (4,7) and (7,10)

| Adjustment Curve at nominal pH | Standard Buffer (pH) | UUC Reading (pH) | Correction (pH) | Uncertainty (± pH) |
|-----------------------------------|---------------------------|-----------------------|----------------------|-------------------------|
| 4, 7 | 4.008 | 4.01 | 0.00 | 0.0091 |
| | 6.985 | 7.01 | -0.02 | 0.012 |
| 7, 10 | 6.985 | 7.01 | -0.02 | 0.012 |
| | 9.997 | 10.01 | -0.01 | 0.014 |

Remark

UUC : Unit Under Calibration

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

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

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Certificate of Calibration

Certificate No. : 66-400476-1

Page : 1 of 2

Submitted by : M E T Company Limited

36/659 Moo 6, T.Bangrakpattana, A.Bangbuatong, Nonthaburi 11110

Equipment : Air Chamber (Oven)

Manufacturer : Memmert

Model : UM 100

Range : N/A °C

Resolution : 0.1 °C

Serial No. : b197.0985

ID No. : MET-OV01/46

Environment : On site calibration was carried out at the Laboratory, M E T Company Limited

Ambient Temperature : (31.0 to 32.0) °C

Relative Humidity : (55 to 60) %

Line Voltage : (210.0 to 210.8) V

Date of Received : 23 August 2023

Date of Calibration : 23 August 2023

Date of Issue : 23 August 2023

Calibrated by : Permpon Chanpu

Calibration Method : CAL-M4004, TLAS G-20

The temperature scale used was based on ITS-90

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

Standard Digital Thermometer with Thermocouple probe

| ID No. | Cert. No. | Due Date | Traceability |
|-----------------|-------------|-------------|---|
| 400029 & 400032 | 66-400228-1 | 25 Oct 2023 | National Institute of Metrology Thailand (NIMT) |

Approved by

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

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Certificate of Calibration

Certificate No. : 66-400476-1

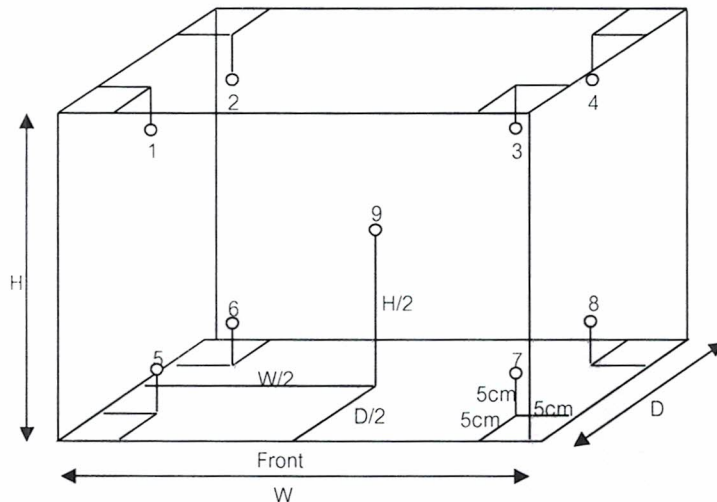
Page : 2 of 2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

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



Inside of Chamber

W = 0.32 m

D = 0.18 m

H = 0.24 m

Capacity = 0.01 m³

| Test Point (°C) | Setting Temperature (°C) | Indicating Temperature (°C) | Measured Temperature (°C) @ Sensor No. | | | | | | | | | Uncertainty (± °C) |
|--------------------|-----------------------------|--------------------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 180.0 | 180.0 | 180.0 | 181.7 | 180.1 | 180.5 | 180.7 | 181.5 | 181.7 | 181.3 | 181.4 | 180.1 | 0.95 |

| Test Point (°C) | Setting Temperature (°C) | Indicating Temperature (°C) | Measured Uniformity (°C) | Measured Stability (°C) | Overall Variation (°C) |
|--------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------|---------------------------|
| 180.0 | 180.0 | 180.0 | 1.7 | 0.2 | 2.0 |

Remark The uncertainty is not combine uniformity of the air chamber

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

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

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Certificate of Calibration

Certificate No. : 67-400505-1

Page : 1 of 2

Submitted by : M E T Company Limited

36/659 Moo 6, T.Bangrakpattana, A.Bangbuatong, Nonthaburi 11110

Equipment : Temperature controlled enclosure (Oven)

Manufacturer : Memmert

Model : UM 100

Range : N/A °C

Resolution : 0.1 °C

Serial No. : b197.0985

ID No. : MET-OV01/46

Environment : On site calibration was carried out at the Laboratory, M E T Company Limited

Ambient Temperature : (30.0 to 31.0) °C

Relative Humidity : (50 to 55) %

Line Voltage : (210.0 to 210.8) V

Date of Received : 20 August 2024

Date of Calibration : 20 August 2024

Date of Issue : 21 August 2024

Calibrated by : Permpon Chanpu

Calibration Method : CAL-M4004, TLAS G-20

The temperature scale used was based on ITS-90

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

Standard Digital Thermometer with Thermocouple probe

ID No.

Cert. No.

Due Date

Traceability

400029 & 400032

67-400247-1

26 Oct 2024

National Institute of Metrology Thailand (NIMT)

Approved by :

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

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Certificate of Calibration

Certificate No. : 67-400505-1

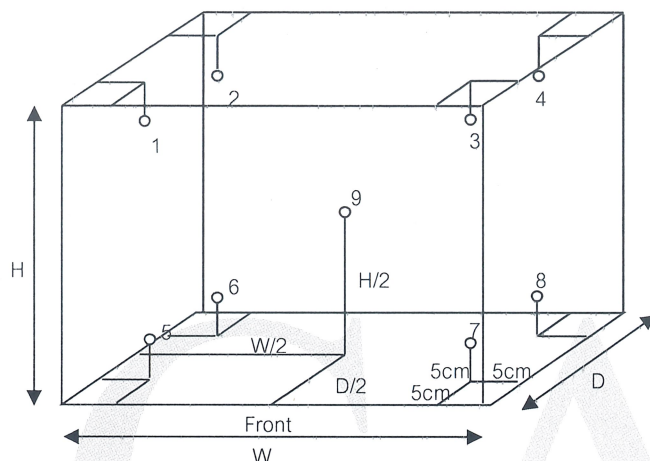
Page : 2 of 2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

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



Inside of Chamber

W = 0.32 m

D = 0.18 m

H = 0.24 m

Capacity = 0.01 m³

| Test Point (° C) | Setting Temperature (° C) | Indicating Temperature (° C) | Measured Temperature (° C) @ Sensor No. | | | | | | | | | Uncertainty (± ° C) |
|-----------------------|--------------------------------|-----------------------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|--------------------------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 180.0 | 180.0 | 180.0 | 181.6 | 181.2 | 181.9 | 180.7 | 180.7 | 181.9 | 179.2 | 179.1 | 180.8 | 0.95 |

| Test Point (° C) | Setting Temperature (° C) | Indicating Temperature (° C) | Measured Uniformity (° C) | Measured Stability (° C) | Overall Variation (° C) |
|-----------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------|------------------------------|
| 180.0 | 180.0 | 180.0 | 1.9 | 0.2 | 3.1 |

Remark The uncertainty is not combine uniformity of the air chamber

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

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

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Certificate of Calibration

Certificate No. : 66-400691-1

Page : 1 of 2

Submitted by : M E T Company Limited

36/659 Moo 6, T.Bangrakpattana, A.Bangbuatong, Nonthaburi 11110

Equipment : Air Chamber (Incubator)

Manufacturer : M-LAB

Model : BIC-140

Range : N/A °C

Resolution : 0.1 °C

Serial No. : 1022

ID No. : MET-BI02/64

Environment : On site calibration was carried out at the Laboratory, M E T Company Limited

Ambient Temperature : (24.0 to 25.0) °C

Relative Humidity : (50.0 to 55) %

Line Voltage : (225.0 to 226.0) V

Date of Received : 19 December 2023

Date of Calibration : 19 December 2023

Date of Issue : 23 December 2023

Calibrated by : Permpon Chanpu

Calibration Method : CAL-M4004, TLAS G-20

The temperature scale used was based on ITS-90

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

| ID No. | Cert. No. | Due Date | Traceability |
|-----------------|-------------|-------------|---|
| 400046 & 400042 | 66-400453-1 | 31 Jan 2024 | National Institute of Metrology Thailand (NIMT) |

Approved by

Laboratory Manager

The Uncertainties are for a confidence probability of approximately 95%

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Certificate of Calibration

Certificate No. : 66-400691-1

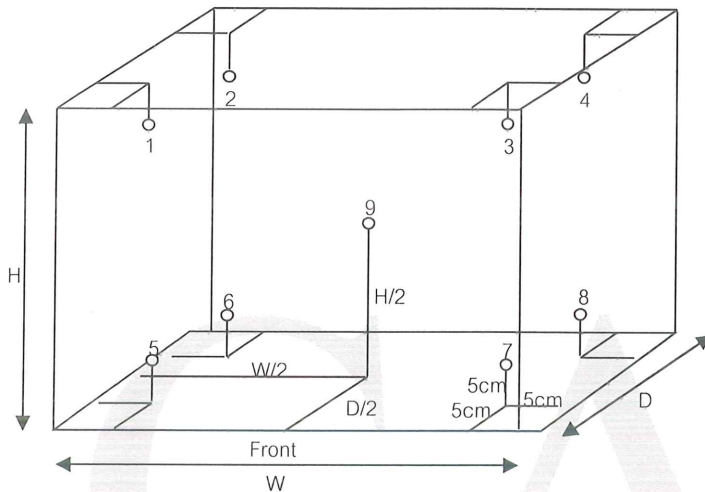
Page : 2 of 2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

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



Inside of Chamber

W = 0.37 m

D = 0.33 m

H = 1.14 m

Capacity = 0.14 m³

| Test Point (°C) | Setting Temperature (°C) | Indicating Temperature (°C) | Measured Temperature (°C) @ Sensor No. | | | | | | | | | Uncertainty (± °C) |
|--------------------|-----------------------------|--------------------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 20.0 | 20.0 | 20.0 | 20.12 | 19.96 | 20.01 | 19.96 | 20.37 | 20.33 | 20.07 | 20.21 | 20.44 | 0.32 |

| Test Point (°C) | Setting Temperature (°C) | Indicating Temperature (°C) | Measured Uniformity (°C) | Measured Stability (°C) | Overall Variation (°C) |
|--------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------|---------------------------|
| 20.0 | 20.0 | 20.0 | 0.51 | 0.04 | 0.53 |

Remark The uncertainty is not combine uniformity of the air chamber

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

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

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Certificate of Calibration

Certificate No. : 67-400505-5

Page : 1 of 2

Submitted by : M E T Company Limited

36/659 Moo 6, T.Bangrakpattana, A.Bangbuatong, Nonthaburi 11110

Equipment : Temperature controlled enclosure (Incubator)

Manufacturer : M-LAB

Model : BIC-140

Range : N/A °C

Resolution : 0.1 °C

Serial No. : 240412

ID No. : MET-BI01/55

Environment : On site calibration was carried out at the Laboratory, M E T Company Limited

Ambient Temperature : (26.0 to 26.5) °C

Relative Humidity : (40 to 45) %

Line Voltage : (210.0 to 210.8) V

Date of Received : 20 August 2024

Date of Calibration : 20 August 2024

Date of Issue : 21 August 2024

Calibrated by : Permpoon Chanpu

Calibration Method : CAL-M4004, TLAS G-20

The temperature scale used was based on ITS-90

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

Standard Digital Thermometer with RTD Probe

ID No.

Cert. No.

Due Date

Traceability

400029 & 400043

67-400245-1

27 Oct 2024

National Institute of Metrology Thailand (NIMT)

Approved by :



Supervisor

The Uncertainties are for a confidence probability of approximately 95%

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Certificate of Calibration

Certificate No. : 67-400505-5

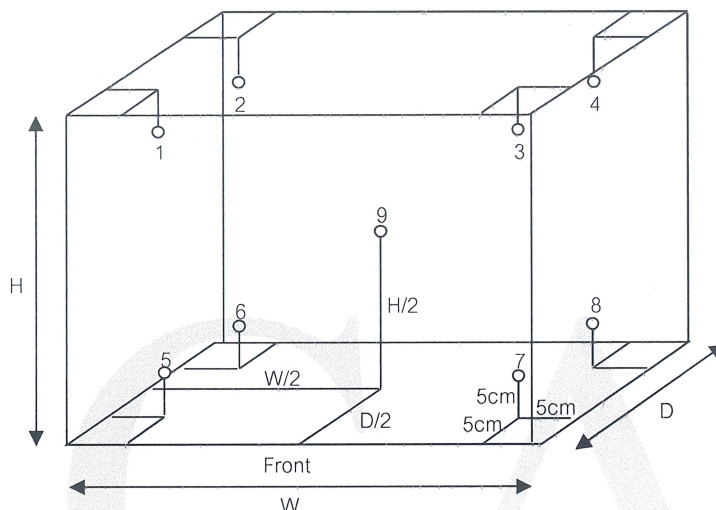
Page : 2 of 2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

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



Inside of Chamber

W = 0.37 m

D = 0.33 m

H = 1.14 m

Capacity = 0.14 m³

| Test Point (°C) | Setting Temperature (°C) | Indicating Temperature (°C) | Measured Temperature (°C) @ Sensor No. | | | | | | | | | Uncertainty (± °C) |
|--------------------|-----------------------------|--------------------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 20.0 | 20.0 | 20.0 | 19.77 | 19.63 | 19.60 | 19.50 | 20.50 | 20.34 | 20.20 | 19.86 | 20.04 | 0.33 |

| Test Point (°C) | Setting Temperature (°C) | Indicating Temperature (°C) | Measured Uniformity (°C) | Measured Stability (°C) | Overall Variation (°C) |
|--------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------|---------------------------|
| 20.0 | 20.0 | 20.0 | 0.58 | 0.06 | 1.07 |

Remark The uncertainty is not combine uniformity of the air chamber

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

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

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Calibration Certificate

Cert. No. : CT-23-10-23746

Page : 1 of 4

Issued date : 18/10/2023

Equipment : COD Reactor , Manufacturer : MLAB , Model : DB1602
S/N = 0169 , Customer ID = -

Client : M E T COMPANY LIMITED.

36/659 M.6 Bang Rak Phatthana, Bang Bua Thong, Nonthaburi 11110

Received Date : 10 October 2023

Ref. Job No. : SO6610-00020

Calibrate by : Mr.Pramot Srisukum

Cert. prepare by : Ms.Raticha Kaewboontheng

Calibrated Date : 10 October 2023

Approved by : Mr.Montree Ruschasetkul

Calibration Place : Laboratory of Metrology Technical Co.,Ltd.

Environment Condition : Temperature 26.2 ± 0.8 (°c) , Humidity 65.5 ± 7.5 (%RH)

Calibration Method : Measure temperature distribution by 9 channel in flat level. , (MTEC WI No. # WICAL-02-005-R01)

Reference Standard Instrument :

| No | Instrument | code | Model | Due date |
|----|------------------------|--------------|-------|----------|
| 1 | Temperature Datalogger | MTEC-CE-0180 | MLAB | 10/2023 |
| 2 | Thermo Hygrometer | MTEC-CE-0181 | TP-50 | 06/2024 |
| | | | | |
| | | | | |

Condition of certificate :

(1) This certificate is traceable to International System of units (SI Units). , (2) This certificate was certified only for the instrument we calibrated. , (3) This result of calibration was found accurate as show on date and place of calibration only. , (4) The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor $k =$ (see result table) , providing a level of confidence of approximately 95%. , (5) This certificate may not be reproduced other than in full, except with the prior written approval of the head of Calibration Division, Metrology Technical Co.,Ltd.

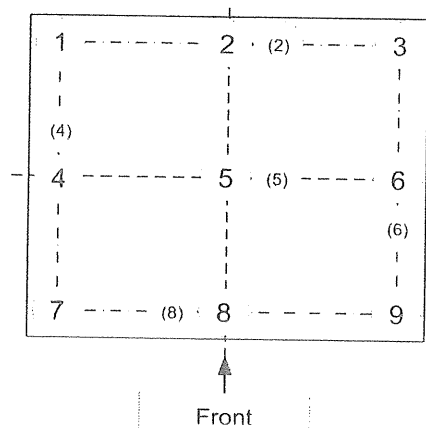
Certificate No. : CT-23-10-23746

Calibration Result :

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Condition of UUC :

- 1) Without Adjustment
- 2) Immersion : 1/2 of the depth of the hole



- (1) The quoted uncertainty include with 'Stability'.
- (2) Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors , for at least half an hour after reaching stesd state.
- (3) 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.
- (4) Overall variation = The difference of the maximum and the minimum measured temperature throughtout observation time.

Pic 1 : Position of each sensor No.

Section 1 : Report of Temperature distribution

Unit : (°c)

| Calibration Point | UUC Setting ^(*) | UUC Reading ^(*) | Measured Temperature @ Sensor No. | | | | | | | | | Uncertainty (±) | k ^(**) |
|-------------------|----------------------------|----------------------------|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|----------------------|-------------------|
| | | | #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 | #9 | | |
| 150 | 150 | 150 | 150.54 | 149.65 | 150.55 | 150.08 | 150.75 | 151.00 | 149.50 | 150.35 | 149.95 | 0.637 | 2 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

(*) = The average of 30 values in each point , (**) = Coverage factor (k) value

Section 2 : Report of Chamber Performance

Unit : (°c)

| Calibration Point | UUC Setting | UUC Reading ^(*) | Temperature Uniformity | Temperature Stability (± °c) | Temperature Overall Variation |
|-------------------|-------------|----------------------------|---------------------------|-----------------------------------|----------------------------------|
| 150 | 150 | 150 | 1.11 | 0.05 | 1.61 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

(*) = The average of 30 values in each point

Approved Signatory : ...

Certificate No. : CT-23-10-23746

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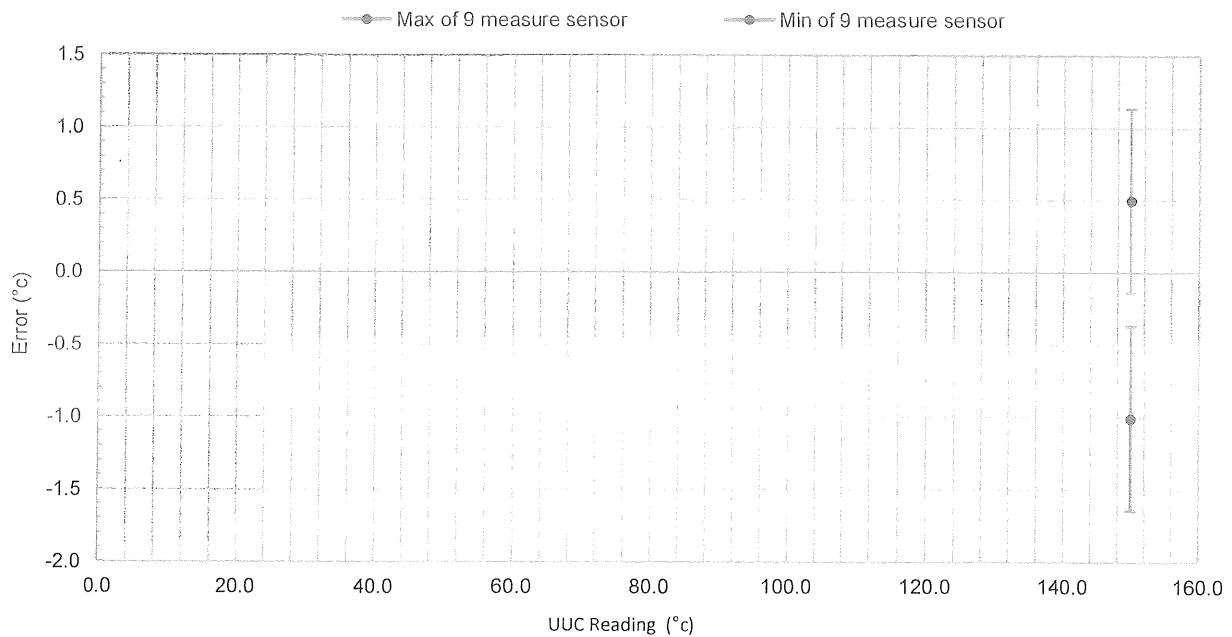
Section 3 : Possible of temperature. Show minimum and maximum of the average values and Include with uncertainty of measurement. The average values is average of each position standard sensor throughout observation time.

Unit : (°c)

| Calibration Point | UUC Setting (*) | UUC Reading (*) | Possible of Minimum temperature | Possible of Maximum temperature |
|-------------------|-----------------|-----------------|---------------------------------|---------------------------------|
| 150 | 150 | 150 | 148.86 | 151.64 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

(*) = The average of 30 values in each point

Section 4 : Trend of accuracy



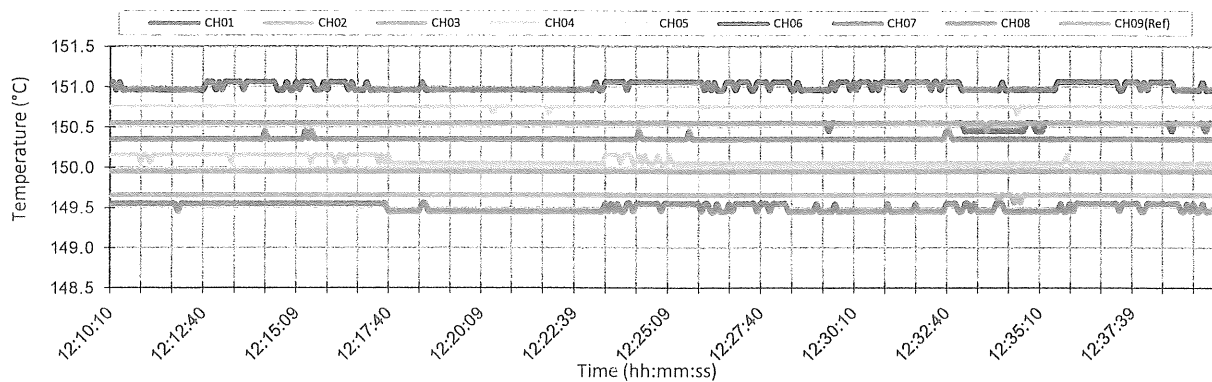
Approved Signatory : ...

Certificate No. : CT-23-10-23746

Page : 4 of 4

Section 5 : Graph report for Temperature distribution , not include uncertainty of measurement

(5.1) Temperature Distribution at UUC Reading 150 °C



Approved Signatory :

Certificate of Calibration

| | | | |
|----------------------|---------------------------------|-------------------------|-----------------|
| Equipment: | COD Reactor | Certificate No.: | C17240180 |
| Model: | DB1602 | Issued Date: | 29 October 2024 |
| Serial No. (or ID.): | 0169 | Job No.: | WO-00047579 |
| Manufacturer: | M-LAB | Page: | 1 of 4 |
| Condition: | In Condition | | |
| Covers: Open (Max) | Locations heating Block: Single | | |

Customer: M E T CO.,LTD.
36/659 Moo 6, Tambol Bangrakpattana,
Amphur Bangbuathong, Nonthaburi 11110 Thailand.

Environment Condition:

| | | | |
|--------------|---------|---|---------|
| Temperature: | 28 °C | ± | 0.9 °C |
| Humidity: | 58 %RH | ± | 5.1 %RH |
| Voltage: | 229 VAC | ± | 3.9 VAC |

Calibration Place: M E T CO.,LTD. (Laboratory Room)
36/659 Moo 6, Tambol Bangrakpattana,
Amphur Bangbuathong, Nonthaburi 11110 Thailand.

Calibration By: Mr. Nakarin Ruenros
Calibration Date: 28 October 2024
The Method used: In house method, CAL-WI-59, base on Direct Measurement with Standard Thermometer
Traceability: This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through DKSH Technology Limited.
Certificate No. C10240016



Person in charge

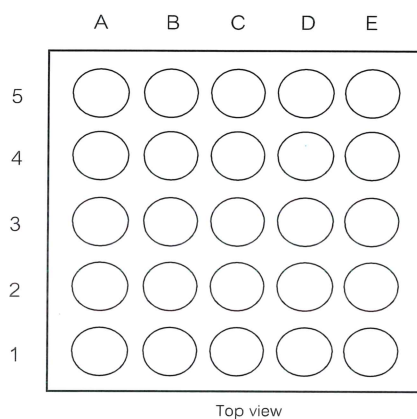


Authorized signatory

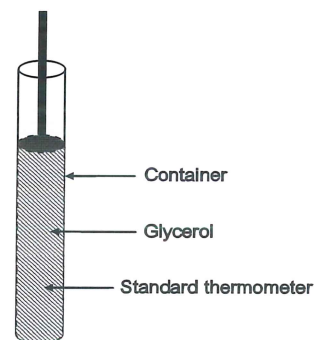
This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

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

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



Location of standard



Sample test

Standard Installation Locations

The standard thermometer touches the lower end of the boring

Definitions

Indicating Temperature: The average reading of indicating device which forms the integral part of the unit under calibration.

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

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

Calibration Results:**Before Adjustment**

| | | |
|--------------------------|--------------|-----------------------------|
| Locations heating Block: | Setting (°C) | Unit Under Calibration (°C) |
| <u>Single</u> | 150.0 | 150.0 |

| | | | | | |
|---------------------------|--------|--------|--------|--------|--------|
| Location heating Block: | A1 | A2 | A3 | A4 | A5 |
| Measured Temperature (°C) | 146.78 | 146.54 | 146.81 | 147.54 | 146.45 |

| | | | | | |
|---------------------------|--------|--------|--------|--------|--------|
| Location heating Block: | B1 | B2 | B3 | B4 | B5 |
| Measured Temperature (°C) | 145.67 | 147.87 | 146.52 | 148.41 | 147.12 |

| | | | | | |
|---------------------------|--------|--------|--------|--------|--------|
| Location heating Block: | C1 | C2 | C3 | C4 | C5 |
| Measured Temperature (°C) | 145.90 | 147.99 | 149.21 | 147.88 | 146.56 |

| | | | | | |
|---------------------------|--------|--------|--------|--------|--------|
| Location heating Block: | D1 | D2 | D3 | D4 | D5 |
| Measured Temperature (°C) | 147.16 | 147.34 | 148.23 | 148.09 | 146.65 |

| | | | | | |
|---------------------------|--------|--------|--------|--------|--------|
| Location heating Block: | E1 | E2 | E3 | E4 | E5 |
| Measured Temperature (°C) | 146.31 | 148.42 | 148.67 | 148.26 | 147.45 |

Calibration Results:

After Adjustment

Measured temperature at the spread locations:

| Locations heating Block: | Setting (°C) | Unit Under Calibration (°C) |
|--------------------------|--------------|-----------------------------|
| Single | 150.0 | 150.0 |

| Location heating Block: | Measured Temperature (°C) | Correction of UUC (°C) | Uncertainty (\pm °C) |
|-------------------------|---------------------------|------------------------|-------------------------|
| A1 | 149.74 | -0.26 | 0.30 |
| A2 | 149.00 | -1.00 | 0.31 |
| A3 | 149.61 | -0.39 | 0.30 |
| A4 | 149.65 | -0.35 | 0.31 |
| A5 | 150.15 | 0.15 | 0.31 |
| B1 | 149.34 | -0.66 | 0.30 |
| B2 | 151.09 | 1.09 | 0.31 |
| B3 | 149.19 | -0.81 | 0.33 |
| B4 | 150.76 | 0.76 | 0.33 |
| B5 | 149.58 | -0.42 | 0.31 |
| C1 | 148.85 | -1.15 | 0.31 |
| C2 | 150.41 | 0.41 | 0.31 |
| C3 | 151.36 | 1.36 | 0.32 |
| C4 | 150.02 | 0.02 | 0.34 |
| C5 | 148.94 | -1.06 | 0.34 |
| D1 | 148.79 | -1.21 | 0.31 |
| D2 | 149.79 | -0.21 | 0.32 |
| D3 | 150.77 | 0.77 | 0.30 |
| D4 | 150.52 | 0.52 | 0.30 |
| D5 | 149.34 | -0.66 | 0.32 |
| E1 | 150.36 | 0.36 | 0.31 |
| E2 | 150.27 | 0.27 | 0.30 |
| E3 | 150.30 | 0.30 | 0.31 |
| E4 | 150.79 | 0.79 | 0.32 |
| E5 | 150.28 | 0.28 | 0.30 |

Characterization of the unit under calibration:

| Locations heating Block | Desired | Unit Under Calibration (°C) | | Measured Temperature (°C) |
|-------------------------|---------|-----------------------------|---------|---------------------------|
| | (°C) | Setting | Reading | Stability (\pm °C) |
| Single | 150.0 | 150.0 | 150.0 | 0.14 |

The End of Certificate

ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: WO-00047579

ชนิดเครื่องมือ: COD Reactor

รุ่น: DB1602

หมายเลขเครื่อง: 0169

| ตรวจสอบ (รับ) | | รายการตรวจเช็ค | ตรวจสอบ (ส่ง) | | หมายเหตุ |
|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|----------|
| 28 Oct 2024 | | | 28 Oct 2024 | | |
| ปกติ | ไม่ปกติ | | ปกติ | ไม่ปกติ | |
| | | General | | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1. สายไฟ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 2. การทำงาน Main Switch | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. การทำงาน Selector Key | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. การแสดงผล Display | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 5. สภาพ Hole | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 6. สภาพฝาปิด | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 7. สภาพตัวเครื่อง | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 8. สภาพแวดล้อม ณ สถานที่ตั้งเครื่อง | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

ข้อแนะนำ :



Service Engineer

Certificate of Calibration

Certificate No. : 66-400476-2

Page : 1 of 2

Submitted by : M E T Company Limited

36/659 Moo 6, T.Bangrakpattana, A.Bangbuatong, Nonthaburi 11110

Equipment : Air Chamber (Oven)

Manufacturer : Binder

Model : ED53

Range : N/A °C

Resolution : 1 °C

Serial No. : 13-07419

ID No. : MET-OV02/57

Environment : On site calibration was carried out at the Laboratory, M E T Company Limited

Ambient Temperature : (31.0 to 32.0) °C

Relative Humidity : (55 to 60) %

Line Voltage : (210.0 to 210.8) V

Date of Received : 23 August 2023

Date of Calibration : 23 August 2023

Date of Issue : 23 August 2023

Calibrated by : Permpon Chanpu

Calibration Method : CAL-M4004, TLAS G-20

The temperature scale used was based on ITS-90

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

Standard Digital Thermometer with Thermocouple probe

ID No.

Cert. No.

Due Date

Traceability

400029 & 400030 66-400227-1

24 Oct 2023

National Institute of Metrology Thailand (NIMT)

Approved by :

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

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Certificate of Calibration

Certificate No. : 66-400476-2

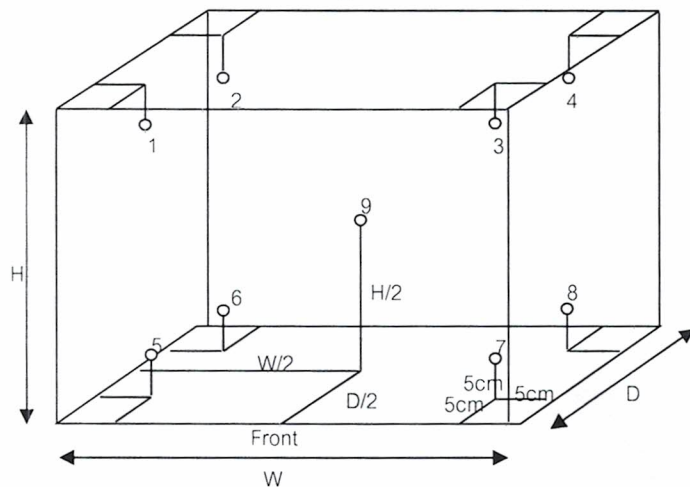
Page : 2 of 2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

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



Inside of Chamber

W = 0.40 m

D = 0.33 m

H = 0.40 m

Capacity = 0.05 m³

| Test Point (° C) | Setting Temperature (° C) | Indicating Temperature (° C) | Measured Temperature (° C) @ Sensor No. | | | | | | | | | Uncertainty (± ° C) |
|-----------------------|--------------------------------|-----------------------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|--------------------------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 104 | 110 | 110 | 105.0 | 105.0 | 105.0 | 104.9 | 103.9 | 103.9 | 104.2 | 104.2 | 104.2 | 0.94 |
| 180 | 184 | 184 | 180.1 | 181.9 | 180.8 | 179.7 | 180.2 | 180.8 | 180.7 | 180.8 | 180.2 | 1.2 |

| Test Point (° C) | Setting Temperature (° C) | Indicating Temperature (° C) | Measured Uniformity (° C) | Measured Stability (° C) | Overall Variation (° C) |
|-----------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------|------------------------------|
| 104 | 110 | 110 | 1.0 | 0.2 | 1.3 |
| 180 | 184 | 184 | 1.9 | 0.3 | 2.7 |

Remark The uncertainty is not combine uniformity of the air chamber

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

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

- o0o -



Certificate of Calibration

Certificate No. : 67-400505-2

Page : 1 of 2

Submitted by : M E T Company Limited
36/659 Moo 6, T.Bangrakpattana, A.Bangbuatong, Nonthaburi 11110

Equipment : Temperature controlled enclosure (Oven)
Manufacturer : Binder Model : ED53
Range : N/A °C Resolution : 1 °C
Serial No. : 13-07419 ID No. : MET-OV02/57

Environment : On site calibration was carried out at the Laboratory, M E T Company Limited
Ambient Temperature : (30.0 to 31.0) °C
Relative Humidity : (50 to 55) %
Line Voltage : (210.0 to 210.8) V

Date of Received : 20 August 2024

Date of Calibration : 20 August 2024

Date of Issue : 21 August 2024

Calibrated by : Permpon Chanpu

Calibration Method : CAL-M4004, TLAS G-20

The temperature scale used was based on ITS-90

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

| ID No. | Cert. No. | Due Date | Traceability |
|-----------------|-------------|-------------|---|
| 400029 & 400030 | 67-400246-1 | 25 Oct 2024 | National Institute of Metrology Thailand (NIMT) |

Approved by : 

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

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Certificate of Calibration

Certificate No. : 67-400505-2

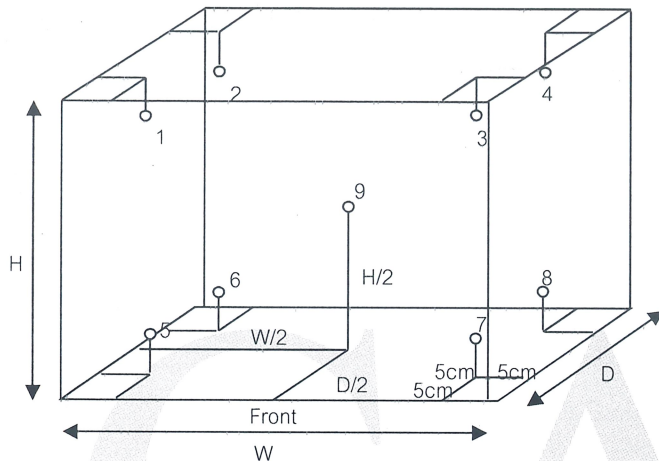
Page : 2 of 2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

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



Inside of Chamber

W = 0.40 m

D = 0.33 m

H = 0.40 m

Capacity = 0.05 m³

| Test Point (°C) | Setting Temperature (°C) | Indicating Temperature (°C) | Measured Temperature (°C) @ Sensor No. | | | | | | | | | Uncertainty (± °C) |
|--------------------|-----------------------------|--------------------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 104 | 110 | 110 | 103.4 | 105.0 | 104.8 | 105.0 | 104.1 | 103.8 | 104.2 | 104.4 | 104.2 | 0.96 |
| 180 | 184 | 184 | 179.3 | 182.0 | 180.1 | 180.6 | 180.1 | 180.4 | 180.0 | 180.7 | 179.9 | 1.3 |

| Test Point (°C) | Setting Temperature (°C) | Indicating Temperature (°C) | Measured Uniformity (°C) | Measured Stability (°C) | Overall Variation (°C) |
|--------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------|---------------------------|
| 104 | 110 | 110 | 1.1 | 0.3 | 2.0 |
| 180 | 184 | 184 | 2.5 | 0.4 | 3.3 |

Remark The uncertainty is not combine uniformity of the air chamber

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

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

- o0o -



SKYWATCH®

SPEEDWATCH®

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CERTIFICATE OF COMPLIANCE

JDC Electronic SA Switzerland, Avenue des Sports 42, CH-1400 Yverdon-les-Bains declares under our sole responsibility that the product **FLOWATCH®** and all serial numbers to which this declaration relates, is in conformity with following standards or other normative documents:

89/336/EEC

IEC801-2

CISPR11

Electromagnetic Compatibility and Low Voltage Directive 72/73

The technical construction file is maintained at **JDC Electronic SA**.

Approved by:



JDC Electronic SA

Avenue des Sports 42
CH - 1400 Yverdon-les-Bains
Switzerland

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บริษัท เอ็ม อี ที จำกัด MET Company Limited

36/659 หมู่ 6 ต.บางรักพัฒนา อ.บางบัวทอง จ. นนทบุรี 11110

36/659 Moo 6 Tambol Bangrakpattana Amphur Bangbuatong Nontaburi 11110

Tel : 0 2920 1458-9 Fax : 0 2920 1460 E-mail : met_jj@yahoo.com

TSP HIGH VOLUME AIR SAMPLER CALIBRATION REPORT

| | | | | | |
|-------------------------|----------|--------------------------|----------|------------|------------------|
| Sampler Location | | | | Date | January 16, 2024 |
| โรงเรียนวันดีประชาสรรค์ | | | | Start Time | 9:05 AM |
| Sampler Number | TSP No.2 | Transfer Standard Type | Orifice | Stop Time | 9:10 AM |
| Motor Serial Number | BL-02 | Calibrator Model | TE-5025A | Person | |
| Recorder Serial Number | - | Calibrator Serial Number | 1 | | |

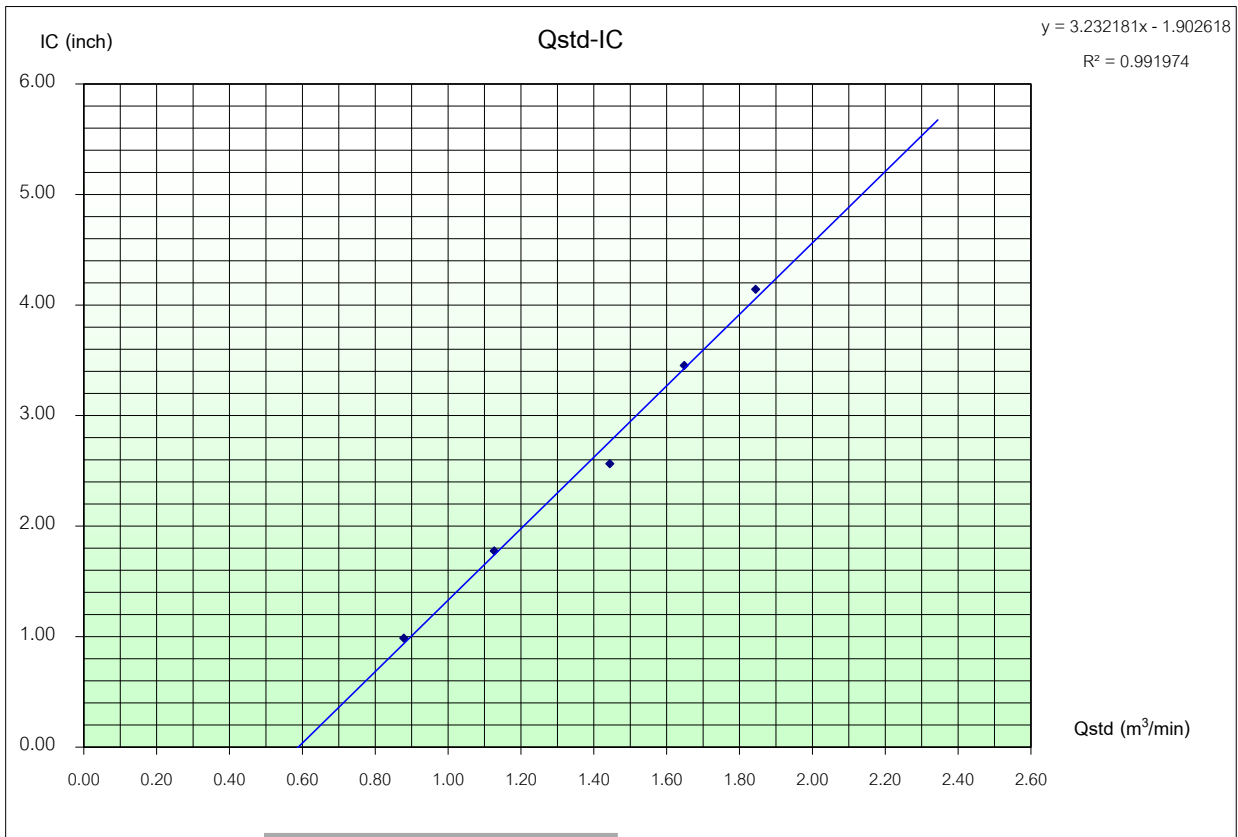
| Plate No. | (Delta H) | | | (A) | (X) | (I) | (Y) | Temperature | Barometric Pressure | Start Meter | Stop Meter |
|-----------|---|----------|---------------|---|---|--------------------------------------|---|---------------|---------------------|-------------|------------|
| | Pressure Drop Across Orifice (inH ₂ O) | | | $[\Delta H_2O(Pa/P_{std})(T_{std}/Ta)]^{1/2}$ | $Q_{std} = (1/m)[(A-b)]$ (m ³ /min) | Sample Flow Rate Indicator (inch) | $IC = [[(Pa/P_{std})(T_{std}/Ta)]^{1/2}]$ | ("K = °C+273) | (mmHg) | | |
| | Positive | Negative | ΔH_2O | | | | | | | | |
| 5 | 1.5 | 1.5 | 3.0 | 1.70868 | 0.87849 | 1.0 | 0.99 | 305.0 | 757.0 | | |
| 7 | 2.4 | 2.5 | 4.9 | 2.18372 | 1.12676 | 1.8 | 1.78 | 305.0 | 757.0 | | |
| 10 | 4.0 | 4.0 | 8.0 | 2.79026 | 1.44374 | 2.6 | 2.56 | 305.0 | 757.0 | | |
| 13 | 5.2 | 5.2 | 10.4 | 3.18138 | 1.64815 | 3.5 | 3.45 | 305.0 | 757.0 | | |
| 18 | 6.5 | 6.5 | 13.0 | 3.55689 | 1.84440 | 4.2 | 4.14 | 305.0 | 757.0 | | |

Linear Regression Y ON X : Y= mX + b

| | | | | | | | | | |
|--------|-------------------------------|---------|---|--|-------|---------------------------|-----------|------------------|-------|
| 1 | Slope (m) | 1.91345 | Linear Equation | | | r^2 | 0.971641 | Pstd(mmHg) | 760.0 |
| 2 | Intercept (b) | 0.02773 | Set Point Flow Rate (X) (m ³ /min) | | 1.133 | r | 0.9857185 | T _{NTP} | 298.0 |
| 3 | Correlation Coefficient (r) | 0.99995 | Final Set Flow Rate = (I) | | 0 | (Pa/Pstd)*(Tstd/Ta) | | 0.973192407 | |
| Result | | | | | | C=(Pa/Pstd)*(Tstd/Ta)^0.5 | | 0.986505148 | |

COMMENT

Andersen Instruments, Inc.



Calibrated By

Field Environmental

Approved By

Division Manager



บริษัท เอ็ม อี ที จำกัด MET Company Limited

36/659 หมู่ 6 ต.บางรักพัฒนา อ.บางบัวทอง จ. นนทบุรี 11110

36/659 Moo 6 Tambol Bangrakpattana Amphur Bangbuatong Nontaburi 11110

Tel : 0 2920 1458-9 Fax : 0 2920 1460 E-mail : met_jj@yahoo.com

PM10 HIGH VOLUME AIR SAMPLER CALIBRATION REPORT

| | | | | | |
|-------------------------|------------|--------------------------|----------|------------|------------------|
| Sampler Location | | | | Date | January 13, 2024 |
| โรงเรียนวันดีประชาสรรค์ | | | | Start Time | 1:20 PM |
| Sampler Number | PM-10 No.2 | Transfer Standard Type | Orifice | Stop Time | 1:25 PM |
| Motor Serial Number | HVL-02 | Calibrator Model | TE-5025A | Person | |
| Recorder Serial Number | - | Calibrator Serial Number | 1 | | |

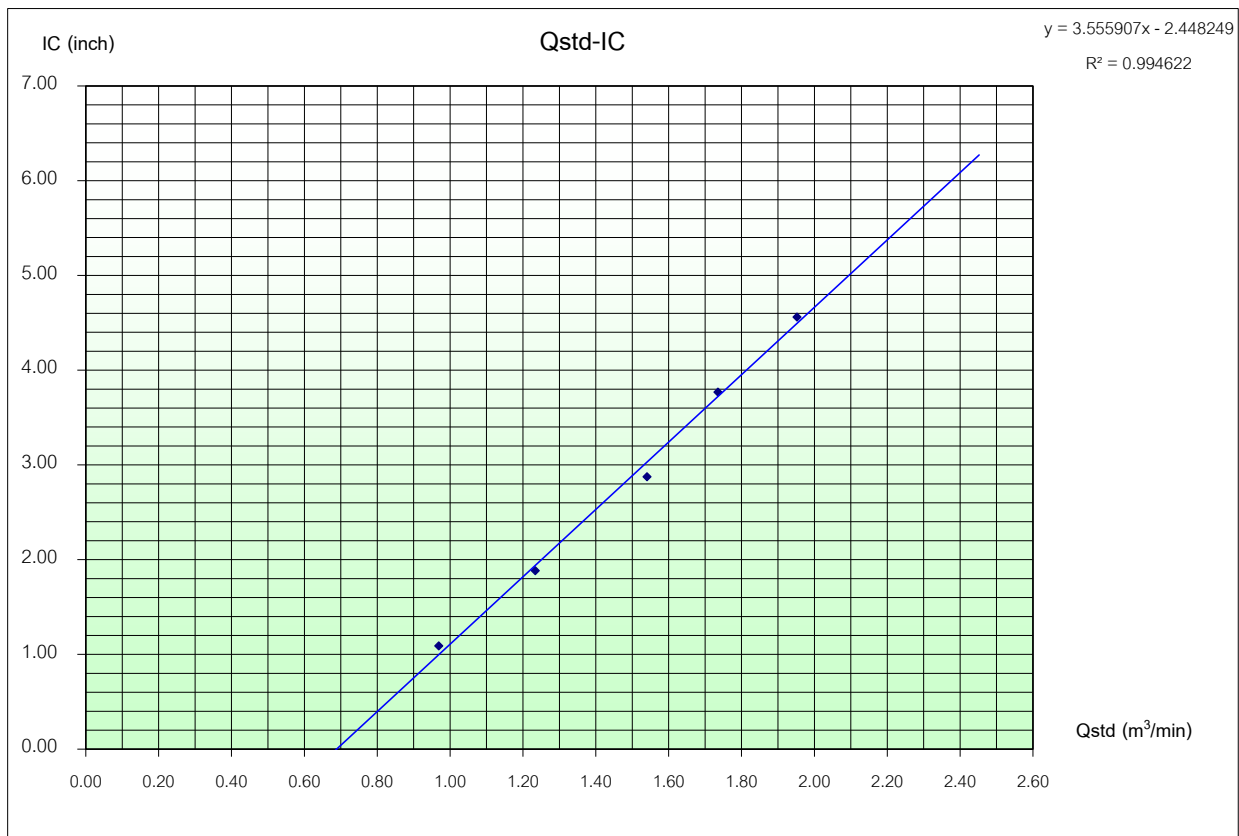
| Plate No. | (Delta H) | | | (A) | (X) | (I) | (Y) | Temperature | Barometric Pressure | Start Meter | Stop Meter |
|-----------|---|----------|---------------|---|---|---------------------------------------|---|---------------|---------------------|-------------|------------|
| | Pressure Drop Across Orifice (inH ₂ O) | | | $[\Delta H_2O(Pa/P_{std})(T_{std}/Ta)]^{1/2}$ | $Q_{std} = (1/m)[(A-b)]$ (m ³ /min) | Sample Flow Rate Indication (inch) | $IC = [[(Pa/P_{std})(T_{std}/Ta)]^{1/2}]$ | ("K = °C+273) | (mmHg) | | |
| | Positive | Negative | ΔH_2O | | | | | | | | |
| 5 | 1.8 | 1.8 | 3.6 | 1.88165 | 0.96889 | 1.1 | 1.09 | 303.0 | 760.0 | | |
| 7 | 2.9 | 2.9 | 5.8 | 2.38837 | 1.23371 | 1.9 | 1.88 | 303.0 | 760.0 | | |
| 10 | 4.5 | 4.5 | 9.0 | 2.97514 | 1.54037 | 2.9 | 2.88 | 303.0 | 760.0 | | |
| 13 | 5.7 | 5.7 | 11.4 | 3.34841 | 1.73544 | 3.8 | 3.77 | 303.0 | 760.0 | | |
| 18 | 7.2 | 7.2 | 14.4 | 3.76329 | 1.95227 | 4.6 | 4.56 | 303.0 | 760.0 | | |

Linear Regression Y ON X : Y= mX + b

| | | | | | | | | | |
|--------|-------------------------------|---------|---|---------------------------|----------------|------------|------------------|-------------|--|
| 1 | Slope (m) | 1.91345 | Linear Equation | | Average | 303.0 | 760.0 | | |
| 2 | Intercept (b) | 0.02773 | Set Point Flow Rate (X) (m ³ /min) | 1.133 | r ² | 0.950727 | Pstd(mmHg) | 760.0 | |
| 3 | Correlation Coefficient (r) | 0.99995 | Final Set Flow Rate = (I) | 0 | r | 0.9750523 | T _{NTP} | 298.0 | |
| Result | | | | C=(Pa/Pstd)*(Tstd/Ta)^0.5 | | 0.98349835 | | 0.991714853 | |

COMMENT

Andersen Instruments, Inc.



Calibrated By

Field Environmental

Approved By

Division Manager



บริษัท เอ็ม อี ที จำกัด MET Company Limited

36/659 หมู่ 6 ต.บางรักพัฒนา อ.บางบัวทอง จ. นนทบุรี 11110

36/659 Moo 6 Tambol Bangrakpattana Amphur Bangbuatong Nontaburi 11110

Tel : 0 2920 1458-9 Fax : 0 2920 1460 E-mail : met_jj@yahoo.com

TSP HIGH VOLUME AIR SAMPLER CALIBRATION REPORT

| | | | | | |
|------------------------------|----------|--------------------------|----------|------------|------------------|
| Sampler Location | | | | Date | January 16, 2024 |
| วัดศรีชุมพร (วัดบ้านน้ำจ้อย) | | | | Start Time | 9:00 AM |
| Sampler Number | TSP No.1 | Transfer Standard Type | Orifice | Stop Time | 9:05 AM |
| Motor Serial Number | BL-01 | Calibrator Model | TE-5025A | Person | |
| Recorder Serial Number | - | Calibrator Serial Number | 1 | | |

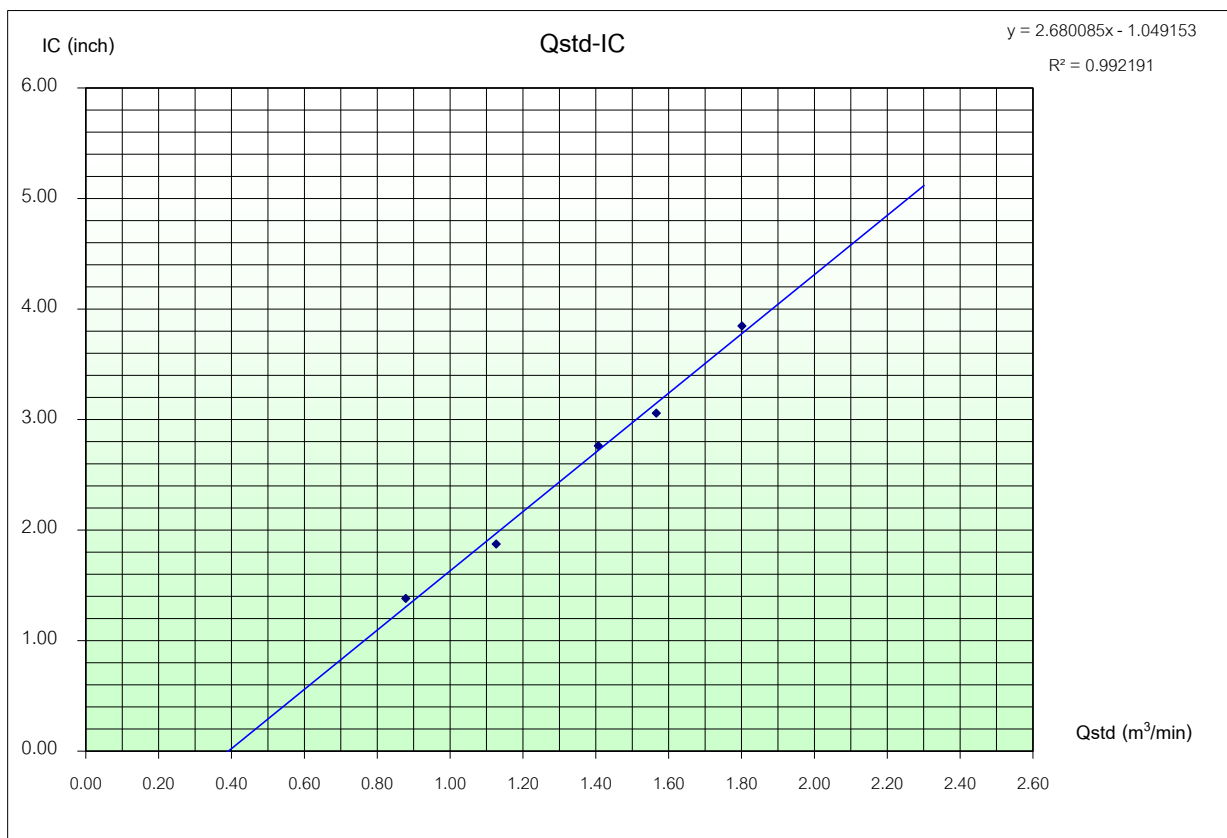
| Plate No. | (Delta H) | | | (A) | (X) | (I) | (Y) | Temperature | Barometric Pressure | Start Meter | Stop Meter |
|-----------|---|----------|---------------|---|--|---------------------------------------|---|---------------|---------------------|-------------|------------|
| | Pressure Drop Across Orifice (inH ₂ O) | | | $[\Delta H_2O(Pa/P_{std})(T_{std}/Ta)]^{1/2}$ | Qstd = (1/m)[(A-b)] (m ³ /min) | Sample Flow Rate Indication (inch) | $IC = \{[(Pa/P_{std})(T_{std}/Ta)]^{1/2}\}$ | ("K = °C+273) | (mmHg) | | |
| | Positive | Negative | ΔH_2O | | | | | | | | |
| 5 | 1.5 | 1.5 | 3.0 | 1.70868 | 0.87849 | 1.4 | 1.38 | 305.0 | 757.0 | | |
| 7 | 2.4 | 2.5 | 4.9 | 2.18372 | 1.12676 | 1.9 | 1.87 | 305.0 | 757.0 | | |
| 10 | 3.8 | 3.8 | 7.6 | 2.71961 | 1.40682 | 2.8 | 2.76 | 305.0 | 757.0 | | |
| 13 | 4.7 | 4.7 | 9.4 | 3.02457 | 1.56620 | 3.1 | 3.06 | 305.0 | 757.0 | | |
| 18 | 6.2 | 6.2 | 12.4 | 3.47384 | 1.80099 | 3.9 | 3.85 | 305.0 | 757.0 | | |

Linear Regression Y ON X : Y= mX + b

| | | | | | | | | | |
|--------|-------------------------------|---------|---|-------|--|---------------------------|-----------|------------------|-------|
| 1 | Slope (m) | 1.91345 | Linear Equation | | | r^2 | 0.992314 | Pstd(mmHg) | 760.0 |
| 2 | Intercept (b) | 0.02773 | Set Point Flow Rate (X) (m ³ /min) | 1.133 | | r | 0.9961496 | T _{NTP} | 298.0 |
| 3 | Correlation Coefficient (r) | 0.99995 | Final Set Flow Rate = (I) | 0 | | (Pa/Pstd)*(Tstd/Ta) | | 0.973192407 | |
| Result | | | | | | C=(Pa/Pstd)*(Tstd/Ta)^0.5 | | 0.986505148 | |

COMMENT

Andersen Instruments, Inc.



Calibrated By

Field Environmental

Approved By

Division Manager



บริษัท เอ็ม อี ที จำกัด MET Company Limited

36/659 หมู่ 6 ต.บางรักพัฒนา อ.บางบัวทอง จ. นนทบุรี 11110

36/659 Moo 6 Tambol Bangrakpattana Amphur Bangbuatong Nontaburi 11110

Tel : 0 2920 1458-9 Fax : 0 2920 1460 E-mail : met_jj@yahoo.com

PM10 HIGH VOLUME AIR SAMPLER CALIBRATION REPORT

| | | | | | |
|------------------------------|------------|--------------------------|----------|------------|------------------|
| Sampler Location | | | | Date | January 13, 2024 |
| วัดศรีชุมพร (วัดบ้านน้ำจ้อย) | | | | Start Time | 1:15 PM |
| Sampler Number | PM-10 No.1 | Transfer Standard Type | Orifice | Stop Time | 1:20 PM |
| Motor Serial Number | HVL-01 | Calibrator Model | TE-5025A | Person | |
| Recorder Serial Number | - | Calibrator Serial Number | 1 | | |

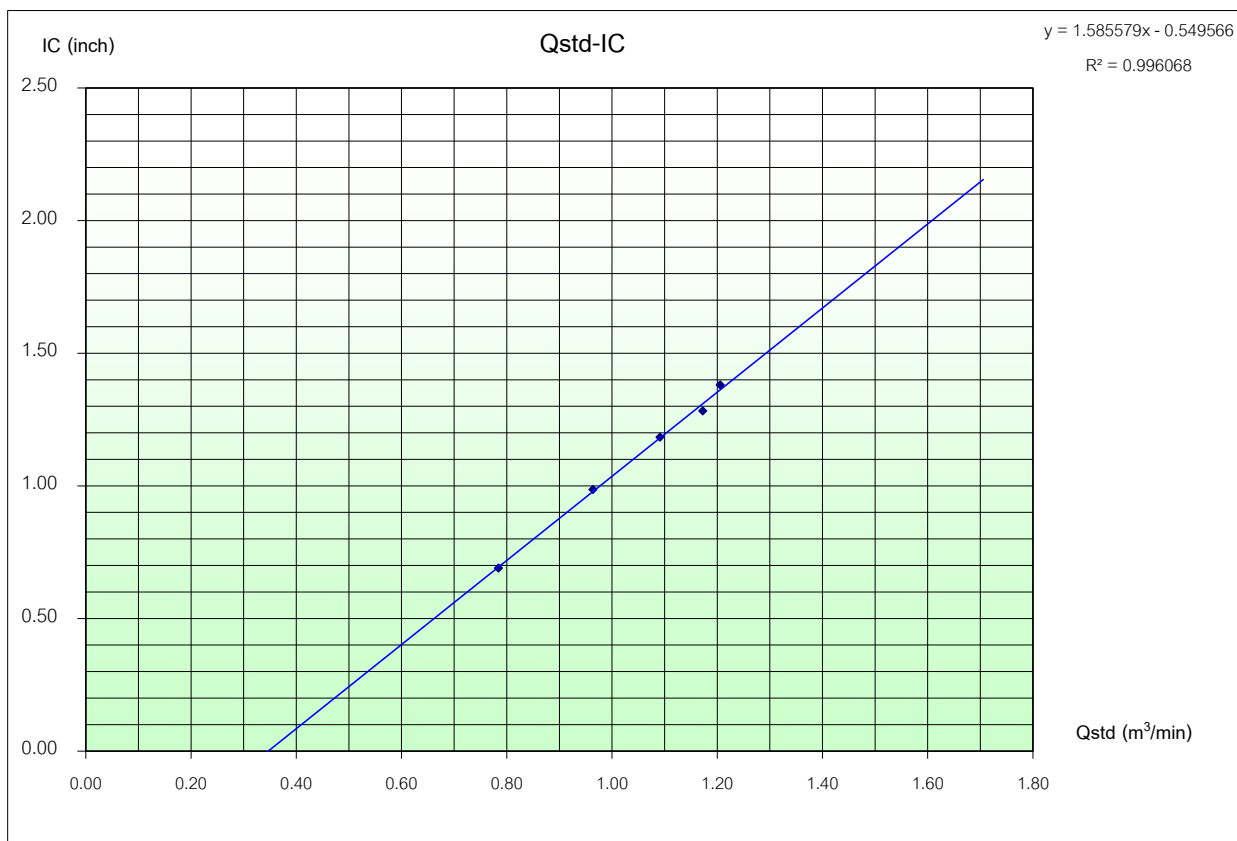
| Plate No. | (Delta H) | | | (A) | (X) | (I) | (Y) | Temperature | Barometric Pressure | Start Meter | Stop Meter |
|-----------|---|----------|---------------|---|---|--------------------------------------|---|---------------|---------------------|-------------|------------|
| | Pressure Drop Across Orifice (inH ₂ O) | | | $[\Delta H_2O(Pa/P_{std})(T_{std}/Ta)]^{1/2}$ | $Q_{std} = (1/m)[(A-b)]$ (m ³ /min) | Sample Flow Rate Indicator (inch) | $IC = [[(Pa/P_{std})(T_{std}/Ta)]^{1/2}]$ | ("K = °C+273) | (mmHg) | | |
| | Positive | Negative | ΔH_2O | | | | | | | | |
| 5 | 1.2 | 1.2 | 2.4 | 1.52829 | 0.78422 | 0.7 | 0.69 | 305.0 | 757.0 | | |
| 7 | 1.8 | 1.8 | 3.6 | 1.87176 | 0.96372 | 1.0 | 0.99 | 305.0 | 757.0 | | |
| 10 | 2.3 | 2.3 | 4.6 | 2.11582 | 1.09127 | 1.2 | 1.18 | 305.0 | 757.0 | | |
| 13 | 2.6 | 2.7 | 5.3 | 2.27111 | 1.17242 | 1.3 | 1.28 | 305.0 | 757.0 | | |
| 18 | 2.8 | 2.8 | 5.6 | 2.33450 | 1.20555 | 1.4 | 1.38 | 305.0 | 757.0 | | |

Linear Regression Y ON X : Y= mX + b

| | | | | | | | | | |
|--------|-------------------------------|---------|---|-------|---------------------|---------------------------|------------------|------------|-------|
| 1 | Slope (m) | 1.91345 | Linear Equation | | | r^2 | 0.987743 | Pstd(mmHg) | 760.0 |
| 2 | Intercept (b) | 0.02773 | Set Point Flow Rate (X) (m ³ /min) | 1.133 | r | 0.9938526 | T _{NTP} | 298.0 | |
| 3 | Correlation Coefficient (r) | 0.99995 | Final Set Flow Rate = (I) | 0 | (Pa/Pstd)*(Tstd/Ta) | | 0.973192407 | | |
| Result | | | | | | C=(Pa/Pstd)*(Tstd/Ta)^0.5 | 0.986505148 | | |

COMMENT

Andersen Instruments, Inc.



Calibrated By

Field Environmental

Approved By

Division Manager



บริษัท เอ็นไวร์ เซอร์วิส จำกัด
ENVIR SERVICE CO., LTD.

บริษัท เอ็นไวร์ เซอร์วิส จำกัด

42 รามอินทรา 14 แยก 9 แขวงท่าแร้ง เขตบางเขน กรุงเทพฯ 10230 โทรศัพท์ 02-9435814-5 โทรสาร 02-9438201

42 Raminthra 14 yeak 9, Tha Rang, Bangkhen, Bankok 10230 Tel : 02-9435814-5 Fax : 02-9438201

Analyzer Performance Test

Calibrated Date: 5 January

2024 Instruments Information

| | |
|---|--------------------------------------|
| Analyzer Type: NO/NO2/NOx Analyzer Model: Serinus 40 | Manufacturer ECOTECH S/N: 12-1001 |
|---|--------------------------------------|

Calibration System

| Calibrator Unit | Standard Gas |
|--|--|
| Dilutor Model Dasibi Model 5008 S/N: 705 ZERO AIR Generator API Model 701 S/N: 1924 | NO Conc 55.47 PPM SO2 Conc 55.11 PPM CO Conc 4,535 PPM Cylinder number EB0129027 Expire Date: 29 Oct. 2027 |

Environment: Temperature 25.5 °C

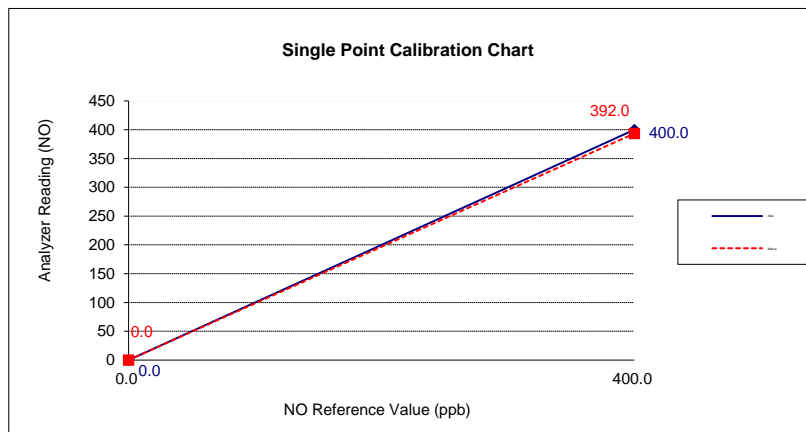
Humidity: 51 %RH

Calibration Check (Before adjust)

| GAS | Zero | | | Span | | |
|-----|---------------------|----------------------|-------------|---------------------|----------------------|--------|
| | Reading Value (ppb) | Expected Value (ppb) | Drift (ppb) | Reading Value (ppb) | Expected Value (ppb) | Drift% |
| NO | 0.0 | 0.0 | 0.0 | 392.0 | 400.0 | -2.0 |
| NOx | 0.0 | 1.0 | 1.0 | 400.0 | 400.0 | 0.0 |

Calibration Check (After adjust)

| GAS | Zero | | | Span | | |
|-----|---------------------|----------------------|-------------|---------------------|----------------------|--------|
| | Reading Value (ppb) | Expected Value (ppb) | Drift (ppb) | Reading Value (ppb) | Expected Value (ppb) | Drift% |
| NO | 0.0 | 0.0 | 0.0 | 400.0 | 400.0 | 0.0 |
| NOx | 0.0 | 0.0 | 0.0 | 400.0 | 400.0 | 0.0 |



Calibrate By :

Analyzer Performance Test

Calibrated Date: 5 April 2024

Instruments Information

| | |
|--|---|
| Analyzer Type: NO/NO2/NOx Analyzer Model: 42C | Manufacturer Thermo Environmental S/N: 42C-601114783 |
|--|---|

Calibration System

| Calibrator Unit | Standard Gas |
|--|--|
| Dilutor Model Dasibi Model 5008 S/N: 705 ZERO AIR Generator API Model 701 S/N: 1924 | NO Conc 55.47 PPM SO2 Conc 55.11 PPM CO Conc 4,535 PPM Cylinder number EB0129027 Expire Date: 29 Oct. 2027 |

Environment: Temperature 25.5 °C

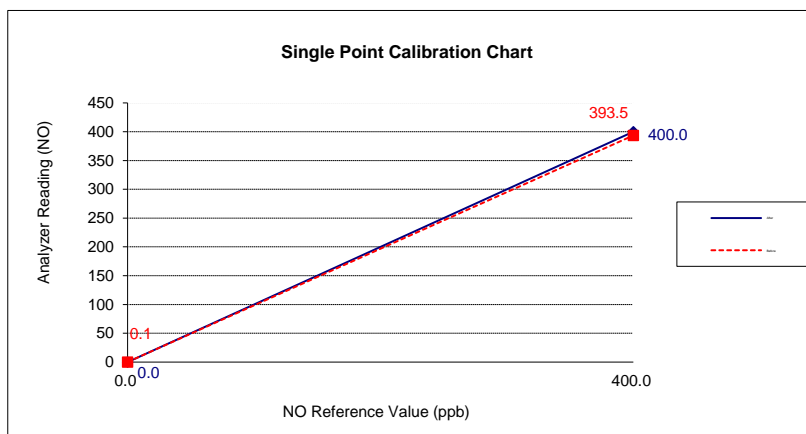
Humidity: 51 %RH

Calibration Check (Before adjust)

| GAS | Zero | | | Span | | |
|-----|---------------------|----------------------|-------------|---------------------|----------------------|--------|
| | Reading Value (ppb) | Expected Value (ppb) | Drift (ppb) | Reading Value (ppb) | Expected Value (ppb) | Drift% |
| NO | 0.1 | 0.0 | 0.1 | 393.5 | 400.0 | -1.6 |
| NOx | 0.1 | 0.0 | 0.1 | 396.2 | 400.0 | -1.0 |

Calibration Check (After adjust)

| GAS | Zero | | | Span | | |
|-----|---------------------|----------------------|-------------|---------------------|----------------------|--------|
| | Reading Value (ppb) | Expected Value (ppb) | Drift (ppb) | Reading Value (ppb) | Expected Value (ppb) | Drift% |
| NO | 0.0 | 0.0 | 0.0 | 400.0 | 400.0 | 0.0 |
| NOx | 0.0 | 0.0 | 0.0 | 400.0 | 400.0 | 0.0 |



Calibrate By :

CERTIFICATE OF CALIBRATION

NO. 20231215111

| | |
|----------------------|-------------------|
| Name of Product: | Sound Level Meter |
| Model | ST-21D |
| Serial Number: | 820791 |
| Specification: | Class 2 |
| Conclusion: | Pass |
| Date of calibration: | 2023-12-14 |
| Due Date: | 2024-12-13 |

Calibrated by:

- I. This report certifies that all calibration equipment used in the test is traceable with the internal ISO9001 procedures and meets all specification given in the Manual(s) or respectively surpass then, and applies only to the unit identified above.
- II. This certificate is produced with advanced equipment & procedures which permit comprehensive quality assurance verification of all data supplied herein.
- III. This certificate of calibration shall not be reproduced except in full, without written permission of the Scarlet Tech Co Ltd Taiwan.

1. Preliminary inspection: OK

2. Type & serial No. of Microphone: AWA14421A-000378

3. Adjustments to indicated sound levels:

Type of Calibrator B&K 4231

Sound Pressure Level 94.0 dB

4. Measuring up limit: 138 dBA

5. Frequency weightings (Acoustic signal tests for Z weighting, other electric signal tests.)

Equivalent Free-field Sound Level (reference environment conditions) 93.8 dB

| Nominal frequency /Hz | Frequency weighting / dB | | | Nominal frequency /Hz | Frequency weighting / dB | | |
|--------------------------|--------------------------|------|------|--------------------------|--------------------------|-------|-----|
| | A | C | Z | | A | C | Z |
| 20 | -50.4 | -6.1 | -0.2 | 1000 | 0.1 | 0.0 | 0.0 |
| 31.5 | -39.4 | -2.9 | 0.0 | 2000 | 1.3 | -0.1 | 0.0 |
| 63 | -26.2 | -0.8 | 0.0 | 4000 | 1.3 | -0.6 | 0.0 |
| 125 | -16.1 | -0.1 | 0.0 | 8000 | -1.1 | -3.1 | 0.1 |
| 250 | -8.6 | 0.0 | 0.1 | 12500 | -11.0 | -13.0 | 0.0 |
| 500 | -3.2 | 0.0 | 0.0 | / | / | / | / |

6. Self-generated noise

Microphone replaced by electrical input signal device

| | | |
|------------|------------|------------|
| 25.1 dB(A) | 26.3 dB(C) | 34.9 dB(Z) |
|------------|------------|------------|

7. F&S Weighting

| | |
|---|------|
| Rate of the F weighting decrease (dB/s) | 34.6 |
| Rate of the S weighting decrease (dB/s) | 4.3 |
| Deviation of F&S | -0.1 |

8. Level Linearity (A-weighting at frequency 1 kHz)

Reference sound level 90.0 dB

Max error at 10dB steps upper reference sound level 0.1 dB

Max error at 1dB steps within 5dB of the upper limit linear operating range 0.0 dB

Max error at 10dB steps below reference sound level 0.1 dB

Max error at 1dB steps within 5dB upper the lower limit linear operating range 0.1 dB

9. Tone burst response (A Weighting) :

| Single Toneburst duration /ms | Toneburst response /dB | | | |
|-------------------------------|------------------------|-----------|--------|----------|
| | LAFmax-LA | LASmax-LA | LAE-LA | LAeqT-LA |
| 500 | 0.0 | -4.0 | -2.9 | -7.0 |
| 200 | -1.0 | -16.9 | -6.9 | -7.0 |
| 2 | -18.2 | -26.9 | -26.9 | -7.0 |
| 0.25 | -27.1 | / | -36.1 | -7.0 |

10. Peak C sound level (500Hz) :

| Cycle | One cycle | nominal value | Positive half | nominal value | Negative half | nominal value |
|---------------|-----------|---------------|---------------|---------------|---------------|---------------|
| LCpeak-LC(dB) | 3.4 | 3.5 | 2.3 | 2.4 | 2.3 | 2.4 |

11. Overload indication: Pass

12. Statistical analysis function

Sweep signal maximum indicated sound level: 123.0 dB

Sweep amplitude: 40 dB

Scan cycle time: 60 S; Measurement period: 180 S.

| Items | Measured value/dB | Theoretical calculated value/dB | Error/dB |
|--------------------|-------------------|---------------------------------|----------|
| L _{Aeq,T} | 113.3 | 113.4 | -0.1 |
| L ₅ | 121.0 | 121.0 | 0.0 |
| L ₁₀ | 119.0 | 119.0 | 0.0 |
| L ₅₀ | 103.0 | 103.0 | 0.0 |
| L ₉₀ | 87.1 | 87.0 | 0.1 |
| L ₉₅ | 85.1 | 85.0 | 0.1 |

Uncertainty of measurement results: 0.4 dB (k=2)

Environment conditions:

Air temperature: 20 °C

Relative humidity: 50 %

Static pressure: 101.8 kPa

Test specifications:

1. All Scarlet's Sound level Meter has been calibrated in accordance with the requirements as specified in ISO 17025 and the lab calibration procedure SMTP004-CA-152.
2. The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3. The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

References:

IEC 61672-3 Sound Level Meters Part 3: Periodic tests

CERTIFICATE OF CALIBRATION

NO. 20231215112

| | |
|----------------------|-------------------|
| Name of Product: | Sound Level Meter |
| Model | ST-21D |
| Serial Number: | 820792 |
| Specification: | Class 2 |
| Conclusion: | Pass |
| Date of calibration: | 2023-12-14 |
| Due Date: | 2024-12-13 |

Calibrated by:

- I. This report certifies that all calibration equipment used in the test is traceable with the internal ISO9001 procedures and meets all specification given in the Manual(s) or respectively surpass then, and applies only to the unit identified above.
- II. This certificate is produced with advanced equipment & procedures which permit comprehensive quality assurance verification of all data supplied herein.
- III. This certificate of calibration shall not be reproduced except in full, without written permission of the Scarlet Tech Co Ltd Taiwan.

1. Preliminary inspection: OK

2. Type & serial No. of Microphone: AWA14421A-000433

3. Adjustments to indicated sound levels:

Type of Calibrator B&K 4231

Sound Pressure Level 94.0 dB

4. Measuring up limit: 138 dBA

5. Frequency weightings (Acoustic signal tests for Z weighting, other electric signal tests.)

Equivalent Free-field Sound Level (reference environment conditions) 93.8 dB

| Nominal frequency /Hz | Frequency weighting / dB | | | Nominal frequency /Hz | Frequency weighting / dB | | |
|--------------------------|--------------------------|------|------|--------------------------|--------------------------|-------|-----|
| | A | C | Z | | A | C | Z |
| 20 | -50.6 | -6.3 | -0.3 | 1000 | 0.1 | 0.0 | 0.0 |
| 31.5 | -39.5 | -3.0 | -0.1 | 2000 | 1.3 | -0.1 | 0.0 |
| 63 | -26.2 | -0.9 | 0.0 | 4000 | 1.3 | -0.6 | 0.0 |
| 125 | -16.2 | -0.2 | 0.0 | 8000 | -1.2 | -3.2 | 0.1 |
| 250 | -8.6 | 0.0 | 0.1 | 12500 | -11.0 | -13.0 | 0.0 |
| 500 | -3.2 | 0.0 | 0.0 | / | / | / | / |

6. Self-generated noise

Microphone replaced by electrical input signal device

| | | |
|------------|------------|------------|
| 25.2 dB(A) | 26.0 dB(C) | 34.3 dB(Z) |
|------------|------------|------------|

7. F&S Weighting

| | |
|---|------|
| Rate of the F weighting decrease (dB/s) | 35.2 |
| Rate of the S weighting decrease (dB/s) | 4.4 |
| Deviation of F&S | 0.0 |

8. Level Linearity (A-weighting at frequency 1 kHz)

Reference sound level 90.0 dB

Max error at 10dB steps upper reference sound level 0.1 dB

Max error at 1dB steps within 5dB of the upper limit linear operating range 0.0 dB

Max error at 10dB steps below reference sound level 0.1 dB

Max error at 1dB steps within 5dB upper the lower limit linear operating range 0.1 dB

9. Tone burst response (A Weighting) :

| Single Toneburst duration /ms | Toneburst response /dB | | | |
|-------------------------------|------------------------|-----------|--------|----------|
| | LAFmax-LA | LASmax-LA | LAE-LA | LAeqT-LA |
| 500 | 0.0 | -4.0 | -2.9 | -7.0 |
| 200 | -1.0 | -7.4 | -6.9 | -7.0 |
| 2 | -18.2 | -26.9 | -26.9 | -7.0 |
| 0.25 | -27.3 | / | -36.1 | -7.0 |

10. Peak C sound level (500Hz) :

| Cycle | One cycle | nominal value | Positive half | nominal value | Negative half | nominal value |
|---------------|-----------|---------------|---------------|---------------|---------------|---------------|
| LCpeak-LC(dB) | 3.5 | 3.5 | 2.3 | 2.4 | 2.3 | 2.4 |

11. Overload indication: Pass

12. Statistical analysis function

Sweep signal maximum indicated sound level: 123.0 dB

Sweep amplitude: 40 dB

Scan cycle time: 60 S; Measurement period: 180 S.

| Items | Measured value/dB | Theoretical calculated value/dB | Error/dB |
|--------------------------|-------------------|---------------------------------|----------|
| L_{Aeq,T} | 113.3 | 113.4 | -0.1 |
| L₅ | 121.0 | 121.0 | 0.0 |
| L₁₀ | 119.0 | 119.0 | 0.0 |
| L₅₀ | 103.0 | 103.0 | 0.0 |
| L₉₀ | 87.1 | 87.0 | 0.1 |
| L₉₅ | 85.1 | 85.0 | 0.1 |

Uncertainty of measurement results: 0.4 dB (k=2)

Environment conditions:

Air temperature: 20 °C

Relative humidity: 50 %

Static pressure: 101.8 kPa

Test specifications:

1. All Scarlet's Sound level Meter has been calibrated in accordance with the requirements as specified in ISO 17025 and the lab calibration procedure SMTP004-CA-152.
2. The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3. The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

References:

IEC 61672-3 Sound Level Meters Part 3: Periodic tests

CERTIFICATE OF CALIBRATION

NO. 20231215113

| | |
|----------------------|-------------------|
| Name of Product: | Sound Level Meter |
| Model | ST-21D |
| Serial Number: | 820793 |
| Specification: | Class 2 |
| Conclusion: | Pass |
| Date of calibration: | 2023-12-14 |
| Due Date: | 2024-12-13 |

Calibrated by:

- I. This report certifies that all calibration equipment used in the test is traceable with the internal ISO9001 procedures and meets all specification given in the Manual(s) or respectively surpass then, and applies only to the unit identified above.
- II. This certificate is produced with advanced equipment & procedures which permit comprehensive quality assurance verification of all data supplied herein.
- III. This certificate of calibration shall not be reproduced except in full, without written permission of the Scarlet Tech Co Ltd Taiwan.

1. Preliminary inspection: OK

2. Type & serial No. of Microphone: AWA14421A-000482

3. Adjustments to indicated sound levels:

Type of Calibrator B&K 4231

Sound Pressure Level 94.0 dB

4. Measuring up limit: 138 dBA

5. Frequency weightings (Acoustic signal tests for Z weighting, other electric signal tests.)

Equivalent Free-field Sound Level (reference environment conditions) 93.8 dB

| Nominal frequency /Hz | Frequency weighting / dB | | | Nominal frequency /Hz | Frequency weighting / dB | | |
|--------------------------|--------------------------|------|------|--------------------------|--------------------------|-------|-----|
| | A | C | Z | | A | C | Z |
| 20 | -50.4 | -6.4 | -0.2 | 1000 | 0.1 | 0.0 | 0.0 |
| 31.5 | -39.6 | -3.1 | -0.2 | 2000 | 1.3 | -0.1 | 0.0 |
| 63 | -26.2 | -0.8 | 0.0 | 4000 | 1.3 | -0.6 | 0.0 |
| 125 | -16.2 | -0.3 | 0.0 | 8000 | -1.2 | -3.2 | 0.1 |
| 250 | -8.6 | 0.0 | 0.1 | 12500 | -11.0 | -13.0 | 0.0 |
| 500 | -3.2 | 0.0 | 0.0 | / | / | / | / |

6. Self-generated noise

Microphone replaced by electrical input signal device

| | | |
|------------|------------|------------|
| 24.8 dB(A) | 25.6 dB(C) | 34.4 dB(Z) |
|------------|------------|------------|

7. F&S Weighting

| | |
|---|------|
| Rate of the F weighting decrease (dB/s) | 35.2 |
| Rate of the S weighting decrease (dB/s) | 4.4 |
| Deviation of F&S | -0.1 |

8. Level Linearity (A-weighting at frequency 1 kHz)

Reference sound level 90.0 dB

Max error at 10dB steps upper reference sound level 0.1 dB

Max error at 1dB steps within 5dB of the upper limit linear operating range 0.0 dB

Max error at 10dB steps below reference sound level 0.1 dB

Max error at 1dB steps within 5dB upper the lower limit linear operating range 0.1 dB

9. Tone burst response (A Weighting) :

| Single Toneburst duration /ms | Toneburst response /dB | | | |
|-------------------------------|------------------------|-----------|--------|----------|
| | LAFmax-LA | LASmax-LA | LAE-LA | LAeqT-LA |
| 500 | 0.0 | -4.0 | -2.9 | -7.0 |
| 200 | -1.0 | -7.4 | -6.9 | -7.0 |
| 2 | -18.2 | -26.9 | -26.9 | -7.0 |
| 0.25 | -27.2 | / | -36.1 | -7.0 |

10. Peak C sound level (500Hz) :

| Cycle | One cycle | nominal value | Positive half | nominal value | Negative half | nominal value |
|---------------|-----------|---------------|---------------|---------------|---------------|---------------|
| LCpeak-LC(dB) | 3.5 | 3.5 | 2.3 | 2.4 | 2.3 | 2.4 |

11. Overload indication: Pass

12. Statistical analysis function

Sweep signal maximum indicated sound level: 123.0 dB

Sweep amplitude: 40 dB

Scan cycle time: 60 S; Measurement period: 180 S.

| Items | Measured value/dB | Theoretical calculated value/dB | Error/dB |
|--------------------------|-------------------|---------------------------------|----------|
| L_{Aeq,T} | 113.3 | 113.4 | -0.1 |
| L₅ | 121.0 | 121.0 | 0.0 |
| L₁₀ | 119.0 | 119.0 | 0.0 |
| L₅₀ | 103.0 | 103.0 | 0.0 |
| L₉₀ | 87.1 | 87.0 | 0.1 |
| L₉₅ | 85.1 | 85.0 | 0.1 |

Uncertainty of measurement results: 0.4 dB (k=2)

Environment conditions:

Air temperature: 20 °C

Relative humidity: 50 %

Static pressure: 101.8 kPa

Test specifications:

1. All Scarlet's Sound level Meter has been calibrated in accordance with the requirements as specified in ISO 17025 and the lab calibration procedure SMTP004-CA-152.
2. The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3. The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

References:

IEC 61672-3 Sound Level Meters Part 3: Periodic tests

Calibration & Test Certificate

We hereby certify that the instrument under mentioned has been certainly calibrated according to our calibration standard and the testing result in the calibration procedure has been good enough within the tolerance regulated in our specification.

Test conditions

Model name Noise Dosimeter
Model number ST-130
Serial number 230600019
Temperature 25.0° C
Humidity 77.0%rh
Date of calibration 2023/09/08
Valid Until 2024/09/07

Test data

| Test Item | Range | Results |
|-----------|--------------------|---------|
| M dBA | Range: 30...130 dB | PASS |
| M dBC | Range: 30...130 dB | PASS |
| M dBZ | Range: 30...130 dB | PASS |
| | | |
| | | |

Calibrator

| Model | Model number | Serial number | Due date |
|----------------------------|--------------|---------------|-------------|
| Standard SOUND LEVEL METER | B&K 2239 | 2449143 | OCT/22/2024 |

The standard generators used for calibration procedure are proofed once a year and can be traceable to the standard authorized by public organization.

Approved by



Scarlet Tech
Head of Engineering Department

Calibration & Test Certificate

We hereby certify that the instrument under mentioned has been certainly calibrated according to our calibration standard and the testing result in the calibration procedure has been good enough within the tolerance regulated in our specification.

Test conditions

Model name Noise Dosimeter
Model number..... ST-130
Serial number 230600020
Temperature 25.0° C
Humidity..... 77.0%rh
Date of calibration 2023/09/08
Valid Until..... 2024/09/07

Test data

| Test Item | Range | Results |
|-----------|--------------------|---------|
| M dBA | Range: 30...130 dB | PASS |
| M dBC | Range: 30...130 dB | PASS |
| M dBZ | Range: 30...130 dB | PASS |
| | | |
| | | |

Calibrator

| Model | Model number | Serial number | Due date |
|----------------------------|--------------|---------------|-------------|
| Standard SOUND LEVEL METER | B&K 2239 | 2449143 | OCT/22/2024 |

The standard generators used for calibration procedure are proofed once a year and can be traceable to the standard authorized by public organization.

Approved by



Scarlet Tech
Head of Engineering Department

Calibration & Test Certificate

We hereby certify that the instrument under mentioned has been certainly calibrated according to our calibration standard and the testing result in the calibration procedure has been good enough within the tolerance regulated in our specification.

Test conditions

Model name Noise Dosimeter
Model number..... ST-130
Serial number 230600121
Temperature 22.0° C
Humidity..... 70.0%rh
Date of calibration 2023/10/18
Valid Until..... 2024/10/17

Test data

| Test Item | Range | Results |
|-----------|---------------------|---------|
| M dBA | Range: 30... 130 dB | PASS |
| M dBC | Range: 30... 130 dB | PASS |
| M dBZ | Range: 30... 130 dB | PASS |
| | | |
| | | |

Calibrator

| Model | Model number | Serial number | Due date |
|----------------------------|--------------|---------------|-------------|
| Standard SOUND LEVEL METER | B&K 2239 | 2449143 | OCT/22/2024 |

The standard generators used for calibration procedure are proofed once a year and can be traceable to the standard authorized by public organization.

Approved by _____

Scarlet Tech
Head of Engineering Department

Calibration & Test Certificate

We hereby certify that the instrument under mentioned has been certainly calibrated according to our calibration standard and the testing result in the calibration procedure has been good enough within the tolerance regulated in our specification.

Test conditions

Model name Noise Dosimeter
Model number ST-130
Serial number 230600122
Temperature 22.0° C
Humidity 70.0%rh
Date of calibration 2023/10/18
Valid Until 2024/10/17

Test data

| Test Item | Range | Results |
|-----------|--------------------|---------|
| M dBA | Range: 30...130 dB | PASS |
| M dBC | Range: 30...130 dB | PASS |
| M dBZ | Range: 30...130 dB | PASS |
| | | |
| | | |

Calibrator

| Model | Model number | Serial number | Due date |
|----------------------------|--------------|---------------|-------------|
| Standard SOUND LEVEL METER | B&K 2239 | 2449143 | OCT/22/2024 |

The standard generators used for calibration procedure are proofed once a year and can be traceable to the standard authorized by public organization.

Approved by _____

Scarlet Tech
Head of Engineering Department