

ภาคผนวกที่ 4

ใบรับรองการสอบเทียบเครื่องมือ



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	April 22, 2026
วัดโคกมะยม				Start Time	10:30 AM
Sampler Number	TSP No.2	Transfer Standard Type	Orifice	Stop Time	10:40 AM
Motor Serial Number	BL-02	Calibrator Model	TE-5025A	Person	
Recorder Serial Number	-	Calibrator Serial Number	1		

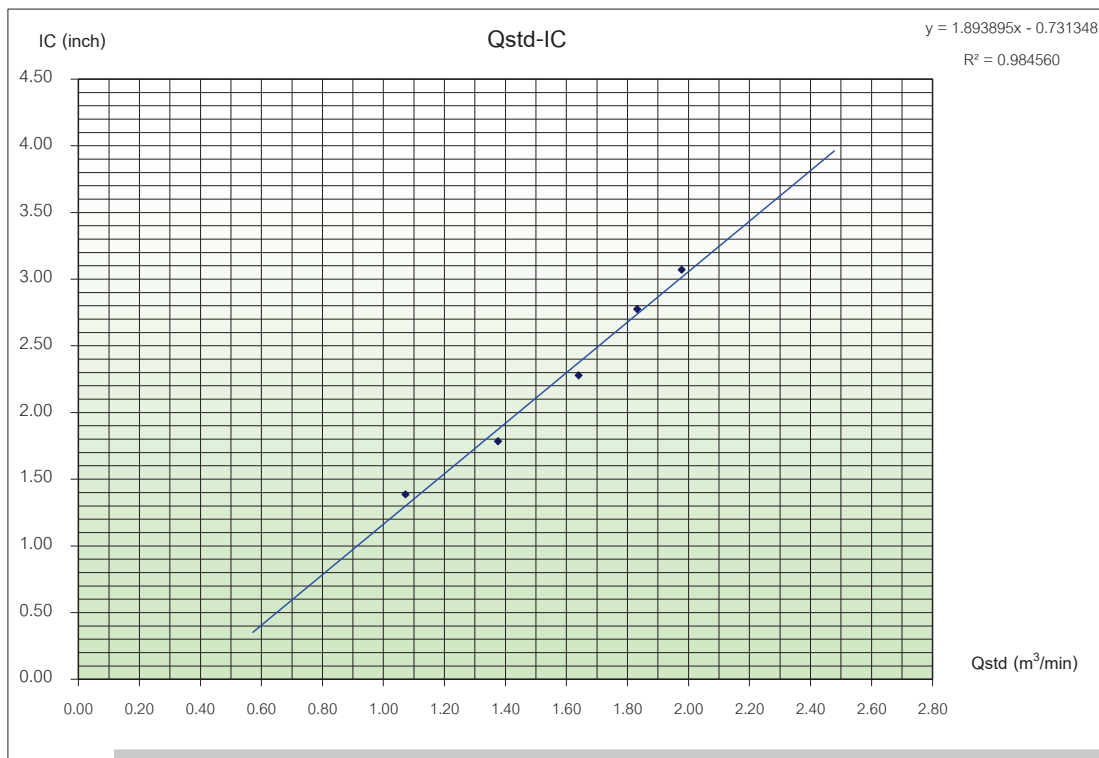
Plate No.	(Delta H)			(A)	(X)	(I)	(Y)	Temperature	Barometric	Start	Stop
	Pressure Drop Across Orifice (inH ₂ O)			$[\Delta H_2O(Pa/P_{std})(T_{std}/Ta)]^{1/2}$	Qstd = (1/m)[(A-b)] (m ³ /min)	Sample Flow Rate Indicator (inch)	IC = I[(Pa/P _{std})(T _{std} /Ta)] ^{1/2}	("K = °C+273)	Pressure (mmHg)	Meter	Meter
	Positive	Negative	ΔH ₂ O								
5	2.2	2.2	4.4	2.07887	1.07196	1.4	1.39	303.0	759.0		
7	3.6	3.6	7.2	2.65930	1.37530	1.8	1.78	303.0	759.0		
10	5.1	5.1	10.2	3.16520	1.63969	2.3	2.28	303.0	759.0		
13	6.4	6.3	12.7	3.53185	1.83131	2.8	2.77	303.0	759.0		
18	7.4	7.4	14.8	3.81269	1.97808	3.1	3.07	303.0	759.0		

Linear Regression Y ON X : Y= mX + b

1	Slope (m)	1.91345	Linear Equation		Average	303.0	759.0		
2	Intercept (b)	0.02773	Set Point Flow Rate (X) (m ³ /min)	1.133	r	0.98456	Pstd(mmHg)	760.0	
3	Correlation Coefficient (r)	0.99995	Final Set Flow Rate = (I)	0	r	0.99225	T _{NTP}	298.0	
Result							C=(Pa/Pstd)*(Tstd/Ta)	0.982204273	
							C=(Pa/Pstd)*(Tstd/Ta)^0.5	0.991062194	

COMMENT

Andersen Instruments, Inc.





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	April 22, 2026
วัดโคกมะยม				Start Time	1:00 PM
Sampler Number	PM-10 No.4	Transfer Standard Type	Orifice	Stop Time	1:10 PM
Motor Serial Number	HVL-04	Calibrator Model	TE-5025A	Person	
Recorder Serial Number	-	Calibrator Serial Number	1		

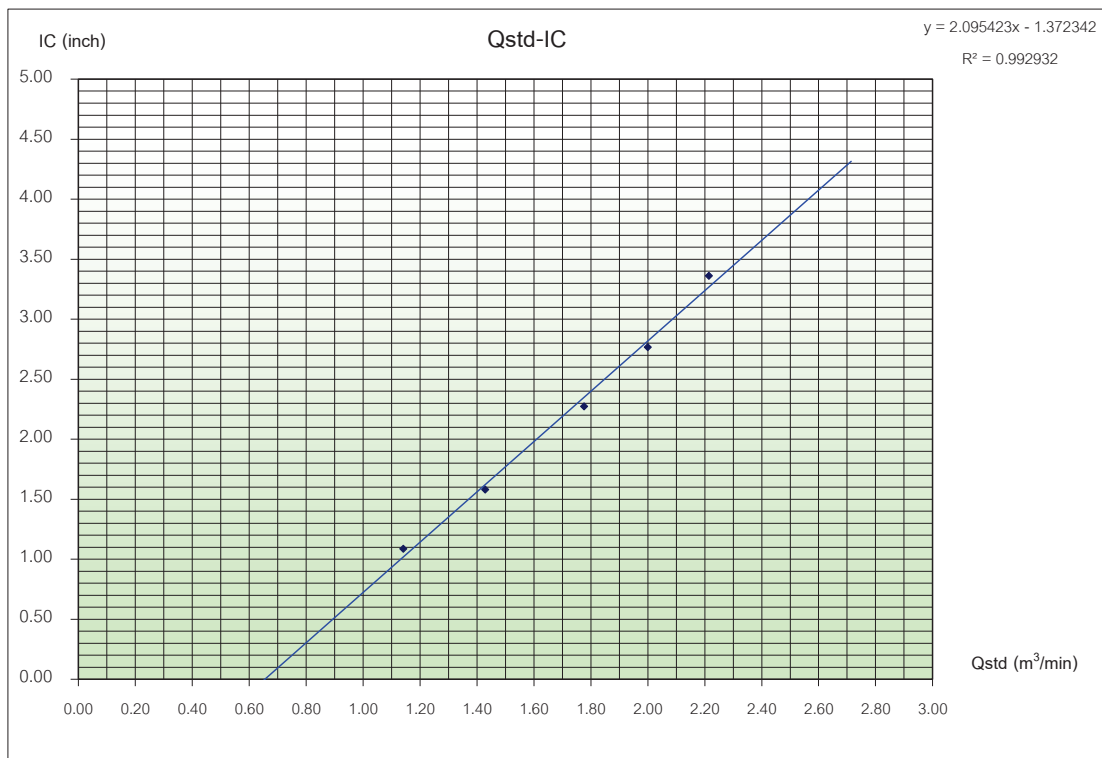
Plate	(Delta H)			(A)	(X)	(I)	(Y)	Temperature	Barometric	Start	Stop
No.	Pressure Drop Across Orifice (inH ₂ O)			$[\Delta H_2O(Pa/P_{std})(T_{std}/Ta)]^{1/2}$	Qstd = (1/m)[(A-b)]	sample Flow Rate Indicator (m ³ /min)	$IC = I[(Pa/P_{std})(T_{std}/Ta)]^{1/2}$	°K = °C+273)	Pressure (mmHg)	Meter	Meter
	Positive	Negative	ΔH ₂ O								
5	2.5	2.5	5.0	2.21098	1.14100	1.1	1.09	304.0	758.0		
7	3.9	3.9	7.8	2.76151	1.42872	1.6	1.58	304.0	758.0		
10	6.0	6.0	12.0	3.42523	1.77559	2.3	2.27	304.0	758.0		
13	7.6	7.6	15.2	3.85497	2.00018	2.8	2.77	304.0	758.0		
18	9.3	9.3	18.6	4.26438	2.21414	3.4	3.36	304.0	758.0		

Linear Regression Y ON X : Y= mX + b

1	Slope (m)	1.91345	Linear Equation		Average	304.0	758.0		
2	Intercept (b)	0.02773	Set Point Flow Rate (X) (m ³ /min)	1.133	r ²	0.992932	Pstd(mmHg)	760.0	
3	Correlation Coefficient (r)	0.99995	Final Set Flow Rate = (I)	0	r	0.9964597	T _{NTP}	298.0	
Result							C=(Pa/Pstd)*(Tstd/Ta)	0.977683518	
							C=(Pa/Pstd)*(Tstd/Ta)^0.5	0.988778801	

COMMENT

Andersen Instruments, Inc.



Analyzer Performance Test

Calibrated Date: 22 APRIL 2026

Instruments Information

Analyzer Type: NO/NO2/NOx Analyzer Model: 42C	Manufacturer Thermo Environmental S/N: 42C-33500-371
--	---

Calibration System

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

Environment: Temperature 25.5 °C

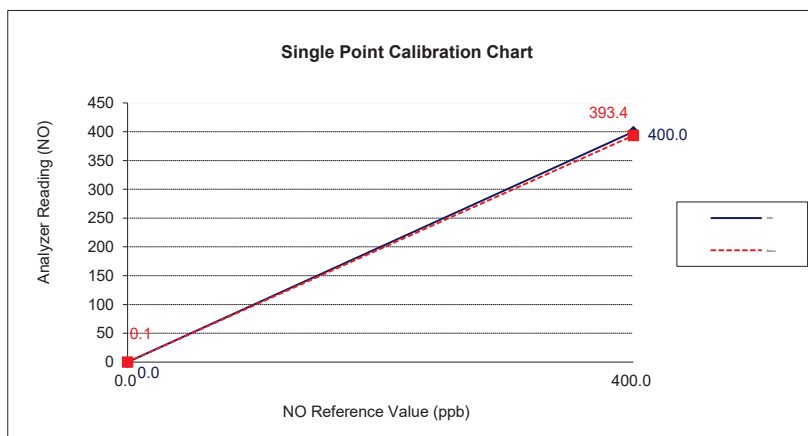
Humidity: 51 %RH

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	393.4	400.0	-1.7
NOx	0.1	0.0	0.1	396.7	400.0	-0.8

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





THAI METEOROLOGICAL DEPARTMENT

4353 Sukhumvit, Bangna, Bangkok 10260 Tel. 081-454-2804, 0-2399-0469

Calibration Certificate

Issued by : Calibration & Test Section : Meteorological Instruments Bureau

Date of Issue 5 May, 2025

Certification No. 249/25

Page : 1 of 2

Object : Weather Station

Manufacturer : Davis Instruments

Type : Weather Monitor II

Serial No. : MC81014A04

Customer : M E T Company Limited.
36/659 Moo 6 Bangrak Phatthana,
Bang Bua Thong, Nonthaburi 11110.

Calibration Condition : Temperature 25.1 °C Barometric Pressure 1006.9 hPa

NATIONAL STANDARD WIND TUNNEL : Vane Angel Bench Stand Model 18112

: Micromanometer Theodor Friedrichs FC014 Serial No. 9310119

: HOOK GAGE NO 1425 Pitot Tube Theodor Friedrichs Type 0800.0000 serial 9023

N.I.S.T. Test Reference Number 731/241460 : Standard Velocity at 20 - 30 m/sec

: Ultrasonic Anemometer Model DA-650-3TV (sensor TR-90AH)
Serial Number 110730029 (sensor 120629586)

JAPAN QUALITY ASSURANCE ORGANIZATION : Standard Velocity at 0 - 20 m/sec

Calibrated by :

Mr. Watcharapol Subwat

Mechanical Engineer

Signed :

Mr. Pisobd Promsut





THAI METEOROLOGICAL DEPARTMENT

4353 Sukhumvit, Bangna, Bangkok 10260 Tel. 081-454-2804, 0-2399-0469

The Result of Calibration

Certification No. 249/25

5 May, 2025

Page : 2 of 2

Standard Ultrasonic Anemometer m/sec	HOOK GAGE NO. 1425			TESTED ANEMOMETER	
	Pressure inches H ₂ O	Vacumm inches H ₂ O	Velocity m/sec	Velocity m/sec	Correction m/sec
1.00	-	-	-	0.4	0.60
3.02	-	-	-	2.7	0.32
5.00	-	-	-	4.5	0.50
7.00	-	-	-	6.7	0.30
9.02	-	-	-	8.5	0.52
11.01	-	-	-	10.7	0.31
13.01	-	-	-	12.5	0.51
15.01	-	-	-	14.7	0.31
17.02	-	-	-	16.5	0.52
20.02	-	-	-	19.7	0.32

Vane Angel Bench Stand Model 18112 Young Meteorological Instruments	
WIND DIRECTION	TESTED WIND DIRECTION
0	0
90	90
180	180
270	270

Calibrated by :

Watchapol

Mr. Watchapol Subwat

Mechanical Engineer





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	April 22, 2026
วัดคามแหวน				Start Time	10:10 AM
Sampler Number	TSP No.13	Transfer Standard Type	Orifice	Stop Time	10:20 AM
Motor Serial Number	BL-13	Calibrator Model	TE-5025A	Person	
Recorder Serial Number	-	Calibrator Serial Number	1		

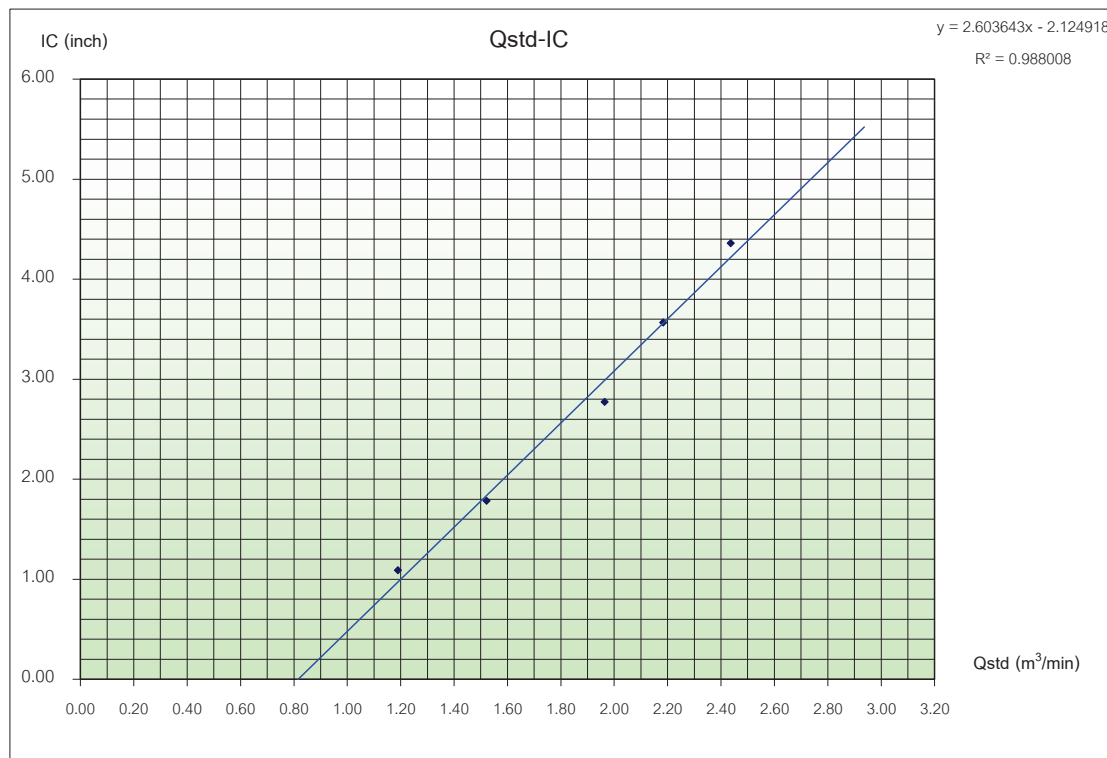
Plate	(Delta H)			(A)	(X)	(I)	(Y)	Temperature	Barometric	Start	Stop
No.	Pressure Drop Across Orifice (inH ₂ O)			$[\Delta H_2O(Pa/P_{std})(T_{std}/Ta)]^{1/2}$	Qstd = (1/m)[(A-b)] (m ³ /min)	Sample Flow Rate Indicator (inch)	$IC = I[(Pa/P_{std})(T_{std}/Ta)]^{1/2}$	("K = °C+273) (mmHg)	Pressure	Meter	Meter
	Positive	Negative	ΔH_2O								
5	2.7	2.7	5.4	2.30302	1.18910	1.1	1.09	303.0	759.0		
7	4.4	4.4	8.8	2.93997	1.52198	1.8	1.78	303.0	759.0		
10	7.3	7.3	14.6	3.78684	1.96457	2.8	2.77	303.0	759.0		
13	9.0	9.0	18.0	4.20472	2.18296	3.6	3.57	303.0	759.0		
18	11.2	11.2	22.4	4.69056	2.43687	4.4	4.36	303.0	759.0		

Linear Regression Y ON X : Y= mX + b

1	Slope (m)	1.91345	Linear Equation		Average	303.0	759.0		
2	Intercept (b)	0.02773	Set Point Flow Rate (X) (m ³ /min)	1.133	r ²	0.988008	Pstd(mmHg)	760.0	
3	Correlation Coefficient (r)	0.99995	Final Set Flow Rate = (I)	0	r	0.9939859	T _{NTP}	298.0	
Result							C=(Pa/Pstd)*(Tstd/Ta)^0.5		0.991062194

COMMENT

Andersen Instruments, Inc.





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	April 22, 2026
วัดคามแหวน				Start Time	1:30 PM
Sampler Number	PM-10 No.11	Transfer Standard Type	Orifice	Stop Time	1:40 PM
Motor Serial Number	HVL-11	Calibrator Model	TE-5025A	Person	
Recorder Serial Number	-	Calibrator Serial Number	1		

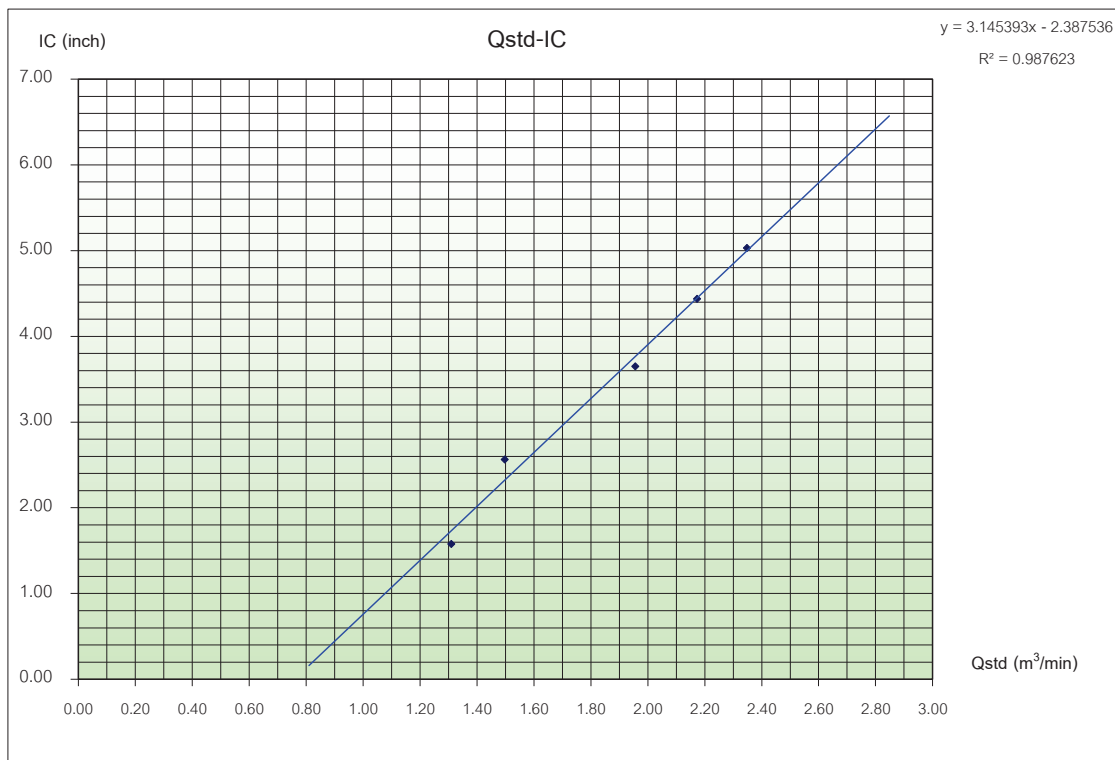
Plate No.	(Delta H)			(A)	(X)	(I)	(Y)	Temperature	Barometric Pressure	Start Meter	Stop Meter
	Pressure Drop Across Orifice (inH ₂ O)			$[\Delta H_2O(Pa/P_{std})(T_{std}/Ta)]^{1/2}$	$Q_{std} = (1/m)[(A-b)]$ (m ³ /min)	Sample Flow Rate Indicator (inch)	$IC = I[(Pa/P_{std})(T_{std}/Ta)]^{1/2}$	("K = °C+273)	(mmHg)		
	Positive	Negative	ΔH_2O								
5	3.3	3.3	6.6	2.53438	1.31001	1.6	1.58	305.0	757.0		
7	4.3	4.3	8.6	2.89300	1.49744	2.6	2.56	305.0	757.0		
10	7.3	7.3	14.6	3.76943	1.95547	3.7	3.65	305.0	757.0		
13	9.0	9.0	18.0	4.18539	2.17286	4.5	4.44	305.0	757.0		
18	10.5	10.5	21.0	4.52073	2.34812	5.1	5.03	305.0	757.0		

Linear Regression Y ON X : Y= mX + b

1	Slope (m)	1.91345	Linear Equation		Average	305.0	757.0		
2	Intercept (b)	0.02773	Set Point Flow Rate (X) (m ³ /min)	1.133	r	0.987623	Pstd(mmHg)	760.0	
3	Correlation Coefficient (r)	0.99995	Final Set Flow Rate = (I)	0	r	0.9937922	T _{NTP}	298.0	
Result							C=(Pa/Pstd)*(Tstd/Ta)^0.5	0.986505148	

COMMENT

Andersen Instruments, Inc.



Analyzer Performance Test

Calibrated Date: 22 April 2026

Instruments Information

Analyzer Type: NO/NO2/NOx Analyzer Model: 42C	Manufacturer Thermo Environmental S/N: 42C-601114773
--	---

Calibration System

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

Environment: Temperature 25.5 °C

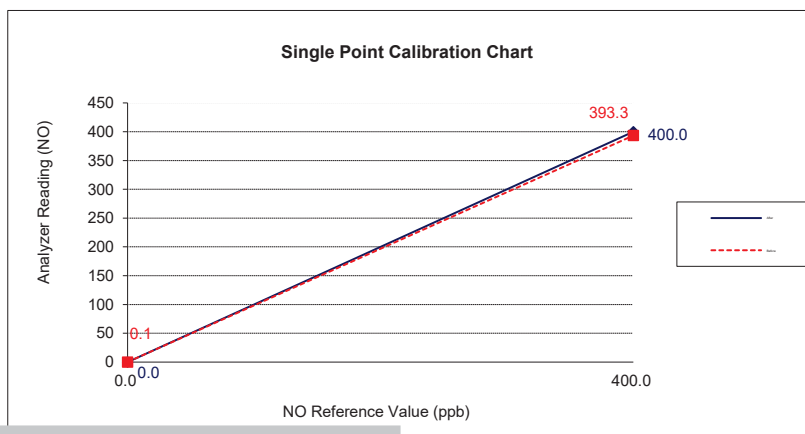
Humidity: 51 %RH

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	393.3	400.0	-1.7
NOx	0.1	0.0	0.1	396.4	400.0	-0.9

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





THAI METEOROLOGICAL DEPARTMENT

4353 Sukhumvit, Bangna, Bangkok 10260 Tel. 081-454-2804, 0-2399-0469

Calibration Certificate

Issued by : Calibration & Test Section : Meteorological Instruments Bureau

Date of Issue 5 May, 2025

Certification No. 250/25

Page : 1 of 2

Object : Weather Station

Manufacturer : Davis Instruments

Type : Weather Wizard III

Serial No. : WC00926A62

Customer : M E T Company Limited.
36/659 Moo 6 Bangrak Phatthana,
Bang Bua Thong, Nonthaburi 11110.

Calibration Condition : Temperature 25.1 °C Barometric Pressure 1007.5 hPa

NATIONAL STANDARD WIND TUNNEL : Vane Angel Bench Stand Model 18112

: Micromanometer Theodor Friedrichs FC014 Serial No. 9310119

: HOOK GAGE NO 1425 Pitot Tube Theodor Friedrichs Type 0800.0000 serial 9023

N.I.S.T. Test Reference Number 731/241460 : Standard Velocity at 20 - 30 m/sec

: Ultrasonic Anemometer Model DA-650-3TV (sensor TR-90AH)

Serial Number 110730029 (sensor 120629586)

JAPAN QUALITY ASSURANCE ORGANIZATION : Standard Velocity at 0 - 20 m/sec

(Authorised Signatory)
for the Chief
Sub-Standard Instrument





THAI METEOROLOGICAL DEPARTMENT

4353 Sukhumvit, Bangna, Bangkok 10260 Tel. 081-454-2804,0-2399-0469

The Result of Calibration

Certification No. 250/25

5 May, 2025

Page : 2 of 2

Standard	HOOK GAGE NO. 1425			TESTED ANEMOMETER	
Ultrasonic Anemometer	Pressure	Vacumm	Velocity	Velocity	Correction
m/sec	inches H2O	inches H2O	m/sec	m/sec	m/sec
1.00	-	-	-	0.9	0.10
3.02	-	-	-	2.7	0.32
5.00	-	-	-	4.9	0.10
7.00	-	-	-	6.7	0.30
9.02	-	-	-	8.9	0.12
11.01	-	-	-	10.7	0.31
13.01	-	-	-	13.0	0.01
15.01	-	-	-	14.9	0.11
17.02	-	-	-	17.0	0.02
20.02	-	-	-	20.0	0.02

Vane Angel Bench Stand Model 18112	
Young Meteorological Instruments	
WIND DIRETION	TESTED WIND DIRECTION
0	0
90	90
180	180
270	270



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	April 22, 2026
บ้านคานหาม				Start Time	1:10 PM
Sampler Number	TSP No.14	Transfer Standard Type	Orifice	Stop Time	1:20 PM
Motor Serial Number	BL-14	Calibrator Model	TE-5025A	Person	
Recorder Serial Number	-	Calibrator Serial Number	1		

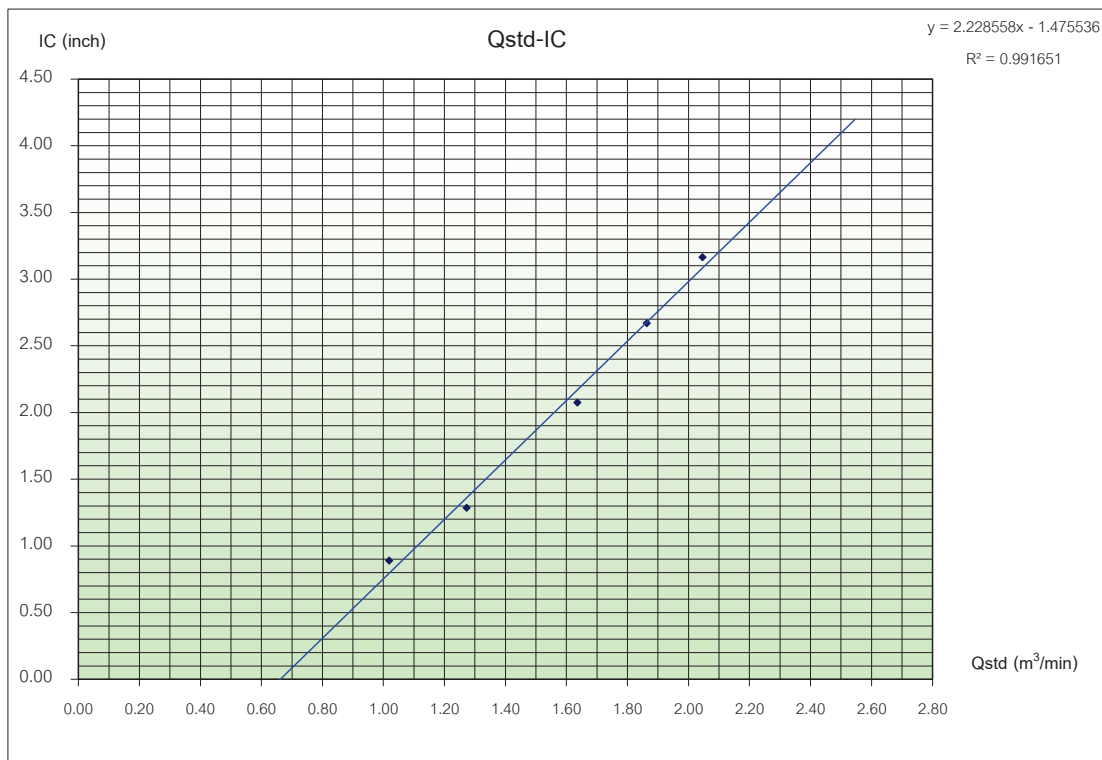
Plate No.	(Delta H)			(A)	(X)	(I)	(Y)	Temperature	Barometric Pressure	Start Meter	Stop Meter
	Pressure Drop Across Orifice (inH ₂ O)			$[\Delta H_2O(Pa/P_{std})(T_{std}/Ta)]^{1/2}$	$Q_{std} = (1/m)[(A-b)]$ (m ³ /min)	Sample Flow Rate Indicator (inch)	$IC = I[(Pa/P_{std})(T_{std}/Ta)]^{1/2}$	("K = °C+273)	(mmHg)		
	Positive	Negative	ΔH_2O								
5	2.0	2.0	4.0	1.97756	1.01901	0.9	0.89	304.0	758.0		
7	3.1	3.1	6.2	2.46204	1.27221	1.3	1.29	304.0	758.0		
10	5.1	5.1	10.2	3.15791	1.63588	2.1	2.08	304.0	758.0		
13	6.6	6.6	13.2	3.59241	1.86296	2.7	2.67	304.0	758.0		
18	8.0	7.9	15.9	3.94274	2.04605	3.2	3.16	304.0	758.0		

Linear Regression Y ON X : Y= mX + b

1	Slope (m)	1.91345	Linear Equation		Average	304.0	758.0		
2	Intercept (b)	0.02773	Set Point Flow Rate (X) (m ³ /min)	1.133	r ²	0.991651	Pstd(mmHg)	760.0	
3	Correlation Coefficient (r)	0.99995	Final Set Flow Rate = (I)	0	r	0.9958168	T _{NTP}	298.0	
Result							C=(Pa/Pstd)*(Tstd/Ta)^0.5	0.988778801	

COMMENT

Andersen Instruments, Inc.





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	April 22, 2026
บ้านคานหาม				Start Time	1:15 PM
Sampler Number	PM-10 No.6	Transfer Standard Type	Orifice	Stop Time	1:25 PM
Motor Serial Number	HVL-06	Calibrator Model	TE-5025A	Person	
Recorder Serial Number	-	Calibrator Serial Number	1		

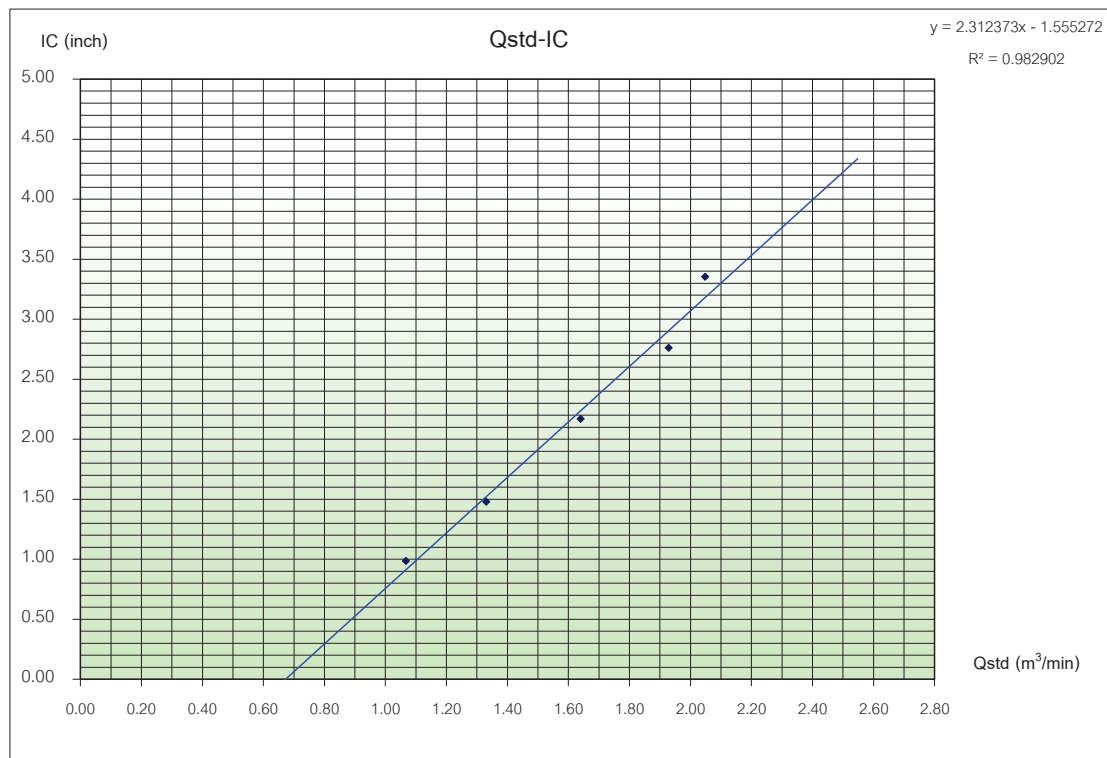
Plate No.	(Delta H)			(A)	(X)	(I)	(Y)	Temperature	Barometric Pressure	Start Meter	Stop Meter
	Pressure Drop Across Orifice (inH ₂ O)			$[\Delta H_2O(Pa/P_{std})(T_{std}/Ta)]^{1/2}$		Qstd = (1/m)[(A-b)]		IC = I[(Pa/P _{std})(T _{std} /Ta)] ^{1/2}			
	Positive	Negative	ΔH_2O			(m ³ /min)		(inch)		("K = °C+273) (mmHg)	
5	2.2	2.2	4.4	2.06931		1.06696		1.0		305.0 757.0	
7	3.4	3.4	6.8	2.57249		1.32993		1.5		305.0 757.0	
10	5.1	5.2	10.3	3.16605		1.64014		2.2		305.0 757.0	
13	7.1	7.1	14.2	3.71744		1.92830		2.8		305.0 757.0	
18	8.0	8.0	16.0	3.94602		2.04776		3.4		305.0 757.0	

Linear Regression Y ON X : Y= mX + b

1	Slope (m)	1.91345	Linear Equation		Average	305.0	757.0		
2	Intercept (b)	0.02773	Set Point Flow Rate (X) (m ³ /min)	1.133	r ²	0.982902	Pstd(mmHg)	760.0	
3	Correlation Coefficient (r)	0.99995	Final Set Flow Rate = (I)	0	r	0.9914141	T _{NTP}	298.0	
Result								C=(Pa/Pstd)*(Tstd/Ta)^0.5	
								0.986505148	

COMMENT

Andersen Instruments, Inc.



Analyzer Performance Test

Calibrated Date: 22 April 2026

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

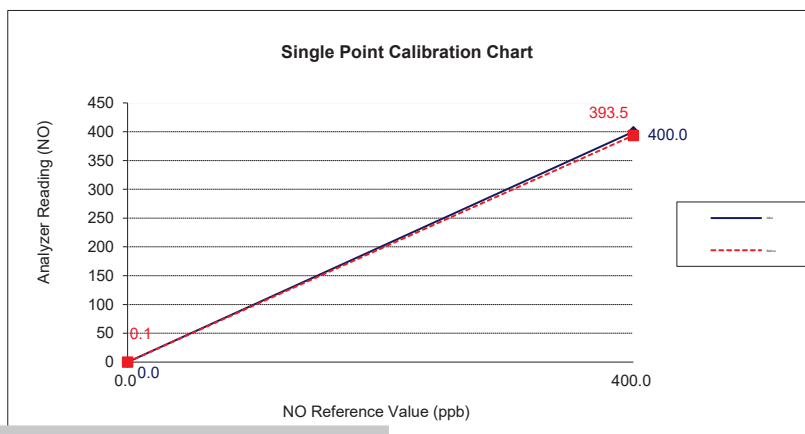
Humidity: 51 %RH

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



Calibration Test

Calibrated Date: 22 April 2026

Certificate No. 021/24

Instruments Information

Manufacturer : YOUNG Instrument **Type :** four blade helicoid propeller
Model : 05103 **Serial Number :** Logger 14091

Environment : Temperature 25.5 °C Humidity: 51 %RH

NATIONAL STANDARD WIND TUNNEL : Thermal Anemometer 642 S/N 91563
: HOOK GAGE NO 1425 : Wind Aloft Plotting Board
N.I.S.T. Test Reference Number 731/241460
: Ultrasonic Anemometer Model DA-650-3TV (sensor TR-90AH)
Serial Number 110730029 (sensor 120629586) JAPAN QUALITY ASSURANCE ORGANIZATION

Standard Ultrasonic Anemometer m/sec	HOOK GAGE NO 1425			TESTED ANEMOMETER			
	Pressure inches	Vacuum inches	Pressure hPa	Pressure hPa	Correction hPa	Velocity m/sec	Correction m/sec
1.00	-	-	-	-	-	0.9	0.10
3.02	-	-	-	-	-	2.9	0.12
5.04	-	-	-	-	-	4.9	0.14
7.03	-	-	-	-	-	6.8	0.23
9.01	-	-	-	-	-	8.8	0.21
11.03	-	-	-	-	-	10.7	0.33
13.01	-	-	-	-	-	12.6	0.41
15.03	-	-	-	-	-	14.6	0.43
17.05	-	-	-	-	-	16.6	0.45
20.02	-	-	-	-	-	19.5	0.52

Wind Aloft Plotting Board. US. DEPARTMENT OF COMMERCE WEATHER BUREAU			
WIND DIRECTION	TESTED WIND DIRECTION	Deviation	Result
0	0	0	Pass
90	90	0	Pass
180	180	0	Pass
270	270	0	Pass

Page.: 1 of 6

These reported uncertainties of measurement are expanded by a coverage factor of $k=2$, providing a 95% confidence level

**METHOD 5 CONSOLE CALIBRATION
USING REFERENCE WET GAS METER W-NK-2.5-B-Z No.547425
5-POINT METRIC UNIT**

Meter Console Information		Calibration Conditions				Factors/Conversions		
Console Model Number	CAE Express	Date	Time	26/01/2026	10:15 AM	Std Temp	293	K
Console Serial Number	28220-101800-1	Calibration Reference No.		SER26-010004		Std Press	760	mm Hg
DGM Model Number	SK25EX	Barometric Pressure		762.74	mmHg	K ₁	0.386	
DGM Serial Number	00008289	Calibration Meter Gamma		1.001		Console Leak Check		PASS

Calibration Data									
Run Time	Metering Console					Calibration Meter			
Elapsed	DGM Orifice DH	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final
(Q)	(P _m)	(V _{mi})	(V _{mf})	(t _{mi})	(t _{mf})	(V _{wi})	(V _{wf})	(t _{wi})	(t _{wf})
min	mm H ₂ O	m ³	m ³	°C	°C	m ³	m ³	°C	°C
10.73	13.0	416.2070	416.3470	27	27	376.18936	376.32628	28	28
10.90	13.0	416.3470	416.4870	28	28	376.32628	376.46086	28	28
8.02	26.0	416.4990	416.6390	29	29	376.47122	376.60530	28	28
8.07	26.0	416.6390	416.7790	29	29	376.60530	376.74034	28	28
13.08	40.0	416.7910	417.0710	29	29	376.74390	377.02110	29	29
13.18	40.0	417.0710	417.3510	30	30	377.02110	377.29922	29	29
9.90	70.0	417.3650	417.6450	30	30	377.31902	377.59588	29	29
9.93	70.0	417.6450	417.9250	31	31	377.59588	377.87258	29	29
8.90	90.0	417.9390	418.2190	31	31	377.88936	378.16458	29	29
8.93	90.0	418.5190	418.7990	31	31	378.16458	378.44038	29	29

EES

ENVIRONMENTAL EQUIPMENT SERVICE

**METHOD 5 CONSOLE CALIBRATION
USING REFERENCE WET GAS METER W-NK-2.5-B-Z No.547425
5-POINT METRIC UNIT**

Meter Console Information		Calibration Conditions				Factors/Conversions		
Console Model Number	CAE Express	Date	Time	26/01/2026	10:15 AM	Std Temp	293	K
Console Serial Number	28220-101800-1	Calibration Reference No.		SER26-010004		Std Press	760	mm Hg
DGM Model Number	SK25EX	Barometric Pressure		762.74	mmHg	K ₁	0.386	
DGM Serial Number	00008289	Calibration Meter Gamma		1.001		Console Leak Check		PASS

Calibration Data								
Results								
Standardized Data				Dry Gas Meter				
Dry Gas Meter		Calibration Meter		Calibration Factor		Flowrate	.0212 m ³ _{std} /min	Variation
				Value	Variation	Std & Corr		
(V _{m(std)})	(Q _{m(std)})	(V _{w(std)})	(Q _{w(std)})	(Y)	(ΔY)	(Q _{m(std)})(corr)	(ΔH _@)	(ΔH _@)
m ³	m ³ /min	m ³	m ³ /min			m ³ /min	mm H ₂ O	
0.137	0.013	0.134	0.012	0.978	0.002	0.012	36.891	-4.954
0.137	0.013	0.132	0.012	0.961	-0.014	0.012	39.381	-2.465
0.137	0.017	0.131	0.016	0.956	-0.019	0.016	43.030	1.184
0.137	0.017	0.132	0.016	0.963	-0.012	0.016	42.951	1.106
0.274	0.021	0.270	0.021	0.987	0.012	0.021	41.500	-0.345
0.274	0.021	0.271	0.021	0.990	0.015	0.021	41.859	0.014
0.274	0.028	0.270	0.027	0.983	0.008	0.027	41.927	0.081
0.274	0.028	0.270	0.027	0.983	0.007	0.027	42.258	0.413
0.275	0.031	0.268	0.030	0.975	0.000	0.030	44.255	2.410
0.275	0.031	0.269	0.030	0.978	0.002	0.030	44.400	2.555
				0.975	Y Average		41.845	ΔH _@ Average

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter reading is within the tolerance of individual values from the average is ±0.02.

For ΔH_@, orifice pressure differential that equates to 0.75 cfm (0.0212 m³/min) at 14.7 psia, acceptable tolerance of individual values from the average is ±0.2 inches H₂O.

Easy Equipment Service

Meter Console Information	
Console Model Number	CAE Express
Console Serial Number	28220-101800-1
DGM Model Number	SK25EX
DGM Serial Number	00008289

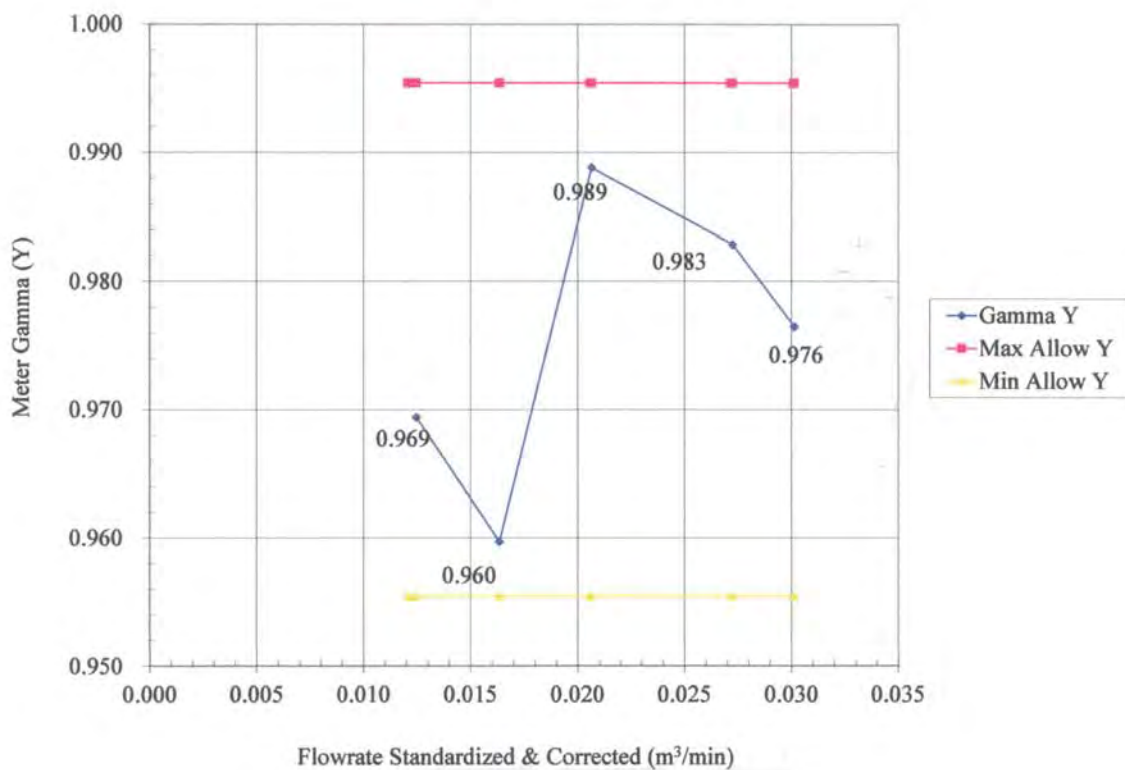
Calibration Conditions			
Date	Time	26/01/2026	10:15 AM
Calibration Reference No.	SER26-010004		
Barometric Pressure	762.74	mmHg	
Calibration Meter Gamma	1.001		

Factors/Conversions		
Std Temp	293	K
Std Press	760	mm Hg
K ₁	0.386	
Console Leak Check	PASS	

Calibration Date: 26-1-2026

Calibration Reference No: SER26-010004

Meter Gamma vs Flowrate



Console Serial: 28220-101800-1

Meter Console Information	
Console Model Number	CAE Express
Console Serial Number	28220-101800-1
DGM Model Number	SK25EX
DGM Serial Number	00008289

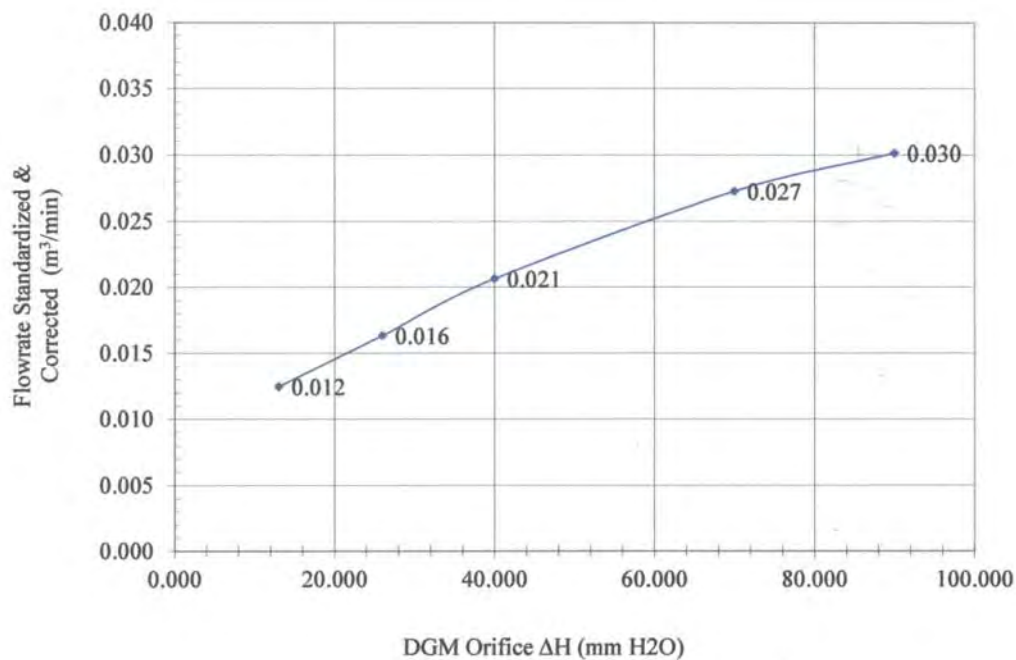
Calibration Conditions			
Date	Time	26/01/2026	10:15 AM
Calibration Reference No.		SER26-010004	
Barometric Pressure		762.74	mmHg
Calibration Meter Gamma		1.001	

Factors/Conversions		
Std Temp	293	K
Std Press	760	mm Hg
K ₁	0.386	
Console Leak Check		PASS

Calibration Date: 26-1-2026

Calibration Reference No: SER26-010004

Meter Pressure vs Flowrate



Console Serial: 28220-101800-1

THERMOCOUPLES SYSTEM CALIBRATION

Sampling System Equipment Information	
Console Model Number	CAE Express
Console Serial Number	28220-101800-1
DGM Model Number	SK25EX
DGM Serial Number	00008289
Meter Box Model Number	
Meter Box Serial Number	

Calibration Conditions			
Date	Time	26/01/2026	00:30 PM
Calibration Reference No.	SER26-010004		
Reference Thermometer	DIGICON		
Serial Number	183169105		

Results											
Console Thermocouple Simulator											
Channel and test point	Meter Box Channel Temperature Reading (°C)										
	-18.0	25.0	38.0	93.0	149.0	260.0	371.0	482.0	593.0	816.0	1038.0
Stack	-17.0	26.0	38.0	93.0	150.0	261.0	371.0	483.0	594.0	817.0	1040.0
Auxiliary	-17.0	26.0	38.0	93.0	150.0						
Probe	-17.0	26.0	38.0	93.0	150.0						
Filter	-17.0	26.0	38.0	93.0	150.0						
IMP Outlet	-17.0	26.0	38.0								

Tolerance Range

Stack ± 1.50% Absolute
 Probe ± 3.0 °C
 Filter ± 3.0 °C

Meter ± 3.0 °C
 Exit ± 2.0 °C

EES

Envl Equipment Service Co.

Envi Equipment Service Co., Ltd.

110/254 Moo 3, Tumbon Bang Rak Phatthana, Amphur Bang Bua Thong, Nonthaburi 11110

Tel. 098 362 9152, 089 478 7885

E-mail: sales@envi-ees.com

Certificate No. : E26-010010

Page. : 1 of 3

CERTIFICATE OF CALIBRATION

Customer : M E T COMPANY LIMITED

Address : 36/659 Moo 6, Bangrakpatthana, Bangbuathong, Nonthaburi 11110

Description of Equipment : Standard Probe Method 5

Manufacturer : Apex Instrument

Model Number : PS-3HV

Serial Number : -

ID./Control No. : -

Environment Conditions : **Temperature** (25 ± 2) °C

: **Humidity** (50 ± 15) % RH

Cal. Date : 17/01/2026

Issue Date : 17/01/2026

Calibration Method or Calibration Procedure Used

US EPA Method (United State Environmental Protection Agency)

This certificate is traceable to national standard, which realize the units of measurement according to the International System of Units (IS).

Result of Calibration

This certificate may not be reproduced other than in full except with prior Written approval of the Technical Manager, Envi Equipment Service Company Limited.

These reported uncertainties of measurement are expanded by a coverage factor of k=2, providing a 95% confidence level

CALIBRATION RESULTS

S-Type Geometric Pitot Tube Calibration

Sampling System Equipment Information

Probe Model : **PS-3HV**
 Probe Number : **-**
 Pitot Number : **-**
 Pitot Tube Type : **S-type**

Calibration Condition

Date : **17 January 2026**
 Barometric Pressure : **758.91 mm Hg**
 Digital Caliper : **CD-6" ASX**
 Serial number : **A18008059**

Pitot tube/Probe: # PS-3HV			
Parameter	Value	Allowable Range	Check
Assembly level?	Yes	Yes	Pass
Ports Damage?	No	No	Pass
$\alpha 1$	0	$-10^\circ < \alpha 1 < +10^\circ$	Pass
$\alpha 2$	1	$-10^\circ < \alpha 2 < +10^\circ$	Pass
B1	0	$-5^\circ < B1 < +5^\circ$	Pass
B2	0	$-5^\circ < B2 < +5^\circ$	Pass
y	0	N/A	-
θ	0	N/A	-
Dt	0.375	.188 " to .375 "	Pass
A	0.8545	$2.1Dt \leq A \leq 3Dt$	Pass
A/2Dt	1.139	$1.05 \leq A/Dt \leq 1.5$	Pass
$Z = A \tan y$	0.044	$Z \leq .125"$	Pass
$W = A \tan \theta$	0.018	$W \leq .031"$	Pass

Remark:

I certified that probe model: **PS-3HV** meets or exceeds all specifications, criteria and/or applicable standards and is hereby assigned a pitot tube certification factor of **0.84**. See 40 CFR Pt. 60, App. A, EPA Method 15.

THERMOCOUPLES SYSTEM CALIBRATION

Sampling System Equipment Information	
Probe Model Number	PS-3HV
Probe Serial Number	-
Meter Box Model Number	TC-21-ND-K
Meter Box Serial Number	2451-0637

Calibration Conditions			
Date	Time	17/01/2026	00:30 PM
Calibration Reference No.		SER26-010003	
Reference Thermometer		DIGICON	
Serial Number		183169105	

Thermocouple of Standard Probe method 5 = length 3 foot			
Set Point	Reference Thermocouple	Probe Thermocouple	Difference
100	100.0	99.0	0.27
250	250.0	248.0	0.38
300	300.0	298.0	0.35
350	350.0	348.0	0.32

EES

Envi. Equipment Service Co.

Envi Equipment Service Co., Ltd.

110/254 Moo 3, Tumbon Bang Rak Phatthana, Amphur Bang Bua Thong, Nonthaburi 11110

Tel. 098 362 9152, 089 478 7885

E-mail: sales@envi-ees.com

Certificate No.: E26-010011

Page.: 1 of 2

CERTIFICATE OF CALIBRATION

Customer : M E T COMPANY LIMITED

Address : 36/659 Moo 6, Bangrakpatthana, Bangbuathong, Nonthaburi 11110

Description of Equipment : Stainless Steel Nozzle

Manufacturer : Apex Instrument

Model Number : NS-SET

Serial Number : -

ID./Control No. : -

Environment Conditions : **Temperature** (25 ± 2) °C

: **Humidity** (50 ± 15) % RH

Cal. Date : 17/01/2026

Issue Date : 17/01/2026

Calibration Method or Calibration Procedure Used

US EPA Method (United State Environmental Protection Agency)

This certificate is traceable to national standard, which realize the units of measurement according to the International System of Units (IS).

Result of Calibration

This certificate may not be reproduced other than in full except with prior Written approval of the Technical Manager, Envi Equipment Service Company Limited.

These reported uncertainties of measurement are expanded by a coverage factor of k=2, providing a 95% confidence level

CALIBRATION RESULTS

Sampling System Equipment Information

Nozzle Model : NS-SET
Nozzle Number : -
Nozzle Type : Stainless Steel

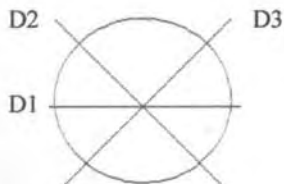
Calibration Condition

Date : 17 January 2026
Barometric Pressure : 758.91 mm Hg
Calibration Device : Vernier, 0-150 mm
Method Reference : US. EPA Method

Nozzle ID	Nozzle Diameter				Different	(D1 + D2 + D3) / 3
Size		D1	D2	D3	ΔD	Davg
	mm	mm	mm	mm	mm	mm
NS-4	3.18	2.91	2.91	2.91	0.000	2.910
NS-5	3.97	4.01	4.03	4.03	0.020	4.023
NS-7	5.56	5.42	5.43	5.42	0.010	5.423
NS-8	6.35	6.06	6.06	6.08	0.020	6.067
NS-9	7.14	7.21	7.21	7.21	0.000	7.210
NS-12	9.53	9.15	9.16	9.17	0.020	9.160
NS-16	12.70	12.15	12.13	12.14	0.020	12.140

Remark:

D1, D2, D3 = There difference nozzle diameters, mm; diameter must be within 0.025 mm
 ΔD = Maximum difference between any two diameters, must be ≤ 0.100 mm
 Davg = $(D_1 + D_2 + D_3) / 3$



EES

Envi Equipment Service Co., Ltd.

110/254 Moo 3, Tumbon Bang Rak Phatthana, Amphur Bang Bua Thong, Nonthaburi 11110

Tel. 098 362 9152, 089 478 7885

E-mail: sales@envi-ees.com

Certificate No.: E26-010009

Page.: 1 of 6

CERTIFICATE OF CALIBRATION

Customer : M E T COMPANY LIMITED

Address : 36/659 Moo 6, Bangrakpatthana, Bangbuathong, Nonthaburi 11110

Description of Equipment : Console meter

Manufacturer : Apex Instrument

Model Number : TMC-572-V

Serial Number : A2202103

ID./Control No. : -

Environment Conditions : Temperature (25 ± 2) °C
: Humidity (50 ± 15) % RH

Cal. Date : 17/01/2026

Issue Date : 17/01/2026

Calibration Method or Calibration Procedure Used

US EPA Method (United State Environmental Protection Agency)

This certificate is traceable to national standard, which realize the units of measurement according to the International System of Units (IS).

Result of Calibration

This certificate may not be reproduced other than in full except with prior Written approval of the Technical Manager, Envi Equipment Service Company Limited.

**METHOD 5 CONSOLE CALIBRATION
USING REFERENCE WET GAS METER W-NK-2.5-B-Z No.547425
5-POINT METRIC UNIT**

Meter Console Information	
Console Model Number	TMC-572-V
Console Serial Number	A2202103
DGM Model Number	SK25EX
DGM Serial Number	00006345

Calibration Conditions			
Date	Time	17/01/2026	09:55 AM
Calibration Reference No.		SER26-010003	
Barometric Pressure		758.91	mmHg
Calibration Meter Gamma		1.001	

Factors/Conversions		
Std Temp	293	K
Std Press	760	mm Hg
K ₁	0.386	
Console Leak Check		PASS

Calibration Data									
Run Time	Metering Console					Calibration Meter			
Elapsed	DGM Orifice DH	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final
(Q)	(P _m)	(V _{mi})	(V _{mf})	(t _{mi})	(t _{mf})	(V _{wi})	(V _{wf})	(t _{wi})	(t _{wf})
min	mm H ₂ O	m ³	m ³	°C	°C	m ³	m ³	°C	°C
12.22	13.0	913.3780	913.5180	26	26	371.60374	371.74234	28	28
12.20	13.0	913.5180	913.6580	27	27	371.74234	371.88052	28	28
8.60	26.0	913.6850	913.8250	28	28	371.98468	372.12232	29	29
8.60	26.0	913.8250	913.9650	29	29	372.12232	372.25962	29	29
13.70	40.0	913.9770	914.2570	29	29	372.36704	372.64462	29	29
13.67	40.0	914.2570	914.5370	30	30	372.64462	372.92114	30	30
10.50	70.0	914.5490	914.8290	30	30	372.93622	373.21130	31	31
10.47	70.0	914.8290	915.1090	30	30	373.21130	373.48594	31	31
9.22	90.0	915.1210	915.4010	30	30	373.59170	373.86488	31	31
9.18	90.0	915.4010	915.6810	30	30	373.86488	374.13698	31	31

EES

ENVI Equipment Service

**METHOD 5 CONSOLE CALIBRATION
USING REFERENCE WET GAS METER W-NK-2.5-B-Z No.547425
5-POINT METRIC UNIT**

Meter Console Information		Calibration Conditions			Factors/Conversions		
Console Model Number	TMC-572-V	Date	Time	17/01/2026	09:55 AM	Std Temp	293 K
Console Serial Number	A2202103	Calibration Reference No.		SER26-010003		Std Press	760 mm Hg
DGM Model Number	SK25EX	Barometric Pressure		758.91 mmHg		K ₁	0.386
DGM Serial Number	00006345	Calibration Meter Gamma		1.001		Console Leak Check PASS	

Calibration Data								
Results								
Standardized Data				Dry Gas Meter				
Dry Gas Meter		Calibration Meter		Calibration Factor		Flowrate		
(V _{m(std)})	(Q _{m(std)})	(V _{w(std)})	(Q _{w(std)})	Value	Variation	Std & Corr	.0212 m ³ _{std} /min	Variation
m ³	m ³ /min	m ³	m ³ /min	(Y)	(ΔY)	(Q _{m(std)} /corr)	(ΔH@)	(ΔH@)
						m ³ /min	mm H ₂ O	
0.136	0.011	0.135	0.011	0.990	0.010	0.011	46.877	-0.568
0.136	0.011	0.134	0.011	0.987	0.007	0.011	47.034	-0.411
0.136	0.016	0.133	0.016	0.982	0.002	0.016	47.386	-0.059
0.136	0.016	0.133	0.015	0.979	0.000	0.015	47.621	0.176
0.272	0.020	0.269	0.020	0.989	0.009	0.020	45.611	-1.834
0.271	0.020	0.267	0.020	0.985	0.005	0.020	45.890	-1.556
0.271	0.026	0.265	0.025	0.977	-0.003	0.025	48.337	0.892
0.271	0.026	0.265	0.025	0.975	-0.004	0.025	48.185	0.739
0.272	0.029	0.263	0.029	0.968	-0.011	0.029	48.740	1.295
0.272	0.030	0.262	0.029	0.964	-0.015	0.029	48.773	1.328
				0.980	Y Average			ΔH@ Average
								47.445

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas tolerance of individual values from the average is ±0.02.

For ΔH@, orifice pressure differential that equates to 0.75 cfm (0.0212 m³/min) at static pressure, acceptable tolerance of individual values from the average is ±0.2 inches (5.1 mm).

Meter Console Information	
Console Model Number	TMC-572-V
Console Serial Number	A2202103
DGM Model Number	SK25EX
DGM Serial Number	00006345

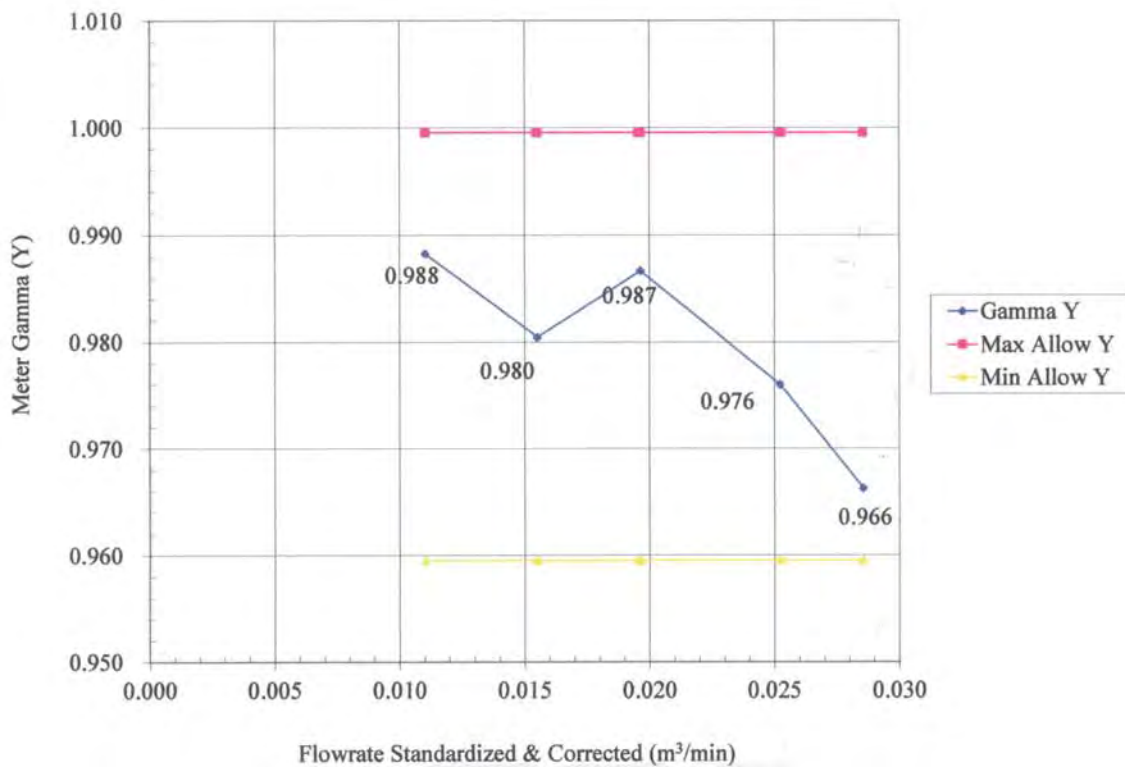
Calibration Conditions			
Date	Time	17/01/2026	09:55 AM
Calibration Reference No.	SER26-010003		
Barometric Pressure	758.91	mmHg	
Calibration Meter Gamma	1.001		

Factors/Conversions		
Std Temp	293	K
Std Press	760	mm Hg
K ₁	0.386	
Console Leak Check	PASS	

Calibration Date: 17-1-2026

Calibration Reference No: SER26-010003

Meter Gamma vs Flowrate



Console Serial: A2202103

Meter Console Information	
Console Model Number	TMC-572-V
Console Serial Number	A2202103
DGM Model Number	SK25EX
DGM Serial Number	00006345

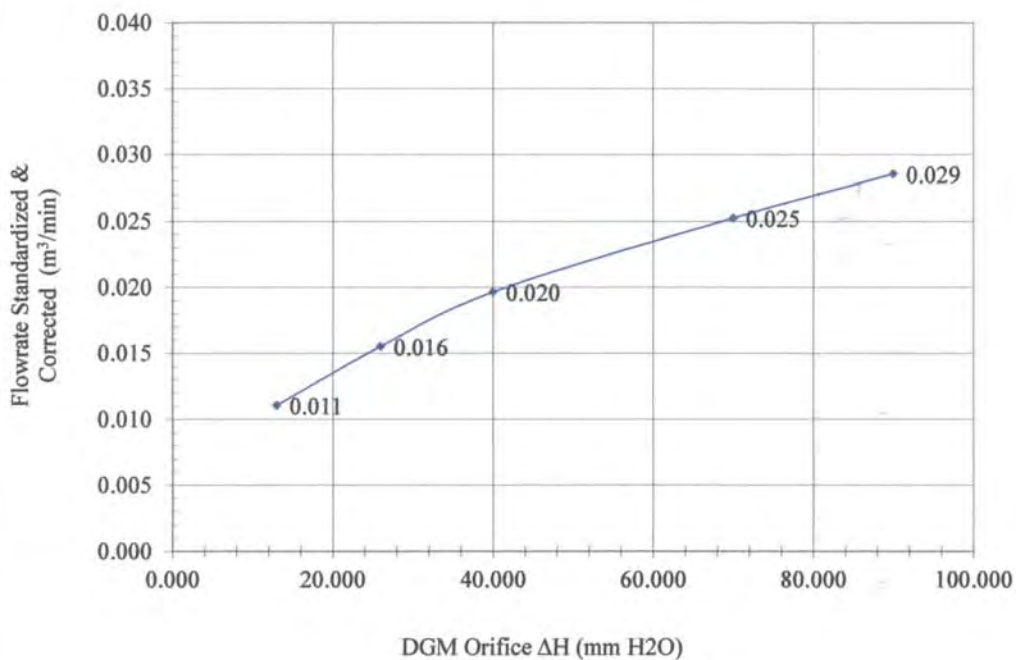
Calibration Conditions			
Date	Time	17/01/2026	09:55 AM
Calibration Reference No.		SER26-010003	
Barometric Pressure		758.91	mmHg
Calibration Meter Gamma		1.001	

Factors/Conversions		
Std Temp	293	K
Std Press	760	mm Hg
K ₁	0.386	
Console Leak Check		PASS

Calibration Date: 17-1-2026

Calibration Reference No: SER26-010003

Meter Pressure vs Flowrate



Console Serial: A2202103

EES

Envl Equipment Service

THERMOCOUPLES SYSTEM CALIBRATION

Sampling System Equipment Information	
Console Model Number	TMC-572-V
Console Serial Number	A2202103
DGM Model Number	SK25EX
DGM Serial Number	00006345
Meter Box Model Number	TC-21-ND-K
Meter Box Serial Number	2451-0637

Calibration Conditions			
Date	Time	17/01/2026	00:00 PM
Calibration Reference No.		SER26-010003	
Reference Thermometer		DIGICON	
Serial Number		183169105	

Results											
Console Thermocouple Simulator											
Channel and test point	Meter Box Channel Temperature Reading (°C)										
	-18.0	25.0	38.0	93.0	149.0	260.0	371.0	482.0	593.0	816.0	1038.0
Stack	-17.0	24.0	37.0	92.0	148.0	256.0	368.0	482.0	597.0	821.0	1037.0
Aux	-17.0	24.0	37.0	92.0	148.0						
Probe	-17.0	24.0	37.0	92.0	148.0						
Filter	-17.0	24.0	37.0	92.0	148.0						
Exit	-17.0	24.0	37.0								

Tolerance Range

Stack ± 1.50% Absolute
 Probe ± 3.0 °C
 Filter ± 3.0 °C

Meter ± 3.0 °C
 Exit ± 2.0 °C

EES

Service Equipment Service Co.

Envi Equipment Service Co., Ltd.

110/254 Moo 3, Tumbon Bang Rak Phatthana, Amphur Bang Bua Thong, Nonthaburi 11110

Tel. 098 362 9152, 089 478 7885

E-mail: sales@envi-ees.com

Certificate No. : E26-010010

Page. : 1 of 3

CERTIFICATE OF CALIBRATION

Customer : M E T COMPANY LIMITED

Address : 36/659 Moo 6, Bangrakpatthana, Bangbuathong, Nonthaburi 11110

Description of Equipment : Standard Probe Method 5

Manufacturer : Apex Instrument

Model Number : PS-3HV

Serial Number : -

ID./Control No. : -

Environment Conditions : **Temperature** (25 ± 2) °C

: **Humidity** (50 ± 15) % RH

Cal. Date : 17/01/2026

Issue Date : 17/01/2026

Calibration Method or Calibration Procedure Used

US EPA Method (United State Environmental Protection Agency)

This certificate is traceable to national standard, which realize the units of measurement according to the International System of Units (IS).

Result of Calibration

This certificate may not be reproduced other than in full except with prior Written approval of the Technical Manager, Envi Equipment Service Company Limited.

These reported uncertainties of measurement are expanded by a coverage factor of k=2, providing a 95% confidence level



CALIBRATION RESULTS

S-Type Geometric Pitot Tube Calibration

Sampling System Equipment Information

Probe Model : **PS-3HV**
 Probe Number : **-**
 Pitot Number : **-**
 Pitot Tube Type : **S-type**

Calibration Condition

Date : **17 January 2026**
 Barometric Pressure : **758.91 mm Hg**
 Digital Caliper : **CD-6" ASX**
 Serial number : **A18008059**

Pitot tube/Probe: # PS-3HV			
Parameter	Value	Allowable Range	Check
Assembly level?	Yes	Yes	Pass
Ports Damage?	No	No	Pass
$\alpha 1$	0	$-10^\circ < \alpha 1 < +10^\circ$	Pass
$\alpha 2$	1	$-10^\circ < \alpha 2 < +10^\circ$	Pass
B1	0	$-5^\circ < B1 < +5^\circ$	Pass
B2	0	$-5^\circ < B2 < +5^\circ$	Pass
y	0	N/A	-
θ	0	N/A	-
Dt	0.375	.188 " to .375 "	Pass
A	0.8545	$2.1Dt \leq A \leq 3Dt$	Pass
A/2Dt	1.139	$1.05 \leq A/Dt \leq 1.5$	Pass
$Z = A \tan y$	0.044	$Z \leq .125"$	Pass
$W = A \tan \theta$	0.018	$W \leq .031"$	Pass

Remark:

I certified that probe model: **PS-3HV** meets or exceeds all specifications, criteria and/or applica hereby assigned a pitot tube certification factor of **0.84**. See 40 CFR Pt. 60, App. A, EPA Method

THERMOCOUPLES SYSTEM CALIBRATION

Sampling System Equipment Information	
Probe Model Number	PS-3HV
Probe Serial Number	-
Meter Box Model Number	TC-21-ND-K
Meter Box Serial Number	2451-0637

Calibration Conditions			
Date	Time	17/01/2026	00:30 PM
Calibration Reference No.		SER26-010003	
Reference Thermometer		DIGICON	
Serial Number		183169105	

Thermocouple of Standard Probe method 5 = length 3 foot			
Set Point	Reference Thermocouple	Probe Thermocouple	Difference
100	100.0	99.0	0.27
250	250.0	248.0	0.38
300	300.0	298.0	0.35
350	350.0	348.0	0.32

EES

Envi. Equipment Service Co.

Envi Equipment Service Co., Ltd.

110/254 Moo 3, Tumbon Bang Rak Phatthana, Amphur Bang Bua Thong, Nonthaburi 11110

Tel. 098 362 9152, 089 478 7885

E-mail: sales@envi-ees.com

Certificate No.: E26-010011

Page.: 1 of 2

CERTIFICATE OF CALIBRATION

Customer : M E T COMPANY LIMITED

Address : 36/659 Moo 6, Bangrakpatthana, Bangbuathong, Nonthaburi 11110

Description of Equipment : Stainless Steel Nozzle

Manufacturer : Apex Instrument

Model Number : NS-SET

Serial Number : -

ID./Control No. : -

Environment Conditions : **Temperature** (25 ± 2) °C

: **Humidity** (50 ± 15) % RH

Cal. Date : 17/01/2026

Issue Date : 17/01/2026

Calibration Method or Calibration Procedure Used

US EPA Method (United State Environmental Protection Agency)

This certificate is traceable to national standard, which realize the units of measurement according to the International System of Units (IS).

Result of Calibration

This certificate may not be reproduced other than in full except with prior Written approval of the Technical Manager, Envi Equipment Service Company Limited.

These reported uncertainties of measurement are expanded by a coverage factor of k=2, providing a 95% confidence level



CALIBRATION RESULTS

Sampling System Equipment Information

Nozzle Model : NS-SET
Nozzle Number : -
Nozzle Type : Stainless Steel

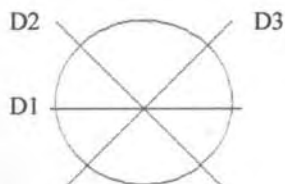
Calibration Condition

Date : 17 January 2026
Barometric Pressure : 758.91 mm Hg
Calibration Device : Vernier, 0-150 mm
Method Reference : US. EPA Method

Nozzle ID	Nozzle Diameter				Different	(D1 + D2 + D3) / 3
Size	mm	D1	D2	D3	ΔD	Davg
		mm	mm	mm	mm	mm
NS-4	3.18	2.91	2.91	2.91	0.000	2.910
NS-5	3.97	4.01	4.03	4.03	0.020	4.023
NS-7	5.56	5.42	5.43	5.42	0.010	5.423
NS-8	6.35	6.06	6.06	6.08	0.020	6.067
NS-9	7.14	7.21	7.21	7.21	0.000	7.210
NS-12	9.53	9.15	9.16	9.17	0.020	9.160
NS-16	12.70	12.15	12.13	12.14	0.020	12.140

Remark:

D1, D2, D3 = There difference nozzle diameters, mm; diameter must be within 0.025 mm
 ΔD = Maximum difference between any two diameters, must be ≤ 0.100 mm
 Davg = $(D_1 + D_2 + D_3) / 3$



EES

Envi Equipment Service Co., Ltd.

110/254 Moo 3, Tumbon Bang Rak Phatthana, Amphur Bang Bua Thong, Nonthaburi 11110

Tel. 098 362 9152, 089 478 7885

E-mail: sales@envi-ees.com

Certificate No.: E26-020028

Page.: 1 of 6

CERTIFICATE OF CALIBRATION

Customer : M E T COMPANY LIMITED

Address : 36/659 Moo 6, Bangrakpatthana, Bangbuathong, Nonthaburi 11110

Description of Equipment : Console meter

Manufacturer : Apex Instrument

Model Number : XC-572-V

Serial Number : 0509047

ID./Control No. : -

Environment Conditions : **Temperature** (25 ± 2) °C
: **Humidity** (50 ± 15) % RH

Cal. Date : 16/02/2026

Issue Date : 16/02/2026

Calibration Method or Calibration Procedure Used

US EPA Method (United State Environmental Protection Agency)

This certificate is traceable to national standard, which realize the units of measurement according to the International System of Units (IS).

Result of Calibration

This certificate may not be reproduced other than in full except with prior Written approval of the Technical Manager, Envi Equipment Service Company Limited.

These reported uncertainties of measurement are expanded by a coverage factor of k=2, providing a 95% confidence level.

**METHOD 5 CONSOLE CALIBRATION
USING REFERENCE WET GAS METER W-NK-2.5-B-Z No.547425
5-POINT METRIC UNIT**

Meter Console Information	
Console Model Number	XC-572-V
Console Serial Number	0509047
DGM Model Number	SK25EX
DGM Serial Number	00008283

Calibration Conditions			
Date	Time	10/02/2026	09:00 AM
Calibration Reference No.		SER26-020008	
Barometric Pressure		758.91	mmHg
Calibration Meter Gamma		1.001	

Factors/Conversions		
Std Temp	293	K
Std Press	760	mm Hg
K ₁	0.386	
Console Leak Check		PASS

Calibration Data									
Run Time	Metering Console					Calibration Meter			
Elapsed	DGM Orifice DH	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final
(Q)	(P _m)	(V _{mi})	(V _{mf})	(t _{mi})	(t _{mf})	(V _{wi})	(V _{wf})	(t _{wi})	(t _{wf})
min	mm H ₂ O	m ³	m ³	°C	°C	m ³	m ³	°C	°C
12.47	13.0	430.2650	430.4050	27	27	383.40834	383.54576	26	26
12.57	13.0	430.4050	430.5450	27	27	383.54576	383.68430	26	26
9.10	26.0	430.5530	430.6930	28	28	383.69222	383.82954	26	26
9.05	26.0	430.6930	430.8330	28	28	383.82954	383.96618	26	26
14.48	40.0	430.8410	431.1210	28	28	383.97344	384.25022	27	27
14.17	40.0	431.1210	431.4010	29	29	384.25022	384.52596	27	27
10.57	70.0	431.4130	431.6930	29	29	384.54678	384.82240	27	27
10.35	70.0	431.6930	431.9730	30	30	384.82240	385.09722	28	28
9.08	90.0	431.9850	432.2650	30	30	385.10722	385.38054	28	28
9.08	90.0	432.2650	432.5450	30	30	385.38054	385.65410	28	28

EES

ENV Equipment Service Co.

**METHOD 5 CONSOLE CALIBRATION
USING REFERENCE WET GAS METER W-NK-2.5-B-Z No.547425
5-POINT METRIC UNIT**

Meter Console Information	
Console Model Number	XC-572-V
Console Serial Number	0509047
DGM Model Number	SK25EX
DGM Serial Number	00008283

Calibration Conditions			
Date	Time	10/02/2026	09:00 AM
Calibration Reference No.		SER26-020008	
Barometric Pressure		758.91	mmHg
Calibration Meter Gamma		1.001	

Factors/Conversions		
Std Temp	293	K
Std Press	760	mm Hg
K ₁	0.386	
Console Leak Check		PASS

Calibration Data								
Results								
Standardized Data				Dry Gas Meter				
Dry Gas Meter		Calibration Meter		Calibration Factor		Flowrate	.0212 m ³ _{std} /min	Variation
(V _{m(std)})	(Q _{m(std)})	(V _{w(std)})	(Q _{w(std)})	Value	Variation	Std & Corr		
m ³	m ³ /min	m ³	m ³ /min	(Y)	(ΔY)	(Q _{m(std)(corr)})	(ΔH _@)	(ΔH _@)
						m ³ /min	mm H ₂ O	
0.137	0.011	0.135	0.011	0.981	0.003	0.011	49.327	0.083
0.137	0.011	0.136	0.011	0.989	0.011	0.011	49.315	0.071
0.137	0.015	0.135	0.015	0.979	0.001	0.015	52.774	3.530
0.137	0.015	0.134	0.015	0.975	-0.004	0.015	52.717	3.473
0.274	0.019	0.270	0.019	0.986	0.007	0.019	50.932	1.688
0.274	0.019	0.269	0.019	0.982	0.003	0.019	49.097	-0.147
0.275	0.026	0.269	0.025	0.979	0.000	0.025	48.120	-1.124
0.274	0.026	0.267	0.026	0.976	-0.003	0.026	46.591	-2.653
0.275	0.030	0.266	0.029	0.969	-0.010	0.029	46.825	-2.419
0.275	0.030	0.266	0.029	0.970	-0.009	0.029	46.743	-2.501
				0.978	Y Average		49.244	ΔH _@

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter tolerance of individual values from the average is ±0.02.
For ΔH_@, orifice pressure differential that equates to 0.75 cfm (0.0212 m³/min) at standard pressure, acceptable tolerance of individual values from the average is ±0.2 inches.

Meter Console Information	
Console Model Number	XC-572-V
Console Serial Number	0509047
DGM Model Number	SK25EX
DGM Serial Number	00008283

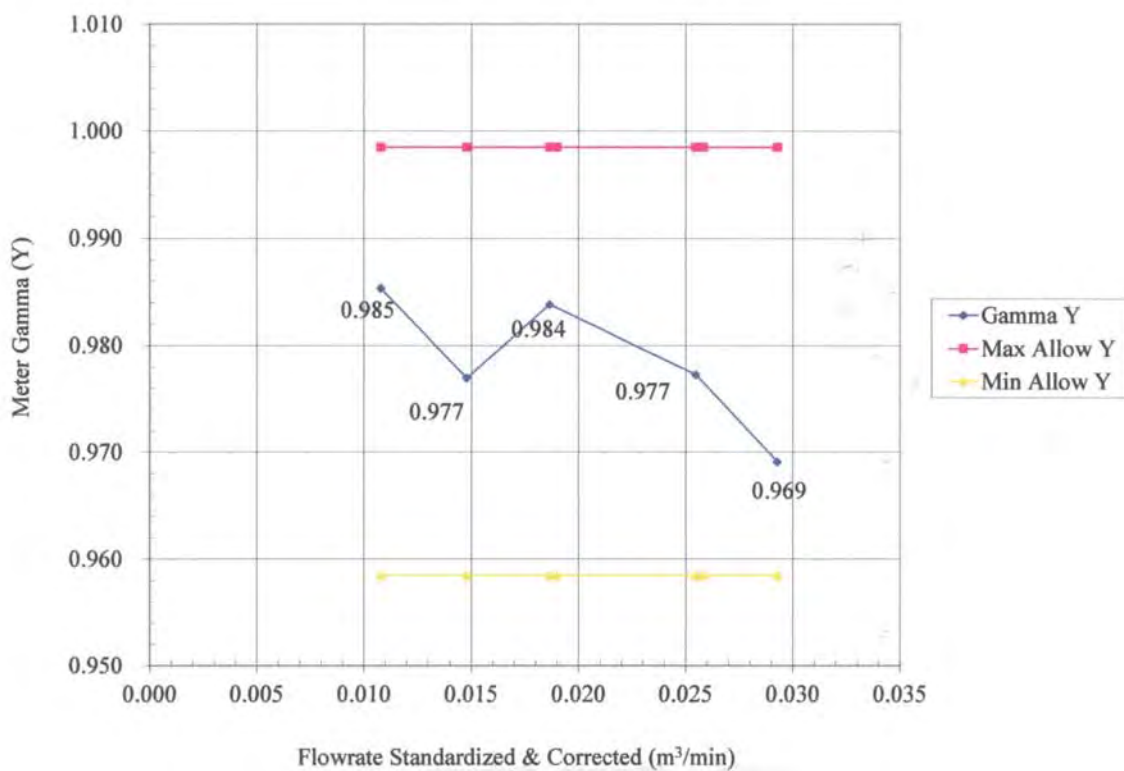
Calibration Conditions			
Date	Time	10/02/2026	09:00 AM
Calibration Reference No.		SER26-020008	
Barometric Pressure		758.91	mmHg
Calibration Meter Gamma		1.001	

Factors/Conversions		
Std Temp	293	K
Std Press	760	mm Hg
K ₁	0.386	
Console Leak Check		PASS

Console Serial: 0509047

Calibration Reference No: SER26-020008

Meter Gamma vs Flowrate



Console Serial: 0506047

Meter Console Information	
Console Model Number	XC-572-V
Console Serial Number	0509047
DGM Model Number	SK25EX
DGM Serial Number	00008283

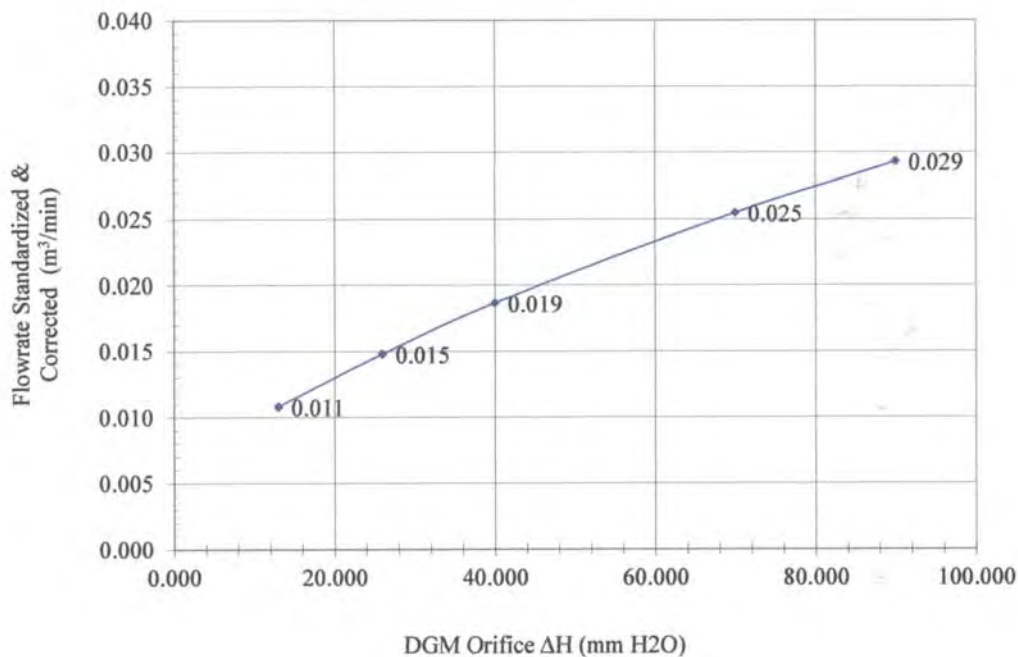
Calibration Conditions			
Date	Time	10/02/2026	09:00 AM
Calibration Reference No.		SER26-020008	
Barometric Pressure		758.91	mmHg
Calibration Meter Gamma		1.001	

Factors/Conversions		
Std Temp	293	K
Std Press	760	mm Hg
K ₁	0.386	
Console Leak Check		PASS

Calibration Date: 16-2-2026

Calibration Reference No: SER26-020008

Meter Pressure vs Flowrate



Console Serial: 0506047

C

THERMOCOUPLES SYSTEM CALIBRATION

Sampling System Equipment Information	
Console Model Number	XC-572-V
Console Serial Number	0509047
DGM Model Number	SK25EX
DGM Serial Number	00008283
Meter Box Model Number	
Meter Box Serial Number	

Calibration Conditions			
Date	Time	10/02/2026	11:30 AM
Calibration Reference No.		SER26-020008	
Reference Thermometer		DIGICON	
Serial Number		183169105	

Results											
Console Thermocouple Simulator											
Channel and test point	Meter Box Channel Temperature Reading (°C)										
	-18.0	25.0	38.0	93.0	149.0	260.0	371.0	482.0	593.0	816.0	1038.0
Stack	-17.0	26.0	39.0	94.0	150.0	258.0	369.0	483.0	598.0	823.0	1036.0
Aux	-17.0	26.0	39.0	94.0	150.0						
Probe	-17.0	26.0	39.0	94.0	150.0						
Filter	-17.0	26.0	39.0	94.0	150.0						
Exit	-17.0	26.0	39.0								

Tolerance Range

Stack ± 1.50% Absolute
 Probe ± 3.0 °C
 Filter ± 3.0 °C

Meter ± 3.0 °C
 Exit ± 2.0 °C

EES

Equipment Service Co.

Certificate of Calibration

Certificate No. : 68-200491-1

Page : 1 of 2

Submitted by : M E T Company Limited

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

Equipment : Electronic Balance

Manufacturer : Sartorius

Model : BSA224S-CW

Serial No. : 35090472

ID No. : MET-EB 02/60

Capacity : 220 g

Resolution : 0.0001 g

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

Ambient Temperature : (26.5 to 27.0) °C

Relative Humidity : (59.0 to 64.1) %

Air Pressure : 1009.0 mbar

Date of Received : 19 August 2025

Date of Calibration : 19 August 2025

Date of Issue : 21 August 2025

Calibrated by : 

Calibration Method : In-house method CAL-M2001 based on UKAS Publication ref : LAB 14

Edition 7 - November 2022

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

Standard Weights

ID No.	Cert. No.	Due Date	Traceability
E261-E2624	C02242009	07 Nov 2025	National Institute of Metrology (Thailand), (NIMT)

App

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 Calibratech Co.,Ltd.



Certificate of Calibration

Certificate No. : 68-200491-1

Page : 2 of 2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Departure of indication from nominal value

Nominal Value (g)	Correction (g)	Uncertainty $\pm$ (g)
0.05	0.0000	0.00012
0.1	0.0000	0.00012
0.5	0.0000	0.00012
1	0.0000	0.00012
5	0.0000	0.00012
10	0.0000	0.00013
50	0.0003	0.00015
100	0.0005	0.00020
150	0.0006	0.00038
200	0.0006	0.00038

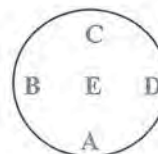
This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor $k = 2.04$, providing a level of confidence of approximately 95%

Eccentric error

Load test : 50 g

A	B	C	D	E	
0.0001	0.0001	-0.0001	0.0000	0.0000	g



Repeatability

Load test : 200 g

Stdev. : 0.00004 g

- o0o -



Calibration certificate Kalibrier-Zertifikat

6549757

Object Gegenstand	Controlunit t350	Measuring Box testo 350
Manufacturer Hersteller	TESTO SE & Co. KGaA	TESTO SE & Co. KGaA
Type description Typ	0632 3511	0632 3510
Serial no. Serien Nr.	65311075	65512567
Inventory no. Inventar Nr.	---	---
Test equipment no. Prüfmittel Nr.	---	---
Equipment no. Equipment Nr.	16371313	16373725
Location Standort	---	---
Customer Auftraggeber	M E T CO., LTD. 36/659 Village No. 6, Bangrak Phatthana Subdistrict, Bang Bua Thong District, TH Nonthaburi Province 11110	
Customer ID no. Kunden Nr.	1031994	
Order no. Auftrags Nr.	13212583 / 0520 0055	

Hereby we confirm that the performing calibration laboratory is working with a management system according to **ISO 9001:2015** and **DIN EN ISO/IEC 17025:2018**. Accreditation certificates can be found under www.testotis.de. The measuring installations used for calibration are regularly calibrated and traceable to the national standards of the German Federal Physical Technical Institute (PTB) or other national standards. Should no national standards exist, the measuring procedure corresponds with the technical regulations and norms valid at the time of the measurement. The documents established for this procedure are available for viewing. All the necessary measured data can be found on this calibration certificate.

Hiermit bestätigen wir, dass das durchführende Kalibrierlabor ein Managementsystem nach ISO 9001:2015, sowie DIN EN ISO/IEC 17025:2018 eingeführt hat. Die Urkunden finden Sie auf www.testotis.de. Die für die Kalibrierung verwendeten Messeinrichtungen werden regelmäßig kalibriert und sind rückführbar auf die nationalen Normale der Physikalisch Technischen Bundesanstalt (PTB) Deutschlands oder auf andere nationale Normale. Wo keine nationalen Normale existieren, entspricht das Messverfahren den derzeit gültigen technischen Regeln und Normen. Die für diesen Vorgang angefertigte Dokumentation kann eingesehen werden. Alle erforderlichen Messdaten sind in diesem Kalibrier-Zertifikat aufgelistet.

Date of calibration
Datum der Kalibrierung 23.07.2025

Date of the recommended re-calibration
Datum der empfohlenen Rekalibrierung 23.07.2026

Conformity statement
Konformitätsaussage Pass

The expanded uncertainty of measurement was calculated according to EA-4/02 M:2022 with a coverage probability of about 95% and contains the uncertainty of the reference, the uncertainty of the method and the uncertainty of the test specimen. The conformity statement is made according to the decision rule "confidence level 50".

Die erweiterte Messunsicherheit wurde nach EA-4/02 M:2022 mit einer Überdeckungswahrscheinlichkeit von etwa 95% berechnet und enthält die Unsicherheit der Referenz, des Verfahrens sowie die Unsicherheit des Prüflings. Die Konformitätsaussage erfolgt nach der Entscheidungsregel "Vertrauensniveau 50".

This calibration certificate may not be reproduced other than in full except with the permission of the issuing laboratory. Calibration certificates without signature and seal are not valid.

Dieser Kalibrierschein darf nur vollständig weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung des ausstellenden Kalibrierlaboratoriums. Kalibrierscheine ohne Unterschrift und Stempel haben keine Gültigkeit.

Seal Stempel



Calibration certificate Kalibrier-Zertifikat

6549757

Measuring equipment Messeinrichtungen

Index	Reference Referenz	Traceability Rückführung	Next cal. Rekal.	Certificate-no. Zertifikat-Nr.	Eq.-no. Eq.-Nr.
a	Test gas medium 1 Prüfgas Medium 1	SCS-SCS0026 2025-02	2026-04	6242992	12898976
b	Test gas medium 3 Prüfgas Medium 3	SCS-SCS0026 2025-02	2026-02	6242999	12898982
c	Test gas medium 5 Prüfgas Medium 5	SCS-SCS0026 2025-02	2026-02	6243001	12898984
d	Test gas medium 8 Prüfgas Medium 8	SCS-SCS0026 2025-02	2027-02	6243023	12898987
e	Test gas medium 7 Prüfgas Medium 7	SCS-SCS0026 2025-02	2026-02	6243021	12898986
f	Test gas medium 11 Prüfgas Medium 11	SCS-SCS0026 2024-07	2026-07	5796456	14087964
g	Test gas medium 6 Prüfgas Medium 6	SCS-SCS0026 2024-02	2026-02	5514478	12898985
h	Test gas medium 12 Prüfgas Medium 12	SCS-SCS0026 2023-07	2025-07	5163042	14087984

Reference certificates are available at www.primasonline.com Referenzzertifikate sind auf www.primasonline.com abrufbar

Ambient conditions Umgebungsbedingungen

Temperature Temperatur (20...26) °C Humidity Feuchte (20...60) % RH % rF

Measuring procedure Messverfahren

The calibration was carried out by comparison measurement with calibrated test gases.
Die Kalibrierung erfolgte durch Vergleichsmessung mit kalibrierten Prüfgasen.

Measuring results Messergebnisse

Channel Kanal ---

Reference value Bezugswert		Indicated measured value probe Angezeigter Messwert Ka- libriergegenstand		Deviation Abweichung		Allowed deviation ²⁾ Zulässige Abweichung ²⁾		Measurement uncertainty (k=2) Messunsicherheit (k=2)		Confirmation Bewertung
ppm	Vol.-%	ppm	Vol.-%	ppm	Vol.-%	ppm	Vol.-%	ppm	Vol.-%	
CO										
100,3 ^a	---	101	---	0,7	---	± 11	---	3,3	---	pass
401,0 ^b	---	406	---	5,0	---	± 21	---	8,4	---	pass
706,0 ^c	---	712	---	6,0	---	± 36	---	14,4	---	pass
NO										
150,3 ^a	---	149	---	-1,3	---	± 9	---	4,0	---	pass
300 ^d	---	301	---	1	---	± 16	---	6,9	---	pass
NO2										
97,3 ^e	---	101,0	---	3,7	---	± 5,0	---	3,20	---	pass
SO2										
100 ^f	---	97	---	-3	---	± 6	---	3,5	---	pass
CO2										
---	16,970 ^g	---	16,93	---	-0,040	---	± 0,48	---	0,350	pass
---	38,50 ^h	---	38,54	---	0,04	---	± 1,09	---	0,775	pass
O2										
---	0,00 ^a	---	0,07	---	0,07	---	± 0,21	---	0,027	pass
---	2,50 ^c	---	2,56	---	0,06	---	± 0,21	---	0,055	pass
---	5,00 ^b	---	5,07	---	0,07	---	± 0,21	---	0,102	pass

²⁾ in accordance with the manufacturer gemäß Hersteller

Remarks Bemerkungen

Certificate of Calibration

Certificate No. : 68-400468-2

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 : (32.5 to 33.5) °C

Relative Humidity : (45 to 50) %

Line Voltage : (210.0 to 210.8) V

Date of Received : 19 August 2025

Date of Calibration : 19 August 2025

Date of Issue : 19 August 2025

Calibrated by :

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

68-400217-1

28 Oct 2025

National Institute of Metrology Thailand (NIMT)

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 Calibratech Co.,Ltd.



Certificate of Calibration

Certificate No. : 68-400468-2

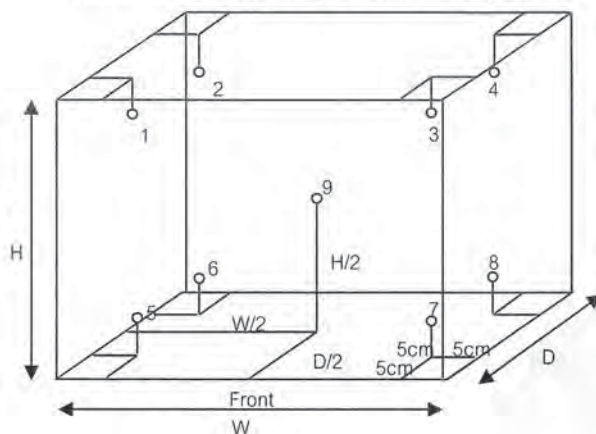
Page : 2 of 2

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	105.6	105.8	105.4	105.7	104.1	104.1	103.6	103.8	104.3	1.0
180	184	184	179.9	182.1	179.9	181.0	179.8	181.1	179.4	180.8	179.5	1.3

Test Point (° C)	Setting Temperature (° C)	Indicating Temperature (° C)	Measured Uniformity (° C)	Measured Stability (° C)	Overall Variation (° C)
104	110	110	1.8	0.2	2.4
180	184	184	2.9	0.3	3.2

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

for ST-120 Sound Calibrator

No. 20250820J125

Name of Product	Sound Calibrator
Model	ST-120
Serial Number	ST120C1235E
Specifications	Class 1
Date	2025/08/20

Tested

This certificate may not be published or reproduced, except in full, unless
Obtaining permission in writing from Scarlet Tech Ltd.
4F-3, No. 347, 2nd Sec., Heping E. Rd., Daan Dist. Taipei City 106, Taiwan

Certificate of ST-120 Sound Calibrator

No. 20250820J125

1. Preliminary Inspection

	Result
Visual Inspection	Pass

2. Sound Pressure Level

Measured Level (dB)	Actual Level (dB)	Tolerance (dB)	Measurement Uncertainty (dB)	Result
94.01	94.01	93.60-94.40	0.11	Pass
114.01	114.02	113.60-114.40	0.11	Pass

3. Frequency

Measured Frequency (Hz)	Actual Frequency (Hz)	Tolerance (Hz)	Measurement Uncertainty (Hz)	Result
999.0	999.73	990.00-1010.00	0.10	Pass

4. Distortion

Measured Distortion (%)	Calibration Level (dB)	Tolerance (%)	Measurement Uncertainty (dB)	Result
0.9	94	<3.00	0.13	Pass
0.5	114	<3.00	0.13	Pass

Environment conditions

Air temperature : 25 °C

Relative humidity : 80 %

Static pressure : 1 kPa

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



Certificate of Calibration

Certificate Number : SPR25100027-1

Page : 1 of 3

Customer : MET CO.,LTD.

36/659 Moo. 6 Tambol Bangragpattana, Amphur Bangbuatong,
Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST 11D

Serial Number : 821263

ID. Number : MET-NL-30

Environmental Conditions

Ambient Temperature : $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Relative Humidity : $50\% \pm 15\%$

Location of Calibration : In-Lab

Calibration Procedure : SP-CPE-04-01

Received Date : 02 Oct 2025

Calibration Date : 06 Oct 2025

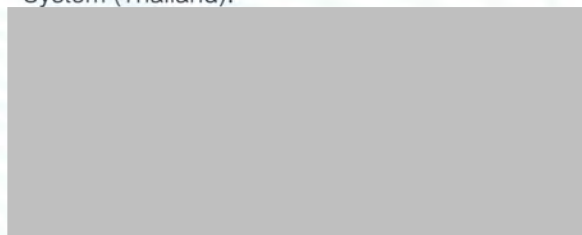
Recommend Due Date : 06 Oct 2026

Date of Issue : 07 Oct 2025

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by to NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand).





Calibration Report

Certificate Number : SPR25100027-1

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP.22/0268	20 Feb 2026

Traceability

This certification is traceable to the International System of Unit maintained at :
TISTR - Thailand Institute of Scientific and Technological Research

SP

Result of Calibration

Certificate Number : SPR25100027-1

Page : 3 of 3

Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.9	113.9	-0.1	-0.1	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Select Z

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Note :

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

The reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -



SMART TECH CALIBRATION & SERVICES CO., LTD.

14/506 MOO 3, RANGSIT-NAKHON NAYOK ROAD, LAM PHAK KUT,
THANYABURI, PATHUM THANI 12110, THAILAND

Tel. +662-114-3148 Email : stcal.md@gmail.com Website : stc-cal.com



Certificate of Calibration

Certificate No. STCR-2601047-6

Work Order No. STCR-2601047

Page 1 of 3

Customer Name : M E T COMPANY LIMITED
36/659 Moo 6, Bangrakpatthana, Bangbuathong, Nonthaburi 11110

Equipment Name : Sound Level Meter
Manufacturer : ACO
Model : 6236
Serial Number : 222070
Control Number : N/A
Received Date : Jan 8, 2026
Calibration Date : Jan 9, 2026
Recommended Due Date : Jan 9, 2027
Calibration Method : Calibration Procedure No. CPE-04-01

Environmental Conditions

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$
Ambient Relative Humidity : $(50 \pm 15) \% \text{RH}$
Calibration Place : Permanent Calibration Laboratory

Condition as received : Normal

Calibration Result : See data attached

1. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced, except in full, without written approval by Calibration Laboratory, Smart Tech Calibration & Services Co., Ltd.
5. This results of this report only to the items calibrated.

Date of Issue : Jan 12, 2026



@smarttechcal

Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: SPCR-2601047-6

Page 2 of 3

Standards Equipment Used

<u>Equipment Name</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>	<u>Traceability to</u>
Sound Calibrator	N975185	5523631032296324	Oct 31, 2026	MP-TH

Traceability

This calibration is traceable to the International System of Unit via :

- MP-TH : Micro Precision Calibration Laboratory (Thailand) Co., Ltd.



Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601047-6

Page 3 of 3

UUC Range : (30 to 130) dB

Resolution : 0.1 dB

Results of Calibration: [] Without adjustment [☒] With adjustment

Appearance and Function of Use Inspection : GOOD

Sound Level Calibration @ Frequency 1 kHz

Select : A

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	93.1 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.5 dB	113.9 dB	0.16 dB	0.40 dB
SLOW	94.07 dB	93.1 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.8 dB	113.9 dB	0.16 dB	0.40 dB

Sound Level Calibration @ Frequency 1 kHz

Select : C

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	93.1 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.8 dB	113.9 dB	0.16 dB	0.40 dB
SLOW	94.07 dB	931.0 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.8 dB	113.9 dB	0.16 dB	0.40 dB

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -



**SMART TECH CALIBRATION & SERVICES CO., LTD.**

14/506 MOO 3, RANGSIT-NAKHON NAYOK ROAD, LAM PHAK KUT,
THANYABURI, PATHUM THANI 12110, THAILAND

Tel. +662-114-3148 Email : stcal.md@gmail.com Website : stc-cal.com



Certificate of Calibration

Certificate No. STCR-2601131-9

Work Order No. STCR-2601131

Page 1 of 3

Customer Name : M E T COMPANY LIMITED
36/659 Moo 6, Bangrakpatthana, Bangbuathong, Nonthaburi 11110

Equipment Name : Sound Level Meter
Manufacturer : ACO
Model : 6236
Serial Number : 222071
Control Number : N/A
Received Date : Jan 19, 2026
Calibration Date : Jan 19, 2026
Recommended Due Date : Jan 19, 2027
Calibration Method : Calibration Procedure No. CPE-04-01

Environmental Conditions

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$
Ambient Relative Humidity : $(50 \pm 15) \% \text{RH}$
Calibration Place : Permanent Calibration Laboratory

Condition as received : Normal

Calibration Result : See data attached

1. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, without written approval by Calibration Laboratory, Smart Tech Calibration & Services Co., Ltd.
5. This results of this report only to the items calibrated.

Date of Issue : Jan 23, 2026

Approved by :

Calibrated by



@smarttechcal

Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601131-9

Page 2 of 3

Standards Equipment Used

<u>Equipment Name</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>	<u>Traceability to</u>
Sound Calibrator	N975185	5523631032296324	Oct 31, 2026	MP-TH

Traceability

This calibration is traceable to the International System of Unit via :

- MP-TH : Micro Precision Calibration Laboratory (Thailand) Co., Ltd.



Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601131-9

Page 3 of 3

UUC Range : (40 to 130) dB

Resolution : 0.1 dB

Results of Calibration: [☒] Without adjustment [☐] With adjustment

Appearance and Function of Use Inspection : GOOD

Sound Level Calibration @ Frequency 1 kHz

Select : A

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	94.0 dB	-	0.07 dB	0.40 dB
	114.06 dB	113.8 dB	-	0.26 dB	0.40 dB
SLOW	94.07 dB	94.0 dB	-	0.07 dB	0.40 dB
	114.06 dB	113.8 dB	-	0.26 dB	0.40 dB

Sound Level Calibration @ Frequency 1 kHz

Select : C

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	94.0 dB	-	0.07 dB	0.40 dB
	114.06 dB	113.8 dB	-	0.26 dB	0.40 dB
SLOW	94.07 dB	94.0 dB	-	0.07 dB	0.40 dB
	114.06 dB	113.8 dB	-	0.26 dB	0.40 dB

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -



**SMART TECH CALIBRATION & SERVICES CO., LTD.**

14/506 MOO 3, RANGSIT-NAKHON NAYOK ROAD, LAM PHAK KUT,
THANYABURI, PATHUM THANI 12110, THAILAND

Tel. +662-114-3148 Email : stcal.md@gmail.com Website : stc-cal.com



Certificate of Calibration

Certificate No. STCR-2601215-2

Work Order No. STCR-2601215

Page 1 of 3

Customer Name : M E T COMPANY LIMITED
36/659 Moo 6 T.Bangrakpatthana, A.Bangbuathong, Nonthaburi 11110

Equipment Name : Sound Level Meter
Manufacturer : ACO
Model : 6236
Serial Number : 222072
Control Number : N/A
Received Date : Jan 28, 2026
Calibration Date : Jan 31, 2026
Recommended Due Date : Jan 31, 2027
Calibration Method : Calibration Procedure No. CPE-04-01

Environmental Conditions

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$
Ambient Relative Humidity : $(50 \pm 15) \% \text{RH}$
Calibration Place : Permanent Calibration Laboratory

Condition as received : Normal

Calibration Result : See data attached

1. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, without written approval by Calibration Laboratory, Smart Tech Calibration & Services Co., Ltd.
5. This results of this report only to the items calibrated.

Date of Issue : Feb 2, 2026

Approved by :

Calibrated by :



@smarttechcal

Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601215-2

Page 2 of 3

Standards Equipment Used

<u>Equipment Name</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>	<u>Traceability to</u>
Sound Calibrator	N975185	5523631032296324	Oct 31, 2026	MP-TH

Traceability

This calibration is traceable to the International System of Unit via :

- MP-TH : Micro Precision Calibration Laboratory (Thailand) Co., Ltd.



Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601215-2

Page 3 of 3

UUC Range : (40 to 130) dB

Resolution : 0.1 dB

Results of Calibration: [☒] Without adjustment [☐] With adjustment

Appearance and Function of Use Inspection : GOOD

Sound Level Calibration @ Frequency 1 kHz

Select : A

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	94.0 dB	-	0.07 dB	0.40 dB
	114.06 dB	113.8 dB	-	0.26 dB	0.40 dB
SLOW	94.07 dB	94.0 dB	-	0.07 dB	0.40 dB
	114.06 dB	113.8 dB	-	0.26 dB	0.40 dB

Sound Level Calibration @ Frequency 1 kHz

Select : C

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	94.0 dB	-	0.07 dB	0.40 dB
	114.06 dB	113.8 dB	-	0.26 dB	0.40 dB
SLOW	94.07 dB	94.0 dB	-	0.07 dB	0.40 dB
	114.06 dB	113.8 dB	-	0.26 dB	0.40 dB

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -





SMART TECH CALIBRATION & SERVICES CO., LTD.

14/506 MOO 3, RANGSIT-NAKHON NAYOK ROAD, LAM PHAK KUT,
THANYABURI, PATHUM THANI 12110, THAILAND

Tel. +662-114-3148 Email : stcal.md@gmail.com Website : stc-cal.com



Certificate of Calibration

Certificate No. STCR-2601047-3

Work Order No. STCR-2601047

Page 1 of 3

Customer Name : M E T COMPANY LIMITED
36/659 Moo 6, Bangrakpatthana, Bangbuathong, Nonthaburi 11110

Equipment Name : Sound Level Meter
Manufacturer : ACO
Model : 6236
Serial Number : 222101
Control Number : N/A
Received Date : Jan 8, 2026
Calibration Date : Jan 9, 2026
Recommended Due Date : Jan 9, 2027
Calibration Method : Calibration Procedure No. CPE-04-01

Environmental Conditions

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$
Ambient Relative Humidity : $(50 \pm 15) \% \text{RH}$
Calibration Place : Permanent Calibration Laboratory

Condition as received : Normal

Calibration Result : See data attached

1. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, without written approval by Calibration Laboratory, Smart Tech Calibration & Services Co., Ltd.
5. This results of this report only to the items calibrated.

Date of Issue : Jan 13, 2026

Approved by :

Calibrated by :



@smarttechcal

Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601047-3

Page 2 of 3

Standards Equipment Used

<u>Equipment Name</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>	<u>Traceability to</u>
Sound Calibrator	N975185	5523631032296324	Oct 31, 2026	MP-TH

Traceability

This calibration is traceable to the International System of Unit via :

- MP-TH : Micro Precision Calibration Laboratory (Thailand) Co., Ltd.



Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601047-3

Page 3 of 3

UUC Range : (30 to 130) dB

Resolution : 0.1 dB

Results of Calibration: [] Without adjustment [☒] With adjustment

Appearance and Function of Use Inspection : GOOD

Sound Level Calibration @ Frequency 1 kHz

Select : A

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	92.2 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.0 dB	113.8 dB	0.26 dB	0.40 dB
SLOW	94.07 dB	92.2 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.1 dB	113.8 dB	0.26 dB	0.40 dB

Sound Level Calibration @ Frequency 1 kHz

Select : C

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	92.2 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.0 dB	113.8 dB	0.26 dB	0.40 dB
SLOW	94.07 dB	92.2 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.0 dB	113.8 dB	0.26 dB	0.40 dB

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -





SMART TECH CALIBRATION & SERVICES CO., LTD.

14/506 MOO 3, RANGSIT-NAKHON NAYOK ROAD, LAM PHAK KUT,
THANYABURI, PATHUM THANI 12110, THAILAND
Tel. +662-114-3148 Email : stcal.md@gmail.com Website : stc-cal.com



Certificate of Calibration

Certificate No. STCR-2601215-1

Work Order No. STCR-2601215

Page 1 of 3

Customer Name : M E T COMPANY LIMITED
36/659 Moo 6 T.Bangrakpatthana, A.Bangbuathong, Nonthaburi 11110

Equipment Name : Sound Level Meter
Manufacturer : ACO
Model : 6236
Serial Number : 222102
Control Number : N/A
Received Date : Jan 28, 2026
Calibration Date : Jan 31, 2026
Recommended Due Date : Jan 31, 2027
Calibration Method : Calibration Procedure No. CPE-04-01

Environmental Conditions

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$
Ambient Relative Humidity : $(50 \pm 15) \% \text{RH}$
Calibration Place : Permanent Calibration Laboratory

Condition as received : Normal

Calibration Result : See data attached

1. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, without written approval by Calibration Laboratory, Smart Tech Calibration & Services Co., Ltd.
5. This results of this report only to the items calibrated.

Date of Issue : Feb 2, 2026

Approved by :

Calibrated by :



@smarttechcal

Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601215-1

Page 2 of 3

Standards Equipment Used

<u>Equipment Name</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>	<u>Traceability to</u>
Sound Calibrator	N975185	5523631032296324	Oct 31, 2026	MP-TH

Traceability

This calibration is traceable to the International System of Unit via :

- MP-TH : Micro Precision Calibration Laboratory (Thailand) Co., Ltd.



Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601215-1

Page 3 of 3

UUC Range : (40 to 130) dB

Resolution : 0.1 dB

Results of Calibration: [] Without adjustment [☒] With adjustment

Appearance and Function of Use Inspection : GOOD

Sound Level Calibration @ Frequency 1 kHz

Select : A

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	93.4 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	113.1 dB	113.8 dB	0.26 dB	0.40 dB
SLOW	94.07 dB	93.4 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	113.1 dB	113.8 dB	0.26 dB	0.40 dB

Sound Level Calibration @ Frequency 1 kHz

Select : C

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	93.3 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	113.1 dB	113.8 dB	0.26 dB	0.40 dB
SLOW	94.07 dB	93.3 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	113.1 dB	113.8 dB	0.26 dB	0.40 dB

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -



**SMART TECH CALIBRATION & SERVICES CO., LTD.**

14/506 MOO 3, RANGSIT-NAKHON NAYOK ROAD, LAM PHAK KUT,
THANYABURI, PATHUM THANI 12110, THAILAND

Tel. +662-114-3148 Email : stcal.md@gmail.com Website : stc-cal.com



Certificate of Calibration

Certificate No. STCR-2601131-10

Work Order No. STCR-2601131

Page 1 of 3

Customer Name : M E T COMPANY LIMITED
36/659 Moo 6, Bangrakpatthana, Bangbuathong, Nonthaburi 11110

Equipment Name : Sound Level Meter
Manufacturer : ACO
Model : 6236
Serial Number : 222103
Control Number : N/A
Received Date : Jan 19, 2026
Calibration Date : Jan 19, 2026
Recommended Due Date : Jan 19, 2027
Calibration Method : Calibration Procedure No. CPE-04-01

Environmental Conditions

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$
Ambient Relative Humidity : $(50 \pm 15) \% \text{RH}$
Calibration Place : Permanent Calibration Laboratory

Condition as received : Normal

Calibration Result : See data attached

1. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, without written approval by Calibration Laboratory, Smart Tech Calibration & Services Co., Ltd.
5. This results of this report only to the items calibrated.

Date of Issue : Jan 23, 2026

Approved by :

Calibrated by :



@smarttechcal

Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601131-10

Page 2 of 3

Standards Equipment Used

<u>Equipment Name</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>	<u>Traceability to</u>
Sound Calibrator	N975185	5523631032296324	Oct 31, 2026	MP-TH

Traceability

This calibration is traceable to the International System of Unit via :

- MP-TH : Micro Precision Calibration Laboratory (Thailand) Co., Ltd.



Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2601131-10

Page 3 of 3

UUC Range : (40 to 130) dB

Resolution : 0.1 dB

Results of Calibration: [] Without adjustment [☒] With adjustment

Appearance and Function of Use Inspection : GOOD

Sound Level Calibration @ Frequency 1 kHz

Select : A

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	92.6 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.5 dB	114.0 dB	0.06 dB	0.40 dB
SLOW	94.07 dB	92.6 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.5 dB	114.0 dB	0.06 dB	0.40 dB

Sound Level Calibration @ Frequency 1 kHz

Select : C

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	92.6 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.6 dB	114.0 dB	0.06 dB	0.40 dB
SLOW	94.07 dB	92.6 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.6 dB	114.0 dB	0.06 dB	0.40 dB

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -



**SMART TECH CALIBRATION & SERVICES CO., LTD.**

14/506 MOO 3, RANGSIT-NAKHON NAYOK ROAD, LAM PHAK KUT,
THANYABURI, PATHUM THANI 12110, THAILAND

Tel. +662-114-3148 Email : stcal.md@gmail.com Website : stc-cal.com



Certificate of Calibration

Certificate No. STCR-2602118-6

Work Order No. STCR-2602118

Page 1 of 3

Customer Name : M E T COMPANY LIMITED
36/659 Moo 6, T.Bangrakpatthana, A.Bangbuathong, Nonthaburi 11110

Equipment Name : Heat Stress Monitor
Manufacturer : JANTYTECH
Model : JT2011-E2A
Serial Number : 3522210130
Control Number : N/A
Received Date : Feb 14, 2026
Calibration Date : Feb 18, 2026
Recommended Due Date : Feb 18, 2027
Calibration Method : Calibration Procedure No. CPT-04-11

Environmental Conditions

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$
Ambient Relative Humidity : $(50 \pm 15) \% \text{RH}$
Calibration Place : Permanent Calibration Laboratory

Condition as received : Normal

Calibration Result : See data attached

1. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, with Laboratory, Smart Tech Calibration & Services Co., Ltd.
5. This results of this report only to the items calibrated.

Date of Issue : Feb 19, 2026

Approved by :

Calibrated by



@smarttechcal

Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2602118-6

Page 2 of 3

Standards Equipment Used

<u>Equipment Name</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>	<u>Traceability to</u>
Reference Thermometer Readout	250220030008	5523631031628818	Feb 26, 2026	MP-TH
Secondary Reference PRT	04794	5523631031628818	Feb 26, 2026	MP-TH

Traceability

This calibration is traceable to the International System of Unit via :

- MP-TH : Micro Precision Calibration Laboratory (Thailand) Co., Ltd.



Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2602118-6

Page 3 of 3

Results of Calibration

1. Temperature measurement (Wet-bulb temperature) Range : -5 to 120 °C

STD Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
24.011	24.0	0.011	0.16
30.013	30.0	0.013	0.16
40.020	39.9	0.120	0.16

2. Temperature measurement (Dry-bulb temperature) Range : -5 to 120 °C

STD Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
24.012	24.0	0.012	0.16
30.018	30.0	0.018	0.16
40.027	39.9	0.127	0.16

3. Temperature measurement (Black globe temperature) Range : -5 to 120 °C

STD Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
24.010	24.0	0.010	0.16
30.016	30.0	0.016	0.16
40.021	39.9	0.121	0.16

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -



**SMART TECH CALIBRATION & SERVICES CO., LTD.**

14/506 MOO 3, RANGSIT-NAKHON NAYOK ROAD, LAM PHAK KUT,
THANYABURI, PATHUM THANI 12110, THAILAND

Tel. +662-114-3148 Email : stcal.md@gmail.com Website : stc-cal.com



Certificate of Calibration

Certificate No. STCR-2602118-8

Work Order No. STCR-2602118

Page 1 of 3

Customer Name : M E T COMPANY LIMITED
36/659 Moo 6, T.Bangrakpatthana, A.Bangbuathong, Nonthaburi 11110

Equipment Name : Heat Stress Monitor
Manufacturer : JANTYTECH
Model : JT2011-E2A
Serial Number : 3522210131
Control Number : N/A
Received Date : Feb 14, 2026
Calibration Date : Feb 18, 2026
Recommended Due Date : Feb 18, 2027
Calibration Method : Calibration Procedure No. CPT-04-11

Environmental Conditions

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$
Ambient Relative Humidity : $(50 \pm 15) \% \text{RH}$
Calibration Place : Permanent Calibration Laboratory

Condition as received : Normal

Calibration Result : See data attached

1. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, without written approval by Calibration Laboratory, Smart Tech Calibration & Services Co., Ltd.
5. This results of this report only to the items calibrated.

Date of Issue : Feb 19, 2026

Calibrated by :

Approved by :



@smarttechcal

Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2602118-8

Page 2 of 3

Standards Equipment Used

<u>Equipment Name</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>	<u>Traceability to</u>
Reference Thermometer Readout	250220030008	5523631031628818	Feb 26, 2026	MP-TH
Secondary Reference PRT	04794	5523631031628818	Feb 26, 2026	MP-TH

Traceability

This calibration is traceable to the International System of Unit via :

- MP-TH : Micro Precision Calibration Laboratory (Thailand) Co., Ltd.



Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2602118-8

Page 3 of 3

Results of Calibration

1. Temperature measurement (Wet-bulb temperature) Range : -5 to 120 °C

STD Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
24.010	23.9	0.110	0.16
30.016	30.0	0.016	0.16
40.023	40.0	0.023	0.16

2. Temperature measurement (Dry-bulb temperature) Range : -5 to 120 °C

STD Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
24.015	23.9	0.115	0.16
30.024	30.0	0.024	0.16
40.021	40.0	0.021	0.16

3. Temperature measurement (Black globe temperature) Range : -5 to 120 °C

STD Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
24.018	23.9	0.118	0.16
30.021	30.0	0.021	0.16
40.023	40.0	0.023	0.16

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -



**SMART TECH CALIBRATION & SERVICES CO., LTD.**

14/506 MOO 3, RANGSIT-NAKHON NAYOK ROAD, LAM PHAK KUT,
THANYABURI, PATHUM THANI 12110, THAILAND

Tel. +662-114-3148 Email : stcal.md@gmail.com Website : stc-cal.com



Certificate of Calibration

Certificate No. STCR-2602118-3

Work Order No. STCR-2602118

Page 1 of 3

Customer Name : M E T COMPANY LIMITED
36/659 Moo 6, T.Bangrakpathana, A.Bangbuathong, Nonthaburi 11110

Equipment Name : Heat Stress Monitor
Manufacturer : JANTYTECH
Model : JT2011-E2A
Serial Number : 3522210132
Control Number : N/A
Received Date : Feb 14, 2026
Calibration Date : Feb 18, 2026
Recommended Due Date : Feb 18, 2027
Calibration Method : Calibration Procedure No. CPT-04-11

Environmental Conditions

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$
Ambient Relative Humidity : $(50 \pm 15) \% \text{RH}$
Calibration Place : Permanent Calibration Laboratory

Condition as received : Normal

Calibration Result : See data attached

1. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, Laboratory, Smart Tech Calibration & Services Co., Ltd.
5. This results of this report only to the items calibrated.

Date of Issue : Feb 19, 2026

Approved by

Calibrated by : ii



@smarttechcal

Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2602118-3

Page 2 of 3

Standards Equipment Used

<u>Equipment Name</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>	<u>Traceability to</u>
Reference Thermometer Readout	250220030008	5523631031628818	Feb 26, 2026	MP-TH
Secondary Reference PRT	04794	5523631031628818	Feb 26, 2026	MP-TH

Traceability

This calibration is traceable to the International System of Unit via :

- MP-TH : Micro Precision Calibration Laboratory (Thailand) Co., Ltd.



Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2602118-3

Page 3 of 3

Results of Calibration

1. Temperature measurement (Wet-bulb temperature) Range : -5 to 120 °C

STD Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
24.013	24.0	0.013	0.16
30.018	30.0	0.018	0.16
40.021	40.0	0.021	0.16

2. Temperature measurement (Dry-bulb temperature) Range : -5 to 120 °C

STD Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
24.018	24.0	0.018	0.16
30.013	30.0	0.013	0.16
40.023	40.0	0.023	0.16

3. Temperature measurement (Black globe temperature) Range : -5 to 120 °C

STD Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (±°C)
24.018	24.0	0.018	0.16
30.021	30.0	0.021	0.16
40.022	40.0	0.022	0.16

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -





MIRACLE INTERNATIONAL TECHNOLOGY CO.,LTD

214 Bangwack Rd. Bangpai Bangkae Bangkok 10160
Tel.: 0-2865-4647-8 Fax: 0-2865-4649 <http://www.mit.in.th>



NSC-TIS-TIS 17025
CALIBRATION 0052



CALIBRATION CERTIFICATE

Page 1 of 3

Certificate No. : L202509064-0001

Date Issued : 09-Sep-25

Customer

: MET CO.,LTD.

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

Equipment

: Drycal

Manufacturer

: BIOS

Model

: DCL-M

Serial No.

: 4839

ID No./Tag No.

: -

Date Received

: 04-Sep-25

Date Calibrated

: 08-Sep-25

Calibrated by

: [REDACTED]

Calibration Method or Calibration Procedure Used

In-house method : CP-26 by comparison against Bell Prover.

In-house method : CP-44 by comparison against Piston Prover.

This certificate is traceable to national standards, which realize the units of measurement according to the International System of Units (SI).

Result of Calibration

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

This certificate may not be reproduced other than in full except with the prior written approval of the Miracle International Technology Company Limited



Certificate No. : L202509064-0001

Environment : Ambient temperature : (23 ± 2)°C

Relative humidity : (50 ± 15)%RH

Capacity Range : 7000 ml/min

Calibration Media : Air

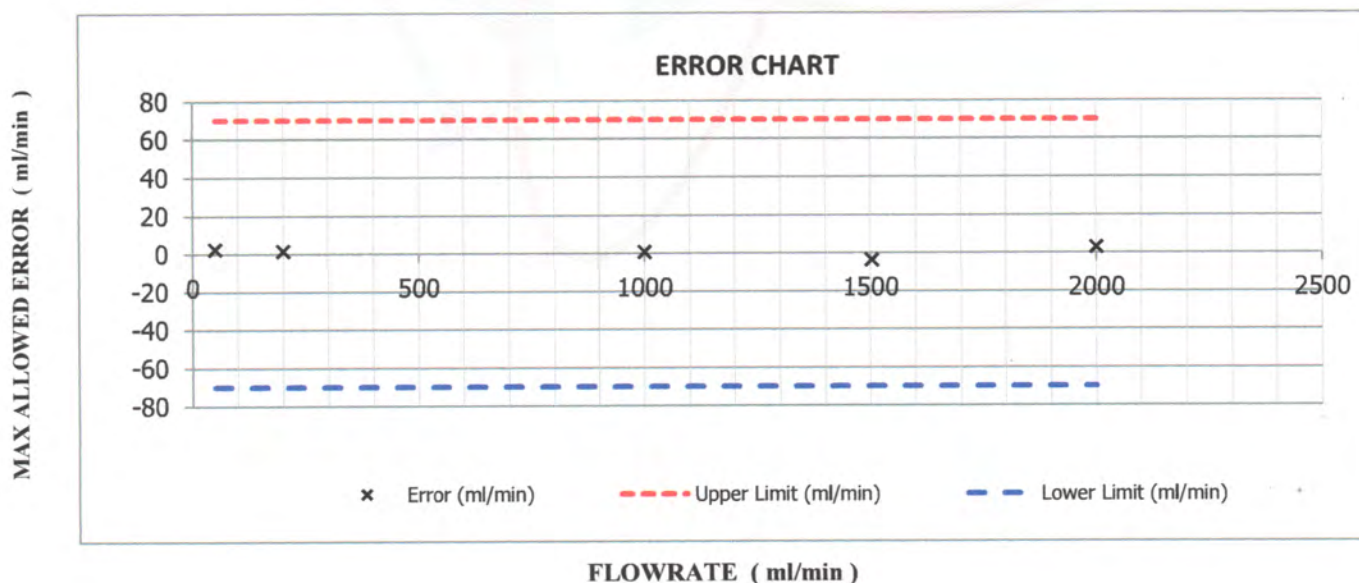
Type : Mass Flowmeter

UUC Reference Condition : At atmospheric pressure and room temperature condition

Measurement Gas Flow rate function

Temperature (° C)	Pressure (kPa)	UUC (ml/min)	STD (ml/min)	Error (ml/min)	Uncertainty (± ml/min)
23.40	101.18	49.900	47.3860	2.51	0.53
23.57	101.20	200.100	198.5340	1.57	1.2
21.23	101.52	1000	999.4	0.6	3.5
21.52	101.60	1503	1506.8	-3.8	5.3
21.44	101.48	2000	1997.0	3.0	7.0

Error = Unit Under Calibration - Standard



Note :Flow Rate was corrected for non-standard operating condition by using equation :

$$Q_{Meas} = Q_{Ref} \times \frac{P_{Ref}}{P_{Meas}} \times \frac{T_{Meas}}{T_{Ref}}$$

where Q = Flow rate P = Absolute pressure T = Absolute temperature

M = Gas molecular weight, M_{standard} (Air) = 28.9646431 g/mol

Subscript "Meas" = Measurement condition

Subscript "Standard" = Standard condition

Certificate No. : L202509064-0001

Condition As-Received : Used Item

The measurement results and statements of conformity with specification only relate to the item calibrated.

Measurement Standards Used & Traceability :

The International System of Units (SI) through

MIT Calibration Certificate No. L202403371-0002 for Bell Prover Volume (60L) Serial No. 9511HC028626, Due 12-Apr-26

MIT Calibration Certificate No. L202504346-0007 for Temperature Transmitter with probe Serial No. MIT-STD-122,
Due 07-May-26

MIT Calibration Certificate No. L202412300-0026 for Pressure Calibrator 100 psi (-1 to 7 bar) Serial No. 2592311,
Due 28-May-26

MIT Calibration Certificate No. L202405039-0005 for Piston Prover Volume Serial No. 85, Due 30-May-26

MIT Calibration Certificate No. L202403007-0026 for Piston Prover Timer Serial No. 122199, Due 05-Mar-26

MIT Calibration Certificate No. L202409011-0001 for Absolute Pressure (Piston Prover) Serial No. 220368, Due 02-Dec-27

MIT Calibration Certificate No. L202502406-0013 for Temperature Indicator with Sensor (Piston Prover)
Serial No. MIT-STD-258, Due 01-Mar-26

End of Certificate

**SMART TECH CALIBRATION & SERVICES CO., LTD.**

14/506 MOO 3, RANGSIT-NAKHON NAYOK ROAD, LAM PHAK KUT,
THANYABURI, PATHUM THANI 12110, THAILAND

Tel. +662-114-3148 Email : stcal.md@gmail.com Website : stc-cal.com



Certificate of Calibration

Certificate No. STCR-2602190-5

Work Order No. STCR-2602190

Page 1 of 3

Customer Name : M E T COMPANY LIMITED
36/659 Moo 6 T.Bangrakpatthana, A.Bangbuathong, Nonthaburi 11110

Equipment Name : Sound Level Meter
Manufacturer : Scarlet Tech
Model : ST 21D
Serial Number : 820791
Control Number : N/A
Received Date : Feb 23, 2026
Calibration Date : Feb 26, 2026
Recommended Due Date : Feb 26, 2027
Calibration Method : Calibration Procedure No. CPE-04-01

Environmental Conditions

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$
Ambient Relative Humidity : $(50 \pm 15) \% \text{RH}$
Calibration Place : Permanent Calibration Laboratory

Condition as received : Normal

Calibration Result : See data attached

1. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.
2. The Unit Under Calibration (UUC) has been calibrated by using the working standard which is traceable to SI-Units. The calibration procedure documented is intended to implement the requirements of ISO/IEC 17025 : 2017
3. The working standard is indicated in page 2 of this certificate.
4. This report applies to the item calibrated and shall not be reproduced except in full, without written approval by Calibration Laboratory, Smart Tech Calibration & Services Co., Ltd.
5. This results of this report only to the items calibrated.

Date of Issue : Feb 27, 2026

Approved by :

Calibrated by :



@smarttechcal

Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2602190-5

Page 2 of 3

Standards Equipment Used

<u>Equipment Name</u>	<u>Serial No.</u>	<u>Certificate No.</u>	<u>Due Date</u>	<u>Traceability to</u>
Sound Calibrator	N975185	5523631032296324	Oct 31, 2026	MP-TH

Traceability

This calibration is traceable to the International System of Unit via :

- MP-TH : Micro Precision Calibration Laboratory (Thailand) Co., Ltd.



Calibration Report

Smart Tech Calibration & Services Co., Ltd.

Certificate No.: STCR-2602190-5

Page 3 of 3

UUC Range : (28 to 133) dB

Resolution : 0.1 dB

Results of Calibration: [] Without adjustment [☒] With adjustment

Appearance and Function of Use Inspection : GOOD

Sound Level Calibration @ Frequency 1 kHz

Select : A

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	92.4 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.3 dB	113.9 dB	0.16 dB	0.40 dB
SLOW	94.07 dB	92.4 dB	94.0 dB	0.07 dB	0.40 dB
	114.06 dB	112.3 dB	113.9 dB	0.16 dB	0.40 dB

Sound Level Calibration @ Frequency 1 kHz

Select : C

Response times	STD. Value	UUC. Reading		Correction	(±) Uncertainty
		Before Adjustment	After Adjustment		
FAST	94.07 dB	92.4 dB	94.1 dB	-0.03 dB	0.40 dB
	114.06 dB	112.1 dB	113.9 dB	0.16 dB	0.40 dB
SLOW	94.07 dB	92.4 dB	94.1 dB	-0.03 dB	0.40 dB
	114.06 dB	112.1 dB	113.9 dB	0.16 dB	0.40 dB

STD = Standard

UUC = Unit Under Calibration

- End of Certificate -





Certificate of Calibration

Certificate Number : SPR25090155-18

Page : 1 of 3

Customer : MET CO.,LTD.

36/659 Moo. 6 Tambol Bangragpattana, Amphur Bangbuatong,
Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST 21D

Serial Number : 820792

ID. Number : MET-NL-22

Environmental Conditions

Ambient Temperature : $23\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$

Relative Humidity : $50\% \pm 15\%$

Location of Calibration : In-Lab

Calibration Procedure : SP-CPE-04-01

Received Date : 09 Sep 2025

Calibration Date : 12 Sep 2025

Recommend Due Date : 12 Sep 2026

Date of Issue : 13 Sep 2025

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by to NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand).

Calibrated by





Calibration Report

Certificate Number : SPR25090155-18

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP.22/0268	20 Feb 2026

Traceability

This certification is traceable to the International System of Unit maintained at :
TISTR - Thailand Institute of Scientific and Technological Research

SP

Result of Calibration

Certificate Number : SPR25090155-18

Page : 3 of 3

Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.7	113.7	-0.3	-0.3	0.15

Select Z

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.7	113.7	-0.3	-0.3	0.15

Note :

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

The reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -



Certificate of Calibration

Certificate Number : SPR25090155-12

Page : 1 of 3

Customer : MET CO.,LTD.

36/659 Moo. 6 Tambol Bangragpattana, Amphur Bangbuatong,
Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST 21D

Serial Number : 820793

ID. Number : MET-NL-23

Environmental Conditions

Ambient Temperature : $23\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$

Relative Humidity : $50\% \pm 15\%$

Location of Calibration : In-Lab

Calibration Procedure : SP-CPE-04-01

Received Date : 09 Sep 2025

Calibration Date : 19 Sep 2025

Recommend Due Date : 19 Sep 2026

Date of Issue : 20 Sep 2025

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by to NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand).

Calibrated by :





Calibration Report

Certificate Number : SPR25090155-12

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP.22/0268	20 Feb 2026

Traceability

This certification is traceable to the International System of Unit maintained at :
TISTR - Thailand Institute of Scientific and Technological Research

SP

Result of Calibration

Certificate Number : SPR25090155-12

Page : 3 of 3

Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	114.0	114.0	0.0	0.0	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.1	94.1	0.1	0.1	0.15
114	114.0	114.0	0.0	0.0	0.15

Select Z

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.1	94.2	0.1	0.2	0.15
114	113.9	113.9	-0.1	-0.1	0.15

Note :

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

The reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

SP-FM-04-15 REV.0



Certificate of Calibration

Certificate Number : SPR25090155-15

Page : 1 of 3

Customer : MET CO.,LTD.

36/659 Moo. 6 Tambol Bangragpattana, Amphur Bangbuatong,
Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST 21D

Serial Number : 820794

ID. Number : MET-NL-24

Environmental Conditions

Ambient Temperature : $23\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$

Relative Humidity : $50\% \pm 15\%$

Location of Calibration : In-Lab

Calibration Procedure : SP-CPE-04-01

Received Date : 09 Sep 2025

Calibration Date : 12 Sep 2025

Recommend Due Date : 12 Sep 2026

Date of Issue : 13 Sep 2025

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by to NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand).

Calibrated by

Approved by





Calibration Report

Certificate Number : SPR25090155-15

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP.22/0268	20 Feb 2026

Traceability

This certification is traceable to the International System of Unit maintained at :
TISTR - Thailand Institute of Scientific and Technological Research

SP



Result of Calibration

Certificate Number : SPR25090155-15

Page : 3 of 3

Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.7	113.7	-0.3	-0.3	0.15

Select Z

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.7	113.7	-0.3	-0.3	0.15

Note :

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

The reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -



Certificate of Calibration

Certificate Number : SPR25090155-13

Page : 1 of 3

Customer : MET CO.,LTD.

36/659 Moo. 6 Tambol Bangragpattana, Amphur Bangbuatong,
Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST 21D

Serial Number : 821036

ID. Number : MET-NL-25

Environmental Conditions

Ambient Temperature : $23\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$

Relative Humidity : $50\% \pm 15\%$

Location of Calibration : In-Lab

Calibration Procedure : SP-CPE-04-01

Received Date : 09 Sep 2025

Calibration Date : 12 Sep 2025

Recommend Due Date : 12 Sep 2026

Date of Issue : 13 Sep 2025

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by to NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand).

Calibrated by :

Approved





Calibration Report

Certificate Number : SPR25090155-13

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP.22/0268	20 Feb 2026

Traceability

This certification is traceable to the International System of Unit maintained at :
TISTR - Thailand Institute of Scientific and Technological Research

SP

Result of Calibration

Certificate Number : SPR25090155-13

Page : 3 of 3

Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.9	113.9	-0.1	-0.1	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Select Z

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Note :

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

The reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -



Certificate of Calibration

Certificate Number : SPR25090155-16

Page : 1 of 3

Customer : MET CO.,LTD.

36/659 Moo. 6 Tambol Bangragpattana, Amphur Bangbuatong,
Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST 21D

Serial Number : 821037

ID. Number : MET-NL-26

Environmental Conditions

Ambient Temperature : $23\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$

Relative Humidity : $50\% \pm 15\%$

Location of Calibration : In-Lab

Calibration Procedure : SP-CPE-04-01

Received Date : 09 Sep 2025

Calibration Date : 19 Sep 2025

Recommend Due Date : 19 Sep 2026

Date of Issue : 20 Sep 2025

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by to NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand).





Calibration Report

Certificate Number : SPR25090155-16

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP.22/0268	20 Feb 2026

Traceability

This certification is traceable to the International System of Unit maintained at :
TISTR - Thailand Institute of Scientific and Technological Research

SP

Result of Calibration

Certificate Number : SPR25090155-16

Page : 3 of 3

Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	114.1	114.1	0.1	0.1	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.2	94.2	0.2	0.2	0.15
114	114.0	114.0	0.0	0.0	0.15

Select Z

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.2	94.2	0.2	0.2	0.15
114	114.1	114.1	0.1	0.1	0.15

Note :

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

The reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

SP-FM-04-15 REV.0



Certificate of Calibration

Certificate Number : SPR25090155-14

Page : 1 of 3

Customer : MET CO.,LTD.

36/659 Moo. 6 Tambol Bangragpattana, Amphur Bangbuatong,
Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST 21D

Serial Number : 821038

ID. Number : MET-NL-27

Environmental Conditions

Ambient Temperature : $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Relative Humidity : $50\% \pm 15\%$

Location of Calibration : In-Lab

Calibration Procedure : SP-CPE-04-01

Received Date : 09 Sep 2025

Calibration Date : 12 Sep 2025

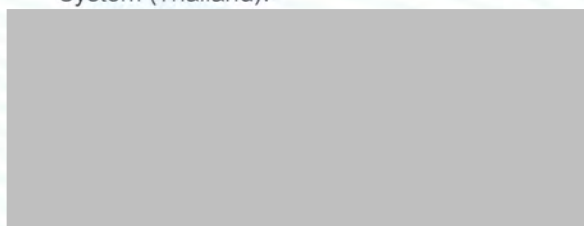
Recommend Due Date : 12 Sep 2026

Date of Issue : 13 Sep 2025

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by to NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand).





Calibration Report

Certificate Number : SPR25090155-14

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP.22/0268	20 Feb 2026

Traceability

This certification is traceable to the International System of Unit maintained at :
TISTR - Thailand Institute of Scientific and Technological Research

SP

Result of Calibration

Certificate Number : SPR25090155-14

Page : 3 of 3

Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.7	113.7	-0.3	-0.3	0.15

Select Z

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.7	113.7	-0.3	-0.3	0.15

Note :

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

The reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -



Certificate of Calibration

Certificate Number : SPR25090155-17

Page : 1 of 3

Customer : MET CO.,LTD.

36/659 Moo. 6 Tambol Bangragpattana, Amphur Bangbuatong,
Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST 21D

Serial Number : 821039

ID. Number : MET-NL-28

Environmental Conditions

Ambient Temperature : $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Relative Humidity : $50\% \pm 15\%$

Location of Calibration : In-Lab

Calibration Procedure : SP-CPE-04-01

Received Date : 09 Sep 2025

Calibration Date : 12 Sep 2025

Recommend Due Date : 12 Sep 2026

Date of Issue : 13 Sep 2025

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by to NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand).





Calibration Report

Certificate Number : SPR25090155-17

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP.22/0268	20 Feb 2026

Traceability

This certification is traceable to the International System of Unit maintained at :
TISTR - Thailand Institute of Scientific and Technological Research

SP

Result of Calibration

Certificate Number : SPR25090155-17

Page : 3 of 3

Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.9	113.9	-0.1	-0.1	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Select Z

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Note :

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

The reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -



Certificate of Calibration

Certificate Number : SPR25090155-19

Page : 1 of 3

Customer : MET CO.,LTD.

36/659 Moo. 6 Tambol Bangragpattana, Amphur Bangbuatong,
Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST 11D

Serial Number : 820893

ID. Number : MET-NL-29

Environmental Conditions

Ambient Temperature : $23\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$

Relative Humidity : $50\% \pm 15\%$

Location of Calibration : In-Lab

Calibration Procedure : SP-CPE-04-01

Received Date : 09 Sep 2025

Calibration Date : 12 Sep 2025

Recommend Due Date : 12 Sep 2026

Date of Issue : 13 Sep 2025

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by to NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand).



Calibration Report

Certificate Number : SPR25090155-19

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP.22/0268	20 Feb 2026

Traceability

This certification is traceable to the International System of Unit maintained at :
TISTR - Thailand Institute of Scientific and Technological Research

SP

Result of Calibration

Certificate Number : SPR25090155-19

Page : 3 of 3

Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.7	113.7	-0.3	-0.3	0.15

Select Z

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	93.9	93.9	-0.1	-0.1	0.15
114	113.7	113.7	-0.3	-0.3	0.15

Note :

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

The reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -



Certificate of Calibration

Certificate Number : SPR25100027-1

Page : 1 of 3

Customer : MET CO.,LTD.

36/659 Moo. 6 Tambol Bangragpattana, Amphur Bangbuatong,
Nonthaburi 11110

Equipment Name : Sound Level Meter

Manufacturer : Scarlet Tech

Model : ST 11D

Serial Number : 821263

ID. Number : MET-NL-30

Environmental Conditions

Ambient Temperature : $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Relative Humidity : $50\% \pm 15\%$

Location of Calibration : In-Lab

Calibration Procedure : SP-CPE-04-01

Received Date : 02 Oct 2025

Calibration Date : 06 Oct 2025

Recommend Due Date : 06 Oct 2026

Date of Issue : 07 Oct 2025

Method of Calibration

This certifies that the above instrument was calibrated in compliance with the calibration system requirement of ISO/IEC 17025:2017 in accordance with reference procedure. Standards used to perform this calibration are certified by to NIST or equivalent, National metrology institute, Natural physical constants, consensus standards. The result reported herein apply only to the calibration of the item described above as received. Our decision rule is to contact the customer if the item pass and fail calibration when the results include the uncertainties and the customer must determine if the results meets their needs.

The calibration certificate shall not be reproduced except in full, without written approval of SP Metrology System (Thailand).

Calibrated by : Mr.Nanthawat Wanasit

Approved by

Calibration Officer



(Mr.Pootthipong A.)

Authorized Signatory

SP-FM-04-15 rev.0



Calibration Report

Certificate Number : SPR25100027-1

Page : 2 of 3

Reference Standards

Equipment Name	Model	Serial No.	Certificate No.	Due. Date
Sound Level Calibrator	ST-120	211203773	EEL.BP.22/0268	20 Feb 2026

Traceability

This certification is traceable to the International System of Unit maintained at :
TISTR - Thailand Institute of Scientific and Technological Research

SP

Result of Calibration

Certificate Number : SPR25100027-1

Page : 3 of 3

Range : 94 to 114 dB

Function : @1kHz

Select A

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.9	113.9	-0.1	-0.1	0.15

Select C

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Select Z

Unit : dB

Standard Setting	UUC Reading		Error		Uncertainty (±)
	Fast	Slow	Fast	Slow	
94	94.0	94.0	0.0	0.0	0.15
114	113.8	113.8	-0.2	-0.2	0.15

Note :

The result of calibration was found accurate as show on date and place of calibration only.
This Certificate is not certified for any commercial transaction.

Measurement Uncertainty

The reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

CERTIFICATE OF CALIBRATION

Certificate No.: C0-0708009/25

Page 1 **of total** 4 **pages**

Customer WATER ANALYSIS CENTER CO., LTD.
1/94 Moo 5, T.Kanham,
A.U-thai, Ayutthaya 13210

Equipment	pH Meter		
Manufacturer	METTLER TOLEDO	Model	SevenCompact S220
Serial No.	B327527211	ID No.	WWL 0068
Description	Range : 0 - 14 pH, Resolution : 0.01 pH		

Environmental Conditions Ambient Temperature: $(20 \pm 2) ^\circ\text{C}$
Relative Humidity: $(50 \pm 10) \%$
Atmospheric Pressure: -

Calibration Location Jayhawks Laboratory (CL&GL)

Received Date 7 August 2025

Calibration Date 14 August 2025

Date of Issue 14 August 2025

Condition of Artifacts Used conditions but can be calibrated

oved by

(Dr. Ekachai Puttitwong)

This calibration certificate shall not be reproduced other than in full except with the prior written approval of the Thai Heart Calibration Co., Ltd.

Certificate No.: C0-0708009/25

Page 2 of total 4 pages
Reference Method:

- The calibration method used was CP-178 based on an in-house method.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard:

Type	pH Value	Lot No.	Due Date	Traceability
pH Standard Solution	4.01	300824	Jan. 22, 2026	NIMT
	7.00	230524	Jan. 14, 2026	
	10.01	030924	Jan. 14, 2026	

Type	Serial No.	Certificate No.	Due Date	Traceability
Documenting Process Calibrator	2630521	I0-2412003/24	Dec. 23, 2025	THC
Digital Thermometer with Sensor	1709138 / 4605984-005	I0-0906001/25	Jun. 8, 2026	

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:

- NIMT, National Institute of Metrology (Thailand).
- THC, Thai Heart Calibration Co., Ltd.

Measurement Results:
1. Function Simulated pH Meter

Standard Applied (mV)	Nominal Value (pH)	UUC Reading		Uncertainty (± mV)
		pH	mV	
177.48	4.00	4.01	177.3	0.060
0.00	7.00	7.00	-0.1	0.060
-177.48	10.00	10.01	-177.4	0.060

UUC : Unit Under Calibration

Note : Adjust Curve to simulate pH (4,7,10)

Certificate No.: C0-0708009/25

Page 3 of total 4 pages
Measurement Results (Cont.):
2. Calibration of pH Electrode (Serial No.: 3222623)

pH Standard Solution (pH)	Measured Value		Uncertainty (± pH)
	(pH)	(mV)	
4.01	4.03	152.6	0.013
7.00	7.00	-20.1	0.013
10.01	10.03	-184.7	0.013

Note : Adjust Curve to Buffer Solution pH (4,7,10)

Temperature stability of micro bath : $25 \pm 0.2^{\circ}\text{C}$

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

Certificate No.: C0-0708009/25

Page 4 of total 4 pages
Reference Method:

- The calibration method used was CP-096 based on an in-house method.
- The temperature scale used was an ITS-90.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard Instruments:

Type	Serial No.	Cert. No.	Due Date	Traceability
Thermometer Readout	B7C853	I0-2810001/24	Oct. 28, 2025	THC
Platinum Resistance Thermometer	4854	C0A30047	Oct. 22, 2025	FLUKE
Liquid Bath	XO111019	I0-2605001/25	May 28, 2027	THC

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:

- THC, Thai Heart Calibration Co., Ltd.
- FLUKE, Fluke Comporation, U.S.A.

Measurement Results: (X) Without Adjustment

Dimension of probe : Diameter 3 mm. Sensor Type : RTD (PT100)

Immersion Depth (mm.)	Standard Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty ($\pm$ °C)
120	22.00	22.2	-0.20	0.065
120	25.00	25.2	-0.20	0.065
120	28.00	28.3	-0.30	0.065

UUC : Unit Under Calibration

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

CERTIFICATE OF CALIBRATION

Certificate No.: C0-1607008/25

Page 1 **of total** 2 **pages**

Customer WATER ANALYSIS CENTER CO., LTD.
1/94 Moo 5, T.Kanham,
A.U-thai, Ayutthaya 13210

Equipment Conductivity Meter

Manufacturer EUTECH

Model CON 2700

Serial No. 2657889

ID No. WWL 0136

Description -

Environmental Conditions Ambient Temperature: $(20 \pm 2) ^\circ\text{C}$
Relative Humidity: $(50 \pm 10) \%$
Atmospheric Pressure: -

Calibration Location Jayhawks Laboratory (CL&GL)

Received Date 16 July 2025

Calibration Date 18 July 2025

Date of Issue 18 July 2025

Condition of Artifacts Used conditions but can be calibrated

ved by

This calibration certificate shall not be reproduced other than in full except with the prior written approval of the Thai Heart Calibration Co., Ltd.

Certificate No.: C0-1607008/25

Page 2 of total 2 pages

Reference Method:

- The calibration method used was CP-177 based on an in-house method.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard :

Material	Batch Value	Lot Number	Due Date	Traceability
Conductivity Standard Solution	151 μ S/cm	S231019018	Jul. 23, 2025	SCP Science
	1.411 mS/cm	S241111016	May 23, 2026	

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:

- SCP Science.

Measurement Results: (Probe Serial No. : 93X219065)

Conductivity Standard Solution	Measured Value	Correction	Uncertainty ($\pm$)
151 μ S/cm	151.4 μ S/cm	-0.4 μ S/cm	2.5 μ S/cm
1.411 mS/cm	1.411 mS/cm	0.000 mS/cm	0.0051 mS/cm

Note : Adjustment points : 151 μ S/cm 1.411mS/cm

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -



Certificate of Calibration

Certificate No. : MT25-5945

Page : 1 of 2

Customer : Water Analysis Center Co.,Ltd.

Address : 1/94 Moo 5, Rojana Industrial Park, T.Kanham, A.U-Thai, Ayutthaya 13210

Description : Refrigerator

Manufacturer : B.T.Metrology Co.,Ltd.

Model : REF 940L

Serial No. : BT-03-09-09

Identification No. : WWL 0043

Calibration Place : Customer Laboratory

Order No. : 2503/25

Received date : Aug 01, 2025

Calibration date : Aug 01, 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>
LXI Data Acquisition Switch Unit with Sensor	34972A	MY49028922	MT24-8770	Nov 22, 2025

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%

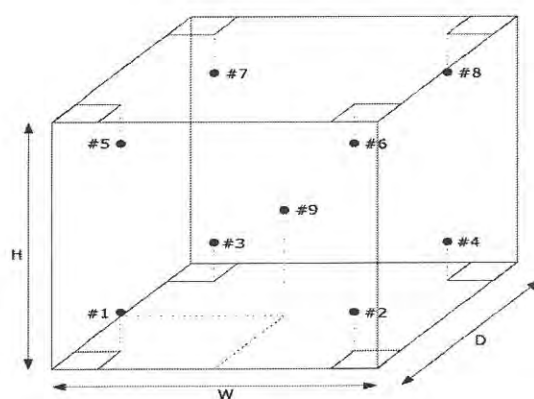


This calibration certificate shall not be reproduced other than in full except with the prior written approval of Inctech Metrological Center Co.,Ltd

Certificate No. : MT25-5945
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	19.910	19.869	20.107	20.080	20.018	19.783	20.200	20.216	19.761	0.32

Setting temperature (°C)	Indicating Temperature (°C)	Measured stability (+/- °C)	Measured uniformity (°C)	Overall variation (°C)
20.0	20.0	0.09	0.60	0.60



- #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

Front view

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.

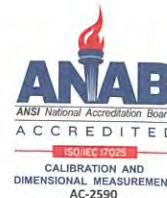
Overall Variation = Difference of temperature value between the maximum and minimum any time.

Stability = One half of the maximum difference of measured temperatures at any one probe.



Professional Calibration & Services Co., Ltd.

50/888, 50/889 Moo 2, Rungsit-Nakornnayok Rd., Bungyeetho, Thunyaburi,
Pathumthani 12130 Thailand
Tel : (+66)2150-6641 (Autoline)
Email : info@p-cal.com www.p-cal.com



Certificate of Calibration

Certificate Number : PL26147/25

Page 1 of 3

Control Number : PCAL165992

Customer Control : WWL 0219

Description : DO Meter

Manufacturer : YSI

Model : YSI 4010-1W

Serial Number : 22091049

Customer : Water Analysis Center Co.,Ltd

1/94 Moo 5 T.Kanham A.U-Thai Ayutthaya 13210 Thailand



Date of Receipt : 13-May-25

Date of Calibration : 13-May-25

Calibration Location : Physical Laboratory

Environment : Temperature $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$

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

Calibration Method : Calibration Procedure Number CP-PL93

Calibration Results : See data attached

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%.

This certificate is issued in accordance with ISO/IEC17025 and the conditions of accreditation granted by the Accreditation Body which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory. The results relate only to the item calibrated.

This certificate shall not be reproduced other than in full except without the prior written approval of the Head of Calibration Laboratory of Professional Calibration & Services Co., Ltd.



Professional Calibration & Services Co., Ltd.

50/888, 50/889 Moo 2, Rungsit-Nakornnayok Rd., Bungeeetho, Thunyaburi,
Pathumthani 12130 Thailand
Tel : (+66)2150-6641 (Autoline)
Email : info@p-cal.com www.p-cal.com



Calibration Report

Certificate Number : **PL26147/25**

Page 2 of 3

Equipment Standards Used

Description	Serial No.	Traceability to	Certificate No.	Cal. Due Date
Platinum Resistance Thermometer	1036223	ANAB : AC-2590	EL24012/24	17-Jun-25
Zero Oxygen Solution Set	-	NIST	S0090/24	25-Sep-29
Distilled Water	-	BSG	D1500310724	11-Jul-26
Documenting Process Calibrator	9779005	ANAB : AC-2590	EL11797/25	06-Mar-26
Humidity/Barometer/Data Recorder	AL.61015	ANAB : AC-2590, NSC : Calibration 0008	EL35266/24, 24P2620	16-Jul-25

Condition as received : Normal

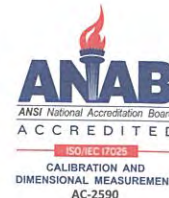
Definitions :-

- * ANAB - The ANSI National Accreditation Board
- * NIST - National Institute of Standard and Technology
- * BSG - Bangkok Science Center Co., Ltd.
- * NSC - National Standardization Council of Thailand



Professional Calibration & Services Co., Ltd.

50/888, 50/889 Moo 2, Rungsit-Nakornnayok Rd., Bungeeetho, Thunyaburi,
Pathumthani 12130 Thailand
Tel : (+66)2150-6641 (Autoline)
Email : info@p-cal.com www.p-cal.com



Calibration Report

CertificateNo.: PL26147/25

Page : 3 of 3

Calibration Results

Dissolved Oxygen Calibration

Description of Meter - Range : 0 to 50 mg/l
 - Resolution : 0.01 mg/l

Description of Electrode - Manufacturer : YSI
 - Model : N/A
 - Serial No. : 22A105587
 - Type : Electrochemical (Membrane)

Calibration Point	Standard Value	UUC Reading	UUC Error	Uncertainty ($\pm$)
0 mg/l	0.000 mg/l	** 0.08 mg/l	0.08 mg/l	0.027 mg/l
8 mg/l	8.517 mg/l	8.45 mg/l	-0.07 mg/l	0.037 mg/l
9 mg/l	9.036 mg/l	8.96 mg/l	-0.08 mg/l	0.037 mg/l

Notes :

- 1). Calibration results that carry the double asterisk (**) are not accredited. Calibrations marked as such on this Certificate have been included for completeness.

...End...



Certificate of Calibration

Certificate No. : MT25-7680

Page : 1 of 2

Customer : Water Analysis Center Co.,Ltd.

Address : 1/94 M.5, Rojana Industrial Park, T.Kanham, A.U-Thai, Ayutthaya 13210

Description : Hot Air Oven

Manufacturer : Termaks

Model : TS8136

Serial No. : N/A

Identification No. : WWL0040

Calibration Place : Customer Laboratory

Order No. : 3746/25

Received date : Nov 11, 2025

Calibration date : Nov 11, 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%





Certificate No. : MT25-7680

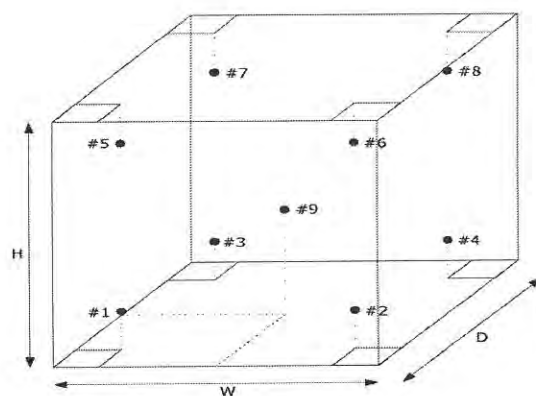
Page : 2 of 2

Function : Temperature measurement
Calibration point : 103, 104, 180 °C

Result : Without adjustment
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	
103	103.394	103.086	103.292	103.370	103.021	103.002	103.430	103.048	103.320	0.56
104	103.700	104.052	104.318	103.740	104.025	103.937	104.211	104.039	104.315	0.44
180	180.264	180.029	180.271	180.338	180.115	180.110	180.101	180.186	180.055	0.44

Setting temperature (°C)	Indicating Temperature (°C)	Measured stability (+/- °C)	Measured uniformity (°C)	Overall variation (°C)
103.0	103.0	0.45	0.65	0.89
104.0	104.0	0.30	0.82	0.90
181.0	180.0	0.32	0.64	0.79



- #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

Front view

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.



Certificate of Calibration

Equipment:	Electronic Balance	Certificate No.:	C01253561
Manufacturer:	Sartorius	Job No.:	WO-00096348
Model:	BL210S	Issued Date:	02 December 2025
Serial No.:	15808131	Page:	1 of 2
ID No.:	WWL 0022		
Condition of the item:	Normal		

Customer: Water Analysis Center Co., Ltd.
1/94 Moo 5, Rojana Industrial Park, Rojana Road,
Tambol Kanham, Amphur U-Thai, Ayutthaya 13210 Thailand

Environment Condition: Temperature 25 °C $\pm$ 0.6 °C
Relative Humidity 55 % $\pm$ 0.9 %

Calibration Place: Water Analysis Center Co., Ltd. (ห้องเครื่องชั่ง)
1/94 Moo 5, Rojana Industrial Park, Rojana Road,
Tambol Kanham, Amphur U-Thai, Ayutthaya 13210 Thailand

Calibration By: Mr. Anusorn Jitborikhon

Calibration Date: 02 December 2025

The Method Used: In-house method, CAL-WI-47, based on UKAS Lab 14

Traceability: This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through DKSH Technology Co., Ltd. Certificate No. C02251333

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 Evaluation of measurement data - Guide to the expression of uncertainty in measurement (JCGM 100).

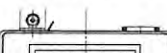
These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of DKSH Technology Limited.

บริษัท ดีเคเอสเอช เทคโนโลยี จำกัด
DKSH Technology Limited
2533 ถนนสุขุมวิท แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260
2533 Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Phone: +66 2639 7000 Email: info.calibration@dksh.com Website: www.dksh.com/scientific-thailand

Calibration Results:

Without Adjustment

Eccentric Error: Weight to be 1/3 or 1/2 of Maximum capacity, taken from the center of the pan as a zero reference.

									Nominal Test Value		100	(g)
Reference Points (g)												
A		B		C		D		E				
-		0.0001		0.0001		0.0000		0.0000				

Repeatability: Determination of the standard deviation of weighing balance., Readability 0.0001 (g)

Nominal test value (g)	Standard Deviation
20	0.00004
200	0.00005

Error of indication from nominal or conventional mass value., Readability 0.0001 (g)

Nominal Value (g)	Conventional Mass (g)	Displayed Value (g)	Error of indication (g)	Uncertainty (± g)	k
1	1.00001	1.0000	0.0000	0.00010	2.03
2	2.00001	2.0000	0.0000	0.00010	2.03
5	5.00002	5.0000	0.0000	0.00010	2.03
10	10.00001	10.0000	0.0000	0.00011	2.02
20	20.00001	20.0000	0.0000	0.00011	2.02
50	50.00001	50.0000	0.0000	0.00012	2.01
70	70.00002	70.0000	0.0000	0.00015	2.00
100	99.99991	100.0001	0.0002	0.00017	2.00
120	119.99992	120.0002	0.0003	0.00021	2.00
150	149.99992	150.0004	0.0005	0.00023	2.00
200	200.00002	200.0008	0.0008	0.00029	2.00

The End of Certificate



PREVENTATIVE MAINTENANCE (PM) CHECK LIST

FOR ATOMIC ABSORPTION SPECTROMETER

Model & Serial Number: AA240FS & AA0911M073Customer : Water Analysis Center Co., Ltd.Date: 7 Aug 2025

Safety

- ☒ Flame, Inspect/replace o-ring nebulizer, spray chamber and burner
- ☒ Flame, Clean nebulizer, spray chamber and burner
- ☒ Flame, Check liquid trap interlock, burner interlock, pressure relief bung interlock and shield interlock
- ☐ Furnace, Clean work head, electrode and shroud N/A
- ☐ Furnace, Clean PSD and PSD tray N/A
- ☐ Furnace, Check water pressure N/A
- ☒ Check drain tube
- ☒ Check exhaust system
- ☒ Check gas pressure sensor interlock
- ☒ Check and all gas hoses for SpectrAA
- ☒ Clean computer control

Optics

- ☒ Inspect/Replace that external optics surfaces
- ☒ Check Wavelength Accuracy the copper line at 323.0-326.0 nm = 324.8 nm
- ☒ Check that PMT % Gain the copper at 324.8 nm, 4 mA, 0.5 nm slit width, Gain = 39% (should be $\leq 64\%$ or $\leq 380V$)
- ☒ Flame, Check D2 lamp is work



บริษัท ไทยยูนิค จำกัด

THAI UNIQUE CO., LTD.

80-82 ถนนประชาธิปไตย แขวงบางขุนพรหม เขตพระนคร กรุงเทพฯ 10200

80-82 Prachathipatai Rd., Bangkhunphrom, Pranakorn, Bangkok 10200

Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

Electronics

- ☒ Check power supply voltage
- ☒ Check cables and connectors
- ☒ Check/Clean all boards in the instrument
- ☐ Furnace, Check camera and align** N/A

**Option for Graphite Zeeman only

Mechanisms

- ☒ Flame, Check the burner adjuster
- ☐ Furnace, Check PSD accessories N/A

Analytical performance

- ☒ Clear the sample compartment
- ☒ Flame, Check uptake rate form 7.2-10.6 mL per minute = 9.5 mL/min
- ☒ Test Photometric noise, STDV = 0.0003 Abs (should be ≤ 0.00050 Abs)
- ☒ Flame, Test high solids nebulizer setting use

-Air/acet Cu 5 ppm = 0.95 Abs, and Precision

(%RSD)= 0.3 % (should be > 0.55 Abs and $< 0.5\%$ RSD)

or

-N2O/Acet Cu 5 ppm = _____ Abs, and Precision

(%RSD)= _____ % (should be > 0.3 Abs and $< 0.5\%$ RSD)

- ☐ Furnace, Characteristic mass and sensitivity Cu 25 ppb = _____ Abs, and N/A
Precision (%RSD)= _____ % (should be ≥ 0.15 Abs and $\leq 4.0\%$ RSD)



บริษัท ไทยยูนิค จำกัด

THAI UNIQUE CO., LTD.

80-82 ถนนประชาธิปไตย แขวงบางขุนพรหม เขตพระนคร กรุงเทพฯ 10200

80-82 Prachathipatai Rd., Bangkhunphrom, Pranakorn, Bangkok 10200

Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

PREVENTATIVE MAINTENANCE (PM) CHECK LIST

FOR ATOMIC ABSORPTION SPECTROMETER

Model & Serial Number: 240 F3 AA & M418230004

Customer : Water Analysis Center Co., Ltd.

Date: 24 Apr 2025

Safety

- ☒ Flame, ~~Inspect~~/replace o-ring nebulizer, spray chamber and burner
- ☒ Flame, Clean nebulizer, spray chamber and burner
- ☒ Flame, Check liquid trap interlock, burner interlock, pressure relief bung interlock and shield interlock
- ☐ Furnace, Clean work head, electrode and shroud N/A
- ☐ Furnace, Clean PSD and PSD tray N/A
- ☐ Furnace, Check water pressure N/A
- ☒ Check drain tube
- ☒ Check exhaust system
- ☒ Check gas pressure sensor interlock
- ☒ Check and all gas hoses for SpectrAA
- ☐ Clean computer control

Optics

- ☒ Inspect/~~Replace~~ that external optics surfaces
- ☒ Check Wavelength Accuracy the copper line at 323.0-326.0 nm = 324.6 nm
- ☒ Check that PMT % Gain the copper at 324.8 nm, 4 mA, 0.5 nm slit width, Gain = 39% (should be $\leq 64\%$ or $\leq 380V$)
- ☒ Flame, Check D2 lamp is work



บริษัท ไทยยูนิค จำกัด

THAI UNIQUE CO., LTD.

80-82 ถนนประชาธิปไตย แขวงบางขุนพรหม เขตพระนคร กรุงเทพฯ 10200

80-82 Prachathipatai Rd., Bangkhunphrom, Pranakorn, Bangkok 10200

Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

Electronics

- ☒ Check power supply voltage
- ☒ Check cables and connectors
- ☒ Check/Clean all boards in the instrument
- ☐ Furnace, Check camera and align** N/A

**Option for Graphite Zeeman only

Mechanisms

- ☒ Flame, Check the burner adjuster
- ☐ Furnace, Check PSD accessories N/A

Analytical performance

- ☒ Clear the sample compartment
- ☒ Flame, Check uptake rate form 7.2-10.6 mL per minute = 9.5 mL/min
- ☒ Test Photometric noise, STDV = 0.0001 Abs (should be ≤ 0.00050 Abs)
- ☒ Flame, Test high solids nebulizer setting use

-Air/acet Cu 5 ppm = 0.89 Abs, and Precision

(%RSD)= 0.3 % (should be > 0.55 Abs and $< 0.5\%$ RSD)

or

-N20/Acet Cu 5 ppm = _____ Abs, and Precision

(%RSD)= _____ % (should be > 0.3 Abs and $< 0.5\%$ RSD)

- ☐ Furnace, Characteristic mass and sensitivity Cu 25 ppb = _____ Abs, and Precision (%RSD)= _____ % (should be ≥ 0.15 Abs and $\leq 4.0\%$ RSD) N/A



บริษัท ไทยยูนิค จำกัด

THAI UNIQUE CO., LTD.

80-82 ถนนประชาธิปไตย แขวงบางขุนพรหม เขตพระนคร กรุงเทพฯ 10200

80-82 Prachathipatai Rd., Bangkhunphrom, Pranakorn, Bangkok 10200

Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

PREVENTATIVE MAINTENANCE (PM) CHECK LIST

FOR ATOMIC ABSORPTION SPECTROMETER

Model & Serial Number: 2402 & MY18230904

Customer : Water Analysis Center Co., Ltd.

Date: 25 Apr 2025

Safety

- ☐ Flame, Inspect/replace o-ring nebulizer, spray chamber and burner *N/A*
- ☐ Flame, Clean nebulizer, spray chamber and burner *N/A*
- ☐ Flame, Check liquid trap interlock, burner interlock, pressure relief bung *N/A*
- ☒ interlock and shield interlock
- ☒ Furnace, Clean work head, electrode and shroud
- ☒ Furnace, Clean PSD and PSD tray
- ☒ Furnace, Check water pressure
- ☒ Check drain tube
- ☒ Check exhaust system
- ☒ Check gas pressure sensor interlock
- ☒ Check and all gas hoses for SpectraAA
- ☒ Clean computer control

Optics

- ☒ Inspect/Replace that external optics surfaces
- ☒ Check Wavelength Accuracy the copper line at 323.0-326.0 nm = 324.7 nm
- ☒ Check that PMT % Gain the copper at 324.8 nm, 4 mA, 0.5 nm slit width, Gain = 53% (should be $\leq 64\%$ or $\leq 380V$)
- ☐ Flame, Check D2 lamp is work *N/A*



บริษัท ไทยยูนิค จำกัด

THAI UNIQUE CO., LTD.

80-82 ถนนประชาธิปไตย แขวงบางขุนพรหม เขตพระนคร กรุงเทพฯ 10200

80-82 Prachathipatai Rd., Bangkhunphrom, Pranakorn, Bangkok 10200

Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

Electronics

- ☒ Check power supply voltage
- ☒ Check cables and connectors
- ☒ Check/Clean all boards in the instrument
- ☒ Furnace, Check camera and align**

**Option for Graphite Zeeman only

Mechanisms

- ☐ Flame, Check the burner adjuster *N/A*
- ☒ Furnace, Check PSD accessories

Analytical performance

- ☒ Clear the sample compartment
- ☐ Flame, Check uptake rate form 7.2-10.6 mL per minute = _____ mL/min *N/A*
- ☒ Test Photometric noise, STDV = 0.0001 Abs (should be ≤ 0.00050 Abs)
- ☐ Flame, Test high solids nebulizer setting use *N/A*
 - Air/acet Cu 5 ppm = _____ Abs, and Precision
 - (%RSD)= _____ % (should be > 0.55 Abs and $< 0.5\%$ RSD)
 - or
 - N20/Acet Cu 5 ppm = _____ Abs, and Precision
 - (%RSD)= _____ % (should be > 0.3 Abs and $< 0.5\%$ RSD)
- ☒ Furnace, Characteristic mass and sensitivity Cu 25 ppb = 0.18 Abs, and Precision (%RSD)= 3.5 % (should be ≥ 0.15 Abs and $\leq 4.0\%$ RSD)



CRYSTAL CALIBRATION SALES AND SERVICE CO., LTD.

45/48 Soi Salathammasop31, Salathammasop Rd.,

Salathammasop, Thawewatthana, Bangkok 10170 Thailand

Tel : 0-2408-8474-5 Fax : 0-2408-8477 Email : info@crystalcal.com www.crystalcal.com

CERTIFICATE OF TEST

Report No. : 25-1325-001

Issue Date : 17 October 2025

Work Order No. : 25/1325

Customer Name : Water Analysis Center Co.,Ltd
1/94 Moo 5, T.Kantham, A.U-Thai,
Ayutthaya 13210

Date of Received : 16 October 2025

Date of test : 16 October 2025

Instrument Details : Description : Biological Safety Cabinet
Manufacturer : MICROTECH
Model : V6-T
Serial No. : 0972
ID No. : WWL 0084
Class / Type : Class II / A2
Location : ห้องปฏิบัติการทดสอบ

Test Method : This equipment was performance test by procedure is according to calibration procedure no. CWI-BSC-01 compliance EN 12469 : 2000 Biotechnology performance criteria for microbiological safety cabinet and AS 1807.23 : 2000 Determination of intensity of radiation from germicidal ultraviolet lamp and NSF/ANSI 49 Biosafety Cabinet : Desing, Construction, Performance, and filed certificate

Environment Conditions :

Temperature : Area Monitoring between 15°C to 40°C

Humidity : Area Monitoring between 30%RH to 85%RH

Line Voltage : Area Monitoring 220 VAC $\pm$ 10%

Traceability of Measurement :

This certificate of calibration documents the traceability to national standard, which realize the unit of measurement according to the International system of Units (SI)

This certificate may not be reproduced other than in full except with the prior written approval of Crystal Calibration Sales and Service co., Ltd.

Crystal Calibration Sales and Service Co., Ltd.

45/48 Salathammasop 31, Salathammasop Rd.,Salathammasop, Thawewatthana, Bangkok 10170

Phone : 0-2408-8474 Fax : 0-2408-8477 <http://www.crystalcal.com> Email : info@crystalcal.com



PAGE 1/6



CRYSTAL CALIBRATION SALES AND SERVICE CO., LTD.

45/48 Soi Salathammasop31, Salathammasop Rd.,

Salathammasop, Thawewatthana, Bangkok 10170 Thailand

Tel : 0-2408-8474-5 Fax : 0-2408-8477 Email : info@crystalcal.com www.crystalcal.com

REPORT OF TEST

Report No. : 25-1325-001

Issue Date : 17 October 2025

Work Order No. : 25/1325

Details of Reference

1. Reference Standards Instrument

No	Instrument	Model	Serial No./Ins No.	Certificate No.	Due Date
1.1	Thermo anemometer	440	83787941	TTH-0-146567	01 October 2026
1.2	Aerosol Photometer	2I	24056	ST325/1025	01 October 2026
1.3	Lux meter	UT383S	C222495023	MTE250301-1	16 June 2026
1.4	UVC LIGHT METER	UV-370SD	Q977653	CO20250020EA	13 March 2026
1.5	Sound level meter	815	30833548/203	MTE250356-1	15 July 2026

2. Certificate traceable

: This certificate traceable to The International System of Unit refer to

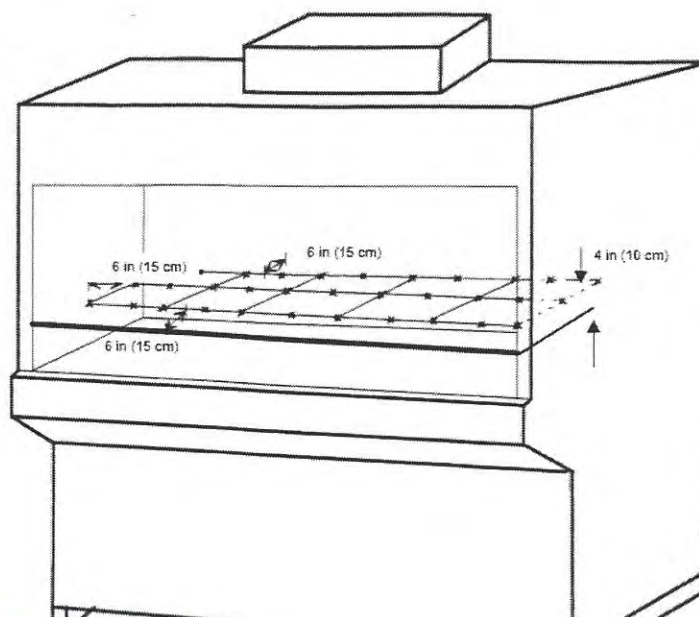
- 1.1 Techmaster asia (Thailand) Co., Ltd., ANAB AC-1736.08
- 1.2 Particle Measuring Technique Co., Ltd.
- 1.3 Ming Deng Metrology Services (Thailand) Co., Ltd., ANAB ACT-2515
- 1.4 Electrical and Electronics institute.
- 1.5 Ming Deng Metrology Services (Thailand) Co., Ltd., ANAB ACT-2515

3. Condition of item

: Normal

Part 1 Velocity test performane

1. Downflow velocity test



Downflow velocity diagrams of measurement



REPORT OF TEST

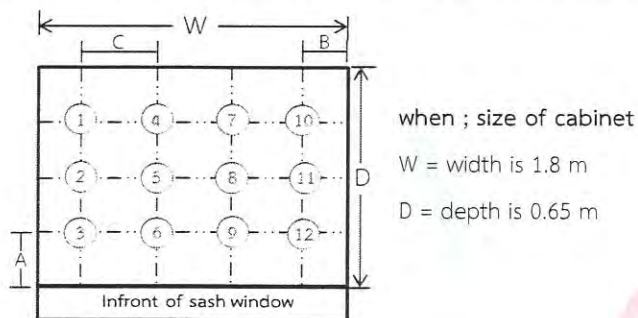
Report No. : 25-1325-001

Issue Date : 17 October 2025

Work Order No. : 25/1325

1. Downflow velocity test (continued)

Turn the MSC on. With the anemometer inside the MSC, make air velocity measurement in the horizontal plane 50mm to 100mm above the top edge of the front aperture, Make measurement over a period at least 1min in each position for at least eight positions, namely four along a line 1/4 of the depth of working space forward of the rear wall and four along a line same distance behind the front window. Ensure that the measurement are spaced along these lines at 1/8 and 3/8 of the width of working space from both the left-hand and right-hand sides.(Refer to EN 12469:2000 , G.3.2 page 36)



Air velocity measurement (m/s)					
No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
0.33	0.33	0.34	0.37	0.33	0.33
No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
0.34	0.35	0.34	0.36	0.36	0.33

A = distance from front 162.5 mm B = distance from wall 225 mm C = distance of measurement 450 mm

Acceptance criteria follow up to EN 12469 : 2000 (Table H.1)

Mean Downflow velocity (m/s)	Minimum Downflow velocity (m/s)	Maximum Downflow velocity (m/s)	± 20% of Mean Downflow velocity (m/s)
0.34	0.33	0.37	0.27 to 0.41

*Mean downflow velocity to achieve product protection in method EN12469 specific range 0.25 m/s to 0.50 m/s

Measurement of test result inspection of EN 12469

: PASS

2. Inflow velocity test

Laboratory used alternative method measured by thermo anemometer is opening sash window screen 3 inches (76mm) and installation thermo anemometer from the top window 1.5 inches (38mm) and moved thermo anemometer coverage area in horizontal measured inflow velocity point to point distance 4 inches (100mm), Inflow velocity in report is correct value by correction factor for 8" window (estimate and / or refer to factory factor)

Position of measured inflow velocity (m/s)																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.23	1.14	1.15	1.21	1.11	1.15	1.15	1.19	1.16	1.19	1.15	1.17	1.18	1.14	1.21	1.14	1.29	1.33

Mean Inflow velocity (m/s)	EN 12469 Recommendation Specification (m/s)	Judgment refer to EN 12649
0.44	≥ 0.40	Pass

*Mean inflow velocity to achieve product protection in method EN12469 ≥ 0.40 m/s refer to table H.1



REPORT OF TEST

Report No. : 25-1325-001

Issue Date : 17 October 2025

Work Order No. : 25/1325

Part 2 HEPA Filter Leak test performane

HEPA Filter leak test by the aerosol challenge at a suitable location on the upstream side of HEPA Filter, sea and construction joints to be tested Ensure that the challenge aerosol concentration , Measure the average upstream aerosol concentration than scan the downstream side of the HEPA Filter by passing the aerosol detection probe slightly overlapping over the entire surface of the HEPA Filter (Refer to EN 12469 D.4)

Detail of the PAO test performance

PAO Concentration on upstream side of HEPA is 24 µg/l

Downstream measured by aerosol photometer calulate ratio of concentration		
Main HEPA Filter (%)	Exhaust HEPA Filter (%)	Pre HEPA Filter (%)
0.004	0.005	N/A

* Acceptance criteria The leak should be not more than 0.01% of the specific before the filter refer to EN 12469 D.3 (a).

Main HEPA Filter diagrams

Leak position

M : Media leak position H : Maximum leak position X : Gasket leak position

Main HEPA Result of test

Pass

Exhaust HEPA Filter diagrams

Leak position

M : Media leak position H : Maximum leak position X : Gasket leak position

Exhaust HEPA Result of test

Pass



CRYSTAL CALIBRATION SALES AND SERVICE CO., LTD.

45/48 Soi Salathammasop31, Salathammasop Rd.,

Salathammasop, Thawewatthana, Bangkok 10170 Thailand

Tel : 0-2408-8474-5 Fax : 0-2408-8477 Email : info@crystalcal.com www.crystalcal.com

REPORT OF TEST

Report No. : 25-1325-001

Issue Date : 17 October 2025

Work Order No. : 25/1325

Part 3 Airflow smoke pattern test performance

The airflow smoke pattern is verification for check cabinet on working area air velocity in cabinet shall be not escape from cabinet to the room.

1. Downflow pattern test	:	Pass
2. View screen retention test	:	Pass
3. Work opening edge retention test	:	Pass
4. Sash / Window seal	:	Pass

Part 4 Site installation test

1. Airflow visual alarms shall be to indicate when 20% loss exhaust volume within 15 s	:	Pass
2. Sash alarms raise the window above 1 inch (2.5cm) from working position	:	N/A
3. Exhaust system alarms for cabinet has the function properly	:	Pass
4. Electrical leakage and ground circuit resistance test (it not circuit leakage)	:	Pass

* site installation refer to NSF/ANSI 49-2008 section F.7 and F.8

Part 5 Cabinet integrity test (For BSC Class II type A1)

The Bio safety cabinet refer test leakage of internal pressure 250 pa from manometer or difference pressure gauge or using soap solution 25g/l in tepid distilled water it not bubble in joint and gaskets, Hower using difference pressure gauge increasing pressure into cabinet estimate 500pa hold the time 30 min the pressure has to decasing not least 10%

The part 5 cabinet integrity test laboratory will be ccheck when cabinet new installation, repare, change or remove HEPA filter and relocate to new location

1. soap test check and visul bubbles	:	N/A
2. pressure in cabinet not least 10%	:	N/A

Part 6 sound level test

Measured by the sound meter is placed 1m from the front of the cabinet. With the cabinet running, 2,3 readings will be taken for different duration's (10 and 30 sec).

Mean of measured Background sound level (dBA)**	Mean of measured sound level (dBA)	Accepting criteria	Judgment Refer EN 12469
47.9	61.7	Less than 65 dBA	Pass

* Acceptance criteria less than 65 dBA refer to EN 12469 A.3 or not exceed 70 dBA refer to NSF/ANSI 49 F. 11.4

** Background sound level is measured when turn off the cabinet



CRYSTAL CALIBRATION SALES AND SERVICE CO., LTD.

45/48 Soi Salathammasop31, Salathammasop Rd.,

Salathammasop, Thawewatthana, Bangkok 10170 Thailand

Tel : 0-2408-8474-5 Fax : 0-2408-8477 Email : info@crystalcal.com www.crystalcal.com

REPORT OF TEST

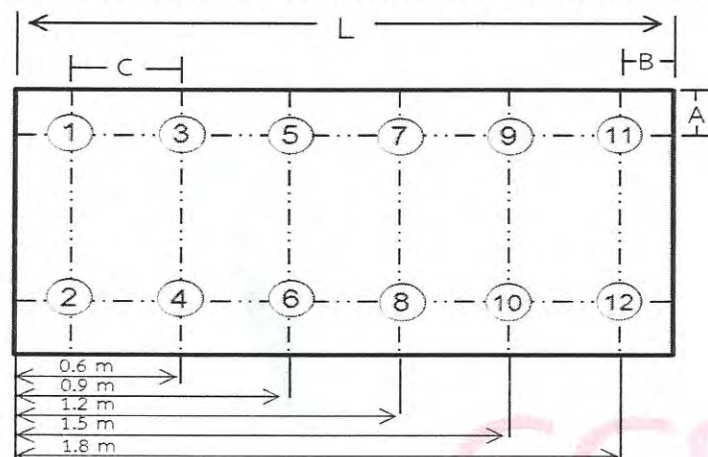
Report No. : 25-1325-001

Issue Date : 17 October 2025

Work Order No. : 25/1325

Part 7 Illumination and UV test performance

Illumination and Ultraviolet radiation (UV) measured at the work surface and cover using area grid installation lux meter and UVC meter at any position in below diagram relate with the size of cabinet



when ;

A = distance from wall 6.35 mm

B = distance from eadge 150 mm

C = distance of measured 300mm

L = wide of cabinet is 1.8 m

Diagrams of Illumination and UV measured on work surface

Illumination measured report at any position (Lux)

1	2	3	4	5	6	7	8	9	10	11	12
555	643	925	1142	1140	1370	1139	1411	885	1103	553	676

Mean of illumination at work surface (Lux)	Acceptance of illumination (Lux)	Judgment Refer EN 12496
962	> 750	Pass

* Acceptance criteria average not less than 750 lux refer to EN 12469 A.2

Ultraviolet radiation measured report at any position ($\mu\text{W}/\text{cm}^2$)

1	2	3	4	5	6	7	8	9	10	11	12
56	28	179	67	303	121	368	163	279	134	110	54

Mean of illumination at work surface ($\mu\text{W}/\text{cm}^2$)	Acceptance of illumination ($\mu\text{W}/\text{cm}^2$)	Judgment Refer to DMSC
155	> 40	Pass

* Acceptance criteria average not less than 40 $\mu\text{W}/\text{cm}^2$ refer to DMSC ISBN 978-616-11-2130-3 page 29

- DMSC is Department of Medical Sciences Ministry of Public Health

- Mean of illumination at work surface in report show data after correction value

Certificate of Calibration

LIQUID BATH



NSC-TISI-TIS 17025
CALIBRATION 0183

Page 1 of 3



Certificate No.: MC 2514415

Customer : Water Analysis Center Co., Ltd.
1/94 Moo 5, T.Kantham, A.U-Thai, Ayutthaya 13210.

Reference Job No. : 25-2871 Received Date : 12 December 2025

Description : Water Bath Resolution : 0.1 °C

Manufacturer : ESSTELL Model : EWB-122D

Serial No. : 20180508122 ID. No. : WWL 0214

Marking : Additionally for the purpose of identification by this laboratory a label marked
with this certificate number (MC 2514415) has been attached to the case.

Method : In-House calibration procedure MWI-T-029 this method is base on
ASTM E 715-2007 "Liquid Bath".

Location of Calibration : Water Analysis Center Co., Ltd. ; Laboratory.

Environmental Conditions : Ambient Temperature : (25.2 to 25.6) °C
Relative Humidity : (49.0 to 52.0) %

Date of Calibration : 12 December 2025 Date of Issue : 16 December 2025

The

This certificate is issued in accordance with the conditions of accreditation granted by the National Standardization Council of Thailand-Office of the National Standardization Council that has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of Master Calibration Co.,Ltd.

Certificate No.: MC 2514415

Page 2 of 3

Reference Standard Instrument :

Description	Certificate No.	Serial No.	Due date	Traceable thru
Data Acquisition/Switch Unit With RTD ID. No.10/1 to 10/5	MC 2503071	MY59002240	17 Mar 2026	MCAL

Traceability :

The measurement standard traceable to the international system of units (SI) through certificate as mentioned above

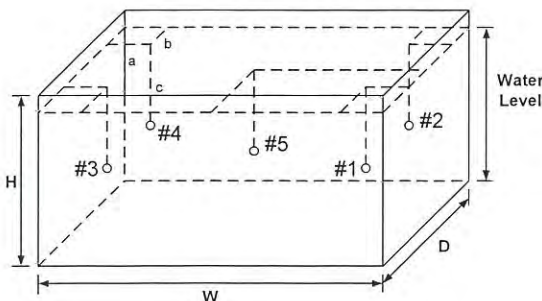
1. Calibration Procedure:

This Instrument was calibration according to ASTM E715 - 2007 by comparison with calibrated sensor under no load condition. The sensor were placed on five points and located one sensor in each of the eigh corners of the chamber and was away from the each wall of 5 cm to 10 cm. And placed the five sensor within 2.5 cm of the geometric center of the chamber.

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. The reference sensor should preferably be located at the geometric center of the chamber.

Temperature Stability - one-half of the greatest maximum difference of measured temperatures at any one sensor.

Overall Variation - The Difference of the maximum and minnum measured temperatures throughout observation.



- Overall Ambient Temperature around the Chamber variation : 0.4 °C
- Overall Line Voltage variator 0.0 V
- Chamber Size (W*H*D) : 50 cm x 12 cm x 30 cm
- Water Level : 7 cm

Certificate No.: MC 2514415

Page 3 of 3

2. Result of calibration :**Temperature Measurement Accuracy Test**

Indicating Temperature (°C)	Measured Temperature (°C) at Spread Locations					Uncertainty of measurement (±°C)
	#1	#2	#3	#4	Ref. #5	
45.0	44.38	44.53	44.62	44.56	44.50	0.80

Chamber Characterization Result

Desired Temperature (°C)	Controller Temperature (°C)	Indicating Temperature (°C)	Temperature Stability (±°C)	Temperature Uniformity (°C)	Overall Variation (°C)
44.5	45.0	45.0	0.66	0.79	1.45

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor $k = 2.0$, providing a level of confidence of approximately 95 %.

This certificate will certify of the calibrated equipment only.

End of Certificate

Certificate of Calibration

TEMPERATURE CONTROLLER ENCLOSURES



NSC-TISI-TIS 17025
CALIBRATION 0183

Page 1 of 3



Certificate No.: MC 2514417

Customer : Water Analysis Center Co., Ltd.
1/94 Moo 5, T.Kantham, A.U-Thai, Ayutthaya 13210.

Reference Job No. : 25-2871 Received Date : 12 December 2025
Description : Incubator Resolution : 0.1 °C
Manufacturer : Memmert Model : IN 260
Serial No. : D619.0170 ID. No. : WWL 0192
Marking : Additionally for the purpose of identification by this laboratory a label marked
with this certificate number (MC 2514417) has been attached to the case.
Method : In-house calibration procedure MWI-T-033 this method Base on
TLAS G-20-1/02-08 "Temperature Controlled Enclosures".
Location of Calibration : Water Analysis Center Co., Ltd. ; Laboratory.
Environmental Conditions : Ambient Temperature : (24.4 to 24.5) °C
Relative Humidity : (62.0 to 64.0) %
Date of Calibration : 12 December 2025 Date of Issue : 16 December 2025

The uncertainties are for a confidence probability of approximately 95%

This certificate is issued in accordance with the conditions of accreditation granted by the National Standardization Council of Thailand-Office of the National Standardization Council that has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of Master Calibration Co.,Ltd.

Certificate No.: MC 2514417

Page 2 of 3

Reference Standard Instrument :

Description	Certificate No.	Serial No.	Due date	Traceable thru
Data Acquisition/Switch Unit With RTD ID. No.29/1 to 29/9	MC 2504974	US37033620	6 May 2026	MCAL

Traceability :

The measurement standard traceable to the international system of units (SI) through certificate as mentioned above

1. Calibration Procedure:

This Instrument was calibration according to TLAS G-20 by comparison with calibrated thermocouple type T under no load condition. The Thermocouples were placed on nine points and located one thermocouple in each of the eigh corners of the chamber and was away from the each wall of 5 cm to 10 cm. And placed the ninth thermocouple within 2.5 cm of the geometric center of the chamber.

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. The reference sensor should preferably be located at the geometric center of the chamber.

Temperature Stability - one-half of the greatest maximum difference of measured temperatures at any one sensor.

Overall Variation - The Difference of the maximum and minnum measured temperatures throughout observation.

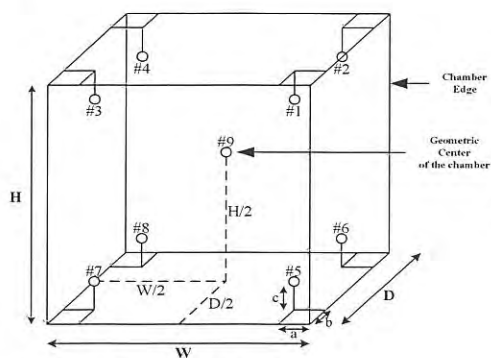


Figure 1 : Sensor Installation Location

Overall Ambient Temperature around the Chamber variation : 1.2 °C

Overall Line Voltage variation : 0.1 V

Chamber Size (W*H*D) : 65 cm x 80 cm x 50 cm

Certificate No.: MC 2514417

Page 3 of 3

2. Result of calibration :

Temperature Measurement Accuracy Test

Indicating Temperature (°C)	Measured Temperature (°C) at Spread Locations									Uncertainty (±°C)	* Uncertainty does not include stability. (±°C)
	#1	#2	#3	#4	#5	#6	#7	#8	Ref. #9		
35.0	34.99	35.00	35.02	34.91	34.88	35.00	35.03	34.91	35.04	0.28	0.27

(*) : Non Accredited

Chamber Characterization Result

Desired Temperature (°C)	Controller Temperature (°C)	Indicating Temperature (°C)	Temperature Stability (±°C)	Temperature Uniformity (°C)	Overall Variation (°C)
35.0	35.0	35.0	0.06	0.21	0.29

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor $k = 2.0$, providing a level of confidence of approximately 95 %.

This certificate will certify of the calibrated equipment only.

End of Certificate