



VOV International Co., Ltd



NEBB Certified Firm  
Reg. No. 3385

VOV International Co., Ltd

**ACOUSTIC POD PERFORMANCE TESTING  
AND CERTIFICATION REPORT**

*for*

**WINTech METAL PROCESSING SDN BHD**

180, Jalan 5, Kompleks Perabot Otak Lempit,  
42700 Banting,  
Selangor, Malaysia.

May 2022



VOV International Co., Ltd



NEBB Certified Firm  
Reg. No. 3385

## ACOUSTIC POD PERFORMANCE TESTING AND CERTIFICATION REPORT

Company : Wintech Metal Processing Sdn Bhd

Facilities : Acoustic Pod

Test Date : 19/05/2022

Report No. : VP/POD/2205550

Certified By : VOV International Co., Ltd

NEBB Certificate : 3385

Tested By : Mohd Shamsul Azman b Tajuddin



VOV International Co., Ltd



NEBB Certified Firm  
Reg. No. 3385

## ACOUSTIC POD PERFORMANCE TESTING AND CERTIFICATION REPORT

The data presented in this report is an exact record of the equipment performance on the day of the test. They are obtained in accordance with the cGMP and the relevant sections of the Institute Of Environmental Science and Technology Recommended Practice, IEST-RP-CC006.3 and the National Environmental Balancing Bureau (NEBB) Procedural Standards for Certified Testing of Cleanrooms

The results and information given are certified to be correct and complete, to the extent possible by the equipment / instrumentation and procedures used.

Report No.:VP/POD/2205550

Test Date :19/05/2022

Submitted & Certified By:  
VOV International Co., Ltd



Choong Heng Chong  
NEBB Cleanroom Performance Testing Supervisor  
Registered : 3385  
Date : 31/05/2022



VOV International Co., Ltd



NEBB Certified Firm  
Reg. No. 3385

## Table Of Contents

- A. Test Procedures
  - i. Airflow Volume, Uniformity & Room Air Change Rates Test
  - ii. Airborne Particle Count Test
  - iii. Procedure for Room Differential Pressure Test
  - iv. Light Intensity Test
  - v. Sound Level Test
  
- B. Instrumentation Used
  
- C. Test Data & Results
  - i. Laminar Flow Bench
  
- D. Appendix
  - (i) NEBB Certificate
  - (ii) Calibration Certificates For Instruments
    - a. Portable Particle Counter
    - b. Multifunction Micromanometer
    - c. Light Meter
    - d. Sound Level Meter

**SECTION A**  
*Test Procedures*





VOV International Co., Ltd



NEBB Certified Firm  
Reg. No. 3385

## Procedure For Airflow Volume, Uniformity & Room Air Change Rates Test

### Purpose

To determine the Airflow Volume, Uniformity and Room Change Rate of the Laminar Flow Equipment.

### Instrument

Electronic Micro-manometer with Flow Hood

### Specification

Testing Condition : Operational

### Procedure

References: IEST-RP-CC006.3 Testing Cleanroom  
: NEBB Procedural Standard for Certified Testing of Cleanrooms

1. Ensure that HVAC system is running the normal mode of operation and that all doors within the suite are closed. To avoid unexpected changes in airflows ensure that no other personnel or traffic are moving throughout the area during the test.
2. Position the airflow hood over the diffuser and observe the measured reading.
3. Record the results.
4. Measure the internal dimensions of each room and calculate the room volume.
5. Total Air Change rate can be calculated using the room volume and total filter airflow volume measured in the room.

$$\text{Air Change Rates per Hour} = \frac{\text{Total Supply Air (m}^3\text{/hour)}}{\text{Room Volume (m}^3\text{)}}$$



VOV International Co., Ltd



NEBB Certified Firm  
Reg. No. 3385

## Procedure for Airborne Particle Count

### Purpose

To measure the airborne particulate level in the Laminar Flow Equipment and to determine the room cleanliness classification as per ISO 14644-1:2015.

### Instrument

Laser Particle Counter with minimum 0.3 micron size channel

### Specification

Testing condition : Operational

Class Limits : ISO Class 7 (Refer Table below)

### Procedure

References: ISO 14644-1:2015

IEST-RP-CC-006.2 Testing Cleanroom

NEBB Procedural Standard for Certified Testing of Cleanrooms

1. This test was conducted after all the other tests have been completed.
2. The Laminar Flow Equipment were purged for at least 12 hours before testing commences.
3. The rooms were divided into test grids as per minimum sampling locations requirement in ISO14644-1:2015.
4. The counter's sample rate was 1 ft<sup>3</sup>/min and the sampling time was set to 1 minute.
5. A minimum of 1 sample was taken at the center of each grid, at height of 1 meter above the floor.
6. When an obstruction was encountered, the sample was taken at 12" above the obstruction.

### ISO 14644-1:2015(E) — ISO Classes of air cleanliness by particle concentration

ISO Class number (N)	Maximum allowable concentrations (particles/m <sup>3</sup> ) for particles equal to and greater than the considered sizes, shown below					
	0,1 µm	0,2 µm	0,3 µm	0,5 µm	1 µm	5 µm
1	10					
2	100	24	10			
3	1 000	237	102	35		
4	10 000	2 370	1 020	352	83	
5	100 000	23 700	10 200	3 520	832	
6	1 000 000	237 000	102 000	35 200	8 320	293
7				352 000	83 200	2 930
8				3 520 000	832 000	29 300
9				35 200 000	8 320 000	293 000



VOV International Co., Ltd



NEBB Certified Firm  
Reg. No. 3385

## Procedure for Room Differential Pressure Test

### Purpose

To determine the capability of the Laminar Flow Equipment system to maintain the specified pressure differential.

### Instrument

Electronic Micromanometer

### Specification

Testing Condition : Operational

### Procedure

References: IEST-RP-CC-006.3 Testing Cleanroom  
: NEBB Procedure Standards for Certified Testing of Cleanrooms

1. Airflow balancing was completed prior to this test.
2. All doors into the laminar flow equipment and the reference areas were closed throughout the duration of the test.
3. The differential pressure between the laminar flow equipment and outside atmosphere is measured and recorded with the meter.





VOV International Co., Ltd



NEBB Certified Firm  
Reg. No. CR 3385

### Procedure for Light Intensity Test

#### Purpose

To determine the light intensity level at working height within the Laminar Flow Equipment.

#### Instrument

Lutron Lux Tester

#### Specification

Testing Condition: Operational

#### Procedure

References: IEST-RP-CC006.3 Testing Cleanroom

1. All fluorescent lighting is to be operated for at least 100 hours to ensure proper "seasoning"
2. Prior to the actual commencement of the test, the lighting have to be operated continuously for at least 2 hours to allow for temperature stabilization.
3. The Laminar Flow Equipment are divided into test grids of no larger than 430 ft<sup>2</sup>.
4. One reading is taken at the center of each grid at a height of 1m above the floor.
5. If there are obstructing equipment, the measurement will be taken at 6" above the obstruction, provided it is still within the entrance plane of the Laminar Flow Equipment.



VOV International Co., Ltd



NEBB Certified Firm  
Reg. No. CR 3385

### Procedure for Sound Pressure Level Test

#### Purpose

To measure the Sound Pressure Level within the Laminar Flow Equipment produced by the basic Laminar Flow Equipment mechanical and electrical systems.

#### Instrument

Sound Level Meter

#### Specification

Testing Condition: Operational

#### Procedure

References : IEST Recommended Practice, IEST-RP-CC006.3 Testing Cleanroom

1. All airflow balancing to be completed prior to this test.
2. All air conditioning equipment was switched on before any readings were taken.
3. The Laminar Flow equipment were divided into test grids of equal area not exceeding 430 ft.
4. The sound level meter is located at the center of the each grid and at 1 m above the floor.
5. The sound pressure level, in dBA, is taken for each location.
6. If there is obstructing equipment or furniture, the measurement will be taken 6" above the obstruction, provided it is still within the entrance plane.
7. The average room sound pressure Level is computed from the arithmetic mean of the data.

**SECTION B**  
*Instrumentation Used*

Instrumentation Used

Company : Wintech Metal Processing Sdn Bhd

Report No. : VP/POD/2205550  
Test Date : 19/05/2022

No.	Equipment	Brand	Model	Serial No.	Application	Calibration Date	Calibration Due Date
1	Portable Particle Counter	Lighthouse	Solair 3100+	080104010	a. Particle Count Sampling	26/07/2021	26/07/2022
2	Electronic Micro Manometer	Alnor	EBT 720	90803010	a. Airflow Volume Test b. Room Pressurization Test	15/02/2022	15/02/2023
3	Light Meter	Center	531	180708579	a. Light Intensity Test	21/02/2022	21/02/2023
4	Sound Level Meter	Lutron	SL-4001	G 54424	a. Sound Pressure Level Test	21/02/2022	21/02/2023

**SECTION C**  
*Test Data & Results*



ACOUSTIC POD  
PERFORMANCE TESTING AND CERTIFICATION REPORT  
WINTech METAL PROCESSING SDN BHD  
TEST REPORT NO. - VP/POD/2205550



Location: Wintech office lobby

Equipment: POD

Manufacturer: Wintech Metal Processing Sdn Bhd

Cabinet Type/ Model No.: Single POD

Serial No.: -

Test Date: 19 May 2022

POD FUNCTIONS

Switches ☒  
Lights ☒  
Indicator bulbs ☒  
Fans ☒

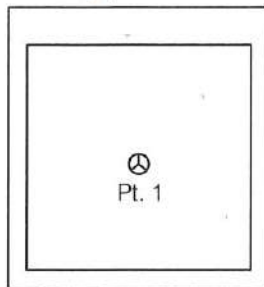
Airflow Volume Rate Test (CMH)

Reading: 131 cmh  
POD Volume : 1.62 m<sup>3</sup>  
POD Airchange/hour : 80.9 ACH

POD Differential Pressure Test (Pascal)

POD with respect to outside : 5 Pascal

Airborne Particle Count Test to ISO 14644-1:2015 (Print out attached)

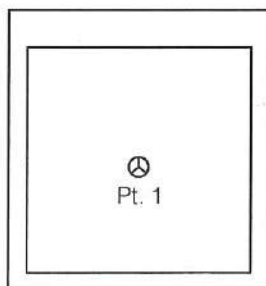


Location Pt. 1	Airborne Particle Count (count/m <sup>3</sup> @ ≥ 0.5μm)	Airborne Particle Count (count/m <sup>3</sup> @ ≥ 0.5μm)
1	261,011	318
2	287,038	1,165
3	283,012	71
Avg.	277,021	518

Specification : ISO 7 Clean Area < 352,000 count /m<sup>3</sup> @ particle size ≥ 0.5 μm

ISO 7 Clean Area < 2,930 count /m<sup>3</sup> @ particle size ≥ 5 μm

Light Intensity Test (Lux)



Pt. 1: 535 Lux  
Recommended Practice : > 500 Lux

Sound Level Test (dBA)

Outside POD: 71.5 dBA

Inside POD: 43.3 dBA

CONCLUSION

In our opinion that at the time of testing, the above unit did conform to relevant Standard and Recommended Practice mentioned above.

Wintech Metal Processing Sdn Bhd

LOCATION : Wintech Office Lobby

REPORT NO. : VP/POD/2205550

Location: WINTech  
19/05/2022, 12:25:17  
Sample Time: 00:01:00  
Flow: 1.0 cfm  
Laser: OK

Particles/ m<sup>3</sup>:  
Size Diff Cuml  
0.3 3536304 3797315  
0.5 213724.3 261010.6  
1.0 46015.0 47286.3  
3.0 953.6 1271.3  
5.0 317.8 317.8

1

Location: WINTech  
19/05/2022, 12:24:00  
Sample Time: 00:01:00  
Flow: 1.0 cfm  
Laser: OK

Particles/ m<sup>3</sup>:  
Size Diff Cuml  
0.3 3722412 4009450  
0.5 228415.2 287037.6  
1.0 56220.9 58622.3  
3.0 1236.0 2401.4  
5.0 1165.4 1165.4

2

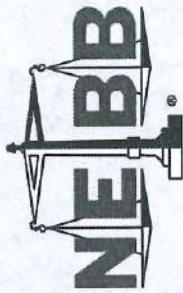
Location: WINTech  
19/05/2022, 12:22:43  
Sample Time: 00:01:00  
Flow: 1.0 cfm  
Laser: OK

Particles/ m<sup>3</sup>:  
Size Diff Cuml  
0.3 3997549 4280561  
0.5 227708.9 283011.7  
1.0 54384.6 55302.8  
3.0 847.6 918.2  
5.0 70.6 70.6

3

**SECTION D**  
*Appendix*





## Firm Certification

**VOV INTERNATIONAL CO., LTD.**

**HAS MET ALL REQUIREMENTS FOR NEBB CERTIFIED  
STATUS IN THE FOLLOWING DISCIPLINE**

***Cleanroom Performance Testing***

**3385**

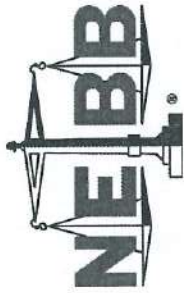
NEBB Certification Number

**March 31, 2023**

Expiration Date

NEBB President

NEBB President-Elect



# Certification

**HENG CHONG CHOONG**

**HAS MET ALL REQUIREMENTS FOR NEBB CERTIFIED PROFESSIONAL  
STATUS IN THE FOLLOWING DISCIPLINE**

## *Cleanroom Performance Testing*

This Certificate, as well as individual affiliation with a NEBB Certified Firm and associated NEBB Certification Stamp are **REQUIRED** to provide a NEBB Certified Report. Participation in the NEBB Quality Assurance Program requires the Certificant be affiliated with a NEBB Certified Firm

**CP-23245**

NEBB Certification Number

**March 31, 2023**

Expiration Date

NEBB President

NEBB President-Elect



---

**Certificate Of Calibration**Laboratory Status : ☒ Permanent ☐ Mobile ☐ Onsite

Customer : VOV (M) Sdn. Bhd.

No. 97, Jalan Tembaga, 11600 Island Park, Pulau Pinang, Malaysia.

Certificate Number : CR210726-0546ST

Date Issue : 26 July 2021

Description of Equipment : Airborne Particle Counter

Model : Solair 3100+

Manufacturer : Lighthouse Worldwide Solutions

Serial Number : 080104010

Control Number : N/A

Receipt Date : 26 July 2021

Calibration Date : 26 July 2021

Calibration Due Date : 26 July 2022

Page Number : 1 of 2

---

This certificate is traceable to national standard, which realize the unit of measurement according to the International System of Unit (SI).

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

Calibration has been accomplished by Sampling flow rate, Size calibration, Size resolution, Counting efficiency and False count rate as defined by ISO 21501-4 : 2007

The identification of laboratory's calibration procedures employed are LB-WI-72-1-1 and LB-WI-76-1-1

---

Calibrated By :  (Mr. Mohd Farid) Calibration TechnicianApproved By :  (Ms. Siti Nurhafidhza) Head of Laboratory

---

This certificate may not be reproduced other than in full except with the prior written approval of the Head of Calibration Laboratory, Lighthouse Worldwide Solutions (M) Sdn. Bhd.

### CALIBRATION REPORT

Certificate number : CR210726-0546ST  
 Model : Solar 3100+  
 Serial Number : 060104010

Instrument name : Airborne Particle Counter  
 Calibration Date : 26 July 2021  
 Calibration Due Date\*\* : 26 July 2022

#### Equipment Standard:

Instrument ID	Model	Serial No.	Due Date	Traceability to	Certificate number
MP-CMM-01	179	40240133	12 May 2022	NIM/NIST/NMC(SG)/NMI/CALTECH	AE21-1347
MP-MCA-01	MCA8000D	01717	18 June 2022	NIM/NIST/NMC(SG)/NPL/NRC/PTB/CALTECH	AE21-1625
MP-FM-02	TSI 4043 H	40431801010	28 August 2021	S/MT	AD2008-221-0001
MP-APC-02	Sofair Transfer Standard	190999002	18 September 2021	NIST/LW/SMFR	44092190999002

Calibration was performed under the following controlled conditions:

Temperature: 10°C - 35°C      Relative Humidity: 30% - 70%

#### Sampling Flow Rate:

Nominal flow rate (LPM)	Measured Flow Rate (LPM)	Error (%)	Limit
28.30	28.34	0.1%	+/- 5%

Specified in section 4.7 of ISO 21501-4:2007

#### Size Calibration:

Channel	Report Size (µm)	Threshold Setting (mV)	As calibrate Particle Size (µm)	Size Error (%) Tolerance (+/-10%)	Uncertainty (+/- µm)	NIST Standard Reference Materials	Standard Particle Size (µm)	Lot Number	Expire Date
1	0.30	44	0.301	0.3%	0.0061	1993, 1991 or 1990	0.303	223077	30 April 2023
2	0.50	455	0.500	0.0%	0.0076	1993, 1991 or 1990	0.510	233547	30 November 202
3	1.00	913	1.000	0.0%	0.032	1990, 1992, 1990 and 1991	1.038	219284	30 November 202
4	3.00	2632	3.000	0.0%	0.26	1990, 1992, 1990 and 1991	2.920	221853	30 March 2023
5	5.00	3512	5.001	0.0%	0.22	1990, 1992, 1990 and 1991	5.020	228192	31 July 2023
6	10.00	4366	10.001	0.0%	0.57	1990, 1992, 1990 and 1991	9.990	218105	31 October 2022

Size Calibration: Specified in section 4.1 of ISO 21501-4:2007

Verify of size setting : Specified in section 4.2 of ISO 21501-4:2007

False Count in 15 minute:      Observed Cts.      0 Count  
 False Count Rate:      7 /M<sup>3</sup>  
 Size Resolution:      Size 0.401 µm:      4.93% (limit < 15%)  
 50% Counting Efficiency:      Size 0.303 µm:      48.57% (limit 30% - 70%)  
 100% Counting Efficiency:      Size 0.51 µm:      129.77% (limit 90% - 110%)

Standard Particle Size (µm)	Lot Number	Expire Date
0.401	211099	30 April 2022
0.303	223077	30 April 2023
0.510	233547	30 November 202

Counting Efficiency: Specified in section 4.3 of ISO 21501-4:2007

Size Resolution: Specified in section 4.4 of ISO 21501-4:2007

False Count Rate: Specified in section 4.5 of ISO 21501-4:2007

\*\*Information specified by customer.

**PROCAL SERVICES SDN. BHD.** (465725-K)

2, Lorong Perda Utama 12, Bandar Perda,  
14000 Bukit Mertajam, Penang, Malaysia.

Tel: 04-5382 802, 5382 803 Fax: 04-5302 804

E-mail: enquiry@procal.com.my Website: www.sendimahir.com



## CERTIFICATE OF CALIBRATION

Certificate No. : PS22354966

Date of Issue : 16 Feb 2022

Issued By : Procal Services Sdn Bhd

Page 1 of 2 Pages



**Customer :** VOV (M) SDN BHD  
97, JALAN TEMBAGA,  
ISLAND PARK  
11600 GELUGOR, PENANG, MALAYSIA.

**Instrument :** Micromanometer

**Calibration Date :** 15 Feb 2022

**Manufacturer :** ALNOR

**Recalibration Date :** 15 Feb 2023

**Model/Type :** EBT 720

**Specified By Customer**

**Serial No :** 90803010

Remark: The user should be aware that any numbers of factors may cause this instrument to drift out of calibration before the specified calibration interval has expired.

**Capacity :** -

**Resolution :** 0.01, 0.1, 1 Pa

**Calibration Environment Condition:**

**Condition Upon Receiving :** - Good in Physical Condition

**Temperature :** 22.5 to 23.4 °C

**Relative Humidity :** 54 to 58 %rh

**Condition Upon Returning :** The instrument has been calibrated. Refer calibration results for detail.

**Calibration Method :** Internal Calibration Procedure(s) CM F008P

**Calibration Venue :** This Instrument has been calibrated at company as above

**Calibration Result :** The result as following page(s). The expanded uncertainties are based on an estimated confidence probability of approximately at 95% and have a coverage factor of k=2 unless stated otherwise.

**Reference Standard(s) Used :**

Reference Standard Name	Serial No	Calibration Due Date	Traceable To
PRESSURE METER	PL241	01 Oct 2023	NMIM(MY)

Calibrated By:

Jasmizal

Approved Signatory:

S.L. Chan

This certificate is issued in accordance with the conditions of accreditation granted by the SAMM which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realised at the corresponding national standards laboratory. The results of calibration performed by Procal Services Sdn. Bhd. apply to the particular equipment at the time of its test. They do not indicate or imply that Procal Services Sdn. Bhd. approves, recommends or endorses the manufacturers or suppliers or users of such equipment that Procal Services Sdn. Bhd. in any way guarantees the equipment's performance after calibration. Test calibrations marked "Not SAMM Accredited" in this report/certificate are not included in the SAMM Accreditation Schedule of our laboratory. Opinions and interpretations expressed herein are outside the scope of SAMM accreditation. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced other than in full except with the prior written approval of the Head of the issuing laboratory.





**PROCAL SERVICES SDN. BHD.** (465725-K)

2, Lorong Perda Utama 12, Bandar Perda,

14000 Bukit Mertajam, Penang, Malaysia.

Tel: 04-5382 802, 5382 803 Fax: 04-5302 804

E-mail: enquiry@procal.com.my Website: www.sendimahir.com



## CERTIFICATE OF CALIBRATION

Certificate Number : PS22354966

Page 2 of 2 pages

### Technical Information

Calibration Range : 0 to 3000 Pa

Resolution : 0.01, 0.1, 1 Pa

Readability : 0.01, 0.1, 1 Pa

Customer Tolerance : N/A

### Calibration Results :-

Unit : Pa

Indicated Pressure	Reference Value		Correction (Before adjustment)		Correction (After adjustment)	
	Increasing	Decreasing	Increasing	Decreasing	Increasing	Decreasing
5	5.00	5.00	0.00	0.00	No adj.	No adj.
20	20.0	20.0	0.0	0.0	No adj.	No adj.
50	50.0	50.0	0.0	0.0	No adj.	No adj.
500	501	501	1	1	No adj.	No adj.
1500	1501	1501	1	1	No adj.	No adj.
3000	3002	3002	2	2	No adj.	No adj.

Remark : 1) Reference Value - Indicated Pressure / Vacuum = Correction

Measurement Uncertainty :  $\pm$  1 Pa



# PROCAL SERVICES SDN. BHD. (465725-K)

2, Lorong Perda Utama 12, Bandar Perda,  
14000 Bukit Mertajam, Penang, Malaysia.  
Tel: 04-5382 802, 5382 803 Fax: 04-5302 804  
E-mail: enquiry@procal.com.my Website: www.sendimahir.com

## CERTIFICATE OF CALIBRATION

Certificate No. : PS22356006

Date of Issue : 22 Feb 2022

Issued By : Procal Services Sdn Bhd

Page 1 of 2 Pages



Customer : VOY (M) SDN BHD  
97, JALAN TEMBAGA,  
ISLAND PARK  
11600 GELUGOR, PENANG, MALAYSIA.

Instrument : Lux Meter

Calibration Date : 21 Feb 2022

Manufacturer : CENTER

Recalibration Date : 21 Feb 2023

Model/Type : 531

Specified By Customer

Serial No : 180708579

Remark : The user should be aware that any numbers of factors may cause this instrument to drift out of calibration before the specified calibration interval has expired.

Capacity : -

Resolution : 0.1, 1lux

Calibration Environment Condition:

Condition Upon Receiving : Good in Physical Condition

Temperature : 21.2 to 21.3 °C

Condition Upon Returning : The instrument has been calibrated. Refer calibration results for detail.

Relative Humidity : 51 to 52 %rh

Calibration Method : Internal Calibration Procedure(s) CM 1001

Calibration Venue : This Instrument has been calibrated at Procal Services Sdn Bhd

Calibration Result : The result as following page(s). The expanded uncertainties are based on an estimated confidence probability of approximately at 95% and have a coverage factor of k=2 unless stated otherwise.

### Reference Standard(s) Used :

Reference Standard Name	Serial No	Calibration Due Date	Traceable To
LIGHT METER	PL185	03 Dec 2022	NMIM(MY)

Calibrated By:

Jasmizal

Approved Signatory:

S.L. Chan

The Calibration work is outside the scope of SAMM Accreditation and has been performed in accordance with the laboratory approved procedure. The reference standard used has traceable to NATIONAL BODY or INTERNATIONAL BODY. The results of calibration performed by Procal Services Sdn. Bhd. apply to the particular equipment at the time of its test. They do not indicate or imply that Procal Services Sdn. Bhd. approves, recommends or endorses the manufacturers or suppliers or users of such equipment that Procal Services Sdn. Bhd. in any way guarantees the equipment's performance after calibration. Test/calibrations marked "Not SAMM Accredited" in this report/certificate are not included in the SAMM Accreditation Schedule of our laboratory. Opinions and interpretations expressed herein are outside the scope of SAMM accreditation. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced other than in full except with the prior written approval of the Head of the issuing laboratory.



**PROCAL SERVICES SDN. BHD.** (465725-K)

2, Lorong Perda Utama 12, Bandar Perda,

14000 Bukit Mertajam, Penang, Malaysia.

Tel: 04-5382 802, 5382 803 Fax: 04-5302 804

E-mail: enquiry@procal.com.my Website: www.sendimahir.com

**CERTIFICATE OF CALIBRATION**

Certificate Number : PS22356006

Page 2 of 2 pages

**Calibration Results**

Range	Nominal Value	Unit of Measurement: Lux
		Instrument Reading
200	50	50.1
	100	100.2
	150	150.5
2000	500	151
	1000	1003
	1500	1508

Measurement Uncertainty :  $\pm 3.5\%$  of reading

**PROCAL SERVICES SDN. BHD.** (465725-K)

2, Lorong Perda Utama 12, Bandar Perda,

14000 Bukit Mertajam, Penang, Malaysia.

Tel: 04-5382 802, 5382 803 Fax: 04-5302 804

E-mail: enquiry@procal.com.my Website: www.sendimahir.com

**CERTIFICATE OF CALIBRATION**

Certificate No. : PS22356004

Date of Issue : 22 Feb 2022

Issued By : Procal Services Sdn Bhd

Page 1 of 2 Pages



**Customer** : VOV (M) SDN BHD  
97, JALAN TEMBAGA,  
ISLAND PARK  
11600 GELUGOR, PENANG, MALAYSIA.

**Instrument** : Sound Level Meter**Calibration Date** : 21 Feb 2022**Manufacturer** : Lutron**Recalibration Date** : 21 Feb 2023**Model/Type** : SL-4001**Specified By Customer****Serial No** : G54424

Remark : The user should be aware that any numbers of factors may cause this instrument to drift out of calibration before the specified calibration interval has expired.

**Capacity** : Max. 130 dB**Resolution** : 0.1 dB**Calibration Environment Condition:****Condition Upon Receiving** : Good in Physical Condition**Temperature** : 20.1 to 20.2 °C**Relative Humidity** : 53 to 54 %rh**Condition Upon Returning** : Calibrated and Tested Serviceable.**Calibration Method** : Internal Calibration Procedure(s) CM A001**Calibration Venue** : This Instrument has been calibrated at Procal Services Sdn Bhd**Calibration Result** : The result as following page(s). The expanded uncertainties are based on an estimated confidence probability of approximately at 95% and have a coverage factor of k=2 unless stated otherwise.**Reference Standard(s) Used :**

Reference Standard Name	Serial No	Calibration Due Date	Traceable To
SOUND LEVEL CALIBRATOR	PL214	20 Sep 2022	NMIM(MY)

Calibrated By:

Siti Asmahanim

Approved Signatory:

S.L. Chan

The Calibration work is outside the scope of SAMM Accreditation and has been performed in accordance with the laboratory approved procedure. The reference standard used has traceable to NATIONAL BODY or INTERNATIONAL BODY. The results of calibration performed by Procal Services Sdn. Bhd. apply to the particular equipment at the time of its test. They do not indicate or imply that Procal Services Sdn. Bhd. approves, recommends or endorses the manufacturers or suppliers or users of such equipment that Procal Services Sdn. Bhd. in any way guarantees the equipment's performance after calibration. Test/calibrations marked "Not SAMM Accredited" in this report/certificate are not included in the SAMM Accreditation Schedule of our laboratory. Opinions and interpretations expressed herein are outside the scope of SAMM accreditation. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced other than in full except with the prior written approval of the Head of the issuing laboratory.

**PROCAL SERVICES SDN. BHD.** (465725-K)

2, Lorong Perda Utama 12, Bandar Perda,

14000 Bukit Mertajam, Penang, Malaysia.

Tel: 04-5382 802, 5382 803 Fax: 04-5302 804

E-mail: enquiry@procal.com.my Website: www.sendimahir.com

## CERTIFICATE OF CALIBRATION

Certificate Number : PS22356004

Page: 2 of 2 pages

**Technical Information**

Calibration Range: 94.0 &amp; 114.0 dB

Resolution: 0.1dB

Unit of Measurement: dB (Otherwise stated)

Readability: 0.1dB

**Calibration Results**

Nominal Value	Measured Value	
	Before Adjustment	After Adjustment
94.0	97.6	94.0
114.0	117.4	113.6

Uncertainty :  $\pm$  1 dB