FAQ / Information

Mutual Recognition Arrangements (MRA) / Multilateral Recognition Arrangements (MLA)

Mutual Recognition Arrangement (MRA) Partners for HOKLAS

Every effort is made to promote acceptance of test data from accredited laboratories, both internationally and locally. HKAS has concluded mutual recognition arrangements with accreditation bodies listed below by being one of the signatories of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and the Asia Pacific Accreditation Cooperation Mutual Recognition Arrangement (APAC MRA) for testing, calibration, medical testing, Proficiency Testing Providers (PTP) and Reference Material Producers (RMP). Click here to view the up-to-date signatories of ILAC and here to access the up-to-date signatories of APAC.

Visitors checking the names, logos and accreditation symbols shown on an endorsed certificate or report should note that some of our MRA partners may have their names, logos or accreditation symbols changed recently and test reports or certificates endorsed by displaying their old accreditation symbols may still be valid during the change-over period. For details, please visit their websites or contact them directly.

» Mutual Recognition Arrangement (MRA) Partners for HOKLAS

HKAS MRA partners will recognise HOKLAS endorsed test certificates as having the same technical validity as certificates endorsed by their respective schemes.

Multilateral Recognition Arrangements (MLA) for HKCAS

Mutual Recognition Arrangement (MRA) Partners for HKIAS

back

Hong Kong Laboratory Accreditation Scheme (HOKLAS) - Mutual Recognition Arrangement (MRA) Partners

Economy	Logo	Name of Partner	URL	Test Area
United Kingdom of Great Britain and Northern Ireland		United Kingdom Accreditation Service (UKAS)	http://www.ukas.com	Calibration, Medical Testing, Non-medical Testing, Proficiency Testing Provider, Reference Material Producer
United States of America		AIHA Laboratory Accreditation Programs, LLC (AIHA-LAP, LLC)	http://www.aihaaccreditedlabs.org/	Non-medical Testing
United States of America		American Association for Laboratory Accreditation (A2LA)	http://www.a2la.org	Calibration, Medical Testing, Non-medical Testing, Proficiency Testing Provider, Reference Material Producer
United States of America		ANSI National Accreditation Board (ANAB)	http://www.anab.org/	Calibration, Medical Testing, Non-medical Testing, Proficiency Testing Provider, Reference Material Producer
United States of America		International Accreditation Service Inc. (IAS)	http://www.iasonline.org/	Calibration, Medical Testing, Non-medical Testing
United States of America		National Accreditation Center LLC (NAC)		Calibration, Non-medical Testing
United States of America		National Voluntary Laboratory Accreditation Program (NVLAP)	http://www.nist.gov/nvlap	Calibration, Non-medical Testing

CERTIFICATE OF ACCREDITATION

This is to attest that

AQUALITY TESTCONSULT LIMITED

11A&B, KAI FONG GARDEN, PING CHE ROAD
FANLING, HONG KONG

Calibration Laboratory CL-207

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date February 19, 2024

President

Visit www.iasonline.org for current accreditation information.

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION PROCEDURE AND/OR STANDARD EQUIPMENT USED
			dimensional requirements as specified in BS 1881- Part 105: 1984)
Test Sieve[3]	4 mm to 50 mm	50 µm	Reference Caliper by direct measurement as per BS 410 : 1986
Elongation Gauge[3]	Gap between Pins of Gauge 10 mm to 100 mm	0.29 mm	Reference Caliper by direct measurement (Verification in accordance with in-house method for the dimensional requirements as specified in BS 812- Part 1:1975; BS 812- Part 105.2: 1990)
Flakiness Gauge[3]	Length of Slot of Gauge 4.9 mm to 33.9 mm	0.06 mm	Reference Caliper by direct measurement ((Verification in accordance with in-house method for the dimensional requirements as specified in BS 812- Part 1:1975; BS 812- Part105.1:1985; BS 812- Part105.1:1989)
Riffle Box[3]	Width 6 mm to 100 mm	0.06 mm	Reference Caliper by direct measurement (Verification in accordance with in-house method for the dimensional requirements as specified in BS 812- Part 1:1975)
Mechanical			
Force Measuring Machine[3] (Compression Mode)	1 kN to 3000 kN	0.4 %	Reference Load cell by direct measurement (Based on BS 1610: Part 1:1985; BS 1610: Part 1:1992; BS EN ISO 12390-4:2000 Annex B; BS EN 12390-4: 2019; BS EN ISO 7500-1:2004, BS EN ISO 7500-1: 2015, BS EN ISO 7500-1: 2018)
Laser Dust Meter[3]	Dust particles 0.1 mg/m^3 to 3 mg/m^3 3 mg/m^3 to 8 mg/m^3	0.006 mg/m^3 0.39 mg/m^3	By comparison method by using reference laser dust meter (Based on ISO 12103-1:2016)
Rebound Hammer[3]	80 unit (hardness)	1.6 rebound count	Reference Rebound count by comparison method (Based on BS1881: Part 202:1986; BS EN 12504-2:2001; BS EN

AQuality 東恒測試顧問有限公司
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TEL : 852-3582-9589 FAX : 852-2674-1177 EMAIL : cal.aqtl@gmail.com WEBSITE: www.aqtlgroup.com

CERTIFICATE OF CALIBRATION

Report Number : 250727MCA-223F
Date of Report : 1-Aug-25
Page Number : 1 of 2
Customer * : Apex Testing & Certification Ltd.
Customer Address* : Unit D6A, 10/F, TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., HK
Customers Ref. * : A005

Item Under Calibration (IUC)*
Equipment No. : N/A
Manufacturer : Sibata Scientific Technology Ltd
Model No. : LD-3B
Serial No. : 336338
Scale Division : 0.001 mg/m3
Range : 0.001 to 1 mg/m3
Condition of Item : Normal

Date Item Received : 27-Jul-25
Date Calibrated : 27-Jul-25
Calibration Location : AQuality Calibration Lab.
Date of Next Calibration : 26-Jul-26
Calibrated By : Jessica Liu

Test Environment
Ambient Temperature : 28.2 °C to 30.4 °C
Relative Humidity : 76 % to 80 %

Calibration Results

Reference True Reading (mg/m3)	Average IUC Reading (mg/m^3)	Correction (mg/m^3)	Error of IUC Reading (%)	Coverage Factor K
0.125	0.132	0.007	5.6%	2.0
0.394	0.418	0.024	6.1%	2.0
0.884	0.950	0.066	7.5%	2.0

Remarks :
1. * Denotes information supplied by customer.
2. The results relate only to the items calibrated.
3. The results apply to the items as received.
4. Correction = Average of (Ref reading - IUC reading)
5. The technical requirement of laser dust meter. +/- 20% error for the particles concentration.

Approved by: _____
LEE Mei Yee, Julia
Managing Director

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CERTIFICATE OF CALIBRATION

Report Number : 250727MCA-223F
Date of Report : 1-Aug-25

Customer * : Apex Testing & Certification Ltd.
Customers Ref. * : A005

Details of Calibration

1. The calibration was performed in accordance with AQuality Testconsult Procedure Number ENV-L-003 (in-house method), by comparison with the laboratory's reference equipment which have traceable international standards of measurement.

2. The item under calibration (IUC) was allowed to stabilize in the laboratory for 0.25 hour before commencement of calibration.

3. A set of readings were made at each calibration concentration. The values quoted in the results are the average of each set of readings.

4. The values given in this calibration certificate only relate to the values measured at the time of calibration. Any uncertainties quoted do not include allowance for the capabiliy of any other laboratory to repeat the measurement. The uncertainty quoted relate only to item at time of calibration. AQuality Testconsult Limited is not liable for any loss or damage resulting from the use of this equipment.

5. The identification, calibration certificate numbers for the reference equipment used were as follows :

Equipment Number	Certificate Number	Description
CH-LDM-1	CC1592412	粉尘测试仪

6. Copies of the Calibration certificates of the reference equipment used in this calibration may be obtained from AQuality Testconsult Limited, if necessary.

- End of Report -

AQuality
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TEL : 852-3582-9589
FAX : 852-2674-1177
EMAIL : cal.aqtl@gmail.com
WEBSITE: www.aqtlgroup.com

CERTIFICATE OF CALIBRATION

Apex Testing & Certification Ltd. Unit D6A, 10/F, TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., HK	Test Report No.	250727MCA-223F
	Date of Issue	1-Aug-25
	Date of Testing	27-Jul-25
	Page	1 of 1

Item for Calibration

Description : Laser Dust Monitor
Manufacturer : Sibata Scientific Technology Ltd
Model No. : LD-3B
Serial No. : 336338

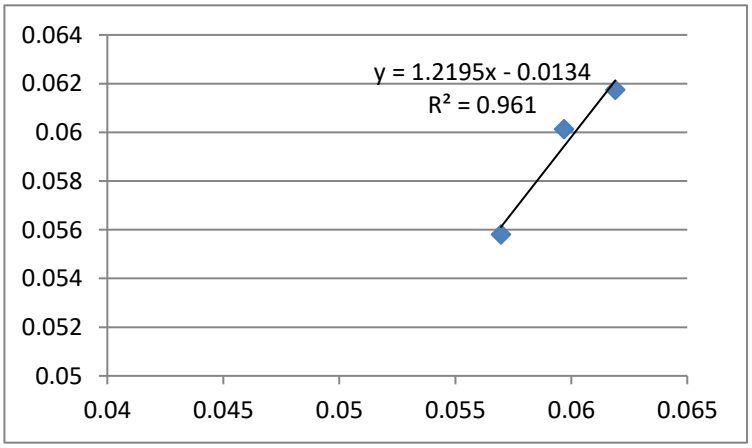
Standard Equipment

Description : High Volume Sampler / Calibration Orifice
Manufacturer : Tisch Environmental, Inc.
Model No. : TE-5170 / TE-5025A
Serial No. 3476 / 4088
Last Calibration : 17-AUG-24 / 7-NOV-23

Date	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration Standard Equipment (mg/m3)	Concentration Calibrated Equipment (mg/m3)
27-Jul-25	19:00	29.3	1000.1	0.0619	0.0617
27-Jul-25	20:05	29.3	1000.1	0.0570	0.0558
27-Jul-25	21:10	29.3	1000.1	0.0597	0.0601

By Linear Regression of Y or X

Slope : 1.2195
Correlation Coefficient : 0.9610
K-Factor : 1.0054
Validity of Calibration : 26-Jul-26



Recorded by : Jessica Liu Signature: Jessica Date: 27-Jul-25

Checked by : S Tang Signature: Tang Date: 27-Jul-25

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CERTIFICATE OF CALIBRATION

Report Number : 250727MCA-222F
Date of Report : 1-Aug-25
Page Number : 1 of 3
Customer * : Apex Testing & Certification Ltd.
Customer Address* : Unit D6A, 10/F, TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., HK
Customers Ref. * : A005

Item Under Calibration (IUC)*
Equipment No. : N/A
Manufacturer : Sibata Scientific Technology Ltd
Model No. : LD-3B
Serial No. : 276004
Scale Division : 0.001 mg/m3
Range : 0.001 to 1 mg/m3
Condition of Item : Normal

Date Item Received : 27-Jul-25
Date Calibrated : 27-Jul-25
Calibration Location : AQuality Calibration Lab.
Date of Next Calibration : 26-Jul-26
Calibrated By : Jessica Liu

Test Environment
Ambient Temperature : 28.2 °C to 30.4 °C
Relative Humidity : 76 % to 80 %

Calibration Results

Reference True Reading (mg/m3)	Average IUC Reading (mg/m^3)	Correction (mg/m^3)	Error of IUC Reading (%)	Coverage Factor K
0.125	0.117	0.007	6.0%	2.0
0.394	0.371	0.023	5.9%	2.0
0.884	0.834	0.050	5.7%	2.0

Remarks :
1. * Denotes information supplied by customer.
3. The results relate only to the items calibrated.
3. The results apply to the items as received.
4. Correction = Average of (Ref reading - IUC reading)
5. The technical requirement of laser dust meter. +/- 30% error for the particles concentration.

Approved by: _____
LEE Mei Yee, Julia
Managing Director

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CERTIFICATE OF CALIBRATION

Report Number : 250727MCA-222F
Date of Report : 1-Aug-25

Customer * : Apex Testing & Certification Ltd.
Customers Ref. * : A005

Details of Calibration

1. The calibration was performed in accordance with AQuality Testconsult Procedure Number ENV-L-003 (in-house method), by comparison with the laboratory's reference equipment which have traceable international standards of measurement.

3. The item under calibration (IUC) was allowed to stabilize in the laboratory for 0.35 hour before commencement of calibration.

3. A set of readings were made at each calibration concentration. The values quoted in the results are the average of each set of readings.

4. The values given in this calibration certificate only relate to the values measured at the time of calibration. Any uncertainties quoted do not include allowance for the capabiliy of any other laboratory to repeat the measurement. The uncertainty quoted relate only to item at time of calibration. AQuality Testconsult Limited is not liable for any loss or damage resulting from the use of this equipment.

5. The identification, calibration certificate numbers for the reference equipment used were as follows :

Equipment Number	Certificate Number	Description
CH-LDM-1	CC1592412	粉尘测试仪

6. Copies of the Calibration certificates of the reference equipment used in this calibration may be obtained from AQuality Testconsult Limited, if necessary.

- End of Report -

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CERTIFICATE OF CALIBRATION

Apex Testing & Certification Ltd. Unit D6A, 10/F, TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., HK	Test Report No.	250727MCA-222F
	Date of Issue	1-Aug-25
	Date of Testing	27-Jul-25
	Page	1 of 1

Item for Calibration

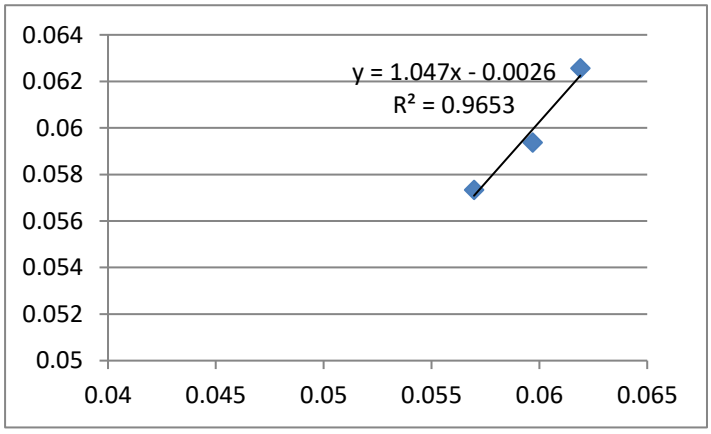
Description : Laser Dust Monitor
Manufacturer : Sibata Scientific Technology Ltd
Model No. : LD-3B
Serial No. : 276004

Standard Equipment

Description : High Volume Sampler / Calibration Orifice
Manufacturer : Tisch Environmental, Inc.
Model No. : TE-5170 / TE-5025A
Serial No. 3476 / 4088
Last Calibration : 17-AUG-24 / 7-NOV-23

Date	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration Standard Equipment (mg/m3)	Concentration Calibrated Equipment (mg/m3)
27-Jul-25	19:00	29.3	1000.1	0.0619	0.0626
27-Jul-25	20:05	29.3	1000.1	0.0570	0.0573
27-Jul-25	21:10	29.3	1000.1	0.0597	0.0594

By Linear Regression of Y or X
Slope : 1.0470
Correlation Coefficient : 0.9653
K-Factor : 0.9961
Validity of Calibration : 26-Jul-26



Recorded by : Jessica Liu Signature: Jessica Date: 27-Jul-25

Checked by : S Tang Signature: Tang Date: 27-Jul-25

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CERTIFICATE OF CALIBRATION

Report Number : 250727MCA-221F
Date of Report : 1-Aug-25
Page Number : 1 of 2
Customer * : Apex Testing & Certification Ltd.
Customer Address* : Unit D6A, 10/F, TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., HK
Customers Ref. * : A005

Item Under Calibration (IUC)*
Equipment No. : N/A
Manufacturer : Sibata Scientific Technology Ltd
Model No. : LD-3B
Serial No. : 476672
Scale Division : 0.001 mg/m3
Range : 0.001 to 1 mg/m3
Condition of Item : Normal

Date Item Received : 27-Jul-25
Date Calibrated : 27-Jul-25
Calibration Location : AQuality Calibration Lab.
Date of Next Calibration : 26-Jul-26
Calibrated By : Jessica Liu

Test Environment
Ambient Temperature : 28.2 °C to 30.4 °C
Relative Humidity : 76 % to 80 %

Calibration Results

Reference True Reading (mg/m3)	Average IUC Reading (mg/m^3)	Correction (mg/m^3)	Error of IUC Reading (%)	Coverage Factor K
0.125	0.130	0.006	4.6%	2.0
0.394	0.423	0.028	7.2%	2.0
0.884	0.933	0.049	5.5%	2.0

Remarks :
1. * Denotes information supplied by customer.
2. The results relate only to the items calibrated.
3. The results apply to the items as received.
4. Correction = Average of (Ref reading - IUC reading)
5. The technical requirement of laser dust meter. +/- 20% error for the particles concentration.

Approved by: _____
LEE Mei Yee, Julia
Managing Director

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CERTIFICATE OF CALIBRATION

Report Number : 250727MCA-221F
Date of Report : 1-Aug-25

Customer * : Apex Testing & Certification Ltd.
Customers Ref. * : A005

Details of Calibration

1. The calibration was performed in accordance with AQuality Testconsult Procedure Number ENV-L-003 (in-house method), by comparison with the laboratory's reference equipment which have traceable international standards of measurement.

2. The item under calibration (IUC) was allowed to stabilize in the laboratory for 0.25 hour before commencement of calibration.

3. A set of readings were made at each calibration concentration. The values quoted in the results are the average of each set of readings.

4. The values given in this calibration certificate only relate to the values measured at the time of calibration. Any uncertainties quoted do not include allowance for the capabiliy of any other laboratory to repeat the measurement. The uncertainty quoted relate only to item at time of calibration. AQuality Testconsult Limited is not liable for any loss or damage resulting from the use of this equipment.

5. The identification, calibration certificate numbers for the reference equipment used were as follows :

Equipment Number	Certificate Number	Description
CH-LDM-1	CC1592412	粉尘测试仪

6. Copies of the Calibration certificates of the reference equipment used in this calibration may be obtained from AQuality Testconsult Limited, if necessary.

- End of Report -

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CERTIFICATE OF CALIBRATION

Apex Testing & Certification Ltd. Unit D6A, 10/F, TML Tower, 3 Hoi Shing Road, Tsuen Wan, N.T., HK	Test Report No.	250727MCA-221F
	Date of Issue	1-Aug-25
	Date of Testing	27-Jul-25
	Page	1 of 1

Item for Calibration

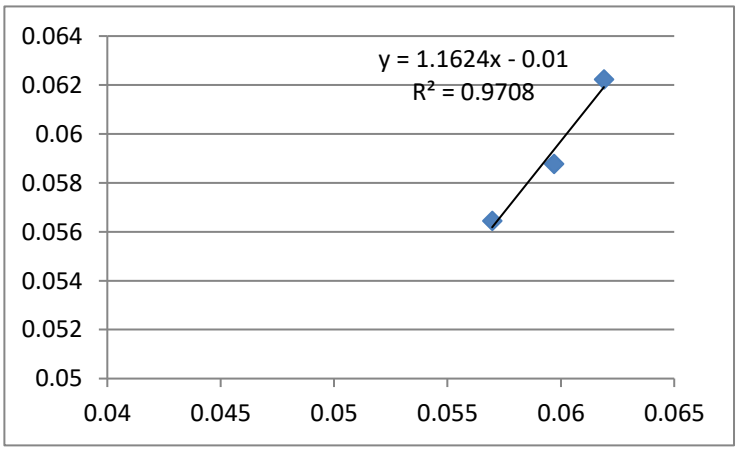
Description : Laser Dust Monitor
Manufacturer : Sibata Scientific Technology Ltd
Model No. : LD-3B
Serial No. : 476672

Standard Equipment

Description : High Volume Sampler / Calibration Orifice
Manufacturer : Tisch Environmental, Inc.
Model No. : TE-5170 / TE-5025A
Serial No. 3476 / 4088
Last Calibration : 17-AUG-24 / 7-NOV-23

Date	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration Standard Equipment (mg/m3)	Concentration Calibrated Equipment (mg/m3)
27-Jul-25	19:00	29.3	1000.1	0.0619	0.0622
27-Jul-25	20:05	29.3	1000.1	0.0570	0.0564
27-Jul-25	21:10	29.3	1000.1	0.0597	0.0588

By Linear Regression of Y or X
Slope : 1.1624
Correlation Coefficient : 0.9708
K-Factor : 1.0066
Validity of Calibration : 26-Jul-26



Recorded by : Jessica Liu Signature: Jessica Date: 27-Jul-25

Checked by : S Tang Signature: Tang Date: 27-Jul-25

TISCH Environmental

RECALIBRATION DUE DATE:
September 9, 2026

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	September 9, 2025	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 754.9	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **4088**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4460	3.2	2.00
2	3	4	1	1.0320	6.4	4.00
3	5	6	1	0.9210	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7240	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H(Ta/Pa)}$ (y-axis)
1.0025	0.6933	1.4190	0.9958	0.6886	0.8826
0.9983	0.9673	2.0068	0.9915	0.9608	1.2481
0.9961	1.0816	2.2436	0.9894	1.0743	1.3955
0.9951	1.1256	2.3532	0.9883	1.1180	1.4636
0.9897	1.3670	2.8380	0.9830	1.3578	1.7651
QSTD	**m=**	**2.11142**	**QA**	**m=**	**1.32213**
	b=	**-0.03845**		**b=**	**-0.02391**
	r=	**0.99983**		**r=**	**0.99983**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H(Ta/Pa)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

TE-5170 Calibration Worksheet

Site Information

Location:	AM3A	Site ID:	Zones 2A at West Kowloon Cultural	Date:	31-Oct-25
Sampler:	TE-5170	Serial No:	4340	Tech:	CS Tang

Site Conditions

Barometric Pressure (in Hg):	29.99	Corrected Pressure (mm Hg):	762
Temperature (deg F):	80	Temperature (deg K):	300
Average Press. (in Hg):	29.99	Corrected Average (mm Hg):	762
Average Temp. (deg F):	80	Average Temp. (deg K):	300

Calibration Orifice

Make:	Tisch	Qstd Slope:	2.11142
Model:	TE-5025A	Qstd Intercept:	-0.03845
Serial#:	4088	Date Certified:	9-Sep-25

Calibration Information

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.70	1.703	53.0	52.92
2	10.60	1.558	48.0	47.93
3	7.60	1.322	41.0	40.94
4	4.70	1.043	33.0	32.95
5	2.70	0.795	23.0	22.96

Linear Regression

Slope:	32.1388
Intercept:	-1.7385
Corr. Coeff:	0.9980
# of Observations:	5

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

Average I (chart): 40
Average Flow Calculation m3/min
1.284365835
Average Flow Calculation in CFM
45.35095762
Sample Time (Hrs): 1.0
Total Flow in m3/min
77.06195007
Total Flow in CFM
2721.057457

NOTE: Ensure calibration orifice has been certified within 12 months of use

TE-5170 Calibration Worksheet

Site Information

Location:	AM4A	Site ID:	Zones 2A at West Kowloon Cultural	Date:	31-Oct-25
Sampler:	TE-5170	Serial No:	3998	Tech:	CS Tang

Site Conditions

Barometric Pressure (in Hg):	29.99	Corrected Pressure (mm Hg):	762
Temperature (deg F):	80	Temperature (deg K):	300
Average Press. (in Hg):	29.99	Corrected Average (mm Hg):	762
Average Temp. (deg F):	80	Average Temp. (deg K):	300

Calibration Orifice

Make:	Tisch	Qstd Slope:	2.11142
Model:	TE-5025A	Qstd Intercept:	-0.03845
Serial#:	4088	Date Certified:	9-Sep-25

Calibration Information

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.60	1.697	53.0	52.92
2	10.40	1.543	48.0	47.93
3	7.70	1.330	41.0	40.94
4	4.50	1.021	33.0	32.95
5	2.60	0.781	23.0	22.96

Linear Regression

Slope:	31.7578
Intercept:	-0.9363
Corr. Coeff:	0.9973
# of Observations:	5

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

Average I (chart): 40
Average Flow Calculation m3/min
1.274512154
Average Flow Calculation in CFM
45.00302417
Sample Time (Hrs): 1.0
Total Flow in m3/min
76.47072927
Total Flow in CFM
2700.18145

NOTE: Ensure calibration orifice has been certified within 12 months of use

TE-5170 Calibration Worksheet

Site Information

Location:	AM5A	Site ID:	Zones 2A at West Kowloon Cultural	Date:	31-Oct-25
Sampler:	TE-5170	Serial No:	4344	Tech:	CS Tang

Site Conditions

Barometric Pressure (in Hg):	29.99	Corrected Pressure (mm Hg):	762
Temperature (deg F):	80	Temperature (deg K):	300
Average Press. (in Hg):	29.99	Corrected Average (mm Hg):	762
Average Temp. (deg F):	80	Average Temp. (deg K):	300

Calibration Orifice

Make:	Tisch	Qstd Slope:	2.11142
Model:	TE-5025A	Qstd Intercept:	-0.03845
Serial#:	4088	Date Certified:	9-Sep-25

Calibration Information

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.70	1.703	53.0	52.92
2	10.50	1.551	48.0	47.93
3	7.40	1.305	41.0	40.94
4	4.50	1.021	33.0	32.95
5	2.60	0.781	23.0	22.96

Linear Regression

Slope:	31.5458
Intercept:	-0.5913
Corr. Coeff:	0.9971
# of Observations:	5

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

Average I (chart): 40
Average Flow Calculation m3/min
1.272141272
Average Flow Calculation in CFM
44.91930832
Sample Time (Hrs): 1.0
Total Flow in m3/min
76.32847632
Total Flow in CFM
2695.158499

NOTE: Ensure calibration orifice has been certified within 12 months of use

TE-5170 Calibration Worksheet

Site Information

Location:	AM3A	Site ID:	Zones 2A at West Kowloon Cultural	Date:	23-Dec-25
Sampler:	TE-5170	Serial No:	4340	Tech:	CS Tang

Site Conditions

Barometric Pressure (in Hg):	30.04	Corrected Pressure (mm Hg):	763
Temperature (deg F):	68	Temperature (deg K):	293
Average Press. (in Hg):	30.04	Corrected Average (mm Hg):	763
Average Temp. (deg F):	68	Average Temp. (deg K):	293

Calibration Orifice

Make:	Tisch	Qstd Slope:	2.11142
Model:	TE-5025A	Qstd Intercept:	-0.03845
Serial#:	4088	Date Certified:	9-Sep-25

Calibration Information

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.90	1.737	53.0	53.56
2	10.70	1.584	48.0	48.50
3	7.50	1.329	41.0	41.43
4	4.60	1.045	33.0	33.35
5	2.60	0.790	23.0	23.24

Linear Regression

Slope:	31.1626
Intercept:	-0.3978
Corr. Coeff:	0.9976
# of Observations:	5

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

Average I (chart): 40
Average Flow Calculation m3/min
1.2968544
Average Flow Calculation in CFM
45.79192885
Sample Time (Hrs): 1.0
Total Flow in m3/min
77.81126398
Total Flow in CFM
2747.515731

NOTE: Ensure calibration orifice has been certified within 12 months of use

TE-5170 Calibration Worksheet

Site Information

Location:	AM4A	Site ID:	Zones 2A at West Kowloon Cultural	Date:	23-Dec-25
Sampler:	TE-5170	Serial No:	3998	Tech:	CS Tang

Site Conditions

Barometric Pressure (in Hg):	30.04	Corrected Pressure (mm Hg):	763
Temperature (deg F):	68	Temperature (deg K):	293
Average Press. (in Hg):	30.04	Corrected Average (mm Hg):	763
Average Temp. (deg F):	68	Average Temp. (deg K):	293

Calibration Orifice

Make:	Tisch	Qstd Slope:	2.11142
Model:	TE-5025A	Qstd Intercept:	-0.03845
Serial#:	4088	Date Certified:	9-Sep-25

Calibration Information

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.70	1.724	53.0	53.56
2	10.40	1.562	48.0	48.50
3	7.80	1.355	41.0	41.43
4	4.70	1.056	33.0	33.35
5	2.70	0.805	23.0	23.24

Linear Regression

Slope:	32.3243
Intercept:	-2.0095
Corr. Coeff:	0.9981
# of Observations:	5

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

Average I (chart): 40
Average Flow Calculation m3/min
1.300109282
Average Flow Calculation in CFM
45.90685873
Sample Time (Hrs): 1.0
Total Flow in m3/min
78.00655689
Total Flow in CFM
2754.411524

NOTE: Ensure calibration orifice has been certified within 12 months of use

TE-5170 Calibration Worksheet

Site Information

Location:	AM5A	Site ID:	Zones 2A at West Kowloon Cultural	Date:	23-Dec-25
Sampler:	TE-5170	Serial No:	4344	Tech:	CS Tang

Site Conditions

Barometric Pressure (in Hg):	30.04	Corrected Pressure (mm Hg):	763
Temperature (deg F):	68	Temperature (deg K):	293
Average Press. (in Hg):	30.04	Corrected Average (mm Hg):	763
Average Temp. (deg F):	68	Average Temp. (deg K):	293

Calibration Orifice

Make:	Tisch	Qstd Slope:	2.11142
Model:	TE-5025A	Qstd Intercept:	-0.03845
Serial#:	4088	Date Certified:	9-Sep-25

Calibration Information

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.60	1.717	53.0	53.56
2	10.60	1.576	48.0	48.50
3	7.40	1.320	41.0	41.43
4	4.40	1.022	33.0	33.35
5	2.40	0.760	23.0	23.24

Linear Regression

Slope:	30.6589
Intercept:	0.8015
Corr. Coeff:	0.9978
# of Observations:	5

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

Average I (chart):	40
Average Flow Calculation m3/min	1.279046157
Average Flow Calculation in CFM	45.16311981
Sample Time (Hrs):	1.0
Total Flow in m3/min	76.74276944
Total Flow in CFM	2709.787189

NOTE: Ensure calibration orifice has been certified within 12 months of use

华南国家计量测试中心
广东省计量科学研究院
SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

中国认可
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校准
CALIBRATION
CNAS L0730

校准证书

CALIBRATION CERTIFICATE

证书编号 SXE202510293 第 1 页，共 4 页
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计量器具名称 Description	声校准器
型号/规格 Model/Type	AWA6221A
制造厂 Manufacturer	HANGZHOU AIHUA INSTRUMENTS CO., LTD.
出厂编号 Serial No.	AWA6221A0439E
设备管理编号 Equipment No.	FYH-QM4-NG-119
接收日期 Receipt on	2025 年 06 月 06 日 (Y M D)
结论 Conclusion	符合JJG 176-2022（1级）技术要求 Comply with the requirements for JJG 176-2022(for Class 1)
校准日期 Calibration on	2025 年 06 月 11 日 (Y M D)
发布日期 Issue on	2025 年 06 月 12 日 (Y M D)

批 准 Authorized by 李敏毅
核 验 Reviewed by 李广智
校 准 Calibrated by 何卓斌

证书专用章

扫一扫查真伪

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证书真伪查询：www.scm.com.cn；cert.scm.com.cn Certificate AuthenticityIdentify: www.scm.com.cn；cert.scm.com.cn
计量标准考核证书号：[1992]国量标粤证字第085号
Certificate No. for Examination of measurement standard

校 准 结 果
RESULTS OF CALIBRATION

证书编号 SXE202510293 原始记录号 SXE202510293 第 3 页,共 4 页
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1 外观： 符合要求

Apparent inspection: Pass

2 声压级：见表1

Sound Pressure Level: Shown in table 1

表1 Table 1

标称频率/Hz Nominal Frequency	规定声压级/dB Specified sound pressure level	测得的声压级/dB Measured sound pressure level	测得的声压级与规定声压级之差的绝对值/dB Absolute value of Error	接受限/dB Acceptance limit	结论 Conclusion
1000	94	93.96	0.04	0.25	符合要求(Pass)
1000	114	114.01	0.01	0.25	符合要求(Pass)

3 频率：见表2

Frequency: Shown in table 2

表2 Table 2

规定频率/Hz Specified frequency	标称声压级/dB Nominal sound pressure level	测得的频率/Hz Measured frequency	测得的频率与规定频率相对误差的绝对值/% Absolute value of Error	接受限/% Acceptance limit	结论 Conclusion
1000	94	998.95	0.1051	0.7	符合要求(Pass)
1000	114	998.99	0.1014	0.7	符合要求(Pass)

4 总失真+噪声： 见表3

Total distortion + noise: Shown in table 3

表3 Table 3

规定频率/Hz Specified frequency	标称声压级/dB Nominal sound pressure level	总失真+噪声/% Total Distortion+ noise	接受限/% Acceptance limit	结论 Conclusion
1000	94	0.1	2.5	符合要求(Pass)
1000	114	0.3	2.5	符合要求(Pass)

说　明

证书编号 SXE202510293　　第 2 页，共 4 页
Certificate No.　　**DIRECTIONS**　　Page of

1. 本中心是国家市场监督管理总局在华南地区设立的国家法定计量检定机构，本中心的质量管理体系符合ISO/IEC 17025:2017标准的要求。

This laboratory is the National Legal Metrological Verification Institution in southern China set up by the State Administration for Market Regulation. The quality system is in accordance with ISO/IEC 17025:2017.

2. 本中心所出具的数据均可溯源至国家计量基准和/或国际单位制(SI)。

All data issued by this laboratory are traceable to national primary standards and/or International System of Units (SI).

3. 校准地点、环境条件：

Location and environmental conditions of the calibration:

地点 Location　声学/振动实验室 Acoustics/Vibration Lab.　温度 Temperature　(25±1) ℃　相对湿度 R.H.　(40～50) %

4. 本次校准的技术依据：

Reference documents for the calibration:

JJG 176-2022 声校准器检定规程　V.R. of Sound Calibrators

5. 本次校准所使用的主要计量标准器具：

Major standards of measurement used in the calibration:

设备名称/型号规格/测量范围 Name of Equipment /Model/Type/Range	编号 Serial No.	证书号/有效期/溯源单位 Certificate No./Due Date /Traceability to	计量特性 Metrological Characteristic
动态信号分析仪 Dynamical Signal Analyzer /3560C (3110模块) /0.1 Hz～200 kHz	2392397	SXE202500778 /2026-04-16 /本中心	电压:U_{rel}=0.2%, 频率:U_{rel}=0.002% (k=2) Voltage:U_{rel}=0.2%, Frequency :U_{rel}=0.002% (k=2)
工作标准传声器 Working standard microphone /4190/20 Hz～20 kHz	2383233	SXE202500423 /2026-03-03 /本中心	20 Hz～4 kHz, U=0.20dB 5 kHz～20 kHz, U=0.50dB (k=2)
声校准器 Sound Level Calibrator /4231/94 dB, 114 dB	2730392	SXE202500307 /2026-02-09 /本中心	1 级 Class 1

注：1. 本证书校准结果只与受校准仪器有关。The results relate only to the items calibrated.

Note: 2. 未经本机构书面批准，不得部分复制此证书。This certificate shall not be reproduced except in full, without the written approval of our laboratory.

3. “客户名称”、“联络信息”由委托方提供，“制造厂”、“型号规格”、“出厂编号”以及“设备编号”为仪器上标注，委托方对上面内容如有异议，须在收到证书后二十个工作日内提出。

The information **Name of the Customer** and **Contact Information** are provided by client, and the **Manufacturer, Model/Type, Serial No.** and **Equipment No.** are marked on the items. Client shall submit any objection within 20 working days after receiving the certificate for the information above.

校 准 结 果
RESULTS OF CALIBRATION

证书编号 SXE202510293 原始记录号 SXE202510293 第 4 页,共 4 页
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说明：

Note:

1 测量结果扩展不确定度：

Expanded uncertainty of measurement results:

声压级：U=0.15 dB，频率：U_{rel}=0.1%，总失真+噪声：U=0.4%，包含因子：k=2

Sound Pressure Level , Frequency , Total distortion + noise , Coverage factor

2 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度评定与表示》评定，由合成标准不确定度乘以包含概率约为95%时对应的包含因子k得到。

The expanded uncertainty given in this certificate is evaluated according to JJF 1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", which is obtained by multiplying the combined standard uncertainty by the coverage factor k corresponding to the coverage probability of about 95%.

3 校准结果符合性判定依据JJF 1094-2002《测量仪器特性评定》之5.3.1和JJG 176-2022《声校准器检定规程》。

Decision rules of conformity are JJF 1094-2002 *Evaluation of the Characteristics of Measuring Instruments* (5.3.1) and JJG 176-2022 *V.R. of Sound Calibrators*.

4 结论：被校准仪器校准结果符合 JJG 176-2022 (1级)全部后续项目技术要求。

Conclusion: The data of instrument calibrated comply with the technical characteristics of all subsequent items in JJG 176-2022 (for Class 1).

5 该仪器的溯源日期为本证书的"校准日期"，由于复校时间间隔的长短是由仪器的使用情况、使用者、仪器本身质量等诸因素所决定的，因此，送校单位可根据实际使用情况自主决定复校时间间隔。更换重要部件、维修或对仪器性能有怀疑时，应及时校准。

The traceability date of this instrument is the "Calibration Date" on this certificate, Since the calibration interval is determined by the use of the instrument, operation of the user, the quality of the instrument itself and other factors, the re-calibration date can be decided by the user according to the actual situation. In case of replacement of important parts, maintenance or doubt on the performance of the instrument, it shall be calibrated in time.

6 校准活动中对测量结果有影响的条件：

Conditions under which the calibrations were made that have an influence on the measurement results

温度（Temperature）：（25±1）℃

湿度（Humidity）：（40~50）%RH

静压（Static pressure）：（100.0~101.0）kPa

CTI

中国认可
国际互认
校准
CALIBRATION
CNAS L5102

华测计量检测有限公司

CTI MEASUREMENT AND TESTING CO., LTD.

校准证书

Calibration Certificate

证书编号 Certificate No.	C2501141610001	第1页共7页 Page of	
委托单位 Customer	上峰检测认证有限公司		
委托单位地址 Address	香港荃湾海盛路3号TML广场10楼D6A室		
器具名称 Name of instrument	声级计		
型号规格 Model	AWA5661		
制造商 Manufacturer	杭州爱华仪器有限公司		
出厂编号 Serial No.	341483	管理编号 Management No.	--------
接收日期 Received date	2025/01/15	校准日期 Calibration date	2025/01/20
发布日期 Issue date	2025/01/20	建议下次校准日期 Next calibration date	2026/01/19

华测计量检测有限公司 CTI MEASUREMENT AND TESTING CO., LTD. 校准专用章 Calibration Seal

证书/报告章
Stamp

批准 Approved by	曾财萍
审核 Inspected by	刘然
校准 Calibrated by	张翔

总部地址：广东省深圳市宝安区西乡街道铁岗社区桃花源科技创新园B、C栋
Headquarter address: Building B and C, Taohuayuan Sci-Tech Innovation Park, Tiegang Community, Xixiang Sub-district, Bao'an District, Shenzhen, Guangdong, China
实验室地址：广东省深圳市宝安区西乡街道铁岗社区桃花源科技创新园B、C栋
Laboratory address: Building B and C, Taohuayuan Sci-Tech Innovation Park, Tiegang Community, Xixiang Sub-district, Bao'an District, Shenzhen, Guangdong, China
邮编 Post code：518101 电话 Tel.：86-755-33682045 电子邮箱 E-mail：calibration@cti-cert.com

说 明

Directions

1. **本证书校准结果均可溯源至国际单位制（SI）单位。**
The results are traceable to International System of Units(SI).

2. **证书未盖本公司证书/报告章及骑缝章无效。未经本公司书面批准，不得部分复制此证书。**
Any certificate is deemed to be invalid without both the certificate/report seal and its across-page seal. This certificate shall not be copied partly without the written approval.

3. **本证书校准结果只与受校准仪器有关。如证书中的英文内容与中文内容有差异，以中文为准。**
The results relate only to the items calibrated. In case of any discrepancy between the English version and Chinese version of the certificate(if generated), the Chinese version shall prevail.

4. **本次校准的技术依据：**
Reference documents for the calibration
JJG 188-2017 声级计检定规程

5. **校准地点、环境条件：**
Place and environment condition during calibration
地点：本实验室力学室(6)
Place
温度：21.2℃ 相对湿度：41%
Temperature R.H.

计量溯源性声明

6. **本次校准所使用的主要计量标准器具：**
Main mearsurement standards used in the calibration

名称/型号规格 Name/Model	编号 Serial No.	测量范围 Measurement range	准确度等级/最大允许误差/不确定度 Accuracy class/Maximum permissible error/Uncertainty	证书号/溯源机构 Certificate No./Traceability to	有效期 Due date
消声箱 AWA188	080312	10Hz~20kHz （20~130）dB	U=0.8dB,k=2	JL2411712691 深圳市计量质量检测研究院	2025/09/09
测试声源(扬声器) AWA5511A	090677	20Hz~20kHz	最大声压级:U=0.6dB,k=2 声源稳定性:U=0.6dB,k=2 总失真:U_{rel}=2.7%,k=2 频率响应:U=0.6dB,k=2	SXE202401131 广东省计量科学研究院	2025/07/16
信号发生器 AWA1650	089943	0.5Hz~20kHz	电压：U_{rel}=0.2%,k=2 频率：U_{rel}=0.1%,k=2	SXE202401156 广东省计量科学研究院	2025/07/18
测量放大器 AWA5810D	089909	4Hz~20kHz	灵敏度：U=0.04dB,k=2 频率计权：U=0.2dB,k=2 线性计权： 4Hz ~ 10Hz:U=0.11dB,k=2 10Hz ~ 20kHz:U=0.04dB,k=2	SXE202483068 广东省计量科学研究院	2025/07/22
声校准器 4231	3014336	94dB~114dB	1级	SXE202411381 广东省计量科学研究院	2025/07/16

说 明

Directions

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名称/型号规格 Name/Model	编号 Serial No.	测量范围 Measurement range	准确度等级/最大允许误差/不确定度 Accuracy class/Maximum permissible error/Uncertainty	证书号/溯源机构 Certificate No./Traceability to	有效期 Due date
有源耦合腔 AWA6153S+	2006409	10Hz~400kHz	声压级:U=0.2dB,k=2 失真度:U=0.2%,k=2	SXE202483069 广东省计量科学研究院	2026/07/22
声频功率放大器 AWA5871	080649	/	U=0.03dB,k=2	SXE202401155 广东省计量科学研究院	2025/07/18
实验室标准传声器 4180	3055317	10Hz~25000Hz	U=(0.05~0.12)dB,k=2	LSsx2024-05614 中国计量科学研究院	2025/05/15

校准结果

Results of calibration

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1. 外观及工作正常性检查
Appearance and function check
正常 Normal

2. 指示声级调整（1000HZ）

声级计频率计权	声校准器频率	声校准器标准值	调校前声级计示值	调校后声级计示值	接受限	结论
	(Hz)	(dB)	(dB)	(dB)	(dB)	Pass/Fail
A	1000	94	93.9	/	93.7 ~ 94.3	Pass

3. 频率计权的声信号实验 （频率：1000Hz/A频率计权）

声压级标准值	声压级指示值	接受限	结论
(dB)	(dB)	(dB)	Pass/Fail
44	44.5	43.2 ~ 44.8	Pass
54	53.9	53.2 ~ 54.8	Pass
64	63.8	63.2 ~ 64.8	Pass
74	73.8	73.2 ~ 74.8	Pass
84	83.8	83.2 ~ 84.8	Pass
94	93.7	93.2 ~ 94.8	Pass
104	103.8	103.2 ~ 104.8	Pass
114	114.2	113.2 ~ 114.8	Pass

4. 本机自生噪音

测试类型	频率计权	实测值（dB）
声信号	A	34.8
电信号	A	34.2
	C	40.2
	Z	42.5

5. 级线性（1dB ~ 10dB内变化）： 起始点指示声级 90 dB

频率	测量项目	实测值	接受限	结论
(Hz)	----	(dB)	(dB)	Pass/Fail
1000	起始点以上每间隔10dB最大偏差	+0.1	± 0.3	Pass
	起始点以下每间隔10dB最大偏差	+0.2	± 0.3	Pass
	距上限5dB内每隔1dB最大偏差	0.0	± 0.3	Pass
	距下限5dB内每隔1dB最大偏差	+0.2	± 0.3	Pass
8000	起始点以上每间隔10dB最大偏差	+0.1	± 0.3	Pass
	起始点以下每间隔10dB最大偏差	+0.3	± 0.3	Pass
	距上限5dB内每隔1dB最大偏差	0.0	± 0.3	Pass
	距下限5dB内每隔1dB最大偏差	+0.2	± 0.3	Pass

校准结果

Results of calibration

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6. 频率计权

频率 (Hz)	A计权标准值 (dB)	声压级指示值 (dB)	接受限 (dB)	结论 Pass/Fail
20	-50.5	-50.6	-48.5 ~ -52.5	Pass
31.5	-39.4	-39.8	-37.9 ~ -40.9	Pass
63	-26.2	-26.5	-25.2 ~ -27.2	Pass
125	-16.1	-16.6	-15.1 ~ -17.1	Pass
250	-8.6	-8.8	-7.6 ~ -9.6	Pass
500	-3.2	-3.6	-2.2 ~ -4.2	Pass
1000	0.0	0.0	+0.7 ~ -0.7	Pass
2000	+1.2	+1.2	+2.2 ~ +0.2	Pass
4000	+1.0	+1.1	+2.0 ~ 0.0	Pass
8000	-1.1	-1.2	+0.4 ~ -3.6	Pass
16000	-6.6	-6.9	-4.1 ~ -22.6	Pass
20000	-9.3	-10.9	-6.3 ~ -∞	Pass

频率 (Hz)	C计权标准值 (dB)	声压级指示值 (dB)	接受限 (dB)	结论 Pass/Fail
20	-6.2	-6.0	-4.2 ~ -8.2	Pass
31.5	-3.0	-3.2	-1.5 ~ -4.5	Pass
63	-0.8	-0.9	+0.2 ~ -1.8	Pass
125	-0.2	-0.2	+0.8 ~ -1.2	Pass
250	0.0	0.0	+1.0 ~ -1.0	Pass
500	0.0	0.0	+1.0 ~ -1.0	Pass
1000	0.0	0.0	+0.7 ~ -0.7	Pass
2000	-0.2	-0.1	+0.8 ~ -1.2	Pass
4000	-0.8	-0.9	+0.2 ~ -1.8	Pass
8000	-3.0	-3.2	-1.5 ~ -4.5	Pass
16000	-8.5	-9.2	-6.0 ~ -24.5	Pass
20000	-11.2	-11.6	-8.2 ~ -∞	Pass

校准结果

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频率 (Hz)	Z计权标准值 (dB)	声压级指示值 (dB)	接受限 (dB)	结论 Pass/Fail
20	0.0	−0.1	+2.0 ~ −2.0	Pass
31.5	0.0	0.0	+1.5 ~ −1.5	Pass
63	0.0	0.0	+1.5 ~ −1.5	Pass
125	0.0	0.0	+1.0 ~ −1.0	Pass
250	0.0	0.0	+1.0 ~ −1.0	Pass
500	0.0	0.0	+1.0 ~ −1.0	Pass
1000	0.0	0.0	+0.7 ~ −0.7	Pass
2000	0.0	0.0	+1.0 ~ −1.0	Pass
4000	0.0	0.0	+1.0 ~ −1.0	Pass
8000	0.0	−0.2	+1.5 ~ −2.5	Pass
16000	0.0	−0.3	+2.5 ~ −16.0	Pass
20000	0.0	−0.2	+3.0 ~ −∞	Pass

7. 1kHz处的频率计权

A计权参考声级 (dB)	C频率计权相对A频率计权的偏差 (dB)	Z频率计权相对A频率计权的偏差 (dB)	结论 Pass/Fail	接受限 (dB)
94	−0.1	0.0	Pass	± 0.2

8. F和S时间计权

衰减速率 (dB/s)	实测值 (dB/s)	接受限 (dB/s)	结论 Pass/Fail
快（F）计权	32.2	31.0 ~ 38.5	Pass
慢（S）计权	4.9	3.6 ~ 5.1	Pass

9. 猝发音响应（A计权）

猝发音持续时间 (ms)	(LAFmax−LA)标准值 (dB)	(LAFmax−LA)指示值 (dB)	接受限 (dB)	结论 Pass/Fail
200	−1.0	−1.0	−0.5 ~ −1.5	Pass
2	−18.0	−18.2	−17.0 ~ −18.5	Pass
0.25	−27.0	−27.1	−26.0 ~ −30.0	Pass
猝发音持续时间 (ms)	(LASmax−LA)标准值 (dB)	(LSFmax−LA)指示值 (dB)	接受限(dB) (dB)	结论 Pass/Fail
200	−7.4	−7.5	−6.9 ~ −7.9	Pass
2	−27.0	−27.0	−26.0 ~ −30.0	Pass

校准结果

Results of calibration

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注：仪器配传声器型号： AWA14425 ，传声器编号： H-41633
本次校准结果的扩展不确定度为：
Expanded uncertainty of measurement:
声信号：20Hz～200Hz，U= 0.5 dB，k=2； 250Hz～400Hz，U= 0.4 dB，k=2； 500Hz～1250Hz，U= 0.4 dB，k=2； 1600Hz～10000Hz，U= 0.6 dB，k=2； 12.5kHz~20kHz，U= 1.0 dB；
正弦电信号：（0～140）dB，（20～20000）Hz，U= 0.3 dB，k=2；
猝发音电信号：（0～140）dB，（1000～8000）Hz，(0.25～1000)ms U= 0.3 dB，k=2；
时间计权 F 和 S： F:(25～40)dB/s，U= 3.2 dB/s，k=2； S:(1～10)dB/s，U= 0.3 dB/s，k=2。

备注：
Notes

1. 依据JJF1059.1-2012测量不确定度评定与表示。
   According to JJF1059.1-2012 Evaluation and Expression of Uncertainty in Measurement.
2. 校准项目符合1级技术要求。
   The calibrated measurand are accord with class 1 technical specifications.

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