AECOM Asia Company Limited
Tisch TSP Mass Flow Controlled High Volume Air Sampler
Field Calibration Report

Station	Block B, Merit Industrial Centre (E-A14a)	Operator:	Shum Kam Yuen
Cal. Date:	24/6/2025	Next Due Date:	24/8/2025
Model No.:	TE-5170	Serial No.	10280
Equipment No.:	A-001-15T		

Ambient Condition			
Temperature, Ta (K)	304.0	Pressure, Pa (mmHg)	766.8

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	2.00986	Intercept, bc	-0.0218
Last Calibration Date:	7-Jan-25	**mc x Qstd + bc = [H x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	7-Jan-26				

.

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	7.4	2.71	1.36	47.0	46.74
13	6.4	2.52	1.26	42.0	41.77
10	5.2	2.27	1.14	36.0	35.80
7	4.2	2.04	1.02	32.0	31.82
5	3.2	1.78	0.90	25.0	24.86

By Linear Regression of Y on X

Slope , mw = **46.2951** **Intercept, bw =** **-16.3876**

Correlation Coefficient* = **0.9981**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

From the Regression Equation, the "Y" value according to

mw x Qstd + bw = IC x [(Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]$^{1/2}$= **44.04**

Remarks:

AECOM Asia Company Limited
Tisch TSP Mass Flow Controlled High Volume Air Sampler
Field Calibration Report

Station	Block B, Merit Industrial Centre (E-A14a)	Operator:	Shum Kam Yuen
Cal. Date:	22/8/2025	Next Due Date:	22/10/2025
Model No.:	TE-5170	Serial No.	10280
Equipment No.:	A-001-15T		

Ambient Condition			
Temperature, Ta (K)	303.0	Pressure, Pa (mmHg)	766.1

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	2.00986	Intercept, bc	-0.0218
Last Calibration Date:	7-Jan-25	**mc x Qstd + bc = [H x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	7-Jan-26				

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	7.4	2.71	1.36	47.0	46.80
13	6.4	2.52	1.26	42.0	41.82
10	5.2	2.27	1.14	36.0	35.84
7	4.3	2.06	1.04	32.0	31.86
5	3.3	1.81	0.91	25.0	24.89

By Linear Regression of Y on X

Slope , mw = **47.9722** **Intercept, bw =** **-18.5610**

Correlation Coefficient* = **0.9989**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

From the Regression Equation, the "Y" value according to

mw x Qstd + bw = IC x [(Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]$^{1/2}$= **43.99**

Remarks:

QC Reviewer: WS CHAN Signature: Date: 22/8/2025

TISCH Environmental

RECALIBRATION DUE DATE:
January 7, 2026

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	January 7, 2025	**Rootsmeter S/N:** 438320	**Ta:** 293	°K
Operator:	Jim Tisch		**Pa:** 759.0	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **0843**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4050	3.2	2.00
2	3	4	1	0.9940	6.4	4.00
3	5	6	1	0.8870	7.9	5.00
4	7	8	1	0.8460	8.7	5.50
5	9	10	1	0.6990	12.7	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)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0114	0.7198	1.4252	0.9958	0.7087	0.8787
1.0071	1.0132	2.0156	0.9916	0.9976	1.2427
1.0051	1.1331	2.2535	0.9896	1.1157	1.3893
1.0040	1.1868	2.3635	0.9885	1.1685	1.4572
0.9987	1.4287	2.8505	0.9833	1.4067	1.7574
QSTD	**m=**	**2.00986**	**QA**	**m=**	**1.25854**
	b=	**-0.02180**		**b=**	**-0.01344**
	r=	**1.00000**		**r=**	**1.00000**

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

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

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.11a
Sensitivity Adjustment Scale Setting:	799 CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	5008
Last Calibration Date:	27-Jun-24

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration):	799	CPM
Sensitivity Adjustment Scale Setting (After Calibration):	799	CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	09/08/24	9:00-10:00	33.0	76	0.1280	5150	85.83
2	09/08/24	10:20-11:20	33.0	76	0.0615	2645	44.08
3	09/08/24	13:00-14:00	33.0	76	0.1590	5945	99.08

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X

Slope (K-factor):	0.0015
Correlation coefficient:	0.9978

Validity of Calibration Record: 9-Aug-25

Remarks:

QC Reviewer: Y.W. Fung Signature: Date: 9-Aug-24

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.11a
Sensitivity Adjustment Scale Setting:	799 CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	5008
Last Calibration Date:	24-Feb-25

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration):	799	CPM
Sensitivity Adjustment Scale Setting (After Calibration):	799	CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	07/08/25	9:00-10:00	31.0	57	0.0687	2610	43.50
2	07/08/25	10:21-11:21	31.0	57	0.0441	1761	29.35
3	07/08/25	13:00-14:00	31.0	57	0.0415	1732	28.87

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X

Slope (K-factor):	0.0015
Correlation coefficient:	0.9985

Validity of Calibration Record: 7-Aug-26

Remarks:

QC Reviewer: Y.W. Fung Signature: Date: 7-Aug-25

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3B
Equipment No.:	A.005.13a
Sensitivity Adjustment Scale Setting:	643 CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	5008
Last Calibration Date:	27-Jun-24

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration):	643	CPM
Sensitivity Adjustment Scale Setting (After Calibration):	643	CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	09/08/24	9:00-10:00	33.0	76	0.128	5325	88.75
2	09/08/24	10:20-11:20	33.0	76	0.062	2650	44.17
3	09/08/24	13:00-14:00	33.0	76	0.159	6120	102.00

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X

Slope (K-factor):	0.0015
Correlation coefficient:	0.9981

Validity of Calibration Record: 9-Aug-25

Remarks:

QC Reviewer: Y.W. Fung Signature:  Date: 9-Aug-24

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3B
Equipment No.:	A.005.13a
Sensitivity Adjustment Scale Setting:	643 CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	5008
Last Calibration Date:	24-Feb-25

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration):	643	CPM
Sensitivity Adjustment Scale Setting (After Calibration):	643	CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	07/08/25	9:00-10:00	31.0	57	0.0687	2640	44.00
2	07/08/25	10:21-11:21	31.0	57	0.0441	1785	29.75
3	07/08/25	13:00-14:00	31.0	57	0.0415	1744	29.07

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X

Slope (K-factor):	0.0015
Correlation coefficient:	0.9986

Validity of Calibration Record: 7-Aug-26

Remarks:

QC Reviewer: Y.W. Fung Signature:  Date: 7-Aug-25

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3B
Equipment No.:	A.005.16a
Sensitivity Adjustment Scale Setting:	521 CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	5008
Last Calibration Date:	27-Jun-24

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration):	521	CPM
Sensitivity Adjustment Scale Setting (After Calibration):	521	CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	09/08/24	9:00-10:00	33.0	76	0.128	5110	85.17
2	09/08/24	10:20-11:20	33.0	76	0.062	2645	44.08
3	09/08/24	13:00-14:00	33.0	76	0.159	5942	99.03

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X

Slope (K-factor):	0.0015
Correlation coefficient:	0.998

Validity of Calibration Record: 9-Aug-25

Remarks:

QC Reviewer: Y.W. Fung Signature:  Date: 9-Aug-24

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3B
Equipment No.:	A.005.16a
Sensitivity Adjustment Scale Setting:	521 CPM
Operator:	WS CHAN

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Ma Wan Chung Village
Model No.:	TE-5170
Serial No.:	5008
Last Calibration Date:	24-Feb-25

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration):	521	CPM
Sensitivity Adjustment Scale Setting (After Calibration):	521	CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	07/08/25	9:00-10:00	31.0	57	0.0687	2574	42.90
2	07/08/25	10:21-11:21	31.0	57	0.0441	1740	29.00
3	07/08/25	13:00-14:00	31.0	57	0.0415	1708	28.47

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X

Slope (K-factor):	0.0015
Correlation coefficient:	0.9985

Validity of Calibration Record: 7-Aug-26

Remarks:

QC Reviewer: Y.W. Fung Signature:  Date: 7-Aug-25

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 24CA1031 03-04 **Page:** 1 of 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	MVI
Type/Model No.:	CAL21
Serial/Equipment No.:	34113610(2011) / N.004.11
Adaptors used:	Yes (BAC21)

Item submitted by

Curstomer:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	31-Oct-2024

Date of test: 06-Nov-2024

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	3257888	30-Jul-2025	SCL
Preamplifier	B&K 2673	3353200	29-Jun-2025	CEPREI
Measuring amplifier	B&K 2610	2346941	27-Jun-2025	CEPREI
Signal generator	DS 360	33873	06-Mar-2025	CEPREI
Digital multi-meter	34401A	US36087050	20-Jun-2025	CEPREI
Audio analyzer	8903B	GB41300350	19-Jun-2025	CEPREI
Universal counter	53132A	MY40003662	26-Jun-2025	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Feng Junqi **Date:** 07-Nov-2024 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 25CA0408 03-03 **Page:** 1 of 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Rion Co., Ltd.
Type/Model No.:	NC-74
Serial/Equipment No.:	34246490
Adaptors used:	-

Item submitted by

Curstomer:	AECOM
Address of Customer:	-
Request No.:	-
Date of receipt:	08-Apr-2025

Date of test: 10-Apr-2025

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	3257888	30-Jul-2025	SCL
Preamplifier	B&K 2673	3353200	29-Jun-2025	CEPREI
Measuring amplifier	B&K 2610	2346941	27-Jun-2025	CEPREI
Signal generator	DS 360	61227	24-Feb-2026	CEPREI
Digital multi-meter	34401A	US36087050	20-Jun-2025	CEPREI
Audio analyzer	8903B	GB41300350	19-Jun-2025	CEPREI
Universal counter	53132A	MY40003662	26-Jun-2025	CEPREI

Ambient conditions

Temperature:	(20.8~21.3) °C
Relative humidity:	(55 ± 10) %
Air pressure:	(1010 ± 5) hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Feng Junqi **Date:** 11-Apr-2025 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 25CA0416 02-02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	B & K
Type/Model No.:	4231
Serial/Equipment No.:	3006428
Adaptors used:	-

Item submitted by

Curstomer:	AECOM
Address of Customer:	-
Request No.:	-
Date of receipt:	16-Apr-2025

Date of test: 30-Apr-2025

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	3257888	30-Jul-2025	SCL
Preamplifier	B&K 2673	3353200	29-Jun-2025	CEPREI
Measuring amplifier	B&K 2610	2346941	27-Jun-2025	CEPREI
Signal generator	DS 360	61227	24-Feb-2026	CEPREI
Digital multi-meter	34401A	US36087050	22-Apr-2026	CEPREI
Audio analyzer	8903B	GB41300350	19-Jun-2025	CEPREI
Universal counter	53132A	MY40003662	26-Jun-2025	CEPREI

Ambient conditions

Temperature:	(20.7~20.9)°C
Relative humidity:	(56.6~57.2)%RH
Air pressure:	(1010 ± 5) hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Feng Junqi **Date:** 02-May-2025 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 24CA1031 03-01 **Page** 1 **of** 2

Item tested

		Microphone	Preamp
Description:	Sound Level Meter (Class 1)		
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250	4189	ZC0032
Serial/Equipment No.:	3001291 / N011.05	3005374	31351
Adaptors used:	-	-	-

Item submitted by

Customer Name: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 31-Oct-2024

Date of test: 06-Nov-2024

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	28-Aug-2025	CIGISMEC
Signal generator	DS 360	33873	06-Mar-2025	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1005 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 07-Nov-2024 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 24CA1031 03-02 **Page** 1 **of** 2

Item tested

		Microphone	Preamp
Description:	Sound Level Meter (Class 1)		
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2270	4189	ZC0032
Serial/Equipment No.:	3007965	2846461	17965
Adaptors used:	-	-	-

Item submitted by

Customer Name:	AECOM ASIA CO LIMITED
Address of Customer:	-
Request No.:	-
Date of receipt:	31-Oct-2024

Date of test: 06-Nov-2024

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	28-Aug-2025	CIGISMEC
Signal generator	DS 360	33873	06-Mar-2025	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 07-Nov-2024 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 24CA1031 03-03 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Class 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2270	4189	ZC0032
Serial/Equipment No.:	2644597	2879980	29398
Adaptors used:	-	-	-

Item submitted by

Customer Name:	AECOM ASIA CO LIMITED
Address of Customer:	-
Request No.:	-
Date of receipt:	31-Oct-2024

Date of test: 06-Nov-2024

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	28-Aug-2025	CIGISMEC
Signal generator	DS 360	33873	06-Mar-2025	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 07-Nov-2024 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 25CA0408 03-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone	Preamp
Manufacturer:	Nti	,	Nti Andio	Nti Andio
Type/Model No.:	XL2	,	MC230A	MA220
Serial/Equipment No.:	A2A-17788-EO	,	A24645	9087
Adaptors used:	-	,		

Item submitted by

Customer Name:	AECOM
Address of Customer:	-
Request No.:	-
Date of receipt:	08-Apr-2025

Date of test: 09-Apr-2025

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	28-Aug-2025	CIGISMEC
Signal generator	DS 360	61227	24-Feb-2026	CEPREI

Ambient conditions

Temperature:	(21.3~21.8) °C
Relative humidity:	(55 ± 10) %
Air pressure:	(1005 ± 5) hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 10-Apr-2025 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 25CA0408 03-02 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Class 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250-L	4950	ZC0032
Serial/Equipment No.:	2681366	2665582	17190
Adaptors used:	-	-	-

Item submitted by

Customer Name:	AECOM
Address of Customer:	-
Request No.:	-
Date of receipt:	08-Apr-2025

Date of test: 10-Apr-2025

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	28-Aug-2025	CIGISMEC
Signal generator	DS 360	61227	24-Feb-2026	CEPREI

Ambient conditions

Temperature:	(20.8~21.3) °C
Relative humidity:	(55 ± 10) %
Air pressure:	(1010 ± 5) hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 11-Apr-2025 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.